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**BUREAU OF LAND
MANAGEMENT**

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Recreational Shooting Range Project on Public Lands in Santa Fe County

Draft Resource Management Plan Amendment And Environmental Assessment

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Taos Field Office

Cover Photo: Buckman-Alamo Creek area dispersed shooting location
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TABLE OF CONTENTS

Chapter Page

| | |
|--|------------|
| CHAPTER 1. INTRODUCTION AND BACKGROUND | 1-1 |
| 1.1 Introduction | 1-1 |
| 1.2 Background and Planning Area | 1-1 |
| 1.3 Purpose and Need | 1-1 |
| 1.4 Decisions to Be Made | 1-2 |
| 1.4.1 Decision Factors | 1-2 |
| 1.5 Relationship to Statutes, Regulations, and other Plans | 1-2 |
| 1.5.1 Taos Field Office Resource Management Plan | 1-2 |
| 1.5.2 Other Laws, Regulations, Policies, and Plans | 1-3 |
| 1.6 Planning Criteria | 1-6 |
| 1.7 Public Involvement and Issues | 1-6 |
| 1.7.1 Preliminary Issues Identified during Scoping | 1-7 |
| CHAPTER 2. ALTERNATIVES | 2-1 |
| 2.1 Alternative A – No Action | 2-1 |
| 2.2 Range Features Common to All Action Alternatives | 2-1 |
| 2.2.1 Design Features | 2-2 |
| 2.2.2 Temporary Construction Closure | 2-2 |
| 2.2.3 Additional Plans | 2-2 |
| 2.2.4 Operations | 2-2 |
| 2.2.5 Actions Constituting the RMP Amendment | 2-2 |
| 2.2.6 Supplemental Rules | 2-3 |
| 2.3 Alternative B | 2-3 |
| 2.3.1 Alternative B Range Details by Site | 2-3 |
| 2.3.2 Alternative B Dispersed Shooting Closure | 2-6 |
| 2.4 Alternative C | 2-6 |
| 2.4.1 Alternative C Range Details by Site | 2-7 |
| 2.5 Alternatives Considered but Not Analyzed in Detail | 2-8 |
| 2.5.1 Potential Shooting Range Locations | 2-8 |
| 2.6 Comparison of Alternatives | 2-10 |
| CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS | 3-1 |
| 3.1 Introduction | 3-1 |
| 3.2 Recreation and Access | 3-1 |
| 3.2.1 Affected Environment | 3-1 |
| 3.2.2 Environmental Consequences | 3-2 |
| 3.3 Cultural Resources | 3-6 |
| 3.3.1 Affected Environment | 3-6 |
| 3.3.2 Environmental Consequences | 3-8 |
| 3.4 Biological Resources (Including Vegetation and Wildlife) | 3-9 |
| 3.5 Livestock Grazing | 3-12 |
| 3.5.1 Affected Environment | 3-12 |
| 3.5.2 Environmental Consequences | 3-13 |
| 3.6 Soils and Watersheds | 3-14 |
| 3.6.1 Affected Environment | 3-14 |
| 3.6.2 Environmental Consequences | 3-15 |

| | | |
|--|---|------------|
| 3.7 | Tribal Interests | 3-20 |
| 3.7.1 | Affected Environment..... | 3-20 |
| 3.7.2 | Environmental Consequences | 3-20 |
| 3.8 | Public Health and Safety..... | 3-21 |
| 3.8.1 | Affected Environment..... | 3-21 |
| 3.8.2 | Environmental Consequences | 3-24 |
| 3.9 | Acoustic Environment | 3-26 |
| 3.9.1 | Affected Environment..... | 3-26 |
| 3.9.2 | Environmental Consequences | 3-27 |
| 3.10 | Special Designations (Scenic Byways, ACECs, and NHTs)..... | 3-31 |
| 3.10.1 | Affected Environment..... | 3-31 |
| 3.10.2 | Environmental Consequences | 3-33 |
| 3.11 | Visual Resources | 3-35 |
| 3.11.1 | Affected Environment..... | 3-35 |
| 3.11.2 | Environmental Consequences | 3-36 |
| CHAPTER 4. CUMULATIVE EFFECTS | | 4-1 |
| 4.1 | Geographic Scope..... | 4-1 |
| 4.2 | Time frame of Effects..... | 4-1 |
| 4.3 | Past and Present Actions | 4-1 |
| 4.3.1 | Camel Tracks..... | 4-2 |
| 4.3.2 | Buckman-Alamo Creek..... | 4-2 |
| 4.4 | Reasonably foreseeable Future Actions | 4-2 |
| 4.4.1 | Camel Tracks..... | 4-2 |
| 4.4.2 | Buckman-Alamo Creek | 4-2 |
| 4.5 | Analysis by Resource | 4-2 |
| 4.5.1 | Recreation and Access | 4-2 |
| 4.5.2 | Cultural Resources..... | 4-3 |
| 4.5.3 | Biological Resources (Including Vegetation and Wildlife) | 4-3 |
| 4.5.4 | Livestock Grazing | 4-3 |
| 4.5.5 | Soils and Watersheds | 4-4 |
| 4.5.6 | Tribal Interests | 4-4 |
| 4.5.7 | Public Health and Safety..... | 4-5 |
| 4.5.8 | Acoustic Environment | 4-5 |
| 4.5.9 | Special Designations..... | 4-6 |
| 4.5.10 | Visual Resources | 4-7 |
| CHAPTER 5. CONSULTATION AND COORDINATION..... | | 5-1 |
| 5.1 | Tribes, Individuals, Organizations, and Agencies Consulted | 5-1 |
| 5.1.1 | Government-to-Government Consultation..... | 5-1 |
| 5.1.2 | New Mexico State Historic Preservation Officer..... | 5-2 |
| 5.1.3 | Cooperating Agencies | 5-2 |
| 5.2 | List of Preparers..... | 5-3 |
| 5.2.1 | US Department of the Interior, Bureau of Land Management..... | 5-3 |
| 5.2.2 | Consultant: Environmental Management and Planning Solutions Inc. | 5-3 |
| CHAPTER 6. REFERENCES | | 6-1 |

TABLES

| | Page |
|-----|---|
| 2-1 | Summary of the Primary Features of the Alternatives2-10 |
| 3-1 | HUC 10 Watersheds.....3-15 |
| 3-2 | Soil Map Units within the Buckman-Alamo Creek Shooting Range3-16 |
| 3-3 | Soil Map Units within the Proposed Camel Tracks Shooting Ranges.....3-16 |
| 3-4 | Buckman-Alamo Creek Shooting Range Soil Physical Properties.....3-16 |
| 3-5 | Camel Tracks Shooting Ranges Soil Physical Properties.....3-16 |
| 3-6 | Proposed Buckman-Alamo Creek Shooting Range Soil Chemical Properties.....3-18 |
| 3-7 | Proposed Camel Tracks Shooting Ranges Soil Chemical Properties.....3-18 |
| 3-8 | Acoustic Analysis Area (Acres within a 1-Mile Buffer).....3-28 |

MAPS (see Appendix A)

| | |
|------|--|
| 1-1 | Planning Area |
| 2-1 | No Action Alternative: Existing Buckman-Alamo Creek Location |
| 2-2 | No Action Alternative: Existing Camel Tracks Location |
| 2-3 | No Action Alternative: Existing San Pedro Mountains Location |
| 2-4 | Proposed Action Alternative: Camel Tracks Shooting Range Option 1 |
| 2-5 | Proposed Action Alternative: Buckman-Alamo Creek Shooting Range |
| 2-6 | Proposed Action Alternative: San Pedro Mountains Closure Area |
| 2-7 | Proposed Action Alternative: Camel Tracks Shooting Range Option 2 |
| 2-8 | Considered and Dismissed Alternative: Buckman-Alamo Creek Location |
| 2-9 | Considered and Dismissed Alternative: Camel Tracks Location |
| 2-10 | Considered and Dismissed Alternative: San Pedro Mountains Location |
| 3-1 | Recreation Management Areas |
| 3-2 | Soil Map Units in the Buckman-Alamo Creek Area |
| 3-3 | Soil Map Units in the Camel Tracks Option 1 Area |
| 3-4 | Soil Map Units in the Camel Tracks Option 2 Area |
| 3-5 | Acoustic Analysis Area: Alternative A |
| 3-6 | Acoustic Analysis Area: Alternative B |
| 3-7 | Acoustic Analysis Area: Alternative C |
| 3-8 | Special Designations: National Scenic Byways |
| 3-9 | Special Designations: Areas of Critical Environmental Concern and National Historic Trails |
| 3-10 | Visual Resource Management |

APPENDIXES

| | |
|---|--|
| A | Maps |
| B | Design Features |
| C | Preliminary Environmental Stewardship Plan |
| D | Biological Evaluation |

ACRONYMS AND ABBREVIATIONS

Full Phrase

| | |
|-------------------|--|
| ACEC | area of critical environmental concern |
| AUM | animal unit month |
| BLM | Bureau of Land Management |
| CESA | cumulative effects study area |
| CEQ | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| EA | environmental assessment |
| EO | executive order |
| EPA | Environmental Protection Agency |
| ESP | Environmental Stewardship Plan |
| ERMA | extensive recreation management area |
| FLPMA | Federal Land Policy and Management Act |
| HUC | hydrologic unit code |
| IPaC | Information for Planning and Consultation |
| National Register | National Register of Historic Places |
| NEPA | National Environmental Policy Act |
| NHPA | National Historic Preservation Act |
| NHT | National Historic Trail |
| NRCS | US Department of Agriculture, Natural Resources Conservation Service |
| R&I | relevant and important |
| RFFA | reasonably foreseeable future action |
| RMP | resource management plan |
| RMPA | resource management plan amendment |
| SHPO | State Historic Preservation Officer |
| SRMA | special recreation management area |
| SRP | special recreation permit |
| TFO | BLM Taos Field Office |
| US | United States |
| USFWS | United States Fish and Wildlife Service |
| VRI | Visual Resource Inventory |
| VRM | visual resource management |

Chapter I. Introduction and Background

I.1 INTRODUCTION

Recreational target shooting sports are a popular, long-standing, and allowable use of Bureau of Land Management-administered (BLM-administered) lands. The BLM Taos Field Office (TFO) is preparing this resource management plan amendment (RMPA) and environmental assessment (EA) to evaluate a proposal to develop recreational target shooting ranges and to resolve conflicts at three locations—Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains—within Santa Fe County, New Mexico. The EA includes the following:

- Chapter 1 identifies the project background, context, early planning, public involvement, and issues for consideration.
- Chapter 2 describes the alternatives.
- Chapter 3 describes the affected environment and analyzes the environmental consequences.
- Chapter 4 analyzes the cumulative effects.
- Chapter 5 documents the BLM’s consultation and coordination relative to the RMPA and EA.

I.2 BACKGROUND AND PLANNING AREA

The BLM has proposed to resolve urban-interface and use-conflict issues regarding recreational target shooting on BLM-administered lands within Santa Fe County, New Mexico, at three locations: Buckman-Alamo Creek (21,093 acres), Camel Tracks (14,253 acres), and San Pedro Mountains (2,566 acres; see **Map I-1**, Planning Area). Dispersed target shooting in these areas has caused public safety issues, dumping on BLM-administered lands, threats of wildfire, noise, and resource degradation. The Buckman-Alamo Creek and San Pedro Mountains locations are within approximately 0.5 miles from—and in the line of sight to—residential homes.

Components of the proposed project include (1) developing two new recreational target shooting ranges on BLM-administered lands; (2) relocating to the new recreational target shooting ranges and remediating the currently used, informal target shooting sites; and (3) closing dispersed target shooting at the current informal locations within a buffer zone from existing roads.

The latter component—the closure of recreational target shooting in certain areas in order to relocate target shooting activities to developed locations—is considered a land use allocation necessitating an amendment to the Taos Resource Management Plan (RMP).

I.3 PURPOSE AND NEED

The purpose of the proposed action is to provide safe, controlled opportunities for recreational target shooting on BLM-administered lands in Santa Fe County that are away from residential areas and in a manner that minimizes impacts on other resources and BLM-administered land users. The proposed action is needed to address conflicts associated with the concentration of unmanaged recreational target shooting activities near residential areas. Dispersed recreational target shooting activities in three urban-interface areas—Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains—are causing public safety concerns, degradation of natural and cultural resources, waste accumulation, a threat of wildfire,

and noise disturbances inconsistent with the BLM's responsibilities under the Federal Land Policy and Management Act (FLPMA) Section 102(a)(8).

Residents in neighboring areas have repeatedly expressed concerns regarding the safe enjoyment of their private properties, the threat of wildfire ignitions from shooting-related activities, and disruptive noise. Also, when more than one shooting party is present, the lack of controls in these areas poses safety risks to other recreationists, livestock grazing permittees, and other BLM-administered land users. These impacts persist despite repeated efforts by the BLM to remove trash and lead contaminants, mitigate fuelwood loads around informal target shooting sites, and engage in public education efforts. The lack of public target shooting ranges in Santa Fe County has led to the three areas on BLM-administered lands becoming de facto target shooting destinations.

I.4 DECISIONS TO BE MADE

The BLM TFO Manager will decide whether to adopt an alternative or whether to modify the action based on the environmental analysis and any other factors identified during public review of this RMPA/EA and unsigned finding of no significant impact. The TFO Manager will make the decision based on the analysis of the issues and how well the alternatives respond to the project's purpose and need described in **Section I.3**, above.

I.4.1 Decision Factors

When considering an alternative, the decision-maker will consider how the alternatives meet the project's purpose and need. Additionally, the decision-maker will decide whether the analysis reveals a likelihood of significant adverse effects from the selected alternative that cannot be mitigated and whether an environmental impact statement would be needed.

I.5 RELATIONSHIP TO STATUTES, REGULATIONS, AND OTHER PLANS

I.5.1 Taos Field Office Resource Management Plan

The proposed RMPA/EA is consistent with the management direction in the record of decision and approved RMP (May 24, 2012; BLM 2012) for the TFO-administered lands and resources. The goals and objectives for the Taos RMP are described in greater detail below. The proposed RMPA/EA also conforms to the regulations or guidance listed below.

The Taos RMP provides broadscale direction for the management of BLM-administered lands and resources administered by the TFO. The proposed action conforms to the following goals for recreation (Chapter 2, page 54):

- *Provide a diversity of settings where visitors may have the opportunity to realize their personal expectations or goals while engaging in a variety of activities in the outdoors.*
- *Provide high quality recreation opportunities and experiences.*
- *Manage for appropriate levels of use, facilities, management and services, and administrative controls in each recreation area. Balance public demand, protection of resources, setting objectives, and fiscal responsibility.*

The proposed action conforms to the following objectives for recreation (Chapter 2, page 54):

- *Enhance recreation access, opportunities, and experiences by increasing the level of management presence through signs and basic onsite controls.*
- *Increase the BLM’s identity, enhance visitor services, and promote appropriate behavior by providing clear and consistent signing, information, maps, interpretation, and environmental education at recreation sites and facilities.*
- *Manage and maintain recreation sites and facilities for quality experiences and enjoyment. Design for function and aesthetics, with design standards that are appropriate for the setting and enjoyment by the public.*

1.5.2 Other Laws, Regulations, Policies, and Plans

In preparing this RMPA and EA, the BLM evaluated the proposed management relative to the following laws, regulations, policies, and plans as they apply to the proposed action. As appropriate and if relevant to the proposed RMPA/EA, further consideration of these laws, regulations, policies, and plans is provided in **Chapter 3**, Affected Environment and Environmental Effects.

Laws and Regulations

American Indian Religious Freedom Act—This act protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites.

Archaeological Resources Protection Act of 1979—This act protects archaeological resources and sites on federally administered lands. It imposes criminal and civil penalties for removing archaeological items from federal lands without a permit.

Bald and Golden Eagle Protection Act of 1940, as amended—This act protects bald and golden eagles by prohibiting anyone, without a permit issued by the Secretary of the Interior, from “taking” bald or golden eagles, including their parts (including feathers), nests, or eggs. It imposes criminal and civil penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle . . . [or any golden eagle], alive or dead, or any part (including feathers), nest, or egg thereof” (50 Code of Federal Regulations [CFR] 22.6).

Clean Air Act of 1990—This act provides the framework for national, state, and local efforts to protect air quality.

Clean Water Act of 1987—This act establishes objectives to restore and maintain the chemical, physical, and biological integrity of the Nation’s water.

Endangered Species Act of 1973—This act directs federal agencies to ensure their actions do not jeopardize threatened and endangered species.

Executive Order (EO) 13007, Indian Sacred Sites—This EO directs federal agencies to accommodate access to and ceremonial use of sacred sites by Indian religious practitioners, to the extent practicable, while maintaining the confidentiality of the sites and avoiding adversely affecting the sites.

EO 13175, Consultation and Coordination with Indian Tribal Governments—This EO establishes regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications. It also strengthens the United States (US) government-to-government relationships with Indian tribes.

EO 13287, Preserve America—This EO orders the federal government to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. The EO establishes new accountability for agencies regarding inventories and stewardship.

FLPMA—This act provides the basic policy guidance for the BLM’s management of BLM-administered lands.

Federal Noxious Weed Act (Public Law 93-629, November 28, 1990)—This act provides for the management of undesirable plants on federal lands.

Fish and Wildlife Improvement Act of 1978—This act authorizes the Secretaries of the Interior and Commerce to establish, conduct, and assist with national training programs for state fish and wildlife law enforcement personnel. It also authorizes funding for research and development of new or improved methods to support fish and wildlife law enforcement.

Migratory Bird Act of 1918—This act implements the convention for the protection of migratory birds between the US and Great Britain (acting on behalf of Canada). The statute makes it unlawful without a waiver to pursue, hunt, take, capture, kill, or sell birds listed as migratory birds.

National Environmental Policy Act (NEPA) of 1969—This act requires the preparation of EAs or environmental impact statements for federal actions. These documents describe the environmental effects of these federal actions and determine whether the actions have a significant effect on the human environment.

National Historic Preservation Act (NHPA) of 1966, as amended—This act provides for the management, protection, and enhancement of historic properties (that is, those districts, sites, buildings, structures, and objects that are eligible to the National Register of Historic Places [National Register]). It also provides consultation procedures with the local State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer, tribes, consulting parties, and the public.

Native American Graves Protection and Repatriation Act of 1990—This act addresses the rights of lineal descendants and members of Indian tribes and Alaska Native and Native Hawaiian organizations to certain human remains and defined items of cultural patrimony. It covers items currently in federal repositories as well as future discoveries. The law requires federal agencies and museums to provide an inventory and summary of human remains and associative funerary objects. The law also provides for criminal penalties in the illegal trafficking in Native American human remains and items of cultural patrimony.

Joint Secretarial Order 3403 on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters—On November 15, 2021, the Secretary of Agriculture and the Secretary of the Interior issued Joint Secretarial Order 3403, which requires federal agencies to

collaborate with Indian and Alaska Native tribes, Alaska Natives, and Native Hawaiians to ensure tribal governments, Alaska Native entities, and the Native Hawaiian community play an integral role in decision-making related to the management of federal lands and waters through consultation, capacity building, and other means consistent with applicable authorities. The subsequent BLM Instruction Memorandum 2022-11 provides direction for implementing the provisions of Joint Secretarial Order 3403.

Policies

BLM Manual 1780 (Tribal Relations)—This manual defines the policies, roles, responsibilities, and standards for BLM tribal relations and government-to-government tribal consultation within a comprehensive framework of the legal authorities affecting this relationship.

BLM Handbook H-1780-1 (Improving and Sustaining BLM-Tribal Relations)—This handbook provides direction for all BLM programs for improving and sustaining tribal relations, including government-to-government consultation. It addresses a broad range of legal authorities and agency programs of interest to tribes; it also highlights BLM responsibilities. It incorporates current guidance derived from recent case law, new secretarial orders and policies, EOs, and decades of experience working with tribes on a government-to-government basis.

BLM Handbook H-2930-1 (Recreation Permit and Fee Administration)—This handbook provides policy and guidance for administering key elements of the BLM Recreation Fee Program, including special recreation permits (SRPs) and recreation use permits; the National Parks and Federal Recreational Lands Pass Program; and recreational commercial services.

BLM Manual 6220 (National Monuments, National Conservation Areas, and Similar Designations)—This manual provides guidance for BLM management of BLM-administered lands that are components of the BLM’s National Landscape Conservation System and that have been designated by Congress or the president as national monuments, national conservation areas, and similar designations. The National Landscape Conservation System was established to “conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations.”

BLM Manual 8100 (The Foundations for Managing Cultural Resources)—This manual is intended as a reference source to provide information on policy and guidance for managing cultural resources and to establish a uniform BLM process for meeting the spirit and requirements of the cultural resource authorities in a dynamic multiple-use environment.

BLM Manual 8320 (Planning for Recreation and Visitor Services)—This manual provides policy, direction, and guidance for planning for recreational resources as part of the land use planning process required under BLM Manual 1601 (Land Use Planning). The BLM’s recreation planning process is an outcome-focused management approach that stresses the management of recreational settings to provide opportunities that allow visitors and local communities to achieve a desired set of individual, social, economic, and environmental benefits. Planning for recreational resources focuses on fulfilling the BLM’s mission to sustain the health, diversity, and productivity of BLM-administered lands for the use and enjoyment of present and future generations.

BLM Handbook H-8320-1 (Planning for Recreation and Visitor Services)—This handbook aids in the planning and management of recreation and visitor services on BLM-administered lands and adjacent

waters. This handbook provides planning guidance at the land use plan and implementation level, and also supports the policies in BLM Manual 8320 (Planning for Recreation and Visitor Services).

I.6 PLANNING CRITERIA

As described in the BLM's Land Use Planning Handbook (H-1601-1), "Planning criteria guide development of the plan by helping define the decision space (or the 'sideboards' that define the scope of the planning effort); they are generally based upon applicable laws, Director and State guidance, and the results of public and governmental participation (43 CFR 1610.4-2)." Planning criteria guide the development of the RMPA and EA, ensure the RMPA and EA are tailored to the identified issues, and help to avoid unnecessary data collection and analysis.

