Pueblo of Isleta

Wildland Fire Management Plan

Bureau of Indian Affairs – Southern Pueblos Agency

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Pueblo of Isleta

Wildland Fire Management Plan

Approvals and Concurrence

Prepared by:	_____	_____
	Forester, BIA, Southern Pueblos Agency	Date
Concurrence by:	_____	_____
	Fire Management Officer, BIA, Southern Pueblos Agency	Date
Concurrence by:	_____	_____
	Superintendent, BIA, Southern Pueblos Agency	Date
Concurrence by:	_____	_____
	Fire Management Officer BIA, Southwest Regional Office	Date
Approved by:	_____	_____
	Governor, Pueblo of Isleta	Date
Approved by:	_____	_____
	Regional Director BIA, Southwest Regional Office	Date

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Bureau of Indian Affairs

Southern Pueblos Agency

Pueblo of Isleta, State Code #49 - Unit #705

Wildland Fire Management Plan

Within

Southwest Region

Division of Forestry and Fire Management

Bureau of Indian Affairs, Southwest Regional Office
1001 Indian School Road NW
Albuquerque, New Mexico 87104
Office number: (505) 563-3655

1. Introduction

1.1 Purpose for Developing a Wildland Fire Management Plan

The Departmental Manual Indian Affairs Manual Part 90 and the Federal Fire Policy require a Wildland Fire Management Plan (WFMP) for all areas with burnable vegetation. The WFMP defines and documents an organization's program to manage wildland fire. Each tribe will have an approved WFMP in place.

The WFMP has been written to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo of Isleta (Pueblo).

As with most other land management agencies, wildland fires have grown in size, intensity, and frequency over the last 20 to 30 years. Fire exclusion, which has led to uncharacteristically high fuel loadings, is one of the primary factors responsible for this change. This increased size, intensity and frequency has resulted in greater threats to human life and property. More people are building homes adjacent to wildlands and increasing development is occurring on Tribal lands with increased exposure for those homes and developments along with an increased risk of human caused ignitions. This uncharacteristically high fire intensity causes undesirable effects to the composition and structure of forest lands, rangeland vegetation, and threats to cultural resources.

While the suppression of unwanted wildland fires will continue, additional options are available to address ways to help achieve the desired conditions detailed in the *Pueblo of Isleta, Interim Forest Management Plan, 2014*. The responsible and appropriate use of fire, including prescribed fire and managing fire for resource benefit, in addition to non-fire fuel treatments across a landscape-scale, will be incorporated to help reduce hazardous fuels and sustain wildland ecosystems into the future.

The Bureau of Indian Affairs (BIA) programs often directly fund or undertake a variety of actions that require National Environmental Policy Act (NEPA) compliance. These actions are described in Fire Management Plans, Forest Management Plans, Integrated Resource Management Plans, Range Unit

Management Plans and Agriculture Resources Management Plans. Sometimes these plans are prepared directly by the BIA and other times they are in partnership with tribes or written directly by tribes with funding provided through the BIA. The majority of activities occur through Federal funding or requires approval through the BIA. The responsibility for complying with NEPA generally falls to the BIA. However, NEPA applies to every office and program within Indian Affairs (IA), and compliance lies within the office with the direct responsibility to fund, develop or approve a proposal or action.

The WFMP is a strategic document that contains operational direction designed to guide a full range of fire management activities on a unit or area supported by existing land management plans. The WFMP normally is a supplement of a Forest or Resource Management Plan, remaining in force for a predetermined period or until conditions change on the ground, in the Management Plan, or in strategic direction or policy. Changes in operations or procedures can be updated as often as necessary (annually for example) on the maps or in supplemental plans without requiring revision of the WFMP.

The WFMP is the first step in meeting fire management responsibilities, supplemented by the *Interagency Standards for Fire and Fire Aviation Operations* (the Red Book). The Red Book provides guidance pertaining to the following elements of the Federal Wildland Fire Policy: wildland firefighter safety; ecosystem sustainability; response to wildland fire; use of wildland fire; stabilization and rehabilitation; protection priorities; Wildland Urban Interface (WUI); planning; science; preparedness; suppression; prevention; standardization; interagency cooperation and coordination; communication and education; agency administrator and employee roles; and evaluation.

Authorities for the development of the WFMP are listed in the Department of Interior (DOI) Departmental Manual Part 620: Wildland Fire Management (See Appendix C). The Red Book documents and summarizes authorities, policies, and responsibilities.

Mission Statement of the Bureau of Indian Affairs: To enhance the quality of life, to promote economic opportunity, and to carry out the responsibilities to improve and protect the trust assets of American Indians, American Indian Tribes, and Alaska Natives. We will accomplish this through the delivery of quality services and maintaining government to government relationships within the spirit of self-determination.

1.2 Developing the Wildland Fire Management Plan

The purpose of the WFMP is to identify strategies and integrate all wildland fire management guidance required to implement national fire policy and fire management direction. This WFMP and the associated Annual Operating Plan (AOP) incorporate strategies that allow fire to be restored as an integral part of ecosystems to meet resource management objectives while protecting values at risk: human life, property and resources. The poster-sized maps accompanying this WFMP enable management direction to be easily accessible by fire and resource personnel, especially during emergency situations.

The WFMP was developed with input from the Pueblo, the Bureau of Indian Affairs, Southwest Region Division of Forestry and Wildland Fire Management, the Bureau of Indian Affairs, Southern Pueblos Agency Branch of Forestry and Wildland Fire Management.

The WFMP identifies and references appropriate planning documents that support and detail specific elements of the program.

The WFMP is designed to identify and integrate all wildland fire management and related activities within existing and approved land management plans. Wildland Fire Management (WFM) goals and components should be coordinated across administrative boundaries on a landscape basis. Bureau and Tribal fire management decisions must be consistent or compatible across administrative lines.

All Federal WFM Agency Directors signed the updated Interagency Fire Management Plan template on April 9, 2009. It directs agencies to develop a collaborative approach to working cooperatively in developing an interagency WFMP. The 2009 WFMP template is the approved content.

The WFMP will evolve over time as new information becomes available, conditions change on the ground such as: (1) wildfires that decimate a part or all of a reservation, (2) insect outbreaks that decimate a part or all of the timber on a reservation, (3) an administrative change such as the Federal Government stating that there will be an acceleration in the allowable cut or the opposite, (4) some sort of a natural disaster (tornado, hurricane, windstorm, etc.) that causes a major disruption of normal operations, in which the BIA and/or the Tribe no longer concur that an existing management plan covers the current condition and/or changes are made to Management Plans.

1.3 General Description of the Pueblo of Isleta Tribal Lands

The Pueblo of Isleta Tribal Lands encompasses approximately 301,272 acres within Valencia, Bernalillo, Socorro, and Torrance Counties, New Mexico. The tribal headquarters offices are located in the Village of Isleta Pueblo, New Mexico. The Pueblo of Isleta is a federally recognized Indian Tribe with a written constitution adopted pursuant to the Indian Reorganization Act and with inherent powers of self-government. The Pueblo is governed by a Governor and Tribal Council made up of elected representatives who act in accordance with the Pueblo of Isleta Tribal Constitution (Constitution). The Constitution authorizes the Tribal Council to enact ordinances to protect the peace, safety, property, health, and welfare of the members of the Pueblo, and to otherwise manage and control the lands and resources of the Pueblo for the best interest of the Pueblo. The Governor is authorized by the Constitution to direct and administer the civil affairs of the Pueblo in conformity with applicable ordinances, procedures, and policies enacted by the Tribal Council (POI, 2020).

A map depicting reservation lands is included in the Appendix (H).

A general description of the existing conditions are included in the following documents:

- Pueblo of Isleta, Interim Forest Management Plan, 2014
- Environmental Assessment for the Forest Management Plan, 2014
- Southern Pueblos Agency Wildfire Prevention Plan, 2014 – 2023
- Pueblo of Isleta Range Grazing Management Regulations, 2015
- Results of 2009 Range Vegetation Survey for the Isleta Reservation, 2009

- Pueblo of Isleta Surface Water Quality Standards
- Pueblo of Isleta Bosque and Riverine Restoration and Implementation Plan, March 2019
- Pueblo of Isleta Amended Riverine Management Plan, May 2014
- Isleta Pueblo Bosque Noxious Weed Management Plan, November 2007
- Isleta Island Removal Project Monitoring and Adaptive Management Plan, 2017

Description of the Region

The United States Department of Interior, BIA, maintains trust responsibility for lands owned by federally recognized tribes. Indian Country is a legal term used to designate tribal lands, reservations, informal reservations, dependent Indian communities, allotments, and special lands held in trust for a tribe or tribal member.

The BIA Southwest Region

The Southwest Region encompasses a dynamic and diverse mix of Tribes, Tribal members, and natural resources. 219,512 Tribal members make up the 24 Tribes and the Ramah Navajo Chapter of the Navajo Nation under the Southwest Region. Tribes are located in New Mexico, Colorado and Texas and encompass 4,869,744 acres of land.

Within that area the Southwest Regional Office (SWRO) is located in Albuquerque, New Mexico. Eight agencies are under the SWRO in various locations within New Mexico and Colorado. They are the Jicarilla Agency (Dulce, NM), Mescalero Agency (Mescalero, NM), Northern Pueblos Agency (Espanola, NM), Ramah Navajo Agency (Ramah, NM), Southern Pueblos Agency (Albuquerque, NM), Southern Ute Agency (Ignacio, CO), Ute Mountain Ute Agency (Towaoc, CO) and the Zuni Agency (Zuni, NM). The hours of operation for all locations are Monday through Friday from 8 a.m. to 4:30 p.m.

2. Policy, Partnerships, and Management Goals/Objectives

2.1 Fire Policy

2.1.1 National, Departmental, and Bureau Fire and NEPA Policy

The “Guidance for Implementation of Federal Wildland Fire Management Policy” (February 2009) replaces the “Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy” (June 20, 2003). This updated guidance consolidates and clarifies changes that have occurred since the 2003 strategy document was issued and provides revised direction for consistent implementation of the “Review and Update of the 1995 Federal Wildland Fire Management Policy” (January 2001). Please see the following sections in Appendix (C): “Guiding Principles, Implementation of Federal Fire Management Policy, and Departmental Policy (from Departmental Manual Part 620), and Bureau Policy (from Indian Affairs Manual (IAM), Part 90, Chapter 1), and NEPA Compliance/Requirements”.

Compliance with NEPA has been satisfied through development of an Environmental Assessment (EA) and issuance of the line officer Finding of No Significant Impact (FONSI) for the WFMP. This requirement ensures a prudent assessment and balance (alternatives) between a federal action and any potential effects of that action, leading to consensus between fire managers, agency and tribal resource specialists,

tribal officials, and community members. This management plan contains the preferred alternative for the EA and has identified any constraints or limitations imposed on the wildland fire management program.

2.2 Wildland Fire Interagency Partnerships/Agreements for Coordination and Cooperation

Interagency cooperation is vital in attaining Wildland Fire Management (WFM) objectives. The ability of a single agency to implement a WFM program is limited without coordination and assistance from other organizations. Interagency cooperation and coordination of shared resources and common activities is imperative at all organizational levels.

The Southern Pueblos Agency (Agency) Fire Management program has initial attack and suppression responsibilities on federal trust lands. Agency fire personnel are located at 1001 Indian School Road NW Albuquerque, New Mexico.

The Agency Fire Management program is a contributing member of the Albuquerque Dispatch Center which is comprised of Federal and State agencies located in New Mexico. Albuquerque Dispatch Center agencies share contiguous boundaries and cooperate and share resources during fire suppression activities. The agency partners include New Mexico State Forestry, US Forest Service, Bureau of Indian Affairs, National Park Service, Bureau of Land Management and US Fish and Wildlife Service. Suppression activities and resources from the group of agencies are coordinated through Albuquerque Dispatch Center.

The Joint Powers Agreement (JPA) dictate that the Agency Fire Management program share initial attack responsibilities on private, state, and federal lands covering approximately 1,814,722 acres. A summary of these agreements and specifics (i.e. local cooperators) are included in the AOP, and a copy is on file at the fire management office.

Land management strategies may vary between the adjoining land management agencies due to divergent missions, yet share commonalities given similar ecotypes. Typically, agencies in the area manage for multiple uses. Generally, land management in Indian Country is determined by tribal, cultural, religious, and natural resource policy.

These management considerations are communicated and shared between the agencies during pre-fire season meetings and documented through resource mobilization guides and resource guides.

2.3 Fire Management Goals/Objectives

The management goals/objectives is compiled through discussions with Tribes and Bureau staff, various policy directives, and observations of program needs. The Pueblo of is dedicated to preserving cultural values, sustaining and enhancing productive natural resources on tribal lands for future generations. Preparedness will be based on the most efficient level of meeting the goals and objectives, utilizing an interagency approach to meet local, regional, and national resource needs.

Implementation of the Pueblo of Isleta management of the wildland fire management program will be facilitated under Indian Self-Determination if the Tribe were to request oversight of the program from the Federal Government. (Department of Interior, BIA, *Wildland Fire and Aviation Program Management Guide, 2004).*

The following goals/objectives for the Pueblo of Isleta Wildland Fire Management Plan and the Agency Fire Management program in consultation with the Pueblo of Isleta is compiled through discussions with Tribal and Bureau staff, various policy directives, and personal observations of program needs**.**

- Plan and implement fire management actions that provide for fire fighter and public safety from wildland fires.
- Protect assets: structures, infrastructure, and identified values at risk from fire including natural and cultural resources.
- Implement fire and fuel management techniques to restore reservation lands to a condition that can support natural fire regimes, thereby helping to protect resources from catastrophic wildland fires. Annually evaluate and ensure compliance with Federal Wildland Fire Policy, and National Wildland Coordinating Group (NWCG) standards.
- Provide employment opportunities. Hire, develop, and train Bureau and Tribal staff to carry out the wildland fire and fuels treatment programs.
- Develop strategic objectives by Fire Management Unit (FMU) and specify requirements, constraints, and guidelines for implementation.
- Utilize the Wildland Fire Decision Support System (WFDSS) to document strategic planning, risk assessment, and decision rationale for managing wildland fires on the reservation that escape initial attack, managed long term, or incidents that threaten the reservation boundaries.
- Document, record, and monitor required elements, such as current wildland fire reporting applications, of the wildland fire program while promoting safety, efficiency, and cost effectiveness. For more specifics refer to the Red Book.
- Support tribal enterprises and tribal preferences during all wildland fire activities on trust land.

2.3.1 Fire Management Standards and Guidelines

In order to comply with direction provided by the National Fire Plan, the BIA, the Pueblo, and the Pueblo of Isleta Forest Management Plan, the following guidance has been developed for wildland fire management.

- The Agency Superintendent will ensure that all employees within the Fire Management program are trained, medically and physically qualified, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. The Agency Superintendent (or delegated representative) is responsible for establishing priorities and coordinating all fire management activities.
- The management of the Agency's fire program has been delegated to the Fire Management Officer, Assistant Fire Management Officer, or delegated Duty Officer. Other employees willing to participate will be afforded the same opportunities. However, normal duties and agency coverage may take priority over incident assignments.

- Employees with operational, administrative, or other skills will support the wildland fire program as necessary. These employees will be encouraged to seek opportunities to maintain and enhance their knowledge and skills to maintain proficiency.
- Wildland fires can be managed for one or more objective(s) based on the Management Plan direction.
- Protect and preserve all identified areas of cultural, traditional, religious, archeological, and historical significance. Control smoke emissions from unwanted wildland fires, fire for resource benefits, and prescribed fires to minimize the impact on air quality.
- When two or more wildland fires burn together, they will be handled as a single wildland fire and, as an event moves across the landscape if fuels and weather conditions change, may be managed for one or more objectives.
- Monitor fire danger indices to ensure an adequate level of preparedness and to refine the workload assessment.
- When applicable wildland fire will have a risk and complexity assessment completed by the incident commander.
- Employees will develop and implement a systematic method of evaluation to determine effectiveness of projects.
- Once a prescribed fire is no longer meeting those resource objectives stated specifically in the prescribed fire plan or project level NEPA, it receives the same reassessment and selection of response objectives as any other wildfire event given the location, current conditions (fuels, weather, etc.) and identified management considerations.
- The WFDSS will be utilized to document all decisions and rationale for managing fires escaping initial attack or otherwise being managed long term for multiple objectives. WFDSS also provides tools (such as ERC charts and fire behavior analysis) to assist in decision making during the life of the incident.
- Managing a wildland fire will be based on specific actions that are suitable to meet strategic objectives within the identified requirements, constraints, and guidelines. Typically, actions include a spectrum of tactical options (from monitoring to intensive management actions.)
- National policy, handbooks and manuals, Statutes, Regulations, and other compliance and authorities will provide further guidance for the implementation of the WFMP for the tribe. The national office, region, and/or agency superintendent may also issue additional guidance and direction for the program that will be considered incorporated into this plan.

2.3.2 Programmatic Goals/Objectives

Management Emphasis Areas (MEA's) were developed to assist fuels management planning and are referenced here to assist in the development of strategic fire management planning. The Pueblo of Isleta Forest Management Plan emphasizes general and specific land management goals and objectives for land areas on the reservation. This information is utilized to develop how fire will be managed on the landscape to meet these tribal goals and objectives. Strategic fire management objectives were developed for these land areas, with specific requirements, constraints, and guidelines for fire management actions. These are described in detail in Chapter 3.

Wildland Fire for Resource Benefits use is an option for Federal Agencies having approved land management plans, fire management plans and specific objectives and prescriptions to achieve land management objectives. Naturally occurring fires, such as lightning, would be allowed to burn under specific prescriptions in designated areas to meet management objectives. Should a Wildland Fire for Resource Benefits go out of prescription, suppression measures would be immediately instituted.

The Management Emphasis Areas are: (1) Wildland Urban Interface (WUI), (2) Infrastructure, (3) Cultural Resources, (4) Agriculture, (5) Riparian, (6) Forest/Woodlands, and (7) Rangeland. Although these areas are named for the primary emphasis of management, other management activities do and will continue to occur. Likewise, traditional use is an important consideration in all areas of the Reservation. This is intended to provide focus for fire management strategy, not marginalize or preclude any established land uses. Detailed descriptions of each of these MEA's can be found in the Fuels Management Plan.

Practices that are culturally, traditionally, socially, environmentally, and economically acceptable will be utilized to ensure these vital resources are available for future generations.

Wildland Urban Interface (WUI) – Fire Management in the Wildland Urban Interface (WUI) has been changing over the past few years with an increased emphasis being placed on these areas. A WUI is defined as the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland vegetation fuels that include dwellings or structures in vegetation that intermingle with agriculture areas, as well as other zones where human development is present.

Most of the residents live within the villages along the Rio Grande, which include Village Proper, Chical, Ranchitos, and Los Charcos. As more members move into areas adjacent to wildland vegetation or agriculture land, they will become WUI zones.

Minimize danger to people and damage to structures in the wildland urban interface. Emphasize full suppression of wildland fires in areas containing residences and other structures. Continue educating the public regarding fire hazards and the need for fuels treatments in WUI, infrastructure, and other areas for the protection of property and resources. Continue emphasis on reducing arson fires in problem areas.

Provide adequate defensible space for fire crews employed in structure protection under extreme fire. Treat fuels near structures dependent on anticipated fire behavior based on fuels, topography, prevailing winds, and other considerations.

Protect visitor use sites, developments, and those archaeological sites determined to be at risk of fire damage to site values, including post-fire erosion. The highest priorities for treatments are Manzano Mountains and Rio Grande Bosque. Appropriate Tribal Staff will be consulted during the planning and implementation of all HFR projects conducted within the reservation.

The Manzano Mountains has extreme fire behavior potential in old growth pinyon-juniper with steep terrain and high resistance to control. The Manzano Mountain is dominated by dense pinyon-juniper woodland requiring treatment to protect the site from wildfire. Protect culturally significant species Douglas fir.

The Rio Grande Bosque hosts a high level of visitor use. This is due primarily to easily accessible roads near the river which receives substantial vehicle traffic.

Infrastructure - The Pueblo of Isleta Village is the largest Tribal community on the reservation and has an abundance of grass fuels. The Pueblo has maintained firebreaks throughout the community to effectively reduce grass fire potential. Woodland stands surrounding the town are fairly sparse and rocky, with little potential for large fire growth.

Several major roads cross through the reservation including Interstate Highway 25 (I-25), which traverses from north to south in the central portion of the reservation; New Mexico State Highway 47 crosses through the Pueblo of Isleta on the eastern side; and New Mexico State Highway 85, which pass through the western side of the reservation also the Burlington Northern-Santa Fe (BNSF) railroad track is located in the central corridor of the reservation. In addition to roads crossing on the reservation, the power, communication, utility, and natural gas companies have right-of-way through the reservation as well as, a variety of farm structures such as irrigation ditches, fences, windmills, and corrals are maintained within the reservation boundaries.

Most of the residents live along the Rio Grande with a few residents near the west mesas. The Isleta lookout tower is located in the Manzano Mountains. Associated with the lookout tower is a repeater for two-way radio communications.

There are 3 companies that run pipelines through the reservation. Magellan Pipeline and New Mexico Gas Company carry natural gas through the Pueblo lands. The third company, West Emerald Pipeline, carries petroleum. Oil Field consists of dispersed oil wells and associated developments. WUI buffers have been designated an average of 500 feet from the wells and gas lines have a 30-foot easement. Fuels consist primarily of old growth pinyon-juniper. Because Natural Gas is prevalent in this area, wells are required to be shut down until fires are controlled and rehabilitation work is completed; this results in lost revenue. Wells are the responsibility of the permittee.

Communications Site is a revenue producing site for the Tribe, BIA, IA Fire Management, Tribal Public Safety, BIA Law Enforcement and others maintain telecommunication equipment. The site is surrounded by rock outcrops, scrub oak and dense timber stands.

Cultural Resources - Historical and archaeological resources are abundant on the Reservation. The presence of cultural resource sites significantly affects the location and level of treatment that can occur in a given area. A brief description of the Reservation historical and archaeological resources is located in the EA for the Pueblo of Isleta Interim Management Plan, 2014.

Where cultural, sacred, historical and ceremonial sites exist on reservation trust or fee lands, it is important that these be protected in any fire management activity. This includes tribal shrines, gathering sites, medicinal herbs and plants, cultural collectables and areas of religious or cultural significance. Coordinate with the tribal officials prior to and during fuels management activities, hazards fuels reduction, use of prescribed fire, or wildland fire use.

Consistent with Federal and Tribal regulations, protect areas of cultural, traditional, religious, archaeological and historical significance. The Natural Resources Division will consult with Tribal officials to identify and protect sites on an incident/project basis.

Protect the premier cultural resources and promote public education and appreciation for these resources. Wildfire not only poses a threat to visitors and employees, Bureau employees and developments, it can degrade cultural resources either by direct heat damage or post fire erosion.

The Manzano Mountain contains isolated ponderosa pine and mixed conifer habitats, which are often, associated with cultural resource sites. The mountain also contains pinyon-juniper woodlands that are in need of treatment to reduce fuel loading.

Additional emphasis areas include the lower rangelands. This area consists of pinyon-juniper woodland with oak shrub and cheatgrass. Road access for evacuation is limited. Thinning is required in the woodland trees and shrubs to provide adequate defensible space in the event of wildfire.

Management of these areas emphasizes maintenance of traditional cultural values and provision for public safety. Fuel treatments within the traditional gathering sites provide for public safety during traditional ceremonies. The Natural Resource Director and Tribal Consul will be consulted during project planning and implementation.

Gathering sites very form area to area and roughly designated by high elevations. This area is valued by the Tribe for its unique cultural and ecological significance. The highest elevation and most rare habitats on the Reservation are found in this area, including ponderosa pine, mixed conifer, and shrub lands dominated by oak. Shrub stands periodically experience severe frost-die back resulting in a decadent condition. Deer, elk and other wildlife that depend on palatable forage from these areas would benefit greatly from fire-induced shrub regeneration. Regeneration of aspen will be necessary to maintain the current extent of the species. Isolated ponderosa pine and mixed conifer stands in this area are highly susceptible to loss from wildfire.

Agriculture – Agricultural lands on the Reservation total approximately 2,000 acres, of which approximately 200 acres southwest of the Rio Grande River are within Tribal Agricultural Enterprise. The remaining acres are scattered in small farms within the village proper and on fee lands north of the community of the Pueblo. These lands are primarily hay, crop fields, and pastures. Fuels management treatments would potentially be conducted on lands adjacent to these agriculture lands to prevent wildfire encroachment.

Farm and Ranch designation consists of commercial buildings and associated infrastructure located south and north of the village. These facilities are operated and maintained by Tribal Agricultural Enterprises. Fire starts have been low to moderate since grazing and controlled burning has limited the amount of fuels in this area and buildings are protected by graveled and cleared areas.

Riparian – Approximately 10,000 acres are in Riparian areas including the Rio Grande River and marsh lands. Riparian areas consist of prominent perennial water sources and their associated unique riparian

habitats. Hydrologic alternations are typically associated with dam construction, channelization projects, surface water diversions or groundwater pumping. Most of these areas have been invaded by exotic species, primarily salt cedar and Russian olive, dramatically altering riparian habitat, hydrology, and fire regime. Wildfires typically burn very intensely in riparian areas invaded by these species. This can result in the loss of culturally significant material, structures, and adversely affect native aquatic populations

The Grass Fuel Group (Bosque Riparian Woodland) composed of various grasses whose response to fire is dependent upon the timing of the fire during the growing season and the age of the plant at the time of the burn. Fire occurring in the late spring and early summer tends to have adverse effects on warm season grasses, National Fire Danger Rating System (NFDRS), fuel models B, E, and R. Wildland fire assessments place this unit (compartment) in the High-Risk category for all risk assessment values due to the WUI component.

The Pueblo have identified extensive areas of salt cedar and Russian olive and has begun a program of controlling salt cedar on the upper reaches of the Manzano Mountains, along the Rio Grande River, and on several drainages within the Reservation. Herbicide use will be determined on a project basis and will strictly adhere to EPA label directions. Application will be limited to ground methods. Prescribed fire will be designed to limit mortality of native willows and cottonwood stems and roots and avoid excessive ash run-off into streams. Work will be targeted at the north end of the river drainage and progress southward. Treatments would improve fire protection for WUI zones.

Manage planned and unplanned ignitions within treated or identified areas provided they burn within a clearly defined prescription to meet management objectives for restoration and maintenance of forest and woodland stands within the historic range of variability.

Forest/Woodlands - Many of these stands are in condition class III and in need of mechanical treatment and/or prescribed fire to begin moving them back within the historic range of variability. Most stands are mature or over mature with high levels of down fuel.

The Brush Fuel Group (Woodland/Grassland) composed of shrubs and pinyon-juniper woodlands whose response to wildland fire or prescribed fire is dependent upon fire intensity and duration. The Woodlands area encompasses approximately 24,011 acres with 7,252 acres of commercial woodlands. Woodlands occur on all aspects, and occupies a wide variety of landforms and sites, from valleys and canyon bottoms to hillsides and mesa tops, which is comprised primarily of the pinyon-juniper forest type. National Fire Danger Rating System (NFDRS) fuel model F.

The Timber Fuel Group (Montane Conifer) encompassing Ponderosa pine and mixed conifer forests stands. The Forest area covers approximately 8,729 acres with 7,995 acres of commercial timberland. The majority of the timberlands are located on the east side of the reservation, which is comprised primarily of the ponderosa pine forest type, National Fire Danger Rating System (NFDRS), fuel models C, J, and K.

Pinyon pine trees are ecological important and have traditional value to the tribe. Minimize potential damaging wildfires and existing forest health problems by reducing high tree densities (overcrowding). At the stand level, density management by thinning, controlled burning, or harvesting operations may be

implemented to reduce damage from insects, disease, and wildfires in the forests. Maintain or restore ecosystem processes or structure for Tribal members and businesses. Provide for safety of fire personnel and the public.

Utilize planned and unplanned ignitions and mechanical treatment to meet Agency and Tribal resource management objectives, including fuels management for wildfire hazard reduction, restoration of desired vegetation conditions, and increase forage for livestock and wildlife. Natural barriers are limited in many of these stands.

Rangeland - It is the mission of the Pueblo of Isleta to protect, preserve, and enhance the land, water, forage, wildlife, recreational, cultural, and sacred sites of the Pueblo rangelands, through sound Rangeland management and to improve, build-up, and rehabilitate these resources where they have deteriorated. Utilize practices that are environmentally, socially, economical, culturally, and traditionally acceptable so that these vital resources are available for future generations.

There is an estimated 268,399 acres of non-forested lands not in any of the other land classification where livestock and big-game forage is the primary management emphasis. These areas are generally at the lowest elevations or driest areas of the Reservation and are typically very low productivity due to limited rainfall and/or soil fertility. Cheat grass has become established in some areas where moisture is higher and has become a concern for grazing and controlling wildfires in these areas.

The Grass Fuel Group (Western Grassland) composed of various grasses whose response to fire is dependent upon the timing of the fire during the growing season and the age of the plant at the time of the burn. Fire occurring in the late spring and early summer tends to have adverse effects on warm season grasses, National Fire Danger Rating System (NFDRS), fuel models A, L, T, and B.

Utilize planned and unplanned ignitions to rangelands to reduce sagebrush and associated wildland fire risk and suppression costs over the long term. This would also improve forage for livestock and big game.

Additional Management Emphasis Elements

Unexploded Ordnance (UXO) – There is the possibility for unexploded ordnance present in the area. UXO may range on appearance from artillery shells and missiles to pieces of metal or plastic. These items were left over from military training that took place during World War II. Due to poor record keeping the locations of UXO items were not well documented. Safety briefings need to cover the possible presence of UXO.

Threatened and Endangered Species - The area is home to a diverse array of wildlife as both permanent and seasonal residents. The presence of Threatened and Endangered Species influences the need, design, and feasibility of implementing management actions. Section 7 of the Endangered Species Act prohibits federal agencies from implementing actions that may jeopardize the continued existence of federally listed threatened & endangered wildlife species.

Federal agencies are required to consult with the US Fish and Wildlife Service on any authorized action that could potentially affect federally listed species or their designated critical habitat. Several species of

federally threatened or endangered species of wildlife may be present and a species list is only good for 90 days for project planning. That is due to the species status changing as time progresses. They are either being added, delisted or status changes from candidate, proposed, Threatened to Endangered. A species list for a specific project can be found at the Information for Planning and Consultation (IPAC) website developed by the US Fish & Wildlife Service (https://ecos.fws.gov/ipac/). Each federally funded fuels treatment project will go through independent Endangered Species Act compliance in accordance with Section 7 of the Act.

Water Quality – The sole water source for the Pueblo's Public Water Supply system is groundwater. The Pueblo's Public Water Supply is managed and maintained by the Pueblo's Public Works Department. The Pueblo's primary source for irrigation water for agricultural fields is surface water from the Rio Grande, delivered through the Middle Rio Grande Conservancy District system. The perennial Rio Grande flows southerly through the central portion of the Pueblo with peak flows occurring during the spring snowmelt and/or summer flash floods during the monsoon season. Maintaining both groundwater and surface water quality is of paramount concern to the Pueblo. The Pueblo monitors groundwater quality through its Public Works Department with the assistance of the Untitled States Environmental Protection Agency("EPA") through the Southwest Environmental Finance Center. The Pueblo monitors Rio Grande surface water quality monthly, pursuant to its Surface Water Quality Standards and EPS guidelines. Significant fires that occur in contributing watersheds may require that a Burned Area Stabilization and Rehabilitation Plan (BAER) be prepared and fully implemented in a timely manner.

Air Quality - The Pueblo of Isleta is designated as a Class II Air Shed, which is an area that is protected under the Clean Air Act but identified for somewhat less stringent protection from air pollution damage than a Class I area, except in specified cases. The tribe does not have an Air Action Plan or other documents developed for monitoring air quality. However, air quality is of significant concern in and around WUI areas, near high visitor use areas and along main traveled roads. Potential smoke production affecting sensitive populations and/or visibility should incorporate an appropriate Smoke Management Plan in conformance with Environmental Protection Agency (EPA) rules established to meet the intent of the Clean Air Act.

See Appendix for illustrations of current conditions.

Appendix G. Map 1: Strategic Planning Map

Appendix H. Map 2: Wildland Urban Interface

Appendix I. Map 3: Vegetation Type

Appendix J. Map 4: Fuel Models

Appendix K. Map 5: Vegetation Condition Class

Appendix L. Map 6: Fire & Fuels History

Appendix M. Map 7: Aviation Hazards

Specific details on fuel descriptions, treatment needs, and parameters can be found in the Forest Management Plan.

3. Fire Management Unit Characteristics

Fire Management Unit (FMU) are areas defined by similar overall strategic fire management objectives with consideration for specific (or dominant) constraints, requirements, and guidelines for implementation. Unique characteristics (fuels, topography, fire occurrence, etc.) on the landscape are also considered and shown on attached maps.

The first section (Section 3.1) defines the criteria used to describe the FMU, based on strategic fire management objectives. The second section (Section 3.2) Management Action Areas (MAA) describes those specific management constraints, requirements, and guidelines unique to individual FMU. These allow further refinement of how the tribe would want fire to be managed on the landscape.

Attached maps represent a complete picture of the strategies and unique characteristics that will help guide daily operations in meeting overall fire management objectives.

3.1 FMU Definitions

There are two types of standardized FMU's: Asset Protection Unit (APU) and Resource Management Unit (RMU).

3.1.1 APU - Asset Protection Unit - Wildland Urban Interface (WUI)

Primary Objective: Protection of life/property, infrastructure, and high value resources without compromising firefighter safety. Wildland fire may be undesirable. Emphasize fuel treatments to create fire-adapted communities.

Primary Strategic/Operational Considerations:

- Place highest priority on the allocation of available suppression forces to fires threatening sites in the APU over fires in a RMU.
- Full perimeter control will receive highest priority for suppression resources. Fire use may be limited, maybe utilized in rare occasions, based on site-specific circumstances with documented direction from line officer.
- Confine fire to a designated area to treat fuels once structures are secure or if fire is burning away from structures towards a RMU.
- Place highest priority on fuels treatments over RMU to create defensible space and increase landscape resiliency.

3.1.2 RMU - Resource Management Unit (typically mixed resource and WUI)

Primary Objective: Protection of life/property, infrastructure, and high value resources without compromising firefighter safety. Promote the use of fire as a desirable component of the ecosystem. Coordinate fuels treatments with proposed strategies for unplanned ignitions to protect values at risk and promote landscape resiliency.

Primary Strategic/Operational Considerations:

- Prioritize response to wildland fire secondary to APU.
- Emphasis will be perimeter control where needed, and confinement/point protection elsewhere (based on operational thresholds).
- Use of Wildland Fire to protect, maintain, and enhance natural and cultural resources is available within defined weather and fuel moisture conditions with documented decision analysis and support process.
- Encourage aerial fuel treatments when managing fires for resource benefit.
- Prioritize fuels treatments within the RMU to increase opportunities to use confinement and point protection as strategies near values at risk and promote landscape resiliency. Areas with high hazard and/or strategic location will be identified for fuels projects to reduce or moderate fire behavior, especially at preplanned strategically located management action points.
- Interagency Cooperator agreements must be in place to determine the management of wildfire threat occurring on or near trust lands.

The Pueblo of Isleta Fire Management area contains two FMU's: Asset Protection Unit (APU) and Resource Management Unit (RMU). Within these two defined areas, management strategies are further defined by Management Action Areas (MAA) with specific constraints, requirements or guidelines as described below and shown on the attached Strategic Planning Map.

3.2 Management Action Areas: Specific Descriptions of Areas with Similar Management Constraints, Requirements and Guidelines

3.2.0 FMU - Pueblo of Isleta

- Requirement: Notify the Pueblo with any fire extending initial attack operations.
- Restrict any aircraft operations and ground personnel during ceremonies and dances unless approved by the Governor or Governors Appointee.
- Use Minimum Impact Suppression Tactics (MIST) near cultural sites. Minimize disturbance to traditional use areas and archaeological sites from erosion and direct flame contact.
- Minimize negative impacts to native fish and other aquatic species with any upstream water depletions or sedimentation.
- Heavy equipment use is restricted to areas outside of 300 feet from any stream or water body, natural springs, known cultural sites and visitor use areas.
- Plan and implement Hazard Fuel Reduction (HFR) treatments based on the presence and management requirements of Threatened and Endangered (T & E) Species as well as culturally important tree species Douglas fir, Willow, and Cottonwood.
- Due to the mining activity of Galena, Bauxite, Gold, and Quartz in the area there is a risk to safety. In the event that there is a fire within a ¼ mile of the mine the fire should be suppressed immediately.
- Power line and gas line right of ways present a hazard to ground and air operations. Communication, Power and Gas Companies must be notified as soon as a threat is identified.

- Restrict retardant use to water only unless absolutely necessary and approved by the Governor or Governor's Appointee.
- Retardant use is restricted within 300 feet from any stream or water body, natural springs, known cultural sites and visitor use areas.
- Unexploded Ordnance (UXO) – There is the possibility for unexploded ordinance present on the Manzano Mountains, Comanche Ranch and near the Rio Puerco River.

3.2.1 APU- Wildland Urban Interface (WUI)

- This area is an Enterprise zone for agricultural operations with high values at risk. Minimize damage to agricultural infrastructure.
- This area may have limited access with narrow one-way roads. Check bridge weight capacity rating before crossing with heavy equipment. Vehicle's access is restricted to main roads only.
- Protect areas of concentrated housing (Village Proper, Los Charcos, Ranchitos, Pickle Heights, Los Padillas), high visitor use areas (Isleta Casino, Isleta Travel Center, Tribal Services Complex, Isleta Lake and Golf Course Recreational areas), and significant commercial or industrial development (Rail Runner Transfer Station).
- Restrict the use of retardant drops near homes and dwellings unless absolutely necessary.
- Restrict heavy equipment use near homes and dwellings unless absolutely necessary.
- Strategically plan fuels treatments to increase the protection benefit near homes and infrastructure.

3.2.2 APU – Recreation

- Retardant use is restricted within 300' of the recreational area.
- Heavy equipment is restricted within 300' of the recreational area.

3.2.3 RMU – Riparian

- Use of heavy equipment is restricted during periods of excessive ground saturation. Allow only when approved by the Pueblo of Isleta Public Services.
- Minimize the loss of culturally significant shrub species Willow, Cottonwood and Mesquite.
- Prioritize suppression strategies and fuels treatments near APU's, Agriculture, and Recreation areas to provide adequate defensible space in the event of wildfire.

3.2.4 RMU – Rangeland

- Utilize range management guidelines when managing wildland fires and fuels treatments.
- Seek Tribal approval for use of heavy equipment near rangeland infrastructure and ranch houses. Allow only when approved by the Governor or Governor Appointee.

3.2.5 RMU – Commercial Woodlands

- Minimize damage to rangeland infrastructure and the range resources.
- Seek Tribal approval for use heavy equipment near natural springs, rangeland infrastructure and ranch houses. Allow only when approved by the Governor or Governor's Appointee.

3.2.6 RMU – Commercial Timber

- Create defensible space to protect commercial timber species (Douglas fir) in areas that are highly susceptible to damage or loss from fire.

Appendix: G - Map 1: Strategic Planning delineates Management Action Areas.

4. Wildland Fire Operational Guidance

Required fire operations/suppression plans can be found in the "Wildland Fire and Aviation Program Management and Operation Guide" (Red Book) and the BIA-NIFC website at https://www.nifc.gov/PUBLICATIONS/redbook/2020/RedBookAll.pdf

4.1 Management of Unplanned Ignitions

The Agency Fire Management program has initial attack and suppression responsibilities on federal trust lands. Agency fire personnel are located on 12th Street and Indian School Road in Albuquerque, New Mexico.

All wildland fires will be subject to an initial attack response. This response will include size up of the current fire situation, determination of probable cause and estimate of the potential for fire spread. A fire management response will be initiated and numerous tactics and/or strategies may be employed including determination that the fire (or portions thereof) be managed for resource benefit. Conditions for wildland fire use will be similar to those for prescribed fire, and then only in specific areas that have been identified following the Interagency Prescribed Fire Planning and Implementation Procedures Guide. Care will be taken to preserve the area of origin. All human caused fires will be investigated.

For human-caused wildland fires, initial action will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety. The Annual Operating Plan (AOP) will be followed. The guide provides guidelines for manning personnel and equipment, defining member's roles and responsibilities, and identifying the chain of command.

4.2 Preparedness

The Program Preparedness component of wildland fire management involves the process of planning and implementing activities prior to wildland fire ignitions. This process includes actions which are completed on a routine basis prior to each fire season as well as actions conducted in response to increasing fire danger. Preparedness funding level varies from year to year and will be determined by a Fire Planning process.

4.2.1 Annual Operating Plan

The AOP is a reference guide for each year's personnel contacts, equipment resources, and other actions needed when a fire ignition occurs. The AOP consists of a National Fire danger Rating System (NFDRS) Plan, management direction, suppression Plan, Preparedness Plan, Fire Restriction Criteria, dispatch response levels, Communication Plan, staffing levels, resource commitment, Personnel Qualifications List, Current Fire Organization Chart, trigger points, Current WFDSS Procedures and Software, and a delegation of Authority for wildland Fire Duty Officers and mitigating actions.

4.2.2 Fire Preparedness Activities

Preseason actions are described such as annual fire refresher, physical fitness testing and training, fire cache considerations, preparedness reviews and fire qualifications and training needs.

4.2.3 National Fire Danger Rating System (NFDRS)

NFDRS is covered in the AOP. This may be developed and used to determine preparedness and staffing levels, seven- day coverage needs, severity actions, etc. Pocket cards developed from this or neighboring NFDRS plans are required. Remote Access Weather Stations (RAWS), both permanent and portables, must be annually maintained for NFDRS indices to be meaningful (see Red Book for further information).

(RAWS) Names, Numbers, and Agency:

- Brushy Mountain, New Mexico – Unit #291301, BIA
- Laguna, New Mexico – Unit #293304, BIA
- Jemez, New Mexico – Unit #290702, USFS
- Sandia Lab, New Mexico – DOE, ID SFXNS
- Sandia Lakes, New Mexico – Unit #290706, BIA
- Sevilleta, New Mexico – Unit #292105, FWS

4.2.4 Preparedness Levels

National, Regional and zone preparedness levels are established by interagency coordinating groups based on current and forecast burning indices, fire activity, and resource availability. Resource availability is the area of most concern. The five levels are identified as:

- Low or Preparedness Level 1
- Moderate or Preparedness Level 2
- High or Preparedness Level 3
- Very High or Preparedness Level 4
- Extreme or Preparedness Level 5

Situations and activities described with the preparedness levels consider wildland and prescribed fire. Definitions and parameters of each associated preparedness level can be found in the National, Geographic area, and Zone Mobilization Guides.

The preparedness level is determined by the Zone Board of Directors, yet if fuel conditions are not uniform, each agency has the ability to maintain a preparedness level separate or different from surrounding agencies. The overall zone preparedness level will then become the average of all agencies within the zone.

4.2.5 Staffing Levels

Staffing levels for the SPA are based on the NM-ABC Preparedness Level, SPA historical fire activity, and local knowledge; and are used to make daily internal fire operations decisions. The historical fire activity is calculated by the total fire reports per month for the previous 10 years. Analysis of historic fire and weather data indicate that five staffing levels are appropriate. Staffing levels can be found in the AOP.

The Southern Pueblos Agency Fire Management Staffing Chart Step-Up Plan is a tool used to direct incremental preparedness actions in response to increasing fire danger. The plan is intended to mitigate increasing fire danger conditions. The mitigating actions are designed to enhance the unit's fire management capability during short periods where normal staffing cannot meet initial attack, prevention, or detection needs. Energy Release Component (ERC) for a ten-year period was taken from the Sandia and Brushy Mountain Remote Automated Weather Station (RAWS) unit (290801). NFDRS fuel model U (long-leaf pine) was used as the representative fuel model using the Fire Family Plus fire program.

4.2.6 Fire Cache

Southern Pueblos Agency currently has cache available to support a type 3 incident and approximately 2 type 2 crews and 3 additional type 6 engines for local fires at our facility located at 12th Street and Indian School Road at Albuquerque, NM. The building is 5,560 square feet in size. With four engine bays, dispatch office space, conference room, restrooms, and a locker room with showers. Office space for the Southern Pueblos Agency is located in the Southwestern Regional Office.

The local cache is and will continue to be stocked with all necessary items to supply preparedness, initial attack, and to some extent extended attack events. All items utilized on wildland fire suppression will be ordered and re-stocked in a timely manner using the appropriate Fire Code. All Preparedness related items are to be ordered and stocked pre-season using Preparedness funds, and periodically checked to ensure proper inventory levels. The FMO and/or Cache Manager are responsible for the cache being appropriately stocked and in a clean and orderly state at all times.

4.3 Incident Management

4.3.1 Policy

Fires will be managed considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives, at minimum cost.

4.3.2 Safety

Safety is the number one priority for all personnel engaged in or supporting fire management activities nationwide and is the responsibility of the IC, Incident Management Team (IMT), and all fire line supervisors. Fire management work is one of the most hazardous jobs encountered. There is no fire situation so serious that the life of anyone should be risked in order to get to the fire sooner, get the fire out quicker, or to keep the burned areas smaller. There are numerous safety references available to aid in safety management. Other references available to aid in safety management including the following:

- BIA Red Book
- Local Job Hazard Analyses for firefighting activities.
- Wildland Fire Incident Management Field Guide (replaces Fireline Handbook Appendix A), PMS 210
- Incident Response Pocket Guide (IRPG), PMS 461, NFES 1077

The NWCG Fireline Handbook, Appendix B Fire Behavior (NFES 2165) is a useful guide for making fire behavior interpretations. The purpose of this appendix is to provide some basic fire behavior information

that will enable a person with a moderate level of fire behavior training (Introduction to Wildland Fire Behavior Calculations, S-390) to predict and calculate some basic elements of fire behavior and fire size.

4.3.3 Response to Wildland Fire

All fires will be managed in accordance with management objectives based on current conditions and fire location. A response can vary from an aggressive initial suppression action to managing fires for resource benefit (in identified RMUs only) to monitoring. Strategies will be tailored to address significant constraints including critical habitat for T&E species, cultural resource areas, areas of soil instability, and areas with other critical resource constraints. Different responses can occur at the same time on various portions of the same fire.

4.3.4 Suppression Plan

This plan is part of the AOP and addresses suppression actions that are consistent with firefighter and public safety and the values to be protected once an ignition occurs. The plan includes initial attack priorities and criteria, determining complexity level, establishing the incident commander and other operational guidelines. A full range of responses, from aggressive initial attack to a combination of strategies to achieve confinement, will be analyzed for each fire on a case by case basis within each FMU and MAA.

4.4 Emergency Stabilization and Burned Area Rehabilitation

Policy and Guidance

BAER stands for Burned Area Emergency Response. Wildfires can cause complex problems, from severe loss of vegetation and soil erosion, to a decrease in water quality and possible flash flooding. The Burned Area Emergency Response Program addresses post-fire emergency stabilization of these and other post wildfire problems, in order to protect public safety and prevent further degradation of the landscape and to mitigate post-fire damages to cultural resources. Emergency stabilization is part of a holistic approach to address post wildfire issues, which also includes suppression activity damage repair, burned area rehabilitation, and long-term restoration. In order to facilitate this process, a designated BAER team will begin the process by assessing an area post-fire. BAER assessment team composition is determined both by the size of the fire and the nature of values potentially threatened by post-fire effects. Generally, specialists in soils, hydrology, geology, engineering, wildlife, botany, and archeology assess the fire's effects and predict the post-fire effects. Each resource specialist brings a unique perspective to the BAER process, to help the team rapidly determine whether the post-fire effects constitute urgent threats to human life, safety, property, or critical natural and cultural resources and to produce an integrated plan to respond to those threats.

Purpose of BAER

The BAER program is designed to address emergency stabilization issues related to wildland fire. The program is utilized by all federal land management agencies. The BAER teams perform emergency Stabilization actions within one year of wildfire containment. These actions are intended to stabilize and prevent unacceptable degradation to natural and cultural resources, minimize threats to life or property

resulting from the effects of a fire, or to repair, replace, or construct physical improvements necessary to prevent degradation of land or resources.

The Department of the Interior firefighting agencies also utilize Burned Area Rehabilitation (BAR) efforts, which is used to signal the beginning of restoration efforts. BAR begins within five years of a wildfire containment in order to repair or improve fire-damaged lands that are unlikely to naturally recover to management approved conditions. BAR actions are also taken as an effort to repair or replace minor facilities damaged by fire.

Not every wildland fire will require the services of a BAER team. In fact, most of them do not. The determination not to utilize BAER is no reflection of the importance of a specific wildland fire, however, it just means that the anticipated post-fire impacts to natural and cultural resources from that specific fire were not at an unacceptable level. The Interagency Standards for Fire and Fire Aviation Operations Red Book (Updated Annually). The Interagency Standards for Fire and Fire Aviation Operations Red Book page updates are issued on an annual basis. For the Bureau of Indian Affairs, this document provides guidance on field level fire operations, in addition to policy referenced in the Indian Affairs Manual (IAM) Section 90. Referencing this document is important as Policies and procedures may change from year to year.

ES and BAR treatments are an integral part of wildfire incidents, but are programmed, and funded separately from each other. Reference documents include:

- Interagency Burned Area Emergency Response (BAER) Guidebook (Feb. 2006)
- Interagency Burned Area Rehabilitation (BAR) Guidebook (Oct. 2006)
- Burned Area Emergency Response Team Standard Operations Guide (Jan. 2007)
- Department Manual Part 620, Chapter 1 & 3.
- Department Manual 516 Part 6, Appendix 4.
- Indian Affairs Manual Part 90.
- 25 CFR, Section 163.28.
- Interagency Incident Business Management Handbook

Damages resulting from wildfires are addressed through four activities:

4.4.1 Suppression Repair

Suppression activity damage repairs are the responsibility of the Incident Commander and are funded using the suppression account. This work should be completed by the incident management team prior to final demobilization of the suppression forces whenever practical. However, it may be more cost-effective and practical to delay some repairs to improve the chance of success. It is the responsibility of the agency administrator to ensure suppression activity damage repair. It is generally incumbent upon the Resource Advisor to provide those standards and work with the incident to assure that rehabilitation is completed appropriately. In order to do this, it is imperative that the Resource Advisor work with the Field Observers and GIS unit to assure that all suppression impacts are mapped. Refer to Red Book guidance for typical suppression rehabilitation tasks.

4.4.2 Emergency Stabilization (ES)

The purpose of ES is to determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent further unacceptable degradation to natural and cultural resources from the effects of a wildfire. Rely on natural recovery in situations where effective treatments are not feasible/practical or no post-fire emergency exists. All actions will be in accordance with approved land management plans and applicable policies, standards, and all relevant federal, state, and local laws and regulations.

The agency evaluates all wildland fires for emergency stabilization needs to prevent post-fire threats to life, property, and additional unacceptable resource damage. Reference the BIA Supplemental Policy - Indian Affairs Manual Part 90, Department of Interior Departmental Manual 620 DM3, Emergency Stabilization and Rehabilitation, the Interagency BAER Guidebook, and the Interagency Rehabilitation Guidebook. Refer to the, BIA Suppression Rehabilitation Standards Appendix F.

The assessment of stabilization needs, and proposed treatments are documented in a burned area emergency response (ES) plan within one year from date of containment. All ES plans are approved by the appropriate line officer and funded at the national office. The Department of Interior may put a dollar cap on the ES available budget, potentially limiting funding for approved plans. National and Regional BAER Coordinators will review all plans for technical compliance with policy and procedures.

- The Agency Superintendent may approve plans up to $250,000.
- The Regional Director may approve plans up to $500,000.

Plans obligating more than $500,000 will be approved by the BIA Director, Branch of Fire Management, National Interagency Fire Center (NIFC).

4.4.3 Burned Area Rehabilitation (BAR)

The purpose of BAR is: 1) to evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildfire damage; 2) to develop and implement cost-effective plans to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is not feasible, then to begin rehabilitation toward a healthy, stable ecosystem in which native species are well represented; 3) to repair or replace minor facilities damaged by wildland fire.

The BAR plan will specify non-emergency treatments which meet approved land management plans to be carried out within three years of containment of a wildfire. The Agency/Tribes will develop and implement cost-effective BAR plans to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans or if that is infeasible, then to restore or establish a healthy, stable ecosystem in which native species are well represented.

BAR projects are competitively funded among all four DOI bureaus. Funding is limited so there is no guarantee that BAR treatments/activities will be funded. BAR funds can only be provided three years from containment of the wildfire. Plans that request multi-year funding are not guaranteed funding each

year. Funds will be given out on a yearly breakout as specified in the BAR plan and approved by the national BAER coordinators.

4.4.4 Restoration

The purpose of Restoration is to continue rehabilitation past the initial five years, or the repair or replacement of major assess that were damaged by wildfires.

4.4.5 Burned Area Emergency Response (BAER) Teams

BAER Teams are a standing or ad hoc group of technical specialists (e.g., 4 hydrologists, biologists, soil scientists, etc.) that develop and may implement portions of the Burned Area Emergency Response Plans. They will meet the requirements for unescorted personnel found in the Red Book, Chapter 7 under "Visitors to the Fireline" when working within the perimeter of an uncontrolled wildfire. The team's skills and size should be commensurate with the size and complexity of the wildfire.

It is the Agency Administrator's responsibility to designate an interdisciplinary BAER team. However, BAER teams must coordinate closely with Incident Commander (IC) and Incident Management teams to work safely and efficiently. Initial requests for funding for BAER should be submitted to the appropriate Agency Administrator for approval within 7 calendar days after the total containment of the fire.

If additional time is needed, extensions may be negotiated with those having approval authority.

- DOI – The Department of the Interior no longer maintains a National BAER Team. The National BAER team is still scalable in short or long team configurations based on the affected resource needs. It may be ordered as command and general staff or ordered as individual resources. From extreme risks to human life and critical federal assets, potential floods, mud and debris flows, watershed/municipal water supplies, urban interface, and complex and multiple jurisdictions is the dispatch prioritization criteria issues factored into the mobilization decision. Less complex incidents will use local, regional, interagency, and contracted ad hoc BAER teams that may be supplemented with National BAER Team personnel. Bureau coordinators maintain rosters of BAER personnel for less complex incidents.

- DOI – The DOI-BAER Teams should be requested at least 10 days prior to expected date of wildfire containment and ordered as per the National Mobilization Guide.

4.5 Air Quality

In addition to the aesthetic impact, smoke emissions can impair visibility, which can become particularly hazardous to vehicle travel. In sufficient high concentrations, particulate matter from smoke can threaten human health involving the public as well as firefighter safety, especially for individuals with respiratory ailments. Excessive smoke production is most likely to occur when heavy concentrations of fuels burn. Persistent atmospheric inversions and low wind conditions can result in poor smoke dispersal.

While there is little that can be done to reduce smoke generated from wildfires, there are measures that can sometimes be taken to manage its effects. Traffic control measures should be considered whenever visibility is significantly impaired in travel corridors. Similarly, public health advisories may be issued when

smoke concentrations pose a serious hazard to respiratory health. Firefighter health and safety smoke inhalation treatment stations may be available at established Incident Command Posts.

4.6 Severity and Support Action

Guidance for use of severity and support action funding is found in the Red Book. Severity funding is generally requested for short- or long-term duration periods of abnormal fire danger and/or fire behavior or for elevated periods of fire occurrence.

Generally, support actions are used for funding overhead, equipment and fire crews dispatched to other jurisdictions.

4.7 Responsibilities

Responsibilities of key administrative and fire management positions are documented in the Red Book.

The following BIA administrative and support organizations provide assistance to the Southern Pueblos Agency:

- **BIA Regional Director:** The Regional Director of the BIA Southwest Regional Office is responsible to the Secretary of Interior for fire management programs administered by the BIA.
- **Agency Superintendent:** The Southern Pueblos Agency Superintendent is responsible to the BIA Southwest Regional Director for the safe, effective, and efficient implementation of all fire management activities. This includes cooperative activities with other agencies or landowners in accordance with delegations of authorities.
- **Regional Office Fire Management Officer (RFMO):** The BIA Southwest RFMO is responsible for negotiating interagency agreements, cooperative agreements, and providing planning, coordination, training, technical guidance, and evaluations to fire management programs throughout the Regional Office's sphere of influence. The Regional Fire Management Officer also represents the Regional Director on interagency geographic coordination groups and multi-agency coordination (MAC) groups.
- **Fire and Aviation Management:** The BIA National Interagency Fire Center at Boise, Idaho coordinates the BIA Fire and Aviation Management's Wildland Fire Management Program on a national level. Its bureau-wide function is to assist regional offices, agencies, and tribes with the development and implementation of a safe, effective, and efficient fire management program that meets management objectives.

4.8 Management of Planned Vegetation Management

4.8.1 Policy and Guidance

National Cohesive Wildland Fire Management Strategy, Interagency Prescribed Fire Planning, and Implementation Procedures Guide (2017)

- Bureau of Indian Affairs Release Memo
- PMS 484 - Interagency Prescribed Fire Planning and Implementation Procedures Guide
- Forest Management Policy

- Managing Long Term Fires Guide - June 2016
- Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model (2005)
- Fuels Management Committee
- Interagency Publications
- PMS - 424 Prescribed Fire Complexity Rating System Guide
- PMS - 430 Interagency Standards for Wildland Fire Module Operations
- PMS - 481 Fire Effects Guide
- PMS - 484 Interagency Prescribed Fire Planning and Implementation Procedures Guide (2004)
- PMS - 485 Agency Administrator Ignition Authorization
- PMS - 486 Prescribed Fire Go/No-Go Checklist

Fire is recognized as having a critical role in the maintenance of healthy wildland ecosystems. The Pueblo endorses an increase, relative to levels seen in recent decades, in the use of fire as a potential land and resource management tool. Due to present conditions, however, the Pueblo also acknowledges that other means of fuels treatment (mechanical, biological, and chemical) may have to be incorporated prior to managing fuels with fire.

Fuel treatments will continue to occur and will be analyzed in future site-specific NEPA documents. These activities may result from brush disposal after timber harvest activities, stand density reductions, and/or natural hazards fuel reductions.

4.8.2 Fuels Management Plan

A Fuels Management Plan documents the processes, alternatives, and rationale behind fuels management strategies. It is intended to guide the planning and implementation of fuels reduction treatments on federal trust lands. It establishes general guidance and direction for the fuels programs. The intent of the Fuels Management Plan is to develop, implement, and maintain a schedule of treatments with the intent of returning natural plant communities Fire Regimes (FR) to their historical norms or a Condition Class I. The highest priorities for treatments are Ponderosa Pine forests, Pinyon/Juniper Woodlands, and Rangelands. Appropriate Tribal Staff will be consulted during the planning and implementation of all HFR projects.