Planning criteria also streamline the plan preparation; establish standards, rules, and measures to be used; guide and direct the resolution of issues through the planning process; and indicate factors and data that must be considered in making decisions. Planning criteria are based on applicable laws and regulations, agency guidance, and the result of consultation and coordination with the public; other federal, state, and local agencies; and Native American tribes. For this RMPA and EA, the BLM's preliminary planning criteria include the following:

- The scope of the RMPA is limited to prohibiting a single use (recreational target shooting) on certain portions of BLM-administered lands.
- The RMPA will carefully weigh the benefits of enhanced opportunities for recreational target shooting at developed target shooting ranges against the adverse effects of the dispersed target shooting opportunities foregone by the proposed recreational target shooting closures in the three areas.
- The BLM will apply the closure to a public land use to the smallest area necessary to provide for public safety, sustainable resource management, and the protection of important resource values, consistent with the John D. Dingell Jr. Conservation, Management, and Recreation Act of 2019.
- The prohibited use will only apply to recreational target shooting and any discharge of firearms for purposes other than active, lawful hunting on the BLM-administered lands identified in **Section 1.2**, above.
- The amendment will comply with FLPMA, NEPA, and all other applicable laws, regulations, executive and secretarial orders, and policies.
- The amendment will incorporate all other management decisions brought forward from the Taos RMP, which was approved in May 2012.
- Broad-based public participation and collaboration will be an integral part of the planning process.
- The planning process will provide for ongoing consultation with Native American tribal governments and strategies for protecting traditional cultural properties.
- The BLM will work collaboratively with cooperating agencies and all other interested groups, agencies, and individuals.

I.7 PUBLIC INVOLVEMENT AND ISSUES

The BLM TFO initiated public outreach via a notice of intent, which was published in the *Federal Register* (Volume 87, No. 164, Thursday, August 25, 2022); this notice described the preliminary proposed action and initiated a 60-day public scoping period. Several documents related to the preliminary proposed action,

including a description of the preliminary proposed action, maps of the three locations, and preliminary relocation buffer closures, were made available to the public on the BLM New Mexico ePlanning website (<https://eplanning.blm.gov/eplanning-ui/project/2013605/510>).

The BLM held two in-person public meetings regarding the preliminary proposed action on October 6, 2022, and October 11, 2022. A virtual meeting was held on October 13, 2022. The comment report identified preliminary issues that the BLM used to help formulate a reasonable range of alternatives and the scope of analyses for the EA; these are discussed in **Section 1.7.1**, below.

1.7.1 Preliminary Issues Identified during Scoping

Topic 1—Recreation Use and Access

- How will the BLM ensure the needs of recreational target shooters are met while balancing other uses?
- How will the alternatives affect non-target shooting recreational uses?
- How will the alternatives affect travel and access?

Topic 2—Public Health and Safety

- How will the alternatives affect public health and safety?
- How will the alternatives affect possible lead contamination?

Topic 3—Natural and Cultural Resources

- How will the alternatives impact biological resources and other natural resources (wildlife, migratory birds, sensitive species, and vegetation)?
- How will the alternatives affect soils and watersheds?
- How will the alternatives affect cultural resources, including historic properties and cultural landscapes?
- How will the alternatives affect the interests of federally recognized Native American tribes?
- How will the alternatives affect the acoustic environment?
- How will the alternatives affect areas of critical environmental concern (ACECs) and national historic trails (NHTs)?
- How will the alternatives affect visual resources?

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Chapter 2. Alternatives

2.1 ALTERNATIVE A – NO ACTION

Under Alternative A, the BLM would not close dispersed target shooting at the current informal target shooting sites and would not authorize the construction and operation of recreational target shooting ranges as described in **Sections 2.3** and **2.4**. Dispersed target shooting would continue to occur on the three informal target shooting sites discussed in **Section 1.2**. Public safety concerns and impacts on other resources and BLM-administered land users associated with the concentration of unmanaged dispersed target shooting activities near residential areas would not be addressed through the engineered features described in the action alternatives, including within and around the Calabasas and Santa Fe grazing allotments.

2.2 RANGE FEATURES COMMON TO ALL ACTION ALTERNATIVES

At a minimum, each proposed range would include:

- A graded access road
- Cattle guards and gates
- Hours of operation: Open from 7:00 a.m. until 5:00-7:00 p.m., depending on the season
- Information signs and kiosks
- A gravel parking area
- Accessibility parking and sidewalks
- Four-strand, wildlife-friendly, barbed-wire fence enclosing the facility
- Trash receptacles
- A vault toilet
- Shooting structures with benches
- Designated shooting bays
- A constructed backstop and containment berms
- A secondary backstop (topographic)
- Targets
- Clay-lined target area containment basins
- A 20-foot-tall flagpole with a red safety flag to indicate when the facility is in use

Descriptions of the features for each range are described in detail by site below. Typical equipment that could be used during construction could include:

- Motor graders
- A dozer
- Dump trucks
- Backhoes
- Concrete trucks

- Water trucks
- Utility and employee vehicles

2.2.1 Design Features

The BLM has developed best management practices and design features that would be incorporated into this project in order to avoid, reduce, or otherwise mitigate potential adverse impacts (**Appendix B**).

2.2.2 Temporary Construction Closure

Each area and access road would be temporarily closed to public use during construction for public and worker safety (43 CFR 8364.1). Pursuant to Section 4103 of the Dingell Act, the BLM would provide a 30-day public comment period when a notice of intent is published in the *Federal Register* announcing the temporary closure of the area during shooting range construction.

2.2.3 Additional Plans

Prior to operation of each site, the BLM would prepare the following additional plans:

- Operation Plan
- Safety Plan

Operation of each site would include an Environmental Stewardship Plan (ESP) (**Appendix C**).

2.2.4 Operations

The BLM would close the proposed recreational target shooting ranges each Wednesday under 43 CFR 8364.1 to allow for regular monitoring, maintenance, and cleanup activities. The BLM would consider additional temporarily closures or restrictions under 43 CFR 8364.1 as appropriate, including during Tribal religious ceremonies.

2.2.5 Actions Constituting the RMP Amendment

The closure of certain public lands to recreational target shooting is considered a land use allocation necessitating an amendment to the Taos RMP. In the Buckman-Alamo Creek and San Pedro Mountain areas, the proposed closures would be new land use allocations that limit recreational shooting sports to only hunting activities, while the closure in the Camel Tracks area would expand a recreational shooting closure currently applied under the Taos RMP. The BLM may also consider limiting recreational and other uses downrange of the proposed recreational target shooting ranges as additional safety precautions.

The BLM proposes to apply permanent recreational target shooting closures to the following three areas, totaling 21,709 acres:

- Buckman-Alamo Creek: approximately 13,597 acres (of the 21,115 acres of public lands). See **Map 2-5**.
- Camel Tracks: approximately 7,234 or 7,124 acres, depending on the alternative (of the 14,259 acres of public lands). See **Map 2-4**.
- San Pedro Mountains: approximately 827 acres (of the 2,565 acres of public lands). See **Map 2-6**.

These closures would be included in supplemental rules, described below, that the BLM would propose, based on this analysis, subsequent to a decision on this project.

2.2.6 Supplemental Rules

The BLM would establish supplementary rules to enforce safety controls placed on activities at the developed recreational target shooting ranges and surrounding areas. Supplemental rules, developed in compliance with 43 CFR 8365.1-6, may include, but are not limited to:

- Areas closed to recreational target shooting
- Restrictions for day use only
- Prohibitions on entry into hazardous exclusion areas and designated target zones
- Specifications of the types of targets and ammunition
- Specifications of the caliber and firearm type
- Specifications on firearm discharge direction
- Location of the firearm discharge
- Restrictions on the use of alcohol within sites
- Prohibitions on the discharge of a firearm while under the influence of alcohol or other substances
- Prohibitions on unattended personal property

The BLM may also implement any restriction on uses within part or all of the planning area pursuant to 43 CFR 8364 and in compliance with the John D. Dingell Jr. Conservation, Management, and Recreation Act of 2019, which requires the publication of a notice in the *Federal Register*. A final list of proposed supplementary rules would be published in the *Federal Register*.

2.3 ALTERNATIVE B

Under Alternative B, the BLM would construct and operate two recreational target shooting ranges for public use—the Camel Tracks Option I Target shooting range and the Buckman-Alamo Creek Target shooting range. In addition to constructing and operating the proposed recreational target shooting ranges, the BLM would redirect recreational target shooting from the current informal target shooting sites (the Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains areas) by instituting a recreational target shooting closure buffer within 1-mile of existing roads in these areas across 7,234 acres. Under Alternative B, the BLM would also conduct remediation after closing these areas to dispersed shooting, including lead abatement, trash collection, and revegetation with a native seed mix.

Under Alternative B, approximately 10.7 acres of ground disturbance and 1.5 miles of fencing would occur on 35.5 acres at the proposed ranges. There would be 23.5 acres of the Santa Fe grazing allotment developed as part of the Buckman-Alamo Creek shooting range, resulting in the loss of five animal unit months (AUMs).

2.3.1 Alternative B Range Details by Site

Camel Tracks Option I

The Camel Tracks Option I shooting range (**Map 2-4**) would be approximately 12 acres. It would be on the north side of Camel Tracks Road roughly 0.7 miles west of the outskirts of the city of Santa Fe. The range would be approximately 0.7 miles from a heavily visited petroglyph site and local residences.

Auditory resource impacts would be considered in the design elements; features such as berms and three-sided shooting structures would be included to help attenuate noise from the range's use.

The maximum acreage that would be disturbed from the Camel Tracks Option 1 shooting range's construction would be approximately 4.5 acres. Within this area, a combination of cut and fill would be required to create the parking lot and shooting bays. The number of acres that would need to be excavated versus built up would depend on the final site design and grade.

Improvement of the approximately 83-foot-long access road would increase the width of the existing two-track road from approximately 10 feet to 20 feet wide to provide two-way traffic flow. This would result in less than 0.1 acres of disturbance. The roadway would be graded and shaped (cut and fill), and culverts would be placed to provide proper drainage, where needed.

The BLM would install approximately 3,412 feet (0.7 miles) of barbed-wire fence to enclose the range; this would include digging post holes and using equipment to transport materials.

During the construction phase, heavy equipment would be utilized, including dump trucks delivering material regularly, primarily to construct earthen berms. Backstop berms would be 20 feet tall, and containment berms would be 10 feet tall. Shooting structures and the vault toilet would not exceed a height of 15 feet to reduce visual impacts. Ground disturbance would be kept to a minimum to preserve the existing vegetation. The BLM would choose color palettes for structures to complement the local landscape. Activities that would produce loud noises include heavy equipment operation, such as backup alarms. The BLM would use high-powered diesel engines, which typically operate at higher decibels than smaller, gas-powered engines.

The range would include the following amenities:

- Three 50-yard and one 200-yard shooting lanes/bays
- Four backstop berms made with a combination of imported and site-harvested material
- Five side-containment berms made with a combination of imported and site-harvested material
- Four shooting structures with shooting benches
- A graded access road that is 20 feet wide
- A gravel parking area and site loop
- Accessibility parking and sidewalks
- Four-strand, wildlife-friendly barbed-wire fence to enclose the range
- One single-vault toilet
- Target area containment basins (3 feet wide) with 6-inch clay liner
- Targets: ten per pistol range and one per rifle range

Buckman-Alamo Creek

The Buckman-Alamo Creek shooting range (**Map 2-5**) would be approximately 23.5 acres. It would be on the east side of Old Buckman Road roughly 3 miles northwest of the outskirts of the city of Santa Fe. This site is approximately 3.2 miles from the nearest local residence, 0.2 miles from El Camino Real de Tierra Adentro NHT, and 2.7 miles from Diablo Canyon, a popular recreation area. Auditory resource

impacts would be considered in design elements; features such as berms and three-sided shooting structures would be included to help reduce noise from the range's use.

The proposed recreational target shooting range would be within the Santa Fe grazing allotment. The proposed design would cancel 23.5 acres of this 17,763-acre public (BLM) allotment. These acres would no longer be available for grazing, resulting in a 5-AUM reduction compared with Alternative A.

The maximum disturbance area from target shooting range construction within the enclosure of the current Buckman-Alamo Creek design would be approximately 6.2 acres. Within this area, a combination of cut and fill would be required to create the parking lot and shooting bays. The number of acres that would need to be excavated versus built up would depend on the final site design and grade. Since this site has a hillside that would be used as a backstop, it would require more excavation and less imported soil than the other proposed sites.

Improvement of the access road would increase the width of the existing two-track road from approximately 10 feet to 20 feet wide to provide two-way traffic flow. This would result in approximately 0.4 acres of disturbed area. The roadway would be graded and shaped (cut and fill), and culverts would be placed to provide proper drainage, where needed.

The BLM would install approximately 4,259 feet (0.8 miles) of barbed-wire fence to enclose the range. This would include digging post holes and using equipment to transport materials.

During the construction phase, heavy equipment, including dump trucks delivering material regularly, would be utilized primarily to construct earthen berms. Backstop berms would be 20 feet tall, and containment berms would be 10 feet tall. To reduce visual impacts, shooting structures and the vault toilet would not exceed a height of 15 feet. Ground disturbance would be kept to a minimum to preserve the existing vegetation. The BLM would choose color palettes for structures to complement the local landscape. Activities that would produce loud noises would include heavy equipment operation, including backup alarms. The BLM would use high-powered diesel engines, which typically operate at higher decibels than smaller, gas-powered engines.

The range would include the following amenities:

- Three 50-yard, one 100-yard, one 200-yard, and one 300-yard shooting lanes/bays
- Six backstop berms made with material harvested from the site
- Six side-containment berms made with material harvested from the site
- Four shooting structures with shooting benches
- A graded access road that is 20 feet wide
- A built-up gravel parking area
- Accessibility parking and sidewalks
- Four-strand barbed-wire fence enclosing the facility
- Swale on the hillside above bay backstops to redirect water
- One single-vault toilet

- Target area containment basins (3 feet wide) with 6-inch clay liner
- Targets: ten per pistol range and one per rifle range

2.3.2 Alternative B Dispersed Shooting Closure

Reclamation of Informal Target Shooting Sites

Alternative B would include the reclamation of three informal target shooting sites established by the public over the past two decades. This process would include lead abatement, trash collection, revegetation with a native seed mix, and closure of these sites. Professional testing of soils at the sites would be necessary to determine the extent of lead abatement that would be required. For example, the degree of leaching would determine the required soil depth treatment. The entire site would not necessarily need to be treated; sampling would identify the focus areas.

Over the years, users have brought refuse to these sites to use as shooting targets. During reclamation, the BLM would remove the trash deposits. This would require a large crew to collect small pieces of trash dispersed throughout the landscape. Seeding sites would include using equipment to rip the soil surface (for increased infiltration) and spreading a native seed mix. These sites would be permanently closed to users for recreational target shooting. This would be accomplished by using a combination of measures, including fencing, boulder placement, signage, and surveillance systems.

Buckman-Alamo Creek Informal Target Shooting Site

The BLM would close an approximately 35-acre informal target shooting site established by the public roughly 10 years ago. The site is in the Alamo drainage approximately 6.5 miles northwest of the city of Santa Fe on County Road 77.

Camel Tracks Informal Target Shooting Site

The BLM would close an approximately 67-acre informal target shooting site established by the public roughly 20 years ago. It is on the north side of Camel Tracks Road (County Road 56C) approximately 1.5 miles from the road; it is roughly 0.7 miles from the outskirts of Santa Fe.

San Pedro Mountains Informal Target Shooting Site

The BLM would close an approximately 11.2-acre informal target shooting site established by the public roughly 15 years ago. The San Pedro Mountains informal target shooting site is immediately south of New Mexico State Road 344 and about 1 mile east of its junction with New Mexico State Road 14. It is 0.2 miles from local residences of the San Pedro community.

2.4 ALTERNATIVE C

Under Alternative C, the BLM would construct and operate two recreational target shooting sites for public use—the Buckman-Alamo Creek Target Shooting Range described under Alternative B and the Camel Tracks Option 2 shooting range. In addition to constructing and operating the proposed recreational target shooting ranges, the BLM would redirect target shooting from the current dispersed shooting sites (the Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains areas) by instituting a recreational shooting closure buffer within 1-mile of existing roads in these areas across 7,124 acres. The slightly smaller closure buffer than under Alternative B is due to the larger size of the proposed Camel Tracks Option 2 shooting range. The BLM would also conduct remediation after closing these areas to

recreational target shooting, including lead abatement, trash collection, and revegetation with a native seed mix, as described under Alternative B.

Under Alternative C, approximately 28.29 acres of ground disturbance and 2.8 miles of fencing would occur on 97.5 acres at the two proposed recreational target shooting ranges. Alternative C would cancel the same 23.5 acres of the Santa Fe grazing allotment described under Alternative B as part of the Buckman-Alamo Creek shooting range, resulting in the loss of 5 AUMs. Alternative C also would cancel 74 acres of the Calabasas grazing allotment as part of the Camel Tracks Option 2 shooting range, which would result in the loss of 15 AUMs.

2.4.1 Alternative C Range Details by Site

Camel Tracks Option 2

The Camel Tracks Option 2 shooting range (**Map 2-7**) would be approximately 74 acres. It would be approximately 0.5 miles northwest of Camel Tracks Road and 1.6 miles west of the outskirts of the city of Santa Fe. The recreational target shooting range would be approximately 1.4 miles from local residences. The BLM would consider the auditory resource impacts in the design elements; features such as berms and three-sided shooting structures would be included to help reduce noise from the facility's use. The proposed recreational target shooting range would be within the Calabasas grazing allotment. Alternative C would cancel 74 acres of the Calabasas grazing allotment, resulting in a 15-AUM reduction.

The maximum disturbance area from shooting range construction within the enclosure of the current Camel Tracks Option 2 design would be approximately 20.4 acres. Within this area, a combination of cut and fill would be required to create the parking lot and shooting bays. The number of acres that would need to be excavated versus built up would depend on the final site design and grade.

Improvement of the approximately 0.7-mile-long access road would increase the width of the existing two-track road from approximately 10 to 20 feet to provide two-way traffic flow. This would result in approximately 1.7 acres of disturbance. The roadway would be graded and shaped (cut and fill), and culverts would be placed to provide proper drainage, where needed.

The BLM would install approximately 7,695 feet (1.5 miles) of barbed-wire fence and 0.5 miles of drill-pipe barrier fence to enclose the range; this would include digging post holes and using equipment to transport materials.

During the construction phase, heavy equipment, including dump trucks delivering material regularly, would be utilized, primarily to construct earthen berms. Backstop berms would be 20 feet tall, and containment berms would be 10 feet tall. To reduce visual impacts, shooting structures and vault toilets would not exceed a height of 15 feet. Ground disturbance would be kept to a minimum to preserve the existing vegetation. The BLM would choose color palettes for structures to complement the local landscape. Activities that would produce loud noises would include heavy equipment operation, including backup alarms. The BLM would use high-powered diesel engines, which typically operate at higher decibels than smaller, gas-powered engines.

The range would include the following amenities:

- Three 50-yard, one 100-yard, one 200-yard, one 300-yard, one 400-yard, one 500-yard, one 600-yard, one 700-yard, one 800-yard, one 900-yard, and one 1,000-yard shooting lanes/bays

- Thirteen backstop berms made with a combination of imported and site-harvested material
- Eight side-containment berms made with a combination of imported and site-harvested material
- Seven three-sided shooting structures with shooting benches
- Sporting clay/skeet shooting area
- A graded access road that would be 20 feet wide
- A gravel parking area and site loop
- Accessibility parking and sidewalks
- Drill pipe barrier fence around part of the range enclosure's east and south sides (bordering the parking areas)
- Four-strand, wildlife-friendly, barbed-wire fence around the range enclosure's west side, north side, and part of the east side
- One double-vault toilet
- Target area containment basins (3 feet wide) with 6-inch clay liner
- Targets: ten per pistol bay and one per rifle bay

Buckman-Alamo Creek

Under Alternative C, details of the Buckman-Alamo Creek shooting range would be the same as those under Alternative B.

2.5 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

2.5.1 Potential Shooting Range Locations

The BLM and its partners have scouted potential locations for recreational target shooting ranges in the Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains areas over the past several years. In early 2020, a focus group of diverse stakeholders organized by Santa Fe County identified several locations that might be suitable for developing recreational target shooting ranges. These locations and others are shown on **Maps 2-8** through **2-10** in **Appendix A**.

Prior to the initiation of public scoping in August 2022, these potential locations were scouted by an interdisciplinary team of BLM resource specialists, as well as representatives from the New Mexico Department of Game and Fish, Santa Fe County, and the US Fish and Wildlife Service, over a series of field visits. The team dismissed the following locations from further consideration for the following reasons:

Buckman-Alamo Creek

- Locations were too far away and only accessible by insufficiently maintained roads to adequately serve populations.
- Locations were too close to topographic features of cultural significance to tribal nations.
- Locations were too close to developed recreation sites that are incompatible with developed recreational target shooting ranges (that is, the Diablo Canyon campground).
- Locations were too close to raptor nesting areas.
- Locations had highly erodible soils.
- Locations were too close to residential areas.

- Locations conflicted with other developments in the area (for example, recreation sites, rights-of-way for transmission lines, and transfer stations).
- Locations were limited by topographic features.

Camel Tracks

- Locations were too close to topographic features of cultural significance (for example, Tetilla Peak and other hills and ridges).
- Locations were too far out on the La Bajada Mesa such that a new development would change the area's character and lead to increased visitation and associated impacts in an area that is relatively pastoral and undeveloped.
- Locations would cause greater impacts on cultural resources.
- Locations would cause greater impacts on wildlife, including migratory birds, burrowing owls, and other important wildlife species.