A Prescribed Fire Plan will be prepared and reviewed that details the objectives and prescriptions of the project area. Prescribed Fire Plans have to follow guidelines as established in the *"Interagency Prescribed Fire Planning and Implementation Procedures Guide*" (2017, PMS 484), *National Environmental Policy Act of 1969 (NEPA), National Historical Preservation Act (NHPA)* and *Endangered Species Act (ESA)* requirements. Each plan will be reviewed and approved by the appropriate officials before any management activity can take place.

4.8.3 Vegetation Management

Ecosystems no longer look or have the ecological conditions they once did as a result of excluding fire. Today's landscapes are ripe for disease, insect infestation, and catastrophic wildfires. To address these issues, the Fuels Management Program works with BIA's 12 regions and agencies to provide funding that

reduces hazardous vegetation in and around the wildland urban interface (WUI) and outside the WUI, where most treatments occur. These treatments are performed either through prescribed fires or mechanical treatments.

In order to restore landscapes to their natural and cultural place, the BIA works closely with tribal elders and other specialist to identify the desired management objects for their land. Many objectives are designed to restore landscapes to their traditional uses. Traditional landscape fosters diversity and sustainability; supports edible and medicinal plants; and creates an environment that encourages spiritual involvement. To restore natural and cultural resources to familiar landscapes, BIA fuels management staff work alongside tribes, blending traditional ecological knowledge with a scientific approach.

The use of wildland fire for resource benefit, prescribed fire and other fuels management alternatives will enable the Pueblo to achieve hazard fuels reduction and resource management objectives. The development of prescribed fire and fuels treatment plans from site specific NEPA projects, preplanning for potential wildland fires for resource benefit, and operational implementation of selected fuels treatments will be monitored and evaluated for their effects. Archiving fuels treatment data and responsible fiscal reporting are all necessary components in creating a landscape vegetation history. By analyzing and evaluating this history as it is created, resource managers can implement adaptive management techniques as they continue to reassess and redefine management objectives and quantifiably measure management successes for safer and healthier fire dependent ecosystems.

Changes outside the scope of the Forest Management Plan EA and accompanying Decision Notices/ Finding of No Significant Impact (DN/FONSI) may require amendment of these documents. The BIA (NEPA) Handbook provides guidance relating to EA amendments.

4.9 Prevention and Education

Human caused wildland fire is the highest ignition source of wildland fires in Indian country. When coupled with the extensive nature of wildfire regimes that have been altered from historic levels, human caused fire poses a greater threat to life and property, including natural and cultural resources, than natural ignitions.

The Wildland Fire Prevention Handbook (NWPH) is designated as Indian Affairs Manual (IAM), part 90. Chapter 1.4 c, 6(H), provides detailed policy and guidance for all aspects of the wildland fire prevention program.

Wildfire Prevention Plan, Southern Pueblos Agency Bureau of Indian Affairs 2014-2023: The purpose of this WFPP is to identify and implement cost efficient and effective prevention strategies to reduce the number of human caused fires and educate the public on prevention and hazard mitigation techniques across lands that fall under the jurisdiction of the Southern Pueblos Agency. This plan outlines the work activities to be carried out over a ten-year period by the prevention technician.

This plan was prepared following the Standard WFPP outline established in the 2012 BIA National Wildfire Prevention Handbook (90 IAM 1.4C (6) – H). The plan is divided into four main sections: Section I –

Introduction, Section II – Situational Analysis, Section III – Implementation Plan and, Section IV – Appendices.

The ten Tribes for the Southern Pueblos Agency each have their own separate Wildland Fire Management Plan and the WFPP plan is tiered directly to all ten Wildland Fire Management Plans (WFMP's). This WFPP also provides the information and guidance needed to meet the BIA standards for a Community Wildfire Protection Plan (CWPP) equivalency.

5. Monitoring and Evaluation

This chapter is designed to address two main factors which include monitoring of the Pueblo of Isleta WFMP (section 5.1) and the on the ground monitoring of other programs and projects including fuels, BAER, and fire suppression (all other sections).

5.1 Wildland Fire Management Plan Monitoring

The intent of this chapter is to document processes for determining whether the WFMP is being implemented as planned and whether fire-related goals and objectives are being achieved. Information obtained from monitoring and evaluations is used to help update the WFMP and land management plans.

As supplemental plans are updated annually, the following items will be reviewed:

- Monitoring of the WFMP for changes that may have resulted from large scale vegetation changes or site conditions.
- Unit level monitoring of other programs and projects, including any newly identified items of special interest that the tribes request (i.e. BAER, Fuels and fire suppression etc.)

Additional meetings such as those held prior to the fire season to review preparedness and readiness of the fire organization enable discussions of any potential changes in the plan brought about by new guidelines or direction. Examples include: addressing fire related items of special interest that the tribe may have, discussing priorities in the plan, and emphasize priority direction for the upcoming year. If any of these discussions occur, a new wildland Fire Management Plan, or amendment, would have to be developed.

Throughout the year, the BIA Fire Management Officer, Pueblo of Isleta, and Agency Superintendent will meet to qualify or discuss update of work implementation and coordinate and consult on implementation of the WFMP or other issues that have arisen.

5.2 Reporting and Documentation Requirements

Reporting requirements are outlined in the Guidance for Implementation of Federal Wildland Fire Management Policy (February 13, 2009). For specific guidance regarding prescribed fire the BIA Fuels Management Program Planning and Implementation Guide can be used. Reporting Wildfires, the BIA Fire Occurrence Reporting System Users Guide will be followed, in addition to various handbooks and memorandum issued by the BIA Regional Office and BIA-NIFC. Important reporting elements include but are not limited to the following.

- DI-1202, Individual Fire Reports: Important monitoring elements include fire size, location, Fire Danger Index level, fuel model. All suppressed fires will be recorded in InFORM Inspector (https://irwin.doi.gov/inspector/incidents). Note: all fires greater than five acres in size will be mapped with Collector app and that data uploaded into InFORM.
- ICS-209, Incident Status Summary: The minimum national requirements for submitting an ICS-209 have not changed. An ICS-209 is required for any fire under a full suppression management strategy that exceeds 100 acres in timber (fuel models 8-13), 300 acres in grass and brush (fuel models 1-7), or has a Type 1 or 2 incident management team assigned. (Geographic Areas and agencies may have more stringent reporting requirements.) Wildland fires being managed under multiple strategies may, or may not, require an ICS-209 to be submitted daily, depending on the size and complexity of the incident. The attached decision matrix and this document provide the basic guidelines for when an incident should submit an ICS-209 report.
- Burned Area Emergency Stabilization and Rehabilitation Accomplishment Reports
- NFPORS: Important monitoring elements include fire size, vegetation, location, and treatment type for fuels and BAER treatments. NFPORS are only needed when fire is in a treatment area.

Records Management and Archiving**:** The Office of the Special Trustee for American Indians (OST) and Indian Affairs shall ensure the records management program is in compliance with recordkeeping requirements established by the Federal Records Act, National Archives Records Administration (NARA) regulations, Department of the Interior (DOI) policies and procedures, and Office of Trust Records policies and procedures set forth in the Indian Affairs Records Management Manual (IARMM), refer to 303 DM 6, Indian Fiduciary Trust Records (September 5, 2003) records management protocol.

5.3 After Action Review (AAR)

An AAR is an official review of any type of project including fire suppression, prescribed fire operations and other activities. The AAR is a technique to measure/monitor what we did and how well we did it. The climate surrounding an AAR must be one in which the participants openly and honestly discuss what transpired, in sufficient detail and clarity, so everyone understands what did and did not occur and why. Most importantly, participants should leave with a strong desire to improve their proficiency. Key concepts of an AAR are described on page XII (white pages) of the IRPG.

Further guidance is available from the Lessons Learned Center,
http://www.wildfirelessons.net/AAR.aspx

APPENDICES

Appendix A: Acronyms and Glossary

AD	Administratively Determined: A person hired and compensated under the Pay Plan for Emergency Workers (Federal system).
AAR	After Action Review: A post incident review process
AFMO	Assistant Fire Management Officer
AOP	Annual Operating Plan
BAER	Burned area emergency response:
BAR	Burned area rehabilitation (Non-emergency).
BIA	Bureau of Indian Affairs
BIA-NIFC	BIA National Branch of Fire and Aviation, National Interagency Fire Center
BI	Burning Index
BLM	Bureau of Land Management
Blue Book	Wildland Fire and Aviation Program Management and Operations Guide (issued by BIA-NIFC and updated annually)
CWPP	Community Wildfire Protection Plan
DM	US Dept. of Interior Departmental Manual
DOI	Department of Interior
DI 1202	Department of Interior Individual Fire Report Form
EFF	Emergency Firefighter.
ES	Emergency Stabilization.
EMT	Emergency medical technician.
ERC	Energy Release Component
EVT	Existing vegetation types.
FMO	Fire Management Officer: Also called Wildland Fire Program Manager.
FMP	Fire Management Plan. Another term commonly used is the Wildland Fire Management Plan (WFMP).

FMU Fire Management Unit: A fire management unit (FMU) is defined by the National Wildfire Coordination Group (NWCG) as a land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, major fire regime groups, etc. that set it apart from the characteristics of an adjacent FMU. The FMU may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

FPA Fire Program Analysis: FPA is a performance-based, landscape scale interagency fire program planning and budgeting system.

FPU Fire Planning Unit: The FPU is defined in order to describe a geographic analysis area specifically for FPA. It is not predefined by agency administrative boundaries and may be described spatially. It can include a single or multiple Land Use Plan area(s). It can cross jurisdictional boundaries and consists of one or more FMUs.

FWF Fire Weather Planning Forecast

FWS Fish and Wildlife Service.

GACC Geographic Area Coordination Center: Interagency regional operational centers for fire resource coordination and mobilization.

GIS Geographic Information System: A computer-based system of geographical data that contains numerous data layers (e.g., terrain, roads, vegetation, other improvements, fire history, fuel models, etc.). It is used for planning future projects and maintaining a record of existing conditions and historical activities.

GPS Global Positioning System

HFRA Hazardous Fuels Reduction Act.

FMU Fire Management Unit: Any land management area definable by objectives, topographic features, access, values-to be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMU's are delineated in WFMPs. These units may have dominant management objectives and preselected strategies assigned to accomplish these objectives.

IRPG Incident Response Pocket Guide, PMS 461, NFES 1077.

IA Initial Attack: An aggressive suppression action consistent with firefighter and public safety and values to be protected.

IAM Indian Affairs Manual

IAP	Incident Action Plan. Contains objectives reflecting the overall incident strategy and specific tactical actions and supporting information for the next operational period. The plan may be oral or written. When written, the plan may have a number of attachments, including incident objectives, organization assignment list, division assignment, incident radio communication plan, medical plan, traffic plan, safety plan, and incident map. Formerly called shift plan.
IC	Incident Commander
ICS	Incident Command System
IMET	Incident Meteorologist
IQCS	Incident Qualification and Certification System
LANDFIRE	LANDFIRE: Also known as the Landscape Fire and Resource Management Planning Tools Project, is a multi-partner project producing consistent and comprehensive maps and data describing vegetation, wildland fuel, and fire regimes across the United States. It is a shared project between the wildland fire management programs of the U.S. Department of Agriculture Forest Service and U.S. Department of the Interior.
MAC	Multi Agency Coordinating Group. A generalized term which describes the functions and activities of representatives of involved agencies and/or jurisdictions who come together to make decisions regarding the prioritizing of incidents, and the sharing and use of critical resources. The MAC organization is not a part of the on-scene ICS and is not involved in developing incident strategy or tactics.
MIST	Minimum Impact Suppression Tactics. The application of strategy and tactics that effectively meet suppression and resource objectives with the least environmental, cultural, and social impacts.
NEPA	National Environmental Policy Act
NFDRS	National Fire Danger Rating System: A system that uses inputs of temperature, relative humidity, wind speed, fuel moisture, and fuels parameters to compute components and indices related to the ignition, spread, and difficulty of control of wildland fire.
NFFL	National Forest Fire Laboratory
NFPORS	National Fire Plan Operations Reporting System: A computer-based online information portal used to request project funding and track project progress.
NIFC	National Interagency Fire Center: An interagency facility located in Boise, Idaho that manages fire activities at the national level, for all five federal wildland fire agencies.
NIMS	National Incident Management System

NPS	National Park Service. An agency under USDI.
NRCS	US Department of Agriculture**,** Natural Resources Conservation Service
NWCG	National Wildfire Coordinating Group. A group formed under the direction of the Secretaries of the Interior and Agriculture to improve the coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend appropriate action, or resolve issues and problems of substantive nature.
NWS	National Weather Service
NWCG	National Wildfire Coordinating Group: An interagency, inter-governmental body that establishes operational fire management standards and procedures such as qualification and certification protocols, allocation or resources protocols, equipment standards, and training programs.
PPE	Personal Protective Equipment: Equipment that is required to safely perform assigned tasks. In wildland firefighting, this requirement includes 8-inch-high leather boots, Nomex pants and shirt, leather gloves, hard hat, and a fire shelter. Specific jobs may require additional safety equipment.
PS	Predictive Services. This function is managed out of the Southwest Coordination Center in Albuquerque, NM for the SW Geographic Area.
PSA	Predictive Services Area
RAWS	Remote Automatic Weather Station: Automated weather stations that are located throughout the United States. These stations gather weather data that assists land management agencies with a variety of projects – wildland fire management, monitoring air quality, rating fire danger, determining prescribed fire windows, and providing information for research applications.
RFMO	The BIA Regional Fire Management Officer
RFW	Fire Weather Watches and Red Flag Warnings
RH	Relative Humidity
ROMAN	Real Time Observation Monitor and Analysis Network
RXFire	Prescribed Fire: Any planned ignition intended to meet specific objectives.
SEAT	Single Engine Air Tanker
SWCC	Southwest Coordination Center
SWFF	Southwest Indian Fire Fighter Program

USDI	United States Department of Interior
USFS	US Forest Service
VTP	Values to be Protected: These include property, structures, physical improvements, natural and cultural resources, community infrastructure, economic, environmental, and social values.
Wildland Fire	A general term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two distinct types: Wildfires - unplanned ignitions or prescribed fires that are declared wildfires, and Prescribed Fires - planned ignitions.
WFDSS	Wildland Fire Decision Support System: A process which examines the full range of responses to a wildland fire and becomes the documentation support system for the management strategies taken.
WFMI	Wildland Fire Management Information System
WFMP	Wildland Fire Management Plan: A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved Forest Management Plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch plans, prescribed fire plans, prevention plans, etc.
WIMS	Weather Information Management System
WSFO	Weather Service Forecast Office
WUI	Wildland/Urban Interface: The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels or where humans and their development meet or intermix with wildland fuel.

Appendix B: References Cited

Federal Fire Policy

- NWCG Terminology Update, attachment A, #24-2010 (April 30, 2010)
- Guidance for Implementation of Federal Wildland Fire Management Policy (February 13, 2009)
- Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001)
- Modification of Federal Wildland Fire Policy Guidance (memorandum dated May 2, 2008)
- Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy (June 20, 2003)
- Federal Register Volume 66, U.S.D.A. & U.S.D.O.I. 2001. Urban Wildland Interface Communities Within the Vicinity of Federal Lands That Are at Risk From Wildfires
- Healthy Forests Restoration Act of 2003 (HFRA)

Department of Interior Policy

- Department of Interior Departmental Manual Part 620, Chapter 1: Wildland Fire Management (April 9, 1998)
- The Department of the Interior (DOI) Departmental Manual 620 DM, Chapter 3, Burned Area Emergency Stabilization and Rehabilitation

Bureau of Indian Affairs Policy and Handbooks

- BIA Fuels Management Program, 2008 Business Rules Handbook (July 2008)
- BIA, Fuels Management Program – Supplement to the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (December 2008)
- Indian Affairs Manual (IAM), Part 90 IAM, Wildland Fire Management, Jan. 2006.
- Indian Affairs Manual (IAM), Part 57 IAM, Aviation Management, Oct. 1999
- U.S. CFR.1 April 1999, Title 25, Indians. Chapter I, BIA, DOI. Part 163 – General Forestry Regulations. Sections 163.28 (a), (b), (c), (d)
- U.S. Code of Federal Regulations (CFR). 1 April 1999. Title 25, Indians. Chapter I, BIA (BIA), Department of Interior (DOI)
- BIA, Wildland Fire & Aviation Operations Guide, “Red Book”, (issued annually)
- Tribal Wildfire Resource Guide, University of Oregon, 2006

Interagency Fire Management Handbooks and Guides

- Wildland Fire Incident Management Field Guide (replaces Fireline handbook Appendix A), PMS 210
- Incident Response Pocket Guide (IRPG) (PMS 461, NFES 1077)
- Interagency Prescribed Fire, Planning and Implementation Procedures Guide (July 2008)
- Interagency Burned Area Emergency Response Guidebook, Version 4.0, February 2006

- Interagency Burned Area Rehabilitation Guidebook, Version 1.3, October 2006
- Interagency Fire Regime Condition Class Guidebook, Version 1.2, May 2005
- Interagency Standards for fire and Fire Aviation Operations, (issued annually)
- National Interagency Mobilization Guide (issued annually)
- Rocky Mountain area Mobilization Guide (issued annually)
- Fire Program Analysis (FPA) Guidance
- Wildland Fire Qualification System Guide, PMS 310-1, NFES 1414
- FFI (Feat/Firemon Integrated) Users Guide, Ecological Monitoring, March 2011

Appendix C: Fire Policy

National Fire Policy

The "Guidance for Implementation of Federal Wildland Fire Management Policy" (February 2009), replaces the "Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy" (June 20, 2003). This updated guidance consolidates and clarifies changes that have occurred since the 2003 strategy document was issued, and provides revised direction for consistent implementation of the "Review and Update of the 1995 Federal Wildland Fire Management Policy" (January 2001)

Guiding Principles

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process. Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.
- Fire Management Plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity. Net gains to the public benefit will be an important component of decisions.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives. Federal agency administrators are adjusting and reorganizing programs to reduce costs and increase efficiencies. As part of this process, investments in fire management activities must be evaluated against other agency programs in order to effectively accomplish the overall mission, set short- and long-term priorities, and clarify management accountability.
- Fire Management Plans and activities are based upon the best available science. Knowledge and experience are developed among all federal wildland fire management agencies. An active fire research program combined with interagency collaboration provides the means to make these tools available to all fire managers.
- Fire Management Plans and activities incorporate public health and environmental quality considerations.
- Federal, Tribal, State, local, interagency, and international coordination and cooperation are essential. Increasing costs and smaller work forces require that public agencies pool their human resources to successfully deal with the ever-increasing and more complex fire management tasks. Full collaboration among federal wildland fire management agencies and between the federal wildland fire management agencies and international, Tribal, State, and local governments and private entities result in a mobile fire management work force available for the full range of public needs.

- Standardization of policies and procedures among federal wildland fire management agencies is an ongoing objective. Consistency of plans and operations provides the fundamental platform upon which federal wildland fire management agencies can cooperate, integrate fire activities across agency boundaries, and provide leadership for cooperation with Tribal, State, and local fire management organizations.

Implementation of Federal Fire Management Policy

This WFMP guides implementation of fire management policies to help achieve fire management goals defined in:

1. Federal Wildland Fire Management Policy and Program Review;
2. Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA); and
3. A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10 Year Comprehensive Strategy Implementation Plan.

The following guidelines should be used to provide consistent implementation of federal wildland fire policy.

1. Wildland fire management agencies will use common standards for all aspects of their fire management programs to facilitate effective collaboration among cooperating agencies.

2. Agencies and bureaus will review, update, and develop agreements that clarify the jurisdictional inter-relationships and define the roles and responsibilities among local, tribal, state and federal fire protection entities.

3. Responses to wildland fire will be coordinated across levels of government regardless of the jurisdiction at the ignition source.

4. Fire management planning will be intergovernmental in scope and developed on a landscape scale.

5. Wildland fire is a general term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two distinct types:

    a. Wildfires – Unplanned ignitions or prescribed fires that are declared wildfires

    b. Prescribed Fires - Planned ignitions.

6. A wildland fire may be concurrently managed for one or more objectives and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives.

7. Management response to a wildland fire on federal land is based on objectives established in the applicable Land/ Resource Management Plan and/or the Fire Management Plan.

8. Initial action on human-caused wildfire will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety.

9. Managers will use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions.

Department of Interior (DOI) Departmental Policy

Department of Interior Policy is listed in the Departmental Manual Part 620: Wildland Fire Management. The Departmental policy states:

1. Safety: Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.

2. Fire Management and Ecosystem Sustainability: The full range of fire management activities will be used to achieve ecosystem sustainability including its interrelated ecological, economic, and social components.

3. Response to Wildland Fire: Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, across bureau boundaries. Response to wildland fires is based on ecological, social and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and, values to be protected, dictate the appropriate response to the fire.

4. Use of Wildland Fire: Wildland fire will be used to protect, maintain, and enhance natural and cultural resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.

5. Rehabilitation and Restoration: Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, safety, and to help communities protect infrastructure.

6. Protection Priorities: The protection of human life is the single, overriding suppression priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.

7. Wildland Urban Interface: The operational role of the agencies as partners in the wildland/urban interface are wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of Tribal, State and local governments. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some Federal agencies have full structural protection authority for their facilities on lands they administer and

may also enter into formal agreements to assist Tribes, State and local governments with full structural protection.)

8. Planning: Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on the area's approved land management plan. Fire management plans must provide for firefighter and public safety, include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objectives, activities of the area, and environmental laws and regulations.

9. Science: Fire management plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical, and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, fire management plans and implementation plans.

10. Preparedness: Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment and management oversight.

11. Suppression: Fires are suppressed at minimum cost, considering firefighter and public safety, benefits and values to be protected, and be consistent with resource objectives.

12. Prevention: Agencies will work together and with their partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.

13. Standardization: Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, values-to-be-protected methodologies, and public education programs for all fire management activities.

14. Interagency Cooperation: Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, and research and education will be conducted on an interagency basis with involvement of all partners.

15. Communication and Education: Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.

16. Agency Administrator and Employee Roles: Agency administrators will ensure that their employees are trained, certified and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.

17. Evaluation: Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects through implementation of the 2009 Federal Wildland Fire Management Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

Bureau of Indian Affairs Fire Management Policy

Policy and responsibility for the BIA Wildland Fire Management program is documented in the *Indian Affairs Manual (IAM) Part 90, Chapter 1.* This part identifies the authorities, standards, and procedures that have general and continuing applicability to wildland fire activities under the jurisdiction of the Assistant Secretary – Indian Affairs.

The BIA mission, involving wildland fire management, policies and responsibilities are listed in Part 90; chapter 1 of the Indian Affairs Manual (IAM) is as follows:

1. Avoid exposure of firefighters to life threatening situations unless human lives are at risk.

2. Protect resource values from wildland fire while obtaining benefits to the resources from wildland fire use and prescribed fire at the least cost.

3. Coordinate and cooperate with tribes and other protection agencies in order to achieve efficiency and effectiveness.

4. Maintain an appropriate state of interagency preparedness with adequate resources and trained, qualified personnel.

5. Integrate wildland fire management decisions and natural resource management decisions based on the premise that wildland fire is a critical ecological process.

Appendix D: National Environmental Policy Act

NEPA Compliance

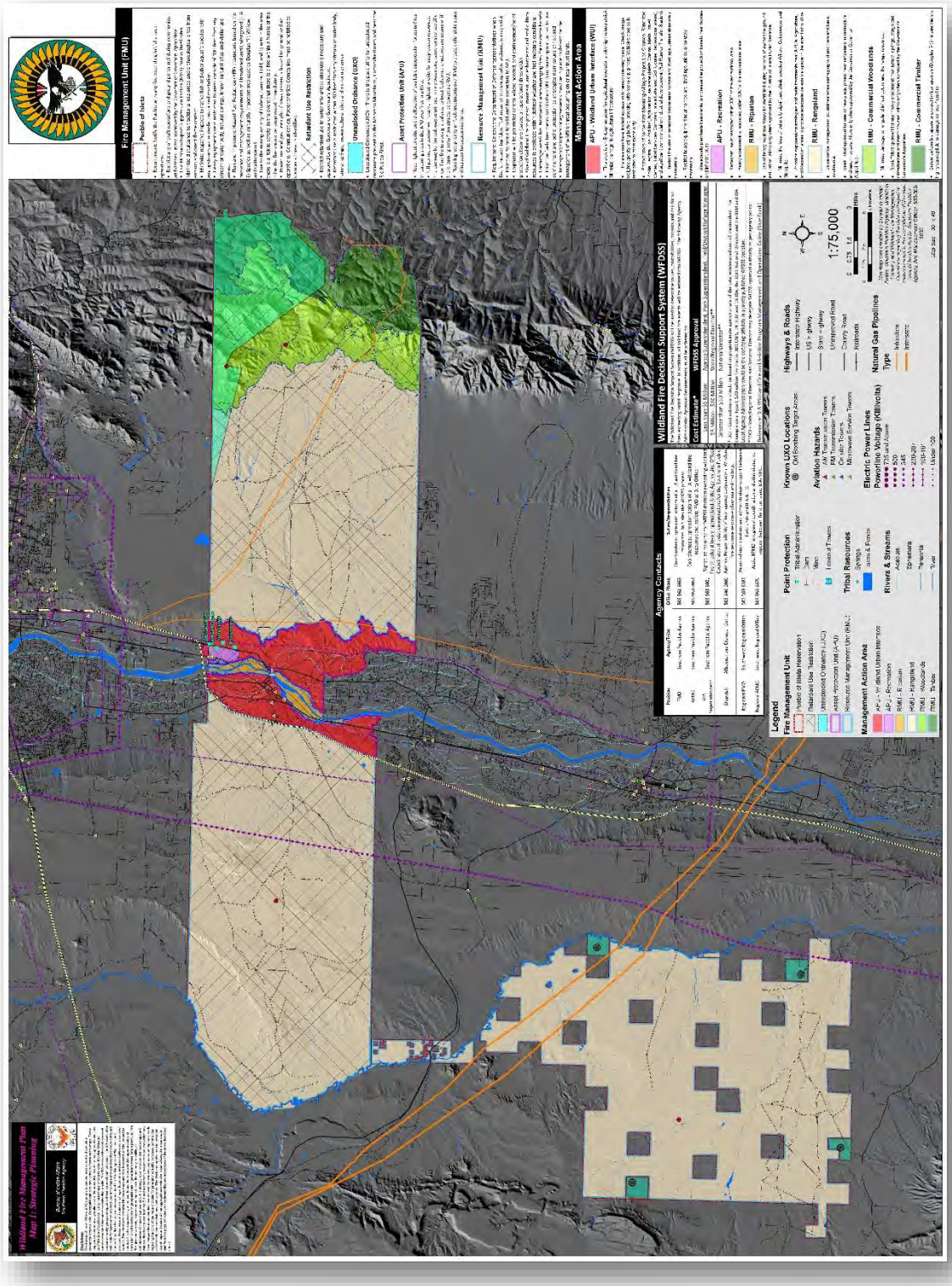
- NEPA Requirement: The primary requirement of §102 (2) of NEPA is that an Environmental Impact Statement (EIS) be prepared for major federal actions (see §1508.18) significantly affecting the quality of the human environment.
- An Environmental Assessment (EA) is a less detailed document that may be used to determine whether or not an EIS is required. If based on an EA, it is determined that a proposed action will not significantly affect the quality of the human environment, and the decision maker may fulfill the documentation required by the Council on Environmental Quality (CEQ) regulations by issuing a Finding of No Significant Impact (FONSI). In addition, certain kinds of actions, called Categorical Exclusions (CE), may be taken without the preparation of either an EA or EIS.
- Authority for BIA Decision Making: Decisions that BIA officials make are based upon delegations of authority which are documented in 30 IAM. Authority is generally delegated to the lowest level, typically the Agency Superintendent. Regional Directors may issue more detailed guidance regarding NEPA compliance for BIA actions within their service areas.
- Tribal Governments and NEPA: Tribal governments have substantial authority, through their retained tribal sovereignty, for additional environmental protection within their reservations. This tribal governmental authority is distinct from the responsibilities and authority of the BIA under NEPA and other Federal environmental laws, and from the federal trust responsibility. An activity affecting the environment of Indian reservations requires the approval of both the BIA and the tribal government. Because of this dual authority, the BIA NEPA process must be continually coordinated with tribal decision-makers.

Appendix E: BIA Suppression Rehabilitation Standards

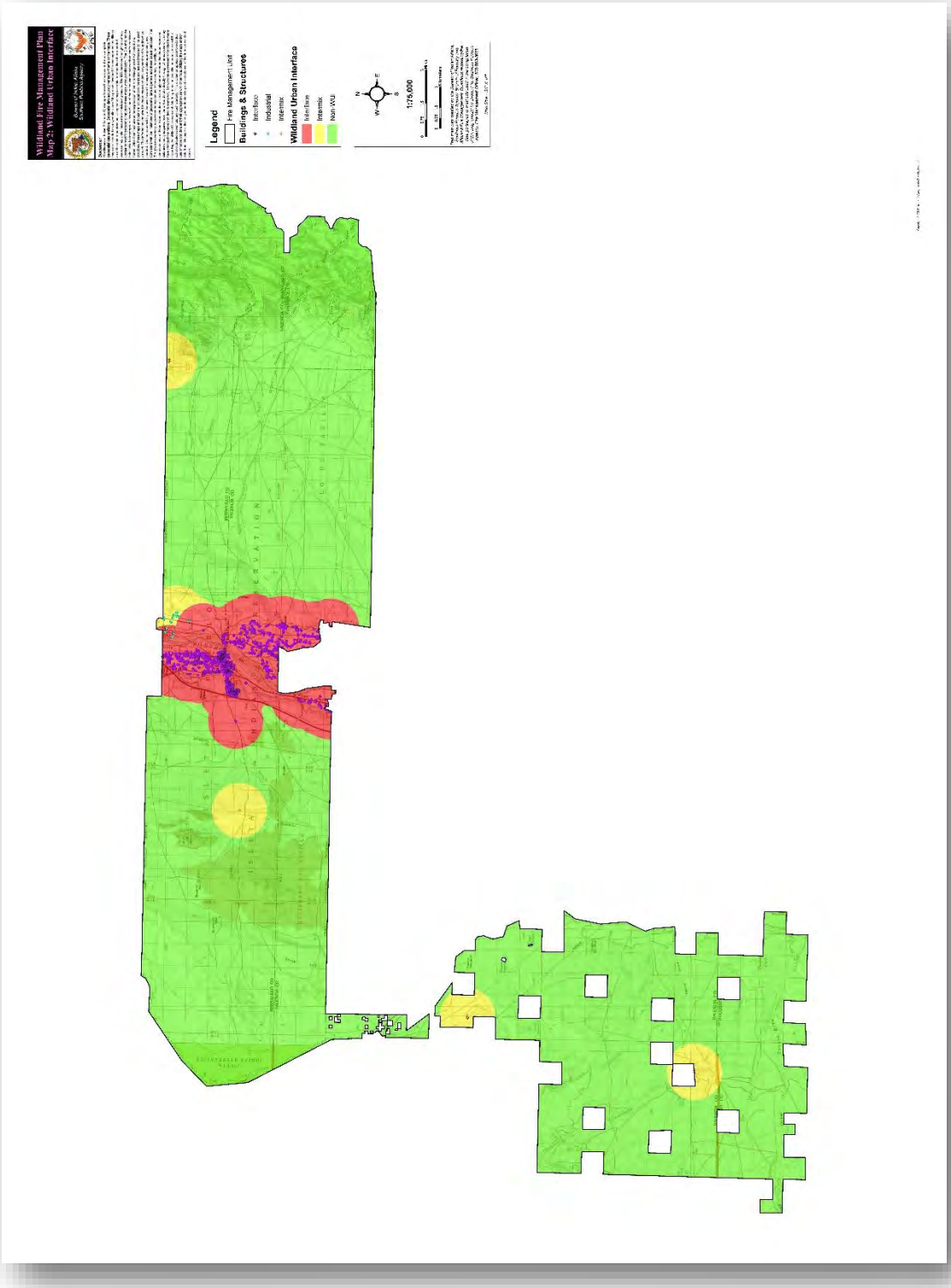
The following actions must be taken by the IMT1 to rehabilitate the immediate impacts from suppression efforts:

1. Rehabilitate dozer lines by pulling in berms and randomly scattering previously cut brush onto the fire lines to eliminate the appearance of a travel way and minimize future access. Get clearance from the Ops Section Chief before brush is pulled back into the dozer and fire lines. Coordinate with Agency Resource Advisors to avoid disturbance of cultural sites.
2. Cross slope dozer lines should be restored to original contour, as conditions allow.
3. Construct water bars along fire line slopes as follows:
   - Approximately every 150 feet for slopes 10-15%
   - Approximately every 100 feet for slopes 15-25%
   - Approximately every 75 feet for slopes greater than 25%
4. Brief operators and supervisors of potential for sparking due to travel of tracked machinery over rock and blade strikes. If significant sparking is occurring, have adequate suppression forces on hand.
5. When hand lines are no longer needed, rehabilitate and obliterate constructed hand lines by pulling in berms and randomly scattering previously cut brush onto the fire lines. Drag available burned logs and brush across the hand line. Do this according to time and availability of materials every 50 ft.
6. Cut all snags along roadways that pose an immediate threat to firefighter and public safety.
7. Pick up all trash along fire lines, flagging, spike camps, drop points, staging areas and at helispots.
8. Identify needs for revegetation or other mitigation on and adjacent to fire lines, spike camps, drop points and staging areas.
9. Close down Helibase including trash pickup in and around the perimeter of the base. Assess site impacts for revegetation or other mitigation. If cutting caused large amounts of slash piles the piles can be piled and burned at later date, or consider slinging cut material from the site. Remove landing pad, bury painted helispot markers, clean up any area where oil or fuel spills occurred, break up compacted soil.
10. Clear all stream beds (dry and wet), irrigation ditches/canals, culverts, and borrow ditches of brush and debris generated as a result of fire suppression actions.
11. Ensure that artifacts are not disturbed or collected by fireline personnel.
12. Mend fences and repair gates affected by suppression actions.

Appendix F: Map 1: Strategic Planning

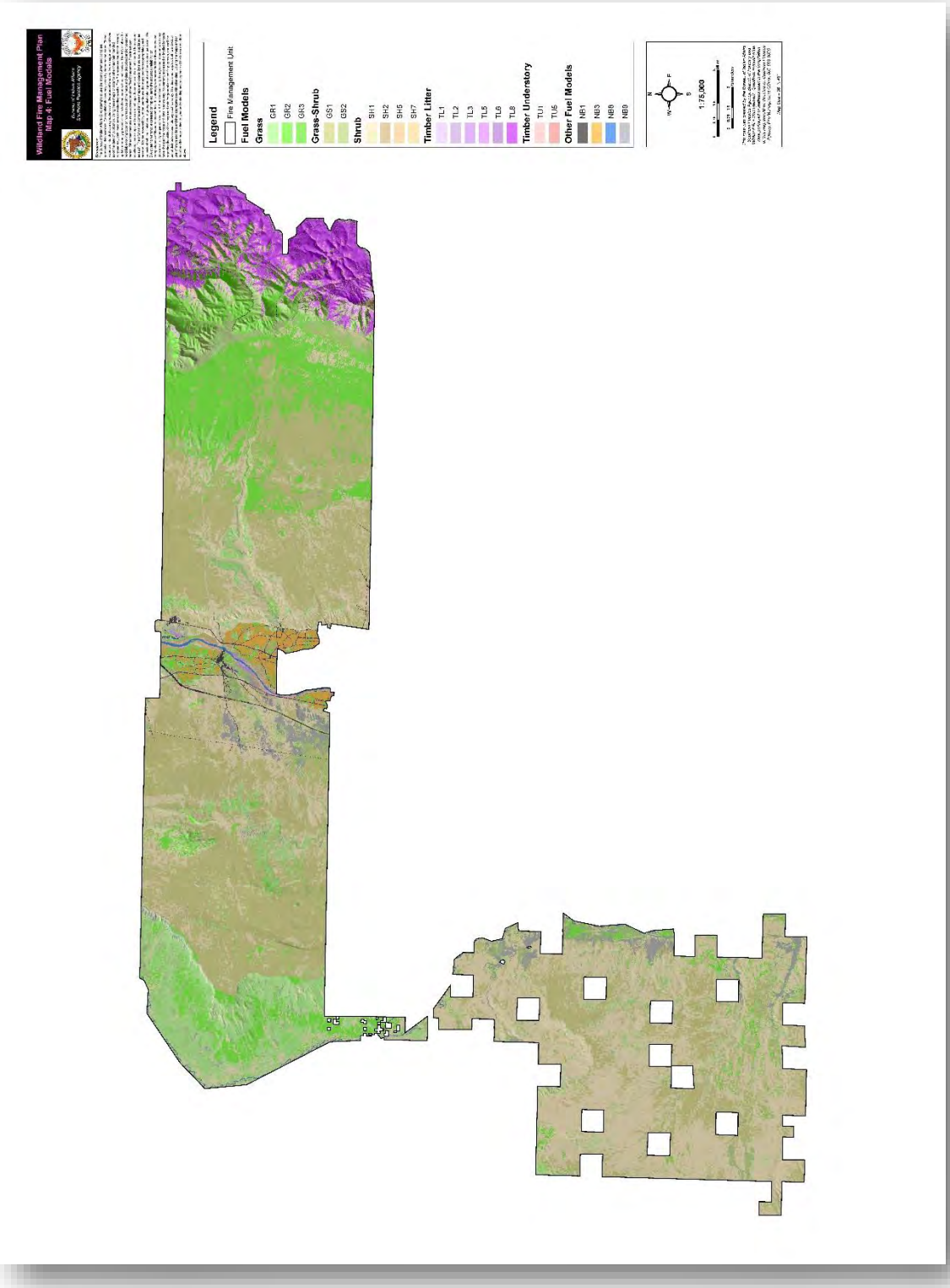


Appendix G: Map 2: Wildland Urban Interface (WUI)



Appendix H: Map 3: Existing Vegetation Type

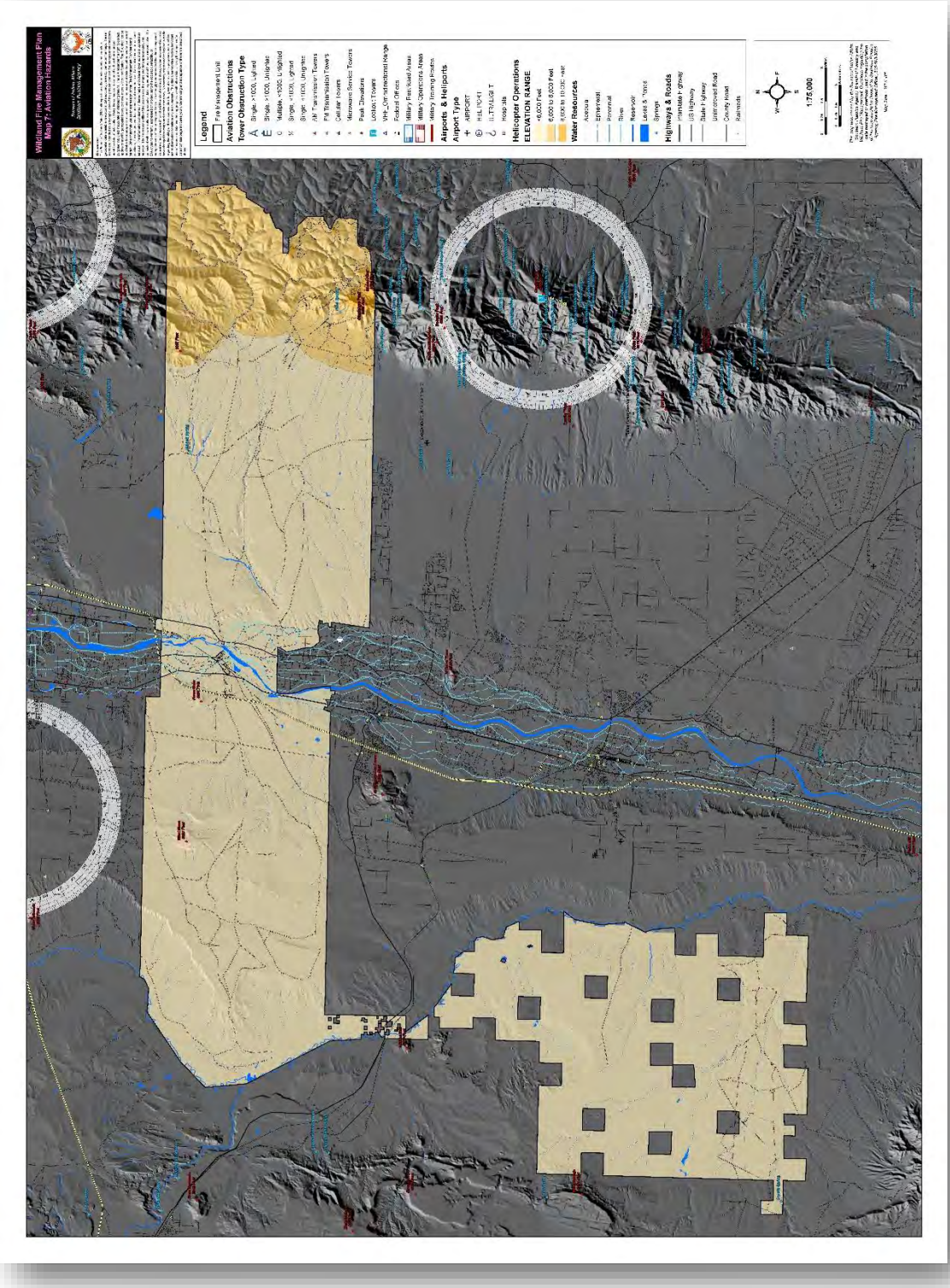
Appendix I: Map 4: Fuel Models



Appendix J: Map 5: Vegetation Condition Class

Appendix K: Map 6: Fire and Fuels History

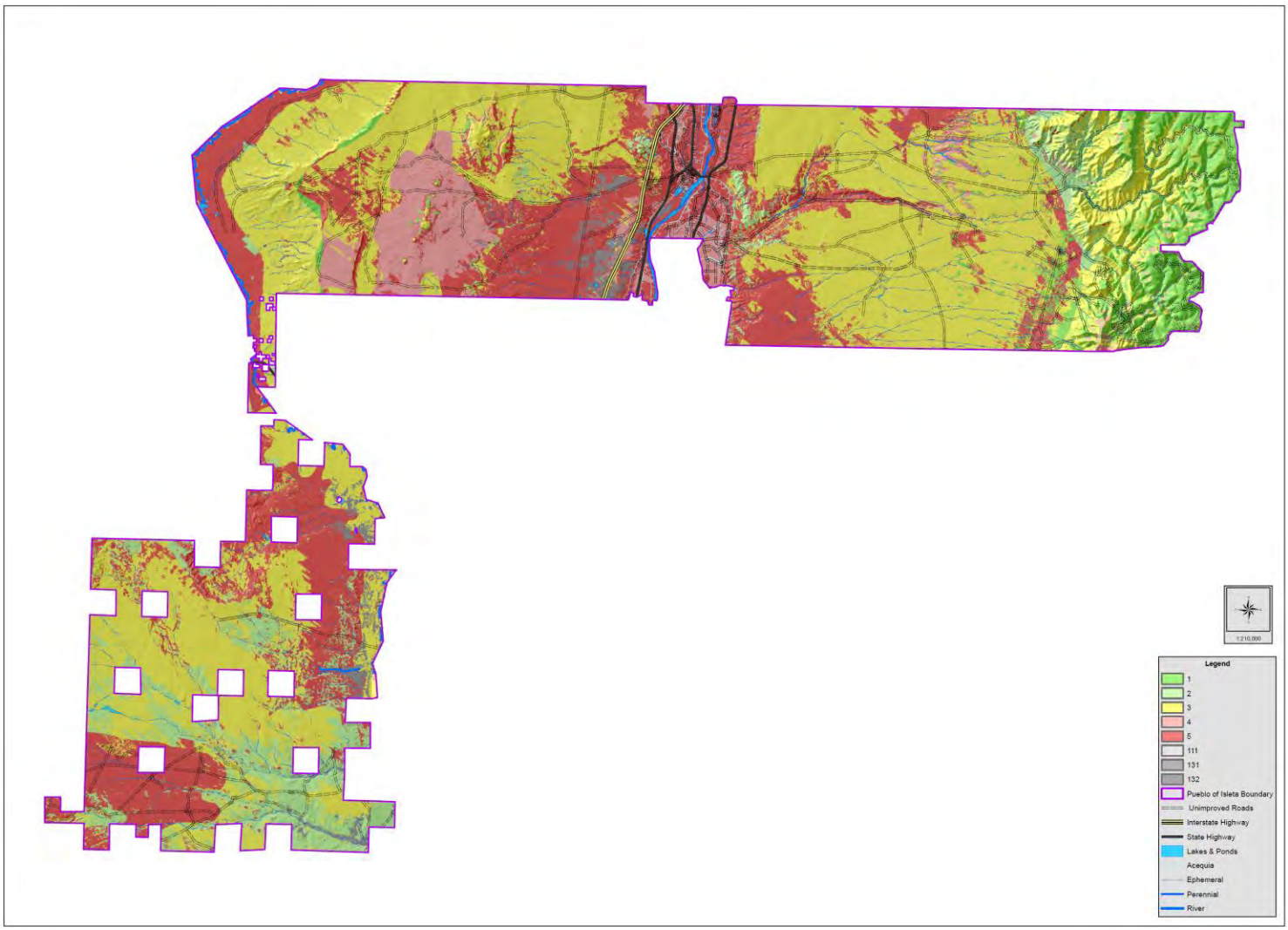
Appendix L: Map 7: Aviation Hazards



Appendix M: Fuels Management Plan

PUEBLO of ISLETA

FUELS MANAGEMENT PLAN 2021-2030



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A. INTRODUCTION

The Pueblo of Isleta (Pueblo) Fuels Management Plan (FMP) provides direction and guidance for a variety of strategies for reducing hazardous fuels on Pueblo of Isleta lands (Pueblo lands). Tribal trust, individual allotments, and restricted Indian lands shall be considered the highest priority for treatments. However, there may be occasions when it is justifiable to extend BIA Hazardous Fuels Reduction (HFR) operations to other adjacent lands (such as tribal fee, private, state, or federal property). The Bureau of Indian Affairs National Fuels Management Program provides leadership, executive direction, technical assistance and guidance to regional, tribal and agency hazardous fuels management programs. The Fuels Management Program is administered by the Bureau of Indian Affairs, Southern Pueblos Agency (Agency).

The FMP documents the processes and rationale behind fuels management strategies. It is intended to guide the planning and implementation of fuels reduction treatments. The intent of the Fuels Management Plan is to develop, implement, and maintain a schedule of treatments with the intent of returning vegetative communities to their historical norms, to minimize or reduce the risk of catastrophic loss of life, property, or important resources due to unwanted wildfire in addition; to implementing Wildland Urban Interface (WUI) and non-WUI projects and treatments across the reservation.

This plan is intended to be reviewed periodically during its lifespan and to be updated as necessary (annually for example), to meet changing Pueblo or Agency operations or procedures, priorities, or changes on the ground, in the Management Plan, strategic direction or policy and/or changing funding levels.

B. MANAGEMENT REQUIREMENTS AND LIMITATIONS

The development and implementation of this document is guided by the following handbooks and manuals.

AUTHORITY

The Hazardous Fuels Reduction (HFR) program is authorized, regulated, and guided by the following Departmental and Bureau of Indian Affairs laws, regulations, and policies:

- Departmental Manual Part 620, Wildland Fire Management (1/18/2017)
- Guidance for Implementation of Federal Wildland Fire Management Policy (12/13/2009)

- National Wildfire Coordinating Group Standards for Interagency Incident Business Management, PMS 902 (4/2021)
- The Interagency Standards for Fire and Fire Aviation Operations (1/2021)
- National Fire Plan (2000)
- Wildland and Prescribed Fire Qualifications System Guide, NWCG, PMS 310-1 (10/2020)
- Incident Response Pocket Guide (4/2018)
- 90 IAM, Wildland Fire Management, Chapters 1 (10/8/2019),Chapter 2 (8/20/2020), Chapter 3 (4/8/2020), Chapter 4 (8/28/2020) Chapter 5 (5/15/2020)
- BIA Safety and Health Handbook for Field Operations (10/2004)
- BIA Fuels Management Program Business Rules Handbook (7/2008)
- BIA Supplement to the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (12/5/2008)
- BIA National Wildfire Prevention Handbook (3/19/2021)
- SWRO Strategic Monitoring Plan (2009)
- National Historic Preservation Act (1966)
- National Environmental Policy Act (1969)
- Endangered Species Act (1973)

The Departmental Manual, Indian Affairs Manual (IAM) Part 90 and Federal Wildland Fire Management Policy require a Fire Management Plan for all areas with burnable vegetation. Direction for preparation of Fire Management Plans is contained in IAM Part 90 Chapter 2 Section 2.1, which stipulates that Fire Management Plans will, “within the framework of tribal land use objectives, document management strategies based on resource values to be protected or enhanced, while implementing hazardous fuels reduction treatments.” Hazardous fuels management may be addressed within the context of a Fire Management Plan, Land Management Plan that incorporates elements of a Fire Management Plan, or alternately, through a stand-alone Fuels Management Plan tiered to the Fire Management Plan. Because hazardous fuels management falls within the category of actions to be addressed in a Fire Management Plan, all policies pertaining to fire management planning apply equally to fuels management planning.

PROGRAMMATIC PLANNING INITIATIVE

Fuels management activities on the Pueblo of Isleta have been guided by the Pueblo of Isleta Forest Management Plan.

NEPA

An Environmental Assessment (EA) has been developed in conjunction with this FMP and the Wildland Fire Management Plan, 2021 to explore alternatives and to choose a preferred alternative. Fuels projects must comply with the National Environmental Policy Act (NEPA) in accordance with direction found in the Bureau NEPA Handbook, IAM Part 59, 3-H. Agency fuels management actions shall be fully addressed in a programmatic NEPA document associated with a Fire Management Plan, Fuels Management Plan, or other applicable land management plan. The NEPA document should provide for the full range of hazardous fuels reduction treatments to be employed. All treatments and activities detailed in this plan are covered under the Environmental Assessment for the Implementation of the Wildland Fire Management Plan Pueblo of Acoma, 2021. If this plan is amended or changed due to changing conditions, the EA will be reviewed and amended as necessary.

C. TRIBAL STANDARDS AND GUIDANCE

As stated in the Forest Management Plan:

“The development, maintenance, and enhancement of Indian forest land in a perpetually productive state in accordance with the principles of sustained yield and with the standards and objectives set forth in management plans by providing effective management and protection through the application of sound silviculture and economic principles to the harvesting of forest products, forestation, timber stand improvement and other forestry practices.”

“The retention of Indian forest land in its natural state when and Indian tribe determines that the recreational, cultural, aesthetic or traditional values of the Indian forest land represents the highest and best use of the land.”

“The maintenance and improvement of timber productivity, grazing, wildlife, fisheries, recreation, aesthetic, cultural and traditional values.”

Additional goals include:

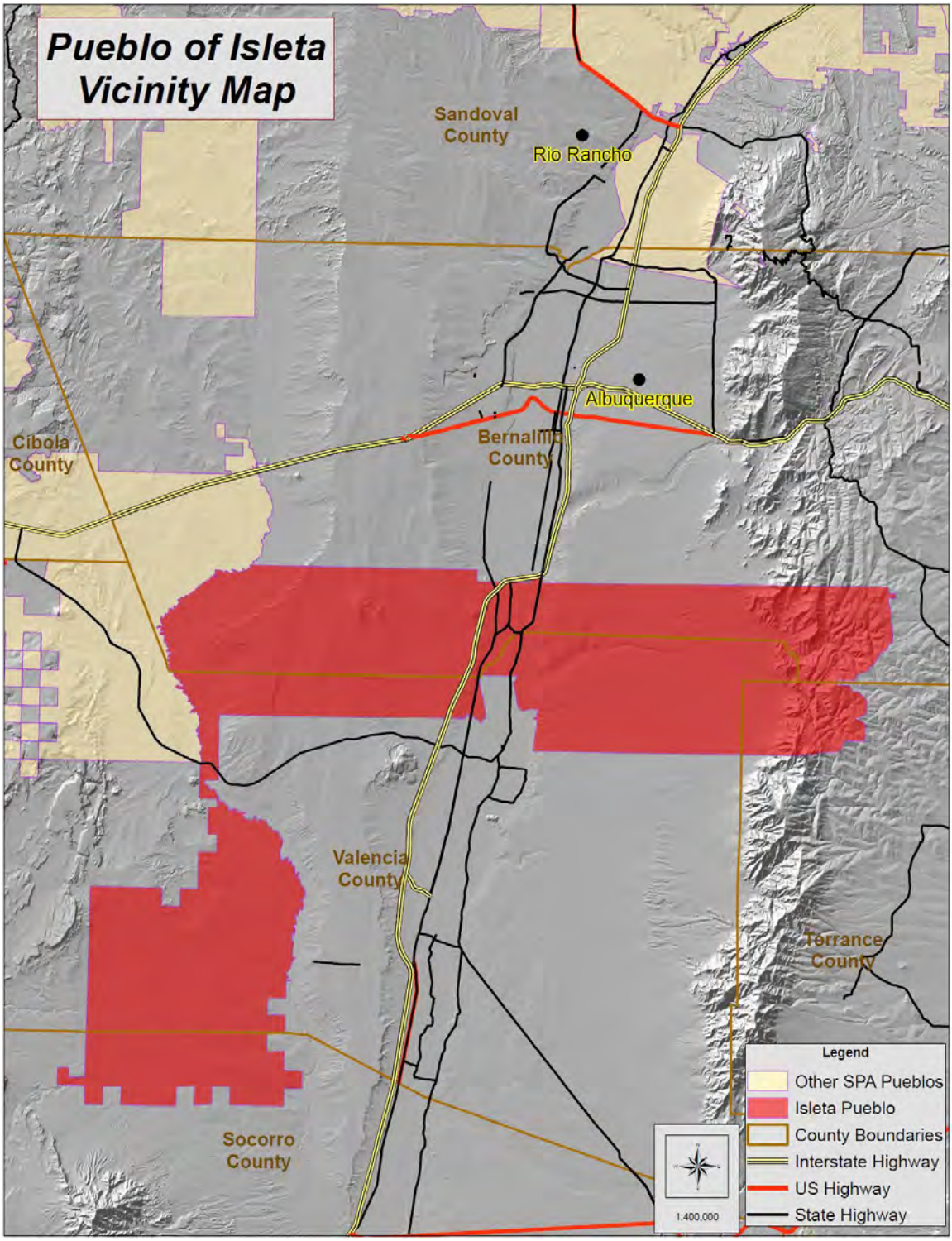
- Promote density management of commercial forests
- Implement prescribe burning and other beneficial fuels treatments
- Conduct forest development and woodland enhancement activities.
- Utilize biomass from forest and woodland projects.

D. SMOKE MANAGEMENT

The Pueblo of Pueblo of Isleta, as a sovereign nation, has chosen to follow the state's ambient air quality standards as found in New Mexico Administrative Code (NMAC), Title 20: Environmental Protection, Chapter 2: Air Quality Statewide, Part 3.109: *Ambient Air Quality*.

E. EXISTING CONDITION

Pueblo of Isleta is one of ten pueblos under the oversight of the Southern Pueblos Agency. The Pueblo encompasses about 301,272 acres in central New Mexico and is located south of the city of Albuquerque.


Pueblo of Isleta
Vicinity Map
Sandoval County
Rio Rancho
Albuquerque
Cibola County
Bernalillo County
Valencia County
Torrance County
Socorro County
Legend
Other SPA Pueblos
Isleta Pueblo
County Boundaries
Interstate Highway
US Highway
State Highway
1:400,000

VEGETATION TYPES

Pueblo of Isleta is typical mid elevation dry southwest forest and woodland types. Table 1 lists the major vegetation types within the Reservation Boundary and their associated acres.

Table 1. Acres of Vegetation Type on Trust lands

Vegetation Type	Acres*
Mixed Conifer	1,432
Ponderosa Pine	17,536
Pinyon/Juniper Woodlands	12,094
Bosque	1,196
Oak Woodlands	210
Riparian	1,001
Shrublands	15,470
Grasslands	106,148
Desert Scrub	137,596
Other	7,850

*Due to the conversion of GIS data from one data type (raster to vector or vice versa) to another during analyses and when combined with clipping and intersecting processes, acres in the following tables may not match each other and may be different than the official acres of the reservation.

Mixed Conifer Forest - This is a highly variable ecological system of the montane zone of the Rocky Mountains. These are mixed-conifer forests occurring on all aspects at elevations ranging from 3,900 to 10,500 feet. Rainfall averages less than 30 inches per year (15-30 inches), with summer "monsoons" during the growing season contributing substantial moisture. The composition and structure of the overstory are dependent upon the temperature and moisture relationships of the site and the successional status of the occurrence. *Pseudotsuga menziesii* and *Abies concolor* are most

frequent, but *Pinus ponderosa* may be present to codominant. *Pinus flexilis* is common in Nevada. *Pseudotsuga menziesii* forests occupy drier sites, and *Pinus ponderosa* is a common codominant. *Abies concolor*- dominated forests occupy cooler sites, such as upper slopes at higher elevations, canyon sideslopes, ridgetops, and north- and east-facing slopes which burn somewhat infrequently. *Picea pungens* is most often found in cool, moist locations, often occurring as smaller patches within a matrix of other associations. As many as seven conifers can be found growing in the same occurrence, and there are a number of cold-deciduous shrub and graminoid species common, including *Arctostaphylos uva-ursi, Mahonia repens, Paxistima myrsinites, Symphoricarpos oreophilus, Jamesia americana, Quercus gambelii*, and *Festuca arizonica*. This system was undoubtedly characterized by a mixed-severity fire regime in its "natural condition," characterized by a high degree of variability in lethality and return interval.

Ponderosa Pine - This type occurs at the ecotone between mesic mixed conifer forests and more xeric woodland or shrub types. Elevations range from above 6,200 feet to 9,200 feet. It is found on rolling plains, plateaus, or dry slopes, usually on more southerly aspects. The type is maintained by a temporal pattern of frequent, low-intensity surface fires and is typified by open, park like stands with canopy cover less than 25 percent. Pinyon pine (*Pinus edulis)* and/or Utah juniper (*Juniperus osteosperma)* are found intermixed with the Ponderosa pine. Rocky-Mountain juniper (*Juniperus scopulorum)* may codominate or replace Utah juniper at higher elevations. Understory vegetation in the true savanna occurrences is predominated by fire-resistant grasses and forbs that resprout following surface fires; shrubs, understory trees and downed logs are uncommon. Important species include Arizona fescue (*Festuca arizonica),* muhly *(Muhlenbergia montana), Blepharoneuron tricholepis*, *Poa fendleriana,* Idaho fescue (*Festuca idahoensis),* littleseed ricegrass *(Piptatherum micranthum)*, and blue grama (*Bouteloua gracilis)*.