In addition, consideration was given to closing all public lands in the Camel Tracks area (approximately 14,259 acres) to recreational target shooting without the development of a recreational target shooting range. This alternative was dismissed since it would not meet the full objectives of the project, including providing for safe, controlled opportunities for recreational target shooting.

San Pedro Mountains

The undeveloped site that has become a destination for recreational target shooting has been ruled out for the possibility of developing a range for two primary reasons:

- The San Pedro Mountains site is in proximity to a residential area. The site is within a block of BLM-administered lands consisting of 114 acres. The private lands surrounding the target shooting site include private residences in too close a proximity to adequately mitigate potential noise and other impacts associated with operating a developed recreational target shooting range.
- The site's topography—located within a ravine—is substantially sloped and transected by an active arroyo. The topography would not reasonably accommodate an appropriately engineered recreational target shooting range.

The BLM and its partners made multiple trips to the San Pedro Mountains to investigate potential recreational target shooting range locations to consider alternatives to the existing location. The BLM focused on the possibility of developing a recreational target shooting range at the western end of the mountains at the mouth of a drainage, as shown on **Map 2-3**. While this location might have accommodated a highly engineered recreational target shooting range, it lacked ideal characteristics, including the topographic features. For example, the potential site also included slopes that would have required substantial excavation.

This potential location also was situated on top of a concentration of historic properties associated with the historic San Pedro Mine Camp site. Development of the site would have been predicated on the data recovery of the entire mining camp at an infeasible cost.

In addition, the BLM does not have adequate access to the site. Development of the site would have depended on an access easement across lands owned by Santa Fe County. The deed to these county-

owned lands limits any development of the land except for the purpose for which the lands were purchased by the county—in this case trail development. As such, the Santa Fe County Board of Commissioners rejected further consideration of providing for an easement to the BLM for access for the potential development of a recreational target shooting range.

Other BLM-administered lands within the San Pedro Mountains—approximately 2,000 acres in total—were scouted for the possibility of a recreational target shooting range. Other locations lacked the feasible topography due to the mountainous terrain, they lacked public access, or they were close to residences.

Furthermore, the TFO investigated multiple other options outside its administrative boundaries, including lands within the BLM Rio Puerco Field Office, State Land Office-administered lands, and even some private lands (for example, Founders Ranch) for the possibility of options outside its jurisdiction. The BLM dismissed these possible options due to the lack of BLM jurisdiction; the options would not have met the needs for users at the current San Pedro destination; or they were infeasible for various other reasons, including proximity to residential areas, legal access, and a lack of interest by other land-managing agencies.

2.6 COMPARISON OF ALTERNATIVES

Table 2-1, below, summarizes the primary features of the alternatives.

Table 2-1. Summary of the Primary Features of the Alternatives

| Project Feature | Alternative A (No Action) | Alternative B | Alternative C |
|------------------------|---|---|--|
| Closures | No shooting closures would occur. Issues described in Section 1.3 , Purpose and Need, would remain unresolved. | Shooting restrictions (closures) would occur in buffer zones within 1 mile of existing roads across 21,658 acres. | Shooting restrictions (closures) would occur in buffer zones within 1 mile of existing roads across 21,548 acres. |
| Proposed Ranges | The BLM would not develop any recreational target shooting ranges. | The BLM would develop the following recreational target shooting ranges: <u>Buckman-Alamo Creek</u> <ul style="list-style-type: none"> Approximately 23.5-acre facility with approximately 6.2 acres of ground disturbance (shooting bays, parking area, and swale) and 0.8 miles of fencing <u>Camel Tracks Option 1</u> <ul style="list-style-type: none"> Approximately 12-acre facility with approximately 4.5 acres of ground disturbance (shooting bays and parking area) and 0.7 miles of fencing | The BLM would develop the following recreational target shooting ranges: <u>Buckman-Alamo Creek</u> <ul style="list-style-type: none"> As described under Alternative B <u>Camel Tracks Option 2</u> <ul style="list-style-type: none"> Approximately 74-acre facility with approximately 20.4 acres of ground disturbance (shooting bays, clay/skeet area, access road, and parking area) and 2 miles of fencing |

| Project Feature | Alternative A (No Action) | Alternative B | Alternative C |
|------------------------|---|---|---|
| Grazing Allotments | Dispersed target shooting would continue at the current informal sites in and around the Santa Fe and Calabasas grazing allotments. | <p>The Buckman-Alamo Creek shooting range would be developed on approximately 23.5 acres of the Santa Fe grazing allotment, resulting in the loss of 5 AUMs.</p> <p>The Camel Tracks Option 1 shooting range would not be located within any current grazing allotments and would not result in the loss of any AUMs.</p> | <p>The Buckman-Alamo Creek shooting range would be developed as described under Alternative B.</p> <p>The Camel Tracks Option 2 shooting range would be developed on approximately 74 acres of the Calabasas grazing allotment, resulting in the loss of 15 AUMs.</p> |

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Chapter 3. Affected Environment and Environmental Effects

3.1 INTRODUCTION

This chapter describes the affected environment, which is the existing or baseline conditions relevant to each resource or resource use. Following the affected environment is a description of the environmental effects relative to each issue. The Council on Environmental Quality (CEQ) regulations under 40 CFR 1500 and the BLM NEPA handbook require the BLM to identify significant issues for analysis and focus only on those issues. The BLM NEPA handbook defines an issue as “a point of disagreement, debate, or dispute with a proposed action based on some anticipated environmental effect” (BLM 2008, p. 40). In addition, an issue “has a cause and effect relationship with the proposed action and alternatives; is within the scope of analysis; has not be [sic] decided by law, regulation, or previous decision; and is amenable to scientific analysis rather than conjecture” (BLM 2008, p. 40).

3.2 RECREATION AND ACCESS

3.2.1 Affected Environment

The BLM does not have visitation data for each informal target shooting site. All sites currently experience intensive, unmanaged recreational target shooting. Throughout the planning area, many of the traditional dispersed recreational uses have yielded to dispersed target shooting due to the inherent dangers of the sport, its associated resource conflicts, and the uncontrolled nature of that activity in the planning area. With the increasing population of the Santa Fe metropolitan area and the popularity of the sport, the volume of recreational target shooting activity on BLM-administered lands in the planning area is high.

Buckman-Alamo Creek

The Buckman-Alamo Creek area is primarily within the West Santa Fe Extensive Recreation Management Area (ERMA; 20,610 acres), and a smaller portion (480 acres) is in the Diablo Canyon Special Recreation Management Area (SRMA; see **Map 3-1**, Recreation Management Areas). The West Santa Fe ERMA is mostly undeveloped and used primarily by local communities. Dispersed target shooting occurs throughout the area. The Diablo Canyon SRMA was designated for its access to diverse trails, learning, and unstructured play. The Taos RMP closed the Diablo Canyon SRMA to target shooting. Access to the Buckman-Alamo Creek area is provided primarily from Old Buckman Road along the area’s western boundary. There are currently a few recreational developments such as designated trails, trailheads, or other improvements within this area, particularly at Diablo Canyon and Dead Dog Well.

Camel Tracks

The Camel Tracks area is within the West Santa Fe ERMA (7,400 acres) and Cieneguilla SRMA (6,770 acres). In addition to the description of the West Santa Fe ERMA provided above, the Taos RMP notes that a portion of the ERMA near Camel Tracks is suitable for a target shooting range, specifying that a Recreation and Public Purposes Act lease may be issued for the development of a target shooting range. The Cieneguilla SRMA was designated to provide opportunities to learn about cultural resources through hiking, interpretation, and rock art viewing. The Taos RMP closed the Cieneguilla SRMA to target shooting.

Dispersed target shooting occurs throughout the Camel Tracks area. Additionally, the area is used for hiking, horseback riding, dog walking, trail running, mountain biking and off-highway vehicle use. Access to the area is provided from County Road 56C north of US Highway 85.

San Pedro Mountains

The San Pedro Mountains area is entirely within the San Pedro Mountains SRMA (2,470 acres). The primary recreational activities occurring in the area are hiking, dog walking, biking, horseback riding, and recreational prospecting. Dispersed target shooting occurs throughout the area. The San Pedro Mountains SRMA was designated to provide nearby communities access to trails and opportunities for routine exercise. Access to the San Pedro Mountains is provided from State Highway 344, primarily via Oro Quay Road, Miners Row Road, and Hamate Way. There are no authorized SRPs, designated trail systems for equestrian or pedestrian use, or designated campgrounds within this area.

3.2.2 Environmental Consequences

Issue 1: How will the BLM ensure the needs of recreational target shooters are met while balancing other uses?

Alternative A – No Action

Under Alternative A, dispersed target shooting would continue at these three sites, which would continue to displace many other types of recreationists. The BLM would not provide managed recreational target shooting ranges where resource impacts would be minimized. Impacts of the current dispersed target shooting include trigger trash (i.e., spent ammunition, shot up targets and other objects) and illegal dumping, damaged natural and human-made features used as targets (including signs, vegetation, and boulders), a threat of wildfire, and safety incidents. These impacts would continue to result in the public safety risks described under **Section 3.8**, Public Health and Safety. Under this alternative, target shooting restrictions would be limited to seasonal fire restrictions if warranted by seasonal conditions and prohibition on the use of exploding targets, as described under **Section 3.8**, Public Health and Safety.

Alternative B

Under Alternative B, recreational target shooting activities would be allowed within the proposed Camel Tracks Option I and Buckman-Alamo Creek shooting ranges (**Maps 2-4 and 2-5**). Impacts on recreational target shooters would be beneficial and long term because this alternative supports the project's purpose, which is to provide safe areas for recreational target shooting. The local shooting sports community would be beneficially impacted in the long term by having access to these developed recreational target shooting ranges where users would not be excluded based on memberships or clubs. Target structures at known distances would indirectly benefit shooters seeking opportunities to practice associated skills, such as firearm sighting in, testing equipment, and honing shooting skills.

As a result of improvements at these sites, each site would meet the “developed recreation site” definition found in 43 CFR 8360.0-5. Rules associated with developed recreation sites (see 43 CFR 8365) would apply, in addition to any supplemental rules that the BLM may establish. Application of the developed recreation site rules and the establishment of supplementary rules for the purpose of ensuring the developed recreational target shooting ranges are used according to the intended site design would limit recreational target shooting to the developed target shooting ranges and preclude dispersed target shooting throughout much of the respective Buckman-Alamo Creek and Camel Tracks areas.

Temporary closure of these areas (approximately 59 acres; **Maps 2-4** and **2-5**) during construction would adversely impact recreational shooters as a result of short-term displacement to other available areas. This impact would be negligible because the temporary construction closures would likely be staggered. Any construction activities would occur outside of migratory bird and raptor breeding and nesting periods. If construction occurs between fall and spring, closure of these sites would result in greater displacement of users. The timing of construction of these two sites is unknown.

Sites would also be temporarily closed for maintenance, monitoring, cleanup, or other operational or administrative needs each Wednesday. The BLM would consider additional temporary closures or restrictions as appropriate. Any temporary closure to ensure public and worker safety would be for the least amount of time.

Camel Tracks Option I

The construction and operation at this recreational target shooting range would provide similar opportunities for recreational target shooting in a location that has been popular for this type of activity for many years. These opportunities would shift from self-directed to a more structured opportunity through the modifications to the setting. This would benefit recreational shooters by providing a safe, controlled, and relatively clean facility for shooters seeking opportunities to practice associated skills. Compared with Alternative A, under Alternative B, the Camel Tracks Option I shooting range would limit the number of shooters the Camel Tracks site could accommodate, since each shooting lane would accommodate one shooter at a time.

Under Alternative B, recreational target shooters would be displaced from the 7,234-acre Camel Tracks closure area over the long term (**Map 2-4**). Opportunities for recreational target shooting would still exist on the approximately 59 acres of developed target shooting ranges proposed under Alternative B.

Buckman-Alamo Creek

The construction and operation at this site would provide similar opportunities for recreational target shooting at a location situated farther away from populated areas. These opportunities would shift from self-directed to a more structured opportunity through the modifications to the setting. This would benefit recreational shooters by providing a safe, controlled, and relatively clean facility for shooters seeking opportunities to practice associated skills. Compared with Alternative A, under Alternative B, the Buckman-Alamo Creek shooting range would limit the number of shooters the Buckman-Alamo Creek area could accommodate, since each shooting lane would accommodate one shooter at a time.

Under Alternative B, recreational target shooters would be displaced from the 13,597-acre Buckman-Alamo Creek closure area over the long term (**Map 2-5**). Opportunities for recreational target shooting would still exist on the approximately 59 acres of developed target shooting ranges proposed under Alternative B.

San Pedro Mountains

Under Alternative B, the BLM would not develop a recreational target shooting range in the San Pedro Mountains location. Recreational target shooters would be displaced from the 827-acre San Pedro Mountains closure area over the long term (**Map 2-6**). Opportunities for recreational target shooting would still be available at the developed target shooting ranges proposed under Alternative B if users are willing to travel a further distance to shoot.

Alternative C

Under Alternative C, the impacts on recreational target shooters would be similar to those described under Alternative B, except the BLM would develop the Camel Tracks Option 2 shooting range instead of the Camel Tracks Option 1 shooting range.

Camel Tracks Option 2

The construction and operation at this site would provide expanded opportunities for recreational target shooting in a location that has been popular for this type of activity for many years. These opportunities would shift from self-directed to a more structured opportunity through the modifications to the setting. This would benefit recreational shooters by providing a safe, controlled, and relatively clean facility for shooters seeking opportunities to practice associated skills.

The Camel Tracks Option 2 shooting range would limit the number of shooters the Camel Tracks site could accommodate, compared with Alternative A, since each shooting lane would accommodate one shooter at a time. However, the Camel Tracks Option 2 shooting range could accommodate more shooters than the Camel Tracks Option 1 shooting range proposed under Alternative B; this is due to the greater number of shooting lanes as well as the additional skeet shooting area.

Under Alternative C, recreational target shooters would be displaced from the 7,124-acre Camel Tracks closure area over the long term (**Map 2-7**). Opportunities for recreational target shooting would still exist on the approximately 134 acres of developed target shooting ranges proposed under Alternative C.

Issue 2: How will the alternatives affect non-shooting recreational uses?

Alternative A – No Action

Under Alternative A, dispersed target shooting would continue in the Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains areas. This would continue to result in user conflicts and displace recreationists seeking opportunities for hiking, horseback riding, trail running, mountain biking, and other recreational activities due to noise and public safety risks associated with the ongoing dispersed target shooting.

Alternative B

Ongoing dispersed target shooting has affected the solitude for the existing Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains informal sites and immediate vicinities. Recreationists seeking opportunities for hiking, horseback riding, and general sightseeing have already been displaced to other areas due to noise and public safety risks associated with the ongoing dispersed target shooting. Therefore, short- and long-term impacts on non-shooting recreational uses would be adverse and negligible in the Buckman-Alamo Creek and Camel Tracks locations. Alternative B would close dispersed target shooting in the San Pedro Mountains area, which would result in beneficial short- and long-term impacts on non-shooting recreational uses in this area by eliminating the noise and public safety risks associated with dispersed target shooting.

Project elements such as perimeter fencing that encloses facilities, backstop berms, and designated shooting structures would reduce user conflicts by restricting access and limiting the direction of firearm discharge. Under Alternative B, the construction and operation of the Camel Tracks Option 1 and Buckman-Alamo Creek shooting ranges would permanently displace non-shooting recreational uses on 59 acres (35 acres for the Buckman-Alamo Creek shooting range, and 24 acres for the Camel Tracks

Option 1 shooting range). However, the impact would be negligible compared with Alternative A since ongoing dispersed target shooting has already displaced non-shooting recreational uses.

Alternative C

Impacts on non-shooting recreational uses would be similar to those described under Alternative B, except non-shooting recreational uses would be permanently displaced over a larger area (169 acres). This would be due to the increased acreage of the Camel Tracks Option 2 shooting range (134 acres) compared with the Camel Tracks Option 1 shooting range (24 acres).

Issue 3: How will the alternatives affect travel and access?

Alternative A – No Action

Under Alternative A, the BLM would not close dispersed target shooting at the current sites and would not develop formal recreational target shooting ranges. Alternative A would not result in any changes to travel and access compared with current conditions.

Alternative B

The development of the Camel Tracks Option 1 and Buckman-Alamo Creek shooting ranges would result in short- and long-term impacts on travel and access during temporary construction activities and long-term operation of the shooting ranges. Any temporary closure to ensure public and worker safety would be for the least amount of time practicable.

Camel Tracks Option 1

The proposed Camel Tracks Option 1 shooting range would be constructed over an existing two-track road connecting to County Road 56C (**Map 2-4**). Under Alternative B, the BLM would preclude motorized access on and reclaim most of this two-track road. Compared with Alternative A, this would reduce motorized access on this road. The BLM would improve approximately 83 feet of this access road to increase the width of the road from approximately 10 feet to 20 feet wide to provide two-way traffic flow. This would improve access to the shooting range in the long term. Finally, the BLM would coordinate with utilities to provide access to the existing transmission line in the Camel Tracks Option 1 closure area on a case-by-case basis.

Buckman-Alamo Creek

The BLM would improve approximately 815 feet of the existing two-track access road connecting from Old Buckman Road (**Map 2-5**). The improvement would increase the width of the existing two-track road from approximately 10 feet to 20 feet wide to provide two-way traffic flow. This would improve motorized access to the shooting range in the long term.

Alternative C

Impacts on travel and access resulting from development of the Buckman-Alamo Creek shooting range would be the same as those described under Alternative B.

Camel Tracks Option 2

The proposed Camel Tracks Option 2 shooting range would be constructed over two existing two-track access roads (**Map 2-7**). Under Alternative C, the BLM would preclude motorized access and reclaim these routes. This would reduce motorized access on these routes compared with Alternative A. The

BLM would widen the approximately 0.7-mile-long access road connecting from County Road 56C to provide two-way traffic flow. This would improve access to the shooting range in the long term. Similar to under Alternative B, the BLM would coordinate with utilities to provide access to the existing transmission line in the Camel Tracks Option 2 closure area on a case-by-case basis.

3.3 CULTURAL RESOURCES

3.3.1 Affected Environment

In BLM Manual 8100, a cultural resource is defined as a location of human activity, occupation, or use identifiable through field survey, historical documentation, or oral evidence (BLM 2004). “Cultural resources” is an inclusive term that has been adopted and widely used to refer to the diverse human record found in sites, structures, objects, and places created and/or used by people. These may comprise archaeological, historic, or architectural districts, sites, structures, objects, or places such as cultural landscapes. Cultural landscapes are geographic areas, including both cultural and natural resources, defined by human interaction with the environment. The term “cultural resources” also includes historic properties, which the NHPA defines as cultural resources determined to be eligible for listing on the National Register.

Cultural resources in the planning area and the regions around it are plentiful and diverse, with recorded archaeological site types including a wide range of material cultures and ages. These include resources that range from early prehistoric sites and artifacts to later historic-period transportation routes, ranching locales, and residential sites stretching from over 10,000 years before the present and up into modern times (BLM 2023a). In addition to the plentiful cultural materials that make up the planning area’s material record, the Caja del Rio, a prominent upland portion of the planning area west of the city of Santa Fe, is considered a cultural landscape by many (Caja del Rio Coalition 2023; All Pueblo Council of Governors 2021; Board of Commissioners of Santa Fe County 2022). The Caja del Rio is a plateau nestled between the Jemez Mountains and Rio Grande on the west, the foothills of the Sangre de Cristo Mountains on the east, and the Santa Fe River Canyon on the south.

The Caja del Rio includes distinctive, evocative, and historic features such as the La Bajada escarpment, Diablo Canyon, Tetilla Peak, and La Cieneguilla petroglyph site, found along the basalt cliffs of the mesa above the Santa Fe River. In the words of Santa Fe City Councilwoman Renee Villarreal, “The Caja del Rio is also a place of spiritual connection and importance, to Pueblo peoples since time immemorial, to Spanish settlers going back more than 13 generations, and more recently [it] has importance to conservationists, environmentalists, sportspeople, outdoor enthusiasts and even spiritual leaders” (Cajiao 2022).

The Camel Tracks area being considered for development of the recreational target shooting ranges is on top of the southern portion of the Caja del Rio. The Buckman-Alamo Creek area is just below the edge of the Caja del Rio to the east, in the Cañada Ancha Drainage (see **Map I-1**, Planning Area).

As part of this undertaking, the BLM conducted a Class III cultural resources inventory of the three proposed recreational target shooting range locations. During the course of this investigation, seven new archaeological sites were identified, and two previously recorded sites were revisited. Of the newly documented sites, five are within the proposed Buckman-Alamo Creek shooting range footprint and two are within the proposed Camel Tracks Option 1 shooting range footprint. One of the previously recorded

sites is located in the proposed Camel Tracks Option 2 shooting range footprint and the other is located along the southeastern margin of the Camel Tracks Option 1 shooting range footprint.

The NHPA and federal regulations (36 CFR 60.4) stipulate that a property (site) must be at least 50 years old to be eligible for nomination to the National Register of Historic Places (NRHP or National Register). A site may be eligible for nomination to the NRHP if it meets at least one of the following criteria and retains sufficient integrity to convey its significance:

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history.

All eligible sites recorded during this investigation are eligible under Criterion D. The draft report for the cultural inventory was submitted to the New Mexico SHPO on August 11, 2023. All determinations of effect and eligibility recommendations presented in the draft report were concurred with by the SHPO on August 15, 2023 (HPD log 120399).

El Camino Real de Tierra Adentro NHT has seven segments listed as historic properties in Santa Fe County alone (NPS 2023). One segment of the NHT is on BLM-administered land in the Santa Fe Ranch ACEC and two are in the La Cienega ACEC. The two segments in the La Cienega ACEC are historic properties, the Bajada Mesa and Las Bocas segments (see **Section 3.10**, Special Designations). The two National Register-listed segments travel through the planning area south of the Camel Tracks area; the Bajada Mesa segment is the closer of the two and passes approximately 0.3 miles south of County Road 56C, which is used to access the heavily-used dispersed target shooting area, proposed Camel Tracks shooting range locations, and Caja del Rio in general.