Pinyon/Juniper Woodlands - This type occurs at lower elevations ranging from 4,900-8,000 feet. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Pinyon pine (*Pinus edulis)*, Rocky-Mountain juniper (*Juniperus scopulorum)* and One-seed Juniper (*juniperus monosperma*) are the dominant species. Understory layers are variable and may be dominated by shrubs or graminoids, or be absent altogether. Associated species include greenleaf manzanita (*Arctostaphylos patula),* big sagebrush *(Artemisia tridentata),*

mahogany *(Cercocarpus spp.),* blackbrush (*Coleogyne ramosissima*)*,* bitterbrush *(Purshia spp.),* Gambel oak *(Quercus gambelii),* blue grama (*Bouteloua gracilis*)*,* galleta grass *(Pleuraphis jamesii),* bluegrass (*Poa spp.)* and Indian ricegrass (*Achnatherum hymenoides*).

Bosque **-** This lower montane riparian systems group is found throughout the Rocky Mountains and Colorado Plateau regions within a broad elevational range from approximately 2,950 to 9,000 feet. These systems often occur as mosaics of multiple communities that are tree-dominated with a diverse shrub component. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. They can form large, wide occurrences on mid- channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well- drained benches. Stands are also found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. Dominant trees may include *Acer negundo, Populus angustifolia, Populus balsamifera, Populus deltoides, Populus fremontii, Populus tremuloides, Salix amygdaloides, Juniperus scopulorum.* Dominant shrubs include *Acer glabrum, Alnus incana, Betula occidentalis, Betula papyrifera, Cornus sericea, Crataegus rivularis, Forestiera pubescens, Prunus virginiana, Rhus trilobata, Salix monticola, Salix drummondiana, Salix exigua, Salix irrorata, Salix lucida, Shepherdia argentea*, or *Symphoricarpos* spp. Exotic trees *Elaeagnus angustifolia* and *Tamarix* spp. are common in some stands.

Riparian - This type is found within a broad elevational range from approximately 3,000 to 9,200 feet and often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. It is dependent on a natural hydrologic regime, especially annual to episodic flooding. Occurrences are found within the flood zone of rivers and immediate streambanks. It is also typically in floodplains swales and irrigation ditches. In some locations, occurrences extend into moderately high intermountain basins where the adjacent vegetation is sage steppe. Dominant trees may include boxelder (*Acer negundo),* cottonwoods *(Populus spp.),* peachleaf willo*w (Salix amygdaloides)*, or Rocky Mountain Juniper. Dominant shrubs include Rocky Mountain maple (*Acer glabrum*), alder (*Alnus spp*.), birch (*Betula spp.*), dogwood (*Cornus spp.*)*,* river hawthorn *(Crataegus rivularis),* stretchberry (*Forestiera* pubescens)*,* willows, skunkbush sumac (*Rhus trilobata*)*,* buffaloberry *(Shepherdia argentea)*, or snowberry (*Symphoricarpus spp.*). Exotic trees of Russian olive (*Elaeagnus angustifolia)* and salt cedar (*Tamarix* spp) are common in some stands.

Shrublands - This type occurs throughout much of the western U.S., typically in broad basins between mountain ranges, plains and foothills between 4,900 feet and 7,550 feet elevation. Soils are typically deep, well-drained and non-saline. These shrublands are dominated by *Artemisia tridentata ssp.* Scattered *Juniperus* spp., *Sarcobatus vermiculatus*, and *Atriplex* spp. may be present in some stands. *Ericameria nauseosa, Chrysothamnus viscidiflorus, Purshia tridentata* or *Symphoricarpos oreophilus* may codominate disturbed stands (e.g., in burned stands, these may become more predominant). Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species can include *Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus, Festuca idahoensis*, *Hesperostipa comata, Leymus cinereus, Pleuraphis jamesii*, *Pascopyrum smithii, Poa secunda*, or *Pseudoroegneria spicata*. Some semi-natural communities are included that often originate on abandoned agricultural land or on other disturbed sites. In these locations, *Bromus tectorum* or other annual bromes and invasive weeds can be abundant.

Desert Scrub - This typeincludes open-canopied shrublands of typically saline basins, alluvial slopes and plains across the Intermountain western U.S. This type also extends in limited distribution into the southern Great Plains. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more *Atriplex* species, such as *Atriplex confertifolia, Atriplex canescens, Atriplex polycarpa*, or *Atriplex spinifera*. *Grayia spinosa* tends to occur on coppice dunes that may have a silty component to them. Northern occurrences lack *Atriplex* species and are typically dominated by *Grayia spinosa, Krascheninnikovia lanata*, and/or *Artemisia tridentata*. Other shrubs present to codominant may include *Artemisia tridentata ssp. wyomingensis, Chrysothamnus viscidiflorus, Ericameria nauseosa, Ephedra nevadensis, Grayia spinosa, Krascheninnikovia lanata, Lycium* spp., *Picrothamnus desertorum*, or *Tetradymia* spp. In Wyoming, occurrences are typically a mix of *Atriplex confertifolia, Grayia spinosa, Artemisia tridentata ssp. wyomingensis, Sarcobatus vermiculatus, Krascheninnikovia lanata*, and various *Ericameria* or *Chrysothamnus* species. Some places are a mix of *Atriplex confertifolia* and *Artemisia tridentata ssp. wyomingensis*. In the Great Basin, *Sarcobatus vermiculatus* is generally absent but, if present, does not codominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as *Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus ssp. lanceolatus, Pascopyrum smithii, Pleuraphis jamesii, Pleuraphis rigida, Poa secunda*, or *Sporobolus airoides*. Various forbs are also present.

Grasslands - This type occurs on dry plains and mesas, at approximately 4,700 to 7,600 feet in elevation. These grasslands occur in lowland and upland areas and may occupy swales, playas, mesatops, plateau parks, alluvial flats, and plains, but sites are typically xeric. Where they occur near foothill grasslands they will be at lower elevations. The dominant perennial bunch grasses and shrubs within this system are all very drought-resistant plants. These grasslands are typically dominated or codominated by Indian ricegrass*, Aristida* spp., blue grama*,* needleandthread*,* muhly, or galleta grass and may include scattered shrubs and dwarf-shrubs of species of sagebrush (*Artemisia spp.),* saltbush (*Atriplex spp.*)*,* blackbrush, Mormon tea (*Ephedra spp.*)*,* snakeweed (*Gutierrezia spp.*), or winterfat (*Krascheninnikovia spp.*).

FUEL MODELS

The Scott and Burgan 40 dynamic fuel models were used in developing this management plan.

It is important to note that the fuel models describe expected fire behavior and are not necessarily the predominant vegetation type. The models are categorized into several groups; NB, which are non-burnable areas, GR, which are grass types where flashy fuels are responsible for the fire behavior, GS, which are grass/shrub types where both grass and shrubs are responsible for the fire behavior, SH, which are shrub types where larger persistent shrubs and woody material are responsible for the fire behavior, TU, which are timber understory types where forest stands with little vegetation or woody material in the understory are responsible for the fire behavior and TL, which are timber litter types where overstory timber with downed woody debris are responsible for the fire behavior. Many of the models are described as dynamic meaning that they behave differently depending on moisture levels and wind speed. Table 2 lists the fuel models found on the Reservation and the associated acreage.

Table 2. Scott and Burgan 40 Fuel Models	
Fuel Model	**Acres**
GR1 - Short, Sparse Dry Climate Grass	23,456
GR2 - Low Load, Dry Climate Grass	40,773
GS1 - Low Load, Dry Climate Grass-Shrub	91,028
GS2 - Moderate Load, Dry Climate Grass-Shrub	18,742
SH1 - Low Load, Dry Climate Shrub	94,476
SH2 – Moderate Load, Dry Climate Shrub	851
SH7 - Very High Load, Dry Climate Shrub	980
TU1 - Low Load, Dry Climate Timber-Grass-Shrub	361
TU5 –Very High Load, Dry Climate Timber-Grass-Shrub	1,102
TL1 – Low Load Compact Conifer Litter	8
TL2 – Low Load Broadleaf Litter	53
TL3 – Moderate Load Conifer Litter	804
TL5 – High Load Conifer Litter	31
TL6 – Moderate Load Broadleaf Litter	172
TL8 – Long Needle Litter	15,532
Other	12,151

FIRE REGIME CONDITION CLASS

The Fire Regime (FR) data layer classifies land by fire severity and mean fire return interval. The methodology used for this classification may be found in the latest version of the Interagency Fire Regime Condition Class Guidebook (Hann et al. 2004) at https://www.landfire.gov/frcc/frcc_guidebooks.php. Appendix B. provides detailed descriptions of fire regimes and condition classes.

Table 3. Acres by Fire Regimes	
Fire Regime	**Acres**
Fire Regime 1: 0 to 35 Year Return Interval, Low Severity	20,388
Fire Regime 2: 0 to 35 Year Return Interval, Mixed to High Severity	26,073
Fire Regime 3: 35 to100 Year Return Interval, Low Severity	145,097
Fire Regime 4: 35 to100 Year Return Interval, Mixed to High Severity	19,055
Fire Regime 5: 200+ Year Return Interval, all Severities	83,626
Non-Burnable	6,297

Condition class (CC) is a relative measure of the degree of departure from baseline or "natural" ecosystem conditions. It is determined through a comparison of baseline and current vegetation composition and structure for a given landscape, taking into account current scientific principles of ecosystem processes and function. CC 1 is applied to those areas considered within the natural (or historic) range of variability. CC 2 is defined as moderately departed from this natural range of variability, and CC 3 is highly departed. Table 3 shows that almost the about 86% of the reservation is moderately or severely departed from the historic range of variability.

Table 4. Acres by Condition Class	
Condition Class	**Acres**
CC1 - Low Vegetation Departure	102,627
CC2- Moderate Vegetation Departure	112,803
CC3 - High Vegetation Departure	69,831
Other	15,274

F. FIRE MANAGEMENT UNITS (FMU)

This plan classifies Pueblo lands according to fire management emphases described in the Spatial Fire Management plan. This classification has been determined by current management practices, HFR considerations such as risk to life and property and through consultation with Pueblo of Isleta Tribal Resource Specialists. Although these areas are named for the primary fire management emphasis, other management activities do and will continue to occur. For example, the Wildland Urban Interface FMU is recognized primarily for protection of residences and businesses however, bosque management may also be an important consideration in this area.

Table 5. Acres of Fire Management Units

Fire Management Unit	Acres
Wildland Urban Interface	16,376
Recreation	617
Riparian	2,432
Timberlands	15,822
Woodlands	21,392
Rangelands	243,829

All FMUs discussed below comprise a major group called “Community Values” Community Values are “areas of community importance, such as critical wildlife habitat; significant recreation and scenic areas; and landscapes of historical, economic, or cultural values that would benefit from treatment to reduce wildfire risks.”

Wildland Urban Interface – These are areas within 2 kilometers (1.24 miles) of residences and businesses, but outside the bosque and agriculture management units Primary management in this emphasis area should be to manage vegetation structure and fuel loadings within or immediately adjacent to homes, businesses and other infrastructure so that fire behavior is modified to minimize potential devastating impacts and to facilitate control. A range of treatments may be employed including hand thinning, mastication or extraction by machinery,

biological (i.e. grazing, seeding), chipping and the use of chemical herbicides on a limited basis. Treatment implementation in this MEA presents an opportunity to work in conjunction with the Prevention Program to inform the community and to provide a learning opportunity.

Recreation - This is the Isleta Lakes recreation area near the golf course and casino. Treatments in here would primarily be hand treatments to mitigate immediate safety issues such as tree hazards and/or would be designed to minimize the risk of campfires or other ignition sources escaping.

Riparian - These are the cottonwood galleries and riparian vegetation types generally along the Rio Grande. Over the past 60-100 years, cottonwood galleries have shifted from a Fire Regime 1 to a Fire Regime 2 due to the stabilization of the floodplain through the development of dikes and other flood control structures and due to the uncontrolled increase of exotic species such as Siberian elm, salt cedar and Russian olive. This has also caused a shift from condition class 1 to condition class 2 and/or condition class 3 as reflected in table 4 below. As a result, fires in the bosque now tend to be stand-replacing events. It is also in or immediately adjacent to these areas where a majority of the population reside or frequent. Primary management in this emphasis area should be to restore and maintain the galleries and should, to the extent possible, complement management in WUI areas. A range of treatments may be employed including hand thinning, mastication or extraction by machinery, chipping, prescribed burning and the use of chemical herbicides on a limited basis.

Timberlands –These are ponderosa pine, mixed conifer and woodland stands at higher elevations along the eastern edge of the reservation in the Manzanitas mountains. Primary goal of this emphasis is to provide fuelwood for Tribal members, to reduce fuel loadings, and to promote forage and forest health. Hand treatments and prescribed fire would be the most economical tools to use in this area.

Woodlands – The goals of this emphasis are to provide fuelwood for Tribal members, to reduce fuel loadings, and to promote forage and woodland health. A range of treatments may be employed including hand thinning, piling or lop and scatter, extraction by machinery, biological (i.e. grazing, seeding), and chipping.

Rangelands - These are generally the areas outside floodplains and away from urban and agriculture areas. The primary goal of this emphasis is to reduce fuel loadings and to promote forage and range health. Treatments may include mechanical treatments, however prescribed fire and the use of herbicides would be the primary tools.

G. GOALS AND OBJECTIVES - Direction from the 2010 Forest Management Plan concerning fuels management on the Pueblo of Isleta lands includes the following:

> "Hazardous fuel reduction (HFR) activity will focus on (1) the Wildland Urban Interface (WUI), or where the community exists and where humans and their development meet or intermix with wildland fuels, and (2) Non-WUI; treatments and activities that are planned and occur outside the WUI.
>
> WUI treatments and activities are designed to reduce risks to life, property, and other human development. These types of treatments include but are not limited to reducing ladder fuels, eliminating non-native species, control of sprouting of non-native species, and encouraging the reestablishment of native riparian vegetation, especially willows, native olive, native grasses and forbs. Mechanical treatments, chemical herbicides and prescribed fire may be used independently or in combination to achieve and maintain the desired future condition class. Extraction of biomass will be utilized as much as possible as will grazing with a variety of domesticated ungulates.
>
> Non-WUI treatments are primarily designed to reduce fuels loadings and restore or maintain healthy ecosystems to their historical condition classes. Treatments will focus on achieving a more open savannah-like condition where feasible where grass would be the primary carrier of fire. Treatments may be mechanical with heavy equipment, but more likely will consist of hand treatments with chain saws.
>
> Chemicals used according to their label instructions and according to USDI-BIA requirements may be used to supplement Hazardous Fuels Reduction treatments.
>
> Prescribed burning will be utilized as much as possible to reduce unnatural fuel loading, especially in the commercial timber base.

H. FUELS MANAGEMENT STRATEGIES

This section describes hazardous fuels management strategies to be employed in order to minimize impacts of wildfire to life and property and to mimic the natural role of fire in fire-dependent plant communities within Pueblo of Isleta Reservation lands.

A range of treatment strategies may be employed to meet management objectives including hand methods such as hand thinning, lop and scatter, hand piling; mechanical methods such as mastication, mowing and extraction; prescribed fire including broadcast burns and pile burns; biological methods i.e. grazing, seeding, and herbicides may be used on a limited basis. Within the range of treatment methods, hand and mechanical treatments are the most selective for spacing and fuel reduction, but also the most expensive; fire treatment conversely is least expensive but also least selective. A combination of strategies when used together may best achieve protection and/or resource objectives.

Every mechanical and other non-fire fuels treatment project will require a project plan. This plan may be a stand-alone document (herein referred to as a treatment plan) or may be incorporated in another document such as a silvicultural prescription or tribal thinning contract. A prescribed fire/fuels specialist is responsible to coordinate the preparation of treatment plans with other staff as necessary including range specialist, silviculturists, foresters, etc.

The Indian Forest Management Handbook, Volume 3, Chapter 2.4 states: “In order to ensure quality and uniformity of management on Indian forest lands silvicultural prescriptions shall be required for all treatments that affect the present and/or long term character of a forest stand. These include commercial harvesting, reforestation, pre-commercial thinning, fuels treatments, etc.” A silvicultural prescription prepared for commercial timber harvest, woodlands management, or other management activity should include any necessary hazardous fuels reduction treatments associated with the prescribed treatments.

Prescribed Fire Burn Plan - Information provided in prescribed fire plans should address the full range of burn prescriptions, ignition strategies and methods, holding requirements, smoke management techniques, and other plan elements that will be conceivably applied during implementation. Furthermore, the plan should be sufficiently detailed to provide for safe and efficient implementation by any qualified off-unit Burn Boss, from any of the five federal wildland fire agencies, with only a minimal need for local orientation.

Programmatic Burn Plans - Programmatic plans may be developed to address prescribed fire projects within a single administrative unit (approving authority) encompassing multiple burn units with the same complexity rating, ignition methods, holding requirements, burning prescriptions, organizations and equipment, etc. Vegetation types and fuel models can vary within the unit as long as fire behavior remains within prescribed conditions. Programmatic prescribed

fire plans should not be considered for high complexity burns. Typical categories of prescribed fires for which a programmatic planning approach may be appropriate include low and moderate complexity field burning, ditch bank burning, pile burning, jackpot burning, and broadcast burning of activity slash. Programmatic plans are also appropriate for larger scale, landscape level moderate complexity restoration/maintenance underburns, where the conditions described above exist. The complexity rating for a programmatic plan should reflect the highest potential rating for conditions under which the plan will be implemented.

Burn unit supplements may be developed to address site-specific considerations and requirements. Supplements must fall within the scope and be tiered to the associated programmatic prescribed fire plan. Supplements are intended to provide the required site-specific information to safely and efficiently conduct the prescribed fire. They describe characteristics unique to each burn unit including description of the fire area, objectives, pre-burn considerations, ignition and holding plans, smoke management, etc. The scope and detail of burn unit supplements will vary depending on the level to which they are addressed in the programmatic prescribed fire plan. Supplements may be prepared subsequent to the programmatic plan. Like prescribed fire plans, subsequent supplements are considered amendments and must be technically reviewed and approved prior to implementation.

Mechanical and Other Non-Fire Fuels Treatments - Mechanical and other non-fire fuel treatments require a level of planning and preparation comparable to prescribed fire projects. Treatments should be planned and developed through an interdisciplinary process. Tribal representatives should be encouraged to participate to ensure Tribal goals and objectives are identified and to better design projects to meet these goals and objectives.

HERBICIDE USE - Any proposed use of herbicides will be addressed in the project plan, including methods, compliance criteria, and applicator qualifications. Herbicide transportation, application, storage and disposal will meet all Environmental Protection Agency (EPA) label requirements and the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR, Part 1910, Subpart Z).

Wildland Urban Interface - The actual extent of WUI areas may range from several hundred feet up to 2 kilometers from structures and other sites to be protected. The size will depend on anticipated fire behavior based on fuels,

vegetation type, topography, prevailing winds and other considerations. The extent of treated areas and the design of treatments will, in essence, be guided by the need to provide adequate defensible space for fire crews employed in structure protection under extreme fire conditions. Treatments deemed successful will be those, determined by fire behavior modeling, to preclude either crown fire or ground fire with constant flame lengths exceeding 4 feet. Fuels will be treated through a variety of means to achieve the following:

Overall residual tree spacing between stems will average 2 to 4 times the average tree height in woodland forests. Ladder fuels will be treated to create at least 20 feet of separation between overstory and understory crowns. Shrubs will be maintained at less than 10 percent overall canopy cover. Surface fuels will be reduced to 3 tons per acre or less. The actual tree spacing may vary considerably over the landscape to mitigate visual effects and to account for treatment restrictions associated with cultural resource sites, drainage areas, and other considerations. Slash treatment and periodic maintenance treatments will be planned and implemented to minimize wind erosion and the introduction of invasive weeds. The need for mitigation treatments, such as spreading slash, mulching, water bars, seeding or other methods will be evaluated on a project-specific basis.

Recreation – This is the Isleta Lakes recreation areas. Treatments in here would primarily be hand treatments to mitigate immediate safety issues such as tree hazards and/or would be designed to minimize the risk of campfires or other ignition sources escaping.

Riparian - The primary management in this emphasis area should be to restore and maintain the galleries and should, to the extent possible, complement management in WUI areas. A range of treatments may be employed including hand thinning, mastication or extraction by machinery, chipping, prescribed burning and the use of chemical herbicides on a limited basis.

Timberlands - The primary goal of this strategy is to reduce fuel loadings, to promote forest health and to provide wood products. Overall residual tree spacing will average 1 to 3 times the average tree height in forests (the wider spacing guidelines will be applied to steeper slopes). Ladder fuels will be treated to create at least 20 feet of separation between overstory and understory crowns. Shrubs will be maintained at less than 10 percent overall canopy cover. Surface fuels will be reduced to 3 tons per acre or less. The actual tree spacing may vary considerably over the landscape to mitigate visual effects and to account for treatment restrictions associated with cultural resource sites, drainage areas, and other considerations. Slash treatment and periodic maintenance treatments will

be planned and implemented to the greatest extent possible, to utilize cut material for wood products, charcoal production and fuelwood. The need for mitigation treatments, such as spreading slash, mulching, water bars, seeding or other methods will be evaluated on a project-specific basis

Woodlands - The primary goal of this strategy is to reduce fuel loadings, to promote forage and woodland health and to provide firewood for Tribal members. Overall residual tree spacing will average 1 to 3 times the average tree height in woodland forests (the wider spacing guidelines will be applied to steeper slopes). Ladder fuels will be treated to create at least 20 feet of separation between overstory and understory crowns. Shrubs will be maintained at less than 10 percent overall canopy cover. Surface fuels will be reduced to 3 tons per acre or less. The actual tree spacing may vary considerably over the landscape to mitigate visual effects and to account for treatment restrictions associated with cultural resource sites, drainage areas, and other considerations. Slash treatment and periodic maintenance treatments will be planned and implemented to the greatest extent possible, to utilize cut material for fuelwood. Material may be made available on site for firewood cutters or through other funding sources, removed from the site to a woodyard for sale or for use by Tribal Elders. The need for mitigation treatments, such as spreading slash, mulching, water bars, seeding or other methods will be evaluated on a project-specific basis.

Rangelands - These are generally the areas outside floodplains and away from urban and agriculture areas. The primary goal of this emphasis is to reduce fuel loadings and to promote forage and range health. Treatments may include mechanical treatments; however prescribed fire and the use of herbicides would be the primary tools.

I. MONITORING

Introduction

The intent of this chapter is to document processes for determining whether the FMP is being implemented as planned and whether management goals and objectives are being achieved. Information obtained from monitoring and evaluations is used to help update the FMP.

As supplemental plans are updated annually, the following items will be reviewed:

- Monitoring of the FMP for changes that may have resulted from large scale vegetation changes or site conditions.

- Unit level monitoring of projects, including any newly identified items of special interest that the Pueblo request.

Fuels project monitoring should be initiated at the earliest stage of project development. Pre-treatment monitoring methods, data, images and analysis should be documented in an assessment, which not only establishes baseline conditions but provides the basis for developing quantifiable treatment objectives and prescriptions. Follow-up post-treatment monitoring data and analysis is then integrated with the assessment to prepare a project accomplishment report documenting treatment effectiveness and attainment of objectives.

The local project manager has primary responsibility for determining monitoring methods, conducting pre and post-treatment monitoring, developing pre-treatment assessments and accomplishment reports, and maintaining project files. The agency or tribal fuels specialist is also responsible for preparing and forwarding annual monitoring summary information to the Regional Office.

Stratification is conducted to identify similar fuelbed types prior to initiating monitoring activities. The need for stratification depends largely on the range of variability present. Stratification is accomplished by use of existing vegetation type maps, aerial imagery, and/or field reconnaissance.

Monitoring Protocols

The Regional Office supports the use of four primary project monitoring systems. These systems have been developed to provide standardized approaches that can be readily applied to a wide variety of applications. Agencies and Tribes within the Southwest Region may adopt these systems or use any other viable monitoring system that suits their needs.

It is anticipated, because of practical limitations, it may be necessary to utilize more basic systems for the majority of projects, particularly those that are routine in nature. Use of more sophisticated systems is generally reserved for those projects where more detailed and highly reliable information is needed for demonstration or comparative purposes.

1. General Information Protocol

The documentation of general information constitutes the minimal approach to project monitoring. This general information is derived entirely from cursory reconnaissance, no plots or photo points are established. The following categories of general information are considered minimally sufficient to evaluate treatment effectiveness; additional information may also be recorded as warranted:

- Site Description - project size, location, slope, and aspect.
- Vegetation Description - percent cover of trees, shrubs, and non-woody vegetation by species or species groups.
- Fuels Description - fuel model, fuel bed depth and percent cover, description of fuel arrangement, estimate of fuel loading if available.

The following additional information is generally recorded for prescribed fire projects:

- Weather Observations - temperature, relative humidity, mid flame wind speed and direction, atmospheric conditions.
- Fire Behavior Observations - average flame length, rate of spread, degree of torching and spotting.
- Fire Effects - percent of area burned by severity, extent of vegetation damage and mortality.
- Smoke Observations - ventilation conditions, direction of flow, mixing height, and any adverse impacts.

A prescribed fire daily log form that may be used for recording basic prescribed fire behavior and effects information is included in the Appendix.

2. Photo Point Protocol

Using this method a series of photo points are established in each stratum. Photo series or other guides may be used to estimate and record general information associated with each photo point and derive pre-and post-treatment comparisons.

A general guide for the number of photo points to establish in each stratum is as follows:

- <50 acres in stratum - 1 plot,

- 50 to 100 acres - 2 plots,
- 1 plot for each additional 100 acres up to 6 plots,
- 1 plot for each additional 1,000 acres up to 10 plots maximum.

3. Fuel bed Calibration Protocol

Under this method a number of photo points is established in each stratum, together with detailed observations associated with each photo. The number of photo points to be established in each stratum should conform with the above guidelines. The observed values are then used to select and calibrate a fuel bed within the FCCS model. Standard reports are then developed to characterize the complete fuels matrix as well as fire behavior projections under user-defined environmental conditions. This system consists of the following three components:

- Fuels Transect - A reverse fuels transect is established in a due north direction to measure surface and ground fuels.
- Photo Point - A single photo point is collected with the camera location at the zero point on the transect and the placard location at the 10 feet point of the transect.
- FCCS Calibration Plot – fuel bed parameters are calibrated based on visual observations within a semi-circular area extending from the zero point of the transect north along the transect, generally corresponding to the photo point view but extending a full 180 degrees from west to east. The depth of the viewing area varies based on the vegetation and landform, but usually corresponds to an area of a quarter acre to several acres in size.

4. FFI Releve Protocol

This system establishes a single representative 10th acre circular plot within each stratum (50th acre plots may be appropriate for use in types with dense vegetation.) FFI provides for use of a broad range of protocols depending on specific monitoring needs. The Region's standardized system includes the following combination of protocols considered generally sufficient for most projects commonly undertaken in the Region.

- Plot Description Form - plot size, landform, vegetation cover and composition, ground cover, fire behavior and fuels information, photo point numbers.

- Macroplot Form - plot identity, site characteristics, location, and installation information.
- Cover Species Composition Form - status, size class, percent cover and height by species within macroplot.
- Surface Fuels Form - 1, 10 and 100 hour fuel counts; 1,000 hour diameter and decay class on transect, duff and litter depth measurements at predetermined points on transect.

In addition, the following protocols may be appropriate for use within forested types:

- Trees Individuals Form - species, DBH, height, crown ratio, crown class, crown fuel base height, mortality and decay class, char height, scorch height, crown scorch percent within macroplot.
- Tree Diameter Class Form - sapling tally by species, status, diameter, height and crown ratio class within macroplot.
- Tree Height Class Form - seedling tally by species, status, height, diameter and crown ratio class within macroplot.

The following protocols may be used to monitor prescribed fire projects:

- Fire Behavior Form - fire data, location, burning conditions, fire behavior, fuel moisture information within macroplot.
- Composite Burn Index Form - used to quantify burn severity based on char and consumption of ground, surface and aerial fuels.

FFI includes various other protocols and forms which may be used for particular applications. These are available through the FRAMES website, as is the FFI User Guide and Protocol Manager User Guide.

Monitoring Reports

Pre-treatment monitoring assessments are prepared once initial monitoring is completed and data is summarized. The purpose of the pre-treatment assessment is to clearly document and store information so that it is clear and available for use in subsequent monitoring incidences. Interim post-treatment monitoring reports may completed to document the results on on-going monitoring activities. The final monitoring report is prepared once the project has been fully completed. The information documented in the introduction, methods

and results sections of the pre-treatment assessment is augmented with post-treatment summary data and analysis information. To prepare the monitoring report:

1. Introduction

The introduction should provide a brief description of the vegetation, topography and any unique features of the project area. The project objectives and any requirements should also be addressed.

2. Methods

The methods section should clearly describe the specific methods used to establish and monument plots and collect and process monitoring data, and the dates monitoring was conducted. The information should be sufficiently detailed to allow for replication in subsequent monitoring incidences. Any methods sufficiently addressed in fuels monitoring plans or other programmatic documents may simply be incorporated by reference.

3. Results

Pre- and post-treatment conditions should be clearly indicated for each vegetation component (overstory, understory, shrub, herbaceous, etc.) utilizing variables such as percent cover, stems per acre, average diameter and height, height to live crown, etc. Fuel and fire characteristics may also be addressed, including fuel loading by size class, litter and duff coverage and loading, potential flame length, rate of spread and reaction intensity, etc. The actual variables reported will be those most pertinent to the project objectives.

4. Findings and Recommendations

This section should concisely address whether the project objectives were met, and, if not, what changes should be considered in the future to improve success. The discussion of findings should key-in on those documented outcomes most directly related to project objectives and requirements.

J. ORGANIZATION AND BUDGET ANALYSIS

At this time the Tribe has chosen not to compact the Hazardous Fuels Reduction Program. As such, overall program oversight will be managed by the Prescribed Fire/Fuels Specialist in the 401 series at the Southern Pueblos Agency. This position is the principal officer responsible for program planning, environmental compliance, budgeting, implementation, monitoring, and reporting for all projects

on all 8 of the Pueblos. The Prescribed Fire/Fuels Specialist is also responsible for communication and coordination with the Tribal Governor, Interdisciplinary Team, and individual Tribal Staff as well as other cooperators and government agency representatives.

Table 6. Proposed HFR Program Position Budget (FY 2020 Basis)

Position	Prescribed Fire/Fuels Specialist	Prescribe Fire/Fuels Technician (2 Positions)
Series/Grade	GS/401/11	GS/462/7
Pay Periods	26	26
Salary + EBC	$100,000	$78,000
Support Costs	$10,000	$10,000

Additional assistance will come from two Prescribed Fire/Fuels Technicians for planning and implementing a program of work and assisting with programmatic and project compliance, planning, budgeting, and monitoring.

Additional specialized support will be required from Regional Office archaeologists, wildlife biologists, range conservationists, and other natural resource specialists to fulfill planning and environmental compliance requirements. Administrative support will be provided primarily by the Forestry/Fire - Fuels Section.

Fuels treatments will be conducted primarily through a combination commercial and self-determination contracting. Local Tribal Fire/Fuels Management personnel in coordination with the BIA will conduct most of the prescribed burning treatments. Regional shredding equipment may be used on a subset of the projects.

Costs for implementing the proposed program of work are estimated based on a three-year running average for the BIA Southwest Region displayed in Table 5. These costs do not include HFR program position costs displayed in Table 4, nor do they include indirect costs. Actual treatment costs will vary considerably from

Table 7. Projected Treatment & Activity Costs/Acre (2020 Basis)			
Treatment Type	**Bosque Cost/Ac**	**Forest Cost/Ac**	**Woodland Cost/Ac**
Broadcast Burn		$54.17	$100.00
Hand Pile Burn		$53.81	$122.33
Machine Pile Burn		$3.06	$13.36
Biomass Removal	$218.57	$18.52	$105.45
Chipping	$547.80	$995.98	$0.00
Hand Pile	$469.36	$236.72	$352.15
Lop and Scatter	$277.50	$291.81	$175.04
Machine Pile	$1,500.00		
Mastication	$185.44	$188.14	$271.74
Mowing	$462.12		$125.00
Thinning	$453.73	$265.44	$341.45
Chemical	$81.95		

project to project depending on specific site conditions, restrictions, bid rates, availability of labor and equipment, and other factors. The Pueblo is now in a position to determine actual costs as per various HFR and forestry projects implemented and the above table may be used for cross reference.

See Appendix D for the detailed proposed treatment schedule for the period 2013-2024 and associated acres.

Table 8. Proposed Pueblo of Isleta Fuels Treatment Schedule Summary	
2022	Pre-Monitoring on 510 Acres, $10,558
2023	Pre-Monitoring on 572 Acres, Mastication on 178 Acres, Thin & Pile on 332 Acres, $211,593
2024	Pre-Monitoring on 541 Acres, Mastication on 304 Acres, Chemical on 178 acres, Thin & Pile on 268 acres, Pile Burn on 332 Acres, $234,515
2025	Pre-Monitoring on 369 Acres, Mastication on 285 Acres, Chemical on 304 Acres, Thin & Pile on 256 Acres, Pile Burn on 316 Acres, Post Monitoring on 510 Acres, $232,769
2026	Pre-Monitoring on 463 Acres, Mastication on 321 Acres, Chemical on 285 Acres, Thin & Pile 369 Acres, Pile Burn 255 Acres, Post Monitoring on 572 Acres, $213,546
2027	Pre-Monitoring on 510 Acres, Mastication on 279 Acres, Chemical on 321 Acres, Thin & Pile on 184 Acres, Pile Burn on 211 Acres, Post Monitoring on 541 Acres, $193,434
2028	Pre-Monitoring on 477 Acres, Mastication on 272 Acres, Chemical on 279 Acres, Thin & Pile on 239 acres, Pile Burn 184 Acres, Post Monitoring on 532 Acres, $213,987
2029	Pre-Monitoring on 501 Acres, Mastication on 279 Acres, Chemical on 272 Acres, Thin & Pile on 198 Acres, Pile Burn on 239 Acres, Post Monitoring on 463 Acres, $197,669
2030	Pre-Monitoring on 481 Acres, Chemical on 279 Acres, Thin & Pile on 501 Acres, Pile Burn on 198 Acres, Post Monitoring on 510 Acres, $296,283
2031	Pre-Monitoring on 216 Acres, Thin & Pile on 481 Acres, Pile Burn on 501 Acres, Post Monitoring on 477 Acres, $273,971
2032	Thin & Pile on 216 acres, Pile Burn on 481 Acres, Post Monitoring on 501 Acres, $135,355

K. COLLABORATION

The Pueblo of Isleta works with the BIA, Southern Pueblos Agency to manage and protect the lands of the Pueblo.

L. PUBLIC INFORMATION

The manipulation of vegetative material by mechanical methods has many inherent dangers. Because of this it must be the responsibility for all personnel working in the project to be alert and conscious of all aspects that may be harmful.

Contractors shall participate in safety briefings prior to any work. The Fuels Specialist will work with the COR/AOTR to ensure that the contractor maintains a safe work environment.

Tribal field staff should be briefed on the type of work taking place. The public must be kept away from project areas until all activities are completed.

The application of chemical herbicides must be conducted by certified technicians under the strict supervision of trained and certified personnel.

M. PARTICIPANTS

Name	Position
Fred von Bonin	Fuels Analyst, Southwest Regional Office
Michelle Dela Cruz	Fuels Environmental Coordinator, Southwest Regional Office
Brandon Habaadih	Acting Forest Manager, Southern Pueblos Agency
Anthony Thompson	Prescribed Fire & Fuels Specialist, Southern Pueblos Agency
Justin Chavez	Bi-Regional Monitoring Technician, Southwest Regional Office

N. APPENDICES

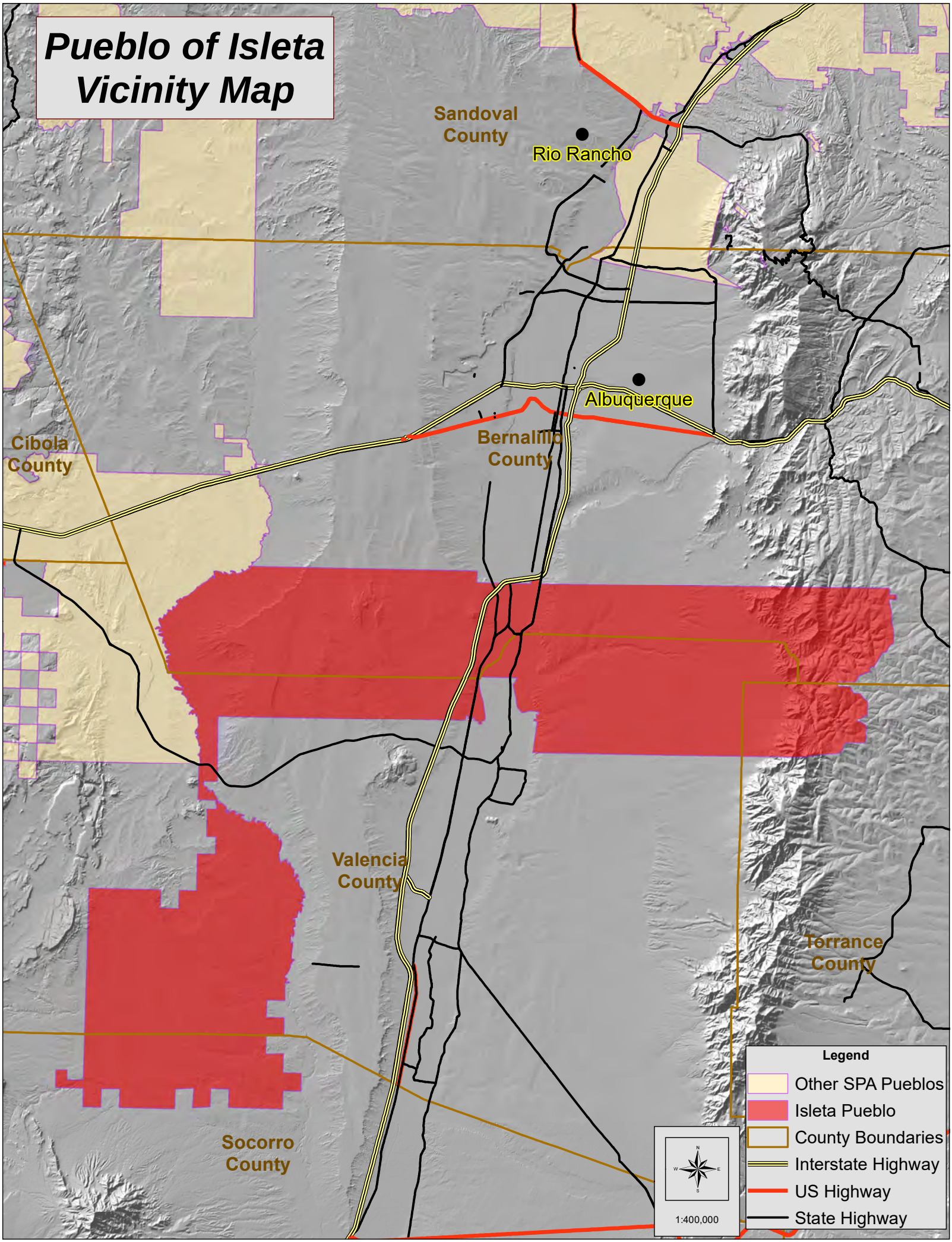
A. Maps

B. FRCC Discussion

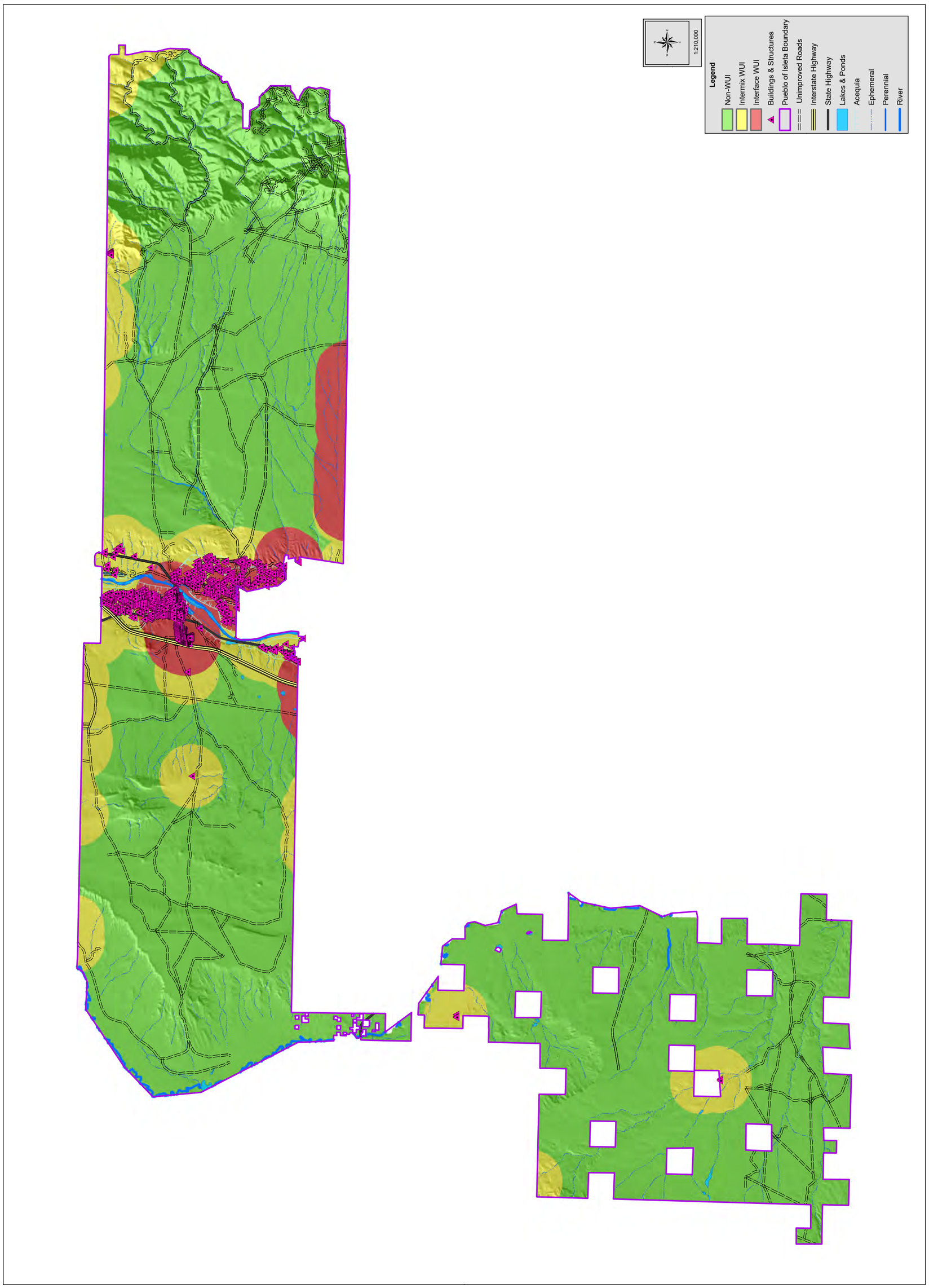
C. Wildland Urban Interface Descriptions

D. Fuels Treatment Schedule

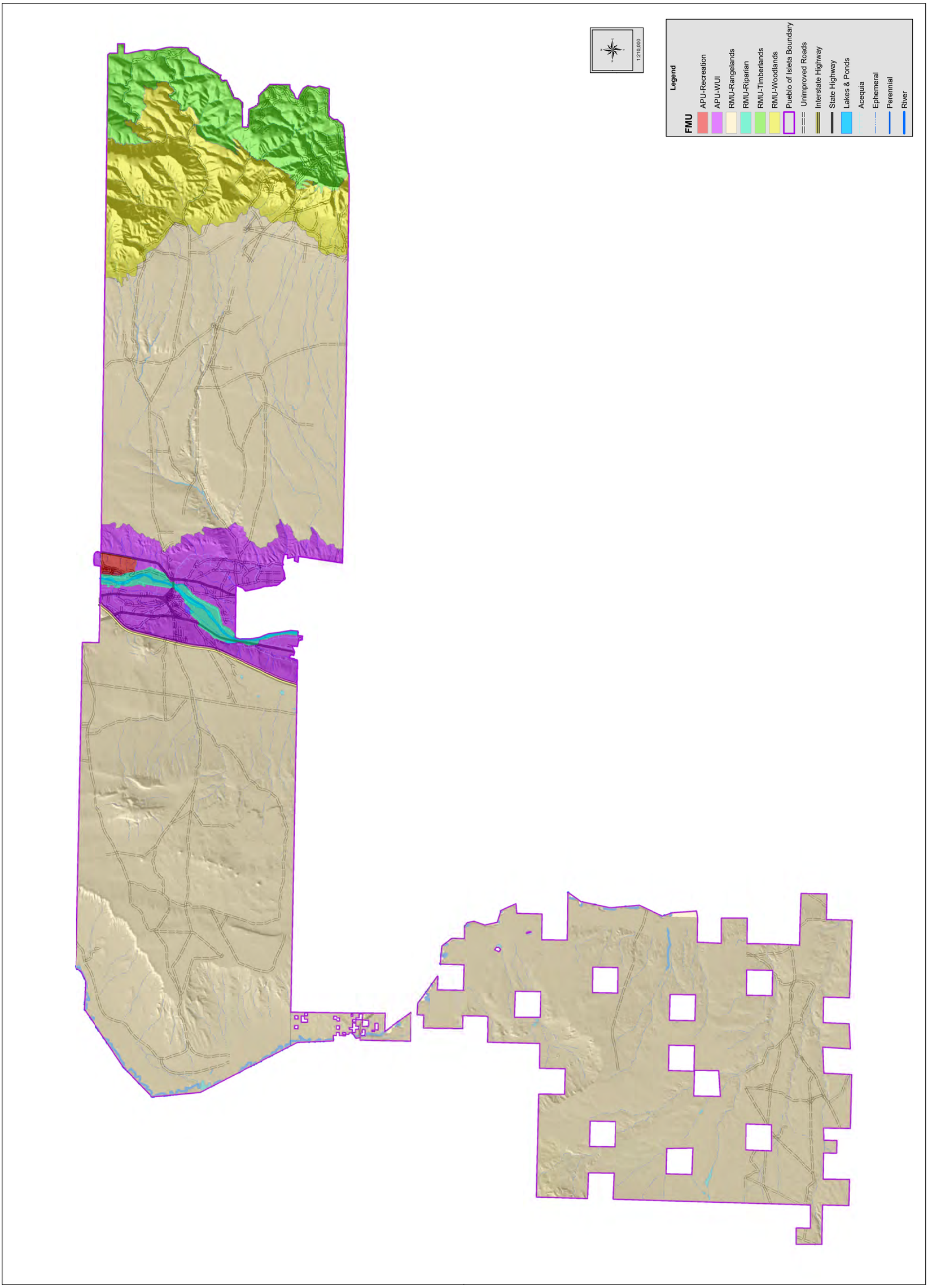
E. References


Pueblo of Isleta
Vicinity Map
Sandoval
County
Rio Rancho
Albuquerque
Bernalillo
County
Cibola
County
Valencia
County
Torrance
County
Socorro
County
Legend
Other SPA Pueblos
Isleta Pueblo
County Boundaries
Interstate Highway
US Highway
State Highway
1:400,000

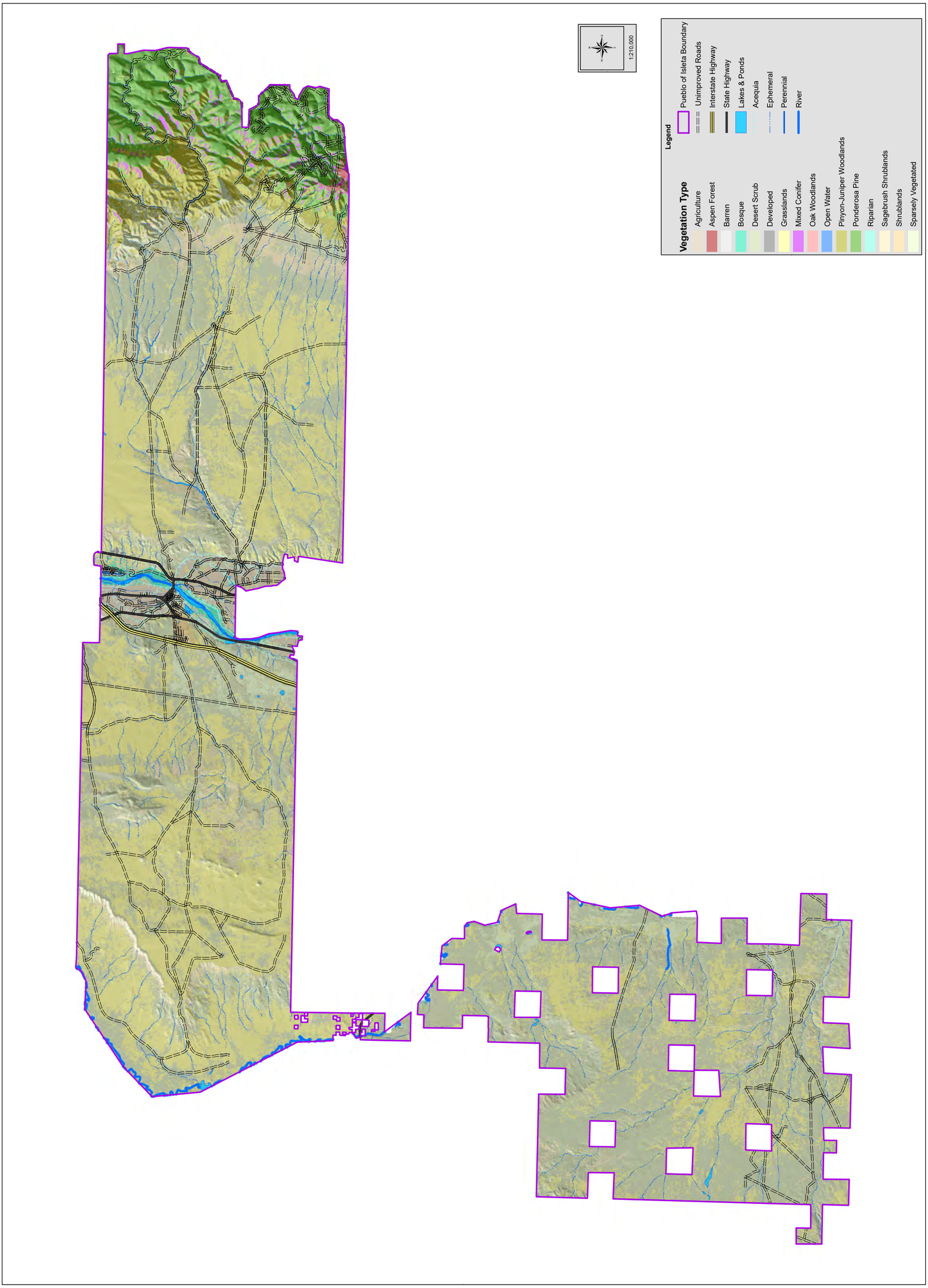
Pueblo of Isleta Fuels Management Plan
Wildland Urban Interface Map



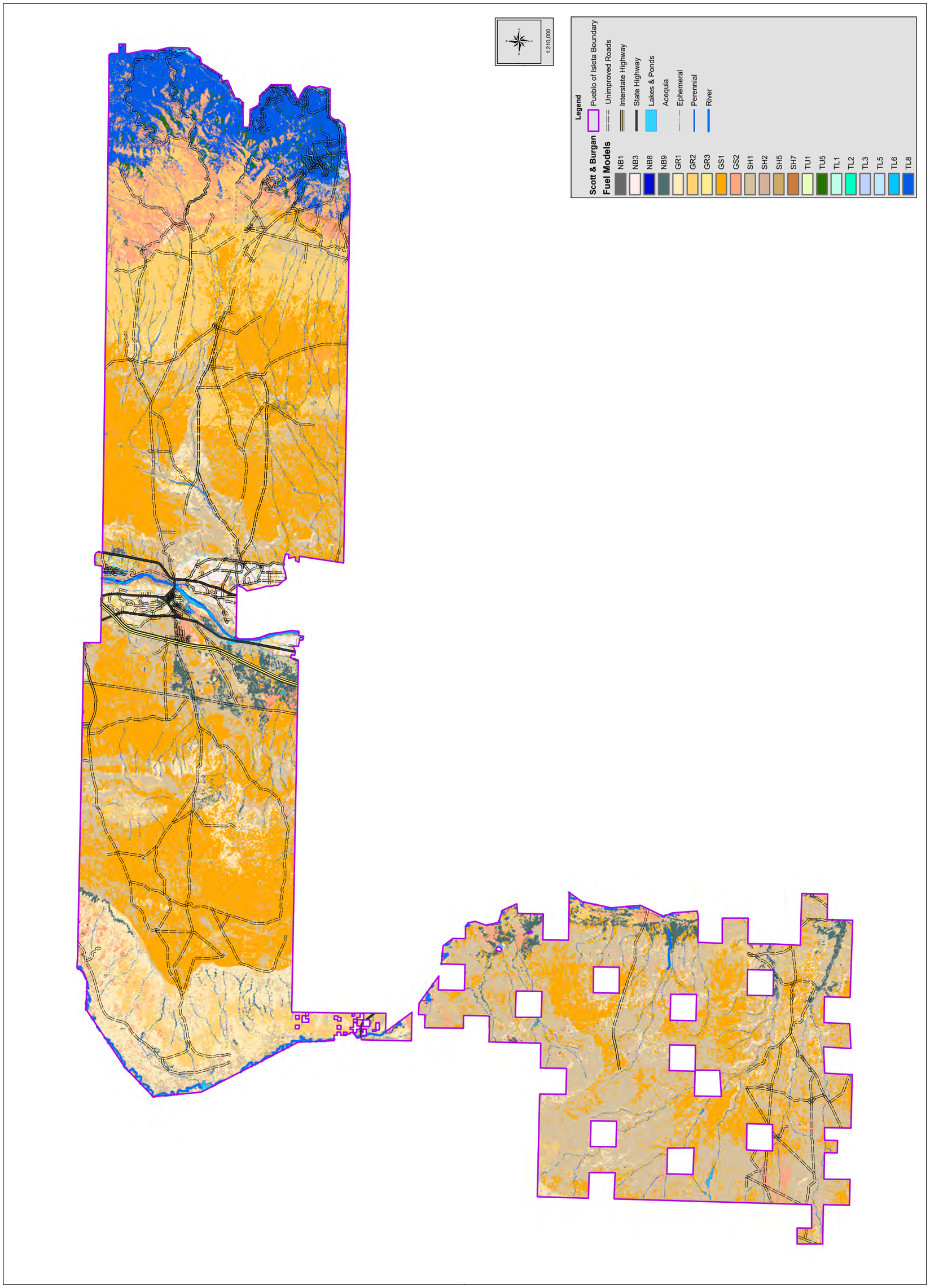
Pueblo of Isleta Fuels Management Plan
Fire Management Units Map



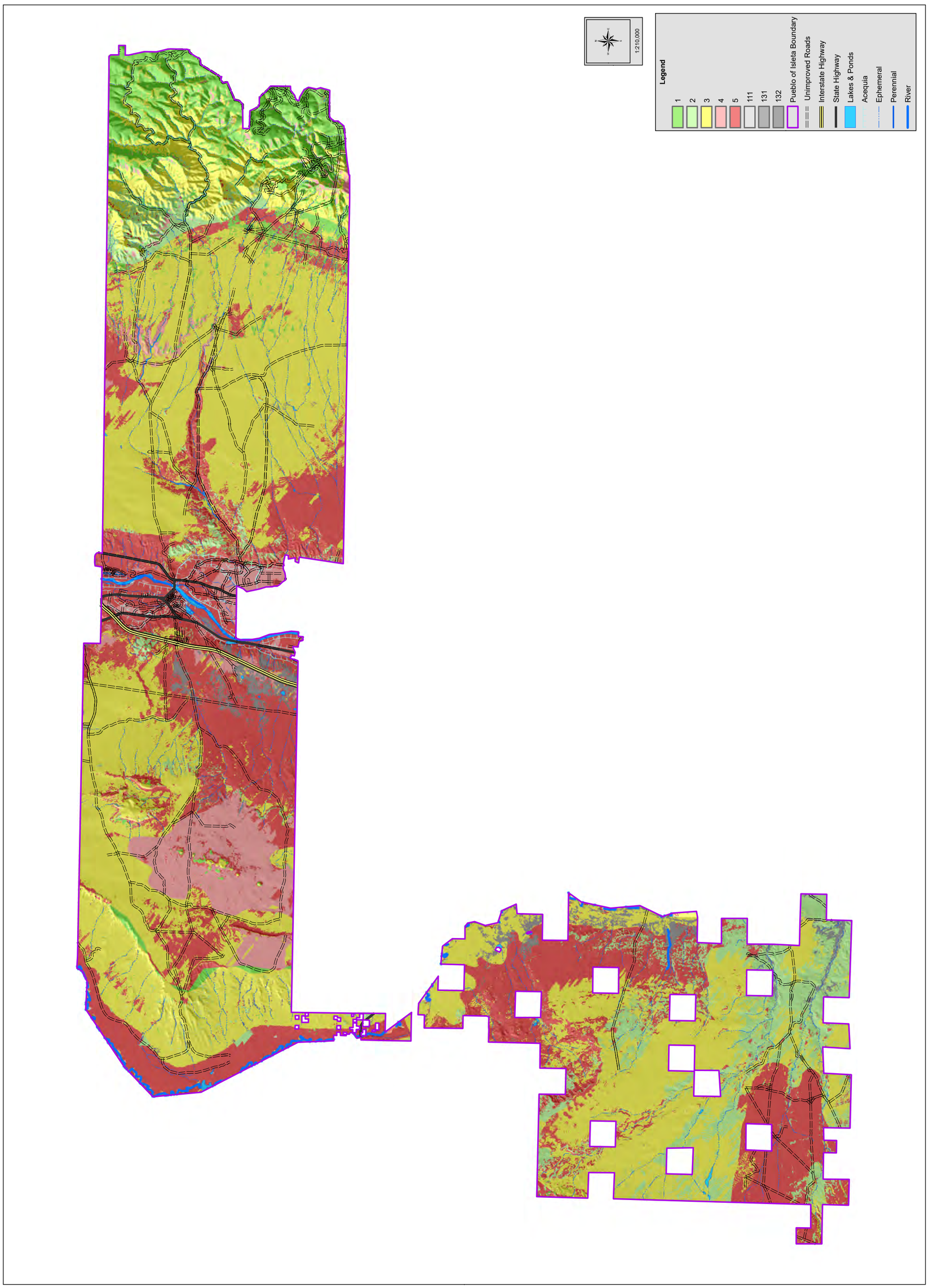
Pueblo of Isleta Fuels Management Plan
Vegetation Types Map



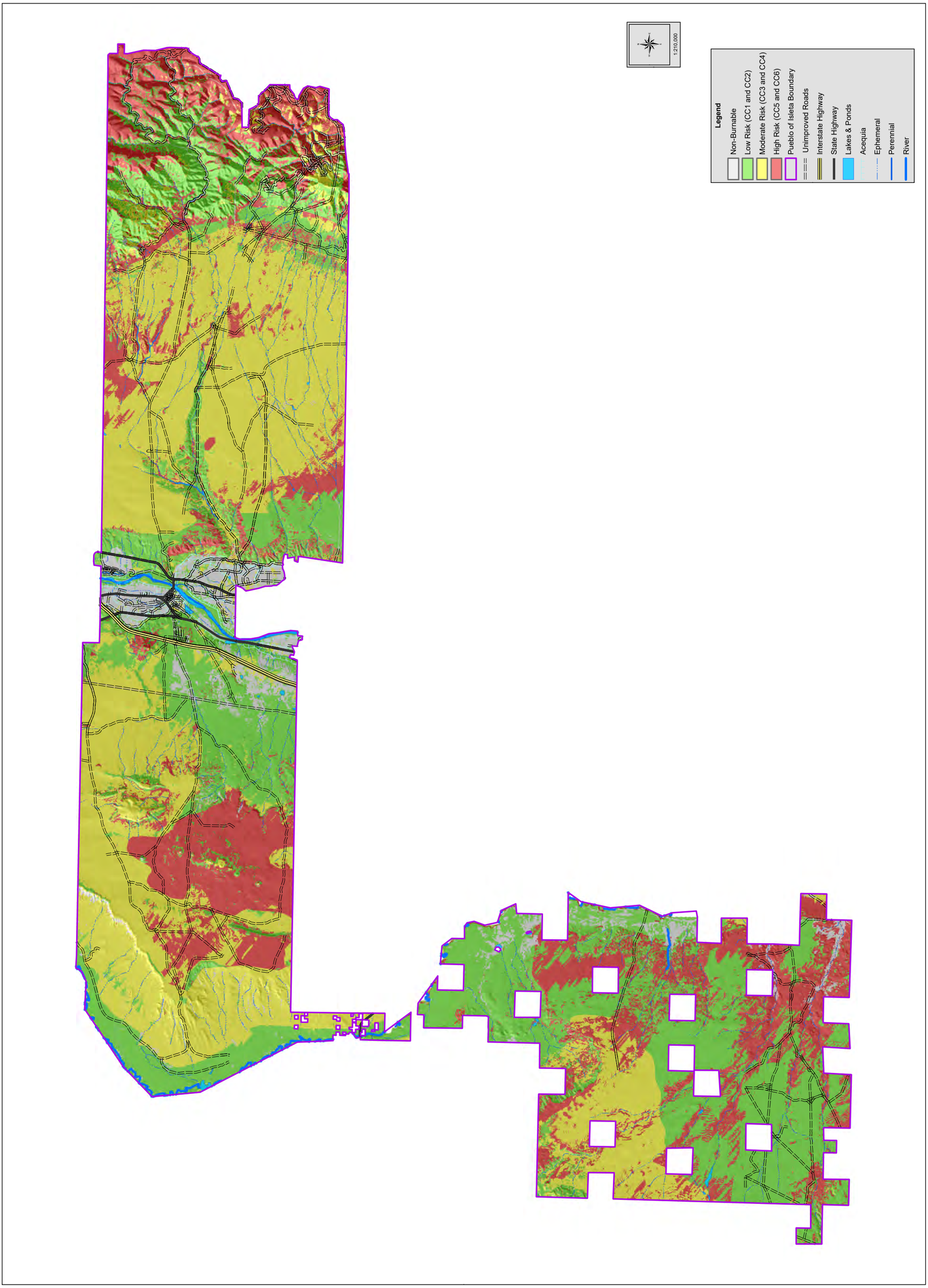
Pueblo of Isleta Fuels Management Plan
Scott & Burgan Fuel Model Map



Pueblo of Isleta Fuels Management Plan
Fire Regime Map

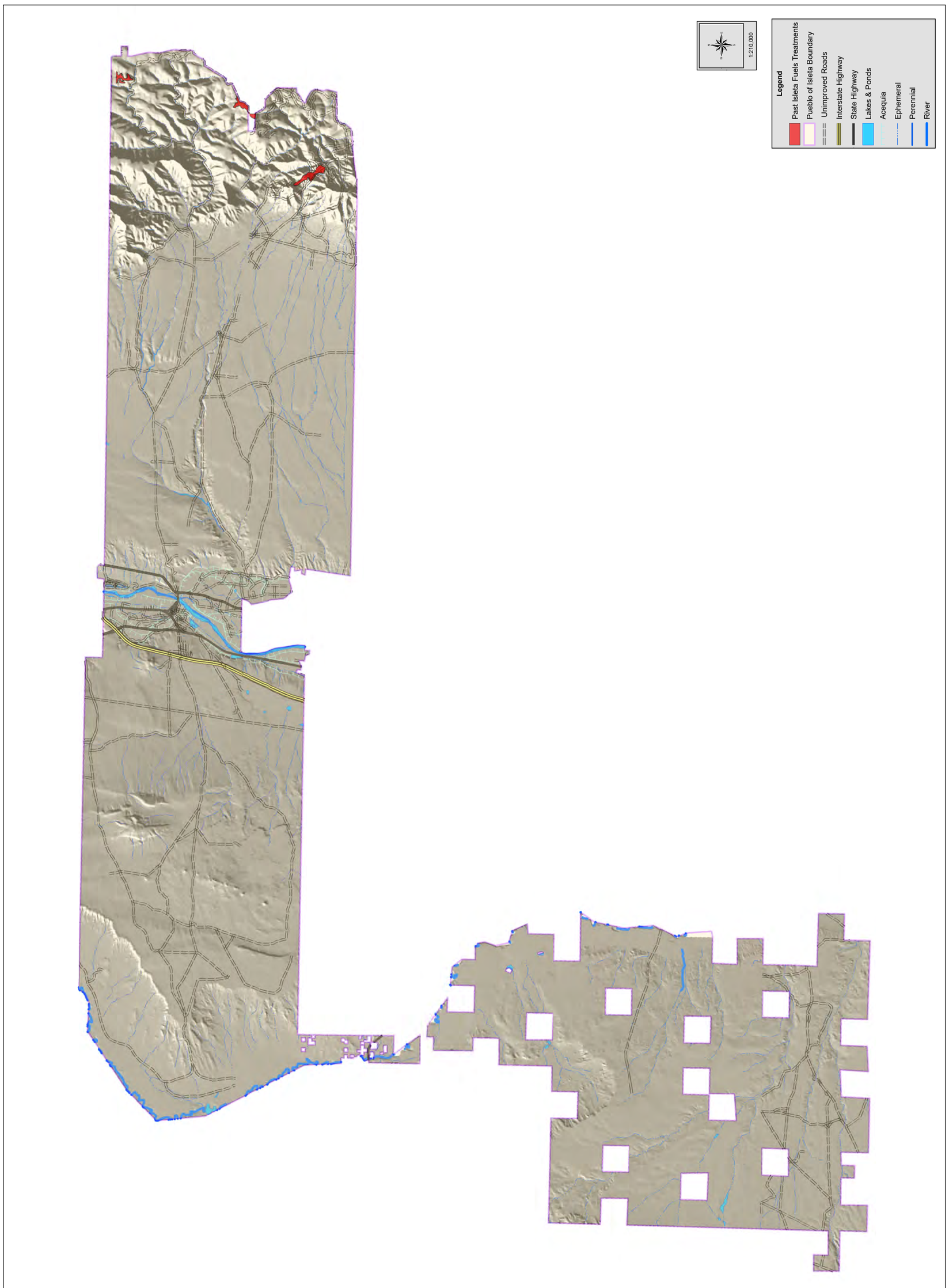


Pueblo of Isleta Fuels Management Plan
Condition Class Map



Pueblo of Isleta Fuels Management Plan
Potential Fuels Treatments Map

Pueblo of Isleta Fuels Management Plan
Fuels Treatment History Map



Appendix B

FIRE REGIME CONDITION CLASS DEFINITION

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse-scale definitions for natural (historical) fire regimes have been developed by Hardy et al. (2001) and Schmidt et al. (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);
II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);
IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);
V – 200+ year frequency and high (stand replacement) severity.