Just as some natural processes can be responsible for preserving archaeological sites, other natural processes, such as erosion and wildfire, may cause direct or indirect adverse effects on cultural resources. Physical degradation of sites due to natural processes, such as erosion, can result in exposure of previously unknown cultural resources, the loss of artifacts and features, or potentially complete destruction.

Natural processes that affect the site condition are influenced by climate change. Climate-driven changes in ground cover and erosion are emerging stressors on cultural resources. More frequent and more intense droughts, wildfires, and storms will increase the potential erosion of soils, changes in the vegetation cover, and direct damage to structures built of flammable materials (Davis 2018). These can be an impact in and of themselves depending on the nature of the cultural resource; they also could result in some cultural resources becoming more exposed and susceptible to other impacts, such as those from public access.

Impacts on cultural resources due to public access can include looting, vandalism, and unintentional damage. In the planning area, vandalism is a well-documented problem, such as at the La Cieneguilla petroglyph site (BLM 2022; Caja del Rio Coalition 2022).

As part of the recent Class III cultural resources inventory, BLM staff conducted an assessment of the auditory impacts on the La Cienaguilla petroglyph site from the nearby Camel Tracks informal target shooting site. The assessment indicates that current auditory impacts on the integrity of feeling and setting of the La Cienaguilla petroglyph site are minimal (BLM 2023a).

3.3.2 Environmental Consequences

Section 106 of the NHPA requires all federal agencies to consider the effects of undertakings on cultural resources that are eligible for or listed on the National Register. Through the Section 106 process, the BLM would seek to mitigate any impacts on cultural resources. Though the Section 106 and NEPA processes are separate, in complying with Section 106, the BLM would work to ensure that impacts on cultural resources from activities carried out during any of the alternatives would be mitigated. This is often done through a combination of avoidance, data recovery, and monitoring. The BLM will follow existing regulatory procedures for the consideration of impacts on cultural resources (for example, Section 106 of the NHPA or BLM and New Mexico SHPO programmatic agreement protocols).

The impact analysis areas for cultural resources are the locations proposed for recreational target shooting range development under each alternative. The effects of each alternative are assessed in terms of actions that alter, degrade, or otherwise affect the integrity and condition of a cultural resource or its surrounding setting. Cultural resources are a nonrenewable resource, and damage to them typically results in permanent impacts.

Issue 1: How will the alternatives affect cultural resources, including historic properties and cultural landscapes?

Alternative A – No Action

Under Alternative A, current impacts on the setting and integrity of cultural resources in the planning area due to public access (including dispersed target shooting) would continue. This includes impacts on historic properties, as well as impacts on the setting of the Caja del Rio cultural landscape.

Alternative B

Under Alternative B, impacts on the setting and integrity of cultural resources in the planning area from current dispersed target shooting described in the affected environment, including impacts on the larger Caja del Rio cultural landscape, would be concentrated in the newly developed recreational target shooting ranges. Due to the concentration of recreational target shooting activities and construction of two recreational target shooting ranges, the impacts on the setting in these areas would be more intense than under Alternative A; however, the impacts would be experienced over a smaller area than under Alternative A and would be further reduced by design features incorporated to minimize impacts to visual resources and the acoustic environment (see **Sections 3.9**, Acoustic Environment and **3.11**, Visual Resources).

Buckman-Alamo Creek

Under Alternative B, the BLM would construct one proposed recreational target shooting range at the Buckman-Alamo Creek location. The archaeological sites present at this location, including four National Register-eligible historic properties and one of unknown eligibility status, could be damaged or destroyed completely. Recommended mitigation strategies include avoidance, to include a 50-foot buffer around the site boundary, and monitoring.

Camel Tracks Option 1

Under Alternative B, the BLM would construct the proposed Camel Tracks Option 1 Shooting Range at the Camel Tracks location. The archaeological sites present at this location, including two National Register-eligible historic properties, could be damaged or destroyed completely. Recommended mitigation strategies include avoidance, to include a 50-foot buffer around the site boundary, and monitoring.

Alternative C

Under Alternative C, impacts on the setting and integrity of cultural resources in the planning area from current dispersed target shooting described in the affected environment, including impacts on the larger Caja del Rio cultural landscape, would be concentrated in the newly developed recreational target shooting ranges. Due to the concentration of target shooting activities and the construction of two recreational target shooting ranges, the impacts on the setting in these areas would be more intense than under Alternative A. These impacts would be experienced over a smaller area in the Buckman-Alamo Creek range location and larger area in the Camel Tracks Option 2 location compared to Alternative A (see **Section 3.6**, Acoustic Environment). These impacts would also be reduced by design features incorporated to minimize impacts to visual resources and the acoustic environment (see **Section 3.11**, Visual Resources and **Section 3.9**, Acoustic Environment).

Buckman-Alamo Creek

Under Alternative C, impacts due to the recreational target shooting range constructed at the Buckman-Alamo Creek location would be identical to those under Alternative B.

Camel Tracks Option 2

Under Alternative C, the BLM would construct the proposed Camel Tracks Option 2 shooting range at the Camel Tracks location. The archaeological sites present at this location, including one National Register-eligible historic property, could be damaged or destroyed completely. Recommended mitigation strategies include avoidance and monitoring.

3.4 BIOLOGICAL RESOURCES (INCLUDING VEGETATION AND WILDLIFE)

3.4.1 Affected Environment

Vegetation

The planning area is within the TFO West Santa Fe planning unit within the juniper savanna vegetation community. Dominant species include oneseed juniper (*Juniperus monosperma*), pinyon pine (*Pinus edulis*), yucca (*Yucca glauca*), tree cholla (*Opuntia imbricata*), sand sage (*Artemisia filifolia*), rubber rabbitbrush (*Ericameria nauseosa*), and blue grama (*Bouteloua gracilis*).

General Wildlife, Including Migratory Birds and BLM Sensitive Species

The planning area and adjacent areas contain wildlife associated with the upland vegetation communities found within the West Santa Fe planning unit. Common species that may occur include mammals such as mule deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus canadensis nelsoni*), black bear (*Ursus americanus*), mountain lion (*Puma concolor*), coyote (*Canis latrans*), cottontail rabbit (*Sylvilagus* spp.), and prairie dogs (*Cynomys* spp.); raptors such as burrowing owl (*Athene cunicularia*), ferruginous hawk (*Buteo regalis*), red-tailed hawk (*B. jamaicensis*), prairie falcon (*Falco mexicanus*), American kestrel (*F. sparverius*), Swainson's hawk (*B. swainsoni*), and turkey vulture (*Cathartes aura*); and migratory birds such as pinyon jay (*Gymnorhinus cyanocephalus*), Virginia's warbler (*Vermivora virginiae*), juniper titmouse (*Baeolophus ridgwayi*),

gray vireo (*Vireo vicinior*), black-chinned sparrow (*Spizella atrogularis*), and Bendire's thrasher (*Toxostoma bendirei*) (BLM 2012; USFWS 2023). Migratory birds are likely present near the current and proposed sites and would continue to occupy these areas, potentially for foraging and nesting.

There is the potential for some BLM sensitive species to occur within or adjacent to the planning area. However, field surveys conducted in 2023 did not identify any sensitive plant or wildlife species within the proposed sites. BLM sensitive species identified on the Santa Fe County BLM Sensitive Wildlife Species List (BLM 2018b) were analyzed to determine their potential for occurrence in the planning area. See the biological evaluation (**Appendix D**) for more information regarding BLM sensitive species.

3.4.2 Environmental Consequences

Issue 1: How will the alternatives impact biological resources, including wildlife, migratory birds, sensitive species, and vegetation?

Nature and Type of Effects

Vegetation

Long-term impacts include the removal of vegetation during the construction of the new recreational target shooting ranges. Short-term impacts on vegetation, such as crushing, trampling, and increased erosion, would also occur from construction vehicles and workers. Users of the informal target shooting sites could also crush and trample vegetation via vehicle use, or to a lesser extent by foot, in dispersed areas. Trigger trash, dumping, and the increased risk of wildfire associated with target shooting also degrade, or have the potential to degrade, vegetation communities in these areas. The use of vehicles and other human activities can also serve as a vector for the introduction and spread of invasive species and noxious weeds that degrade native vegetation communities.

General wildlife, including migratory birds and BLM sensitive species

Under all alternatives, wildlife species could be impacted from increased human disturbances (target shooting and vehicle traffic). These could result in habitat avoidance or direct impacts on wildlife that cause mortality or injury. Loud noise, such as from gunfire and vehicles, has been documented to cause physiological effects on multiple wildlife species. These effects include increased heart rate; altered metabolism; changes in hormones, foraging, and antipredator behavior; and reduced reproductive success (Radle 2007). In addition, noise can impact wildlife species through the disruption of communication and environmental cues (US Department of Transportation 2004). Grassland and woodland bird densities have shown declines at noise thresholds as low as 35 decibels (Foreman and Alexander 1998). However, different species and individuals have varying responses to noise, and certain species rely more heavily on acoustical cues than others, making the effects of noise hard to quantify (Radle 2007). Beneficial effects to wildlife may occur throughout the area by inhabiting adjacent habitat that is not a threat as a result of defined recreational target shooting ranges. Due to the consistent use of these areas, it is likely that highly mobile species would completely abandon the recreational target shooting areas. Mortality or injury could result from dispersed target shooters intentionally or unintentionally shooting wildlife species.

Indirect impacts on wildlife include reduced and degraded habitat and forage quality from trash, dumping, and invasive species and noxious weeds, and the increased risk of wildfire.

Alternative A – No Action

Vegetation

Under Alternative A, no new recreational target shooting ranges would be constructed or operated; therefore, no direct impacts on vegetation from construction-related activities would occur. Unmanaged dispersed target shooting activities would continue to degrade vegetation communities and pose an increased risk of wildfire and weed infestations at the currently used locations. Degradation would result from the direct impacts from the discharge of firearms, vehicular route proliferation, trash, lead contamination, and introduction and spread of invasive and noxious weeds. Restoration of the three dispersed sites would not occur.

General wildlife, including migratory birds and BLM sensitive species

Under Alternative A, unmanaged dispersed target shooting would continue at the current locations. This would continue to displace and disturb wildlife and degrade habitat and forage quality in those areas, as described under *Nature and Type of Effects*. Under Alternative A, no new design features, such as exclusionary fencing, would be installed; this could increase the potential for conflicts with wildlife within the informal target shooting areas.

Alternative B

Vegetation

Under Alternative B, surface-disturbing activities would result in temporary or permanent removal of approximately 10.7 acres of vegetation (**Table 2-1**). Construction of approximately 1.5 miles of perimeter fencing would also result in temporary disturbance to vegetation and an increased potential for the introduction and spread of invasive and noxious weeds. Operation of the sites would result in the long-term loss of vegetation and the associated wildlife habitat. However, construction and management of the sites would result in less trampling and destruction of native vegetation in the adjacent areas.

Closure and reclamation of the three informal target shooting sites would result in short-term impacts on existing vegetation via equipment used to rip the soil surface. However, seeding and closing the sites to users would result in long-term beneficial impacts on vegetation and wildlife species habitat on approximately 113.2 acres. Compared with Alternative A, Alternative B would provide better long-term protection to and management of vegetation.

General wildlife, including migratory birds and BLM sensitive species

The construction of the two new recreational target shooting ranges on approximately 35.5 acres would likely displace wildlife in those areas. However, the amount of habitat being impacted in relation to the amount of available habitat in the vicinity of the proposed sites would result in localized, long-term beneficial impacts on general wildlife.

Impacts on vegetation at the proposed sites may adversely impact migratory birds in the planning area. However, the amount of habitat being impacted in relation to the amount of available habitat in the vicinity of the proposed sites would result in only localized impacts on migratory birds.

Although there is a potential for BLM sensitive species to be found in the vicinity of the planning area, the possibility of conflicts with these species is low. This is because none were observed during biological field

surveys and because there is adjacent habitat outside the planning area. The project would not likely result in impacts on BLM sensitive species.

Perimeter fencing around the new recreational target shooting ranges would reduce the potential for large mammals entering the target shooting range. This would not mitigate the risk to smaller wildlife, such as small mammals and birds. Auditory impacts would be considered in design elements; this would reduce impacts on wildlife associated with noise from the shooting ranges' use. Under Alternative B, BLM would establish regular shooting hours at both developed target shooting ranges opening at 7:00 a.m. and closing between 5:00 p.m. to 7:00 p.m., depending on the season. This would also help to reduce impacts to wildlife from noise particularly for nocturnal species that hunt or forage at night (for example, owls and mule deer).

Closure and reclamation of the three informal target shooting sites would improve wildlife habitat on approximately 113.2 acres and would reduce impacts on wildlife from human disturbances (target shooting and vehicle traffic).

Alternative C

Vegetation

Impacts on vegetation under Alternative C would be similar to those described under Alternative B; however, they would occur on a larger scale. Surface-disturbing activities would occur on 28.29 acres (17.63 more acres than under Alternative B) and along 2.81 miles of fencing (1.35 more miles than under Alternative B) (**Table 2-1**). Impacts from closing the three informal target shooting sites would be the same as those described under Alternative B.

General wildlife, including migratory birds and BLM sensitive species

Under Alternative C, impacts on wildlife, including migratory birds and BLM sensitive species, would be similar to those described under Alternative B; however, Alternative C would reduce the available habitat to a greater degree since Camel Tracks Option 2 is 62 acres larger than Camel Tracks Option 1. Impacts from closing the three informal target shooting sites would be the same as those described under Alternative B.

3.5 LIVESTOCK GRAZING

3.5.1 Affected Environment

Buckman-Alamo Creek Area

The Buckman-Alamo Creek site overlaps two grazing allotments: Santa Fe Allotment and Jacona. Jacona consists of 3,104 BLM-administered acres and is permitted for 210 AUMs; 3,100 of these acres overlap the Buckman-Alamo Creek area. The Santa Fe Allotment consists of 17,763 BLM-administered acres; 17,520 of those overlap the Buckman-Alamo Creek area. The Santa Fe Allotment is permitted for 3,178 AUMs. In the Buckman-Alamo Creek area, 130 acres are unallotted. Approximately 500 acres of the Santa Fe Allotment overlap the current heavily-used dispersed target shooting areas in the Buckman-Alamo Creek area.

Camel Tracks Area

The Camel Tracks area overlaps the Caja Allotment, Calabasas, and Tetillitas Allotment. The Caja Allotment consists of 820 BLM-administered acres and is permitted for 120 AUMs. All but 10 acres of the

Caja Allotment are within the Camel Tracks area. Calabasas consists of 5,046 BLM-administered acres and is permitted for 306 AUMs; 4,990 of those acres are within the Camel Tracks area. The Tetillitas Allotment overlaps 6,200 acres of the Camel Tracks area and has a total of 6,190 BLM-administered acres. It is permitted for 1,140 AUMs. A total of 720 acres within the Camel Tracks area are unallotted. In the Camel Tracks area approximately 100 acres of Calabasas grazing overlap the current heavily-used dispersed target shooting areas.

San Pedro Mountains Area

Only one allotment overlaps the San Pedro Mountains area, which consists of 1,712 BLM-administered acres and is permitted for 132 AUMs. This allotment does not include the current informal target shooting area.

3.5.2 Environmental Consequences

Issue 1: How will the alternatives impact livestock grazing and range improvements?

Alternative A – No Action

Under Alternative A, there would be no change to the current livestock grazing conditions due to shooting closures in portions of any grazing allotments. The current conditions would continue to present an unsafe environment for grazing operations like maintenance of fence lines and other grazing-related infrastructure. There would be no change in acreage or AUMs to the Calabasas or Santa Fe Allotment, and the potential for livestock injury or death from errant bullets would continue. The debris accumulation associated with the dispersed target shooting areas would also remain unchanged; therefore, it would continue the potential for livestock to ingest shell casings and other munitions litter, including lead products, which could also lead to livestock injury or death.

There would be no change in the ability to construct or maintain future range improvements under Alternative A.

Alternative B

Under Alternative B, the Santa Fe Allotment would be reduced by 23.5 acres within the Buckman-Alamo Creek area, due to development of the proposed recreational target shooting range. This would result in a reduction of 5 AUMs on the permit. The AUM reduction could cause a negative socioeconomic impact on the operator; however, the impact would likely be negligible since the total permitted number would be reduced by less than 0.01 percent.

Under Alternative B, the Camel Tracks Option I shooting range would not overlap any grazing allotments as the dispersed target shooting would under Alternative A. Because of the reduced size of the area where recreational target shooting would be permitted and the added safety features associated with the proposed target shooting ranges (see **Appendix B**, Design Features), the potential for livestock injury or death in the Camel Tracks area as discussed under Alternative A would be lessened or eliminated under Alternative B. This would reduce any potential economic loss to the operator.

Under Alternative B, the San Pedro Mountains area would be closed to shooting completely; therefore, there would also be a reduction in potential for livestock injury and death as described for the Camel Tracks area.

Within both proposed recreational target shooting ranges and the closed San Pedro Mountains area, the potential for munitions debris and litter, including lead products, would be lessened or eliminated within the allotments, thus reducing the probability that livestock would ingest such debris, compared with under Alternative A.

Due to dispersed target shooting closures and development of formal recreational target shooting ranges under Alternative B, future construction or maintenance of range improvements would be safer in these areas than under Alternative A.

Alternative C

The impacts on livestock grazing under Alternative C would be similar to those described under Alternative B for the Buckman-Alamo Creek area and the San Pedro Mountains area. The Camel Tracks Option 2 shooting range under Alternative C would close 74 acres of Calabasas. The resulting reduction of 15 AUMs could cause a negative socioeconomic impact on the operator; however, the impact would likely be negligible since the total permitted number would be reduced by less than 1 percent.

Due to dispersed target shooting closures and development of formal recreational target shooting ranges under Alternative C, future construction or maintenance of range improvements would be safer in these areas than under Alternative A.

3.6 SOILS AND WATERSHEDS

3.6.1 Affected Environment

Soils are formed from the interactions between parent materials, climate, organisms, and topography over time. The physical, chemical, and biological properties of soils differ with changes in soil characteristics (such as texture, structure, and porosity). These properties alter the ecosystem services, including storing and cycling nutrients, purifying the air and water, storing and regulating water flow, and providing support for plants and human structures. These properties contribute to the soil quality, which is the capacity of a specific soil to function physically, chemically, and biologically within managed or natural ecosystem boundaries (Weil and Brady 2019).

Soils in the Buckman-Alamo Creek and Camel Tracks areas are formed from alluvium,¹ colluvium,² or eolian³ derived from volcanic or metamorphic rocks. Most of the soils have high gravel and calcium carbonate contents and a sandy or loamy texture. Soils in the San Pedro Mountains informal target shooting site are formed in alluvium and colluvium derived from sedimentary rocks. Most of the soils have high gravel and calcium carbonate contents and a loamy texture.

Soils are naturally eroded by wind and water, and human activities can accelerate erosion. Wind erodibility is greatest for sandy soils and for soils with minimal rock fragments. There are soils within the planning area that correspond with wind erodibility groups 3 through 8, which have moderate to low susceptibility to wind erosion (NRCS 2019, 2022). Water erosion is the detachment and removal of soil particles by running water (NRCS 2001). Deposition of the detached soil particles (sediment) occurs where water slows and accumulates on the land surface (NRCS 2001).

¹ Material transported by water

² Material transported by gravity

³ Material transported by wind

Soils exposed to recurrent forces such as motorized vehicles and foot traffic can undergo compaction. Soil compaction increases in proportion to the number of vehicle passes and can become evident after only a few passes (Ouren et al. 2007). Soil compaction reduces water infiltration by reducing porosity and root growth, and it increases the potential for erosion (Pouyat et al. 2020). Loamy soils are the most vulnerable to compaction; this is due to the potential for finer particles to be forced between larger particles when the pore space is reduced. Most soils in the planning area have a loamy texture, but they also have high gravel contents that make them more resistant to compaction.

The planning area is within the northern Rio Grande region, which drains to the Rio Grande. This region is divided into progressively smaller hydrologic units, which have unique hydrologic unit codes (HUCs) defined by the US Geological Survey. Regions are divided into subregions (HUC 4), which are further divided into basin accounting units (HUC 6), subbasin cataloging units (HUC 8), watersheds (HUC 10), and sub-watersheds (HUC 12). All three dispersed target shooting sites are within the Rio Grande-Santa Fe subbasin cataloging unit; the San Pedro Mountains dispersed target shooting site also extends to the Western Estancia subbasin cataloging unit. **Table 3-1** shows the HUC 10 watersheds within each existing target shooting area.

Table 3-1. HUC 10 Watersheds

| Shooting Area | HUC 10 | Watershed Name | Acres within the Planning Area |
|---------------------|------------|-------------------------|--------------------------------|
| Buckman-Alamo Creek | 1302020102 | Cañada Ancha-Rio Grande | 21,090 |
| Camel Tracks | 1302020101 | Santa Fe River | 14,250 |
| San Pedro Mountains | 1302020105 | Arroyo Tonque | 1,450 |
| | 1305000102 | Upper Salt Draw | 11,200 |

Sources: USGS 2022; BLM GIS 2023

Alamo Creek, a major tributary, intersects the Buckman-Alamo Creek informal target shooting site. Similarly, the Santa Fe River, another major tributary, intersects the Camel Tracks informal target shooting site.

3.6.2 Environmental Consequences

Soil map units provide interpretations of soils for physical, chemical, and biological properties and land suitability characteristics. Soil map units generally consist of one or more major soil series. A soil series consists of those soils that have similar horizons from the surface down, developing from related parent materials, under common climate and similar vegetation. **Table 3-2** and **Table 3-3** list the soil map units and soil series that occur in the proposed recreational target shooting ranges, according to the Santa Fe County, New Mexico, and Santa Fe National Forest area soil surveys (NRCS 2022). The soil map units are also shown on **Maps 3-2, 3-3, and 3-4**.