As scale of application becomes finer these five classes may be defined with more detail, or any one class may be split into finer classes, but the hierarchy to the coarse scale definitions should be retained.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy et al. (2001) and Schmidt et al. (2001) (FRCC). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy et al. 2001, Schmidt et al. 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

Characteristic vegetation and fuel conditions are considered to be those that occurred within the natural (historical) fire regime. Uncharacteristic conditions are considered to be those that did not occur within the natural (historical) fire regime, such as invasive species (e.g. weeds, insects, and diseases), "high graded" forest composition and structure (e.g. large trees removed in a frequent surface fire regime), or repeated annual grazing that maintains grassy fuels across relatively large areas at levels that will not carry a surface fire. Determination of amount of departure is based on comparison of a composite measure of fire regime attributes (vegetation characteristics; fuel composition; fire frequency, severity and pattern) to the central tendency of the natural (historical) fire regime. The amount of departure is then classified to determine the fire regime condition class. A simplified description of the fire regime condition classes and associated potential risks follow.

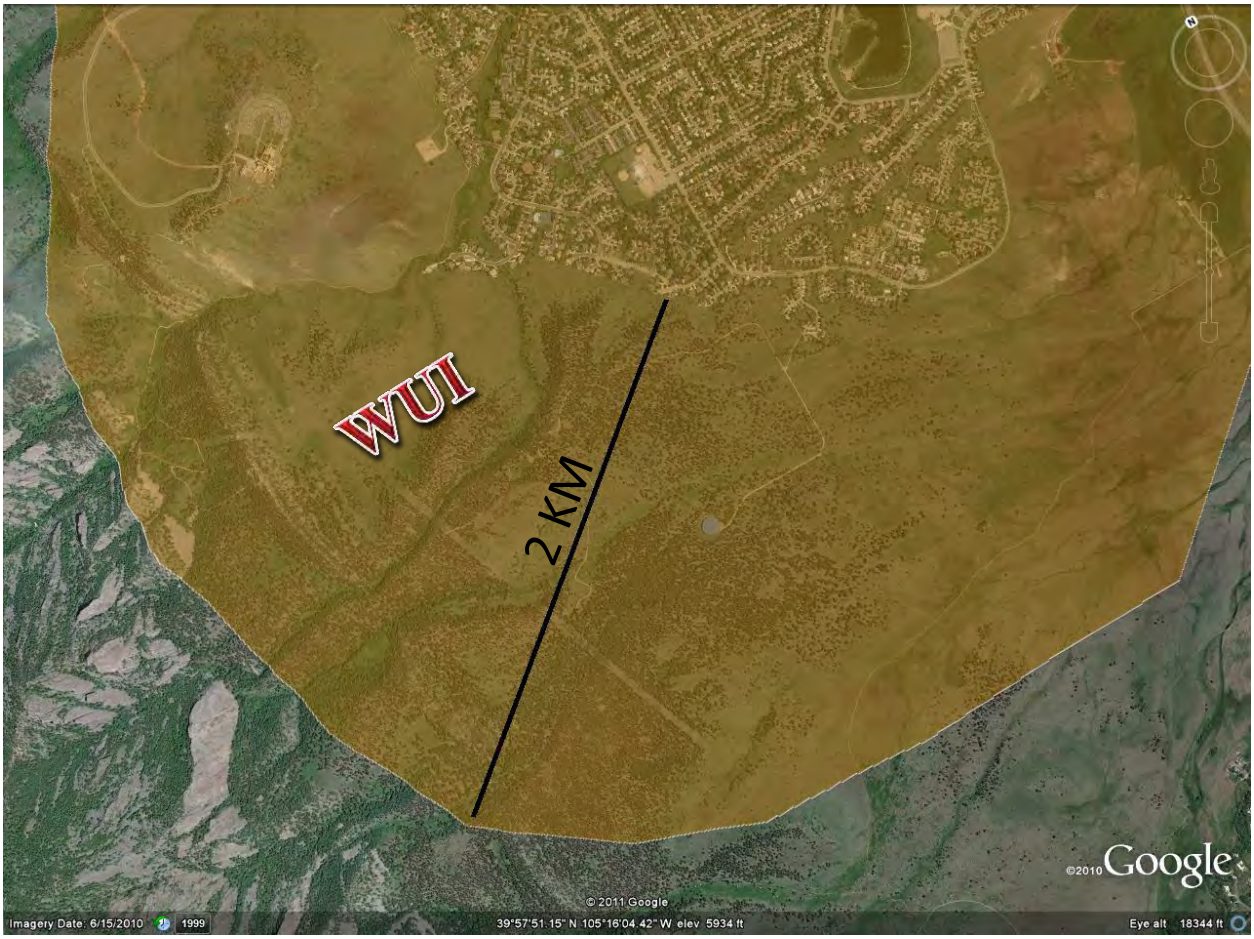
Fire Regime Condition Class	Description	Potential Risks
Condition Class 1	Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components (e.g. native species, large trees, and soil) are low
Condition Class 2	Moderate departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate; Risk of loss of key ecosystem components are moderate
Condition Class 3	High departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components are high

More detailed descriptions of the fire regime condition classes and associated attributes are provided in the following table.

Condition Class	Fire Regime	Example Management Options	Examples of Key Ecosystem Component Susceptibility to Changing Fire Regime Condition Classes			
			Species composition and structure	Invasion by non-native species	Smoke production hydrology, and Soils	Insects and disease
Condition Class 1	Fire regimes are within the natural (historical) range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition, structure, and pattern) are intact and functioning within the natural (historical) range.	Where appropriate, these areas can be maintained within the natural (historical) fire regime by treatments such as fire use.	Species composition and structure are functioning within their natural (historical) range at both patch and landscape scales.	Non-native species are currently not present or present in limited extent. Through time or following disturbance sites are potential vulnerable to invasion by non-native species.	Functioning within their natural (historical) range.	Insect and disease populations functioning within their natural (historical) range.
Condition Class 2	Fire regimes have been moderately altered from their natural (historical) range. Risk of losing key ecosystem components is moderate. Fire frequencies have departed from natural frequencies by one or more return intervals (either increased or decreased). This result in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation and fuel attributes have been moderately altered from their natural (historical) range.	Where appropriate, these areas may need moderate levels of restoration treatments, such as fire use and hand or mechanical treatments, to be restored to the natural fire regime.	Species composition and structure have been moderately altered from their historical range at patch and landscape scales. For example: Grasslands – Moderate encroachment of shrubs and trees and/or invasive exotic species. Shrublands – Moderate encroachment of trees, increased shrubs, or invasive exotic species. Forestland/Woodland – Moderate increases in density, encroachment of shade tolerant tree species, or moderate loss of shade intolerant tree species caused by fire exclusion, logging, or exotic insects or disease. Replacement of surface shrub/grass with woody fuels and litter.	Populations of non-native invasive species may have increased, thereby increasing the potential risk for these populations to expand following disturbances, such as wildfires.	Have been moderately altered from their natural (historical) range. Water flow typically less. Smoke and soil erosion following fire typically greater.	Insect and disease population have been moderately altered from their natural (historical) range.
Condition Class 3	Fire regimes have been substantially altered from their natural (historical) range. The risk of losing key ecosystem components is high. Fire frequencies have departed from natural frequencies by multiple return intervals. Dramatic changes occur to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been substantially altered from their natural (historical) range.	Where appropriate, these areas may need high levels of restoration treatments, such as hand or mechanical treatments, before fire can be used to restore the natural fire regime.	Species composition and structure have been substantially altered from their historical range at patch and landscape scales. For example: Grasslands – High encroachment and establishment of shrubs, trees, or invasive exotic species. Shrublands – High encroachment and establishment of trees, increased shrubs, or invasive exotic species. Forestland/Woodland – High increases in density, encroachment of shade tolerant tree species, or high loss of shade intolerant tree species caused by fire exclusion, logging, or exotic insects or disease.	Invasive species may be common and in some cases the dominant species on the landscape. Any disturbance will likely increase both the dominance and geographic extent of these invasive species.	Have been substantially altered from their historical range.	Insect and disease population have been substantially altered from their natural (historical) range. Typically higher mortality or defoliation.

WUI Category Examples

Category 1: Interface Community



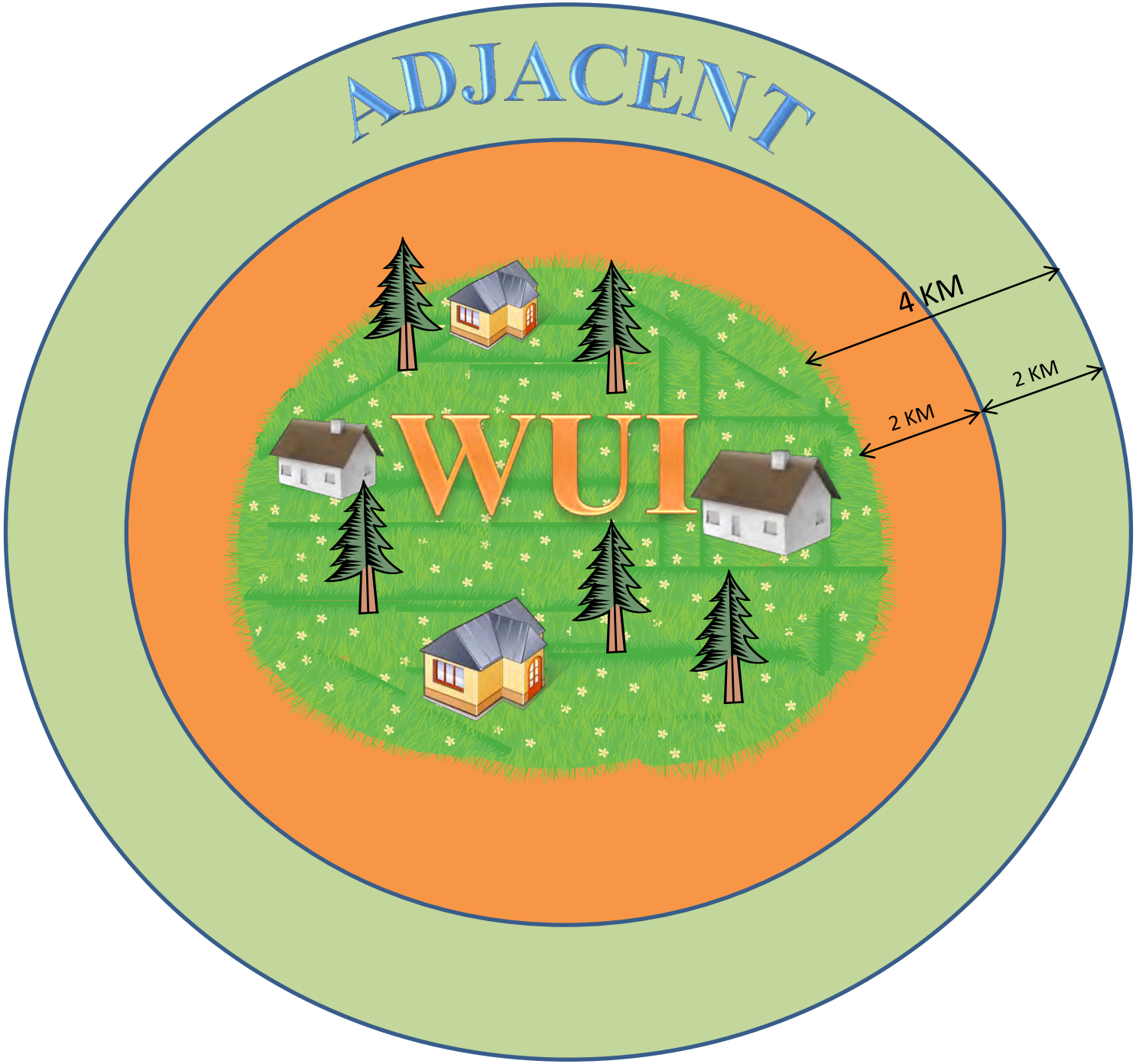
Category 1
Interface Community. The Interface Community exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually 3 or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department with the responsibility to protect the structure from both an interior fire and an advancing wildland fire. An alternative definition of the interface community emphasizes a population density of 250 or more people per square mile.

Category 2: Intermix Community

Category 2
Intermix Community. The Intermix Community exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. The development density in the intermix ranges from structures very close together to one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28-250 people per square mile.

Category 3: Occluded Community

Category 3
Occluded Community. The Occluded Community generally exists in a situation, often within a city, where structures abut an island of wildland fuels (e.g., park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than 1,000 acres in size. Fire protection is normally provided by local government fire departments.


ADJACENT
WUI
4 KM
2 KM
2 KM

Year	Label	loc	Acres
2022	POI_22_01	Bos	67.05
2022	POI_22_02	Bos	95.43
2022	POI_22_03	Bos	15.11
2022	POI_22_04	Upl	121.68
2022	POI_22_05	Upl	210.51
2023	POI_23_01	Bos	69.61
2023	POI_23_02	Bos	210.51
2023	POI_23_03	Bos	24.24
2023	POI_23_04	Upl	267.72
2024	POI_24_01	Bos	166.49
2024	POI_24_02	Bos	118.9
2024	POI_24_03	Upl	255.8
2025	POI_25_01	Bos	205.85
2025	POI_25_02	Bos	115.2
2025	POI_25_03	Upl	211.34
2026	POI_26_01	Bos	10.62
2026	POI_26_02	Bos	40.79
2026	POI_26_03	Bos	217.39
2026	POI_26_04	Bos	10.19
2026	POI_26_05	Upl	20.45
2026	POI_26_06	Upl	163.48
2027	POI_27_01	Bos	148.73
2027	POI_27_02	Bos	54.37
2027	POI_27_03	Bos	32.36
2027	POI_27_04	Bos	36.24
2027	POI_27_05	Upl	238.76
2028	POI_28_01	Bos	58.88
2028	POI_28_02	Bos	69.01
2028	POI_28_03	Bos	46.16
2028	POI_28_04	Bos	12.27
2028	POI_28_05	Bos	92.68
2028	POI_28_06	Upl	198.16
2029	MPOI_29_01	Upl	142.63
2029	MPOI_29_02	Upl	140.8
2029	MPOI_29_03	Upl	44.54
2029	MPOI_29_04	Upl	42.11
2029	MPOI_29_05	Upl	64.88
2029	MPOI_29_06	Upl	66.42
2030	MPOI_30_01	Upl	36.96
2030	MPOI_30_02	Upl	151.97
2030	MPOI_30_03	Upl	6.82
2030	MPOI_30_04	Upl	22.51
2030	MPOI_30_05	Upl	107.17
2030	MPOI_30_06	Upl	67.28
2030	MPOI_30_07	Upl	88.34

2022

Treatment	Cost/Ac	Total Cost
Monitoring/SHPO/ESA	$20.71	$1,389
Monitoring/SHPO/ESA	$20.71	$1,976
Monitoring/SHPO/ESA	$20.71	$313
Monitoring/SHPO/ESA	$20.71	$2,519.99
Monitoring/SHPO/ESA	$20.71	$4,359.66

2031	MPOI_31_01	Upl	50.01	
2031	MPOI_31_02	Upl	165.99	
				$10,558

2023

Treatment	Cost/Ac	Total Cost
Mastication	$185.44	$12,434
Mastication	$185.44	$17,697
Mastication	$185.44	$2,802
Hand Thin/Hand Pile	$502.16	$61,102.83
Hand Thin/Hand Pile	$502.16	$105,709.70
Monitoring/SHPO/ESA	$20.71	$1,442
Monitoring/SHPO/ESA	$20.71	$4,360
Monitoring/SHPO/ESA	$20.71	$502
Monitoring/SHPO/ESA	$20.71	$5,544.48

2024

Treatment	Cost/Ac	Total Cost
Chemical	$81.95	$5,495
Chemical	$81.95	$7,820
Chemical	$81.95	$1,238
Pile Burn	$53.81	$6,547.60
Pile Burn	$53.81	$11,327.54
Mastication	$185.44	$12,908
Mastication	$185.44	$39,037
Mastication	$185.44	$4,495
Hand Thin/Hand Pile	$502.16	$134,438.28
Monitoring/SHPO/ESA	$20.71	$3,448
Monitoring/SHPO/ESA	$20.71	$2,462
Monitoring/SHPO/ESA	$20.71	$5,297.62

	$211,593	$234,515

2025			2026		
Treatment	Cost/Ac	Total Cost	Treatment	Cost/Ac	Total Cost
Post Monitoring	$2.00	$134			
Post Monitoring	$2.00	$191			
Post Monitoring	$2.00	$30			
Post Monitoring	$2.00	$243.36			
Post Monitoring	$2.00	$421.02			
Chemical	$81.95	$5,705	Post Monitoring	$2.00	$139
Chemical	$81.95	$17,251	Post Monitoring	$2.00	$421
Chemical	$81.95	$1,986	Post Monitoring	$2.00	$48
Pile Burn	$53.81	$14,406.01	Post Monitoring	$2.00	$535.44
Mastication	$185.44	$30,874	Chemical	$81.95	$13,644
Mastication	$185.44	$22,049	Chemical	$81.95	$9,744
Hand Thin/Hand Pile	$502.16	$128,452.53	Pile Burn	$53.81	$13,764.60
Monitoring/SHPO/ESA	$20.71	$4,263	Mastication	$185.44	$38,173
Monitoring/SHPO/ESA	$20.71	$2,386	Mastication	$185.44	$21,363
Monitoring/SHPO/ESA	$20.71	$4,376.85	Hand Thin/Hand Pile	$502.16	$106,126.49
			Monitoring/SHPO/ESA	$20.71	$220
			Monitoring/SHPO/ESA	$20.71	$845
			Monitoring/SHPO/ESA	$20.71	$4,502
			Monitoring/SHPO/ESA	$20.71	$211
			Monitoring/SHPO/ESA	$20.71	$423.52
			Monitoring/SHPO/ESA	$20.71	$3,385.67

$232,769	$213,546

2027			2028		
Treatment	Cost/Ac	Total Cost	Treatment	Cost/Ac	Total Cost
Post Monitoring	$2.00	$333			
Post Monitoring	$2.00	$238			
Post Monitoring	$2.00	$511.60			
Chemical	$81.95	$16,869	Post Monitoring	$2.00	$412
Chemical	$81.95	$9,441	Post Monitoring	$2.00	$230
Pile Burn	$53.81	$11,372.21	Post Monitoring	$2.00	$422.68
Mastication	$185.44	$1,969	Chemical	$81.95	$870
Mastication	$185.44	$7,564	Chemical	$81.95	$3,343
Mastication	$185.44	$40,313	Chemical	$81.95	$17,815
Mastication	$185.44	$1,890	Chemical	$81.95	$835
Hand Thin/Hand Pile	$502.16	$10,269.17	Pile Burn	$53.81	$1,100.41
Hand Thin/Hand Pile	$502.16	$82,093.11	Pile Burn	$53.81	$8,796.86
Monitoring/SHPO/ESA	$20.71	$3,080	Mastication	$185.44	$27,580
Monitoring/SHPO/ESA	$20.71	$1,126	Mastication	$185.44	$10,082
Monitoring/SHPO/ESA	$20.71	$670	Mastication	$185.44	$6,001
Monitoring/SHPO/ESA	$20.71	$751	Mastication	$185.44	$6,720
Monitoring/SHPO/ESA	$20.71	$4,944.72	Hand Thin/Hand Pile	$502.16	$119,895.72
			Monitoring/SHPO/ESA	$20.71	$1,219
			Monitoring/SHPO/ESA	$20.71	$1,429
			Monitoring/SHPO/ESA	$20.71	$956
			Monitoring/SHPO/ESA	$20.71	$254
			Monitoring/SHPO/ESA	$20.71	$1,919
			Monitoring/SHPO/ESA	$20.71	$4,103.89

$193,434	$213,987

2029			2030		
Treatment	Cost/Ac	Total Cost	Treatment	Cost/Ac	Total Cost
Post Monitoring	$2.00	$21			
Post Monitoring	$2.00	$82			
Post Monitoring	$2.00	$435			
Post Monitoring	$2.00	$20			
Post Monitoring	$2.00	$40.90			
Post Monitoring	$2.00	$326.96			
Chemical	$81.95	$12,188	Post Monitoring	$2.00	$297
Chemical	$81.95	$4,456	Post Monitoring	$2.00	$109
Chemical	$81.95	$2,652	Post Monitoring	$2.00	$65
Chemical	$81.95	$2,970	Post Monitoring	$2.00	$72
Pile Burn	$53.81	$12,847.68	Post Monitoring	$2.00	$477.52
Mastication	$185.44	$10,919	Chemical	$81.95	$4,825
Mastication	$185.44	$12,797	Chemical	$81.95	$5,655
Mastication	$185.44	$8,560	Chemical	$81.95	$3,783
Mastication	$185.44	$2,275	Chemical	$81.95	$1,006
Mastication	$185.44	$17,187	Chemical	$81.95	$7,595
Hand Thin/Hand Pile	$502.16	$99,508.03	Pile Burn	$53.81	$10,662.99
Monitoring/SHPO/ESA	$20.71	$2,953.87	Hand Thin/Hand Pile	$502.16	$71,623.08
Monitoring/SHPO/ESA	$20.71	$2,915.97	Hand Thin/Hand Pile	$502.16	$70,704.13
Monitoring/SHPO/ESA	$20.71	$922.42	Hand Thin/Hand Pile	$502.16	$22,366.21
Monitoring/SHPO/ESA	$20.71	$872.10	Hand Thin/Hand Pile	$502.16	$21,145.96
Monitoring/SHPO/ESA	$20.71	$1,343.66	Hand Thin/Hand Pile	$502.16	$32,580.14
Monitoring/SHPO/ESA	$20.71	$1,375.56	Hand Thin/Hand Pile	$502.16	$33,353.47
			Monitoring/SHPO/ESA	$20.71	$765.44
			Monitoring/SHPO/ESA	$20.71	$3,147.30
			Monitoring/SHPO/ESA	$20.71	$141.24
			Monitoring/SHPO/ESA	$20.71	$466.18
			Monitoring/SHPO/ESA	$20.71	$2,219.49
			Monitoring/SHPO/ESA	$20.71	$1,393.37
			Monitoring/SHPO/ESA	$20.71	$1,829.52

	$197,669	$296,283

2031			2032		
Treatment	Cost/Ac	Total Cost	Treatment	Cost/Ac	Total Cost
Post Monitoring	$2.00	$118			
Post Monitoring	$2.00	$138			
Post Monitoring	$2.00	$92			
Post Monitoring	$2.00	$25			
Post Monitoring	$2.00	$185			
Post Monitoring	$2.00	$396.32			
Pile Burn	$53.81	$7,674.92	Post Monitoring	$2.00	$285.26
Pile Burn	$53.81	$7,576.45	Post Monitoring	$2.00	$281.60
Pile Burn	$53.81	$2,396.70	Post Monitoring	$2.00	$89.08
Pile Burn	$53.81	$2,265.94	Post Monitoring	$2.00	$84.22
Pile Burn	$53.81	$3,491.19	Post Monitoring	$2.00	$129.76
Pile Burn	$53.81	$3,574.06	Post Monitoring	$2.00	$132.84
Hand Thin/Hand Pile	$502.16	$18,559.83	Pile Burn	$53.81	$1,988.82
Hand Thin/Hand Pile	$502.16	$76,313.26	Pile Burn	$53.81	$8,177.51
Hand Thin/Hand Pile	$502.16	$3,424.73	Pile Burn	$53.81	$366.98
Hand Thin/Hand Pile	$502.16	$11,303.62	Pile Burn	$53.81	$1,211.26
Hand Thin/Hand Pile	$502.16	$53,816.49	Pile Burn	$53.81	$5,766.82
Hand Thin/Hand Pile	$502.16	$33,785.32	Pile Burn	$53.81	$3,620.34
Hand Thin/Hand Pile	$502.16	$44,360.81	Pile Burn	$53.81	$4,753.58

Monitoring/SHPO/ESA	$20.71	$1,035.71	Hand Thin/Hand Pile	$502.16	$25,113.02
Monitoring/SHPO/ESA	$20.71	$3,437.65	Hand Thin/Hand Pile	$502.16	$83,353.54
		$273,971			$135,355

2033			2034		
Treatment	Cost/Ac	Total Cost	Treatment	Cost/Ac	Total Cost
Post Monitoring	$2.00	$73.92			
Post Monitoring	$2.00	$303.94			
Post Monitoring	$2.00	$13.64			
Post Monitoring	$2.00	$45.02			
Post Monitoring	$2.00	$214.34			
Post Monitoring	$2.00	$134.56			
Post Monitoring	$2.00	$176.68			

Pile Burn	$53.81	$2,691.04	Post Monitoring	$2.00	$100.02
Pile Burn	$53.81	$8,931.92	Post Monitoring	$2.00	$331.98

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Appendix N: Environmental Assessment

PUEBLO OF ISLETA
WILDLAND FIRE MANAGEMENT PLAN
ENVIRONMENTAL ASSESSMENT

Prepared for: Pueblo of Isleta
Prepared by U.S. Department of the Interior
Bureau of Indian Affairs Southwest Region and
the Southern Pueblos Agency Albuquerque,
NM 87104

Bureau of Indian Affairs, Southern Pueblos Agency

September 2021

FINDING OF NO SIGNIFICANT IMPACT (FONSI)
ENVIRONMENTAL ASSESSMENT FOR THE IMPLEMENTATION OF THE PUEBLO OF ISLETA WILDLAND FIRE MANAGEMENT PLAN

An Environmental Assessment (EA) has been prepared to identify and evaluate the potential environmental effects that would occur from the implementation of the Wildland Fire Management Plan (WFMP) for the Pueblo of Isleta. This EA was prepared in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] §4321-4370 et. seq); the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (CEQ Regulations, 40 CFR Parts 1500-1508); 90 IAM 2, Wildland Management, Fire Management Plans, January 19, 2006; and Indian Affairs Manual (IAM), Part 59, Environmental and Cultural Resources Management.

Description of Proposed Action and Alternatives

1. *Proposed Action*

The EA analyzes the Proposed Action and the No Action Alternative. The Proposed Action is a reasonable alternative that meets the underlying need for wildland fire response and a fuels reduction program for the BIA Southern Pueblos Agency. This need is to minimize the occurrence of a large wildfire that could threaten animals, humans, and structures. This EA focuses on local and regional significant resources that could be affected by the wildland fire response and fuels reduction activities under the Proposed Action. The No Action alternative does not meet the needs for an effective wildland fire management or fuels reduction programs. Without implementation of the WFMP, which includes a site-specific, detailed fuels management plan, no fuels reduction activities would be accomplished to reduce the risks of a large wildfire in the communities within the reservation.

The BIA is proposing to implement a WFMP to provide appropriate wildland fire response and remove hazardous fuels to reduce the intensity and frequency of future wildland fires within the Pueblo of Isleta. Actions include wildland fire management and suppression, Burned Area Emergency Response, and prevention. Hazardous fuels management strategies would minimize impacts to life and property. A range of treatments would be employed to meet management objectives including hand, mechanical, and prescribed fire treatments. Chemical and grazing treatments may be used on a limited basis. All treatments will have pre- and post- monitoring conducted.

2. *No Action Alternative*

An environmental analysis of a No Action Alternative is required by CEQ regulations to serve as a baseline against which the Proposed Action can be evaluated. The No Action alternative analysis also provides a benchmark to allow decision makers and the public to compare the levels of environmental effects of the alternatives. In the context of this EA, a No Action Alternative means that there would be no change from the current fire management operations and therefore, activities would continue without the benefit of the WFMP to standardize and formalize operating procedures. Only full wildland fire suppression, prevention, and emergency rehabilitation measures would be permitted. No vegetation would be removed from the Pueblo of Isleta for the purpose of reducing fire fuel loads. No additional disturbance to plant, wildlife, or soil resources would occur. Encroachment of non-native species in the riparian areas would continue to exist. Fuel loads would continue to accumulate, increasing the risk of wildfire on the reservation.

3. *Environmental Analysis*

Based upon the analysis provided in the EA, it has been determined that implementation of the Proposed Action would not result in any adverse environmental effects.

Neither the Proposed Action nor the No Action Alternative create disproportionately high or adverse human health or environmental effects on children, minority or low-income populations, or communities at, or surrounding the Pueblo of Isleta.

4. *Regulations*

The Proposed Action would not violate the National Environmental Policy Act (NEPA), its regulations promulgated by the CEQ, and the BIA (IAM), Part 59, Environmental and Cultural Resources Management. No other federal or tribal environmental regulations would be violated.

5. *Finding of No Significant Impact*

I declare a Finding of No Significant Impact to the human environment resulting from the proposed Plan. The EA for the proposed Plan will be available for review upon request at three locations: 1) BIA Southwest Regional Office, 2) BIA Southern Pueblos Agency, and 3) Pueblo of Isleta Governor's Office.). The decision to proceed is concurrent to the Notice of Availability (NOA) for the FONSI for the Environmental Assessment. Comments may be submitted by writing to the Superintendent, Southern Pueblos Agency, 1001 Indian School Road NW, Suite 254, Albuquerque, New Mexico, 87104. Your comments must be received no later than 30 days from the posting of the NOA, on **DATE.**

_____ _____

Superintendent, Southern Pueblos Agency
Bureau of Indian Affairs

Date

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EXECUTIVE SUMMARY

Background

The purpose of this Environmental Assessment (EA) is to assess the potential environmental effects—positive and negative—that the Proposed Action and No Action Alternative may have on the environment, considering natural, social, and economic aspects. In addition, the assessment ensures that the Bureau of Indian Affairs (BIA) considers the potential environmental effects that would result from implementing the Pueblo of Isleta Wildland Fire Management Plan (WFMP).

Purpose and Need

The purpose of the WFMP is to comply with the Indian Affairs Manual Part 90 and the Federal Fire Policy, which require a WFMP for all areas with burnable vegetation. The WFMP defines and documents an organization's program to manage wildland fire. The WFMP has been written to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo of Isleta. The WFMP is a strategic document that contains operational direction designed to guide a full range of fire management activities on a unit or area supported by existing land management plans.

Proposed Action

The BIA is proposing to implement a Wildland Fire Management Plan that provides a direction on the suppression and management of wildfires and proposes to conduct hazardous fuels reduction treatments that would mitigate the intensity of wildland fires. Actions include wildland fire management and suppression, Burned Area Emergency Response, and prevention. Hazardous fuels management strategies would minimize impacts to life and property. A range of treatments would be employed to meet management objectives including hand, mechanical, and prescribed fire treatments. Chemical and grazing treatments may be used on a limited basis. All treatments will have pre- and post- monitoring conducted.

No Action Alternative

Under the No Action Alternative, the WFMP would not be implemented. Wildland fire management activities would continue without the benefit of the WFMP to standardize and formalize wildland fire management operating procedures. Only full wildland fire suppression, prevention, and emergency rehabilitation measures would be permitted. Under this alternative, current BIA management practices would continue, and fuel loads would continue to accumulate, increasing the risk of wildfire.

Environmental Consequences

Table ES-1 summarizes the potential environmental consequences of the Proposed Action and the No Action Alternative, based on the detailed impact analyses presented in Chapter 3. The BIA's implementation of the WFMP would incur mostly temporary, negligible, negative impacts to existing resources and long-term beneficial impacts due to the reduction of hazardous fuel loads that would lessen the occurrence of wildfires.

Table ES-1 Summary of Potential Impacts of the Proposed Action and No Action Alternative

Resource	Proposed Action	No Action Alternative
1. Physiography, Topography &Land Use	Negligible effects on the physiography and topography of the project areas and the existing land use. The physiography and topography would not be permanently altered and land use would not change.	The WFMP would not be implemented. No change to the physiography, topography, and existing land use.
2. Air Quality &Climate	Temporary, minor air quality effects from equipment and vehicle emissions. Emissions would be short-term, localized, and minor in nature. Negligible impacts would occur through exhaust from combustion engines associated with vehicles and equipment used for mechanical treatments. Use of herbicides for the management of non- native and invasive species can pose a short-term, minor, localized, negative impact to air quality in that some herbicide sprayed onto vegetation would evaporate and some drift is inevitable. Short-term, localized, minor impacts on air quality would occur through prescribed burning, and back-firing methods during wildfire response from smoke.	The WFMP would not be implemented. No proposed WUI treatment activities would occur to reduce the potential for wildland fire. As a result, the potential for smoke impacts from wildfire events would remain due to continued hazardous fuel accumulation. As fuel loads increase over time, the risk of wildfire also increases. If a widespread fire were to occur, it would produce short-term, negative, minor to moderate, regional effects to air quality as large quantities of pollutants (primarily particulates) would be released to the atmosphere. Effects from these emissions would include impaired visibility and potential health effects (particularly respiratory problems).
3. Geology &Soils	The geology of the area would not be altered. Removal of vegetation through hazardous fuels treatments would result in surface disturbance to soils and would result in the removal of vegetation and compaction of soils, which would increase the erosion potential in treated areas since vegetation acts to stabilize soils. These impacts would betemporary because it is likely thatsurrounding vegetation would recolonize treated areas.	The WFMP would not be implemented.No change would occur to the geology and soils at the reservation. Wildland firemanagement activities would continue without the benefit of the WFMP to standardize and formalize wildland fire management operating procedures for the reservation.

Resource	Proposed Action	No Action Alternative
4. Water Resources	Removal of vegetation by hazardous fuels treatments would result in limited erosion, potentially causing soils to enter surface waters; however, groundwater and surface waters would not be affected permanently. Beneficial impacts would result from the removal of non-native and invasive species in and along the riparian corridors and wetlands. The control of these species is known to maintain healthy watersheds by reducing competition and promoting the establishment of native species adapted to local soil and erosion conditions.	The WFMP would not be implemented. There would be no change to water resources. Removing non-native and invasive species in and along the riparian corridors and wetlands wouldnot be accomplished.
5. Biological Resources: • Vegetation	Temporary, short-term minor effects on vegetation. Benefits would occur as reducing fuel loads would decrease the potential for reoccurrence of future uncontrolled wildfires. The removal of non-native species in the riparian areas and along wetlands would be beneficial. Reducing the number of stems per acre would allow additional water and nutrient resources for remaining trees and shrubs.	The WFMP would not be implemented. No vegetation would be removed for the purpose of reducing fire fuel loads. Encroachment of non-native species in the riparian areas would continue to exist. Fuel loads would continue to accumulate, increasing the risk of wildfire.
• Wetlands	Beneficial impacts to wetlands due to the removal of 95% of all non-native and invasive species in and along riparian corridors and wetlands.	The WFMP would not be implemented. Encroachment of non-native and invasive species in the riparian areas and wetlands would continue to occur.
• Floodplains	No floodplains would be filled or dredged. May be disturbed while performing treatments within the riparian wetlands. Impacts would be short-term and minor.	The WFMP would not be implemented. Floodplains would not incur any changes.
• Federally Listed Species	Implementation of the various treatments would not result in any long-term impacts to federally listed species. Impacts would be from disturbance and temporary displacement. Walk-through surveys prior to all treatments are recommended. No critical habitats are present.	The WFMP would not be implemented. Fuel loads would continue to accumulate, increasing the risk of wildfire, which would adversely affect these federally protected species.

Resource	Proposed Action	No Action Alternative
• Wildlife	Proposed actions would have temporary, negative impacts on wildlife due to the loss of protective cover, which would expose smaller species to predators in the short- term. Short-term loss of herbaceous plant species associated with fuel reductions in fuel loading and shrub heights would reduce nesting and foraging habitat.Impact from the displacement of species during treatment activities is considered negligible due to the temporal brevity of the treatments. In the long-term, wildlife would benefit from the reduction in thenumber of trees in woodland areas, which would promote growth of shrubs and other understory plants that provide food and shelter to wildlife species. Both big game and smaller species would benefit from the increase in understory vegetation.	The WFMP would not be implemented. Fuel loads would continue to accumulate, increasing the risk of wildfire, which would adversely affect wildlife. If this were to occur, re-establishing the shrub components lost from the fire in lower precipitation zones could be very problematic. In addition, under this scenario, there would be a high potential for areas of high-quality habitat to become dominated by non-native or other invasive species. This alternative could potentially result in long-term, minor to significant negative impacts to wildlife and their habitat.
• Migratory Birds	Proposed treatments could impact the available nesting and foraging habitat for shrub-nesting and ground-nesting species, as well as the foraging habitat for raptor species. Ground-clearing or other vegetation-disturbing activities during the migratory bird nesting season risks a violation of the MBTA by destroying the eggs or young of common shrub-nesting birds. It is unlikely that the Proposed Action would adversely affect the overall populations of any migratory bird species. The loss of nesting and foraging habitat would be minimal and temporary. It is highly recommended that treatment activities be conducted outside the migratory bird nesting season, if not, appropriate protective measures would be implemented if treatment were to occur during the nesting season. Walk-through surveys prior to all treatments are recommended.	The WFMP would not be implemented. Fuel loads would continue to accumulate, increasing the risk of wildfire, which would adversely affect migratory birds. Wildfires would cause a significant loss of nesting and foraging habitat for migratory birds.

Resource	Proposed Action	No Action Alternative
6. Cultural and Traditional Resources	Sensitive cultural sites will be identified and avoided utilizing standard avoidance procedures. Beneficial effects to cultural resources would be realized because of decreased hazardous fuels and the subsequent reduction in the number and severity of wildland fires. In the long-term, the removal of non-native and invasive species would have positive benefits for the protection ofprehistoric or historic sites by protecting and enhancing native plant communities that stabilize the soil.	The WFMP would not be implemented. Wildland fires would become more likely within the treatment units and cultural resources would be at an increased risk of damage from wildland fire. This alternative could result in severe post-fire erosion and consequent loss or damage to cultural resources. Erosion affects the spatial distribution of cultural materials on the surface of a site; if severe, prolonged, or repeated, erosion also affects buried cultural deposits. In addition, structural loss or damage could result from severe erosion episodes.
7. Socioeconomics and Environmental Justice	Would conduct wildfire response and hazardous fuels treatmentactivities which would result in economic opportunity by providing employment to complete vegetation management activities. However, this would not affect the local population or create a demand for public or private services. Therefore, impacts to social and economic values would be minimal. Reduction in fuel loading within the Pueblo would help protect infrastructure from the adverse economic effects caused by wildfire. This added protection would provide minor, localized, beneficial effects.	The WFMP would not be implemented. There would be no short-term economic consequences because of continuing current management. However, long-term effects would include continued potential for wildfire in the treatment units. In the event of a wildfire, economic losses would occur, including. those related to property and asset damage caused by the fire. Tourism and activities related to visitation near the project area could be affected during the fire, if access is restricted or if smoke obscures views or makes visitors uncomfortable.
8. Visual Aesthetics	Would temporarily affect the visual quality of the area due to smoke during the burning activities. However, in the long term, the reduction of hazardous fuels would be a beneficial impact, tourists, and general local and regional public visiting the highly scenic historic areas. This added protection would provide localized, beneficial effects.	The WFMP would not be implemented. Wildland fires would become more likely within the treatment units and the visual quality would be affected from wildland fire. Since the BIA would not reduce fuel loads under this alternative, this may increase the likelihood of a fire spreading faster, potentially affecting the visual aesthetics of the local and surrounding environment.

Resource	Proposed Action	No Action Alternative
9. Human Health and Safety	Conducting wildfire response and hazardous fuels reductionprojects could cause safety concerns dueto exposure of workers to potentially dangerous equipment. Human safety is the first priority during a wildfire, and evacuation of the area would occur if a wildfire threatened occupied structures. Negative effect on human health fromherbicide use may result from improper application. However, strict instructions would be followed by all personnel to minimize risk. Diligent training of work crews and use of Personal Protective Equipment (PPE)would reduce the level of risk. Any short-term, negative effects of mechanical treatments would be negligible. Implementation of this alternative would also result in long-term, minor to moderate, beneficial effects to employees, visitors, firefighters, neighbors, and nearby communities. By reducing the potential for wildfire, associated potentialloss of life and property and exposure to the dangers of fire would be decreased.	The WFMP would not be implemented and there would be the continued accumulation of fuels in the proposed treatment areas. Therefore, the risk of exposure to wildfire in these areas would increase. Small fires, as well as suppression efforts, would pose little threat to the public and a minor threat to firefighters. However, a spread of fire or larger fires would result in increased risk to health and safety. The risks to public health and safety from wildfires could include loss of life and property, injury, and health effects caused by exposure to smoke emissions.
10. Outdoor Recreation	Would temporarily affect the visual quality of the area due to smoke during the burning activities. However, in the long term, the reduction of hazardous fuels would be a beneficial impact. This added protection of hazardous fuels reduction would provide negligible, localized, beneficial effects.	The WFMP would not be implemented. Outdoor recreation areas and activities would remain the same under this alternative. Wildland fires would become more likely within the treatment units and outdoor recreation would be affected from wildland fire. This may increase the likelihood of a fire spreading faster, potentially affecting local outdoor recreation activities.

Conclusion

On the basis of this EA, it has been determined that implementing the Proposed Action would have no significant adverse effects on the quality of human life or on the natural environment. Preparation of an Environmental Impact Statement (EIS) is not required before implementing the Proposed Action, and issuance of a Finding of No Significant Impact (FONSI) for the Proposed Action would be appropriate.

2 PURPOSE AND NEED FOR THE PROPOSED ACTION

2.1 INTRODUCTION

The Department of Interior (DOI), Bureau of Indian Affairs (BIA) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) requirements, for the proposed implementation of the Wildland Fire Management Plan (WFMP) dated June 1, 2021, for the Pueblo of Isleta, which is located within the Southern Pueblos Agency (SPA) in the state of New Mexico. The BIA contracted the development of the EA to Environmental Express Services, LLC for initial drafts. The BIA finalized the EA and is responsible for NEPA compliance.

Fire Policy, which require a WFMP for all areas with burnable vegetation. The WFMP defines and documents an organization's program to manage wildland fire. The WFMP has been written to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo of Isleta. The WFMP is a strategic document that contains operational direction designed to guide a full range of fire management activities on a unit or area supported by existing land management plans. The WFMP normally is a supplement of a Forest or Resource Management Plan, remaining in force for a predetermined period or until conditions change on the ground, in the Management Plan, or in strategic direction or policy. Changes in operations or procedures can be updated as often as necessary (annually for example) on the maps or in supplemental plans without requiring revision of the WFMP. The purpose of the WFMP is to comply with the Indian Affairs Manual Part 90 and the Federal.

2.2 LOCATION AND BACKGROUND

Location

The decision area for this EA covers the BIA Southern Pueblos Agency administered properties within BIA's Southwest Region. The Pueblo of Isleta Tribal Lands encompass approximately 301,139 acres within the counties of Bernalillo, Socorro, Torrance, and Valencia Counties in New Mexico. The tribal headquarters is located in the Village of Isleta, New Mexico. The location of the Pueblo of Isleta is shown in Figure 2-1. The reservation is bounded on the north by the city of Albuquerque and bounded on the south by Bosque Farms (a rural village incorporated as a municipality in 1974). The east side of the reservation (as bisected by the Rio Grande), rises out of the river bottom to gently sloping plains, and then up towards the crest of the Manzano Mountains. Reservation lands west of the Rio Grande comprise desert mesas leading up to the Rio Puerco (Pueblo of Isleta IFMP, 2014).

On January 15, 2016, the tribe's officials and federal government representatives held a ceremony to mark the government's taking into federal trust some 90,151 acres of land, 140 square miles, which the Pueblo had purchased in 1997. It enlarged their communal territory by 50%. This trust land is called Comanche Ranch, which is located west of Belen, along the western bank of the Rio Puerco, in both Valencia and Socorro Counties. The ranch is currently home to 1,500 head of cattle, ranching operations, as well as land conservation, land restoration, water management, and water distribution. The cattle operation on the ranch provides revenue to the Pueblo. Currently, both tribal and non-tribal employees work at the ranch. Figure 2-1 Pueblo of Isleta shows the location of the Pueblo of Isleta with the Comanche Ranch located west of the Belen.

Background

The Pueblo of Isleta is a federally recognized Indian Tribe with a written constitution adopted pursuant to the Indian Reorganization Act and with inherent powers of self-government. The Pueblo is governed by a Governor and Tribal Council made up of elected representatives who act in accordance with the Pueblo of Isleta Tribal Constitution (Constitution). The Constitution authorizes the Tribal Council to enact ordinances to protect the peace, safety, property, health, and welfare of the members of the Pueblo, and to otherwise manage and control the lands and resources of the Pueblo for the best interest of the Pueblo. The Governor is authorized by the Constitution to direct and administer the civil affairs of the Pueblo in conformity with applicable ordinances, procedures, and policies enacted by the Tribal Council (POI, 2020).

2.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the action is to reduce the intensity and risk of catastrophic loss to life property and resources due to wildland fires in the Wildland Urban Interface (WUI) and in the timberlands, woodlands, and rangelands outside WUI areas. As with most other land management agencies, wildland fires have grown in size, intensity, and frequency over the last 20 to 30 years. Fire exclusion, which has led to uncharacteristically high fuel loadings, is one of the primary factors responsible for this change. This increased size, intensity, and frequency has resulted in greater threats to human life and property. More people are building homes adjacent to wildlands, and increasing development is occurring on Tribal lands with increased exposure for those homes and developments along with an increased risk of human caused ignitions. This uncharacteristically high fire intensity causes undesirable effects to the composition and structure of forest lands, rangeland vegetation, and threats to cultural resources (WFMP).

The responsible and appropriate use of fire, including prescribed fire and managing fire for resource benefit, in addition to non-fire fuel treatments across a landscape-scale, will be incorporated to help reduce hazardous fuels and sustain wildland ecosystems into the future (WFMP).

2.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

Implementation of the WFMP would be expected to have negligible to moderate impacts on existing resources. However, the beneficial impacts to citizens in the area, firefighters, and wildlife would be of great significance in safety and protection. The EA provides an analysis of potential environmental effects from carrying out various activities associated with the subsequent implementation of the WFMP. This EA also provides the public and decision-makers with the information required to understand and evaluate these potential environmental consequences.

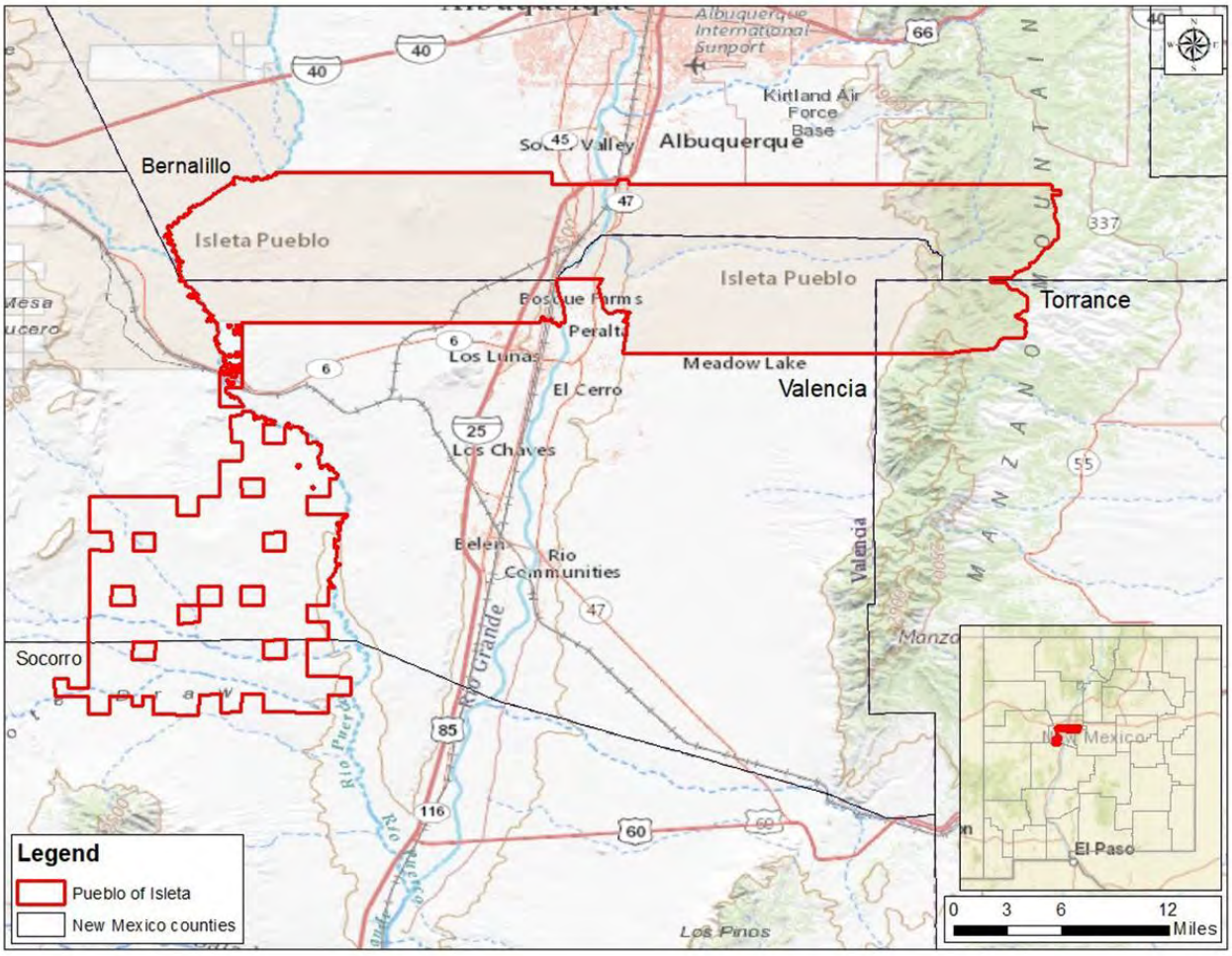

Figure 2-1 Pueblo of Isleta
Source: The National Map, BIA ArcGIS, April 2020

2.5 APPLICABLE REGULATORY REQUIREMENTS

This Environmental Assessment has been prepared to implement the WFMP for the Pueblo. The WFMP was prepared to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo. The Proposed Action would be in conformance with the following relevant laws and regulations:

- 90 IAM 2, Wildland Management, Fire Management Plans, January 19, 2006
- Indian Affairs Manual (IAM), Part 59, Environmental and Cultural Resources Management
- National Environmental Policy Act (42 U.S.C. 4321) – enacted to 1) declare a national policy which will encourage productive and enjoyable harmony between man and his environment; 2) to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; and 3) to enrich the understanding of the ecological systems and natural resources important to the

Nation; and to establish a Council on Environmental Quality.

- National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 et seq.) – is legislation intended to preserve historical and archaeological sites in the United States of America. The Act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices;
- Endangered Species Act (ESA) of 1973;
- Bald Eagle Protection Act of 1940 (16 U.S.C. 668-668d, 54 Stat. 250) as amended -- Approved June 8, 1940, and amended by P.L 86-70 (73 Stat. 143) June 25, 1959; P.L. 87-884 (76 Stat. 1346) October 24, 1962; P.L. 92-535 (86 Stat. 1064) October 23, 1972; and P.L. 95-616 (92 Stat. 3114) November 8, 1978.
- The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, with amendments.
- The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712, MBTA)
- Lacey Act Amendments of 1981 (P.L. 97-79, 95 Stat. 1073, 16 U.S.C. 3371-3378, approved November 16, 1981, and as amended by P.L. 100-653, 102 Stat. 3825, approved November 14, 1988, and P.L. 98- 327, 98 Stat. 271, approved June 25, 1984)
- Clean Air Act (CAA) amendments of 1990;
- Clean Water Act (CWA) of 1972;
- Executive Order 11990 of 1977, Protection of Wetlands;
- Executive Order 11988 Flood Plain Management;
- Executive Order 12898 Federal Actions to Address Environmental Justice in Minority and Low- Income Populations; and
- Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks.
- Pueblo of Isleta (POI) Surface Water Quality Standards
- POI's Range Grazing Management Regulations;
- Designation of Historic Sites and Paths, Resolution No. 2006-113;
- Designation of Restricted Sites, Resolution No. 2006-114; and
- Designation of Historic Sites & Paths, Resolution No. 2013-041, Amending Resolution No. 2011-042.

2.6 DECISION FRAMEWORK

The decisions to be made for this EA include the following:

- Whether or not to execute the framework/EA for implementing the WFMP;
- Whether or not to issue a Finding of No Significant Impact (FONSI) or to prepare an Environmental Impact Statement (EIS); and
- Whether or not the Proposed Action is consistent with the following Plans:

- 2014-2023 Wildfire Prevention Plan (WFPP);
- 2021 Wildland Management Plan; and
- 2014 Interim Forest Management Plan and EA;
- 2014, amended 02/2005 Fire Management Plan;
- Bosque and Riverine Restoration and Implementation Plan, March 2019;
- Amended Riverine Management Plan, May 2014; and
- Isleta Island Removal Project monitoring and Adaptive Management Plan, 2017.

In addition, the Proposed Action is also be consistent with land use plans, multiple use, sustained yield, environmental values, economic and other objectives.

2.7 INTERGOVERNMENTAL COORDINATION/CONSULTATIONS AND SCOPING PROCESS

In compliance with Section 106 of the National Historic Preservation Act, the development of this EA included coordination and consultation with the Tribal Historic Preservation Officer (THPO). Consultation and coordination with the Governor of the Pueblo of Isleta was also undertaken. Appendix A includes consultation and coordination letters from the BIA, Southern Pueblos Agency to the below-listed individuals. Comments received are also provided in Appendix A.

Honorable Governor Max A. Zuni

Pueblo of Isleta

P.O. Box 1270

Pueblo of Isleta, NM 87022

Dr. Henry Walt

Pueblo of Isleta Tribal Historic Preservation Office

P.O. Box 1270

Pueblo of Isleta, NM 87022

Using the U.S. Fish & Wildlife Service's online project planning tool, Information for Planning and Consultation (IPaC), a report was generated for a listing of threatened/endangered species and presence of critical habitat. This IPaC Report is provided in Appendix B.

3 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

3.1 PROPOSED ACTION

The WFMP includes fire management actions that provide for fire fighter and public safety and protect property from wildland fire. Hazardous fuels management strategies would minimize impacts to life and property and mimic the natural role of fire in fire-dependent plant communities.

Actions include wildland fire management and suppression and prevention. Should a wildfire result in unacceptable impacts, Burned Area Emergency Response plans may be developed to seek funding for and to implement necessary emergency stabilization and/or rehabilitation treatments to minimize further impacts to life, property, and resources.

A range of treatments would be employed to meet management objectives including hand, mechanical, and prescribed fire treatments. Chemical and grazing treatments may be used on a limited basis. All treatments will have pre- and post- monitoring conducted. Of the treatment methods, hand and mechanical treatments are the most selective for spacing and fuel reduction, but most expensive; fire treatment conversely is least expensive but also least selective. A combination of strategies when used together may best achieve protection and/or resource objectives.

Wildland Fire Management and Suppression activities on Tribal Trust lands remain the Trust responsibility of the BIA Southern Pueblos Agency. The Pueblo expects the containment of wildfires on Tribal Trust lands will receive top priority as stated in Bureau policy, except those wildland fires which occur in management units designated in the WFMP. Burning of irrigation ditches, weed piles, yard debris, agricultural fields, and cultural fire use are not addressed in this Plan and are managed through Tribal Government.

Wildland fire management and suppression would include pre-planning and implementation of fire management actions to protect life, property, infrastructure, and high value resources without compromising firefighter and public safety. Wildland fires can be managed for one or more objectives based on Land/Resource Management Plan direction and/or site-specific direction provided by Tribal Government. This includes allowing fire to function in its ecological role in designated management emphasis areas to benefit natural and cultural resources and maintain the natural fire regime. Typically, actions include a spectrum of tactical options as detailed in the SPA's Annual Operating Plan. Activities include monitoring, initial attack, extended attack (if determined), and mop up. Asset and Resource Protection strategies would be identified to guide operational response in identified locations. The Interagency Standards for Fire and Fire Aviation Operations (DOI and DOA 2021) is a program reference that documents policy for management and operations and is updated annually.

Initial attack (IA) or first response is initiated as a single resource with coordinated communication with local dispatch. This single resource provides a size-up and initiates appropriate action to protect the fire origin using control lines or natural fuel breaks. IA units are equipped with hand tools and saws to remove brush and small diameter trees or heavy equipment could be utilized.

Other immediate actions include protecting values at risk (structures or infrastructure), using available backfiring methods, and ordering aviation support for control and containment either

by helicopter, Single Engine Air Tanker (SEAT), or air tanker for slurry or bucket drops of water. If determined, extended attack will require additional resources to fight the wildfire. Values at risk may determine an immediate need for an Incident Management Team.

Mop-up is initiated to further fire control and involves cold trailing and monitoring along the flanks and the interior of the burn, looking for hotspots and embers until the potential for fire spread is contained. Prior to, or immediately after wildfire containment, suppression repair occurs to fix damages to resources, lands, and facilities resulting from wildfire suppression actions. This may involve the construction of waterbars to drain water off firelines, to using excavators to pull berms and to place slash directly on the firelines.

The Wildland Fire Decision Support System (WFDSS) would be utilized to document all decisions and rationale for managing fires escaping initial attack or otherwise being managed long-term for multiple objectives. WFDSS also provides tools (such as risk assessment and fire behavior analysis) to assist in decision-making during the life of the incident. An After-Action Review is conducted after every incident.

The **Prevention Program** would implement **Education**, **Engineering**, and **Enforcement** in order to reduce the occurrence of human caused fire. The BIA National Wildland Prevention Handbook provides detailed policy and guidance for the wildland fire prevention program (BIA 2021).

- **Education** would include public outreach, development of media, and training.
- **Engineering** would include hazard reduction, inspections, and evaluations.
- **Enforcement** would include issuing permits, investigation, and prosecution.

Burned Area Emergency Response Program is implemented in response to emergency conditions that occur after a wildfire to mitigate significant threats to health, safety, life, property, and downstream values at risk. A wide range of treatments specifically designed for the impacted areas may be implemented to stabilize soil, to protect life and property, and to prevent further unacceptable degradation to natural and cultural resources.

The assessment of stabilization needs and proposed treatments is documented in a Burned Area Emergency Response plan for Emergency Stabilization (ES) to be implemented within one year from date of containment. The Burned Area Rehabilitation (BAR) plan specifies non-emergency treatments to be implemented within five years of containment.

Hand Treatments consists of using chain saws or other hand-held cutting tools to cut and break up undesired woody material and use of other non-heavy equipment. The slash would be scattered throughout the project area, chipped by a mechanical chipping machine, or piled for burning at a later date. Hand treatments would also be used for biomass removal for fuelwood, and the removal of various forest products for non-commercial use.

Mechanical Treatments would use a variety of wheeled or tracked equipment for mastication, mowing, chipping, crushing, extraction, pushing, pulling, piling, and hauling. Mastication equipment would shred undesired woody material and distribute chips as it moves throughout the project area. Mechanical equipment would also be used to extract, bunch, and pile felled wood vegetation for later burning. This heavy equipment sits on either metal tracks or rubber tires and is usually diesel powered. Heavy equipment use would be restricted in the immediate area of stream banks to avoid water quality degradation. Certified operators would run heavy equipment. In addition, tractors, ATV/UTVs, skid steers, and/or pickup trucks could be used to

pull mechanical disk or harrows to create fuel breaks or to prepare areas for prescribed burns.

Chemical Treatments would consist of herbicide treatments of non-native and invasive plant species. Approved "non-restricted use" herbicide will be used to control the invasion of non-native, woody species within the bosque such as salt cedar (Tamarix spp.) and Russian olive (Elaeagnus angustifolia). In addition, herbicides will be used to control invader rangeland plant species that cause fire danger in the range habitats. Application would include ground methods. All chemicals used would be approved by the Environmental Protection Agency and applied in strict accordance with label guidelines.

Grazing Treatments would use livestock (cows, sheep, and/or goats) to consume re-sprouts of woody, invasive fuels, such as salt cedar and Russian olive. This treatment would primarily be implemented as a maintenance treatment following hand, mechanical, or chemical work to maintain reduced fuel loadings. Experienced contractors would facilitate this treatment and could use electric fences to concentrate grazing in the project area. For this targeted grazing to be effective, it would be tied to fuel management objectives that consider grazing concentration, duration, and plant growth seasonality.

Prescribed Fire would include broadcast, pile, and jackpot burning. Broadcast burns are fires within well-defined boundaries that progress in a controlled manner with the goal to consume the undesirable surface and ladder fuels. Pile burning is the burning of piles of slash generated by hand or mechanical treatment. Jackpot burning is the burning of material in an intermediate stage between piles and continuous fuels. Planned ignition may include both ground-based ignition using a variety of hand-held or vehicular mounted torches and aerial ignition using a Heli torch or similar ignition devices. A qualified burn boss would prepare prescribed fire prescriptions and plan and oversee the field operations. Prescriptions are determined based on-site characteristics, as well as predicted wind, relative humidity, and other factors. Resources for project preparation and containment such as fire engines, heavy equipment, and hand crews could be required for each burn.

Monitoring would be applied to determine existing condition, identify quantifiable management objectives, develop treatment methods, and evaluate effectiveness and impacts of proposed hazardous fuel reduction treatments using a variety of sampling protocols. Sampling protocols would be identified in a unit Monitoring Plan and may be adjusted to individual projects based on management objectives, attributes of interest, vegetation types, proposed treatments, and availability of resources. At a minimum, extensive, qualitative data would be collected. Where appropriate, more intensive, and quantitative protocols would be applied. Data for fire behavior, fire effects, and environmental site conditions such as soil moisture may be collected for prescribed fire treatments. All data would be maintained in a monitoring database. Data analysis and Project Accomplishment Reports would be completed by Agency and/or tribal staff with technical assistance and guidance from the Regional Office.

3.2 SELECTION OF ALTERNATIVES TO THE PROPOSED ACTION

This EA analyzes the Proposed Action and the No Action Alternative. The Proposed Action is a reasonable alternative that meets the underlying need to provide appropriate wildland fire response and a fuels reduction program for the BIA Southern Pueblos Agency. This need is to minimize the occurrence of a large wildfire that could threaten animals, humans, and structures. This EA focuses on local and regional significant resources that could be affected by the wildland fire response and fuels reduction activities under the Proposed Action. The No Action alternative

does not meet the needs for an effective wildland fire response and fuels reduction program. Without implementation of the WFMP, which includes a site-specific detailed fuels management plan, no fuels reduction activities would be accomplished to reduce the risks of a large wildfire.

3.3 NO ACTION ALTERNATIVE

The No Action alternative analysis provides a benchmark to allow decision makers and the public to compare the levels of environmental effects of the alternatives. In the context of this EA, a No Action alternative means there would be no change from the current fire management operations (no vegetation removal for reducing fire fuel loads) and therefore, activities would continue without the benefit of the WFMP to standardize and formalize operating procedures. Under the No Action Alternative, only full wildland fire suppression, prevention, and emergency rehabilitation measures would be permitted. No additional disturbance to plant, wildlife, or soil resource would occur. Expansion of non-native species in the riparian areas would continue to exist. Fuel loads would continue to accumulate, increasing the risk of catastrophic loss due to wildfire.

3.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Federal agencies are required under NEPA to rigorously explore and objectively evaluate all reasonable alternatives which were eliminated from detailed study, and to briefly discuss the reasons for elimination (40 Code of Federal Regulations [CFR] 1502.14). All comments received during the scoping period were evaluated. The Proposed Action covers a multitude of operations to effectively manage wildland fires and associated activities. Thus, these operations fulfill the purpose and need of implementing the WFMP. Any other proposed alternatives would be determined to be outside the scope of the project, unable to fulfill the purpose and need, technically or economically infeasible, or involved components or actions that would cause unnecessary environmental harm, and therefore, were not considered for detailed analysis.

4 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 EFFECTS ANALYSIS

According to 40 CFR 1508.8 (U.S. National Archives and Records Administration 2020): "Effects or impacts means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.

(1) Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic (such as the effects on employment), social, or health effects. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

(2) A ''but for'' causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action."

The environmental effects of the Proposed Action and No Action Alternative described in this EA are primarily derived through the analysis of the expected changes that implementation of each alternative (Proposed Action and the No Action Alternative) would have on the existing conditions of the resources described in the sections below.

4.1.1 Resources Eliminated from Further Analysis

There are no other relevant resources that were eliminated from further analysis.

4.2 GENERAL SETTING

4.2.1 Description of the Pueblo of Isleta, Geographic Scope, and Resources

The Pueblo of Isleta Indian Reservation general setting is primarily within the physiographic province of four (4) different ecoregions:

- 22g - Rio Grande Floodplain;
- 22m – Albuquerque Basin;
- 23e – Conifer Woodlands and Savannas; and
- 23f – Rocky Mountain Conifer Forests

Figure 4-1 shows the Pueblo of Isleta Indian Reservation within the four counties of Bernalillo, Socorro, Torrance, and Valencia. Figure 4-2 shows an ecoregion map of the Pueblo of Isleta Indian Reservation. The ecoregion information was obtained from the ArcGIS shapefile attribute table.

4.3 Description of Tribal Lands

The BIA, Southern Pueblos Agency services the Pueblo of Isleta Indian Reservation in New Mexico, which is located in the southwestern United States. The Pueblo of Isleta Tribal Lands

encompasses approximately 301,272 acres within Bernalillo, Socorro, Torrance, and Valencia Counties, New Mexico. The tribal headquarters offices are located in the Village of Isleta Pueblo, New Mexico. The reservation is a federally recognized tribe which borders the Isleta Indian Reservation to the west.

The below detailed descriptions of the Reservation and its communities, major roads, utilities, infrastructure, cultural resources, agriculture, riparian areas, forests/woodlands, and rangelands was obtained from the Pueblo of Isleta WFMP.

Communities and Businesses

Most of the residents live along the Rio Grande with a few residents near the west mesas. The Isleta lookout tower is located in the Manzano Mountains. Associated with the lookout tower is a repeater for two-way radio communications (Pueblo of Isleta WFMP).

Most of the residents live along the Rio Grande, few, if any live on the mesas away from easily accessible groundwater. The Indian Health Services operates a field health care center on the Pueblo and a clinic in Albuquerque. Other services (public) are similar to those found in Albuquerque. Students attend elementary school at Isleta and attend middle schools or high school in surrounding communities (Pueblo of Isleta Fire Management Plan [FMP], 2014).

There are three (3) companies that run pipelines through the reservation. Magellan Pipeline and New Mexico Gas Company carry natural gas through the Pueblo lands. The third company, West Emerald Pipeline, carries petroleum. Oil Field consists of dispersed oil wells and associated developments. WUI buffers have been designated an average of 500 feet from the wells and gas lines have a 30-foot easement. Fuels consist primarily of old growth pinyon- juniper. Because Natural Gas is prevalent in this area, wells are required to be shut down until fires are controlled and rehabilitation work is completed; this results in lost revenue. Wells are the responsibility of the permittee (Pueblo of Isleta WFMP).

Communications Site is a revenue producing site for the Tribe, BIA, IA Fire Management, Tribal Public Safety, BIA Law Enforcement and others maintain telecommunication equipment. The site is surrounded by rock outcrops, scrub oak and dense timber stands (Pueblo of Isleta WFMP)

Major Roads, Utilities, and Infrastructure

The Pueblo of Isleta Village is the largest Tribal community on the reservation and has an abundance of grass fuels. The Pueblo has maintained firebreaks throughout the community to effectively reduce grass fire potential. Woodland stands surrounding the town are fairly sparse and rocky, with little potential for large fire growth (Pueblo of Isleta WFMP).

Several major roads cross through the reservation including Interstate Highway 25 (I-25), which traverses from north to south in the central portion of the reservation; New Mexico State Highway 47 crosses through the Pueblo of Isleta on the eastern side; and New Mexico State Highway 85, which pass through the western side of the reservation also the Burlington Northern-Santa Fe (BNSF) railroad track is located in the central corridor of the reservation. In addition to roads crossing on the reservation, the power, communication, utility and natural gas companies have right-of-way through the reservation as well as, a variety of farm structures such as irrigation ditches, fences, windmills, and corrals are maintained within the reservation boundaries (Pueblo of Isleta WFMP).

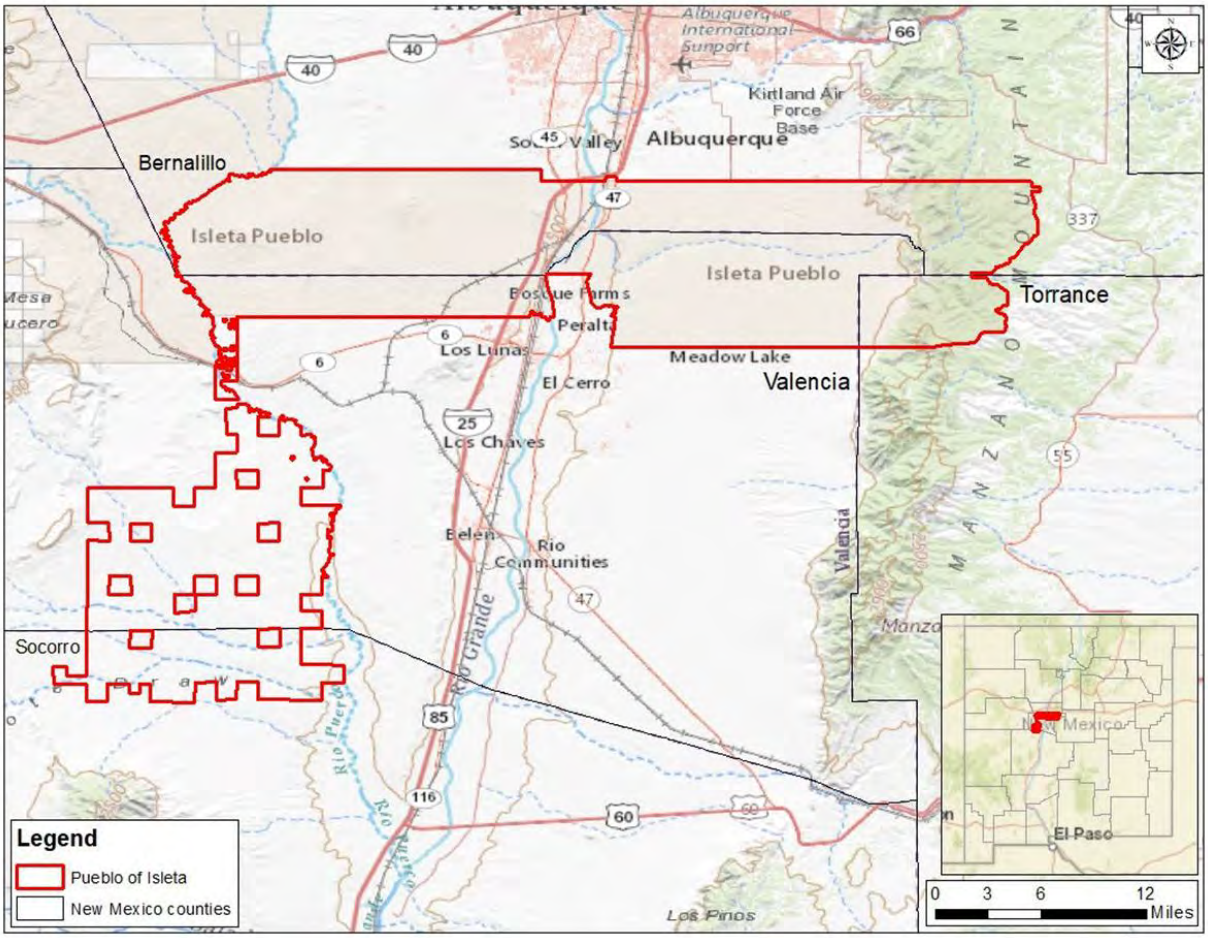

Figure 4-1 Counties Bernalillo, Socorro, Torrance, and Valencia
Source: BIA ArcGIS Shapefiles, 2020

Agriculture

Agricultural lands on the Reservation total approximately 2,000 acres, of which approximately 200 acres southwest of the Rio Grande River are within Tribal Agricultural Enterprise. The remaining acres are scattered in small farms within the village proper and on fee lands north of the community of the Pueblo. These lands are primarily hay, crop fields, and pastures. Fuels management treatments would potentially be conducted on lands adjacent to these agriculture lands to prevent wildfire encroachment. Farm and Ranch designation consists of commercial buildings and associated infrastructure located south and north of the village. These facilities are operated and maintained by Tribal Agricultural Enterprises. Fire starts have been low to moderate since grazing and controlled burning has limited the amount of fuels in this area and buildings are protected by graveled and cleared areas (Pueblo of Isleta WFMP).

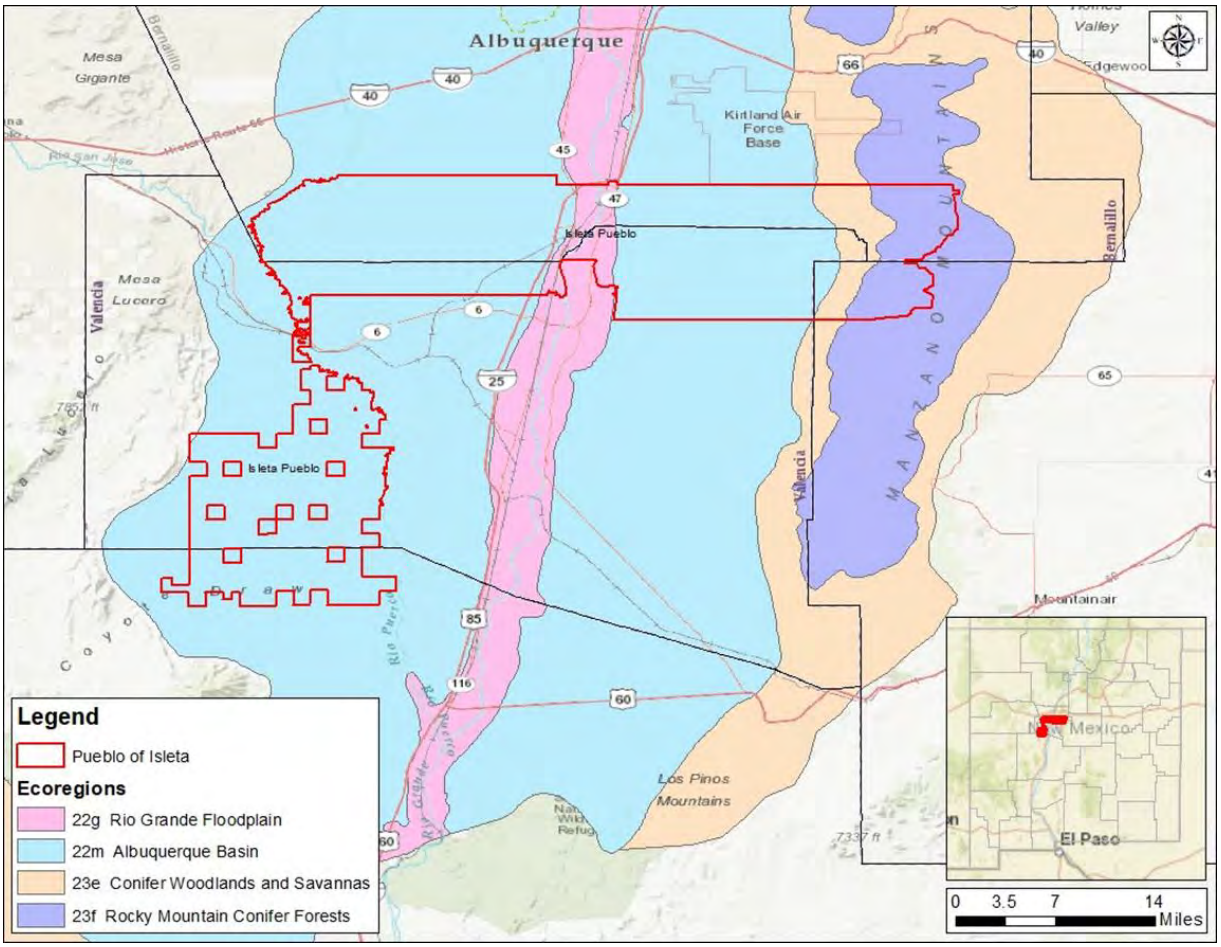

Figure 4-2 Ecoregions
Source: EPA NM Ecoregions, 2020

4.4 PHYSIOGRAPHY, TOPOGRAPHY, AND LAND USE

4.4.1 Affected Environment

Topography and physiography relate to the shape and arrangement of a land surface, including elevation and the position of natural and human-made features. Land use is the function or functions that humans apply to the land available to them. Zoning is related to land use but is how governments regulate and control it.

Physiographic Province

The Pueblo of Isleta Indian Reservation is situated within the Basin and Range Province, which is described below. Figure 4-3 is a physiographic map of the Pueblo of Isleta Indian Reservation showing the Basin and Range Province.

The Basin and Range Province covers about one-third of New Mexico and lies to the south of the Rocky Mountain Region. This region occupies the southwest corner of the state. The Rio Grande Rift, which is a major feature of the Basin and Range Province, forms its eastern border in New Mexico. The Basin and Range landscape is characterized by having a series of mountain ranges sitting parallel to low valley basins, where the basins are relatively flat and wide and the

mountains can either rise abruptly or slope gradually upward out of the basins. The semi-arid Basin and Range province in the southwestern corner of New Mexico is part of a larger geologic feature of the same name that also covers portions of west Texas, southern Arizona, western Utah, southern Idaho, eastern California, and most of Nevada. The Basin and Range is characterized by northerly to northwesterly-trending narrow, rugged mountain ranges separated by broad basins. This topography results from extension of the earth's crust. Although the Gila River crosses the northwest part of the area, many of the streams have no outlet to the ocean, so water collects in the broad basins, forming large lakes and playas during wet years (NM Geology & Minerals, 2020).

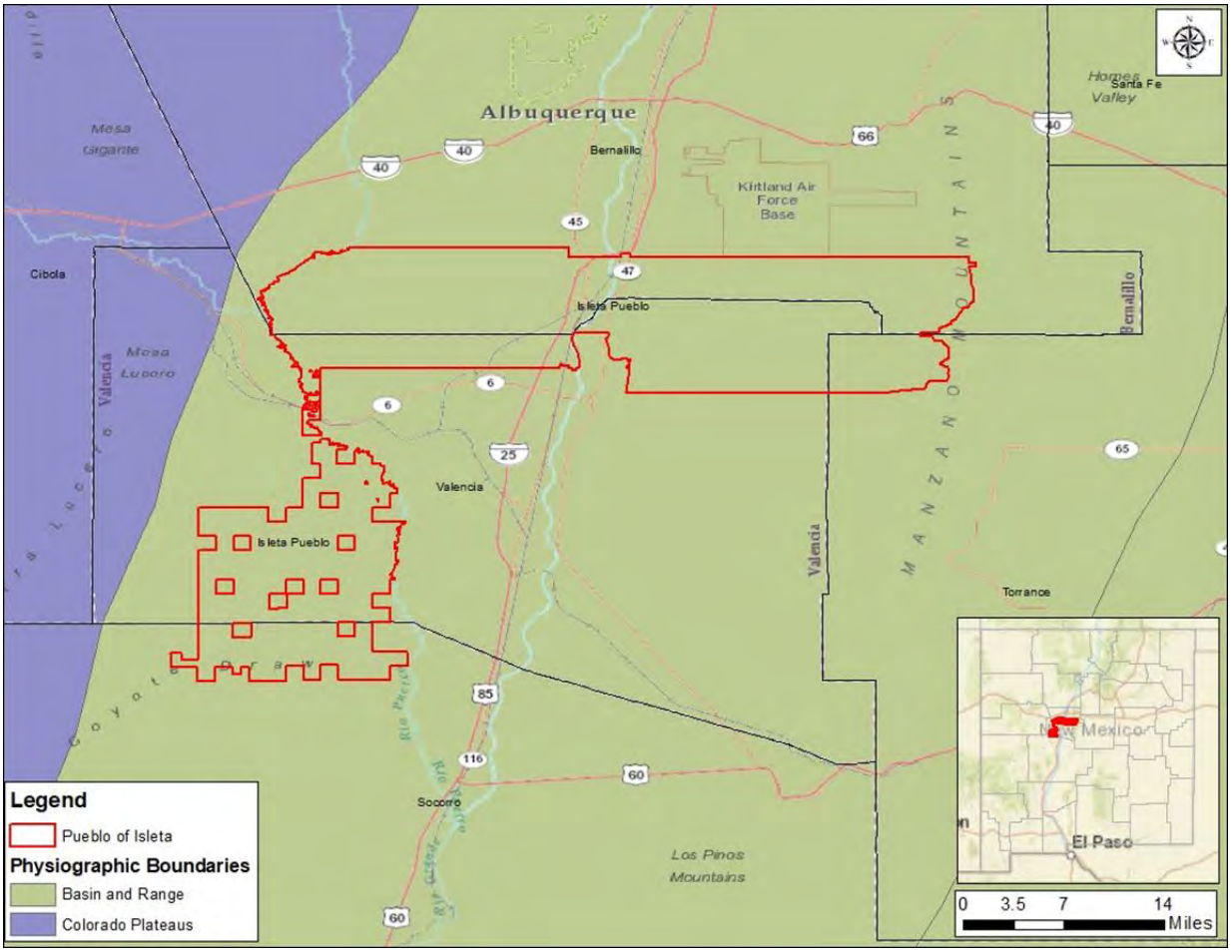

Figure 4-3 Physiographic Map
Source: USGS, Colorado Plateau Physiographic Boundaries

Topography

The Pueblo of Isleta Indian Reservation is bisected by the Rio Grande River and I-25. Elevations range from 4,900 feet above sea level (ASL) along the Rio Grande River to 9,509 feet ASL on top of Mosca Peak. The topography is diverse in both form and relief; the canyons are steep and rugged with slopes becoming gentle near ridge tops. The east side of the reservation rises out of the river bottom to gentle sloping plains and then up to the crest of the Manzano Mountains (Pueblo of Isleta IFMP EA, 2014).

Figure 4-4 is a topographic map of the Pueblo of Isleta Indian Reservation.

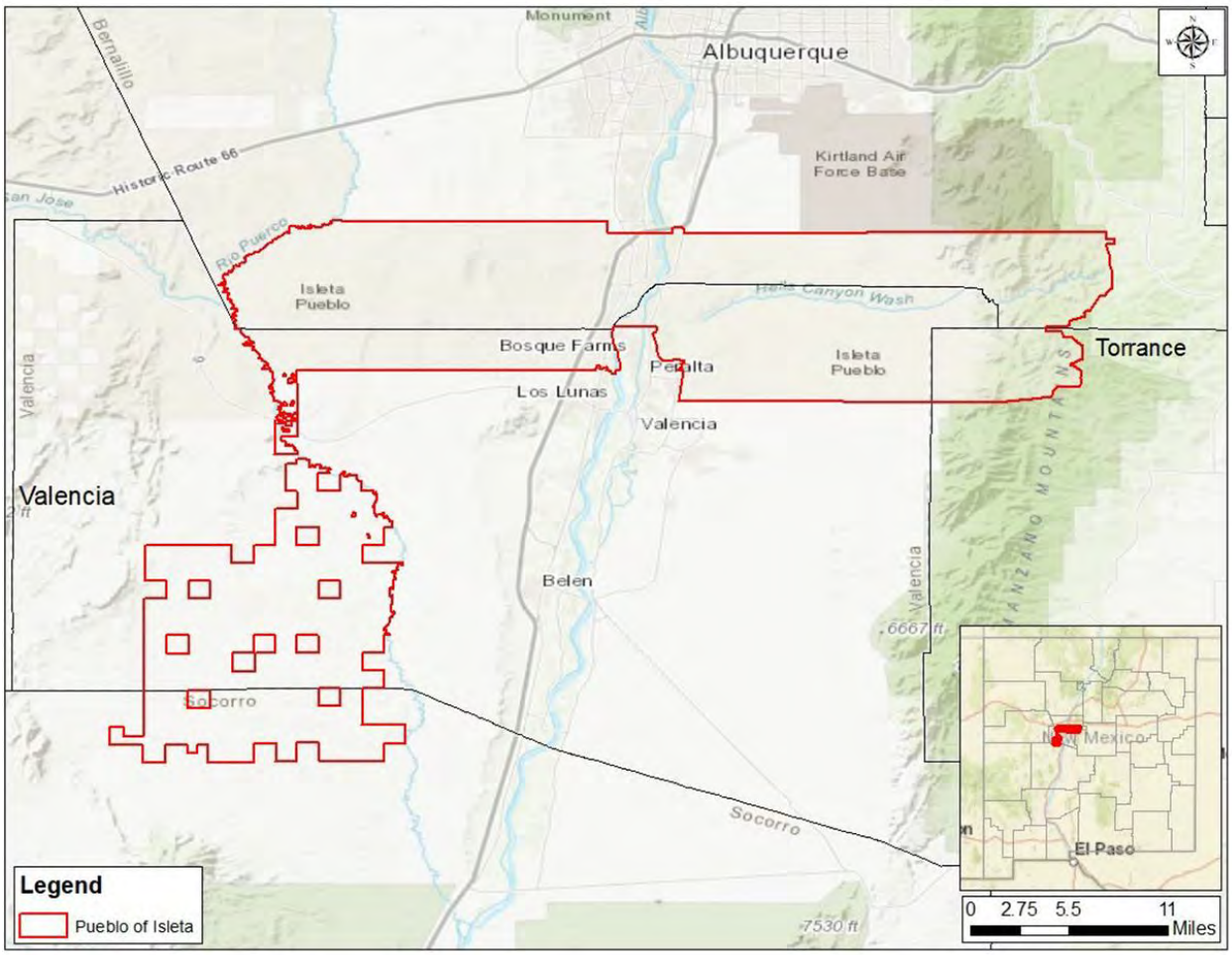

Figure 4-4 Topographic Map
Source: BIA ArcGIS, 2020

4.5 Environmental Consequences

4.5.1.1 Proposed Action

The Proposed Action would have negligible effects on the physiography and topography of the project areas and the existing land use. The physiography and topography would not be altered, and land use would not change. The negligible effects to the physiography (natural features) within the treatment areas would result from the creation of strategic fuel breaks. The creation of strategic fuel breaks would be a beneficial impact as these fuel breaks would reduce the potential of a large wildlife.

4.5.1.2 No Action Alternative

Under the No Action Alternative, the WFMP would not be implemented. There would be no change to the physiography, topography, and land use. Wildland fire management activities would continue without the benefit of the WFMP to standardize and formalize wildland fire management operating procedures. Under this alternative, current BIA management practices

would continue with full suppression and there would be no implementation of hazardous fuels reduction projects.

4.6 AIR QUALITY AND CLIMATE

4.6.1 Affected Environment

The Clean Air Act (CAA), including the 1990 Amendments, provides for the establishment of standards and programs to evaluate, achieve, and maintain acceptable air quality in the United States. Under the CAA, EPA established a set of standards, or criteria, for six pollutants determined to be potentially harmful to human health and welfare. The EPA considers the presence of the following six criteria pollutants to be indicators of air quality: ozone; carbon monoxide; nitrogen dioxide; particulate matter (PM10 and PM2.5); sulfur dioxide; and lead. The criteria pollutants regulated by the CAA and their currently applicable NAAQS set by the EPA are listed in Table 4-1. The New Mexico standards concentration are presented but not all data is available.

Table 4-1 Air Quality Standards for Criteria Pollutants

Criteria Pollutant		Primary/ Secondary	Averaging Time	Level	New Mexico Standards Concentration
Carbon Monoxide (CO)		primary	8 hours	9 ppm	8 hour average – 8.7 ppm 1 hour average – 13.1 ppm
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m³ (1)	
Nitrogen Dioxide (NO_2)		primary	1 hour	100 ppb	24-hr average – 0.10 ppm Annual arithmetic average: 0.05 ppm
		primary and secondary	1 year	53 ppb (2)	
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	See discussion below
Particle Pollution(PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m³	Data not found
		secondary	1 year	15.0 µg/m³	
		primary and secondary	24 hours	35 µg/m³	Data not found
	PM_{10}	primary and secondary	24 hours	150 µg/m³	Data not found
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	24-hour average 0.10 ppm
		secondary	3 hours	0.5 ppm	

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards,and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearercomparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionallyremain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015)standards will be

addressed in the implementation rule for the current standards.

(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certainareas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standardhas not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPAaction requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.
Source: https://www.epa.gov/criteria-air-pollutants/naaqs-table and NM Environment Dept. of Air QualityBureau Title 20 Chapter 2 part 3, Environmental Protection Air Quality (Statewide) Ambient AirQuality Standards pdf

New Mexico Air Quality (AQ) Standards

Regardless of the EPA and New Mexico standards, according to the New Mexico Environment Department, the Air Quality Bureau has authority over air quality in all areas of New Mexico **except Bernalillo County and Tribal Lands** (NM Environment Department, 2020). Specific tribal readings for air quality are not available; however, New Mexico air quality readings of "good" are shown in Figure 4-5 for the general area of the Reservation.

Figure 4-5 Air Quality in the General Area
Source: NMED Air Quality All Sites http://nmaqinow.net/

Regarding Greenhouse Gases (GHG), out of 139 Facility Reports for GHG emissions throughout the state of New Mexico, there are no GHG facilities located within the counties of Bernalillo, Socorro, Torrance, and Valencia Counties (NM Dept. Environment, 2020). No known GHG emitters are located in any tribal lands in New Mexico.

New Mexico Climate and Temperatures

New Mexico's climate ranges from arid to semiarid, with a wide range of temperatures. Average January temperatures vary from about 35°F in the north to about 55°F in the southern and central regions. July temperatures range from about 78°F at high elevations to around 92°F at lower elevations. The record high temperature for the state is 122°F, set most recently on 27 July 1994 at

Lakewood; the record low, –50°F, was set on 1 February 1951 at Gavilan. Average annual precipitation (1971–2000) was 9.5 inches in Albuquerque in the desert; at high elevations, annual precipitation averaged over 20 inches. Nearly one-half the annual rainfall comes during July and August, and thunderstorms are common in the summer. Snow is much more frequent in the north than in the south; Albuquerque gets about 10 inches of snow per year, and the northern mountains it receives up to 100 inches (city-data.com, 2020).

The weather patterns vary across the geographical landscape. Local topographic features influence specific differences of wind and annual precipitation such as Cebollita Mesa, the Zuni Mountains to the west and Mt. Taylor to the north. New Mexico's climate is generally semiarid to arid, though areas of continental and alpine climates exist**.**

Climate Change

Management activities that alter stand structure (i.e. prescribed burning, thinning, etc.) will modify the forest microclimate and affect whether trees, shrubs, or grass regenerate treated areas. Microclimate conditions (i.e. light, temperature, humidity, and heat flux) directly affect fuel moisture and fire behavior, and as such are important inputs to fire models. In most cases, appropriate mitigation of extreme changes in microclimate above and below the soil surface can be accomplished by leaving sufficient overstory, low shrub and herb layers, or surface debris to provide shade, soil organic matter, or both, to act as an environmental buffer.

4.6.1.1 Proposed Action

Under the Proposed Action, vegetation in the project area would be reduced using mechanical equipment. This may result in temporary, negative air quality effects from equipment and vehicle emissions. Gasoline-powered string trimmers or mowers would cause localized air pollution because of dust and exhaust emissions. However, these emissions would be short- term, localized, and minor in nature. In addition, negligible impacts would occur through exhaust from combustion engines associated with vehicles and equipment used for mechanical treatments. When mechanical treatment is used to manage non-native and invasive species, periodic re-treatment is often necessary. Therefore, impacts from mechanical treatment can be recurring.

The use of herbicides to manage non-native and invasive species can pose a short-term, minor, localized, negative impact to air quality in that some herbicide sprayed onto vegetation would evaporate and some drift is inevitable. The best drift management strategy and most effective way to reduce drift potential is to apply large droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions.

Different methods of herbicide application can affect air quality. Under the Proposed Action, broadcast spraying would be the most typical. Broadcast spraying may result in temporary, localized odors that may persist at the spray site for several hours or days. The use of tractors or All-Terrain Vehicles (ATVs) for chemical treatment could occur during implementation of the Proposed Action, which in turn would have a short-term, localized, negligible impact on air quality from exhaust emissions and dust.

For BIA-funded prescribed burns, BIA shall develop and/or approve (when burn plan is produced by contractor) a Prescribed Fire Plan (BIA 2008). BIA or the tribe shall implement the Prescribed Fire Plan when appropriate conditions exist. Smoke mitigation procedures would follow the burn planning document that includes predicted smoke trajectories and identifies any smoke sensitive areas. Short-term, localized, minor impacts on air quality would occur through

prescribed burning from smoke.

One of the main purposes of the Proposed Action is to reduce the likelihood of wildfire in the WUI. Over time, the removal of hazardous fuels should limit the ignition sources for wildland fires, which would reduce the smoke generated by wildland fires. Therefore, implementation of the Proposed Action would be beneficial in the long-term by reducing the introduction of air pollutants that would result from recurring wildfire.

Under management alternatives, any activity that would change a stand's structure would result in a minor impact to the microclimate of the stand. However, the overall climate of the region would not be affected by the various management activities under the Proposed Action.

Suppression or resource benefit activities such as aviation, vehicle, heavy equipment, and chainsaw use would produce localized, short-term air quality impacts compared to the magnitude of impact from smoke produced during a wildfire.

4.6.1.2 No Action Alternative

Under the No Action Alternative, the WFMP would not be implemented. No treatment activities as proposed would occur to reduce the potential for wildland fire. As fuel loads increase over time, the risk of wildfire also increases. Impacts to air quality from wildfires depend on the amount of biomass material consumed and atmospheric conditions. High-intensity wildfires with heavy fuel loadings result in a high level of emissions. The potential for smoke impacts from wildfire events would remain due to continued hazardous fuel accumulation. If a widespread fire were to occur, it would produce short-term, negative, minor to moderate, regional effects to air quality as large quantities of pollutants (primarily particulates) would be released to the atmosphere. Effects from these emissions would include impaired visibility and potential health effects (particularly respiratory problems).

4.7 **GEOLOGY AND SOILS**

4.7.1 Affected Environment

Geology

The Pueblo of Isleta Indian Reservation lands are located along the Rio Grande "rift", a major structural depression bounded by faults running the length of the Rio Grande in New Mexico and stretching into southern Colorado. Geologic substrates include Quaternary and Tertiary age sediments, largely of the Santa Fe Group, shed from the adjacent higher mesas and the Manzano Mountains as well as uplands outside the immediate region. Less common are Precambrian age granite, schist, and quartzite and Pennsylvanian age Madera limestone, shale, and other sedimentary rocks, all exposed in the Manzano Mountains. A steep western front and a more moderate eastern slope characterize this fault block range. Basalt lava flows are exposed on the western side of the reservation (Pueblo of Isleta IFMP EA, 2014).

Mineral resources include oil and gas reserves. A variety of nonmetallic mineral resources include cinder, sand, and gravel quarries, decorative quartz and schist in the Manzano Mountains, fluorite, barite, and lead at the Galena King Mine, and large quantities of chalcedony, agate, and jasper along the Rio Puerco. Metallic mineral resources include some gold, silver, and copper mined from the Manzano Mountains (Pueblo of Isleta IFMP EA, 2014).

Figure 3-6 is a geologic map of the Pueblo of Isleta.

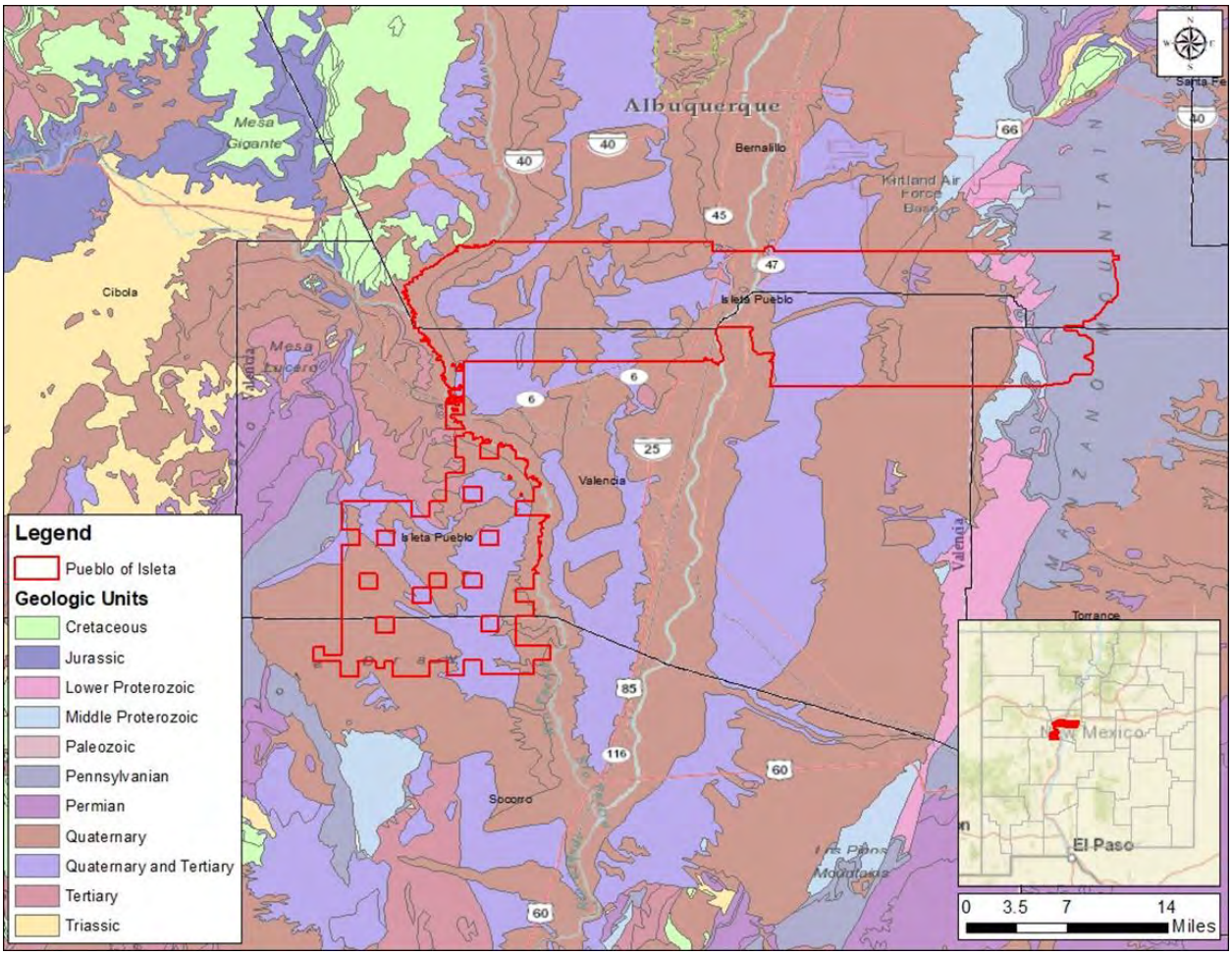

Figure 4-6 Geologic Map
Source: NM Department of Geology & Minerals, 2020

Soils

The Soils Order and Common Soil are listed in Table 4-2 Soil SeriesTable 4-2.

A description of each of the Soil Orders is provided in the following pages; the source of information is the University of Idaho, Department of Education, Soils-Orders (https://www.uidaho.edu/cals/soil-orders/).

Table 4-2 Soil Series

Soils	22j Semiarid Tablelands
Order (Great Group)	Alfisols (Haplustalfs), Entisols (Torrifluvents, Ustorthents), Aridisols (Haplargids, Paleargids), Mollisols (Argiustolls)
Common Soil Series	Flugle, Pinitos, Silkie, Navajo, Atarque, Celacy, Datil, Jacee, Goesling, Hubbell, Vessilla, Viuda, Veteado, Cabezon, rock outcrop
Soils	22k Lava Malpais
Order (Great Group)	Aridisols (Haplargids), Mollisols (Argiustolls
Common Soil Series	Lava flows and lava rockland, mostly devoid of soils. Variable soils occur in small pockets that may include Viuda or Raton.
Soils	23c Montane Conifer Forests
Order (Great Group)	Mollisols (Haplustolls, Argiustolls, Haplocryolls), Alfisols (Haplustalfs), Entisols (Ustorthents), Inceptisols (Haplustepts)
Common Soil Series	Chuska Mountains: Akhoni, Tunitcha, Klizhin. Zuni Mountains: Mirabal, Zuni, Tampico, Cinnadale, Heckly, Fortwingate, Osoridge, Jekley. Cebollita Mesa: Cebolleta, Charo. Gila Mountains area: Smilo, Raton.
Soils	23e Conifer Woodlands and Savannas
Order (Great Group)	Alfisols (Haplustalfs, Paleustalfs), Inceptisols (Haplustepts), Entisols (Ustorthents), Mollisols (Argiustolls, Calciustolls)
Common Soil Series	Chuska Mountains: Narbona, Yahmore, Kunz, Iwela, Nomrah, Wetherill. Zuni Mountains: Simitarq, Celevar, Fikel, Tuces, Vessilla. San Mateo Mountains: Amcec, Montillo, Tsoodzil, Cabezon. Cebollita Mesa: Hackroy, Paguate. Gila Mountains: Datil, Motoqua, Abrazo, Smilo, Pleioville, Loarc, Muzzler, Thunderbird. Sandia/Manzano Mountains: Wilcoxson, Andrews, Jekley, Escabosa, Pinata, Salas

Source: EPA Ecoregions (attribute tables), 2005

Alfisols

Alfisols are moderately leached soils that have relatively high native fertility. These soils have mainly formed under forest and have a subsurface horizon in which clays have accumulated. Alfisols are primarily found in temperate humid and subhumid regions of the world. The combination of generally favorable climate and high native fertility allows Alfisols to be very productive soils for both agricultural and silvicultural use.

Aridisols

Aridisols (from Latin aridus, "dry") are CaCO3-containing soils of arid regions that exhibit subsurface horizon development. They are characterized by being dry most of the year and limited leaching. *Aridisols* contain subsurface horizons in which clays, calcium carbonate, silica, salts and/or gypsum have accumulated. They are used mainly for range, wildlife, and recreation. Because of the dry climate

in which they are found, they are not used for agricultural production unless irrigation water is available.

Entisols

Entisols are soils of recent origin. The central concept is soils developed in unconsolidated parent material with usually no genetic horizons except an A horizon. All soils that do not fit into one of the other 11 orders are Entisols. Thus, they are characterized by great diversity, both in environmental setting and land use. Many Entisols are found in steep, rocky settings. However, Entisols of large river valleys and associated shore deposits provide cropland and habitat for millions of people worldwide. Entisols are divided into five suborders: Wassents, Aquents, Psamments, Fluvents and Orthents.

Mollisols

Mollisols (from Latin mollis, "soft") are the soils of grassland ecosystems. They are characterized by a thick, dark surface horizon. This fertile surface horizon, known as a mollic epipedon, results from the long-term addition of organic materials derived from plant roots. Mollisols are among some of the most important and productive agricultural soils in the world and are extensively used for this purpose.

Figure 4-7 Soil GroupingsFigure 4-7 shows the major soil groupings found within the Pueblo of Isleta Indian Reservation.

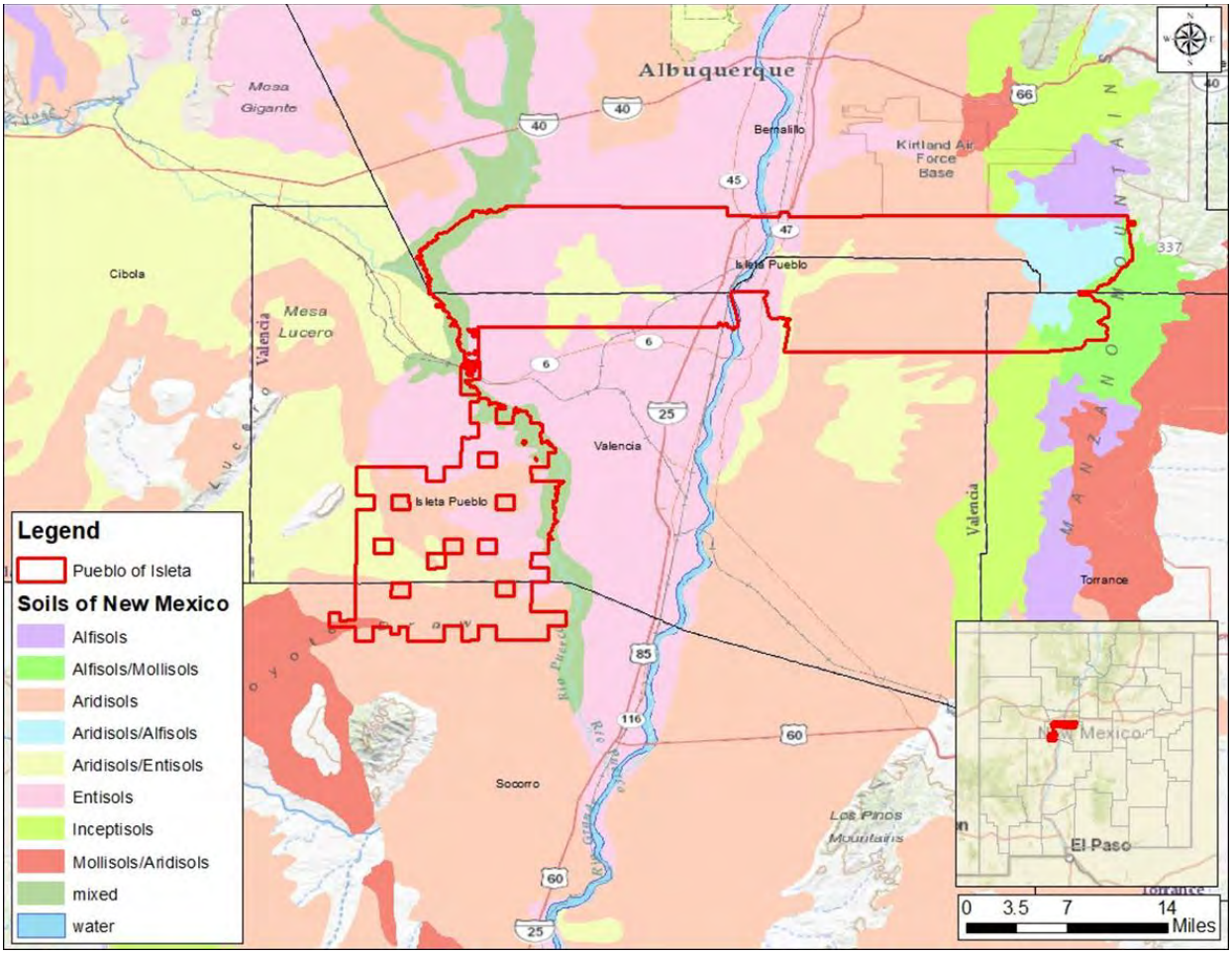

Figure 4-7 Soil Groupings

Source: New Mexico Soils, ArcGIS, 2020 (attribute tables)

4.7.2 Environmental Consequences

4.7.2.1 Proposed Action

The geology and soil types would not be altered permanently. Wildland fire response activities, such as creating fire lines and dropping retardants would disturb soils but would be localized and strategically placed to fight the fire with minimal soil impacts. Mop-up activities and Burned Area Emergency Response and Stabilization Treatments would mitigate negative effects of operations and potential emergency conditions to soils after a wildfire. Soils would benefit in the long-term from removal of hazardous fuel loads since the risk of catastrophic fires, which would potentially burn very hot and sterilize soils, would be lowered.

The removal of vegetation species by hand, chemical, mechanical, grazing treatments, and prescribed fire would result in surface disturbance to soils, though this would occur primarily through heavy equipment use. Chemicals applied according to label specifications would not persist in the long-term or accumulate in soils. Livestock used in grazing treatments would compress soils although this compaction would be limited through monitoring of stocking concentration to achieve fuel loading targets.

This alternative would increase the erosion potential in treated areas since vegetation acts to stabilize soils. In addition, the removal of vegetation would decrease the ability of water to infiltrate and promote more rapid runoff. However, these impacts would be temporary because it is highly likely that surrounding vegetation would recolonize treated areas.

Under the Proposed Action, salt cedar and Russian olive would be removed. Any action that reduces these two species' establishment and favors establishment of desirable perennial plant cover would have a positive impact on soils and soil formation.

4.7.2.2 No Action Alternative

Under the No Action Alternative, the proposed WFMP would not be implemented and there would be no change to the geology and soil types. Wildland fire management activities would continue without the benefit of the WFMP to standardize and formalize wildland fire management operating procedures. Under this alternative, current BIA management practices would continue.