The US Department of Agriculture, Natural Resources Conservation Service (NRCS) provides soil interpretations for each soil map unit, which are models that predict soil behavior under a specific use based on the soil's physical and chemical attributes (Soil Science Division Staff 2017). **Table 3-4** and **Table 3-5** show ratings for the soil map units in the Buckman-Alamo Creek shooting range and the Camel Tracks shooting ranges for the hydrologic soil group and camp area soil interpretations from the Web Soil Survey (NRCS 2022).

Table 3-2. Soil Map Units within the Buckman-Alamo Creek Shooting Range

| Map Unit Symbol | Map Unit Name | Soil Series | Acres |
|-----------------|---|------------------------------|-------|
| 118 | Golondrina-Paraje complex, 8 to 45 percent slopes | Golondrina, Paraje | 7.2 |
| 221 | Latierra-Lamesilla-Levante complex, 2 to 15 percent slopes, flooded | Latierra, Lamesilla, Levante | 1.1 |
| VhC | Vitrina-Haozous complex, 5 to 15 percent slopes, flooded | Vitrina, Haozous | 23.6 |
| ZiA | Zia fine sandy loam, 0 to 2 percent slopes | Zia | 2.7 |

Source: BLM GIS 2023

Table 3-3. Soil Map Units within the Proposed Camel Tracks Shooting Ranges

| Map Unit Symbol | Map Unit Name | Soil Series | Acres |
|-----------------|---|-------------|-------|
| 110 | Calabasas loam, 1 to 3 percent slopes | Calabasas | 20.9 |
| 136 | Churipa very cobbly sandy loam, 5 to 15 percent slopes | Churipa | 2.2 |
| 137 | Medrano extremely gravelly loam, 5 to 65 percent slopes | Medrano | 0.9 |
| TtB | Tsinat gravelly loam, 1 to 6 percent slopes | Tsinat | 123.0 |

Source: BLM GIS 2023

Table 3-4. Buckman-Alamo Creek Shooting Range Soil Physical Properties

| Map Unit Symbol | Soil Series | Hydrologic Soil Group | Camp Areas Rating | Major Limiting Features |
|-----------------|-------------|-----------------------|-------------------|---|
| 118 | Golondrina | B | Very limited | Dusty |
| 118 | Paraje | B | Very limited | High gravel content |
| 221 | Latierra | A | Not rated | N/A |
| 221 | Lamesilla | A | Very limited | High gravel content |
| 221 | Levante | A | Very limited | High gravel content, high potential for flooding, too sandy |
| VhC | Vitrina | B | Somewhat limited | High gravel content, steep slopes |
| VhC | Haozous | B | Not rated | N/A |
| ZiA | Zia | B | Very limited | High potential for flooding |

Source: NRCS 2022

Table 3-5. Camel Tracks Shooting Ranges Soil Physical Properties

| Map Unit Symbol | Soil Series | Hydrologic Soil Group | Camp Areas Rating | Major Limiting Features |
|-----------------|-------------|-----------------------|-------------------|--|
| 110 | Calabasas | C | Somewhat limited | Dusty, slow water movement |
| 136 | Churipa | D | Very limited | Shallow depth to cemented layer, high large stone content, dusty, steep slopes |
| 137 | Medrano | D | Very limited | High potential for flooding, high gravel content, steep slopes |
| TtB | Tsinat | C | Somewhat limited | Shallow depth to cemented layer, high gravel content, dusty |

Source: NRCS 2022

Hydrologic soil groups are rated as A, B, C, or D (NRCS 2009). These are classified according to the rate of water infiltration (when the soils are not protected by vegetation), after being thoroughly wetted from long-duration precipitation (NRCS 2022). These ratings have the following definitions:

- **Group A:** Water is transmitted freely through the soil. These soils consist mainly of deep, well-drained to excessively drained sands or gravelly sands.
- **Group B:** Water transmission through the soil is unimpeded. These soils consist mainly of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture.
- **Group C:** Water transmission through the soil is somewhat impeded. These soils usually have a layer that impedes the downward movement of water, or they are moderately fine or fine textured.
- **Group D:** Water transmission through the soil is restricted or very restricted. These soils consist mainly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material.

Developed or intensively used recreation sites such as picnic areas, trailheads, or parking lots may require site preparation such as shaping and leveling of the ground surface, stabilizing roads or areas that see heavy foot traffic, and installing sanitary facilities and utility lines. Once developed, some areas could be subject to additional heavy foot or vehicular traffic. These types of activities are similar to those that would be undertaken during the development and use of the proposed recreational target shooting ranges, and are likely to have effects on soils in the area.

The ratings for these soil interpretations are given as not limited, somewhat limited, and very limited, based on numerical ratings that identify the severity of the limitation of soil properties and features. A rating of “not limited” indicates the soil has features that are favorable for recreation, “somewhat limited” indicates the soil has some features that could be unfavorable for development or trafficability, and “very limited” indicates the soil has one or more features that are unfavorable for development or trafficability (NRCS 2022). Slope, stoniness, and depth to a cemented layer are limiting features that would inhibit recreational development. For good trafficability, the surface of the development should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry (NRCS 2022).

At a soil pH greater than 6, lead is bound to soil carbonates and is not soluble (Martinez and Motto 2000; Rooney et al. 2007; Kelebemang et al. 2017). This means the potential for lead to leach from soil at a pH above 6 is very low. The potential for leaching increases if the soil pH decreases below 6 (if it becomes more acidic). As shown in **Table 3-6** and **Table 3-7**, the average soil pH for soils in both proposed recreational target shooting ranges is greater than pH 6. In addition, most of the soils have calcareous (calcium carbonate) material. Lead mobility in the soil also depends on organic matter, clay content, and the soil’s cation exchange capacity⁴ (Martinez and Motto 2000; Rooney et al. 2007; Kelebemang et al. 2017).

⁴ A measure of how well soil particle surfaces hold on to and therefore exchange cations, or positively charged atoms and molecules (ions).

Table 3-6. Proposed Buckman-Alamo Creek Shooting Range Soil Chemical Properties

| Map Unit Symbol | Soil Series | Soil pH ¹ | Depth to Calcareous Material |
|-----------------|-------------|----------------------|------------------------------|
| 118 | Golondrina | 8.2 | 4 to 12 inches |
| 118 | Paraje | 7.3 | 6 to 9 inches |
| 221 | Latierra | 6.7 | 11 to 20 inches |
| 221 | Lamesilla | 6.7 | 35 to 56 inches |
| 221 | Levante | 7.8 | 17 to 32 inches |
| VhC | Vitrina | 6.7 | 10 to 19 inches |
| VhC | Haozous | 7.2 | N/A |
| ZiA | Zia | 7.9 | N/A |

Source: NRCS 2008

¹ Average value at depth from 0 to 10 inches in the soil profile. This depth is consistent with the measured depths from Rooney et al. 2007 and Kelebemang et al. 2017.**Table 3-7. Proposed Camel Tracks Shooting Ranges Soil Chemical Properties**

| Map Unit Symbol | Soil Series | Soil pH ¹ | Depth to Calcareous Material |
|-----------------|-------------|----------------------|------------------------------|
| 110 | Calabasas | 7.3 | 8 to 12 inches |
| 136 | Churipa | 7.5 | 6 to 9 inches |
| 137 | Medrano | 7.3 | 6 to 12 inches |
| TtB | Tsinat | 8.3 | 15 to 30 inches |

Source: NRCS 2008

¹ Average value at depth from 0 to 10 inches in the soil profile. This depth is consistent with the measured depths from Rooney et al. 2007 and Kelebemang et al. 2017.**Issue 1: How will the alternatives affect soils and watersheds?***Alternative A – No Action*

Under Alternative A, the current disturbance from dispersed recreational target shooting would continue in the three informal target shooting sites. Impacts on soils and watersheds would include surface disturbance from foot and vehicle traffic accessing the sites and lead accumulation in soils from lead shot. Surface disturbance from foot and vehicle traffic can scrape, compact, and displace soils, which would increase the potential for soil erosion. In areas with a high potential for runoff, sediment and lead incorporated into sediment could run off to surface water, including Alamo Creek and the Santa Fe River. The impacts from lead as a hazardous metal are discussed under **Section 3.8**, Public Health and Safety.

*Alternative B*Proposed Buckman-Alamo Creek Shooting Range

Soils in the proposed Buckman-Alamo Creek shooting range are in hydrologic soil groups A and B (see **Table 3-4**), which have moderate and high infiltration rates, respectively, and would have low potential for runoff. The proposed new location would avoid sediment runoff and incorporated lead to Alamo Creek, which intersects the current informal target shooting site. Equipment used during construction activities could compact soils if multiple passes are made over the same area. Unavoidable soil compaction would occur from some construction activities, including grading the access road and the creation of berms; it would not exceed 6.15 acres. During construction activities, high gravel contents in these soils, sandiness (for the Levante series), and steep slopes (for the Vitrina series) would be the most limiting factors for development (see **Table 3-4**).

As shown in **Table 3-4**, high flooding potential for the Lavante series and Zia series and dustiness for the Golondrina series would be the soils' limiting factors for trafficability once the range is open for public use. Vehicle traffic would be confined to the access road and gravel parking area, which would limit soil disturbance from foot traffic. While some erosion from foot traffic would occur, the erosion potential would decrease compared with the dispersed target shooting areas, as described under Alternative A. Sediment and incorporated lead runoff could occur during precipitation events; however, the runoff would be contained by the containment berms.

Proposed Camel Tracks Shooting Range

Soils in the proposed Camel Tracks Option 1 shooting range are in hydrologic soil groups C and D (see **Table 3-5**), which have slow and very slow infiltration rates, respectively, and would have high potential for runoff. These soils would be more vulnerable to compaction than those in hydrologic soil groups A and B. To minimize compaction, construction equipment would not be operated on these soils if they are wet. Unavoidable soil compaction would occur from some construction activities, including grading the access road and the creation of berms; it would not exceed 4.51 acres. During construction activities, high gravel or stoniness content (for all map units, excluding the Calabasas series), shallow depth to a cemented layer (for the Churipa and Tsinat series), and steep slopes (for the Churipa and Medrano series) would be the most limiting factors for development (see **Table 3-5**).

As shown in **Table 3-5**, high flooding potential (for the Medrano series), slow water movement (for the Calabasas series), and dustiness (for all map units excluding the Medrano series) would be the soils' limiting factors for trafficability once the recreational target shooting range is open for public use. Vehicle traffic would be confined to the access road and gravel parking area, which would limit soil disturbance from foot traffic. While some erosion from foot traffic would occur, the erosion potential would decrease compared with the dispersed target shooting areas, as described under Alternative A. Sediment and incorporated lead runoff could occur during precipitation events; however, the runoff would be contained by the containment berms. This would minimize or avoid runoff to the Santa Fe River.

Reclamation of Informal Target Shooting Sites

Reclamation of the informal target shooting sites would decrease lead concentrations in soils, which would reduce the potential for leaching into the groundwater. Revegetating the sites would increase ground cover. Permanently closing the sites would avoid further surface disturbance. Together, these actions would increase the soil's stability and reduce the potential for soil erosion and sediment or lead runoff to surface water.

Alternative C

Impacts on soils and watersheds within the proposed Buckman-Alamo Creek shooting range and from reclamation of the informal target shooting areas would be the same as those described under Alternative B.

Under Alternative C, the Camel Tracks Option 2 disturbance footprint would include soil map units I36 and TtB (see **Map 3-4**). While the soil map units have a similar runoff potential to those in the Camel Tracks Option 1 area, construction of the Camel Tracks Option 2 range would disturb a greater area (approximately 15.9 more acres) of soils than the Camel Tracks Option 1 footprint described under Alternative B. Once the area is open for public use, impacts on soils and watersheds would be similar to those described for the Camel Tracks Option 1 range.

3.7 TRIBAL INTERESTS

3.7.1 Affected Environment

Occupied and utilized since time immemorial, the planning area has historically been occupied and utilized most intensively by Puebloan and Apache communities (Gerow and Doleman 2001). Traditional Native American uses are part of the modern cultural environment (Herrera 2023), and the Caja del Rio plateau is of great importance to many Native peoples (All Pueblo Council of Governors 2021; see **Map I-1**, Planning Area). The Camel Tracks area is on the southern eastern portion of the Caja del Rio, and the Buckman-Alamo Creek area is just off the eastern edge of the plateau.

The BLM conducts government-to-government consultation with federally recognized tribes in accordance with legal and regulatory guidelines, including the American Indian Religious Freedom Act; Native American Graves Protection and Repatriation Act; EO 13175, Consultation and Coordination with Indian Tribal Governments; the president's memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments; Joint Secretarial Order 3403 on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters; and BLM Manual 1780, Tribal Relations (BLM 2016). An up-to-date summary of outreach and communication with federally recognized tribes is presented in **Chapter 5**, Consultation and Coordination.

The concerns identified by the BLM regarding tribal interests include:

- Environmental impacts from the current heavily used dispersed target shooting areas
- The location of proposed recreational target shooting ranges and potential impacts in the Camel Tracks area, given their location within the La Cienega ACEC
- Concern that a sanctioned recreational target shooting range could encourage additional shooting within other nearby areas not designated for recreational target shooting

3.7.2 Environmental Consequences

The direct and indirect impact analysis area for tribal interests is the planning area, where shooting closures and the development of recreational target shooting ranges are being considered. The effects of each alternative on tribal interests are assessed in terms of impacts related to the topics of concern expressed; these are environmental impacts due to recreational target shooting, construction of recreational target shooting ranges, and increases in use by recreational shooters. Under all alternatives, continued meaningful consultation would be essential for avoiding or minimizing impacts on the interests of tribes.

Issue 1: How will the alternatives affect the interests of federally recognized Native American tribes?

Alternative A – No Action

Under Alternative A, current impacts on tribal interests, including the accumulation of waste, acoustic intrusions, vandalism, and safety concerns related to continued use of informal target shooting sites in the planning area, would continue. These include impacts on land in the BLM-administered La Cienega ACEC.

Alternative B

Under Alternative B, the BLM would develop the proposed Buckman-Alamo Creek and Camel Tracks Option I shooting ranges. The construction of the Camel Tracks Option I range within the La Cienega

ACEC, designated in part for the protection of cultural and natural resource values, could be considered an impact on tribal interests. Impacts on tribal interests related to the use of informal target shooting sites in the planning area would be concentrated in the developed recreational target shooting ranges instead of spread out across the planning area. Due to the construction of formal recreational target shooting ranges, the impacts on safety, the acoustic environment, and accumulation of waste would be reduced, including on land in the BLM-administered La Cienega and Santa Fe Ranch ACECs. Under Alternative B, the levels of recreational target shooting in the planning area are anticipated to remain similar to those under Alternative A.

Under Alternative B, the BLM would consider temporary closures or restrictions under 43 CFR 8364.1 as appropriate, including during Tribal religious ceremonies.

Alternative C

Under Alternative C, the BLM would build the proposed Buckman-Alamo Creek and Camel Tracks Option 2 shooting ranges. The construction of the Camel Tracks Option 2 range within the La Cienega ACEC, designated in part for the protection of cultural and natural resource values, could be considered an impact on tribal interests. Impacts on tribal interests related to the use of informal target shooting sites in the planning area would be concentrated in the developed recreational target shooting ranges instead of spread out across the planning area. Due to the construction of formal recreational target shooting ranges, impacts on safety, the acoustic environment, and accumulation of waste would be reduced, including on land in the BLM-administered La Cienega and Santa Fe Ranch ACECs. Under Alternative C, the levels of recreational target shooting in the planning area are anticipated to remain similar to those under Alternative A.

Under Alternative C, the BLM would consider temporary closures or restrictions under 43 CFR 8364.1 as appropriate, including during Tribal religious ceremonies.

3.8 PUBLIC HEALTH AND SAFETY

3.8.1 Affected Environment

Dispersed target shooting occurs throughout the planning area. With a population of more than 89,000 in the Santa Fe metropolitan area (US Census Bureau 2022), use at the existing sites is increasing. Unmanaged dispersed target shooting is causing public safety concerns to nearby residents, visitors to BLM-administered lands, and the shooters themselves; waste accumulation; and a threat of wildfires. The important distinction between dispersed target shooting sites on BLM-administered lands and formal recreational target shooting ranges is the lack of engineering design, which can reduce the risks associated with the discharge of firearms (for example, errant and ricochet bullets).

Public Safety

Dispersed target shooting in the planning area has created a serious safety hazard for nearby private landowners and their homes, ranchers and their livestock, other visitors to the area, and the recreational shooters themselves. Errant gunfire from recreational shooters can result in life-threatening injuries. During the public scoping period, the BLM received numerous comments regarding the areas' unsafe conditions. The BLM has received numerous complaints about recreational target shooting threatening the safety of BLM-administered land visitors and nearby homes, and damaging BLM-administered and private property.

Within the planning area, dangerous situations occur with recreational target shooting. Many of these unsafe shooting practices are illegal and include:

- Shooting toward or too close to other persons and vehicles
- Shooting without a safe backstop into boulders and dry vegetation
- Shooting at electronics, appliances, glass, or containers of flammable liquids and gas
- Shooting at or near cultural resources
- Shooting into or trespassing onto private property from BLM-administered lands
- Leaving hazardous materials, waste, and household or commercial waste

Waste Materials

Waste materials in the planning area are generally directly associated with target shooting. Primarily, this is solid waste that is left from the activity in the form of target remains, ammunition casings, and shot shells. The target remains may consist of broken clay targets used for skeet or trap shooting and components from televisions, computers, monitors, glass bottles, washing machines, cellular phones, furniture, and other items used inappropriately for target practice.

Illegal dumping contributes to the quantity of solid waste left on BLM-administered lands within the planning area; however, trigger trash is a much larger contributor. The cleanup of trigger trash is usually conducted through BLM and community groups' volunteer efforts.

On occasion, dispersed target shooters bring hazardous materials into the planning area to use as targets. These might include paint (buckets and cans), flammable liquids, and metals that are components in electronics used for targets (for example, mercury, lead, and cadmium). When such items are shot, these hazardous materials/wastes are dispersed and released into the environment. Cleanup of these types of materials is usually more involved and requires the BLM to ensure the hazardous waste is removed and disposed of in a way that minimizes impacts on human and ecological health and on the environment (BLM Environmental Compliance Handbook H-1703-6).

Also of concern from a hazardous waste perspective is the fate and transport of metals from bullets and bullet fragments accumulating in soil. Of these metals, lead is the predominant contaminant, although copper, iron, and other metals are also of concern. Additionally, lead is a component of the primer that is used to ignite the gunpowder. Lead can become concentrated in bullet impact areas and to a lesser extent in areas where the gun is fired.

Upon impact, bullets may penetrate the soil, ricochet, fragment, or behave in other ways. Most projectile mass is deposited in the impact area in the form of intact projectiles or large fragments. Small lead particles are also present. These large and small lead fragments and particles are subject to various physical and geochemical processes that control lead mobility in the environment. Generally, small lead particulates bond to soil particles while larger pieces of lead (for example, bullets and shot) remain intact. In this nonacidic environment, lead does not leach out of the soil; however, it can be taken up by plants, moved by surface water, and to a lesser extent moved by wind. Air and water can cause lead to corrode if acidic conditions exist; however, lead in soil is relatively immobile in the environment (ATSDR 2020). Lead bullets and shot usually come to rest in the soil. Coupled with the arid nature of the planning area, the

lead corrosion that takes place is minimal, leaching is virtually nonexistent, and migration into surface water or groundwater is unlikely.

Gunshot residue contains lead from the detonation of the primer, as well as lead particles and vapors generated as the bullet travels down the barrel of the gun (Willmsen et al. 2014). While this undoubtedly contributes to the overall contamination, it is far less than the contamination in impact areas.

A potential long-term problem with recreational target shooting is the concentration of lead on BLM-administered lands. In the long term, the cost of remediation could be extensive. In the meantime, this contamination may present risks to the public and to wildlife. Inhaled or ingested lead can build up in the human body, often without any obvious symptoms. Frequent exposure, particularly at high levels, can harm the nervous, digestive, and reproductive systems and produce a wide variety of symptoms. Lead can harm the brain, damage the kidneys, and affect the ability of bone marrow to make blood (ATSDR 2020).

While the activity of target shooting itself causes the emplacement of lead in the planning area, since target shooting activity is dispersed, the lead does not become highly concentrated. Furthermore, the environmental conditions in the planning area are not conducive to the lead from bullets or shot contaminating the environment outside the soil where it comes to rest. However, no investigation has been conducted on the amount of lead contamination in the planning area.

Threat of Wildfire

Residents in neighboring areas have also expressed concerns about the threat of wildfire ignitions from shooting-related activities. The cause of a wildfire is classified as shooting related when the mechanism of ignition and circumstances involve a bullet ricochet or fragmentation, tracer or incendiary rounds, exploding targets, or other shooting-related activities. In 2013, the US Forest Service completed a study on several types of rifle bullets to determine whether ignition would occur (Finney et al. 2013). This study found that the mechanism of heat transfer from kinetic energy to mechanical energy (heat) was created through plastic deformation of the steel and copper, which creates what is often referred to as a “ricochet-caused wildfire. Ignitions were observed during the testing phases of the study. Metal bullet fragments were found to retain temperatures as high as 1,200–1,400 degrees Fahrenheit.

Two recent fires in Santa Fe County were likely caused by recreational target shooting-related activities. On June 21, 2017, several acres were burned in the San Pedro Mountains stemming from the current informal target shooting site. Firefighting resources were timely dispatched to the scene, which substantially limited the growth of the fire. In late August 2023, a 63-acre wildfire also started from activities at the informal Camel Tracks shooting site.

Prevention of shooting-related wildfires has been conducted on an interagency basis. Prevention orders and target shooting wildfire prevention information are posted on the BLM New Mexico Fire Restrictions and nmfireinfo.com websites. Fire prevention orders include BLM New Mexico Order #NM910-23-01, which restricts use of exploding targets statewide on BLM-administered lands. The BLM also implements temporary fire restrictions on BLM-administered lands during periods of increased fire danger and prolonged drought. The BLM Taos Field Office issued an emergency fire prevention closure on June 29, 2017, after the wildfire incident, which temporarily closed public lands into or upon the San Pedro Mountains. The BLM Farmington District Office issued a temporary fire restriction order in New Mexico

counties, including Santa Fe County, in June 2023; this order reiterated that recreational target shooting is not allowed on BLM-administered lands within Santa Fe County.

3.8.2 Environmental Consequences

Issue 1: How will the alternatives affect public health and safety?

Alternative A – No Action

Under Alternative A, the BLM would not authorize the construction, operation, and development of recreational target shooting ranges and would not implement target shooting closures. No safety features included under the action alternatives would be implemented at the existing informal target shooting sites, and concerns about public safety, waste materials, and the threat of wildfire would continue. Alternative A would result in negligible to minor, adverse, and long-term impacts on public safety.

Alternative B

Under Alternative B, the BLM would develop two recreational target shooting ranges within the planning area. The BLM would establish supplementary rules, including, but not limited to:

- Restrictions for day use only
- Prohibitions on entry into hazardous exclusion areas and designated target zones
- Specifications of the types of targets and ammunition
- Specifications of the caliber and firearm type
- Specifications on firearm discharge direction
- Location of the firearm discharge
- Restrictions on the use of alcohol within sites
- Prohibitions on the discharge of a firearm while under the influence of alcohol or other substances
- Prohibitions on unattended personal property

As discussed under **Section 2.2**, the BLM would implement any restriction on uses within part or all of the planning area pursuant to the requirements under 43 CFR 8364 and 8365 and the John D. Dingell Jr. Conservation, Management, and Recreation Act of 2019, which requires the publication of a notice in the *Federal Register*. A final list of proposed supplementary rules would be published in the *Federal Register*.

For each facility area, an adjacent hazardous exclusion area would be delineated by appropriately signed perimeter fencing (**Maps 2-4, 2-5, and 2-6**). No persons would be permitted to enter into the hazardous exclusion area by any means. Impacts on all users would be beneficial and long term because users would not be exposed to hazards associated with errant and ricochet bullets.

Within each developed recreational target shooting range, recreational target shooting activities would be allowed within the target shooting range areas (**Maps 2-4, 2-5, and 2-6**). Under 43 CFR 8365.2-5 (Public health, safety and comfort), “On developed recreation sites and areas, unless otherwise authorized, no person shall: (a) Discharge or use firearms, other weapons, or fireworks . . .”. Providing safe areas for recreational target shooting would be a long-term and beneficial impact. Temporary closure of these sites during construction would adversely impact recreational target shooting users, but it would provide for public and worker safety.

Construction of the proposed sites would not include the use of hazardous materials, with the exception of chemical constituents contained in vehicle and equipment fuels (gasoline and diesel fuel), coolants (ethylene glycol), and lubricants (oils and greases). The BLM would comply with all applicable hazard communication and hazardous materials statutes and regulations regarding these chemicals. In addition, the BLM would comply with all applicable federal and state statutes and regulations regarding notices to federal and local emergency response authorities and development of applicable emergency response plans, if required. Thus, the potential for impacts during construction would be low.

Operation of each site would include an ESP (**Appendix C**). By implementing an ESP, the BLM, where applicable, would incorporate shooting range recommendations and guidance provided by the Environmental Protection Agency (EPA), National Shooting Sports Foundation, National Association of Shooting Ranges, National Rifle Association, and similar organizations.

Under Alternative B, dispersed target shooting activities would be prohibited across 21,658 acres in the Buckman-Alamo Creek, Camel Tracks, and San Pedro Mountains closure areas. Implementing the closure areas would mitigate the concerns regarding public safety, waste materials, and the threat of wildfire described under the affected environment. The closures would be most beneficial to the non-target shooting public that currently recreate and live within proximity to the closure areas.

Alternative C

The impacts on public health and safety would be similar to those described under Alternative B, except dispersed target shooting activities would be prohibited across a slightly smaller acreage (21,548 acres) compared with under Alternative B.

Issue 2: How will the alternatives affect possible lead contamination?

Alternative A – No Action

Under Alternative A, lead and other wastes would remain widely dispersed throughout the existing informal target shooting sites on the surface. Dispersed target shooting would continue at these heavily used, user-created sites, adding to the existing amounts of lead and other wastes currently on-site. However, given the dispersed nature of target shooting and the environmental conditions of the planning area, it is not anticipated that lead would become highly concentrated or contaminate the environment outside the soil where the lead comes to rest.

The BLM would not implement shooting range amenities, including, but not limited to, the establishment of shooting lanes or bays and earthen berms expected to capture and/or concentrate the majority of the lead from bullets (pistol and rifle) and shot (shotgun), where applicable. Lead would be more susceptible to oxidation, solubility, and mobility due to its exposure to air, precipitation, loss of vegetation and ground cover, erosion, surface runoff, and other factors. The BLM would not implement best management practices and design features intended to monitor and address issues such as soil erosion, soil lead levels, vegetation and ground cover, and trash.

Alternatives B and C

Use of the proposed recreational target shooting ranges would result in the deposition of lead, with the highest amounts concentrating in shooting bays and embedding in backstops and berms. Lead can introduce an environmental concern if topographical and surrounding area conditions (for example, proximity to wetlands) and the hydrologic setting enable leaching or streaming of lead shot, pellets, or

bullets. At the Camel Tracks Option 2 shooting range, lead deposition would be more widespread within the skeet shooting area. As described in **Section 3.6**, Soils and Watersheds, the planning area does not contain soils or a hydrologic setting conducive to lead contaminating the environment outside the soil where the lead comes to rest. The recreational target shooting ranges would include engineering controls and design features to minimize surface runoff.

There would be five potential movement pathways where lead deposits could impact human health:

- As airborne particulate matter—inhalation is one pathway for lead exposure since shooters are exposed to lead dust during the firing of their guns
- As waterborne particles in suspension in storm runoff
- In the solution in stormwater runoff
- In the solution in groundwater
- Ingestion by direct contact with lead or lead particles. Lead particles generated by the discharge of a firearm can collect on the hands of a shooter. These particles can be ingested if shooters eat or smoke prior to washing their hands after shooting.

Lead mobility at the proposed sites would be controlled or limited by site-specific conditions (for example, neutral to alkaline [pH] soil; the depth to the water table; low annual precipitation; mobility-control techniques, including, but not limited to, earthen backstops and berms, lead recovery/recycling, control of stormwater runoff [for example, rock check dams, containment runoff basins, gravel parking areas and access roads, and culverts]); vegetation plantings; clay liners; lime addition; phosphate addition; and soil capping.

The Resource Conservation and Recovery Act provides the framework for the EPA's solid and hazardous waste management program, including lead. As applicable, the EPA's Best Management Practices for Lead at Outdoor Ranges (USEPA 2005) would be applied to the project. The current level of lead contamination in the planning area is not known; however, the most heavily used sites are likely to contain some level of accumulation of materials, including lead, since the current and past use of the proposed sites include dispersed target shooting. The BLM would conduct appropriate lead surveys as specified in the preliminary ESP (**Appendix C**).

3.9 ACOUSTIC ENVIRONMENT

3.9.1 Affected Environment

Sound is a kind of energy that travels through a medium such as air or water in waves. The human experience of a sound is a product of the sound's magnitude, frequency, and duration, and the presence or absence of other sounds.

The discharge of a firearm causes a pressure wave from rapid expansion of gases, creating a short and intense increase in sound. Firearm types vary widely in power and capability; some are able to produce a series of rapid-fire sounds. The magnitude of noise made by each firearm and ammunition type is variable. Atmospheric conditions and topography also affect the distance that sound travels.

Currently, dispersed target shooting is a popular activity on BLM-administered land in the planning area. No BLM or other federal regulations apply to noise levels in the planning area. There are varying levels of sounds related to current dispersed target shooting at each of the three areas that see heavy dispersed

target shooting use (see **Maps 2-1, 2-2, and 2-3**). Members of the communities near these popular dispersed target shooting areas regularly express concerns regarding noise and public safety within these areas, and the issue is well documented in the public record (Schwartz 2016; Lederman 2023; Herrera 2023). Other land uses and activities that occur within the planning area and that contribute to ambient sound include shooting outside of the three identified heavily-used dispersed informal target shooting sites and motor vehicle use.

New Mexico’s Sport Shooting Range Act (New Mexico House Bill 112, codified as Statute 17-8) provides for the operation and use of sport shooting ranges, defined as “an area designed and operated for the use of rifles, shotguns or pistols as a means of silhouette, skeet, trap, black powder or other sport shooting or firearms training.” Importantly, the Sport Shooting Range Act states that “The provisions of the Sport Shooting Range Act shall not prohibit a local government from regulating the location and construction of sport shooting ranges” and that “The use or operation of a sport shooting range shall not be enjoined as a nuisance on the basis of noise . . . if the sport shooting range is in compliance with noise control statutes, rules or ordinances that apply to the range and its operation.”

Santa Fe County does not explicitly address the discharge of firearms in its county code, though it does have a noise ordinance, Ordinance Number 2009-11 (Board of Commissioners of Santa Fe County 2009). Under this ordinance, it is unlawful to produce sound that exceeds (a) 60 A-weighted decibels at any time between 10:00 p.m. and 7:00 a.m., or (b) 75 A-weighted decibels at any time between 7:00 a.m. and 10:00 p.m., and the sound exceeds the levels identified in (a) or (b) for 5 consecutive minutes or 10 minutes in any half-hour period, or when intermittent sounds exceed the identified levels 10 or more times in any half-hour period. Per the ordinance, these sound levels are to be measured from within or adjacent to nearby “sensitive units,” such as a residential property.

An assessment of the auditory impact target shooting at the current informal Camel Tracks target shooting site has on the nearby La Cienaguilla petroglyph site, located between the informal target shooting site and the community of La Cienaguilla, indicated that current auditory impacts on the integrity of the feeling and setting at La Cienaguilla petroglyph site are minimal, as shots fires from the informal target shooting site were consistent with background noises at the time the assessment was conducted (BLM 2023a).

Topographic features influence the distance that sound waves travel (Bentrup 2008). Features similar to the ones incorporated into the design of all the proposed recreational target shooting ranges (earthen berms and three-sided shooting structures) are known to reduce sound impacts in areas surrounding noise sources, such as recreational target shooting ranges (US Department of Energy 2012; Hofbeck and Ferguson 2021).

3.9.2 Environmental Consequences

The acoustic analysis areas are defined as a 1-mile radius surrounding each of the dispersed target shooting sites that currently see heavy use and the proposed recreational target shooting ranges. See **Table 3-8**, below, for a comparison of acreage in these acoustic analysis areas. While most of the acoustic analysis area falls within BLM-administered lands, there is a mixture of Santa Fe County zoning at the periphery, including rural and residential zoning types.

Table 3-8. Acoustic Analysis Area (Acres within a 1-Mile Buffer)

| Range Location | BLM-Administered Land | Forest Service-Administered Land | Private Land | State Land | Total Impacted Acreage* |
|--|-----------------------|----------------------------------|--------------|------------|-------------------------|
| Acreage within 1-Mile Buffer of Heavily-Used Dispersed Shooting Sites | | | | | |
| Buckman-Alamo Creek | 3,500 | — | 3,500 | — | 7,000 |
| Camel Tracks | 3,400 | — | 3,500 | — | 6,900 |
| San Pedro Mountains | 2,600 | — | 2,700 | 100 | 5,300* |
| Acreage within 1-Mile Buffer of Proposed Shooting Range Locations | | | | | |
| Buckman-Alamo Creek | 1,500 | 1,000 | 2,600 | — | 5,200 |
| Camel Tracks Option 1 | 2,000 | — | 2,100 | — | 4,000* |
| Camel Tracks Option 2 | 3,800 | 3,900 | — | — | 7,700 |

Source: BLM GIS 2023

*For ease of comparison, acreage is rounded to the nearest hundred. Due to this the totals do not necessarily match the individual acreages combined.

Issue 1: How will the alternatives affect the acoustic environment?*Alternative A – No Action*

Under Alternative A, the BLM would not develop recreational target shooting ranges. Dispersed target shooting would continue on 37,939 acres in the Buckman-Alamo Creek, San Pedro Mountains, and Camel Tracks areas (**Section 2.1**). The associated impacts in these areas, particularly within the current dispersed target shooting acoustic analysis areas (19,200 acres; see **Table 3-8** and **Map 3-5**), would continue.

Alternative B

Under Alternative B, the BLM would establish regular shooting hours at both developed recreational target shooting ranges opening at 7:00 a.m. and closing between 5:00 p.m. to 7:00 p.m., depending on the season (see **Section 2.2**). These proposed hours fall within the most permissive hours for noise under Santa Fe County Ordinance Number 2009-11 (the noise ordinance is described in **Section 3.6.1**, Affected Environment). The BLM would also close the recreational target shooting ranges every Wednesday to facilitate regular maintenance. In combination with the proposed dispersed shooting closures in the surrounding areas, these proposed hours of operation would reduce the overall acoustic impacts in the planning area from target shooting compared to Alternative A.

Buckman-Alamo Creek

Under Alternative B, the BLM would develop the Buckman-Alamo Creek shooting range. The terrain surrounding the proposed Buckman-Alamo Creek shooting range location has topography that would provide a safe backdrop and dampen the sound.

Under Alternative B, the construction of the Buckman-Alamo Creek shooting range would cause a short-term increase in noise, as compared with Alternative A; this is due to noise associated with construction equipment and employee motor vehicles.

The recreational target shooting range design would include the construction of a primary backstop, containment berms, and three-sided shooting structures. These design features would reduce shooting-caused sounds. Under Alternative B, the BLM would also close dispersed target shooting in the Buckman-Alamo Creek area within a 1-mile buffer zone from existing roads, eliminating opportunities for dispersed target shooting outside the designated recreational target shooting range.

Under Alternative B, vehicular traffic and the quantity of firearm use would increase the ambient sounds at the proposed Buckman-Alamo Creek range location and along access routes, compared with Alternative A. This is because use in these locations would be expected to increase with a developed target shooting range. The level of additional impact would relate directly to the increase in use of these areas. While traffic and use at the recreational target shooting range would increase, total use is expected to be similar to that under Alternative A. This increase in traffic and firearm use at the recreational target shooting range would be balanced by consolidating the effects from the acoustic analysis area of the informal target shooting sites currently experiencing impacts (7,000 acres) into the smaller area around the proposed recreational target shooting range (5,200 acres; see **Table 3-8** and **Map 3-6**). It would further be mitigated by the design features incorporated into the range to reduce shooting-caused sounds. The acreage and intensity of acoustic impacts on areas surrounding the recreational target shooting range in the Buckman-Alamo Creek area under Alternative B would be less than those experienced under Alternative A.

Camel Tracks

Under Alternative B, the BLM would develop the Camel Tracks Option I shooting range. The terrain surrounding the proposed Camel Tracks Option I shooting range location has topography that is expected to provide a safe backdrop and dampen the sound. Also, the location is adjacent to the area already impacted by an informal target shooting site.

As compared with Alternative A, the construction of the Camel Tracks Option I shooting range under Alternative B would cause a short-term increase in noise associated with construction equipment and employee motor vehicles.

The recreational target shooting range design would include the construction of a primary backstop, containment berms, and three-sided shooting structures. These design features would reduce shooting-caused sounds. Under Alternative B, the BLM would also close dispersed target shooting in the Camel Tracks area within a 1-mile buffer zone from existing roads, eliminating opportunities for dispersed target shooting outside the designated recreational target shooting range.

Under Alternative B, vehicular traffic and the quantity of firearm use would likely increase ambient sounds at the proposed Camel Tracks Option I range location and along access routes, compared with Alternative A. This is because use in these locations would be expected to increase with a developed recreational target shooting range. The level of additional impact would relate directly to the increase in use of these areas.

While traffic and use at the recreational target shooting range would increase, the total use is expected to be similar to that under Alternative A. This increase in traffic and firearm use at the recreational target shooting range would be balanced by consolidating the effects from the acoustic analysis area of the informal target shooting site currently experiencing impacts (6,900 acres) into the smaller area around

the proposed recreational target shooting range (4,000 acres; see **Table 3-8** and **Map 3-6**). It would further be mitigated by the design features incorporated into the recreational target shooting range to reduce shooting-caused sounds. The acreage and intensity of acoustic impacts on areas surrounding the recreational target shooting range in the Camel Tracks area under Alternative B would be less than those experienced under Alternative A.

San Pedro Mountains

Under Alternative B, the BLM would close 800 acres to dispersed target shooting in the San Pedro Mountains area. Compared with under Alternative A, this would reduce the acoustic impacts associated with dispersed target shooting in this area.

Alternative C

Under Alternative C, the impacts would be the same as those described under Alternative B, except in the Camel Tracks area, where the Camel Tracks Option 2 shooting range would be developed instead of Option 1. This would include proposed shooting hours (see **Section 2.2**) at both developed recreational target shooting ranges and the associated reduction in overall acoustic impacts compared to Alternative A, as described under Alternative B.

Camel Tracks

Under Alternative C, the BLM would develop the Camel Tracks Option 2 shooting range. The terrain surrounding the proposed Camel Tracks Option 2 shooting range site can accommodate a safe developed backstop and is adjacent to the area already impacted by an informal target shooting site.

As compared with under Alternative A, the construction of the Camel Tracks Option 2 shooting range under Alternative C would cause a short-term increase in noise associated with construction equipment and employee motor vehicles.

The recreational target shooting range design would include the construction of a primary backstop, containment berms, and three-sided shooting structures. These design features would reduce shooting-caused sounds. Under Alternative C, the BLM would also close dispersed target shooting in the Camel Tracks area within a 1-mile buffer zone from existing roads, eliminating opportunities for dispersed target shooting outside the designated recreational target shooting range.

Under Alternative C, vehicular traffic and the quantity of firearm use would likely increase the ambient sounds at the proposed Camel Tracks Option 2 range location and along access routes, as compared with under Alternative A. This is because use in these locations would be expected to increase with a developed recreational target shooting range. The level of additional impact would relate directly to the increase in use of these areas. This increase in traffic and firearm use at the recreational target shooting range would be accompanied by a greater acreage included in the acoustic analysis area range (7,700 acres) than that of the informal target shooting site currently experiencing impacts (6,900 acres; see **Table 3-8** and **Map 3-7**). This is due to the larger size of the proposed Camel Tracks Option 2 shooting range. This larger area of potential effect would be mitigated by the design features incorporated into the range to reduce shooting-caused sounds, as well as the placement of the range just under a mile farther west of the closest residential zoning than the current informal target shooting site (BLM GIS 2023, Santa Fe County GIS 2023).

Under Alternative C, approximately 800 additional acres of land are included in the acoustic analysis area surrounding the Camel Tracks Option 2 shooting range location than are included in the Camel Tracks Alternative A acoustic analysis area. Due to the range's design features and placement the intensity of acoustic impacts on areas surrounding the recreational target shooting range in the Camel Tracks area under Alternative C would be less than those experienced under Alternative A.

3.10 SPECIAL DESIGNATIONS (SCENIC BYWAYS, ACECs, AND NHTS)

3.10.1 Affected Environment

Scenic Byways

Three national scenic byways are in relative proximity to the planning area: the Route 66, El Camino Real, and Turquoise Trail National Scenic Byways. None are administered by the BLM in the planning area (see **Map 3-8**, National Scenic Byways).

Buckman-Alamo Creek

No designated scenic byways pass through or are adjacent to the Buckman-Alamo Creek area.

Camel Tracks

The Route 66 and El Camino Real National Scenic Byways both pass approximately 1 mile southwest of the Camel Tracks area, where they are designated along the Interstate 25 corridor approximately 4 miles from the proposed Camels Tracks Option 1 and Option 2 shooting range locations (New Mexico Tourism Department 2023).

San Pedro Mountains

The Turquoise Trail National Scenic Byway, designated in 1996, passes less than a mile to the northwest of the San Pedro Mountains area, around the intersection of New Mexico Highways 14 and 344, near the community of San Pedro and the historic post office and mining town of Golden (Turquoise Trail Association 2006).

Areas of Critical Environment Concern

The BLM designates ACECs where special management attention is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values; to protect and prevent irreparable damage to fish, wildlife resources, or other natural systems or processes; or to protect human life and safety from natural hazards. To be eligible for and designated as an ACEC, the area must meet the criteria for both relevance and importance found in 43 CFR 1610.7-2(a)(b) and as defined in BLM Manual 1613, Areas of Critical Environmental Concern (BLM 1988). BLM regulations for implementing the ACEC provisions of FLPMA are found in 43 CFR 1610.7-2(b).

ACECs differ from some other special management designations in that designation by itself does not automatically prohibit or restrict other uses in the area. The special management attention is designed specifically for the relevant and important (R&I) values; therefore, it varies from area to area. Restrictions that arise from an ACEC designation are determined at the time the designation is made; they are designed to protect the values or serve the purposes for which the designation was made.

The planning area contains portions of two ACECs designated in the 2012 Taos RMP: Santa Fe Ranch and La Cienega (see **Map 3-9**, Special Designations: Areas of Critical Environmental Concern and National Historic Trails).

Buckman-Alamo Creek

The Buckman-Alamo Creek area is within the Santa Fe Ranch ACEC, which is 21,030 acres designated to protect cultural resources; unique geological features and the associated visual resources (Diablo Canyon); and wildlife habitat, including special status species habitat. The ACEC is managed as two zones, the Diablo Canyon/Buckman zone (710 acres) and the Ranch zone (20,320 acres). Relevant management prescriptions include encouraging archaeological research, including excavation. This is because many of the known archaeological sites within the ACEC are within small, eroding arroyos; data collection is important before the sites are washed away.