4.8 **WATER RESOURCES**

4.8.1 Affected Environment

4.8.1.1 Groundwater

Maintaining groundwater quality is of paramount concern to the Pueblo. The Pueblo monitors groundwater quality standards through its Public Works Department with the assistance of the United States Environmental Protection Agency (EPA) through the Southwest Environmental Finance Center.

The Pueblo of Isleta Indian Reservation is mostly within the Rio Grande Aquifer System.

Rio Grande Aquifer System

The Rio Grande aquifer system is the principal aquifer in a 70,000-square mile area of southern Colorado, central New Mexico, and western Texas. The aquifer system consists of a network of hydraulically interconnected aquifers in basin-fill deposits located along the Rio Grande Valley

and nearly valleys. The arid climate of the Rio Grande Valley and adjacent basins provides insufficient precipitation for growth of most commercial crops; consequently, irrigation is required. The rate of evaporation is large in most of the valley areas because of high summer temperatures, low relative humidity, abundant sunshine, and frequent wind. Much of the area is sparsely vegetated. The Rio Grande is the largest river in the area and has perennial flow through most of its length in Colorado and New Mexico (USGS Groundwater Atlas, 1995).

The chemical composition and dissolved-solids concentration of water in the Rio Grande aquifer system are affected by the quality of the water that enters the aquifer, the type and solubility of minerals present in the basin fill, and the quantity of water lost by evaporation and transpiration (USGS Groundwater Atlas, 1995).

Groundwater sources are used for domestic purposes, municipal water supply, livestock and wildlife watering, irrigation, and limited fish culture. Figure 3-8 shows the aquifer types that are within the Pueblo of Isleta Indian Reservation. Figure 3-9 shows the HUC8 water sub- basins Rio Puerco, Rio Grande-Albuquerque, Western Estancia within the reservation. The Western Estancia sub-basin is a very small portion of the most eastern portion of the reservation, which is in the Manzano Mountains.

Figure 4-8 shows the aquifer types that are within the Pueblo of Isleta Indian Reservation.

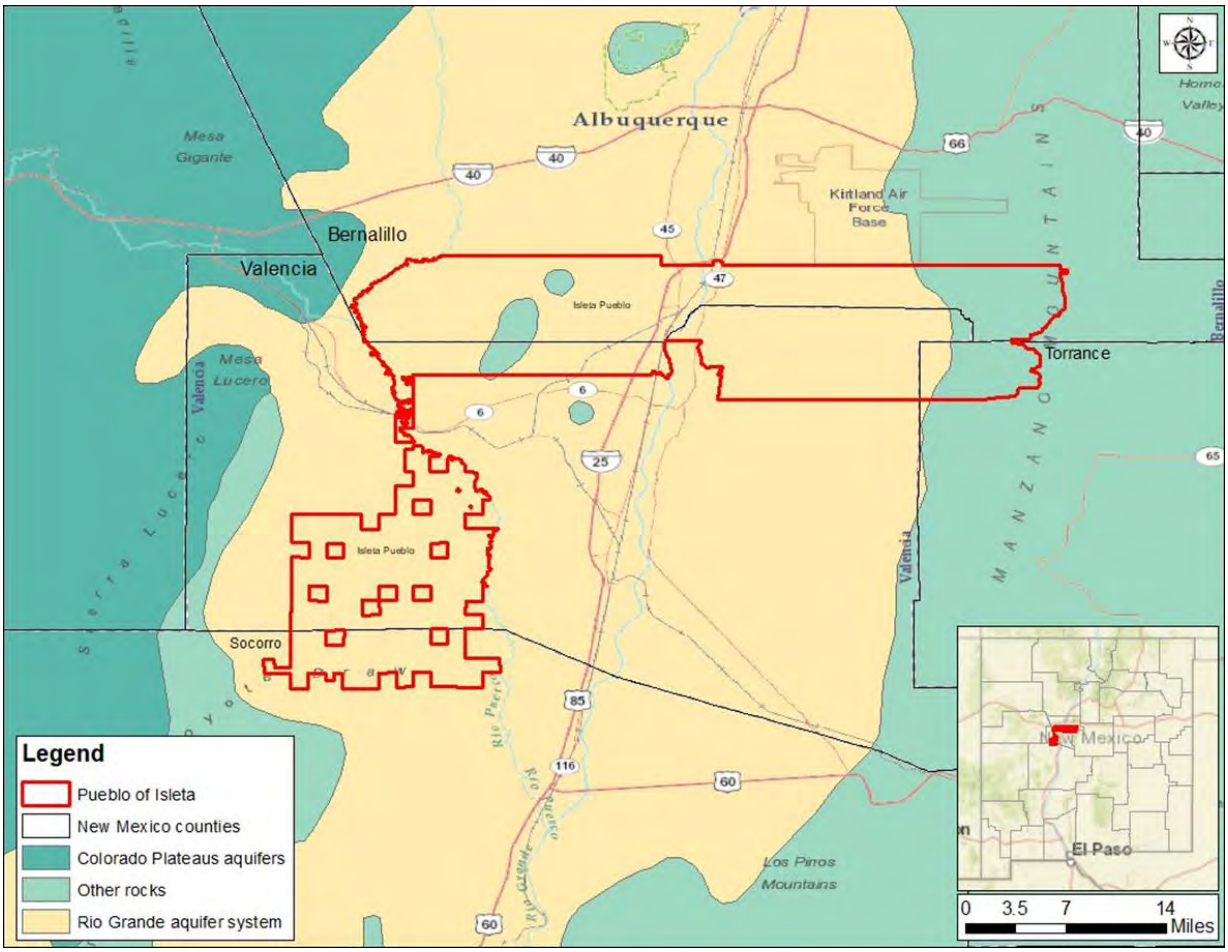

Figure 4-8 Aquifer Systems
Source: RGIS, Region 6, ArcGIS, 2020

4.8.1.2 Surface Water Resources

New Mexico's surface waters consist of rivers, streams, lakes and reservoirs, and wetlands. These waters supply the water necessary for drinking, recreation, industry, agriculture, and aquatic life as well. New Mexico's major watershed, the Rio Grande, encompasses much of New Mexico and connects the state to the headwaters in Colorado and passing through Texas to its mouth in Mexico. Surface water in the Rio Grande in the reach from the headwaters to near Albuquerque, generally has a small dissolved-solids concentration and contains a preponderance of calcium, bicarbonate, and sulfate ions. This water is classified as a calcium bicarbonate or calcium sulfate type (USGS Groundwater Atlas, 1995).

The major surface water resource on the Pueblo of Isleta Indian Reservation is the perennial Rio Grande. There are some intermittent streams in the region, including the Rio Puerco and Hells Canyon Wash, and various springs particularly in the Manzano and Manzanita Mountains. Water from the Rio Grande is used for irrigation, recreation, warm water fisheries, livestock and wildlife watering, and religious ceremonies (Pueblo of Isleta IFMP EA, 2014).

The New Mexico water quality standards adopted pursuant to the federal Clean Water Act Section 303(c) to protect the designated uses of irrigation and secondary contact were found to not be met in the Rio Grande from the Pueblo of Isleta boundary upstream to the Alameda Street Bridge in Albuquerque. This reach, due to pollution discharges/releases, only partially supports the two designated uses and additional efforts will be necessary to fully protect use of these waters for irrigation and/or fishing/wading. The probable cause of impairment is fecal coliform bacteria and the probable sources are urban runoff/storm sewers and municipal sources. The Pueblo of Isleta still believes that point source discharges from the city of Albuquerque wastewater treatment plant and stormwater discharges from the municipality and surrounding areas of concern to water quality on the Pueblo. A recent decision by the city of Albuquerque to divert more Rio Grande water for drinking water may also affect the Pueblo of Isleta's available water for agriculture and habitat (Pueblo of Isleta IFMP EA, 2014).

Maintaining surface water quality is of paramount concern to the Pueblo. The Pueblo has codified its surface water quality standards in its Surface Water Quality Standards, which is currently being updated. The Pueblo monitors Rio Grande surface water quality on a monthly basis, pursuant to its Surface Water Quality Standards under an EPA-approved Quality Assurance Project Plan.

4.8.2 Environmental Consequences

4.8.2.1 Proposed Action

Wildland fire suppression activities such as the construction of containment lines and slurry or water drops by aviation support could negatively impact surface water. However, any retardant use near a waterway would be restricted unless alternative tactics are not available to protect life and property. Mop-up activities and Burned Area Emergency Response and Stabilization Treatments would mitigate negative effects of operations and potential emergency conditions to surface water after a wildfire.

Under the Proposed Action, the BIA would treat non-native and invasive species. The control of these species is known to maintain healthy watersheds by reducing competition and promoting the establishment of native species adapted to local soil and erosion conditions. Removal of vegetation by hand, chemical, mechanical, grazing treatments, and prescribed fire would result in very little site disturbance and soil compaction, having little impact on infiltration rates.

Herbicide use will be determined on a project basis and will strictly adhere to EPA label directions. The Pueblo of Isleta approves the use of Garlon® 3A in riparian areas in a manner that does not impact non- target species and does not degrade water quality of the Pueblo's water resources. Garlan® 3A is an herbicide that has been approved for use in areas adjacent to aquatic environments that the Pueblo approves use of in riparian and bosque areas.

Beneficial impacts would result from the removal of non-native and invasive species in and along the riparian corridors and wetlands. The Proposed Action would include the application of herbicides for managing non-native and invasive species. The BIA would use herbicides in accordance with label directions. The primary methods of herbicide movement are runoff, drift, misapplication/spills, and leaching. Any of these means could affect surface and groundwater though it is unlikely that these applied herbicides would make it to water bodies.

4.8.2.2 No Action Alternative

Under the No Action Alternative, the proposed WFMP would not be implemented. Removing non-native and invasive species in and along the riparian corridors and wetlands would not be accomplished. Wildland fire management activities would continue without the benefit of the WFMP to standardize and formalize wildland fire management operating procedures. Under this alternative, current BIA management practices would continue.

4.9 **BIOLOGICAL RESOURCES**

The term "biological resources" refers to non-domesticated organisms that reside in, or pass through, the Planning Area. The biological resources category includes all native and introduced plant and animal species and their habitats, including wetlands. Functional groups of plant and animal species that are linked by ecological processes within a defined area are referred to as ecological communities. They are sources of biological diversity, important for nutrient, water, and atmospheric gas cycling, and are linked to regional and global ecosystem functions; they also provide aesthetic, recreational, and socioeconomic values to society. The biological resources section focuses on animal species and vegetation types that are common or are important to the function of the project area ecosystem, are of special societal importance, or are listed as endangered or threatened under federal law or statute.

4.9.1 Affected Environment

4.9.1.1 Vegetation

The Pueblo is within the EPA Level IV ecoregions and their natural vegetation is identified in Table 4-3 and described in the following pages. According to the EPA, ecoregions are identified by analyzing the patterns and composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity. These phenomena include geology, landforms, soils, vegetation, climate, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. A Roman numeral classification scheme has been adopted for different hierarchical levels of ecoregions, ranging from general regions to more detailed ones (EPA, 2005).

Detailed descriptions of major vegetation types are provided in the following pages. This vegetation information was taken from the WFMP and the Fuels Management Plan. The Fuels Management Plan describes in detail the Fuels Management Strategies to be employed in order to minimize impacts to life and property and to mimic the natural role of fire in fire-dependent plant communities within the Pueblo. Figure 3-9 shows the vegetation types for the Pueblo.

Table 4-3 Vegetation Types

Table 1. Acres of Vegetation Type on Trust lands	
Vegetation Type	**Acres***
Mixed Conifer	1,432
Ponderosa Pine	17,536
Pinyon/Juniper Woodlands	12,094
Bosque	1,196
Oak Woodlands	210
Riparian	1,001
Shrublands	15,470
Grasslands	106,148
Desert Scrub	137,596
Other	7,850

**Due to the conversion of GIS data from one data type (raster to vector or vice versa) to another during analyses and when combined with clipping and intersecting processes, acres in the following tables may not match each other and may be different than the official acres of the reservation.*

Mixed Conifer Forest - This is a highly variable ecological system of the montane zone of the Rocky Mountains. These are mixed-conifer forests occurring on all aspects at elevations ranging from 3,900 to 10,500 feet. Rainfall averages less than 30 inches per year (15-30 inches), with summer "monsoons" during the growing season contributing substantial moisture. The composition and structure of the overstory are dependent upon the temperature and moisture relationships of the site and the successional status of the occurrence. Pseudotsuga menziesii and Abies concolor are most frequent, but Pinus ponderosa may be present to codominant. Pinus flexilis is common in Nevada. Pseudotsuga menziesii forests occupy drier sites, and Pinus ponderosa is a common codominant. Abies concolor- dominated forests occupy cooler sites, such as upper slopes at higher elevations, canyon sideslopes, ridgetops, and north- and east-facing slopes which burn somewhat infrequently. Picea pungens is most often found in cool, moist locations, often occurring as smaller patches within a matrix of other associations. As many as seven conifers can be found growing in the same occurrence, and there are a number of cold-deciduous shrub and graminoid species common, including Arctostaphylos uva-ursi, Mahonia repens, Paxistima myrsinites, Symphoricarpos oreophilus, Jamesia americana, Quercus gambelii, and Festuca arizonica. This system was undoubtedly characterized by a mixed-severity fire regime in its "natural condition," characterized by a high degree of variability in lethality and return interval.

Ponderosa Pine - This type occurs at the ecotone between mesic mixed conifer forests and more xeric woodland or shrub types. Elevations range from above 6,200 feet to 9,200 feet. It is found

on rolling plains, plateaus, or dry slopes, usually on more southerly aspects. The type is maintained by a temporal pattern of frequent, low-intensity surface fires and is typified by open, park like stands with canopy cover less than 25 percent. Pinyon pine (Pinus edulis) and/or Utah juniper (Juniperus osteosperma) are found intermixed with the Ponderosa pine. Rocky-Mountain juniper (Juniperus scopulorum) may codominate or replace Utah juniper at higher elevations. Understory vegetation in the true savanna occurrences is predominated by fire-resistant grasses and forbs that resprout following surface fires; shrubs, understory trees and downed logs are uncommon. Important species include Arizona fescue (Festuca arizonica), muhly (Muhlenbergia montana), Blepharoneuron tricholepis, Poa fendleriana, Idaho fescue (Festuca idahoensis), littleseed ricegrass (Piptatherum micranthum), and blue grama (Bouteloua gracilis).

Pinyon/Juniper Woodlands - This type occurs at lower elevations ranging from 4,900-8,000 feet. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Pinyon pine (Pinus edulis), Rocky-Mountain juniper (Juniperus scopulorum) and One-seed Juniper (juniperus monosperma) are the dominant species. Understory layers are variable and may be dominated by shrubs or graminoids, or be absent altogether. Associated species include greenleaf manzanita (Arctostaphylos patula), big sagebrush (Artemisia tridentata), mahogany (Cercocarpus spp.), blackbrush (Coleogyne ramosissima), bitterbrush (Purshia spp.), Gambel oak (Quercus gambelii), blue grama (Bouteloua gracilis), galleta grass (Pleuraphis jamesii), bluegrass (Poa spp.) and Indian ricegrass (Achnatherum hymenoides).

Bosque - This lower montane riparian systems group is found throughout the Rocky Mountains and Colorado Plateau regions within a broad elevational range from approximately 2,950 to 9,000 feet. These systems often occur as mosaics of multiple communities that are tree-dominated with a diverse shrub component. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. They can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. Stands are also found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. Dominant trees may include Acer negundo, Populus angustifolia, Populus balsamifera, Populus deltoides, Populus fremontii, Populus tremuloides, Salix amygdaloides, Juniperus scopulorum. Dominant shrubs include Acer glabrum, Alnus incana, Betula occidentalis, Betula papyrifera, Cornus sericea, Crataegus rivularis, Forestiera pubescens, Prunus virginiana, Rhus trilobata, Salix monticola, Salix drummondiana, Salix exigua, Salix irrorata, Salix lucida, Shepherdia argentea, or Symphoricarpos spp. Exotic trees Elaeagnus angustifolia and Tamarix spp. are common in some stands.

Riparian - This type is found within a broad elevational range from approximately 3,000 to 9,200 feet and often occurs as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. It is dependent on a natural hydrologic regime, especially annual to episodic flooding. Occurrences are found within the flood zone of rivers and immediate streambanks. It is also typically in floodplains swales and irrigation ditches. In some locations, occurrences extend into moderately high intermountain basins where the adjacent vegetation is sage steppe. Dominant trees may include boxelder (Acer negundo), cottonwoods (Populus spp.), peachleaf willow (Salix amygdaloides), or Rocky Mountain Juniper. Dominant shrubs include Rocky Mountain maple (Acer glabrum), alder (Alnus spp.), birch (Betula spp.), dogwood (Cornus spp.),

river hawthorn (Crataegus rivularis), stretchberry (Forestiera pubescens), willows, skunkbush sumac (Rhus trilobata), buffaloberry (Shepherdia argentea), or snowberry (Symphoricarpus spp.). Exotic trees of Russian olive (Elaeagnus angustifolia) and salt cedar (Tamarix spp) are common in some stands.

Shrublands – This type occurs throughout much of the western U.S., typically in broad basins between mountain ranges, plains and foothills between 4,900 feet and 7,550 feet elevation. Soils are typically deep, well-drained and non-saline. These shrublands are dominated by Artemisia tridentata ssp. Scattered Juniperus spp., Sarcobatus vermiculatus, and Atriplex spp. may be present in some stands. Ericameria nauseosa, Chrysothamnus viscidiflorus, Purshia tridentata or Symphoricarpos oreophilus may codominate disturbed stands (e.g., in burned stands, these may become more predominant). Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species can include Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus, Festuca idahoensis, Hesperostipa comata, Leymus cinereus, Pleuraphis jamesii, Pascopyrum smithii, Poa secunda, or Pseudoroegneria spicata. Some semi-natural communities are included that often originate on abandoned agricultural land or on other disturbed sites. In these locations, Bromus tectorum or other annual bromes and invasive weeds can be abundant.

Desert Scrub - This typeincludes open-canopied shrublands of typically saline basins, alluvial slopes and plains across the Intermountain western U.S. This type also extends in limited distribution into the southern Great Plains. Substrates are often saline and calcareous, medium- to fine-textured, alkaline soils, but include some coarser-textured soils. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more Atriplex species, such as Atriplex confertifolia, Atriplex canescens, Atriplex polycarpa, or Atriplex spinifera. Grayia spinosa tends to occur on coppice dunes that may have a silty component to them. Northern occurrences lack Atriplex species and are typically dominated by Grayia spinosa, Krascheninnikovia lanata, and/or Artemisia tridentata. Other shrubs present to codominant may include Artemisia tridentata ssp. wyomingensis, Chrysothamnus viscidiflorus, Ericameria nauseosa, Ephedra nevadensis, Grayia spinosa, Krascheninnikovia lanata, Lycium spp., Picrothamnus desertorum, or Tetradymia spp. In Wyoming, occurrences are typically a mix of Atriplex confertifolia, Grayia spinosa, Artemisia tridentata ssp. wyomingensis, Sarcobatus vermiculatus, Krascheninnikovia lanata, and various Ericameria or Chrysothamnus species. Some places are a mix of Atriplex confertifolia and Artemisia tridentata ssp. wyomingensis. In the Great Basin, Sarcobatus vermiculatus is generally absent but, if present, does not codominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids such as Achnatherum hymenoides, Bouteloua gracilis, Elymus lanceolatus ssp. lanceolatus, Pascopyrum smithii, Pleuraphis jamesii, Pleuraphis rigida, Poa secunda, or Sporobolus airoides. Various forbs are also present.

Grasslands - This type occurs on dry plains and mesas, at approximately 4,700 to 7,600 feet in elevation. These grasslands occur in lowland and upland areas and may occupy swales, playas, mesatops, plateau parks, alluvial flats, and plains, but sites are typically xeric. Where they occur near foothill grasslands they will be at lower elevations. The dominant perennial bunch grasses and shrubs within this system are all very drought-resistant plants. These grasslands are typically dominated or codominated by Indian ricegrass, Aristida spp., blue grama, needleandthread, muhly, or galleta grass and may include scattered shrubs and dwarf-shrubs of species of sagebrush (Artemisia spp.), saltbush (Atriplex spp.), blackbrush, Mormon tea (Ephedra spp.), snakeweed (Gutierrezia spp.), or winterfat (Krascheninnikovia spp.).

Figure 4-9 Vegetation Types
Source: BIA, ArcGIS, 2020

4.9.1.2 Wetlands/Riparian Corridor

New Mexico's wetlands include forested wetlands, bottomland shrublands, marshes, fens, alpine snow glades, wet and salt meadows, shallow ponds, and playa lakes. Riparian wetlands and playa lakes are especially valuable to migratory waterfowl and wading birds. There are many different types of wetland ecosystems in New Mexico: riverine – lacustrine – depressional – slope – mineral soil flats – organic soil flats (NM Wetlands Program, 2020). The following information was taken from the website: New Mexico Environment Department, Surface Water Quality, Wetland Types in New Mexico.

Riverine Wetlands occur in floodplains and riparian corridors in association with stream channels. Dominant water sources are overbank flow from the channel or subsurface hydraulic connections between the stream channel and wetlands. Additional water sources may be interflow and return flow from adjacent uplands, occasional overland flow from adjacent uplands, tributary inflow, and precipitation.

Lacustrine Fringe Wetlands are adjacent to lakes where the water elevation of the lake maintains the water table in the wetland. Additional sources of water are precipitation and groundwater discharge. Surface water flow is bidirectional, usually controlled by water level fluctuations in the adjoining lake. Lacustrine wetlands lose water by flow returning to the lake after flooding, by saturation surface flow, and by evapotranspiration.

Depressional Wetlands occur in topographic depressions with a closed elevation contour that allows accumulation of surface water. Dominant sources of water are precipitation, groundwater discharge, and interflow from adjacent uplands. Water normally flows from the surrounding uplands toward the center of the depression. Depressional wetlands may have any combination of inlets and outlets or lack them completely. Depressional wetlands may lose water through intermittent or perennial drainage from an outlet, by evapotranspiration, and, if they are not receiving groundwater discharge, may slowly contribute to groundwater. Water levels will most often vary seasonally. Prairie potholes are a common example of depressional wetlands. Playas of the Llano Estacado are also considered depressional wetlands.

Slope Wetlands are normally found where there is a discharge of groundwater to the land surface. Elevation gradients may range from steep hillsides to gentle slopes. Principal water sources are usually groundwater return flow, interflow from surrounding uplands, and precipitation. Slope wetlands can occur in nearly flat landscapes if groundwater discharge is a dominant water source. They lose water primarily by saturation subsurface and surface flows and by evaporation. Springs are an example of slope wetlands in New Mexico.

Mineral Soil Flats are most common on interfluves, extensive relic lake bottoms, or large floodplain terraces where the main source of water is precipitation. They receive virtually no groundwater discharge which distinguishes them from depressions and slopes. They lose water by evapotranspiration, saturation overland flow, and seepage to underlying groundwater. They are distinguished from flat upland areas by their poor vertical drainage. Mineral soil flats that accumulate peat can eventually become the class organic soil flats. The Lordsburg Playa is an example of a mineral soil flat wetland.

Figure 4-10 is a wetlands map from the US Fish & Wildlife Service Wetlands Mapper website (https://www.fws.gov/wetlands/Data/Mapper.html).

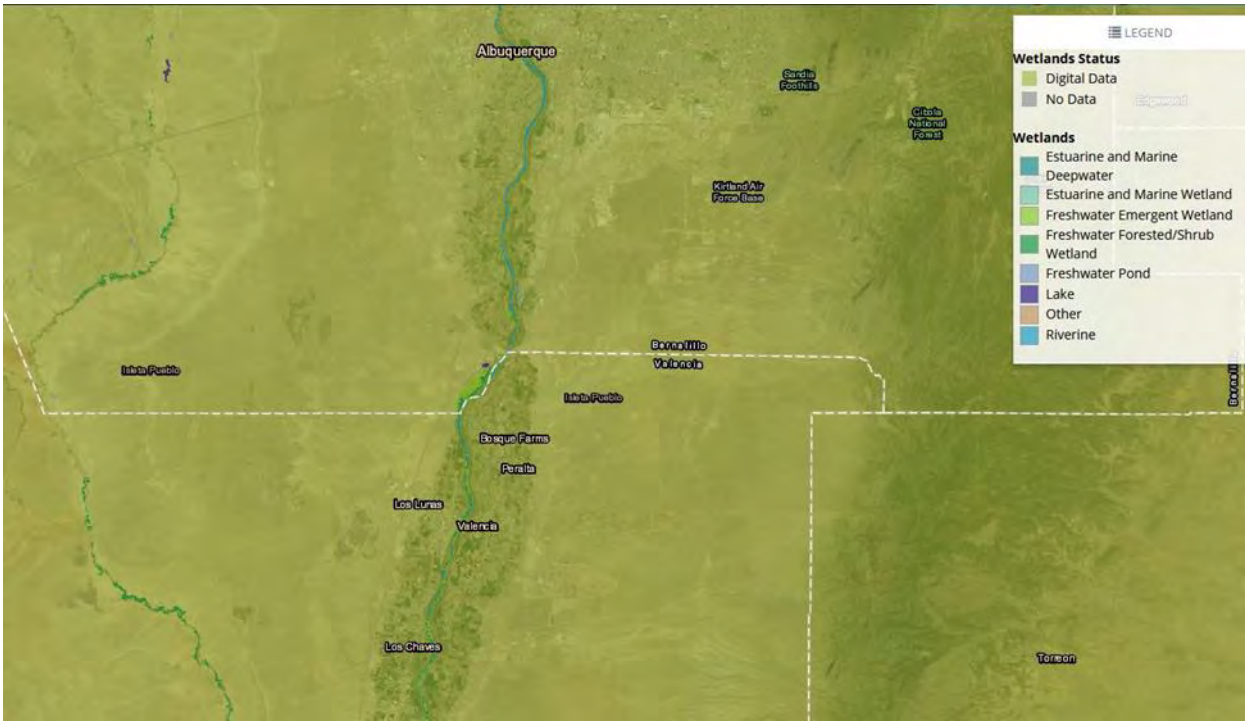

Figure 4-10 Wetlands Map
Source: USFWS, Wetlands Mapper, 2020

4.9.1.3 Floodplains

Executive Order (EO) 11988, Floodplain Management, addresses concerns about the potential loss of the natural and beneficial functions of the nation's floodplains, as well as the increased cost to federal, state, and local governments due to flooding disasters that are caused or worsened by unwise development of floodplains. When funding actions, federal agencies are required to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The Federal Emergency Management Agency's (FEMA) procedures for implementing this EO are found at 44 CFR Part 9.

FEMA regulates alterations to, or development within, floodplains as mapped on FEMA Flood Insurance Rate Maps (FIRM). These maps were analyzed to determine impact to floodplains.

Mapping Status Details - This information identifies if a FIRM was created for each county.

- **DFIRM -** Digital Flood Insurance Rate Map - This is the most recent data available and can be used in a GIS. DFIRM maps may contain both detailed elevation data and approximate boundaries. DFIRM data is available for viewing at the National Flood Hazard Layer interactive map.
- **FIRM -** Flood Insurance Rate Map - Flood Insurance Rate Maps may contain both detailed elevation data and approximate boundaries but are not available digitally from FEMA. New Mexico FIRMS have been digitized by the Earth Data Analysis Center and are available from RGIS. They should NOT be used for insurance or engineering purposes. More information about DFIRMs at FloodSmart.gov.
- **FHBM -** Flood Hazard Boundary Map - Flood Hazard Boundary Maps were generated in

the 1970's and 1980's without detailed studies or hydraulic analysis. FHBM were originally intended for interim use but are the best available data in some New Mexico Counties. FHBM are not available digitally from FEMA but have been digitized by EDAC, and are available on RGIS. They should NOT be used for insurance or engineering purposes.

Mapping status for the four counties is shown below:

- Bernalillo County: DFIRM is available; effective 8/16/2012
- Valencia County: DFIRM is available, effective 8/19/2010
- Socorro County: DFIRM is available, effective 8/28/2008
- Torrance County: DFIRM is available, effective 10/1/2007

Valencia County is bordered by Bernalillo County to the north, Torrance County to the east, Cibola County to the west, and Socorro County to the south. Tribal Lands belonging to the Pueblo of Isleta are located in Valencia County. There are no levees in the watershed that are shown to provide protection from the base flood on the DFIRMs. Tribal communities are not participating in the National Flood Insurance program (NMFlood.org, 2019).

The Rio Grande is the primary river in the county flowing through the center of the county. The Rio Grande flow is regulated by Cochiti Dam, the only impoundment in the Middle Rio Grande Valley. The facility is authorized to regulate Rio Grande flows for flood and sediment control and is managed by the Albuquerque District of the U.S. Army Corps of Engineers authorized by PL 86-645, Pl 543 as amended, Senate Document No. 97, and PL 88-293. The dam's construction was completed in August of 1975. The Middle Rio Grande Conservancy District (MRGCD) is the governing authority for the river and their jurisdiction runs from ditch bank to ditch bank. The Rio Puerco is the largest tributary to the Rio Grande; it drains a watershed area of 7,350 square miles. According to the USACE National Levee Database there are 67 miles of levees representing 35 systems in Valencia County. None of these levees are accredited and none are owned by the USACE (NMFlood.org, 2019).

4.9.1.4 Federal Listed Special Status Species

In accordance with 50 Code of Federal Regulations (CFR) 402.12 (c), official lists consisting of federal candidate, federally endangered, and federally threatened species and designated critical habitat were obtained from the USFWS Information for Planning and Consultation (IPaC) Report of June 10, 2021, which is provided in Appendix B. The official lists were used to determine which federally listed species and designated critical habitats have the potential to occur within the Pueblo. There is one critical habitat wholly or partially within the Reservation.

The IPAC lists are valid for 90 days and need to be re-evaluated prior to project initiation. Site-specific Endangered Species Act compliance including a Biological Assessment will be completed for each fuels project and may include updates to this current list. Table 4-4 lists these federally listed species.

Table 4-4 Federal Listed Species that Occur or Have the Potentail to Occur

NAME	STATUS
MAMMALS	
New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus)*	Endangered
BIRDS	
Mexican Spotted Owl (*Strix occidentalis lucida*)	Threatened
Northern Aplomado Falcon (*Falco femoralis septentrionalis*) Population: U.S.A. (AZ, NM)	Experimental Population, Non-Essential
Piping Plover (*Charadrius melodus*) Population: [Atlantic Coast and Northern Great Plains populations]	Threatened
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	Endangered
Yellow-billed Cuckoo (*Coccyzus americanus*) Population: Western U.S. DPS	Threatened
AMPHIBIANS	
Chiricahua Leopard Frog (*Rana chiricahuensis*)	Threatened
FISHES	
Rio Grande Silvery Minnow (*Hybognathus amarus)* Population: Wherever found, except where listed as an experimental population	Endangered
SNAILS	
Alamosa Springsnail (*Tryonia alamosae*)	Endangered
Chupadera Springsnail (*Pyrgulopsis chupaderae*)	Endangered
Socorro Springsnail (*Pyrgulopsis neomexicana*)	Endangered
CRUSTACEANS	
Socorro Isopod (*Thermosphaeroma thermophiles*)	Endangered
FLOWERING PLANTS	
Pecos (=puzzle, =paradox) Sunflower (*Helianthus paradoxus*)	Threatened
Wright's Marsh Thistle (*Cirsium wrightii*)	Proposed Threatened

Sources: 1) USFWS IPaC Report, June 10, 2021 (Appendix B)

2) Species range shapefiles from https://ecos.fws.gov/ecp/species

4.9.1.5 Wildlife

The wildlife population in New Mexico is as diverse as its land. In addition to elk, deer, and antelope, there are also white-tailed rabbits, gray squirrels, gray foxes and wolves, coyotes, mountain lion and bobcats. The New Mexico state animal is the black bear, which was adopted in 1963. Birds found in New Mexico include the American goldfinch and crow, chipping sparrow, cactus wren, hummingbird, great blue heron and the common raven. The roadrunner was

adopted as the state bird in 1949. The cutthroat trout became the state fish in 1955, but because of river diversions and droughts, New Mexico has lost some of its fish species including the shovelnose sturgeon and the American Eel. Most of the land animal species that currently live in the Rio Grande valley were there before the arrival of Coronado in 1540. The Middle Rio Grande Valley supports at least three turtle species, nine lizard species and 13 snake species. There are over 60 species of mammals in the bosque, most of which are rodents. There are 11 species of bats in the valley, and well over 200 species of birds that use the valley as their home or mating grounds. Throughout the state there are more than 1,100 species of amphibians, reptiles, mammals, birds, invertebrates, and fish (NM Museum of Art, 2020).

The Pueblo of Isleta supports a variety of wildlife including mammals, birds, reptiles, fish and amphibians. In addition, the Rio Grande corridor is a major migratory route for songbirds, waterfowl, and shorebirds. The Pueblo provides excellent habitat for avian species (Pueblo of Isleta IFMP EA, 2014).

4.9.1.6 Migratory Birds

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) is the primary legislation in the United States established to conserve migratory birds. Bird species that the MBTA protects could occur virtually anywhere within the continental United States. The migratory Central Flyway goes through the western portion of New Mexico. This migration corridor provides nesting, breeding, overwintering, and stopover habitat for a large diversity of migratory species.

The IPaC Report in Appendix B provides a listing of the migratory birds that could occur within the Pueblo, their status, population, and their breeding season.

4.9.2 Environmental Consequences

4.9.2.1 Proposed Action

Vegetation

For the proposed fire suppression activities, in the construction of dozer and hand line vegetation is removed to deny fuel for the wildfire. For hand line, generally this is a narrow line where some trees and shrubs are cut, but many are just trimmed. The impacts to the vegetation would be minimal. In the construction of dozer line, the line may vary from the width of a dozer blade to the width of many dozer blades. All vegetation is scraped away and pushed to the side outside the fire. The litter, duff and even the topsoil is often removed. This would have a greater impact than hand line but, is still limited to the width of the dozer line. Vegetation may be slow to recover due to damage to the soil. Impacts to the vegetation from water and slurry drops are negligible other than possibly some breakage from the force of the drops.

Back-firing operations would have a greater impact on vegetation. Back-firing in the Mixed Conifer, Ponderosa Pine, and Pinyon-Juniper vegetation types, depending on the intensity of the fire, may kill a majority of the overstory trees. Shrubs and grasses in these types would be scorched but, would resprout or germinate from seed beginning within a week or two, depending on available soil moisture. Low intensity back-firing may cause little damage to vegetation, whereas high intensity back-firing may require areas to be reforested or re-seeded.

Back-firing operations in shrublands and grasslands would generally scorch the above-ground portions of the shrubs and grasses. These generally resprout or germinate from seed within a week or two depending on available soil moisture. Recovery times are generally one to three years.

Fuels treatments are designed to modify the arrangement or to remove vegetation and fuels by cutting, masticating, mowing, burning or physical removal. The effects to vegetation are dependent on the vegetation type, the treatments, and time of year of the treatments.

In the forest vegetation types, generally treatments involve thinning, piling or lopping and scattering followed by a prescribed burn to reduce stocking densities from 20-50%, to increase crown base heights (reduce ladder fuels) and to treat fuel loads. The target vegetation is generally smaller conifer trees and shrubs. If the treatments are hand treatments, there is little damage to the grasses, forbs, litter, duff. If the treatments are done using a dozer, masticator or excavator, there may be mixing of the litter, duff and topsoil from the back and forth and turning movement of the machines.

Effects of prescribed burns are dependent on the type of burn, the amount of fuel being consumed and the timing of the burn. There may be scorching of the crowns of the leave trees and shrubs from burning of pile and there may be short-term sterilization of the soil under larger piles where heat persisted over long periods. In the forest and woodland vegetation types, the post-treatment species composition is generally the same as pre-treatment, but the stands are more open.

In the bosque vegetation types, the target species are generally non-native invasive species such as Russian Olive and Salt Cedar. Treatments generally are mastication or mowing followed by one or more herbicide applications, or extraction where the plants are uprooted and piled. This may also be flowed by one or more herbicide applications and a pile burn. Post-treatment species compositions may be greatly altered to provide open space for native species to return.

Wetlands/Riparian Corridors

Wetlands and other waters are ecological habitats protected under both federal and state laws and regulations (Sections 401 and 404 of the Clean Water Act); management considerations also must comply with Executive Order 11990, Protection of Wetlands. The purpose of this EO is to "minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." To meet these objectives, EO 11990 requires federal agencies to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. There are no significant wetlands in the Reservation and its surroundings, with the exception of riverine wetlands along Rio Puerco and the Rio Grande. It is expected that removing 95% of all noxious species in and along riparian corridors would be beneficial to the health of the wetlands. This riparian corridor will continue to be protected by minimizing their destruction, loss, or degradation and will continue to be preserved and enhanced.

Section 404 of the Clean Water Act (CWA) regulates the placement of dredged or fill materials into wetlands and other waters of the United States. The U.S. Army Corps of Engineers administers a permit review process, which regulates proposed activities. The Proposed Action does not include the filling of wetlands with any dredged or fill materials; therefore, compliance with Section 404 of the CWA will be met.

Floodplains

Floodplains would not be filled to any extent and building on a floodplain would not occur. However, floodplains may be disturbed while performing treatments within the riparian wetlands. These impacts would be short-term and minor.

Federal Listed Special Status Species and Wildlife

Any of the federally protected species listed in Table 3-5 could occur within the Pueblo of Isleta Indian Reservation. According to the USFWS IPAC report, critical habitat for the Mexican spotted owl (*strix occidentalis lucida*) is "wholly or partially within the project area under this office's jurisdiction".

The response of wildlife to wildfire response and hazardous fuel reduction activities varies by habitat. While wildlife habitat may be degraded due to these activities, proper management often improves wildlife habitat. All activities that remove vegetation would have temporary, negative impacts on wildlife due to the loss of protective cover, which would expose smaller species to predators in the short-term. In addition, short-term loss of herbaceous plant species associated with reductions in fuel loading and shrub heights would reduce nesting and foraging habitat. Other impacts could result from changes in plant community composition, structure, and productivity which together largely determine wildlife habitat suitability. The impact from the displacement of species during treatment activities is considered minor due to the temporal brevity of the treatments.

Use of mechanical equipment may affect nesting birds or nests. However, by conducting pre-disturbance surveys and conducting project activities outside of the bird-nesting season, the impact to nesting migratory birds would be minor.

Wildfire response and fuels activities would result in a short-term loss of forage for mule deer and elk and other wildlife. However, due to the surrounding areas of available habitat, this impact is considered short-term and minimal. In addition, noise created by equipment and vehicles could alter the habitat use of some wildlife species within and around the treatment units. However, noise would be short-term and therefore is considered a minor impact.

Use of heavy equipment has the potential to directly affect small mammals in the short-term from mortality and reduced hiding cover; a walk-through survey prior to the mowing/mastication would minimize this negative effect for nesting birds and animals. This impact would be short-term and would be considered minor.

Application of herbicides is not likely to pose a risk to wildlife. Herbicides are considered to have a low toxicity to wildlife, with little potential for bioaccumulation. Removal of Russian olive and salt cedar by chemical application may improve the habitat quality for many special status species.

Migratory Birds

The Proposed Action could result in many acres of disturbance to the available nesting and foraging habitat for shrub-nesting and ground-nesting species, as well as the foraging habitat for raptor species. Any ground-clearing or other vegetation-disturbing activities during the migratory bird nesting season risks a violation of the MBTA by destroying the eggs or young of common shrub-nesting birds. However, it is unlikely that the Proposed Action would adversely affect the overall populations of any migratory bird species. The loss of nesting and foraging habitat would be minimal and temporary. It is highly recommended that fuels activities be conducted outside the migratory bird nesting season, if not, appropriate protective measures would be implemented if treatment were to occur during the nesting season. The IPaC Report (Appendix B) identifies the breeding season for the species listed. Whenever practicable, the BIA would conduct project activities with the potential to disturb migratory bird nests outside of the bird-nesting season.

Noise could displace individual birds; however, this disturbance would be minimal and short-term. Responses of individual bird species are often habitat and species specific. Because their mobility allows birds to move someplace else when habitat is degraded by these types of activities, the effects of the Proposed Action on many bird species may be negative up to a point, but not enough to cause measurable population declines or clear impacts. Therefore, the Proposed Action may have temporary, minor effects on migratory birds.

To minimize the likelihood of adverse impacts to migratory birds, treatment activities should occur outside the general bird nesting season from March through August, or that areas proposed for treatment during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

Appendix E of this EA includes Nationwide Standard Conservation Measures published by the

U.S. Fish & Wildlife Service. These are effective measures that should be employed at all project development sites nationwide with the goal of reducing impacts to birds (and wildlife) and their habitats. These measures are grouped into three categories: General, Habitat Protection, and Stressor Management. By employing many of these applicable conservation measures, impacts from performing hazardous fuels reduction activities would be reduced (USFWS, Nationwide Standard Conservation Measures).

4.9.2.2 No Action Alternative

Vegetation

Under this alternative, the proposed WFMP would not be implemented, and no vegetation would be removed for the purpose of reducing fire fuel loads. No additional disturbance to vegetation would occur. Plant establishment of non-native species in the riparian areas would continue to persist. Fuel loads would continue to accumulate, increasing the risk of wildfire.

Wetlands

Under the No Action Alternative, the WFMP would not be implemented and expansion of non-native species in the riparian areas and wetlands would continue to occur.

Floodplains

Under the No Action Alternative, the WFMP would not be implemented, and floodplains would not incur any changes.

Federal Listed Special Status Species

Under the No Action Alternative, the WFMP would not be implemented, and fuel loads would continue to accumulate, increasing the risk of wildfire, which would adversely affect these federally protected species.

Wildlife

Under the No Action Alternative, the WFMP would not be implemented, and wildlife habitats would remain in their current condition and availability. However, this alternative would not allow for reduction of fuel loads in the WUI. In the event of a wildfire, the heavy fuel loads would likely create fire conditions that would be more severe and suppression measures would require a greater effort Assuming that such a fire would eventually occur, the effects to wildlife would primarily be short-term, and the impacts would range from moderate to adverse, depending on the intensity and size of the wildfire and the suppression effort.

Under this Alternative, fuel loads would increase, which could result in a wildfire that could spread onto areas of quality wildlife habitat. If this were to occur, re-establishing the shrub components lost from the fire in lower precipitation zones could be very problematic. In addition, under this scenario, there would be a high potential for areas of high-quality habitat to become dominated by non-native or invasive species. Therefore, the No Action Alternative could potentially result in long-term, moderate to significant negative impacts to quality wildlife habitat.

Migratory Birds

Under the No Action Alternative, the WFMP would not be implemented, and fuel loads would continue to accumulate, increasing the risk of wildfire, which would adversely affect migratory birds. Wildfires would cause a significant loss of birds, nesting, and foraging habitat for migratory birds.

4.10 CULTURAL AND TRADITIONAL RESOURCES

4.10.1 Affected Environment

Cultural resources are sites, structures, landscapes, and objects of importance to cultures or communities for traditional, religious, or scientific reasons. The remains of past cultures may include, but are not limited to, prehistoric archaeological sites, historic buildings, and structures, and any prehistoric or historic remains, artifacts, or less tangible indicators of human activities. Cultural and historical resources are typically divided into three major categories: archaeological resources (prehistoric or historic), architectural resources, and traditional cultural properties.

- Archaeological resources consist of the physical remains of past human activity. The scientific study of these remains is essential to the understanding and appreciation of prehistoric and historic cultural development. Prehistoric refers to any time or object that predates recorded history, while historic refers to any time or object of the past, after written record.
- Architectural resources are those standing structures that are usually over 50 years of age and are of significant historic or aesthetic importance to be considered for inclusion on the National Register of Historic Places (NRHP).
- Traditional cultural properties are properties or places that are eligible for inclusion on the NRHP because of their association with cultural practices or beliefs that are (1) rooted in the history of a community, and (2) are important to maintaining the continuity of that community's traditional beliefs and practices. The American Indian Religious Freedom Act of 1978 (AIRFA) and the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) protect traditional cultural properties.

Under Section 106 of the National Historic Preservation Act (NHPA), the BIA is required to consider the effects of its undertakings on historic properties listed, or eligible for listing, in the National Register of Historic Places (NRHP) and to consult with the Tribal Historic Preservation Office (THPO) regarding potential effects as per 36 CFR, but is generally coordinated with NEPA when both processes are required.

As required by the AIRFA (42 U.S.C. 1531) and the NHPA (16 U.S.C. 1531), local Native American tribes were notified of the Proposed Action during the coordination process of this project. The THPO and the Governor were notified by mail of the Proposed Action. Comments received from this consultation process are provided in Appendix A of this EA.

4.10.1.1 Archaeological (Historic and Pre-Historic)

The protection of cultural resources is built into the proposed hazardous fuels reduction program and would require consultation, coordination and review by the BIA, SWR Archaeologist prior to any proposed ground disturbance to avoid any potential impact to cultural resources. A brief description of the rich history of the Pueblo of Isleta is provided in the following narratives obtained from the Isleta Forest Management.

- Historic, Cultural and Religious Properties: The Pueblo of Isleta was named as a Historic Property under the National Register of Historic Places (NRHP) in 1975. There are many significant sites including cemeteries, shrines, and religious or sacred sites, including historic St. Augustine Church, built in 1612 and located on the main plaza. (Pueblo of Isleta FMP, 2014).
- Archaeological Resources: Paleoindian Period (11,800 to 5,500 B.C.) – Utensils of this period included lanceolate projectiles, knives, scrapers, gravers, chisel gravers, drills, spokeshaves, and utility flakes. Paleoindian remains of substance have been found south and west of Albuquerque (Pueblo of Isleta FMP, 2014).
- Development Period (A.D. 400 to 1200) – This period within the Rio Grande Valley is characterized by seasonal villages, construction of semi-subterranean dwellings, cultivation of maize as a food source, the decoration of pottery, and the introduction of the bow and arrow. Populations of note settle in the Rio Grande and Rio Puerco Valleys close to arable lands for the purpose agriculture (Pueblo of Isleta FMP, 2014).
- Coalition Period (A.D. 1200 to 1300) – This period is characterized by population shifts to highland setting across the southwest with a tendency to abandon bottomlands. Multi-room pueblos of 100 or more rooms were constructed near water locations and on level mesas to uplands (Pueblo of Isleta FMP, 2014).
- Classic Period (A.D. 1300 to 1600) – During this period the population tended to migrate to fewer and larger sites. Puebloan sites tended to be situated in low lying river basins. Villages of 1,000 rooms or more became common. The culture became more materialistic and elaborate. Glazed/decorated pottery became the standard around 1300 A.D. until the Historic period (Pueblo of Isleta FMP, 2014).
- Most of the residents live along the Rio Grande, few, if any live on the mesas away from easily accessible groundwater. The Indian Health Services operates a field health care center on the Pueblo and a clinic in Albuquerque. Other services (public) are similar to those found in Albuquerque. Students attend elementary school at Isleta and attend middle schools or high school in surrounding communities.

4.10.1.2 Architectural (Historic)

Below is a summary of NRHP listings, and landmarks located within the four counties that encompass the Pueblo of Isleta Indian Reservation. Appendix D provides detailed information about these county listings. Figure 4-11 shows the location of the NRHP property.

- Bernalillo County: There are 153 properties and districts listed on the National Register in the county, including one National Historic Landmark. Another four properties were once listed but have been removed. There is one NRHP site in Bernalillo County: Rio Puerco Bridge (Interstate 40 over the Rio Puerco).

- Socorro County: There are 54 properties and districts listed on the National Register in the county, including 1 National Historic Landmark. Another property was once listed but has been removed. All of the places within the county on the National Register, except for one, are also listed on the State Register of Cultural Properties.
- Torrance County: There are 10 properties and districts listed on the National Register in the county, including 2 National Historic Landmarks and 1 National Monument. All of the places within the county on the National Register are also listed on the State Register of Cultural Properties with the single exception of Abo.
- Valencia County: There are 12 properties and districts listed on the National Register in the county. All of the places within the county listed on the National Register are also recorded on the State Register of Cultural Properties. No NRHP sites in Valencia County are located within the Pueblo of Isleta Indian Reservation.

4.10.1.3 Traditional Cultural Resources

Traditional Cultural Places (TCP) or sacred sites are present within the Pueblo of Isleta Indian Reservation. In addition, the Reservation has many traditional pueblo feast days celebrated throughout the year. A pueblo feast day celebrates gratitude and Puebloan blessings and is a chance to feast on the great crops and hunts of the summer. By dancing sacred dances, they honor the gods and give thanks for the bounty of the harvest. Feast day celebrations combine distinctly Puebloan traditions steeped in American Indian spiritualism intermixed with more modern Catholic beliefs.

Where cultural, sacred, historical, and ceremonial sites exist on reservation trust or fee lands, it is important that these be protected in any fire management activity. This includes tribal shrines, gathering sites, medicinal herbs and plants, cultural collectables, and areas of religious or cultural significance. Coordination with the tribal officials is essential prior to and during fuels management activities, hazards fuels reduction, use of prescribed fire or wildland fire use.

Consistent with federal and tribal regulations, protection areas of cultural, traditional, religious, archaeological and historical significance is required. The Natural Resources Division will consult with Tribal officials to identify and protect sites on an incident/project basis (Pueblo of Isleta WFMP, 2019).

A Feast Day is when a Pueblo community comes together to celebrate cultural traditions and participate in their Pueblo dances and ceremony as part of their belief system and way of life. Feast Days celebrate an important date in the life of the Pueblo's patron saint. August 28 is a traditionally celebrated St. Augustine Feast Day in the POI. This annual feast day is celebrated by a morning mass, a procession, and various dances.

4.10.2 Environmental Consequences

4.10.2.1 Proposed Action

The BIA would conduct a Class III inventory at each treatment unit prior to ground-disturbing activities associated with the Proposed Action. An intensive cultural resources inventory is a systematic, detailed field inspection done by, or under the direction of professional archeologists, architectural historians, historians, and/or other appropriate specialists. Fuel reduction activities are conducted on cultural resource sites using non-ground disturbing methods thus reducing the fuel load on sites. This would be a non-adverse impact to the resources.

As stated in the Forest Management Plan and the WFMP, sensitive cultural sites will be identified and avoided. Therefore, no significant, adverse impacts to cultural resources would occur under implementation of the Proposed Action.

Wildfire response activities could potentially threaten cultural resources. Tribal officials and natural resource staff would advise operations how to avoid impacts to cultural resources when possible. Suppression tactics would be employed to minimize disturbance to traditional use areas, deter erosion, and avoid direct flame contact to archeological sites.

Beneficial effects to cultural resources would be realized because of decreased hazardous fuels and the subsequent reduction in the number and severity of wildland fires. If left untreated, there is the potential for high-intensity fires, which may damage cultural resources.

In the long-term, the removal of non-native and invasive species would have positive benefits for the protection of prehistoric or historic sites by protecting and enhancing native plant communities that stabilize the soil.

4.10.2.2 No Action Alternative

Under the No Action Alternative, the proposed WFMP would not be implemented and no ground- disturbing activities would take place and pre-treatment surveys would not occur. As a result, the BIA would not be obligated to implement Section 106 of the NHPA and its implementing regulations (36 CFR Part 800). All operations would remain the same in the proposed project areas, resulting in no impacts to cultural resources. Under this alternative, the BIA would not remove hazardous fuels from the WUI. As a result, wildland fires would become more likely within the treatment units and cultural resources would be at an increased risk of damage from wildland fire. Since the BIA would not reduce fuel loads, this may increase the likelihood of a fire spreading faster, potentially affecting existing cultural sites. The nature and severity of fire effects to cultural resources is dependent on multiple variables, such as fire intensity, duration, and heat penetration into the soil. The No Action Alternative could result in severe post-fire erosion and consequent loss or damage to cultural resources. Erosion affects the spatial distribution of cultural materials on the surface of a site; if severe, prolonged, or repeated, erosion also affects buried cultural deposits. In addition, structural loss or damage could result from severe erosion episodes.

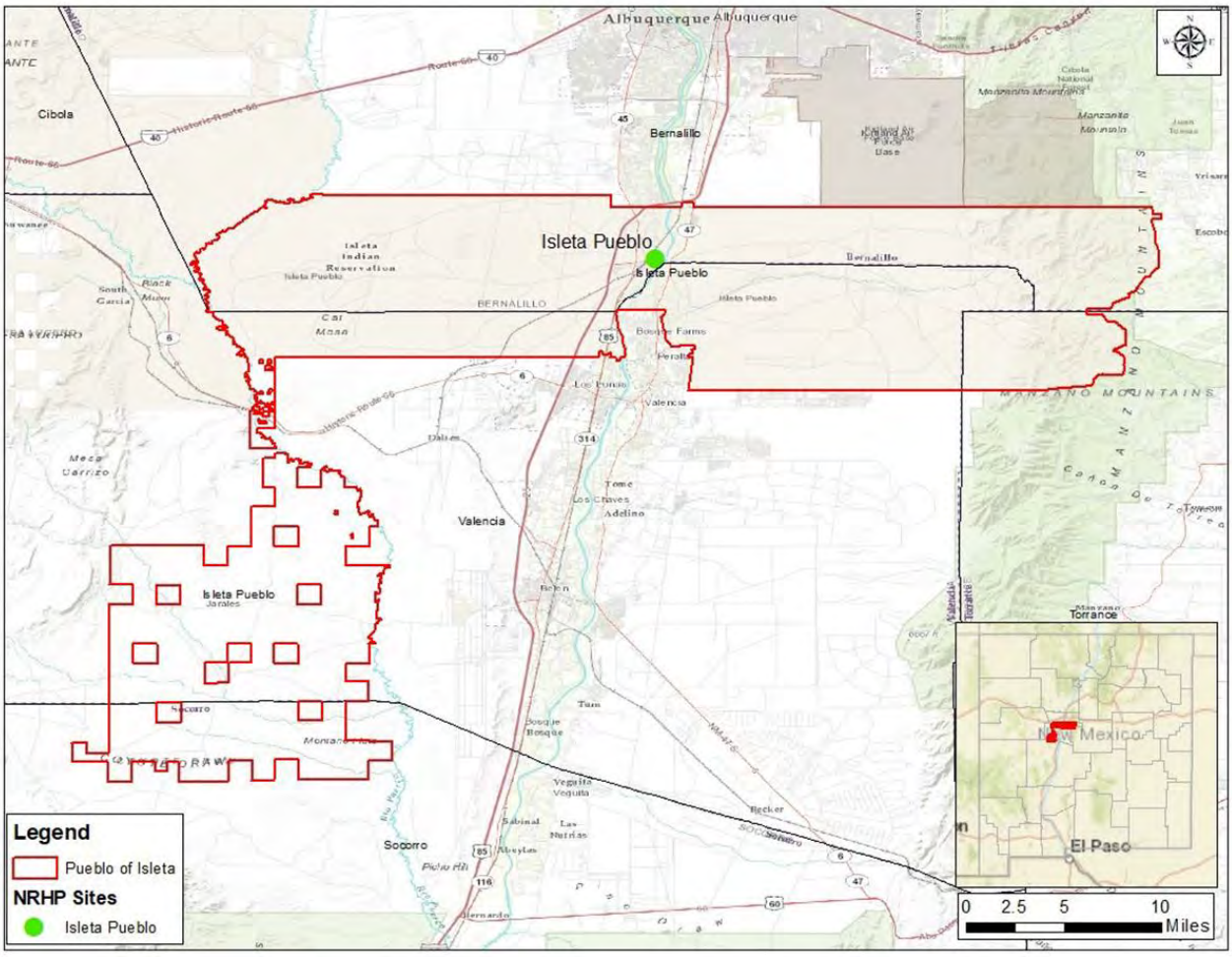

Figure 4-11 NRHP Sites
Source: Wikipedia.org: NRHP Sites

4.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.11.1 Affected Environment

Demographics

The project area is located in four counties within the Pueblo of Isleta Indian Reservation: Bernalillo, Socorro, Torrance, and Valencia. The four- county demographics was obtained from the U.S. Census Bureau, Quickfacts, 2020.