Recreation in the Diablo Canyon/Buckman zone is managed under guidance for the Diablo Canyon SRMA, which is closed to recreational target shooting. The remainder is managed under guidance for the West Santa Fe ERMA, which specifically calls for the consideration of permitting a target shooting range near the Camel Tracks area (BLM 2012). The current informal dispersed target shooting sites and proposed recreational target shooting range in the Buckman-Alamo Creek area are within the Ranch zone, managed under guidance for the West Santa Fe ERMA.

Camel Tracks

The Camel Tracks area, including the current informal target shooting site, is within the La Cienega ACEC. This ACEC is 13,390 acres designated as an ACEC for R&I cultural, riparian, scenic, and vegetation values, as well as wildlife habitat, including special status species. Relevant management prescriptions include closing the Santa Fe River Canyon and cultural sites, such as petroglyph areas, to recreational target shooting and petitioning the New Mexico Department of Game and Fish to close the same areas to hunting. Outside these areas, the La Cienega ACEC is open to recreational target shooting.

San Pedro Mountains

No ACECs are designated in or adjacent to the San Pedro Mountains area.

National Historic Trails

Three segments of El Camino Real de Tierra Adentro NHT, “the royal road of the interior,” pass through BLM-administered lands in the planning area. El Camino Real de Tierra Adentro is the earliest Euro-American trade route in the United States. At one time, it connected the historic Mexican frontier in New Mexico to the colonial capital at Mexico City (BLM 2023b). Per the Taos RMP, the BLM evaluated trail resources present using a Class III cultural resource inventory of the proposed recreational target shooting ranges’ locations and a Class I inventory (record search) within a 1-mile buffer around the recreational target shooting ranges (BLM 2023a).

El Camino Real de Tierra Adentro NHT became a part of the National Trails System in 2000. The designated trail travels for 404 miles through the United States, approximately 18.8 miles of which are administered by the BLM TFO (BLM 2012, BLM GIS 2023). The Bajada Mesa Trail and Las Bocas Trail segments, both listed on the National Register (NPS 2023, see **Section 3.2**, Cultural Resources), are within the La Cienega ACEC and near the heavily-used dispersed target shooting site as well as the proposed Camel Tracks Option 1 and Option 2 shooting range locations. The third segment of the NHT

passes through the Buckman-Alamo Creek area, and Santa Fe Ranch ACEC, running roughly parallel to the road that would be used to access that proposed recreational target shooting range location (see **Map 3-9**, Special Designations: Areas of Critical Environmental Concern and National Historic Trails).

Las Bocas Trail extends for approximately 3 miles on BLM-administered land; it is within the Santa Fe River Canyon and travels from La Bajada Village to La Cienega in the southern portion of La Cienega ACEC.

Bajada Mesa Trail runs for approximately 5.1 miles through La Cienega ACEC; it roughly parallels County Road 56C and is 0.3 miles southeast of the proposed Camel Tracks Option 1 and Option 2 shooting range locations. It eventually crosses into Forest Service-administered land and intersects with the Route 66 and National Old Trails Road Historic District at La Bajada, also known as La Bajada Hill. La Bajada Hill is a district on the National Register encompassing multiple road alignments belonging to US Route 66 from 1926 through 1931, the National Old Trails Highway, and the pre-1926 New Mexico Highway (NPS 2005).

The unnamed segment of El Camino Real de Tierra Adentro NHT is approximately 0.2 miles west of the proposed Buckman-Alamo creek range location runs along the western edge of BLM-administered land in this area for approximately 10.7 miles, following the current Old Buckman Road corridor.

Known trail resources associated with El Camino Real de Tierra Adentro NHT include physical traces of the trail, such as ruts, swales, campsites, and artifact scatters, as well as opportunities for recreational trail use and interpretation (BLM 2012). Opportunities for interpretation and education exist where the NHT is designated near and along roads in the planning area, such as County Road 56C and Old Buckman Road, used to access the Camel Tracks and Buckman-Alamo Creek areas, respectively. No physical traces definitively belonging to the NHT, Route 66, or the National Old Trails Road were observed during the BLM Class III inventory of the proposed recreational target shooting range locations. It was noted that the information potential for all linear features and road segments documented during the recent Class III inventory has been exhausted by the current recording (BLM 2023a). The BLM-administered portions of El Camino Real de Tierra Adentro NHT are managed under the prescriptions outlined for La Cienega ACEC and the Santa Fe Ranch ACEC (BLM 2012) and in compliance with the National Trails System Act of 1968.

3.10.2 Environmental Consequences

The analysis area for special designations is the planning area. Due to the distance of national scenic byways from the current informal target shooting sites and proposed recreational target shooting range locations, and the compatibility of current national scenic byway management with all alternatives, there are no anticipated impacts on the national scenic byways from any alternative. The impacts of each alternative are assessed in terms of any effects on an ACEC's R&I values and any effects on the condition of an NHT or its setting as well as opportunities for interpretation or education regarding the NHT.

Issue 1: How will the alternatives affect ACECs and NHTs?

Alternative A – No Action

Under Alternative A, the impacts on the R&I values of cultural resources and wildlife habitat within ACECs from current informal dispersed target shooting would continue (See **Section 3.3**, Cultural Resources and **Section 3.4**, Biological Resources). The potential for interpretation and education relating to El Camino Real de Tierra Adentro NHT would remain unrealized.

Alternative B

Under Alternative B, the impacts related to recreational target shooting on the R&I values of cultural resources, such as the Caja del Rio (see **Section 3.3**) and wildlife habitat (see **Section 3.4**), within the Santa Fe Ranch and La Cienega ACECs would no longer be experienced in all 21,700 acres closed to recreational target shooting (see **Map 2-5**, Proposed Action Alternative: Buckman-Alamo Creek Shooting Range, and **Map 2-4**, Proposed Action Alternative: Camel Tracks Shooting Range Option 1). Impacts related to target shooting in the ACECs would be focused within the Camel Tracks Option 1 and Buckman-Alamo Creek shooting range areas. Also, the impacts would be mitigated by design features intended to reduce environmental impacts. These would reduce the overall quantity of these impacts and the size of the areas experiencing them. Construction of the Buckman-Alamo Creek shooting range could present the opportunity for BLM to participate in data recovery on the National Register-eligible archaeological sites (historic properties) located within the range footprint, activity encouraged by the management currently prescribed for the Santa Fe Ranch ACEC (BLM 2012).

Under Alternative B, construction of the proposed Camel Tracks Option 1 and Buckman-Alamo Creek shooting ranges would occur within the viewshed of the designated El Camino Real de Tierra Adentro NHT. However, the portions of the trail experiencing these impacts are not well preserved. Also, they include not only modern roads where the trail itself is designated (Buckman Road and County Road 56C) but other visibly modern infrastructure such as power lines and highways. Additionally, the development of recreational target shooting ranges in these locations presents an opportunity for inclusion of interpretative signage relating to the NHT in these areas.

Alternative C

Under Alternative C, impacts related to target shooting on the R&I values of cultural resources, such as the Caja del Rio (see **Section 3.3**) and wildlife habitat (see **Section 3.4**), within the Santa Fe Ranch and La Cienega ACECs would no longer be experienced in all 21,500 acres closed to recreational target shooting (see **Map 2-5**, Proposed Action Alternative: Buckman-Alamo Creek Shooting Range, and **Map 2-7**, Proposed Action Alternative: Camel Tracks Shooting Range Option 2). Impacts related to target shooting within the ACECs would be focused within the Camel Tracks Option 2 and Buckman-Alamo Creek target shooting range areas. The impacts would be mitigated by design features intended to reduce environmental impacts. These would reduce the overall quantity of these impacts and the size of the areas experiencing them. As described under Alternative B, construction of the Buckman-Alamo Creek shooting range could present the opportunity for BLM to participate in data recovery on the historic properties located within the range footprint.

Under Alternative C, construction of the proposed Camel Tracks Option 2 and Buckman-Alamo Creek shooting ranges would take place within the viewshed of the designated El Camino Real de Tierra Adentro NHT. However, the portions of the trail experiencing these impacts are not well preserved. Also, they include not only modern roads where the trail itself is designated (Buckman Road and County Road 56C) but other visibly modern infrastructure, such as power lines and highways. Additionally, the development of recreational target shooting ranges in these locations presents an opportunity for inclusion of interpretative signage relating to the NHT in these areas.

3.11 VISUAL RESOURCES

3.11.1 Affected Environment

Visual resources are identified through the Visual Resource Inventory (VRI) process and managed through the Visual Resource Management (VRM) process. The VRI process consists of a scenic quality evaluation, a sensitivity-level analysis, and a delineation of distance zones. Based on these factors, BLM-administered lands are placed into four VRI classes: VRI Classes I, II, III, and IV. VRI Classes I and II are the most valued, VRI Class III represents a moderate value, and VRI Class IV is of the least value. These VRI classes serve as an inventory tool that represents the relative value of visual resources in the area and is utilized during land use planning to assign VRM classes to each area.

VRM classes serve as a planning and management tool that provides an objective for managing visual resources on BLM-administered lands. Four classes are utilized: VRM Classes I, II, III, and IV. The VRM class objectives are defined in BLM Handbook H-8410-1. In summary, the VRM Class I objective is for preservation of the existing landscape; it is assigned to all special areas where the current management situation requires maintaining a natural environment essentially unaltered by humans, such as wilderness and natural areas. The VRM Class II objective is for retention of the existing landscape; it allows for new projects that blend in with the existing surroundings and do not attract attention. The VRM Class III objective is for partial retention of the existing landscape, and it allows for moderate change; new projects can be approved that are not large-scale, dominating features. The VRM Class IV objective allows for a maximum change of the existing landscape; this category has the lowest restrictions and would allow for most uses in the area.

The degree to which a management activity affects the visual quality of a landscape largely depends on the visual contrast created between the proposed project and the existing landscape. The contrast can be measured by comparing the project features or components with the major features in the landscape. The basic visual elements of form, line, color, and texture are used to make this comparison and to describe the magnitude of the visual contrast created by the proposed project. The level of contrast is then compared with the VRM class objective for the area. For comparative purposes, the four levels of contrast (none, weak, moderate, and strong) roughly correspond with VRM Classes I, II, III, and IV, respectively. This means that a “strong” contrast rating may be acceptable in a VRM Class IV area, but it probably would not meet the VRM objective for a Class III area (BLM 1986).

Buckman-Alamo Creek

The Buckman-Alamo Creek area is primarily within an area managed as VRM Class II (18,870 acres; **Map 3-10**). A smaller portion (1,870 acres) is managed as VRM Class III, which includes Old Buckman Road. The existing landscape was inventoried to be a primarily VRI Class II area; however, it is likely that the scenic quality has degraded since the inventory was completed in 2006 due to continued dispersed target shooting (BLM 2012).

Camel Tracks

The majority (10,890 acres) of the Camel Tracks area is managed as VRM Class II (**Map 3-10**). The existing landscape was inventoried to be a primarily VRI Class II area; however, it is likely that the scenic quality has degraded since the inventory was completed in 2006 due to continued dispersed target shooting (BLM 2012).

San Pedro Mountains

The majority of the San Pedro Mountains area is managed as VRM Class III (1,200 acres), while the west end (820 acres) is managed as VRM Class II to protect the viewshed from the Turquoise Trail National Scenic Byway (**Maps 3-8 and 3-10**). The existing landscape was inventoried to be a primarily VRI Class III area (BLM 2012).

3.11.2 Environmental Consequences

Issue 1: How will the alternatives affect visual resources?

Alternative A – No Action

Under Alternative A, impacts on visual resources would continue at each site. As dispersed target shooting continues, adverse impacts on natural resources, such as vegetation damage, trash dumping, spent shooting materials, and user-created routes, would continue to degrade the landscape's natural scenic character in the planning area. Long-term impacts on visual resources would be adverse and minor.

Alternative B

Buckman-Alamo Creek

The development of the Buckman-Alamo Creek shooting range would introduce elements such as backstop berms, target structures, a gravel parking area, shooting platforms, and fencing. These types of elements would introduce minimal geometric forms and lines to the landscape, expose the natural earth tones, and increase the smooth texture into the landscape. The introduction of these modifications would contrast with the existing landscape, leading to long-term impacts that would be adverse and minor. VRM Class II allows for minimal modification to the existing landscape; management activities may be seen but should not attract the attention of the casual observer. The development of the Buckman-Alamo Creek shooting range would conform to the VRM Class II and III objectives, and include design features to reduce visual impacts (see **Appendix B**).

Camel Tracks Option 1

The development of the Camel Tracks Option 1 shooting range would introduce similar elements as the Buckman-Alamo Creek shooting range. The introduction of these modifications would contrast with the existing landscape, leading to long-term impacts that would be adverse and minor. The development of the Camel Tracks Option 1 shooting range would conform to the VRM Class II objective.

Alternative C

Impacts on visual resources under Alternative C would be similar to those described under Alternative B, except the BLM would develop the Camel Tracks Option 2 shooting range instead of the Camel Tracks Option 1 shooting range.

Camel Tracks Option 2

The development of the Camel Tracks Option 2 shooting range would introduce similar elements as the Buckman-Alamo Creek and Camel Tracks Option 1 shooting ranges described under Alternative B. The introduction of these modifications would contrast with the existing landscape, leading to long-term impacts that would be adverse and minor. The development of the Camel Tracks Option 2 shooting range would conform to the VRM Class II objective.

Chapter 4. Cumulative Effects

The CEQ, which regulates NEPA, defines cumulative impacts as “The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFAs) regardless of what agency/federal or non-federal or person undertakes such actions.”

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). In this chapter, past, present, and RFFAs are analyzed to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of each alternative may have an additive and significant relationship to those effects.

4.1 GEOGRAPHIC SCOPE

Cumulative effects study areas (CESAs) have been identified for the resources that would be directly or indirectly impacted by the alternatives considered in this environmental assessment.

The CESA for Recreation and Access, Cultural Resources, Biological Resources, Soils and Watersheds, Tribal Interests, Public Health and Safety, Acoustic Environment, Special Designations, and Visual Resources is the planning area. This CESA boundary was chosen because it incorporates the natural and cultural resources in and adjacent to the areas most affected by the impacts under each alternative.

The CESA for Livestock Grazing includes the allotments that overlap with current heavily-used dispersed target shooting areas and those that overlap with proposed recreational target shooting range locations. This CESA boundary was chosen since impacts under the alternatives may affect livestock use that extends to other portions of those allotments.

4.2 TIME FRAME OF EFFECTS

Short-term cumulative impacts would occur during construction of the selected recreational target shooting ranges, anticipated to take approximately six months for each site once initiated. The construction at the selected locations could be done separately or concurrently. Long-term cumulative impacts would occur once an individual recreational target shooting range is in operation and would be of indefinite duration.

4.3 PAST AND PRESENT ACTIONS

Past and current actions in the planning area that contribute to the cumulative effects of the alternatives are mining, operations at the Santa Fe Airport, transmission line construction and maintenance, road construction and maintenance, and grazing. Other past and present actions in the planning area that contribute to the cumulative effects of the alternatives include numerous recreational activities such as dispersed target shooting and trail use, as well as potential events of cultural significance to numerous federally recognized tribes with interests in the area.

4.3.1 Camel Tracks

Past and on-going actions specific to the Camel Tracks area include two mining operations; the Crego Mine on private land and the Cerrito Pelado Mine on BLM-administered land, and occasional New Mexico Army Reserve National Guard exercises (Gerow and Doleman 2001).

4.3.2 Buckman-Alamo Creek

Past and on-going actions specific to the Buckman-Alamo Creek area include construction and maintenance pipeline and facility construction for the Buckman Direct Diversion project (Forest Service and BLM 2006), the use of the Norton electrical substation, and recreational developments including the Camino Real Retracement Trail and development of campsites, a trailhead and parking at the Diablo Canyon Recreation Area.

4.4 REASONABLY FORESEEABLE FUTURE ACTIONS

RFFAs are actions that are known or could reasonably be anticipated to occur within the CESAs. They include actions that have existing decisions, funding, formal proposals, or that are highly probable. Continued population growth, housing development, commercial development, and additional infrastructure development in Santa Fe County is anticipated to continue for the foreseeable future. This includes both BLM-administered and non-BLM-administered lands along the urban fringe of Santa Fe like those near the current dispersed informal target shooting sites and the proposed recreational target shooting ranges. Of note is the proposed Los Alamos National Laboratory (2023) Electrical Power Capacity Upgrade project transmission line corridor, routed both along Buckman Road and across the Caja Del Rio in the planning area. Development of the recreational target shooting ranges would reduce dispersed target shooting within the planning area, leading to a reduction in conflict with other activities.

4.4.1 Camel Tracks

RFFAs specific to the Camel Tracks area include a model airplane airstrip on BLM-administered land and future New Mexico Army Reserve National Guard exercises. Plans are also being developed for an extension of the Camino Real Retracement Trail that would cross the Camel Tracks area.

4.4.2 Buckman-Alamo Creek

RFFAs specific to the Buckman-Alamo Creek area include pipeline and facility construction and maintenance related to the proposed San Juan Chama Return Flow Project (City of Santa Fe 2023), occurring largely adjacent to previous disturbance related to the Buckman Direct Diversion project discussed under **Section 4.3**.

4.5 ANALYSIS BY RESOURCE

This section uses the rankings of “minor,” “moderate,” and “high” for ease of comparison of cumulative effects between alternatives.

4.5.1 Recreation and Access

Under Alternative A, none of the proposed recreational target shooting ranges would be built. Current impacts on recreation and access related to dispersed target shooting in the planning area, including conflicts with other recreational users and activities would persist (see **Section 3.2.2**, Recreation and Access Environmental Consequences). Considering the past, present, and reasonably foreseeable future

actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts to recreation and access would be minor to moderate under Alternative A.

Under Alternatives B and C, two recreational target shooting ranges would be built, aiming to address the current conflicts related to dispersed target shooting in the planning area. Considering the impacts of Alternatives B and C on recreation and access (see **Section 3.2.2**, Recreation and Access Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on recreation and access would be reduced compared to Alternative A.

4.5.2 Cultural Resources

Under Alternative A, none of the proposed recreational target shooting ranges would be built. Current impacts on cultural resources in the planning area related to dispersed target shooting, including impacts on the setting of historic properties and cultural landscapes, would continue (see **Section 3.3.2**, Cultural Resources Environmental Consequences). Considering the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on cultural resources would be minor to moderate under Alternative A.

Under Alternatives B and C, two recreational target shooting ranges would be built in the planning area. Considering the impacts of Alternatives B and C on cultural resources (see **Section 3.3.2**, Cultural Resources Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on cultural resources in the planning area would be moderate compared to Alternative A, and greatest of all under Alternative C.

4.5.3 Biological Resources (Including Vegetation and Wildlife)

Under Alternative A, none of the proposed recreational target shooting ranges would be built. Current impacts on biological resources in the planning area related to dispersed target shooting, such as degradation of vegetation communities and wildlife habitat and displacement of wildlife would continue (see **Section 3.4.2**, Biological Resources Environmental Consequences). Considering the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on biological resources would be moderate under Alternative A.

Under Alternatives B and C, impacts on biological resources from development of two recreational target shooting ranges would include loss of vegetation and wildlife habitat from surface disturbance during construction. Considering the impacts of the proposed action (see **Section 3.4.2**, Biological Resources Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on biological resources in the planning area would be moderate, and similar to but less than those under Alternative A. Cumulative impacts on biological resources would be least under Alternative B.

4.5.4 Livestock Grazing

Under Alternative A, current impacts on livestock grazing related to dispersed target shooting in the CESA, such as potential for harm to humans or livestock and debris accumulation, would continue (see **Section 3.5.2**, Livestock Grazing Environmental Consequences). There would also be no AUMs lost within grazing allotments due to recreational target shooting range construction, as would occur under Alternatives B and C. Considering the past, present, and reasonably foreseeable future actions discussed

in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on livestock grazing would be moderate under Alternative A.

Under Alternatives B and C, impacts on livestock grazing from development of two recreational target shooting ranges and dispersed target shooting closures would include improved safety conditions for humans and livestock in the CESA and loss of acreage and AUMs due to the shooting range footprint. Considering the impacts of the proposed action (see **Section 3.5.2**, Livestock Grazing Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on livestock grazing in the planning area would be minor to moderate, and similar to but less than those under Alternative A. Cumulative impacts on livestock grazing would be least under Alternative B.

4.5.5 Soils and Watersheds

Under Alternative A, current impacts on soils and watersheds in the planning area, such as potential for surface disturbance and increased runoff that contains sediment or lead related to dispersed target shooting, would continue (see **Section 3.6.2**, Soils and Watershed Environmental Consequences). There would also be no large immediate increase in disturbance due to recreational target shooting range construction, as would occur under Alternatives B and C. Considering the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on soils and watersheds would be minor to moderate under Alternative A.

Under Alternatives B and C, impacts on soils and watersheds associated with the development of two recreational target shooting ranges, dispersed target shooting closures, and reclamation of informal target shooting sites would include a short term increase in surface disturbance due to target shooting range construction, with reduced potential for long term accumulation of lead in the soil and reduced long term potential for sediment in runoff. Considering the impacts of the proposed action (see **Section 3.6.2**, Soils and Watersheds Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on soils and watersheds in the planning area would be minor, and less than those under Alternative A. Cumulative impacts on soils and watersheds would be least under Alternative B.

4.5.6 Tribal Interests

Under Alternative A, current impacts on tribal interests in the planning area such as cultural, visual, and natural resources impacts due to dispersed target shooting would continue (see **Section 3.7.2**, Tribal Interests Environmental Consequences). There would also be no dispersed target shooting closure as would occur under Alternatives B and C. Considering the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on tribal interests would continue to be moderate to high under Alternative A. Under Alternative A, as under all alternatives, BLM would continue to proactively seek input from federally recognized tribes, uphold their obligation to meaningful consult with, and seek to prevent and minimize impacts to tribal interests.