Table 4-5 Bernalillo County Demographics

Population	Bernalillo County	New Mexico
Population estimates, July 1, 2019, (V2019)	679,121	2,096,829
Population estimates base, April 1, 2010, (V2019)	662,477	2,059,199
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, V2019)	2.5%	1.8%
Population, Census, April 1, 2010	662,564	2,059,179
Age and Sex		
Persons under 5 years, percent	5.6%	5.9%
Persons under 18 years, percent	21.7%	23.0%
Persons 65 years and over, percent	16.4%	17.5%
Female persons, percent	50.9%	50.5%
Race and Hispanic Origin		

White alone, percent	84.2%	82.0%
Black or African American alone, percent(a)	3.4%	2.6%
American Indian and Alaska Native alone, percent(a)	6.2%	10.9%
Asian alone, percent(a)	2.9%	1.8%
Native Hawaiian and Other Pacific Islander alone, percent(a)	0.1%	0.2%
Two or More Races, percent	3.1%	2.6%
Hispanic or Latino, percent(b)	50.3%	49.1%
White alone, not Hispanic or Latino, percent	38.5%	37.1%
Education		
High school graduate or higher, percent of persons age 25 years+, 2014-2018	88.8%	85.3%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	33.9%	27.1%
Economy		
In civilian labor force, total, percent of population age 16 years+, 2014-2018	61.9%	57.4%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	58.1%	53.8%
Total accommodation and food services sales, 2012 ($1,000)(c)	1,702,579	4,349,672
Total health care and social assistance receipts/revenue, 2012 ($1,000)(c)	5,278,013	11,236,630
Total manufacturers shipments, 2012 ($1,000)(c)	D	29,102,352
Total merchant wholesaler sales, 2012 ($1,000)(c)	5,620,829	10,720,363
Total retail sales, 2012 ($1,000)(c)	9,548,159	25,179,274
Total retail sales per capita, 2012(c)	$14,178	$12,073
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	$51,643	$48,059
Per capita income in past 12 months (in 2018 dollars), 2014-2018	$29,415	$26,085
Persons in poverty, percent	16.5%	19.5%

Source: U.S. Census Bureau, https://www.census.gov/quickfacts/fact/table/cibolacountynewmexico/PST045219

Table 4-6 Socorro County Demographics

Population	Socorro County	New Mexico
Population estimates, July 1, 2019, (V2019)	8,348	2,096,829
Population estimates base, April 1, 2010, (V2019)	9,049	2,059,199
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	-7.7%	1.8%
Population, Census, April 1, 2010	9,051	2,059,179
Age and Sex		
Persons under 5 years, percent	4.6%	5.9%
Persons under 18 years, percent	21.2%	23.0%
Persons 65 years and over, percent	17.1%	17.5%
Female persons, percent	48.8%	50.5%
Race and Hispanic Origin		
White alone, percent	81.9%	82.0%
Black or African American alone, percent(a)	0.7%	2.6%
American Indian and Alaska Native alone, percent(a)	6.1%	10.9%
Asian alone, percent(a)	4.9%	1.8%
Native Hawaiian and Other Pacific Islander alone, percent(a)	0.0%	0.2%
Two or More Races, percent	1.7%	2.6%
Hispanic or Latino, percent(b)	54.4%	49.1%
White alone, not Hispanic or Latino, percent	33.2%	37.1%
Education		
High school graduate or higher, percent of persons age 25 years+, 2014-2018	80.8%	85.3%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	25.1%	27.1%
Economy		
In civilian labor force, total, percent of population age 16 years+, 2014-2018	45.7%	57.4%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	44.2%	53.8%
Total accommodation and food services sales, 2012 ($1,000)(c)	23,407	4,349,672
Total health care and social assistance receipts/revenue, 2012 ($1,000)(c)	D	11,236,630

Total manufacturers shipments, 2012 ($1,000)(c)	D	29,102,352
Total merchant wholesaler sales, 2012 ($1,000)(c)	D	10,720,363
Total retail sales, 2012 ($1,000)(c)	95,452	25,179,274
Total retail sales per capita, 2012(c)	$10,718	$12,073
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	$35,108	$48,059
Per capita income in past 12 months (in 2018 dollars), 2014-2018	$17,625	$26,085
Persons in poverty, percent	32.2%	19.5%

Source: https://www.census.gov/quickfacts/fact/table/cibolacountynewmexico/PST045219

Table 4-7 Torrance County Demographics

Population	Torrance County	New Mexico
Population estimates, July 1, 2019, (V2019)	15,461	2,096,829
Population estimates base, April 1, 2010, (V2019)	16,380	2,059,199
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	-5.6%	1.8%
Population, Census, April 1, 2010	16,383	2,059,179
Age and Sex		
Persons under 5 years, percent	5.2%	5.9%
Persons under 18 years, percent	20.2%	23.0%
Persons 65 years and over, percent	21.5%	17.5%
Female persons, percent	47.4%	50.5%
Race and Hispanic Origin		
White alone, percent	89.8%	82.0%
Black or African American alone, percent(a)	2.2%	2.6%
American Indian and Alaska Native alone, percent(a)	4.2%	10.9%
Asian alone, percent(a)	0.6%	1.8%
Native Hawaiian and Other Pacific Islander alone, percent(a)	0.3%	0.2%
Two or More Races, percent	2.9%	2.6%
Hispanic or Latino, percent(b)	43.8%	49.1%
White alone, not Hispanic or Latino, percent	50.3%	37.1%
Education		
High school graduate or higher, percent of persons age 25 years+, 2014-2018	85.8%	85.3%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	15.6%	27.1%
Economy		
In civilian labor force, total, percent of population age 16 years+, 2014-2018	47.2%	57.4%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	43.0%	53.8%
Total accommodation and food services sales, 2012 ($1,000)(c)	D	4,349,672
Total health care and social assistance receipts/revenue, 2012 ($1,000)(c)	10,004	11,236,630
Total manufacturers shipments, 2012 ($1,000)(c)	D	29,102,352
Total merchant wholesaler sales, 2012 ($1,000)(c)	D	10,720,363
Total retail sales, 2012 ($1,000)(c)	154,041	25,179,274
Total retail sales per capita, 2012(c)	$9,615	$12,073
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	$37,218	$48,059
Per capita income in past 12 months (in 2018 dollars), 2014-2018	$20,072	$26,085
Persons in poverty, percent	25.2%	19.5%

Source: https://www.census.gov/quickfacts/fact/table/sandovalcountynewmexico/PST045219

Table 4-8 Valencia County Demographics

Population	Valencia County	New Mexico
Population estimates, July 1, 2019, (V2019)	76,688	2,096,829
Population estimates base, April 1, 2010, (V2019)	76,585	2,059,199
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	0.1%	1.8%
Population, Census, April 1, 2010	76,569	2,059,179

Age and Sex		
Persons under 5 years, percent	5.7%	5.9%
Persons under 18 years, percent	23.4%	23.0%
Persons 65 years and over, percent	17.7%	17.5%
Female persons, percent	49.8%	50.5%
Race and Hispanic Origin		
White alone, percent	88.8%	82.0%
Black or African American alone, percent(a)	1.6%	2.6%
American Indian and Alaska Native alone, percent(a)	6.2%	10.9%
Asian alone, percent(a)	0.8%	1.8%
Native Hawaiian and Other Pacific Islander alone, percent(a)	0.2%	0.2%
Two or More Races, percent	2.4%	2.6%
Hispanic or Latino, percent(b)	61.0%	49.1%
White alone, not Hispanic or Latino, percent	32.3%	37.1%
Education		
High school graduate or higher, percent of persons age 25 years+, 2014-2018	83.0%	85.3%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	17.1%	27.1%
Economy		
In civilian labor force, total, percent of population age 16 years+, 2014-2018	52.7%	57.4%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	49.2%	53.8%
Total accommodation and food services sales, 2012 ($1,000)(c)	D	4,349,672
Total health care and social assistance receipts/revenue, 2012 ($1,000)(c)	117,544	11,236,630
Total manufacturers shipments, 2012 ($1,000)(c)	D	29,102,352
Total merchant wholesaler sales, 2012 ($1,000)(c)	D	10,720,363
Total retail sales, 2012 ($1,000)(c)	601,288	25,179,274
Total retail sales per capita, 2012(c)	$7,847	$12,073
Income & Poverty		
Median household income (in 2018 dollars), 2014-2018	$45,084	$48,059
Per capita income in past 12 months (in 2018 dollars), 2014-2018	$21,934	$26,085
Persons in poverty, percent	17.3%	19.5%

Source: https://www.census.gov/quickfacts/fact/table/valenciacountynewmexico/PST045219

Value Notes

Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

Some estimates presented here come from sample data, and thus have sampling errors that may rendersome apparent differences between geographies statistically indistinguishable. Click the Quick icon to the left of each row in TABLE view to learn about sampling error.

The vintage year (e.g., V2019) refers to the final year of the series (2010 thru 2019). Different vintage years ofestimates are not comparable.

Fact Notes

- (a)Includes persons reporting only one race
- (b)Hispanics may be of any race, so also are included in applicable race categories
- (c)Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data

Value Flags

- Either no or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest or upper interval of an open ended distribution.

- DSuppressed to avoid disclosure of confidential information
- FFewer than 25 firms
- FNFootnote on this item in place of data
- NData for this geographic area cannot be displayed because the number of sample cases is toosmall.
- NANot available
- SSuppressed; does not meet publication standards
- XNot applicable
- ZValue greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and Poverty Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

Environmental Justice

CEQ's Environmental Justice Guidance indicates that minority populations should be identified in a NEPA document where either (a) the minority population of an affected area exceeds 50% of the total population, or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In this analysis, the minority population in the State of New Mexico is used as a basis for comparison; and "meaningfully greater" is defined as a difference of more than 10 percentage points from that found in the State of New Mexico.

Minority Populations and Median Household Income

Executive Order 12898 requires each federal agency to identify and address, as appropriate, the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Minority populations and median household income are shown in Table 3-8.

In 2000, the state of New Mexico was officially designated a "minority majority" state, that is, a state in which the number of "minorities" (Hispanics, Native Americans, Asians, and African Americans) exceeds the number of non-Hispanic Whites. Based on this data, each county had minority populations below the New Mexico state average of 62.7 percent.

Median household income in New Mexico is $48,059. Males in New Mexico have an average income that is 1.3 times higher than the average income of females. The income inequality in New Mexico (measured using the Gini index) is 0.465, which is lower than the national average.

Income and Poverty

Income and Poverty

Table 4-5 through Table 4-8 also provide a summary of the poverty data, including the percentage of families and individuals living below the poverty level, in the four counties. The percentage of persons in poverty for the counties and the state of New Mexico are not over 10% difference.

- Bernalillo County has a lower percentage, 16.5%, in persons in poverty than the state of New Mexico at 19.5%. The median household income is higher in this county ($51,643) than the state of New Mexico ($48,059). In all of the other three counties, the median household income is lower than the state of New Mexico.
- Socorro County has a much higher percentage, 32.2%in persons in poverty than the state of New Mexico at 19.5%.
- Torrance County has a higher percentage, 25.2% in persons in poverty than the state of New Mexico at 19.5%.
- Valencia County has a lower percentage, 17.3%, in persons in poverty than the state of New Mexico, 19.5%.3.9.2 Environmental Consequences

4.11.1.1 Proposed Action

Socioeconomics and Environmental Justice

Under the Proposed Action, BIA staff or contractors and tribal members would conduct wildfire response and hazardous fuels treatment activities, which would result in economic opportunity by providing employment to complete vegetation management activities. However, this benefit in employment would have a small effect on the local population and it would not create a large demand for public or private services. Therefore, beneficial impacts to social and economic values would be minimal.

Reduction in fuel loading would help protect infrastructure from the adverse economic effects caused by wildfire. This added protection would provide minor, localized, beneficial effects.

Federally recognized Indian tribes have unique social and cultural settings and values. They may be affected by direct disturbance of locations or landscapes associated with traditional beliefs, sacred sites, resource gathering areas, hunting, and fishing areas, water sources, ancestral sites, human remains, trails, and trust or treaty assets. It is recommended that any potential impacts on the existing landscape or interference with tribal activities currently occurring would be known in advance and adequately addressed, if and where appropriate, to avoid any adverse impacts from smoke, noise, use of herbicides, and other related activities that are part of the fuel reduction treatments.

4.11.1.2 No Action Alternative

Under the No Action Alternative, the proposed WFMP would not be implemented, and economic conditions would reasonably be expected to continue at the baseline level. There would be no short-term economic consequences because of continuing current management. However, long-term effects would include continued potential for wildfire in the treatment units.

In the event of a wildfire, economic losses would occur, including those related to property and asset damage caused by the fire. Tourism and activities related to visitation near the project area could be affected during the fire if access is restricted or if smoke obscures views or makes visitors uncomfortable.

Fire suppression costs would be higher under the No Action Alternative because the BIA would not reduce fuel loads. Therefore, this alternative would cause the potential for increased fire suppression costs because of higher severity fires and limited safe access to areas.

4.12 VISUAL AESTHETICS

A visual resource is usually defined as an area of unique beauty that is a result of the combined characteristics of the natural aspects of land and human aspects of land use. Wild and scenic rivers, unique topography, and geologic landforms are examples of the natural aspects of land. Examples of human aspects of land use include scenic highways and historic districts. The assessment of visual and aesthetic value involves a characterization of existing resources in the study area. Changes in visual character are influenced by social considerations, including public value placed on the resource, public awareness of the area, and general community concern for visual resources in the area. Visual resources can be regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable or protect specially designated or visually sensitive areas.

4.12.1 Affected Environment

Section 101(b) of NEPA requires that measures be taken to ensure that aesthetically pleasing surroundings be retained for all Americans. The Pueblo of Isleta is nestled in the scenic Rio Grande Valley, 15 miles south of Albuquerque on Interstate 25, Exit 215. It is one of the larger 19 Pueblos within New Mexico and was established in the 1300's. The Pueblo of Isleta Indian Reservation covers an area of more than 329 square miles, surrounded by the Manzano Mountains to the east and to the desert mesa lands of the Rio Puerco on the west. The name Isleta comes from the Spanish language which means "Little Island." The reservation has a lot of history and culture that adds to the aesthetics of the area (Pueblo of Isleta website, 2020).

The visual aesthetics of the reservation is primarily due to the unique topography, geological landforms, scenic views, and the natural aspects of the vegetation. The culture within the reservation is also historically unique and aesthetic. One of the primary attractions of New Mexico is its large and diverse collection of Native American pueblos, reservations, artwork, and people.

4.12.2 Environmental Consequences

4.12.2.1 Proposed Action

The Proposed Action would temporarily affect the visual quality of the area due to smoke during wildfire response and prescribed burning activities. However, in the long term, the reduction of hazardous fuels would be a beneficial impact and tourists visiting the highly scenic historic areas. This added protection would provide localized, beneficial effects.

Potential impacts on local visual resources could include negligible to minor landscape and viewshed modification, scarred terrain, and a change in vegetation pattern, texture, and color in the short-term (treatment period). Increased fugitive dust emissions and noise (from treatment activities and increased worker traffic) also would contribute to potential minor effects on visual quality in the area. The BIA would continue to preserve Native American cultural and sacred sites and Native American access to these sites whenever possible.

Long term beneficial visual impacts would occur under this Alternative because the Proposed Action would reduce the accumulation of hazardous fuels, thus preventing a wildfire.

4.12.2.2 No Action Alternative

Under the No Action alternative, the proposed WFMP would not be implemented. Visually, the area associated with the project would remain the same under the No Action Alternative. As a result, wildland fires would become more likely within the treatment units and the visual quality

would be affected from wildland fire. Since the BIA would not reduce fuel loads under this alternative, this may increase the likelihood of a fire spreading faster, potentially affecting the visual aesthetics of the local and perhaps also the regional environment.

4.13 HUMAN HEALTH AND SAFETY

4.13.1 Affected Environment

Wildfires have the potential to affect human health and safety, particularly during high-fire severity periods. Risks include that of inhalation as well as the possibility of obscuring visibility on nearby roads. In addition, wildfires which get out of control present risks from smoke, flames, and for firefighters, the possibility of injuries from use of equipment or from accidental spills of flame-retardants.

The BIA is proposing to use herbicides in the treatment units for managing non-native and invasive species. Health and safety warnings for use of this herbicide, including precautionary statements, are included on the product labels.

Herbicide use will be determined on a project basis and will strictly adhere to EPA label directions. Under no circumstances will Garlon 4 Ultra be used in riparian areas. The Pueblo of Isleta approves the use of Garlon® 3A in riparian areas in a manner that does not impact non-target species and does not degrade water quality of the Pueblo's water resources.

4.13.2 Environmental Consequences

4.13.2.1 Proposed Action

The primary goal of the Proposed Action is to effectively reduce the potential of wildfire and protect life and property. Therefore, implementation of this alternative would result in long-term, minor to moderate, beneficial effects to employees, visitors, firefighters, neighbors, and nearby communities. By reducing the potential for wildfire, associated potential loss of life and property and exposure to the dangers of fire would be decreased.

Conducting wildfire response and hazardous fuels reduction projects could cause safety concerns due to exposure of workers to potentially dangerous equipment. Mowing non-native and invasive species is expected to have a minor impact on human health and safety. Individuals who engage in mechanical control activities face risks that are similar to those encountered when people are involved in strenuous outdoor activities. Risks include dehydration, fatigue, heat exhaustion, or heat stroke. In addition, falls or other accidents are possible. Other potential hazards related to manual operations include eye irritation or damage from flying debris and bodily injuries from hand tools. However, diligent training of work crews and use of Personal Protective Equipment (PPE) would reduce the level of risk. Therefore, any short-term, negative effects of mechanical treatments would be negligible.

There can be a negative effect on human health from herbicide use through improper application, mixing, or contamination of a water source. However, as described in the Proposed Action, the BIA would strictly follow herbicide-labeling instructions, so the herbicide applicators should be at minimum risk.

All workers applying herbicides under the Proposed Action would be licensed or supervised by licensed applicators. Research shows that PPE such as long-sleeve shirts, long pants, chemical-resistant gloves made out of waterproof material, and shoes plus socks can substantially reduce dermal exposure.

4.13.2.2 No Action Alternative

Under the No Action Alternative, the proposed WFMP would not be implemented and there would be the continued accumulation of fuels in the proposed treatment areas. Therefore, the risk of exposure to wildfire in these areas would increase. Small fires, as well as suppression efforts, would pose little threat to the public and a minor threat to firefighters. However, a spread of fire or larger fires would result in increased risk to health and safety.

Factors most likely to negatively affect firefighter health and safety under the No Action Alternative include activities associated with wildland fire suppression efforts (such as accidental spills), injuries from the use of fire-fighting equipment, smoke inhalation, and in severe cases, injuries from wildland fires. Impacts to the public could include smoke inhalation and injuries from fire.

Smoke inhalation could create human health and safety hazards. Smoke from wildland fires is composed of hundreds of chemicals in gaseous, liquid, and solid forms. The chief inhalation hazards appear to be carbon monoxide (CO), aldehydes, particulate matter (PM2.5), and total suspended particulate (TSP). Negative health effects of smoke exposure begin with acute, instantaneous eye and respiratory irritation and shortness of breath, but can develop into headaches, dizziness, and nausea lasting up to several hours.

Overall, the risks to public health and safety from wildfires could include loss of life and property, injury, and health effects caused by exposure to smoke emissions. These risks represent a moderate to severe, short- to long-term effect. Human safety is the first priority during a wildfire, and evacuation of the area would occur if a wildfire threatened occupied structures.

4.14 **OUTDOOR RECREATION**

Outdoor recreation or outdoor activity refers to leisure pursuits engaged in the outdoors, often in natural or semi-natural settings. Examples of outdoor recreation include backpacking, cycling, camping, hunting, photography, running, and guided hikes.

4.14.1 Affected Environment

Hiking, biking, wildlife viewing, fishing, skiing, horseback riding, hunting, canoeing, and other outdoor activities that can be experienced in almost any part of New Mexico. Central New Mexico offers miles and miles of bird watching sites, learning opportunities, and beautiful night skies. The Corrales Road Scenic Byway includes 400 acres of Bosque views along ten miles of the river that provide habitat for over 180 species of migrating and nesting birds. The outdoor recreational opportunities near and within the reservation are many. National Wildlife Refuges, conservation areas, monuments, and historic infrastructure are visible all over the area.

Within travel distances in northwestern New Mexico, the following outdoor recreational sites can be easily accessed:

- Federal Sites: Angel Peak; Aztec Ruins; Chaco Canyon; El Malpais; and El Morro;
- State Parks: Bluewater lake; El Vado Lake; Heron Lake; Navajo Lake; and Red Rocks;
- Other Points of Interest: Bisti Badlands; Cabezon Peak/Puerco Necks; Cerro Pedernal; Ghost Ranch; Mt. Taylor; San Ysidro; Shiprock, and Red Rocks.

Other recreational opportunities in close proximity include the Isleta Resort & Casino, the Isleta Lakes and RV Park, and the Isleta Golf Course, which is nestled at the edge of the spectacular Bosque along the riverbanks of the Rio Grande.

4.14.2 Environmental Consequences

4.14.2.1 Proposed Action

The Proposed Action would temporarily affect the visual quality of the area due to smoke during the burning activities. However, in the long term, the reduction of hazardous fuels would be a beneficial impact to recreationists. This added protection of hazardous fuels reduction would provide moderate, localized, beneficial effects.

4.14.2.2 No Action Alternative

Under the No Action alternative, the proposed WFMP would not be implemented. Outdoor recreation areas and activities would remain the same under the No Action Alternative. Under this No Action alternative, wildland fires would become more likely within the treatment units and outdoor recreation would be affected from wildland fire. Since the BIA would not reduce fuel loads under this alternative, this may increase the likelihood of a fire spreading faster, potentially affecting local outdoor recreation activities and perhaps also the regional outdoor recreation environment; these impacts would be considered moderate to severe, short to long term impacts.

5 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

5.1 INTRODUCTION

Environmental consequences of the Proposed Action were evaluated individually in Chapter 3 for the various environmental resources. Based on the preceding analysis in Chapter 3, the Proposed Action would have minimal, temporary, or no impacts to the following resources and would therefore not have long-term impacts: topography, land use, air quality and climate, geology and soils, water quality, visual aesthetics, outdoor recreation, and human health and safety. These resources are not discussed further.

Past actions have been associated primarily with forest and fire management activities, livestock grazing, agriculture, dispersed recreation, and wildland fires. The following analysis identifies other past, present, or reasonably foreseeable future actions (RFFAs) that, together with the proposed project, may incrementally affect the resource.

The RFFAs within the project area include any treatments that may occur on adjacent private or other Tribal lands. There are formal project plans being developed for hazardous fuel reduction activities. These proposals will be analyzed individually. All future projects proposed would be analyzed in separate site-specific environmental analyses (a Categorical Exclusion or an EA/EIS, as appropriate) or tiered from this EA if the proposed action is related to hazardous fuel reduction activities.

5.2 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS THAT COULD IMPACT RESOURCES

5.2.1 Proposed Action

Special Status Species, Wildlife and Migratory Birds

Past and Present Actions: Past activities/events which may have affected wildlife, special status species, and migratory birds include fence construction, range improvements, off highway vehicles (OHV) use, Right of Way (ROW) construction and maintenance, wildfire, and livestock grazing. Past impacts from these activities are considered minor to moderate and will be mitigated according to BIA's standard best management practices, which include avoidance, walk-through surveys, and conducting treatments outside of the nesting season.

RFFAs: Potential impacts on wildlife, special status species, and migratory birds from fence construction, OHV use, ROW construction and maintenance, wildfire; and livestock grazing are considered minor to moderate and will be mitigated according to BIA's standard best management practices, which include avoidance, walk-through surveys, and conducting treatments outside of the nesting season.

Proposed Action: The Proposed Action may result in short term localized impacts to wildlife, special status species, and migratory birds. The Proposed Action would minimize the potential of a catastrophic fire occurrence and therefore, will improve overall wildlife habitat within the Project Area. Implementing the Proposed Action combined with past, present, and reasonably foreseeable actions is not expected to have any adverse effects on wildlife, special status species, and migratory birds in the Project Area.

Cultural Resources

Past and Present Actions: Past activities/events which may have affected cultural resources in the area include fence construction, OHV use and trail system; dispersed recreation; wildlife; ROW construction and maintenance; and livestock grazing. These events/activities are usually short-term in duration.

RFFAs: Potential impacts on cultural resources as a result of fence construction; OHV use, and trail system; dispersed recreation; wildlife; ROW construction and maintenance; and livestock grazing are expected to continue.

Proposed Action: Implementing the Proposed Action combined with past, present, and reasonably foreseeable actions would have low incremental impacts to cultural resources. However, cultural resources would be more vulnerable to damage a catastrophic wildfire should occur.

Socioeconomics and Environmental Justice

Past and Present Actions: Past activities/events which may have affected social and economic values are wildland fire. Impacts from wildland fire are considered adverse and short term.

RFFAs: Potential impacts on social and economic values from wildland fires are considered moderate and are expected to continue.

Proposed Action: Impacts to social and economic values would be negligible to minimal. The Project Area would experience long term, negligible economic effects under implementation of the Proposed Action. However, reduction in fuel loading within the Project Area would help protect infrastructure from the adverse economic effects caused by wildland fire. This added protection would provide negligible and localized minor effects.

Therefore, implementing the Proposed Action combined with past, present, and reasonably foreseeable future actions would not have any adverse effects on social and economic values within the Project Area and no effects on minority populations.

Soils

Past and Present Actions: Past activities/events which may have affected soils include fence construction; OHV use; wildlfire; ROW construction and maintenance; wildland fire; livestock grazing; and fuel reduction treatments.

RFFAs: Potential impacts on soils from fence construction; OHV use; wildlfire; ROW construction and maintenance; wildland fire; livestock grazing; and fuel reduction treatments are considered minimal and are expected to continue.

Proposed Action: The Proposed Action would result in short term localized and soil compaction, but soil erosion rates are not expected to increase because the BIA would not completely remove the vegetative cover. Soil disturbance impacts are expected to be inconsequential and not long term. Therefore, implementing the Proposed Action combined with past, present, and reasonably foreseeable actions, would not have any adverse effects on soils.

Vegetation and Forestry

Past and Present Actions: Past activities/events which may have affected vegetation include fence construction, range improvements, OHV use, wildfire, ROW construction and maintenance, and livestock grazing. Habitat and vegetation improvement treatments and projects provide beneficial impacts to the vegetation and forestry of the Project Area.

RFFAs: Potential impacts on vegetation and forestry from fence construction, range improvements, OHV use, wildfire, ROW construction and maintenance, and livestock grazing are expected to continue.

Proposed Action: The Proposed Action would result in short term localized impacts to vegetation and forestry. Past impacts have resulted in a loss of vegetation from wildland and prescribed fires, range improvements, OHV use, livestock grazing, and construction and maintenance activities. These impacts were moderate cumulative impacts. The Proposed Action will result in short-term minor impacts; however, the Proposed Action will overall improve the vegetative communities for the long term. Therefore, implementing the Proposed Action combined with past, present, and reasonably foreseeable future actions would not have any adverse effects on vegetation and forestry.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Section 102(2)(C)(v) of NEPA requires Federal agencies to identify any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented. This could include the consumption of material resources, energy resources, and human resources.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the use of these resources would have on consumption or destruction of a resource that could not be replaced in a reasonable period of time.

The irreversible environmental changes that would result from implementation of the Proposed Action would involve the consumption of energy resources and human resources. The use of these resources is considered to be permanent.

Because there will be no construction of facilities, material resources would not be consumed. Use of any small number of materials, however, would not limit other unrelated construction activities, and therefore, would not be considered significant. There would be no cumulative impacts from the Proposed Action.

Energy resources would be irretrievably lost. These include petroleum-based products such as gasoline and diesel fuel. Gasoline and diesel fuel would be used for operation of the ATVs, tractors, and mowers used for transportation, hauling, mowing, and other for personnel vehicles. Equipment for the development of fuel breaks would be gas or diesel fueled. Consumption of energy resources would not place a significant demand on their availability in the state of New Mexico. Therefore, no significant impacts would be expected and there would be no impacts from the Proposed Action.

The use of human resources (Tribal staff, BIA employees and/or contractors) for development of the various fuel reduction projects described as the Proposed Action is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities and is considered beneficial. Therefore, no detrimental significant impacts would be expected and there would be no impacts from the Proposed Action.

APPENDICES

Appendix A: Consultation & Coordination Letters

List of Contributors

Bureau of Indian Affairs

Béla Harrington, Fire Management Officer, Southern Pueblos Agency

Anthony Thompson, Supervisory Fire Management Specialist, Southern Pueblos Agency

Brandon Habaadih, Forester, Southern Pueblos Agency

Lawrence Abeita, Wildlife Biologist, Southern Pueblos Agency

Michelle Dela Cruz, Environmental Specialist, Southwestern Regional Office

Pueblo of Isleta

Blane Sanchez, Lt. Governor

Christopher Jiron, Contract and Grant Administration

Environmental Express Services, LLC

Gloria Hagge, Sr. Environmental Scientist / Project Manager

Ryan A. Hagge, GIS Specialist / Environmental Planner

Mark Merrill, Environmental Scientist

Ellen Stutsman, Quality Assurance

United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Southern Pueblos Agency
1001 Indian School Road NW
Albuquerque, New Mexico 87104

OFFICIAL FILE COPY		
Office	Surname	Date
Fire SOPT	Harrington	5-1-20
		5-1-20

In Reply Respond to:
M20440: Branch of Fire Management

MAY - 1 2020

Jeff Pappas, PhD
New Mexico Historic Preservation Division
Department of Cultural Affairs
Bataan Memorial Building,
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

SUBJECT: Environmental Assessment for the Proposed Implementation of the Wildland Management Plan for the Pueblo of Isleta, New Mexico by the BIA, Southern Pueblo Agency, Southwest Region

Dear Dr. Pappas,

The Department of Interior, Bureau of Indian Affairs (BIA) is in the process of preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act requirements, for the proposed implementation of the Wildland Fire Management Plan (WFMP) for the Pueblo of Isleta, New Mexico. The EA will provide an analysis of potential environmental effects to all natural and cultural resources, and will complete appropriate consultation under Section 106 of the National Historic Preservation Act (NHPA).

A detailed Description of the Proposed Action is attached to provide you with information about the WFMP for the Pueblo of Isleta. The purpose of the WFMP is to comply with the Indian Affairs Manual Part 90 and the Federal Fire Policy which require a WFMP for all areas with burnable vegetation. The WFMP defines and documents an organization's program to manage wildland fire. The WFMP has been written to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo of Acoma.

We are in the data-gathering process for the preparation of the EA. We would appreciate any cultural/historical resource information you may have for the proposed Planning Area (shown in Figure 1-1 of the attachment), especially the presence of any historic, prehistoric, or sensitive areas within the Planning Area. In addition, if you have any comments or questions concerning potential environmental impacts, please provide your comments to me within 30 days of receipt of this letter. If you have any questions, please email me at Bela.Harrington@bia.gov.

Thank you for your cooperation and interest in this matter.

Sincerely,

/s/John E. Antonio, Sr.

John E. Antonio Sr.
Superintendent

Enclosure: Description of the Proposed Action

CIAL FILE COPY		
	Surname	Date
Fire	Harrington	5.1.20
SUPT		5.1.20

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Southern Pueblos Agency
1001 Indian School Road NW
Albuquerque, New Mexico 87104

In Reply Respond to:
M20440: Branch of Fire Management

MAY - 1 2020

Dr. Henry Walt
Isleta Pueblo Tribal Historic Preservation Office
P.O. Box 1270
Isleta Pueblo, NM 87022

SUBJECT: Environmental Assessment for the Proposed Implementation of the Wildland Management Plan for the Pueblo of Isleta, New Mexico by the BIA, Southern Pueblo Agency, Southwest Region

Dear Dr. Walt,

The Department of Interior, Bureau of Indian Affairs (BIA) is in the process of preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act requirements, for the proposed implementation of the Wildland Fire Management Plan (WFMP) for the Pueblo of Isleta, New Mexico. The EA will provide an analysis of potential environmental effects to all natural and cultural resources, and will complete appropriate consultation under Section 106 of the National Historic Preservation Act (NHPA) and Section 7 of the Endangered Species Act.

A detailed Description of the Proposed Action is attached to provide you with information about the WFMP for the Pueblo of Isleta. The purpose of the WFMP is to comply with the Indian Affairs Manual Part 90 and the Federal Fire Policy which require a WFMP for all areas with burnable vegetation. The WFMP defines and documents an organization's program to manage wildland fire. The WFMP has been written to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo of Isleta.

We are in the data-gathering process for the preparation of the EA. We would appreciate any cultural/historical resource information you may have for the proposed Planning Area (shown in Figure 1-1 of the attachment), especially the presence of any historic, prehistoric, or sensitive areas within the Planning Area. In addition, if you have any comments or questions concerning potential environmental impacts, please provide your comments to me within 30 days of receipt of this letter. If you have any questions, please email me at Bela.Harrington@bia.gov.

Please accept this letter to initiate a government-to-government relationship in order to discuss the proposed activities, address any concerns you might have regarding this project, and understand any potential effect upon your tribe's natural or cultural resources.

Thank you for your cooperation and interest in this matter.

Sincerely,

/s/John E. Antonio, Sr.

John E. Antonio Sr.
Superintendent

Enclosure: Description of the Proposed Action

OFFICIAL FILE COPY		
Office	Surname	Date
Fire	Harrington	5-1-20
Supt	[illegible]	5-1-20

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Southern Pueblos Agency
1001 Indian School Road NW
Albuquerque, New Mexico 87104

In Reply Respond to:
M20440: Branch of Fire Management

MAY - 1 2020

Honorable Governor Max A. Zuni
Pueblo of Isleta
P.O. Box 1270
Isleta Pueblo, NM 87022

SUBJECT: Environmental Assessment for the Proposed Implementation of the Wildland Management Plan for the Pueblo of Isleta, New Mexico by the BIA, Southern Pueblo Agency, Southwest Region

Dear Governor Zuni,

The Department of Interior, Bureau of Indian Affairs (BIA) is in the process of preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act requirements, for the proposed implementation of the Wildland Fire Management Plan (WFMP) for the Pueblo of Isleta, New Mexico. The EA will provide an analysis of potential environmental effects to all natural and cultural resources, and will complete appropriate consultation under Section 106 of the National Historic Preservation Act (NHPA) and Section 7 of the Endangered Species Act.

A detailed Description of the Proposed Action is attached to provide you with information about the WFMP for the Pueblo of Isleta. The purpose of the WFMP is to comply with the Indian Affairs Manual Part 90 and the Federal Fire Policy which require a WFMP for all areas with burnable vegetation. The WFMP defines and documents an organization's program to manage wildland fire. The WFMP has been written to comply with national policy and direction, to incorporate guidance, direction, and activities required by Federal Fire Policy, and to meet the goals and objectives of the Pueblo of Isleta.

We are in the data-gathering process for the preparation of the EA. We would appreciate any cultural/historical resource information you may have for the proposed Planning Area (shown in Figure 1-1 of the attachment), especially the presence of any historic, prehistoric, or sensitive areas within the Planning Area. In addition, if you have any comments or questions concerning potential environmental impacts, please provide your comments to me within 30 days of receipt of this letter. If you have any questions, please email me at Bela.Harrington@bia.gov.

Please accept this letter to initiate a government-to-government relationship in order to discuss the proposed activities, address any concerns you might have regarding this project, and understand any potential effect upon your tribe's natural or cultural resources.

Thank you for your cooperation and interest in this matter.

Sincerely,

/s/John E. Antonio, Sr.
John E. Antonio Sr.
Superintendent

Enclosure: Description of the Proposed Action

Appendix B: U.S. Fish & Wildlife Service IPAC Trust Resources Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
Phone: (505) 346-2525 Fax: (505) 346-2542
http://www.fws.gov/southwest/es/NewMexico/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: June 10, 2021
Consultation Code: 02ENNM00-2021-SLI-1220
Event Code: 02ENNM00-2021-E-02855
Project Name: Environmental Assessment for the Implementation of the Wildfire Management Plan, Pueblo of Isleta

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design.

FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.

If you determine that your proposed action may affect federally-listed species, consultation with the Service will be necessary. Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at www.fws.gov/endangered/esa-library/index.html#consultations.

The scope of federally listed species compliance not only includes direct effects, but also any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects that may occur in the action area. The action area includes all areas to be affected, not merely the immediate area involved in the action. Large projects may have effects outside the immediate area to species not listed here that should be addressed. If your action area has suitable habitat for any of the attached species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts.

Candidate Species and Other Sensitive Species

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico state agencies. These lists, along with species information, can be found at the following websites:

Biota Information System of New Mexico (BISON-M): www.bison-m.org

New Mexico State Forestry. The New Mexico Endangered Plant Program: www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: nmrareplants.unm.edu

Natural Heritage New Mexico, online species database: nhnm.unm.edu

WETLANDS AND FLOODPLAINS

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their

natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, www.fws.gov/wetlands/Data/Mapper.html integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

MIGRATORY BIRDS

The MBTA prohibits the taking of migratory birds, nests, and eggs, except as permitted by the Service's Migratory Bird Office. To minimize the likelihood of adverse impacts to migratory birds, we recommend construction activities occur outside the general bird nesting season from March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

We recommend review of Birds of Conservation Concern at website www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html to fully evaluate the effects to the birds at your site. This list identifies birds that are potentially threatened by disturbance and construction.

BALD AND GOLDEN EAGLES

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the ESA on August 9, 2007. Both the bald eagle and golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For information on bald and golden eagle management guidelines, we recommend you review information provided at www.fws.gov/midwest/eagle/guidelines/bgepa.html.

On our web site www.fws.gov/southwest/es/NewMexico/SBC_intro.cfm, we have included conservation measures that can minimize impacts to federally listed and other sensitive species. These include measures for communication towers, power line safety for raptors, road and highway improvements, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.

We also suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State fish, wildlife, and plants.

Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. For further consultation on your proposed activity, please call 505-346-2525 or email nmesfo@fws.gov and reference your Service Consultation Tracking

Number.

Attachment(s):

- Official Species List
- Migratory Birds

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Mexico Ecological Services Field Office
2105 Osuna Road Ne
Albuquerque, NM 87113-1001
(505) 346-2525

Project Summary

Consultation Code: 02ENNM00-2021-SLI-1220
Event Code: 02ENNM00-2021-E-02855
Project Name: Environmental Assessment for the Implementation of the Wildfire Management Plan, Pueblo of Isleta
Project Type: FIRE
Project Description: Pueblo of Isleta Wildfire Management Plan
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.8627412,-106.52170658029357,14z

Counties: New Mexico

Endangered Species Act Species

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
New Mexico Meadow Jumping Mouse *Zapus hudsonius luteus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7965	Endangered

Birds

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Northern Aplomado Falcon *Falco femoralis septentrionalis* Population: U.S.A (AZ, NM) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1923	Experimental Population, Non-Essential
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Amphibians

NAME	STATUS
Chiricahua Leopard Frog *Rana chiricahuensis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1516	Threatened

Fishes

NAME	STATUS
Rio Grande Silvery Minnow *Hybognathus amarus* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1391	Endangered

Snails

NAME	STATUS
Alamosa Springsnail *Tryonia alamosae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4371	Endangered
Chupadera Springsnail *Pyrgulopsis chupaderae* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6644	Endangered
Socorro Springsnail *Pyrgulopsis neomexicana* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2806	Endangered

Crustaceans

NAME	STATUS
Socorro Isopod *Thermosphaeroma thermophilus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2470	Endangered

Flowering Plants

NAME	STATUS
Pecos (=puzzle, =paradox) Sunflower *Helianthus paradoxus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/7211	Threatened
Wright's Marsh Thistle *Cirsium wrightii* Population: There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8963	Proposed Threatened

Critical habitats

There are 4 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Mexican Spotted Owl *Strix occidentalis lucida* https://ecos.fws.gov/ecp/species/8196#crithab	Final
Rio Grande Silvery Minnow *Hybognathus amarus* https://ecos.fws.gov/ecp/species/1391#crithab	Final
Southwestern Willow Flycatcher *Empidonax traillii extimus* https://ecos.fws.gov/ecp/species/6749#crithab	Final
Yellow-billed Cuckoo *Coccyzus americanus*	Final

NAME	STATUS

https://ecos.fws.gov/ecp/species/3911#crithab

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31

NAME	BREEDING SEASON
Brewer's Sparrow *Spizella breweri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Burrowing Owl *Athene cunicularia* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Chestnut-collared Longspur *Calcarius ornatus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Golden Eagle *Aquila chrysaetos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Grace's Warbler *Dendroica graciae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 20 to Jul 20
Gray Vireo *Vireo vicinior* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8680	Breeds May 10 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker *Melanerpes lewis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-billed Curlew *Numenius americanus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere

NAME	BREEDING SEASON
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay *Gymnorhinus cyanocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Virginia's Warbler *Vermivora virginiae* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Willow Flycatcher *Empidonax traillii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

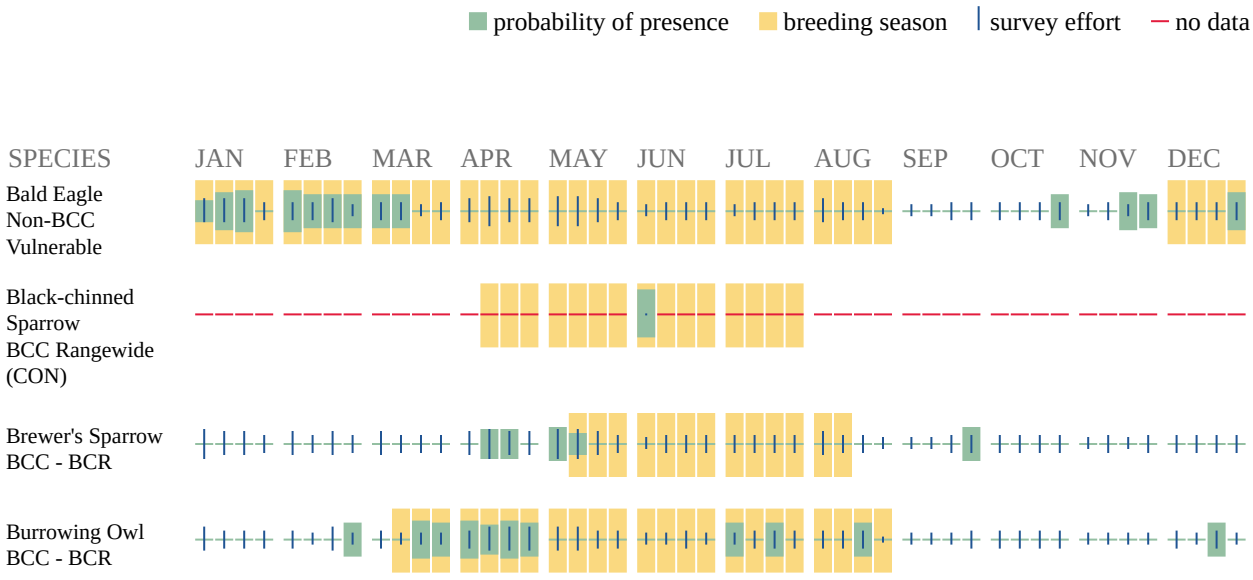
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

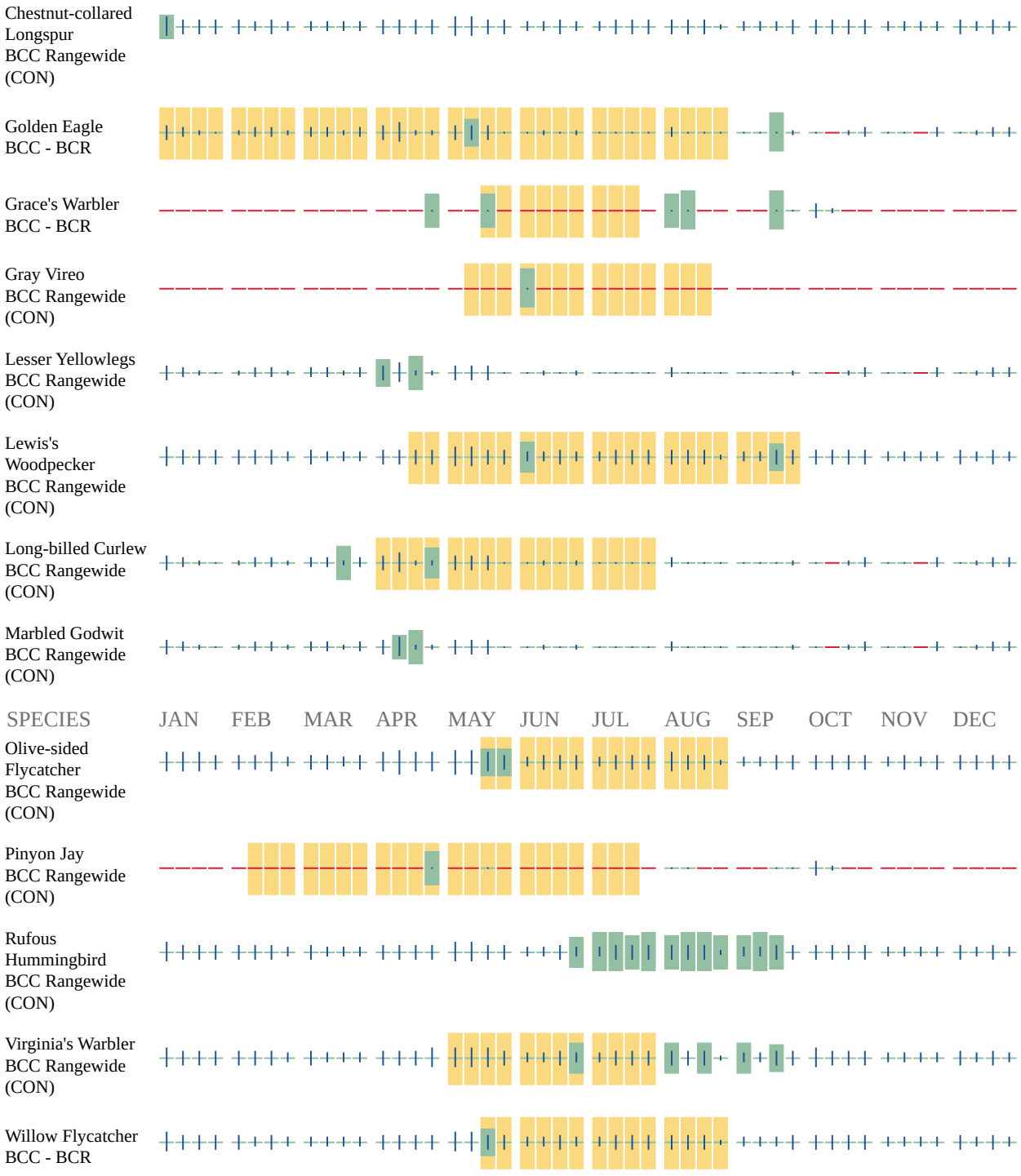
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Appendix C: National Register of Historic Properties (NRHP) for Cibola County, NM

WIKIPEDIA

National Register of Historic Places listings in Bernalillo County, New Mexico

This is a list of the **National Register of Historic Places listings in Bernalillo County, New Mexico**.

This is intended to be a complete list of the properties and districts on the National Register of Historic Places in Bernalillo County, New Mexico, United States. Latitude and longitude coordinates are provided for many National Register properties and districts; these locations may be seen together in a map.[1]

There are 153 properties and districts listed on the National Register in the county, including 1 National Historic Landmark. Another 4 properties were once listed but have been removed.

This National Park Service list is complete through NPS recent listings (https://www.nps.gov/subjects/nationalregister/weekly-list.htm) posted April 10, 2020.[2]

Location of Bernalillo County in New Mexico

Contents: NRHP in New Mexico by county

Bernalillo – Catron – Chaves – Cibola – Colfax – Curry – De Baca – Doña Ana – Eddy – Grant – Guadalupe – Harding – Hidalgo – Lea – Lincoln – Los Alamos – Luna – McKinley – Mora – Otero – Quay – Rio Arriba – Roosevelt – San Juan – San Miguel – Sandoval – Santa Fe – Sierra – Socorro – Taos – Torrance – Union – Valencia

Current listings

[3]	Name on the Register[4]	Image	Date listed[5]	Location	City or town	Description
1	Old Albuquerque Municipal Airport Building		May 5, 1989 (#89000348 (https://npgallery.nps.gov/AssetDetail/NRIS/89000348))	2920 Yale Boulevard, SE. 35°02′52″N 106°37′14″W	Albuquerque	
2	Albuquerque Veterans Administration Medical Center		August 19, 1983 (#83001614 (https://npgallery.nps.gov/AssetDetail/NRIS/83001614))	2100 Ridgecrest, SE. 35°03′18″N 106°35′02″W	Albuquerque	
3	Aldo Leopold Neighborhood Historic District		October 16, 2002 (#02001164 (https://npgallery.nps.gov/AssetDetail/NRIS/02001164))	105-135 14th St., SW. 35°05′15″N 106°39′45″W	Albuquerque	
4	Gavino Anaya House		February 9, 1984 (#84002840 (https://npgallery.nps.gov/AssetDetail/NRIS/84002840))	2939 Duranes Rd., NW. 35°06′32″N 106°40′57″W	Albuquerque	
5	Juan Cristobal Armijo Homestead		September 30, 1982 (#82003309 (https://npgallery.nps.gov/AssetDetail/NRIS/82003309))	207 Griegos Rd., NE. 35°07′42″N 106°37′59″W	Albuquerque	Hacienda hidden by shrubberies.
6	Salvador Armijo House		October 8, 1976 (#76001191 (https://npgallery.nps.gov/AssetDetail/NRIS/76001191))	618 Rio Grande Boulevard, NW. 35°05′58″N 106°40′10″W	Albuquerque	
7	Art Annex		September 22, 1988 (#88001540 (https://npgallery.nps.gov/AssetDetail/NRIS/88001540))	Northeastern corner of Central Ave. and Terrace St., University of New Mexico 35°04′53″N 106°37′27″W	Albuquerque	
8	AT & SF Freight Office		December 24, 2013 (#13000971 (https://npgallery.nps.gov/AssetDetail/NRIS/13000971))	314 1st St. 35°04′54″N 106°38′54″W	Albuquerque	Part of the Central Albuquerque MPS
9	Atchison, Topeka and Santa Fe Railway Locomotive Shops		October 15, 2014 (#14000859 (https://npgallery.nps.gov/AssetDetail/NRIS/14000859))	Roughly bounded by BNSF RR, 1st & 2nd Sts. 35°04′33″N 106°39′01″W	Albuquerque	
10	ATSF Locomotive No. 2926		October 1, 2007 (#07000388 (https://npgallery.nps.gov/AssetDetail/NRIS/07000388))	1600 12th St., NW. 35°06′11″N 106°39′15″W	Albuquerque	
11	Aztec Auto		November 22, 1993	3821 Central	Albuquerque	Demolished

	Court		(#93001217 (https://npgallery.nps.gov/AssetDetail/NRIS/93001217))	Ave., NE. 35°04′46″N 106°36′03″W		in 2011
12	Adrian Barela House		February 9, 1984 (#84002843 (https://npgallery.nps.gov/AssetDetail/NRIS/84002843))	7618 Guadalupe Trail, NW. 35°10′14″N 106°38′22″W	Albuquerque	
13	Barela-Bledsoe House		March 12, 1979 (#79001534 (https://npgallery.nps.gov/AssetDetail/NRIS/79001534))	7017 Edith Boulevard, NE. 35°09′32″N 106°37′14″W	Albuquerque	
14	Barelas-South Fourth Street Historic District		July 24, 1997 (#97000774 (https://npgallery.nps.gov/AssetDetail/NRIS/97000774))	4th St. from Stover Ave. to Bridge St. 35°04′26″N 106°39′10″W	Albuquerque	
15	Charles A. Bottger House		March 7, 1983 (#83001615 (https://npgallery.nps.gov/AssetDetail/NRIS/83001615))	110 San Felipe, NW. 35°05′41″N 106°40′08″W	Albuquerque	
16	Building at 701 Roma NW		February 28, 1985 (#85000375 (https://npgallery.nps.gov/AssetDetail/NRIS/85000375))	701 Roma, NW. 35°05′23″N 106°39′14″W	Albuquerque	
17	Carlisle Gymnasium		September 22, 1988 (#88001541 (https://npgallery.nps.gov/AssetDetail/NRIS/88001541))	University of New Mexico campus, west of Yale Boulevard 35°05′01″N 106°37′19″W	Albuquerque	
18	Chester Carnes House		December 1, 1980 (#80002529 (https://npgallery.nps.gov/AssetDetail/NRIS/80002529))	701 13th St., NW. 35°05′38″N 106°39′36″W	Albuquerque	
19	Castle Apartments		February 13, 1986 (#86000219 (https://npgallery.nps.gov/AssetDetail/NRIS/86000219))	1410 Central, SW. 35°05′17″N 106°39′50″W	Albuquerque	Demolished in 2010 after fire
20	Juan de Dios Chavez House		February 9, 1984 (#84002847 (https://npgallery.nps.gov/AssetDetail/NRIS/84002847))	205 Griegos Rd., NW. 35°07′42″N 106°37′58″W	Albuquerque	
21	Juan Chavez House		February 9, 1984 (#84002849 (https://npg	7809 4th St., NW.	Albuquerque	

			allery.nps.gov/AssetDetail/NRIS/84002849))	35°09′46″N 106°38′04″W		
22	Rumaldo Chavez House		November 24, 1980 (#80002530 (https://npgallery.nps.gov/AssetDetail/NRIS/80002530))	10023 Edith Boulevard, NE. 35°11′35″N 106°36′11″W	Albuquerque	
23	Congregation B'nai Israel		May 2, 2019 (#100003674 (https://npgallery.nps.gov/AssetDetail/NRIS/100003674))	4401 Indian School Rd. 35°06′07″N 106°35′41″W	Albuquerque	
24	Coronado School		November 22, 1996 (#96001383 (https://npgallery.nps.gov/AssetDetail/NRIS/96001383))	601 4th St., SW. 35°04′44″N 106°39′08″W	Albuquerque	
25	Cottage Bakery		November 22, 1993 (#93001218 (https://npgallery.nps.gov/AssetDetail/NRIS/93001218))	2000 Central Ave., SE. 35°04′51″N 106°37′25″W	Albuquerque	
26	Davis House		November 17, 1980 (#80002531 (https://npgallery.nps.gov/AssetDetail/NRIS/80002531))	704 Parkland Circle, SE. 35°04′11″N 106°36′10″W	Albuquerque	
27	De Anza Motor Lodge		April 30, 2004 (#04000375 (https://npgallery.nps.gov/AssetDetail/NRIS/04000375))	4301 Central Ave., NE. 35°04′48″N 106°35′44″W	Albuquerque	Mostly demolished in 2018
28	Tomasa Griego De Garcia House		June 19, 1979 (#79001535 (https://npgallery.nps.gov/AssetDetail/NRIS/79001535))	6939 Edith Boulevard, NE. 35°09′29″N 106°37′18″W	Albuquerque	
29	Robert Dietz Farmhouse		February 9, 1984 (#84002852 (https://npgallery.nps.gov/AssetDetail/NRIS/84002852))	4117 Rio Grande Boulevard, NW. 35°08′23″N 106°40′04″W	Albuquerque	
30	Eighth Street-Forrester District		December 1, 1980 (#80002532 (https://npgallery.nps.gov/AssetDetail/NRIS/80002532))	Roughly bounded by Mountain Rd., Lomas Boulevard, and Forrester and 7th Sts. 35°05′37″N 106°39′17″W	Albuquerque	
31	El Campo Tourist Courts		January 13, 1994 (#93001465 (https://npgallery.nps.gov/AssetDetail/NRIS/93001465))	5800 Central Ave., SW. 35°04′52″N 106°42′10″W	Albuquerque	

32	El Vado Auto Court		November 22, 1993 (#93001214 (https://npgallery.nps.gov/AssetDetail/NRIS/93001214))	2500 Central Ave., SW. 35°05′39″N 106°40′36″W	Albuquerque	
33	Eller Apartments		January 12, 1984 (#84002855 (https://npgallery.nps.gov/AssetDetail/NRIS/84002855))	113-127 8th St., SW. 35°05′04″N 106°39′22″W	Albuquerque	
34	Employees' New Dormitory and Club		July 26, 1982 (#82003310 (https://npgallery.nps.gov/AssetDetail/NRIS/82003310))	Albuquerque Indian School campus 35°06′26″N 106°39′18″W	Albuquerque	
35	Enchanted Mesa Trading Post		January 9, 1998 (#97001595 (https://npgallery.nps.gov/AssetDetail/NRIS/97001595))	9612 Central Ave., SE. 35°04′15″N 106°32′25″W	Albuquerque	
36	Estufa		September 22, 1988 (#88001542 (https://npgallery.nps.gov/AssetDetail/NRIS/88001542))	Southeastern corner of University Boulevard and Grand Ave., University of New Mexico 35°05′02″N 106°37′31″W	Albuquerque	
37	Federal Building		November 22, 1980 (#80002533 (https://npgallery.nps.gov/AssetDetail/NRIS/80002533))	421 Gold Ave., SW. 35°05′02″N 106°39′08″W	Albuquerque	
38	First Methodist Episcopal Church		November 7, 1976 (#76001192 (https://npgallery.nps.gov/AssetDetail/NRIS/76001192))	3rd St. and Lead Ave. 35°04′52″N 106°39′02″W	Albuquerque	
39	First National Bank Building		February 2, 1979 (#79003127 (https://npgallery.nps.gov/AssetDetail/NRIS/79003127))	217-233 Central Ave., NW. 35°05′05″N 106°38′58″W	Albuquerque	
40	C. M. Foraker Farmhouse		February 9, 1984 (#84002858 (https://npgallery.nps.gov/AssetDetail/NRIS/84002858))	905 Menaul Boulevard, NW. 35°06′46″N 106°39′12″W	Albuquerque	Demolished c. 2009
41	Fourth Ward District		December 1, 1980 (#80002534 (https://npg	Roughly bounded by	Albuquerque	

			allery.nps.gov/AssetDetail/NRIS/80002534))	Central Ave., Lomas Boulevard, and 8th and 15th Sts. 35°05′26″N 106°39′27″W		
42	Juan Antonio Garcia House		September 28, 1982 (#82003311 (https://npgallery.nps.gov/AssetDetail/NRIS/82003311))	7442 Edith Boulevard, NE. 35°09′48″N 106°37′05″W	Albuquerque	
43	James N. Gladding House		November 17, 1980 (#80002535 (https://npgallery.nps.gov/AssetDetail/NRIS/80002535))	643 Cedar St., NE. 35°05′17″N 106°37′50″W	Albuquerque	
44	Refugio Gomez House		February 9, 1984 (#84002864 (https://npgallery.nps.gov/AssetDetail/NRIS/84002864))	7604 Guadalupe Trail, NW. 35°10′13″N 106°38′22″W	Albuquerque	
45	Charles Grande House		February 9, 1984 (#84002866 (https://npgallery.nps.gov/AssetDetail/NRIS/84002866))	4317 Grande St., NW. 35°07′46″N 106°39′17″W	Albuquerque	
46	Delfinia Gurule House		December 1, 1980 (#80002536 (https://npgallery.nps.gov/AssetDetail/NRIS/80002536))	306 16th St., NW. 35°05′32″N 106°39′48″W	Albuquerque	
47	Harwood School		December 1, 1980 (#80002537 (https://npgallery.nps.gov/AssetDetail/NRIS/80002537))	1114 7th St., NW. 35°05′42″N 106°39′10″W	Albuquerque	
48	A. W. Hayden House		December 1, 1980 (#80002538 (https://npgallery.nps.gov/AssetDetail/NRIS/80002538))	609 Marble St., NW. 35°05′37″N 106°39′07″W	Albuquerque	
49	Hendren Building		January 27, 2000 (#99001678 (https://npgallery.nps.gov/AssetDetail/NRIS/99001678))	3001 Monte Vista Boulevard, NE. 35°05′00″N 106°36′43″W	Albuquerque	
50	Hilltop Lodge		January 9, 1998 (#97001597 (https://npgallery.nps.gov/AssetDetail/NRIS/97001597))	5410 Central Ave. SW. 35°04′56″N 106°41′47″W	Albuquerque	Demolished
51	Hodgin Hall		January 30, 1978 (#78001803 (https://npgallery.nps.gov/AssetDetail/NRIS/78001803))	University of New Mexico campus 35°04′54″N 106°37′29″W	Albuquerque	
52	Hoffmantown Baptist Church		October 25, 2019 (#100004492 (https://np	2335 Wyoming	Albuquerque	

			gallery.nps.gov/AssetDetail/NRIS/100004492))	Blvd. NE 35°06′39″N 106°33′04″W		
53	Holy Child Church		March 8, 1978 (#78001810 (https://npgallery.nps.gov/AssetDetail/NRIS/78001810))	Off Interstate 40 35°04′47″N 106°23′23″W	Tijeras	
54	Hope Building		August 29, 1980 (#80002539 (https://npgallery.nps.gov/AssetDetail/NRIS/80002539))	220 Gold St., SW. 35°04′27″N 106°38′58″W	Albuquerque	
55	James Lawrence and Juliana Gutierrez y Chavez Hubbell House		August 3, 2015 (#15000491 (https://npgallery.nps.gov/AssetDetail/NRIS/15000491))	6029 Isleta Blvd. SW. 34°59′21″N 106°41′45″W	Albuquerque	
56	Hudson House		February 24, 1982 (#82003313 (https://npgallery.nps.gov/AssetDetail/NRIS/82003313))	817 Gold Ave., SW. 35°05′04″N 106°39′24″W	Albuquerque	
57	Huning Highlands Conoco Service Station		July 19, 2006 (#06000633 (https://npgallery.nps.gov/AssetDetail/NRIS/06000633))	601 Coal Ave., SE. 35°04′52″N 106°38′30″W	Albuquerque	
58	Huning Highlands Historic District		November 17, 1978 (#78001804 (https://npgallery.nps.gov/AssetDetail/NRIS/78001804))	Bounded by Grand Ave., Interstate 25, Iron Ave., and the former Santa Fe railroad line 35°04′51″N 106°38′31″W	Albuquerque	
59	Immanuel Presbyterian Church		February 22, 2011 (#11000032 (https://npgallery.nps.gov/AssetDetail/NRIS/11000032))	114 Carlisle Boulevard SE 35°04′43″N 106°36′15″W	Albuquerque	Buildings Designed by John Gaw Meem MPS
60	Isleta Pueblo		September 5, 1975 (#75001162 (https://npgallery.nps.gov/AssetDetail/NRIS/75001162))	U.S. Route 85 34°54′31″N 106°41′30″W	Isleta Pueblo	
61	Jones Motor Company		November 22, 1993 (#93001219 (https://npgallery.nps.gov/AssetDetail/NRIS/93001219))	3226 Central Ave., SE. 35°04′38″N 106°37′09″W	Albuquerque	
62	Jonson Gallery and House		February 22, 2002 (#02000050 (https://npgallery.nps.gov/AssetDetail/NRIS/02000050))	1909 Las Lomas Rd., NE. 35°05′13″N 106°37′15″W	Albuquerque	

63	Kimo Theater		May 2, 1977 (#77000920 (https://npgallery.nps.gov/AssetDetail/NRIS/77000920))	421 Central Ave. 35°05′06″N 106°39′07″W	Albuquerque	
64	S. H. Kress Building		April 19, 1984 (#84002871 (https://npgallery.nps.gov/AssetDetail/NRIS/84002871))	414-416 Central Ave., SW. 35°05′04″N 106°39′07″W	Albuquerque	
65	Kromer House		October 4, 1982 (#82001048 (https://npgallery.nps.gov/AssetDetail/NRIS/82001048))	1024 El Pueblo Rd., NW. 35°10′44″N 106°38′27″W	Albuquerque	
66	La Mesa Motel		November 22, 1993 (#93001220 (https://npgallery.nps.gov/AssetDetail/NRIS/93001220))	7407 Central Ave., NE. 35°04′32″N 106°33′51″W	Albuquerque	Demolished c. 2003
67	La Puerta Lodge		January 9, 1998 (#97001596 (https://npgallery.nps.gov/AssetDetail/NRIS/97001596))	9710 Central Ave., SE. 35°04′09″N 106°32′22″W	Albuquerque	
68	La Glorieta House		August 19, 1983 (#83001616 (https://npgallery.nps.gov/AssetDetail/NRIS/83001616))	1801 Central Ave., NW. 35°05′34″N 106°39′56″W	Albuquerque	
69	Las Imagines Archeological District-Albuquerque West Mesa Escarpment		November 19, 1986 (#86003142 (https://npgallery.nps.gov/AssetDetail/NRIS/86003142))	Address Restricted	Albuquerque	
70	Charles LeFeber House		December 1, 1980 (#80002540 (https://npgallery.nps.gov/AssetDetail/NRIS/80002540))	313 15th St. NW 35°05′28″N 106°39′49″W	Albuquerque	
71	Lembke House		November 25, 1980 (#80002541 (https://npgallery.nps.gov/AssetDetail/NRIS/80002541))	312 Laguna Blvd. SW 35°05′18″N 106°40′05″W	Albuquerque	
72	William J. Leverett House		February 13, 1986 (#86000221 (https://npgallery.nps.gov/AssetDetail/NRIS/86000221))	301 Dartmouth, NE. 35°05′08″N 106°36′44″W	Albuquerque	
73	Charles W. Lewis Building		July 3, 1979 (#79001533 (https://npgallery.nps.gov/AssetDetail/NRIS/79001533))	1405-1407 2nd St., SW. 35°04′18″N 106°39′05″W	Albuquerque	
74	Hilario Lopez House		December 1, 1980 (#80002542 (https://npgallery.nps.gov/AssetDetail/NRIS/80002542))	208 16th St., NW. 35°05′28″N 106°39′48″W	Albuquerque	

75	Los Candelarias Chapel-San Antonio Chapel		February 9, 1984 (#84002844 (https://npgallery.nps.gov/AssetDetail/NRIS/84002844))	1934 Candelaria Rd., NW. 35°07′17″N 106°40′00″W	Albuquerque	
76	Los Duranes Chapel		February 9, 1984 (#84002854 (https://npgallery.nps.gov/AssetDetail/NRIS/84002854))	2601 Indian School Rd., NW. 35°06′39″N 106°40′28″W	Albuquerque	
77	Los Griegos Historic District		February 9, 1984 (#84002874 (https://npgallery.nps.gov/AssetDetail/NRIS/84002874))	Griegos Rd. and Rio Grande Boulevard 35°08′09″N 106°39′46″W	Albuquerque	
78	Los Poblanos Historic District		May 27, 1982 (#82003321 (https://npgallery.nps.gov/AssetDetail/NRIS/82003321))	State Road 194 35°08′46″N 106°40′05″W	Los Ranchos de Albuquerque	
79	Los Tomases Chapel		February 9, 1984 (#84002876 (https://npgallery.nps.gov/AssetDetail/NRIS/84002876))	3101 Los Tomases, NW. 35°06′56″N 106°38′55″W	Albuquerque	
80	Francisco Lucero y Montoya House		February 9, 1984 (#84002880 (https://npgallery.nps.gov/AssetDetail/NRIS/84002880))	9742 4th St., NW. 35°11′32″N 106°36′56″W	Albuquerque	
81	Luna Lodge		June 11, 1998 (#98000600 (https://npgallery.nps.gov/AssetDetail/NRIS/98000600))	9119 Central Ave., NE. 35°04′25″N 106°32′43″W	Albuquerque	
82	Main Library		June 13, 2019 (#100003217 (https://npgallery.nps.gov/AssetDetail/NRIS/100003217))	501 Copper Ave. NW. 35°05′09″N 106°39′12″W	Albuquerque	
83	Maisel's Indian Trading Post		November 22, 1993 (#93001215 (https://npgallery.nps.gov/AssetDetail/NRIS/93001215))	510 Central Ave., SW. 35°05′04″N 106°39′10″W	Albuquerque	
84	Henry Mann House		December 1, 1980 (#80002543 (https://npgallery.nps.gov/AssetDetail/NRIS/80002543))	723 14th St., NW. 35°05′44″N 106°39′38″W	Albuquerque	
85	Manzano Court Addition Historic District		October 14, 2004 (#03001234 (https://npgallery.nps.gov/AssetDetail/NRIS/03001234))	1000-1025 Manzano Court, NW.	Albuquerque	

				35°05′43″N 106°39′29″W		
86	McCanna-Hubbell Building		May 13, 1982 (#82003314 (https://npgallery.nps.gov/AssetDetail/NRIS/82003314))	418-424 Central, SW. 35°05′04″N 106°39′07″W	Albuquerque	
87	Menaul School Historic District		February 14, 1983 (#83001617 (https://npgallery.nps.gov/AssetDetail/NRIS/83001617))	Roughly bounded by Broadway, Claremont, Edith, and Menaul Aves., and 301 Menaul Boulevard, NE. 35°06′44″N 106°38′14″W	Albuquerque	
88	John Milne House		February 13, 1986 (#86000223 (https://npgallery.nps.gov/AssetDetail/NRIS/86000223))	804 Park Ave., SW. 35°05′06″N 106°39′23″W	Albuquerque	
89	Modern Auto Court		November 22, 1993 (#93001221 (https://npgallery.nps.gov/AssetDetail/NRIS/93001221))	3712 Central Ave., SE. 35°04′44″N 106°36′08″W	Albuquerque	
90	Monte Vista and College View Historic District		August 3, 2001 (#01000770 (https://npgallery.nps.gov/AssetDetail/NRIS/01000770))	Roughly bounded by Girard and Lomas Boulevards, Morningside Dr., Copper Ave., and Campus and Monte Vista Boulevards. 35°05′02″N 106°36′23″W	Albuquerque	
91	Monte Vista Fire Station		March 19, 1987 (#87001121 (https://npgallery.nps.gov/AssetDetail/NRIS/87001121))	3201 Central Ave., NE. 35°04′51″N 106°36′31″W	Albuquerque	
92	Monte Vista School		August 12, 1981 (#81000399 (https://npgallery.nps.gov/AssetDetail/NRIS/81000399))	3211 Monte Vista Boulevard, NE. 35°04′58″N 106°36′35″W	Albuquerque	
93	National Humane Alliance Animal Fountain		September 30, 1986 (#86003120 (https://npgallery.nps.gov/AssetDetail/NRIS/86003120))	615 Virginia Ave., SE. 35°04′02″N 106°33′09″W	Albuquerque	

						
94	New Mexico Madonna of the Trail		March 21, 2006 (#06000151 (https://npgallery.nps.gov/AssetDetail/NRIS/06000151))	Junction of Marble Ave. and 4th St. 35°05′41″N 106°38′59″W	Albuquerque	
95	New Mexico-Arizona Wool Warehouse		July 23, 1981 (#81000400 (https://npgallery.nps.gov/AssetDetail/NRIS/81000400))	520 1st St., NW. 35°05′19″N 106°38′48″W	Albuquerque	
96	Newlander Apartments		January 27, 2000 (#99001677 (https://npgallery.nps.gov/AssetDetail/NRIS/99001677))	616 Coal Ave. SW 35°04′58″N 106°39′20″W	Albuquerque	
97	Nob Hill Business Center		March 18, 1994 (#84004143 (https://npgallery.nps.gov/AssetDetail/NRIS/84004143))	3500 Central Ave., SE. 35°04′46″N 106°36′16″W	Albuquerque	
98	Robert Nordhaus House		February 9, 1984 (#84002883 (https://npgallery.nps.gov/AssetDetail/NRIS/84002883))	6900 Rio Grande Boulevard, NW. 35°09′47″N 106°39′00″W	Albuquerque	
99	J. H. O'Rielly House		January 29, 1979 (#79003442 (https://npgallery.nps.gov/AssetDetail/NRIS/79003442))	220 9th St., NW. 35°05′13″N 106°39′23″W	Albuquerque	
100	Occidental Life Building		January 30, 1978 (#78001805 (https://npgallery.nps.gov/AssetDetail/NRIS/78001805))	119 3rd Ave., SW. 35°05′01″N 106°39′01″W	Albuquerque	
101	Old Armijo School		September 16, 1982 (#82003315 (https://npg	1021 Isleta Boulevard, SE.	Albuquerque	

			allery.nps.gov/AssetDetail/NRIS/82003315))	35°03′22″N 106°40′11″W		
102	Old Hilton Hotel		March 2, 1984 (#84002868 (https://npgallery.nps.gov/AssetDetail/NRIS/84002868))	125 2nd St., NW. 35°05′06″N 106°38′56″W	Albuquerque	
103	Old Post Office		November 17, 1980 (#80002544 (https://npgallery.nps.gov/AssetDetail/NRIS/80002544))	123 4th St., SW. 35°05′01″N 106°39′08″W	Albuquerque	
104	Our Lady of Mt. Carmel Church		February 9, 1984 (#84002884 (https://npgallery.nps.gov/AssetDetail/NRIS/84002884))	7813 Edith Boulevard, NE. 35°10′08″N 106°37′03″W	Albuquerque	
105	Our Lady of the Angels School		November 29, 1984 (#84000426 (https://npgallery.nps.gov/AssetDetail/NRIS/84000426))	320 Romero St., NW. 35°05′49″N 106°40′11″W	Albuquerque	
106	Pacific Desk Building		September 30, 1980 (#80002545 (https://npgallery.nps.gov/AssetDetail/NRIS/80002545))	213-215 Gold Ave., SW. 35°05′00″N 106°38′58″W	Albuquerque	
107	Parkland Hills Historic District		June 7, 2019 (#100004034 (https://npgallery.nps.gov/AssetDetail/NRIS/100004034))	Roughly bounded by Zuni Rd., Garfield and Smith Aves, Valverde Dr., and Carlisle Blvd. 35°04′16″N 106°36′00″W	Albuquerque	
108	John Pearce House		November 22, 1980 (#80002546 (https://npgallery.nps.gov/AssetDetail/NRIS/80002546))	718 Central Ave., SW. 35°05′05″N 106°39′18″W	Albuquerque	
109	Petroglyph National Monument		June 27, 1990 (#01000279 (https://npgallery.nps.gov/AssetDetail/NRIS/01000279))	6001 Unser Boulevard, NW. 35°09′46″N 106°43′18″W	Albuquerque	
110	Piedras Marcadas Pueblo (LA 290)		March 2, 1990 (#90000160 (https://npgallery.nps.gov/AssetDetail/NRIS/90000160))	Address Restricted	Albuquerque	
111	Pig 'n Calf Lunch		February 15, 1994 (#93001222 (https://npgallery.nps.gov/AssetDetail/NRIS/93001222))	2106 Central Ave., SE. 35°04′51″N 106°37′21″W	Albuquerque	

						
112	President's House		September 22, 1988 (#88001543 (https://npgallery.nps.gov/AssetDetail/NRIS/88001543))	Northeastern corner of Roma Ave. and Yale Boulevard, University of New Mexico 35°05′11″N 106°37′15″W	Albuquerque	Now called University House.
113	Ernie Pyle House		September 22, 1997 (#97001103 (https://npgallery.nps.gov/AssetDetail/NRIS/97001103))	900 Girard Boulevard, SE. 35°04′13″N 106°36′45″W	Albuquerque	
114	Rancho de Carnue Site		May 4, 1977 (#77000921 (https://npgallery.nps.gov/AssetDetail/NRIS/77000921))	Address Restricted	Albuquerque	
115	Sara Raynolds Hall		September 22, 1988 (#88001544 (https://npgallery.nps.gov/AssetDetail/NRIS/88001544))	University of New Mexico campus on Terrace St., north of Central Ave. 35°04′53″N 106°37′24″W	Albuquerque	
116	Rio Puerco Bridge		July 15, 1997 (#97000735 (https://npgallery.nps.gov/AssetDetail/NRIS/97000735))	Interstate 40 over the Rio Puerco 35°02′00″N 106°56′29″W	Albuquerque	
117	Felipe Romero House		February 9, 1984 (#84002885 (https://npgallery.nps.gov/AssetDetail/NRIS/84002885))	7522 Edith Boulevard, NE. 35°09′55″N 106°37′03″W	Albuquerque	
118	Roosevelt Park		November 22, 1996 (#96001384 (https://npgallery.nps.gov/AssetDetail/NRIS/96001384))	Junction of Coal and Spruce Aves., SE. 35°04′35″N 106°37′49″W	Albuquerque	
119	Rosenwald Building		June 29, 1978 (#78001806 (https://npgallery.nps.gov/AssetDetail/NRIS/78001806))	320 Central Ave., SW. 35°05′03″N 106°39′03″W	Albuquerque	
120	Route 66, State maintained from Albuquerque to Rio Puerco		November 19, 1997 (#97001396 (https://npgallery.nps.gov/AssetDetail/NRIS/97001396))	Former U.S. Route 66 west central exit at Interstate 40 to the Rio Puerco	Albuquerque	

				bridge 35°02′55″N 106°52′04″W		
121	St. John's Cathedral		October 19, 2018 (#100003029 (https://npgallery.nps.gov/AssetDetail/NRIS/100003029))	318 Silver Ave. 35°04′56″N 106°39′06″W	Albuquerque	
122	Saint Joseph 1930 Hospital		May 27, 1982 (#82003316 (https://npgallery.nps.gov/AssetDetail/NRIS/82003316))	715 Grand, NE. 35°05′09″N 106°38′18″W	Albuquerque	
123	San Antonito Church and Cemetery		January 16, 1997 (#96001607 (https://npgallery.nps.gov/AssetDetail/NRIS/96001607))	Northwestern corner of the junction of State Roads 14 and 536 35°09′50″N 106°20′46″W	San Antonito	
124	San Felipe de Neri Church		October 1, 1969 (#69000140 (https://npgallery.nps.gov/AssetDetail/NRIS/69000140))	Old Town Plaza, NW. 35°05′47″N 106°40′09″W	Albuquerque	
125	San Ignacio Church		August 21, 1979 (#79001536 (https://npgallery.nps.gov/AssetDetail/NRIS/79001536))	1300 Walter St., NE. 35°05′43″N 106°38′15″W	Albuquerque	
126	Santa Barbara School		September 28, 1989 (#89001590 (https://npgallery.nps.gov/AssetDetail/NRIS/89001590))	1420 Edith Boulevard, NE. 35°05′51″N 106°38′17″W	Albuquerque	
127	Scholes Hall		September 22, 1988 (#88001545 (https://npgallery.nps.gov/AssetDetail/NRIS/88001545))	University of New Mexico campus, south of Roma Ave. 35°05′08″N 106°37′23″W	Albuquerque	
128	Second United Presbyterian Church		December 6, 1984 (#84000563 (https://npgallery.nps.gov/AssetDetail/NRIS/84000563))	812 Edith Boulevard, NE. 35°05′26″N 106°38′21″W	Albuquerque	
129	Samuel Shalit House		February 9, 1984 (#84002888 (https://npgallery.nps.gov/AssetDetail/NRIS/84002888))	5209 4th St., NW. 35°08′06″N 106°38′30″W	Albuquerque	

130	Shoup Boardinghouse		February 17, 1983 (#83001618 (https://npgallery.nps.gov/AssetDetail/NRIS/83001618))	707 1st St., SW. 35°04′40″N 106°38′56″W	Albuquerque	Demolished
131	Silver Hill Historic District		September 18, 1986 (#86002414 (https://npgallery.nps.gov/AssetDetail/NRIS/86002414))	Roughly bounded by Central Ave., Yale Boulevard, Lead Ave., and Sycamore St. 35°04′46″N 106°37′33″W	Albuquerque	
132	Simms Building		February 2, 1998 (#97001653 (https://npgallery.nps.gov/AssetDetail/NRIS/97001653))	400 Gold Ave., SW. 35°05′00″N 106°39′06″W	Albuquerque	
133	Skinner Building		November 22, 1980 (#80004485 (https://npgallery.nps.gov/AssetDetail/NRIS/80004485))	722-724 Central Ave. and 108 8th St., SW. 35°05′06″N 106°39′20″W	Albuquerque	
134	Solar Building		October 10, 1989 (#89001589 (https://npgallery.nps.gov/AssetDetail/NRIS/89001589))	213 Truman St., NE. 35°04′51″N 106°35′13″W	Albuquerque	
135	Southern Union Gas Company Building		March 31, 2004 (#04000252 (https://npgallery.nps.gov/AssetDetail/NRIS/04000252))	723 Silver Ave., SW. 35°05′06″N 106°39′23″W	Albuquerque	
136	Southwestern Brewery and Ice Company		March 30, 1978 (#78001807 (https://npgallery.nps.gov/AssetDetail/NRIS/78001807))	601 Commercial St., NE. 35°05′20″N 106°38′42″W	Albuquerque	
137	Berthold Spitz House		December 22, 1977 (#77000922 (https://npgallery.nps.gov/AssetDetail/NRIS/77000922))	323 N. 10th St. 35°05′19″N 106°39′28″W	Albuquerque	
138	Springer Building		November 18, 1980 (#80002547 (https://npgallery.nps.gov/AssetDetail/NRIS/80002547))	121 Tijeras Ave., NE. 35°05′09″N 106°38′43″W	Albuquerque	
139	Spruce Park Historic District		July 6, 1982 (#82003317 (https://npg	Roughly bounded by University	Albuquerque	

			allery.nps.gov/AssetDetail/NRIS/82003317))	Boulevard, Grand Ave., Las Lomas Rd., and Cedar St. 35°05′13″N 106°37′48″W		
140	Superintendent's House, Atlantic & Pacific Railroad		January 20, 1978 (#78001808 (https://npgallery.nps.gov/AssetDetail/NRIS/78001808))	1023 2nd St. SW 35°04′29″N 106°39′03″W	Albuquerque	
141	Domingo Tafoya House		November 17, 1980 (#80002528 (https://npgallery.nps.gov/AssetDetail/NRIS/80002528))	10021 Edith Boulevard, NE. 35°11′35″N 106°36′12″W	Alameda	
142	Tewa Lodge		June 11, 1998 (#98000599 (https://npgallery.nps.gov/AssetDetail/NRIS/98000599))	5715 Central Ave. NE. 35°04′40″N 106°34′53″W	Albuquerque	
143	Tijeras Pueblo Archeological Site		November 17, 2005 (#05001294 (https://npgallery.nps.gov/AssetDetail/NRIS/05001294))	South of central Tijeras off State Road 337 35°04′30″N 106°23′00″W	Tijeras	
144	Tower Courts		November 22, 1993 (#93001216 (https://npgallery.nps.gov/AssetDetail/NRIS/93001216))	2210 Central Ave., SW. 35°05′42″N 106°40′26″W	Albuquerque	
145	Antonio Vigil House		May 5, 1978 (#78001809 (https://npgallery.nps.gov/AssetDetail/NRIS/78001809))	413 Romero St. 35°05′52″N 106°40′12″W	Albuquerque	
146	Vista Larga Residential Historic District		April 12, 2016 (#16000160 (https://npgallery.nps.gov/AssetDetail/NRIS/16000160))	Roughly bounded by Indian School Rd., Columbia Dr., Hannett Ave., and University of New Mexico North Golf Course 35°06′02″N 106°37′09″W	Albuquerque	
147	Washington Apartments		February 19, 1982 (#82003319 (https://npgallery.nps.gov/AssetDetail/NRIS/82003319))	1002-1008 Central Ave., SW. 35°05′11″N 106°39′31″W	Albuquerque	
148	Werner-Gilchrist		August 2, 1982	202 Cornell,	Albuquerque	Demolished

	House		(#82003320 (https://npgallery.nps.gov/AssetDetail/NRIS/82003320))	SE. 35°04′44″N 106°37′07″W		in 2011
149	West San Jose School		November 22, 1996 (#96001385 (https://npgallery.nps.gov/AssetDetail/NRIS/96001385))	1701 4th St., SW. 35°04′06″N 106°39′06″W	Albuquerque	
150	Whitcomb Springs		October 7, 2019 (#100004498 (https://npgallery.nps.gov/AssetDetail/NRIS/100004498))	82 Carlito Springs Rd. 35°05′15″N 106°24′01″W	Tijeras	
151	J. R. Willis House and La Miradora Apartments		September 1, 2005 (#05000942 (https://npgallery.nps.gov/AssetDetail/NRIS/05000942))	310 Rio Grande Boulevard, SW. 35°05′36″N 106°40′16″W	Albuquerque	
152	Charles Zeiger House		April 27, 1984 (#84002889 (https://npgallery.nps.gov/AssetDetail/NRIS/84002889))	3200 Edith Boulevard, NE. 35°07′02″N 106°38′01″W	Albuquerque	Demolished
153	Zimmerman Library		August 22, 2016 (#16000549 (https://npgallery.nps.gov/AssetDetail/NRIS/16000549))	1900 Roma Ave., NE. 35°05′09″N 106°37′17″W	Albuquerque	

Former listings

[3]	Name on the Register	Image	Date listed	Date removed	Location	City or town	Summary
1	Alvardo Hotel Complex		March 3, 1970 (#70000902)	August 4, 1970	110 1st Street SW	Albuquerque	
2	Gymnasium-Auditorium Building		July 26, 1982 (#82003312)	November 21, 1988	Albuquerque Indian School Campus	Albuquerque	
3	Horn Oil Co. and Lodge		January 9, 1998 (#97001591)	September 6, 2007	1720 Central Avenue	Albuquerque	Demolished in 2006.
4	University of New Mexico Lodge, Building 219		July 26, 1982 (#82003318)	July 23, 1990	Albuquerque Indian School Campus	Albuquerque	

See also

- List of National Historic Landmarks in New Mexico
- National Register of Historic Places listings in New Mexico

References

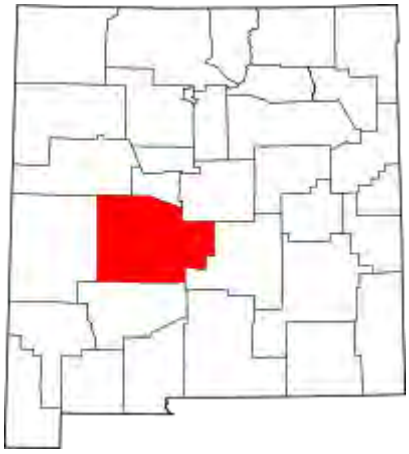
1. The latitude and longitude information provided in this table was derived originally from the National Register Information System, which has been found to be fairly accurate for about 99% of listings. Some locations in this table may have been corrected to current GPS standards.
2. "National Register of Historic Places: Weekly List Actions" (https://www.nps.gov/subjects/nationalregister/weekly-list.htm). National Park Service, United States Department of the Interior. Retrieved on April 10, 2020.
3. Numbers represent an ordering by significant words. Various colorings, defined here, differentiate National Historic Landmarks and historic districts from other NRHP buildings, structures, sites or objects.
4. "National Register Information System" (https://npgallery.nps.gov/NRHP). *National Register of Historic Places*. National Park Service. April 24, 2008.
5. The eight-digit number below each date is the number assigned to each location in the National Register Information System database, which can be viewed by clicking the number.

National Register of Historic Places listings in Socorro County, New Mexico

This is a list of the **National Register of Historic Places listings in Socorro County, New Mexico**.

This is intended to be a complete list of the properties and districts on the National Register of Historic Places in Socorro County, New Mexico, United States. Latitude and longitude coordinates are provided for many National Register properties and districts; these locations may be seen together in a map.[1]

There are 54 properties and districts listed on the National Register in the county, including 1 National Historic Landmark. Another property was once listed but has been removed. All of the places within the county on the National Register, except for one, are also listed on the State Register of Cultural Properties.



Location of Socorro County in New Mexico

This National Park Service list is complete through NPS recent listings (https://www.nps.gov/subjects/nationalregister/weekly-list.htm) posted June 26, 2020.[2]

Contents: NRHP in New Mexico by county

Bernalillo – Catron – Chaves – Cibola – Colfax – Curry – De Baca – Doña Ana – Eddy – Grant – Guadalupe – Harding – Hidalgo – Lea – Lincoln – Los Alamos – Luna – McKinley – Mora – Otero – Quay – Rio Arriba – Roosevelt – San Juan – San Miguel – Sandoval – Santa Fe – Sierra – Socorro – Taos – Torrance – Union – Valencia

Current listings

[3]	Name on the Register[4]	Image	Date listed[5]	Location	City or town	Description
1	Aragon House		August 2, 1982 (#82003327 (https://npgallery.nps.gov/AssetDetail/NRIS/82003327))	2nd and Oak Sts. 34°06′55″N 107°14′44″W	Magdalena	
2	Archeological Site No. LA 1069		April 15, 1993 (#93000243 (https://npgallery.nps.gov/AssetDetail/NRIS/93000243))	Address Restricted	Bingham	
3	Archeological Site No. LA 1070		April 15, 1993 (#93000244 (https://npgallery.nps.gov/AssetDetail/NRIS/93000244))	Address Restricted	Bingham	
4	Archeological Site No. LA 1071		April 15, 1993 (#93000245 (https://npgallery.nps.gov/AssetDetail/NRIS/93000245))	Address Restricted	Bingham	
5	Archeological Site No. LA 1072		April 15, 1993 (#93000246 (https://npgallery.nps.gov/AssetDetail/NRIS/93000246))	Address Restricted	Bingham	
6	Archeological Site No. LA 1073		April 15, 1993 (#93000247 (https://npgallery.nps.gov/AssetDetail/NRIS/93000247))	Address Restricted	Bingham	
7	Archeological Site No. LA 1074		April 15, 1993 (#93000248 (https://npgallery.nps.gov/AssetDetail/NRIS/93000248))	Address Restricted	Bingham	
8	Archeological Site No. LA 1075		April 15, 1993 (#93000249 (https://npgallery.nps.gov/AssetDetail/NRIS/93000249))	Address Restricted	Bingham	
9	Archeological Site No. LA 1076		April 15, 1993 (#93000250 (https://npgallery.nps.gov/AssetDetail/NRIS/93000250))	Address Restricted	Bingham	
10	Archeological Site No. LA 1181		April 15, 1993 (#93000251 (https://npgallery.nps.gov/AssetDetail/NRIS/93000251))	Address Restricted	Bingham	
11	Archeological Site No. LA 1201		April 15, 1993 (#93000252 (https://npgallery.nps.gov/AssetDetail/NRIS/93000252))	Address Restricted	Bingham	
12	Atchison, Topeka and Santa Fe Railway Depot		December 29, 1978 (#78001829 (https://npgallery.nps.gov/AssetDetail/NRIS/78001829))	108 N. Main Street[6] 34°07′06″N 107°14′36″W	Magdalena	Now the village hall and library[7]
13	A.B. Baca House		February 20, 1991 (#91000036 (https://npgallery.nps.gov/AssetDetail/NRIS/91000036))	201 School of Mines Rd. 34°03′31″N 106°53′38″W	Socorro	

14	Bank of Magdalena		August 2, 1982 (#82003328 (https://npgallery.nps.gov/AssetDetail/NRIS/82003328))	1st and Main Sts. 34°07′02″N 107°14′36″W	Magdalena	
15	Brown Hall		May 16, 1989 (#88001550 (https://npgallery.nps.gov/AssetDetail/NRIS/88001550))	New Mexico Institute of Mining and Technology 34°03′59″N 106°54′17″W	Socorro	
16	Bursum House		June 18, 1975 (#75001172 (https://npgallery.nps.gov/AssetDetail/NRIS/75001172))	326 Church St. 34°03′20″N 106°53′46″W	Socorro	
17	Camino Real-Qualacu Pueblo		April 8, 2011 (#11000173 (https://npgallery.nps.gov/AssetDetail/NRIS/11000173))	Address Restricted	San Antonio vicinity	part of the Camino Real in New Mexico, AD 1598-1881 Multiple Property Submission
18	Camino Real-San Pascual Pueblo		April 8, 2011 (#11000164 (https://npgallery.nps.gov/AssetDetail/NRIS/11000164))	Address Restricted	San Antonio vicinity	part of the Camino Real in New Mexico, AD 1598-1881 Multiple Property Submission
19	Clemens Ranchhouse		April 18, 1979 (#79001557 (https://npgallery.nps.gov/AssetDetail/NRIS/79001557))	South of Magdalena 34°05′03″N 107°13′46″W	Magdalena	
20	Captain Michael Cooney House		February 20, 1991 (#91000029 (https://npgallery.nps.gov/AssetDetail/NRIS/91000029))	309 McCutcheon Ave. 34°03′19″N 106°53′40″W	Socorro	
21	Anthony Cortesy House		February 20, 1991 (#91000033 (https://npgallery.nps.gov/AssetDetail/NRIS/91000033))	327 McCutcheon Ave. 34°03′19″N 106°53′46″W	Socorro	
22	Nestor P. Eaton House		February 20, 1991 (#91000034 (https://npgallery.nps.gov/AssetDetail/NRIS/91000034))	313 McCutcheon Ave. 34°03′19″N 106°53′41″W	Socorro	
23	El Camino Real de Tierra Adentro-Arroyo Alamillo North Section		November 5, 2014 (#14000898 (https://npgallery.nps.gov/AssetDetail/NRIS/14000898))	Address restricted	San Acacia vicinity	
24	Fitch Hall		May 16, 1989 (#88001551 (https://npgallery.nps.gov/AssetDetail/NRIS/88001551))	New Mexico Institute of Mining and Technology	Socorro	

				34°03′55″N 106°54′15″W		
25	James Gurden Fitch House		February 20, 1991 (#91000035 (https://npgallery.nps.gov/AssetDetail/NRIS/91000035))	311 McCutcheon Ave. 34°03′19″N 106°53′40″W	Socorro	
26	Fort Craig		October 15, 1970 (#70000414 (https://npgallery.nps.gov/AssetDetail/NRIS/70000414))	37 miles (60 km) south of Socorro 33°38′25″N 107°00′46″W	Socorro	
27	Gallinas Springs Ruin		September 4, 1970 (#70000413 (https://npgallery.nps.gov/AssetDetail/NRIS/70000413))	Address Restricted	Magdalena	
28	Garcia Opera House		August 13, 1974 (#74001210 (https://npgallery.nps.gov/AssetDetail/NRIS/74001210))	Terry Ave. and California St. 34°03′30″N 106°53′28″W	Socorro	
29	Juan Nepomuceno Garcia House		February 20, 1991 (#91000027 (https://npgallery.nps.gov/AssetDetail/NRIS/91000027))	108 Bernard St. 34°03′29″N 106°53′32″W	Socorro	
30	Gran Quivera Historic District		June 15, 2015 (#15000355 (https://npgallery.nps.gov/AssetDetail/NRIS/15000355))	Along NM 55 approx. 25 mi. S. of Mountainair 34°15′55″N 106°06′09″W	Mountainair vicinity	Part of Salinas Pueblo Missions National Monument; extends into Torrance County
31	Gutierrez House		August 2, 1982 (#82003329 (https://npgallery.nps.gov/AssetDetail/NRIS/82003329))	3rd and Popular Sts. 34°07′00″N 107°14′19″W	Magdalena	
32	Hall Hotel		August 2, 1982 (#82003330 (https://npgallery.nps.gov/AssetDetail/NRIS/82003330))	2nd and Spruce Sts. 34°07′00″N 107°14′30″W	Magdalena	
33	Hilton House		August 2, 1982 (#82003331 (https://npgallery.nps.gov/AssetDetail/NRIS/82003331))	U.S. Route 60 34°07′13″N 107°13′59″W	Magdalena	
34	August Holver Hilton House		February 20, 1991 (#91000031 (https://npgallery.nps.gov/AssetDetail/NRIS/91000031))	601 Park St. 34°03′05″N 106°53′35″W	Socorro	

						
35	House at 303 Eaton Avenue		February 20, 1991 (#91000032 (https://npgallery.nps.gov/AssetDetail/NRIS/91000032))	303 Eaton Ave. 34°03′20″N 106°53′50″W	Socorro	
36	House at 405 Park Street		February 20, 1991 (#91000030 (https://npgallery.nps.gov/AssetDetail/NRIS/91000030))	405 Park St. 34°03′17″N 106°53′36″W	Socorro	
37	Ilfeld Warehouse		August 2, 1982 (#82003332 (https://npgallery.nps.gov/AssetDetail/NRIS/82003332))	200 N. Main St.[8] 34°07′06″N 107°14′40″W	Magdalena	
38	Illinois Brewery		September 2, 1975 (#75001173 (https://npgallery.nps.gov/AssetDetail/NRIS/75001173))	Neal Ave. and 6th St. 34°03′46″N 106°53′25″W	Socorro	
39	Lewellen House		August 2, 1982 (#82003333 (https://npgallery.nps.gov/AssetDetail/NRIS/82003333))	2nd and Chestnut Sts. 34°07′03″N 107°14′18″W	Magdalena	
40	MacDonald Merchandise Building		September 25, 1980 (#80002573 (https://npgallery.nps.gov/AssetDetail/NRIS/80002573))	U.S. Route 60[9] 34°06′58″N 107°14′40″W	Magdalena	No longer extant; removed from the state register[10]
41	MacTavish House		August 2, 1982 (#82003334 (https://npgallery.nps.gov/AssetDetail/NRIS/82003334))	302 Elm St.[11] 34°06′51″N 107°14′37″W	Magdalena	
42	Magdaline House		August 2, 1982 (#82003335 (https://npgallery.nps.gov/AssetDetail/NRIS/82003335))	3rd and Chestnut Sts. 34°07′01″N 107°14′17″W	Magdalena	
43	Main Street Commercial Building		August 2, 1982 (#82003336 (https://npgallery.nps.gov/AssetDetail/NRIS/82003336))	106 N. Main Street[12] 34°07′04″N 107°14′37″W	Magdalena	
44	Sagrada Familia de Lemitar Church, Los Dulces Nombres		February 24, 1983 (#83001631 (https://npgallery.nps.gov/AssetDetail/NRIS/83001631))	Off Interstate 25 34°09′37″N 106°54′28″W	Lemitar	

45	Salinas Pueblo Missions National Monument		October 15, 1966 (#66000494 (https://npgallery.nps.gov/AssetDetail/NRIS/66000494))	1 mile (1.6 km) east of Gran Quivira on State Road 10 34°15′35″N 106°05′25″W	Gran Quivira	Extends into Torrance County
46	Salome Store		August 2, 1982 (#82003337 (https://npgallery.nps.gov/AssetDetail/NRIS/82003337))	1st St. 34°06′58″N 107°14′42″W	Magdalena	
47	Salome Warehouse		August 2, 1982 (#82003338 (https://npgallery.nps.gov/AssetDetail/NRIS/82003338))	1st St. 34°06′59″N 107°14′43″W	Magdalena	
48	San Felipe Pueblo Ruin		April 25, 1983 (#83001632 (https://npgallery.nps.gov/AssetDetail/NRIS/83001632))	Near the confluence of Milligan Gulch and the Rio Grande[13] 33°36′47″N 107°01′33″W	Socorro	
49	San Miguel Church		April 12, 2016 (#16000162 (https://npgallery.nps.gov/AssetDetail/NRIS/16000162))	403 El Camino Real St., NW 34°03′37″N 106°53′38″W	Socorro	
50	Seco Ruin		June 17, 1994 (#94000614 (https://npgallery.nps.gov/AssetDetail/NRIS/94000614))	Address Restricted	Chupadera	
51	Teypama Piro Site		October 21, 1983 (#83004179 (https://npgallery.nps.gov/AssetDetail/NRIS/83004179))	Address Restricted	Socorro	
52	Trinity Site		October 15, 1966 (#66000493 (https://npgallery.nps.gov/AssetDetail/NRIS/66000493))	25 miles (40 km) south of U.S. Route 380 on the White Sands Missile Range 33°39′08″N 106°29′34″W	Bingham	
53	Val Verde Hotel		September 13, 1977 (#77000930 (https://npgallery.nps.gov/AssetDetail/NRIS/77000930))	203 Manzanares St. 34°03′28″N 106°53′22″W	Socorro	
54	Rufina Vigil House		February 20, 1991 (#91000028 (https://npg	407 Park St. 34°03′15″N	Socorro	Locally known as "Casa de

			allery.nps.gov/AssetDetail/NRIS/91000028))	106°53′39″W		Flecha"[14]

Former listing

[3]	Name on the Register	Image	Date listed	Date removed	Location	City or town	Summary
1	Severo A. Baca House		January 1, 1999 (#74002268)		Park and Church Sts. 34°03′30″N 106°53′29″W	Socorro	

See also

- List of National Historic Landmarks in New Mexico
- National Register of Historic Places listings in New Mexico

References

1. The latitude and longitude information provided in this table was derived originally from the National Register Information System, which has been found to be fairly accurate for about 99% of listings. Some locations in this table may have been corrected to current GPS standards.
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12. The street number is visible in the center of the building in this 2013 photo.
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National Register of Historic Places listings in Torrance County, New Mexico

This is a list of the **National Register of Historic Places listings in Torrance County, New Mexico**.

This is intended to be a complete list of the properties and districts on the National Register of Historic Places in Torrance County, New Mexico, United States. Latitude and longitude coordinates are provided for many National Register properties and districts; these locations may be seen together in a map.[1]

There are 10 properties and districts listed on the National Register in the county, including 2 National Historic Landmarks and 1 National Monument. All of the places within the county on the National Register are also listed on the State Register of Cultural Properties with the single exception of Abo.

Location of Torrance County in New Mexico

This National Park Service list is complete through NPS recent listings (https://www.nps.gov/subjects/nationalregister/weekly-list.htm) posted May 15, 2020.[2]

Contents: NRHP in New Mexico by county

Bernalillo – Catron – Chaves – Cibola – Colfax – Curry – De Baca – Doña Ana – Eddy – Grant – Guadalupe – Harding – Hidalgo – Lea – Lincoln – Los Alamos – Luna – McKinley – Mora – Otero – Quay – Rio Arriba – Roosevelt – San Juan – San Miguel – Sandoval – Santa Fe – Sierra – Socorro – Taos – Torrance – Union – Valencia

Current listings

[3]	Name on the Register[4]	Image	Date listed[5]	Location	City or town	Description
1	Abo		October 15, 1966 (#66000497 (https://npgallery.nps.gov/AssetDetail/NRIS/66000497))	3 miles west of Abo on U.S. Route 60 34°26′56″N 106°22′17″W	Abo	Part of Salinas Pueblo Missions National Monument
2	Gran Quivera Historic District		June 15, 2015 (#15000355 (https://npgallery.nps.gov/AssetDetail/NRIS/15000355))	Along NM 55 approx. 25 mi. S. of Mountainair 34°15′55″N 106°06′09″W	Mountainair vicinity	Part of Salinas Pueblo Missions National Monument; extends into Socorro County
3	Greene Evans Garage		November 22, 1993 (#93001211 (https://npgallery.nps.gov/AssetDetail/NRIS/93001211))	Northwestern corner of the junction of Broadway and former U.S. Route 66 35°00′19″N 106°03′00″W	Moriarty	
4	Moriarty Eclipse Windmill		June 4, 1979 (#79001561 (https://npgallery.nps.gov/AssetDetail/NRIS/79001561))	2 miles (3.2 km) west of Moriarty off State Road 222 34°59′48″N 106°04′55″W	Moriarty	
5	Mountainair Municipal Auditorium		April 30, 1987 (#87000651 (https://npgallery.nps.gov/AssetDetail/NRIS/87000651))	Southwestern corner of Roosevelt Ave. and Beal St. 34°31′16″N 106°14′34″W	Mountainair	
6	Quarai		October 15, 1966 (#66000498 (https://npgallery.nps.gov/AssetDetail/NRIS/66000498))	1 mile south of Punta de Agua 34°35′45″N 106°17′42″W	Punta de Agua	Part of Salinas Pueblo Missions National Monument
7	Rancho Bonito		November 29, 1978 (#78001834 (https://npgallery.nps.gov/AssetDetail/NRIS/78001834))	South of Mountainair on Gran Quivera Rd. 34°30′23″N 106°14′21″W	Mountainair	
8	Salinas Pueblo Missions National Monument		October 15, 1966 (#66000494 (https://npgallery.nps.gov/AssetDetail/NRIS/66000494))	1 mile (1.6 km) east of Gran Quivira on State Road 10 34°15′35″N 106°05′25″W	Gran Quivira	Extends into Socorro County

9	Shaffer Hotel		November 15, 1978 (#78003077 (https://npgallery.nps.gov/AssetDetail/NRIS/78003077))	Broadway St. 34°31′08″N 106°14′31″W	Mountainair	
10	Willard Mercantile Company		December 14, 2018 (#100003219 (https://npgallery.nps.gov/AssetDetail/NRIS/100003219))	101 E. Broadway 34°31′13″N 106°14′24″W	Mountainair	

See also

- List of National Historic Landmarks in New Mexico
- National Register of Historic Places listings in New Mexico

References

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2. "National Register of Historic Places: Weekly List Actions" (https://www.nps.gov/subjects/nationalregister/weekly-list.htm). National Park Service, United States Department of the Interior. Retrieved on May 15, 2020.
3. Numbers represent an ordering by significant words. Various colorings, defined here, differentiate National Historic Landmarks and historic districts from other NRHP buildings, structures, sites or objects.
4. "National Register Information System" (https://npgallery.nps.gov/NRHP). *National Register of Historic Places*. National Park Service. July 9, 2010.
5. The eight-digit number below each date is the number assigned to each location in the National Register Information System database, which can be viewed by clicking the number.

National Register of Historic Places listings in Valencia County, New Mexico

This is a list of the **National Register of Historic Places listings in Valencia County, New Mexico**.

This is intended to be a complete list of the properties and districts on the National Register of Historic Places in Valencia County, New Mexico, United States. Latitude and longitude coordinates are provided for many National Register properties and districts; these locations may be seen together in a map.[1]

There are 12 properties and districts listed on the National Register in the county. All of the places within the county listed on the National Register are also recorded on the State Register of Cultural Properties.

This National Park Service list is complete through NPS recent listings (https://www.nps.gov/subjects/nationalregister/weekly-list.htm) posted April 10, 2020.[2]

Location of Valencia County in New Mexico

Contents: NRHP in New Mexico by county

Bernalillo – Catron – Chaves – Cibola – Colfax – Curry – De Baca – Doña Ana – Eddy – Grant – Guadalupe – Harding – Hidalgo – Lea – Lincoln – Los Alamos – Luna – McKinley – Mora – Otero – Quay – Rio Arriba – Roosevelt – San Juan – San Miguel – Sandoval – Santa Fe – Sierra – Socorro – Taos – Torrance – Union – Valencia

Current listings

[3]	Name on the Register[4]	Image	Date listed[5]	Location	City or town	Description
1	Atchison, Topeka, and Santa Fe Railroad Depot		August 1, 1979 (#79001562 (https://npgallery.nps.gov/AssetDetail/NRIS/79001562))	New Mexico State Road 314 34°47′42″N 106°44′20″W	Los Lunas	Atchison, Topeka & Santa Fe Railroad depot built in 1879, the oldest of its standard design in New Mexico
2	Miguel E. Baca House		December 11, 1978 (#78001835 (https://npgallery.nps.gov/AssetDetail/NRIS/78001835))	State Road 47 34°42′42″N 106°43′49″W	Adelino	
3	Belen City Hall		April 29, 2019 (#100003676 (https://npgallery.nps.gov/AssetDetail/NRIS/100003676))	503 Becker Ave. 34°39′37″N 106°46′24″W	Belen	
4	Belen Hotel		November 12, 1980 (#80002574 (https://npgallery.nps.gov/AssetDetail/NRIS/80002574))	200 Becker Ave. 34°39′36″N 106°46′08″W	Belen	
5	Felipe Chaves House		July 4, 1980 (#80002575 (https://npgallery.nps.gov/AssetDetail/NRIS/80002575))	325 Lala St. 34°39′44″N 106°46′38″W	Belen	
6	El Cerro Tome Site		July 9, 1996 (#96000739 (https://npgallery.nps.gov/AssetDetail/NRIS/96000739))	0.5 miles east of the junction of State Road 47 and Tome Hill Rd. 34°45′20″N 106°42′19″W	Tome	
7	Belen Harvey House		October 28, 1983 (#83004180 (https://npgallery.nps.gov/AssetDetail/NRIS/83004180))	104 N. 1st St. 34°39′36″N 106°46′02″W	Belen	
8	Los Ojuelos (The Springs)		December 10, 1987 (#87002080 (https://npgallery.nps.gov/AssetDetail/NRIS/87002080))	Address Restricted	Tome	
9	Tranquilino Luna House		April 16, 1975 (#75001175 (https://npgallery.nps.gov/AssetDetail/NRIS/75001175))	Southwest of Los Lunas at the junction of U.S. Route 85 and State Road 6 34°48′26″N 106°44′08″W	Los Lunas	

10	Otero's 66 Service		February 13, 2003 (#03000051 (https://npgallery.nps.gov/AssetDetail/NRIS/03000051))	100 W. Main St. 34°48′26″N 106°44′03″W	Los Lunas	
11	Tome Jail		October 5, 1977 (#77000932 (https://npgallery.nps.gov/AssetDetail/NRIS/77000932))	Tome Plaza 34°44′26″N 106°43′49″W	Tome	
12	Dr. William Frederick Wittwer House		February 27, 1987 (#87000131 (https://npgallery.nps.gov/AssetDetail/NRIS/87000131))	State Road 6, west of U.S. Route 85 34°48′29″N 106°44′09″W	Los Lunas	

See also

- List of National Historic Landmarks in New Mexico
- National Register of Historic Places listings in New Mexico

References

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4. "National Register Information System" (https://npgallery.nps.gov/NRHP). *National Register of Historic Places*. National Park Service. July 9, 2010.
5. The eight-digit number below each date is the number assigned to each location in the National Register Information System database, which can be viewed by clicking the number.

Appendix D: References

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Appendix E: Nationwide Standard Conservation Measures

NATIONWIDE STANDARD CONSERVATION MEASURES

Listed below are effective measures that should be employed at all project development sites nationwide with the goal of reducing impacts to birds and their habitats. These measures are grouped into three categories: General, Habitat Protection, and Stressor Management. These measures may be updated through time. We recommend checking the Conservation Measures website regularly for the most up-to-date list.

1. General Measures

a. Educate all employees, contractors, and/or site visitors of relevant rules and regulations that protect wildlife. See the Service webpage on Regulations and Policies for more information on regulations that protect migratory birds.

b. Prior to removal of an inactive nest, ensure that the nest is not protected under the Endangered Species Act (ESA) or the Bald and Golden Eagle Protection Act (BGEPA). Nests protected under ESA or BGEPA cannot be removed without a valid permit.
   i. See the Service Nest Destruction Policy

c. Do not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit. Please visit the Service permits page for more information on permits and permit applications.

d. Provide enclosed solid waste receptacles at all project areas. Non-hazardous solid waste (trash) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor. For more information about solid waste and how to properly dispose of it, see the EPA Non-Hazardous Waste website.

e. Report any incidental take of a migratory bird, to the local Service Office of Law Enforcement.

f. Consult and follow applicable Service industry guidance.

2. Habitat Protection

a. Minimize project creep by clearly delineating and maintaining project boundaries (including staging areas).

b. Consult all local, State, and Federal regulations for the development of an appropriate buffer distance between development site and any wetland or waterway. For more information on wetland protection regulations see the Clean Water Act sections 401 and 404.

c. Maximize use of disturbed land for all project activities (i.e., siting, lay-down areas, and construction).

d. Implement standard soil erosion and dust control measures. For example:
   i. Establish vegetation cover to stabilize soil
   ii. Use erosion blankets to prevent soil loss
   iii. Water bare soil to prevent wind erosion and dust issues

3. Stressor Management

Stressor: Vegetation Removal

Conservation Goal: Avoid direct take of adults, chicks, or eggs.

Conservation Measure 1: Schedule all vegetation removal, trimming, and grading of vegetated areas outside of the peak bird breeding season to the maximum extent practicable. Use available resources, such as internet-based tools (e.g., the FWS's Information, Planning and Conservation system and Avian Knowledge Network) to identify peak breeding months for local bird species; or, contact local Service Migratory Bird Program Office for breeding bird information.

Conservation Measure 2: When project activities cannot occur outside the bird nesting season, conduct surveys prior to scheduled activity to determine if active nests are present within the area of impact and buffer any nesting locations found during surveys.

1) Generally, the surveys should be conducted no more than five days prior to scheduled activity.
2) Timing and dimensions of the area to be surveyed vary and will depend on the nature of the project, location, and expected level of vegetation disturbance.
3) If active nests or breeding behavior (e.g., courtship, nest building, territorial defense, etc.) are detected during these surveys, no vegetation removal activities should be conducted until nestlings have fledged or the nest fails or breeding behaviors are no longer observed. If the activity must occur, establish a buffer zone around the nest and no activities will occur within that zone until nestlings have fledged and left the nest area. The dimension of the buffer zone will depend on the proposed activity, habitat type, and species present and should be coordinated with the local or regional Service office.
4) When establishing a buffer zone, construct a barrier (e.g., plastic fencing) to protect the area. If the fence is knocked down or destroyed, work will suspend wholly, or in part, until the fence is satisfactorily repaired.
5) When establishing a buffer zone, a qualified biologist will be present onsite to serve as a biological monitor during vegetation clearing and grading activities to ensure no take of migratory birds occurs. Prior to vegetation clearing, the monitor will ensure that the limits of construction have been properly staked and are readily identifiable. Any associated project activities that are inconsistent with the applicable conservation measures, and activities that may result in the take of migratory birds will be immediately halted and reported to the appropriate Service office within 24 hours.
6) If establishing a buffer zone is not feasible, contact the Service for guidance to minimize impacts to migratory birds associated with the proposed project or removal of an active nest. Active nests may only be removed if you receive a permit from your local Migratory Bird Permit Office. A permit may authorize active nest removal by a qualified biologist with bird handling experience or by a permitted bird rehabilitator.

Conservation Measure 3: Prepare a vegetation maintenance plan that outlines vegetation maintenance activities and schedules so that direct bird impacts do not occur.

Stressor: Invasive Species Introduction
Conservation Goal: Prevent the introduction of invasive plants.

Conservation Measure 1: Prepare a weed abatement plan that outlines the areas where weed abatement is required and the schedule and method of activities to ensure bird impacts are avoided.

Conservation Measure 2: For temporary and permanent habitat restoration/enhancement, use only native and local (when possible) seed and plant stock.

Conservation Measure 3: Consider creating vehicle wash stations prior to entering sensitive habitat areas to prevent accidental introduction of non-native plants.

Conservation Measure 4: Remove invasive/exotic species that pose an attractive nuisance to migratory birds.

Stressor: Artificial Lighting
Conservation Goal: Prevent increase in lighting of native habitats during the bird breeding season.

Conservation Measure 1: To the maximum extent practicable, limit construction activities to the time between dawn and dusk to avoid the illumination of adjacent habitat areas.

Conservation Measure 2: If construction activity time restrictions are not possible, use down shielding or directional lighting to avoid light trespass into bird habitat (i.e., use a 'Cobra' style light rather than an omnidirectional light system to direct light down to the roadbed). To the maximum extent practicable, while allowing for public safety, low intensity energy saving lighting (e.g. low pressure sodium lamps) will be used.

Conservation Measure 3: Minimize illumination of lighting on associated construction or operation structures by using motion sensors or heat sensors.

Conservation Measure 5: Bright white light, such as metal halide, halogen, fluorescent, mercury vapor and incandescent lamps should *not* be used.

Stressor: Human Disturbance
Conservation Goal: Minimize prolonged human presence near nesting birds during construction and maintenance actions.

Conservation Measure 1: Restrict unauthorized access to natural areas adjacent to the project site by erecting a barrier and/or avoidance buffers (e.g., gate, fence, wall) to minimize foot traffic and off-road vehicle uses.

Stressor: Collision

Conservation Goal: Minimize collision risk with project infrastructure and vehicles.

Conservation Measure 1: Minimize collision risk with project infrastructure (e.g., temporary and permanent) by increasing visibility through appropriate marking and design features (e.g., lighting, wire marking, etc.).

Conservation Measure 2: On bridge crossing areas with adjacent riparian, beach, estuary, or other bird habitat, use fencing or metal bridge poles (Sebastian Poles) that extend to the height of the tallest vehicles that will use the structure.

Conservation Measure 3: Install wildlife friendly culverts so rodents and small mammals can travel under any new roadways instead of over them. This may help reduce raptor deaths associated with being struck while tracking prey or scavenging road kill on the roadway.

Conservation Measure 4: Remove road-kill carcasses regularly to prevent scavenging and bird congregations along roadways.

Conservation Measure 5: Avoid planting "desirable" fruited or preferred nesting vegetation in medians or Rights of Way.

Conservation Measure 6: Eliminate use of steady burning lights on tall structures (e.g., >200 ft).

Stressor: Entrapment

Conservation Goal: Prevent birds from becoming trapped in project structures or perching and nesting in project areas that may endanger them.

Conservation Measure 1: Minimize entrapment and entanglement hazards through project design measures that may include:

1. Installing anti-perching devices on facilities/equipment where birds may commonly nest or perch
2. Covering or enclosing all potential nesting surfaces on the structure with mesh netting, chicken wire fencing, or other suitable exclusion material prior to the nesting season to prevent birds from establishing new nests. The netting, fencing, or other material must have no opening or mesh size greater than 19 mm and must be maintained until the structure is removed.
3. Cap pipes and cover/seal all small dark spaces where birds may enter and become trapped.

Conservation Measure 2: Use the appropriate deterrents to prevent birds from nesting on structures where they cause conflicts, may endanger themselves, or create a human health and safety hazard.

1. During the time that the birds are trying to build or occupy their nests (generally , between April and August, depending on the geographic location), potential nesting

surfaces should be monitored at least once every three days for any nesting activity, especially where bird use of structures is likely to cause take. It is permissible to remove non-active nests (without birds or eggs), partially completed nests, or new nests as they are built (prior to occupation). If birds have started to build any nests, the nests shall be removed before they are completed. Water shall not be used to remove the nests if nests are located within 50 feet of any surface waters.

2. If an active nest becomes established (i.e., there are eggs or young in the nest), all work that could result in abandonment or destruction of the nest shall be avoided until the young have fledged or the nest is unoccupied. Construction activities that may displace birds after they have laid their eggs and before the young have fledged should not be permitted. If the project continues into the following spring, this cycle shall be repeated. When work on the structure is complete, all netting shall be removed and properly disposed of.

Stressor: Noise

Conservation Goal: Prevent the increase in noise above ambient levels during the nesting bird breeding season.

Conservation Measure 1: Minimize an increase in noise above ambient levels during project construction by installing temporary structural barriers such as sand bags

Conservation Measure 2: Avoid permanent additions to ambient noise levels from the proposed project by using baffle boxes or sound walls.

Stressor: Chemical Contamination

Conservation Goal: Prevent the introduction of chemicals contaminants into the environment.

Conservation Measure 1: Avoid chemical contamination of the project area by implementing a Hazardous Materials Plan. For more information on hazardous waste and how to properly manage hazardous waste, see the EPA Hazardous Waste website.

Conservation Measure 2: Avoid soil contamination by using drip pans underneath equipment and containment zones at construction sites and when refueling vehicles or equipment.

Conservation Measure 3: Avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging laydown, and dispensing of fuel, oil, etc., to designated upland areas.

Conservation Measure 4: Any use of pesticides or rodenticides shall comply with the applicable Federal and State laws.

1. Choose non-chemical alternatives when appropriate
2. Pesticides shall be used only in accordance with their registered uses and in accordance with the manufacturer's instructions to limit access to non-target species.

3. For general measures to reducing wildlife exposure to pesticides, see EPA's Pesticides: Environmental Effects website.

Stressor: Fire

Conservation Goal: Minimize fire potential from project-related activities.

Conservation Measure 1: Reduce fire hazards from vehicles and human activities (e.g., use spark arrestors on power equipment, avoid driving vehicles off road).

Conservation Measure 2: Consider fire potential when developing vegetation management plans by planting temporary impact areas with a palate of low-growing, sparse, fire resistant native species that meet with the approval of the County Fire Department and local FWS Office.