Under Alternatives B and C, impacts on cultural, visual, and natural resources associated with the development of two recreational target shooting ranges, dispersed shooting closures, and reclamation of informal target shooting sites would increase in the short term as a result of potential surface-disturbing activities like construction. These resources would also be impacted in the long term as a result of increase of visual contrast and loss of vegetation due to recreational target shooting range construction. Other

long-term impacts include the reduced potential for long-term accumulation of lead in the soil and reduced long-term potential for sediment in runoff. Considering the impacts of the proposed action (see **Section 3.7.2**, Tribal Interests Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on tribal interests in the planning area would be moderate to high. Cumulative impacts on tribal interests would be the least under Alternative B. Under Alternatives B and C, the BLM would continue to proactively seek input from federally recognized tribes, uphold their obligation to meaningful consult with, and seek to prevent and minimize impacts to tribal interests.

4.5.7 Public Health and Safety

Under Alternative A, none of the proposed recreational target shooting ranges would be built. Current impacts on public health and safety related to dispersed target shooting in the planning area, including firearm safety, the elevated threat of wildfire, and concern of lead accumulation would persist (see **Section 3.8.2**, Public Health and Safety Environmental Consequences). Considering the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on public health and safety would be moderate to high under Alternative A.

Under Alternatives B and C, two recreational target shooting ranges would be built, where design features (**Appendix B**) would be present to address the current impacts on public health and safety related to dispersed target shooting in the planning area. In addition, dispersed target shooting closures would further reduce impacts related to firearm safety, the elevated threat of wildfire, and concern of lead accumulation. Considering the impacts of Alternatives B and C on public health and safety (see **Section 3.8.2**, Public Health and Safety Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on public health and safety under Alternatives B and C would be minor and significantly less than those under Alternative A.

4.5.8 Acoustic Environment

Under Alternative A, none of the proposed recreational target shooting ranges would be built. Current concerns related to sonic impacts from dispersed target shooting in the planning area would persist (see **Section 3.9.2**, Acoustic Environment Environmental Consequences). Considering the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts from regular firearm discharges on nearby sensitive receptors such as residences would be moderate to high under Alternative A.

Under Alternatives B and C, two recreational target shooting ranges would be built, aiming to address the current concerns related to sonic impacts from dispersed target shooting in the planning area. Considering the impacts of Alternatives B and C on the acoustic environment (see **Section 3.9.2**, Acoustic Environment Environmental Consequences), particularly within the delineated acoustic analysis areas for each alternative (**Map 3-5, 3-6, and 3-7**) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts from regular firearm discharges on nearby sensitive receptors such as residences would be minor, and significantly reduced by design features (**Appendix B**) compared with Alternative A. Alternative C would move the proposed target shooting range further away from the closest residences in the Camel Tracks area, resulting in reduced recreational target shooting related sonic impacts on those sensitive receptors than under Alternative B.

4.5.9 Special Designations

National Scenic Byways

No cumulative impacts on the Turquoise Trail, El Camino Real, or Route 66 National Scenic Byways are anticipated under any of the alternatives.

ACECs

Under Alternative A, none of the proposed recreational target shooting ranges would be built to address impacts on ACEC R&I values related to dispersed target shooting in the planning area and current conflicts would persist (**Section 3.3**, Cultural Resources and **Section 3.4**, Biological Resources). Considering the impacts of Alternative A on ACEC R&I values (see **Section 3.10.2**, Special Designations Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on ACEC R&I values would continue to be moderate under Alternative A.

Under Alternatives B and C, two recreational target shooting ranges would be built, aiming to address any potential conflicts related to dispersed target shooting in the planning area with the ACEC R&I values of cultural resources and wildlife habitat. Development of recreational target shooting ranges would also provide an opportunity for BLM to encourage data recovery in the Santa Fe Ranch ACEC, per current management prescriptions in the Taos RMP (BLM 2012). Considering the impacts of Alternatives B and C on R&I values of the two ACECs (see **Section 3.10.2**, Special Designations Environmental Consequences, **Section 3.3** Cultural Resources, and **Section 3.4** Biological Resources) as well as the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on ACECs would be minor, and reduced compared with Alternative A. Impacts would be the least under Alternative B due to the smaller footprint of the Camel Tracks Option 1 range compared with the larger footprint of the Camel Tracks Option 2 range proposed under Alternative C.

El Camino Real de Tierra Adentro National Historic Trail

Under Alternative A, none of the proposed recreational target shooting ranges would be built to address the current impacts related to dispersed target shooting in the planning area (**Section 3.2.2**, Recreation and Access Environmental Consequences, **Section 3.3.2**, Cultural Resources Environmental Consequences, **Section 3.8.2**, Public Health and Safety Environmental Consequences, and **Section 3.10.2**, Special Designations Environmental Consequences). Considering the impacts of Alternative A on the NHT (see **Section 3.10.2**, Special Designations Environmental Consequences) and the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on the NHT would be minor to moderate under Alternative A.

Under Alternatives B and C, minor adverse impacts from changes in setting due to development of the proposed recreational target shooting ranges are anticipated on NHT segments throughout the planning area (**Section 3.3**, Cultural Resources and **Section 3.10.2**, Special Designations Environmental Consequences). In addition to reducing resource and use conflicts related to dispersed target shooting in the planning area, development of the recreational target shooting ranges would offer the opportunity to better realize the potential of the NHT's historical and cultural resource interpretive opportunities. Considering the impacts of Alternatives B and C on El Camino Real de Tierra Adentro NHT from changes in setting due to development opportunities (**Section 3.2.2**, Cultural Resources Environmental Consequences) and the associated interpretive opportunities (**Section 3.10.2**, Special Designations Environmental Consequences) as well as the past, present, and reasonably foreseeable future

actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts on the NHT would be minor in comparison to Alternative A.

4.5.10 Visual Resources

Under Alternative A, none of the proposed recreational target shooting ranges would be built. Ongoing impacts on visual resources from the degradation of the landscape's natural scenic character related to dispersed target shooting in the planning area would persist (see **Section 3.11.2**, Visual Resources Environmental Consequences). Considering impacts under Alternative A, combined with the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**, long-term adverse cumulative impacts to recreation and access would be minor under Alternative A.

Under Alternatives B and C, two recreational target shooting ranges would be built with the goal of addressing the current conflicts related to dispersed shooting in the planning area. Considering the impacts of building two recreational target shooting ranges under Alternatives B and C on visual resources (see **Section 3.11.2**, Visual Resources Environmental Consequences) in combination with the past, present, and reasonably foreseeable future actions discussed in **Sections 4.3** and **4.4**; long-term adverse cumulative impacts on visual resources would be moderate, greater than under Alternative A and greatest under Alternative C due to the larger footprint of the proposed recreational target shooting range at the Camel Tracks location compared with Alternative B.

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Chapter 5. Consultation and Coordination

5.1 TRIBES, INDIVIDUALS, ORGANIZATIONS, AND AGENCIES CONSULTED

During the NEPA process for this EA, the BLM formally and informally consulted and coordinated with other federal agencies, state and local governments, Native American tribes, and the interested public. The agency did this to ensure its compliance, in both the spirit and intent, with 40 CFR 1501.7, 1502.19, and 1503. In addition to the public scoping process, the BLM implemented collaborative outreach and a public involvement process that included inviting agencies to be cooperative partners for the EA planning process.

5.1.1 Government-to-Government Consultation

The federal government works on a government-to-government basis with federally recognized tribes because they are recognized as separate governments. This relationship was formally recognized on November 6, 2000, with EO 13175 (65 *Federal Register* 67249). As a matter of practice, the BLM coordinates with all tribal governments, associated Native communities, Native organizations, and tribal individuals whose interests might be directly and substantially affected by activities on BLM-administered lands.

Section 106 of the NHPA requires federal agencies to consult with Native American tribes for undertakings on tribal lands and for historic properties of significance to the tribes that may be affected by an undertaking (36 CFR 800.2(c)(2)). BLM Manual 1780, Tribal Relations, and BLM Handbook H-1780-1, Improving and Sustaining BLM-Tribal Relations, provide guidance for Native American consultations. EO 13175 stipulates that during the NEPA process, federal agencies must consult tribes identified as being directly and substantially affected.

In addition, Joint Secretarial Order 3403 (Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters) requires federal agencies to collaborate with Indian and Alaska Native tribes, Alaska Natives, and Native Hawaiians to ensure that tribal governments, Alaska Native entities, and the Native Hawaiian community play an integral role in decision-making related to the management of federal lands and waters through consultation, capacity building, and other means consistent with applicable authorities. The subsequent BLM Instruction Memorandum 2022-11 provides direction for implementing provisions of Joint Secretarial Order 3403.

The BLM invited several tribal nations to consult on the potential effects on historic properties and to participate as cooperating agencies in evaluating the proposed action, with physical documents mailed on September 14, 2022. The BLM sent letters to the Comanche Indian Nation, Hopi Tribe, Jicarilla Apache Nation, Kewa Pueblo, Kiowa Tribe of Oklahoma, Navajo Nation, Ohkay Owingeh, Pueblo of Cochiti, Pueblo of Isleta, Pueblo of Nambe, Pueblo of Pojoaque, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Clara, and Pueblo of Tesuque.

The BLM followed up on the letters sent to the tribal nations with emails on September 16, 2022, that included electronic copies of the letter. In addition to the 16 federally recognized tribal nations previously invited, the BLM invited the Pueblos of Acoma, Jemez, Zia, and San Felipe to participate as cooperating agencies, with physical letters mailed and emails both sent on October 17, 2022.

The Pueblo of San Felipe, Pueblo of Cochiti, Pueblo of Tesuque, and Pueblo of San Ildefonso have responded by phone, email, tribal consultation meetings, and in-person site visits. The Pueblo of San Felipe has signed a memorandum of understanding with the BLM to participate as a cooperating agency. The remaining tribes have not yet provided responses. The BLM continues to consult with tribes who may be interested in this area.

5.1.2 New Mexico State Historic Preservation Officer

The principal federal law addressing cultural resources is the NHPA, as amended (54 United States Code 300101 et seq.) and its implementing regulations found at 36 CFR 800.3. These regulations, commonly referred to as the Section 106 process, describe the procedures for identifying and evaluating historic properties, for assessing the impacts of federal actions on historic properties, and for project proponents consulting with appropriate agencies to avoid, reduce, or minimize adverse effects. Historic properties are cultural resources that are over 50 years old and that meet specific criteria for listing on the National Register.

The BLM meets its obligations under the NHPA through the implementation of the regulations at 36 CFR 800, as well as through BLM cultural resources manuals and handbooks (the H-8100 series and the BLM tribal relations manuals and handbooks [H-1780 series]). During preparation of this EA, the BLM coordinated with state agencies, local counties, the SHPO, and other consulting parties in compliance with Section 106 of the NHPA. On May 15, 2023, the BLM mailed letters to the 2023 list of tribal contacts for tribes with New Mexico landownership or ancestral ties to New Mexico to inform them of the area of potential affect and to invite them to participate in co-stewardship opportunities. The BLM sent letters to the Pueblo of Acoma, Pueblo of Cochiti, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Nambe, Ohkay Owingeh, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Santo Domingo, Pueblo of Taos, Pueblo of Tesuque, Pueblo of Zia, Pueblo of Zuni, Ysleta del Sur Pueblo, Apache Tribe of Oklahoma, Fort Sill Apache Tribe of Oklahoma, Jicarilla Apache Nation, Mescalero Apache Tribe, San Carlos Apache Tribe, White Mountain Apache Tribe, Comanche Nation of Oklahoma, Kiowa Indian Tribe of Oklahoma, Navajo Nation, Pawnee Nation of Oklahoma, Southern Ute Indian Tribe, Hopi Tribe, Ute Mountain Ute Tribe, and Wichita and Affiliated Tribes. On June 21, 2023, the BLM mailed letters to these tribal nations notifying them of scheduled cultural surveys.

Section 106 consultation with the SHPO and Native American tribes will continue to occur before any implementation of projects commences.

5.1.3 Cooperating Agencies

Cooperating agencies are any federal, state, or local government agency or Native American tribe that enters into a formal agreement with the lead federal agency to help develop an environmental analysis. Cooperating agencies and tribes work with the BLM, sharing knowledge and resources, to achieve desired outcomes for BLM-administered lands and communities within statutory and regulatory frameworks. Santa Fe County, the New Mexico Department of Game and Fish, the New Mexico State Land Office, Santa Fe National Forest, and the Pueblo of San Felipe agreed to participate as cooperating agencies for this NEPA process.

The BLM hosted a meeting with potential cooperating agencies on September 27, 2022, at the BLM New Mexico State Office in Santa Fe to provide information about the NEPA process and an opportunity to

participate in the project in a formal capacity. The BLM hosted field visits with cooperating agencies at the existing Camel Tracks location on October 27, 2022 and January 18, 2023, and at the existing Buckman-Alamo Creek location on January 24, 2023. Additional cooperating agency meetings were held on February 15, 2023, to discuss the draft alternatives, and August 9, 2023, to discuss the proposed action.

5.2 LIST OF PREPARERS

This EA was prepared by an interdisciplinary team of staff from the BLM and Environmental Management and Planning Solutions Inc. The following is a list of people who prepared or contributed to the development of this RMPA/EA.

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Chapter 6. References

- All Pueblo Council of Governors. 2021. Resolution No. APCG 2021 – 13 “Supporting Preservation of the Caja del Rio Traditional Cultural Landscape.” Internet website: <https://cajadelrio.org/wp-content/uploads/2022/04/Res.-2021-13-Resolution-Caja-Del-Rio-EPCU.pdf>.
- ATSDR (Agency for Toxic Substances and Disease Registry). 2020. Toxicological Profile for Lead. US Department of Health and Human Services, Public Health Service, Atlanta, Georgia.
- Bentrup, G. 2008. Conservation Buffers: Design Guidelines for Buffers, Corridors, and Greenways. Gen. Tech. Rep. SRS-109. Department of Agriculture, Forest Service, Southern Research Station, Asheville, North Carolina.
- BLM (Bureau of Land Management). 1986a. BLM Handbook H-8410-I, Visual Resource Inventory. Washington, DC.
- _____. 1986b. BLM Handbook H-8431-I, Visual Resource Contrast Rating. Washington, DC.
- _____. 1988. BLM Manual 1613, Areas of Critical Environmental Concern. Washington, DC.
- _____. 2004. BLM Manual 8100, The Foundations for Managing Cultural Resources. Washington, DC.
- _____. 2008. BLM Handbook 1790-I, National Environmental Policy Act. Washington, DC.
- _____. 2012. Proposed Taos Resource Management Plan and Final Environmental Impact Statement. Taos Field Office, Taos, New Mexico. Internet website: <https://eplanning.blm.gov/eplanning-ui/project/68121/570>.
- _____. 2016. BLM Manual 1780, Tribal Relations. Washington, DC.
- _____. 2018. Santa Fe County BLM Sensitive Wildlife Species Lists. BLM Taos Filed Office, Taos, New Mexico.
- _____. 2022. Protect Cultural Treasures – Honor Pueblo People and Puebloan Artifacts. January 24, 2022, Press release. BLM Taos Field Office, Taos, New Mexico. Internet website: <https://www.blm.gov/press-release/protect-cultural-treasures-honor-pueblo-people-and-puebloan-artifacts>.
- _____. 2023a. A Class III Cultural Resources Inventory for Three Proposed Shooting Range Localities, Santa Fe County, New Mexico. On file with the BLM Taos Field Office, Taos, New Mexico.
- _____. 2023b. El Camino Real de Tierra Adentro National Historic Trail. Internet website: <https://www.blm.gov/visit/el-camino-real-de-tierra-adentro-national-historic-trail>.

- BLM and Forest Service 2006. Final Environmental Impact Statement for the Buckman Water Diversion Project. Forest Service Southwestern Region and BLM New Mexico State Office. Internet website: https://bddproject.org/archive/Buckman_FEIS.pdf.
- BLM GIS (Bureau of Land Management geographic information systems). 2023. Geographic information systems data used in the Taos Field Office Recreational Target Shooting Project environmental assessment alternatives, affected environment, and impact analysis. Taos, New Mexico.
- Board of Commissioners of Santa Fe County. 2009. Ordinance No. 2009-11. An Ordinance to Prohibit Excessive, Unnecessary and Unreasonable Noise and Public Nuisances. Internet website: <https://www.santafecountynm.gov/documents/ordinances/Ordinance200911K.pdf>.
- _____. 2022. Resolution No. 2022-830. A Resolution Supporting the Permanent Preservation of the Caja Del Rio Cultural Landscape & Wildlife Area. Internet website: https://www.santafecountynm.gov/documents/ordinances/Resolution_2022-030.pdf.
- Caja del Rio Coalition. 2022. Statement on Vandalism at the Cienaguilla Petroglyphs in the Caja del Rio. Internet website: <https://cajadelrio.org/statement-on-petroglyph-vandalism/>.
- _____. 2023. About the Caja del Rio. Internet website: <https://cajadelrio.org/about/>.
- Cajiao, S. 2022. City of Santa Fe Passes Resolution in Support of Permanently Protecting the Caja del Rio. New Mexico Wild. Santa Fe, New Mexico. Internet website: <https://www.nmwild.org/2022/06/30/city-of-santa-fe-passes-resolution-in-support-of-permanently-protecting-the-caja-del-rio/>.
- City of Santa Fe. 2023. City of Santa Fe San Juan – Chama Return Flow Pipeline information page. Internet website: <https://santafenm.gov/public-utilities/water/water-resources-1/using-reclaimed-water/san-juan-chama-return-flow-pipeline>.
- Davis, C. 2018. Chapter 12: Effects of Climate Change on Cultural Resources in the Northern Rockies Region. Forest Service RMRS-GTR-374. Internet website: <https://www.fs.usda.gov/research/treesearch/55997>.
- Finney, M. A., T. B. Maynard, S. S. McCallister, and I. J. Grob. 2013. A Study of Ignition by Rifle Bullets. Res. Pap. RMRS-RP-104. US Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado.
- Foreman, Richard T.T. and L.E. Alexander. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics 29(1): 207-231.
- Gerow, P., and B. Doleman. 2001. Across the Caja del Rio Plateau: Hunters and Farmers in the Rio Grande, A Class III Inventory of the New Mexico Army Reserve National Guard Camel Tracks Training Site, Santa Fe County, New Mexico. Prepared for the New Mexico Army National Guard by the University of New Mexico Office of Contract Archaeology. On file with the BLM Taos Field Office, Taos, New Mexico.

- Herrera, M. 2023. Pueblo of Tesuque Comments on Bureau of Land Management Conservation and Landscape Health Rule. Office of the Governor, Letter to BLM Director Tracy Stone-Manning dated July 5, 2023. Tesuque, New Mexico. Internet website: <https://www.regulations.gov/comment/BLM-2023-0001-153542>.
- Hofbeck, M., and T. Ferguson. 2021. Sky Valley Shooting Range Environmental Noise Impact Report. Stantec. Internet website: <https://snohomishcountywa.gov/DocumentCenter/View/86876/2021-05-28-SkyValleyNoiseStudy?bidId=>.
- Kelebemang, R., P. Dinake, N. Sehuba, B. Daniel, O. Totolo, and M. Laetsang. 2017. “Speciation and mobility of lead in shooting range soils.” *Chemical Speciation and Bioavailability* 29(1):143–152.
- Lederman, Nathan. 2023. “La Cienguilla residents, pueblo officials pan idea of shooting range at Caja del Rio.” *Santa Fe New Mexican*. Internet website: https://www.santafenewmexican.com/news/local_news/la-cienguilla-residents-pueblo-officials-pan-idea-of-shooting-range-at-caja-del-rio/article_02ad1f6a-1517-11ee-9774-f7cbf74d4195.html.
- Los Alamos National Laboratory. 2023. Electrical Power Capacity Upgrade Project information page. Internet Website: <https://environment.lanl.gov/resources/epcu/>.
- Martinez, C. E., and H. L. Motto. 2000. “Solubility of lead, zinc, and copper added to mineral soils.” *Environmental Pollution* 107(1):153–158.
- New Mexico Tourism Department. 2023. New Mexico’s National Scenic Byways. Santa Fe, New Mexico. Internet website: <https://www.newmexico.org/places-to-visit/scenic-byways/>.
- NPS (National Park Service). 2005. National Register of Historic Places, Registration Form for “The Route 66 and National Old Trails Road Historic District at La Bajada.” Internet website: <https://catalog.archives.gov/id/77846804>.
- _____. 2023. National Register of Historic Places, National Register Database and Research webpage, downloadable spreadsheet. Internet website: <https://www.nps.gov/subjects/nationalregister/database-research.htm#table>.
- NRCS (US Department of Agriculture Natural Resources Conservation Service). 2001. Soil Quality Information Sheet Rangeland Soil Quality—Water Erosion. Internet website: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051599.pdf.
- _____. 2008. Official Soil Series Descriptions. Internet website: <https://soilseries.sc.egov.usda.gov/>.
- _____. 2009. Part 630 Hydrology National Engineering Handbook, Chapter 7: Hydrologic Soil Groups. 210–VI–NEH. Internet website: <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>.
- _____. 2019. Title 430 – National Soil Survey Handbook (430-618-H, 1st Ed., Amend. 35, August 2019) 618-B.1 Part 618 – Soil Properties and Qualities, Subpart B – Exhibits. Internet website: <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=44385.wba>.

- _____. 2022. Web Soil Survey. Internet website: <http://websoilsurvey.sc.egov.usda.gov/>.
- Ouren, D.S., C. Haas, C.P. Melcher, S.C. Stewart, P.D. Ponds, N.R. Sexton, L. Burriss, T. Fancher, and Z.H. Bowen. 2007. "Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: a Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies, and Internet Resources." US Geological Survey Open-File Report 2007–1353. Internet website: <https://pubs.er.usgs.gov/publication/ofr20071353>.
- Pouyat, R. V., D. S. Page-Dumroese, T. Patel-Weynand, and L. H. Geiser. 2020. *Forest and Rangeland Soils of the United States Under Changing Conditions: A Comprehensive Science Synthesis*. Springer International Publishing. Internet website: <http://dx.doi.org/10.1007/978-3-030-45216-2>.
- Radle, A. L. 2007. The effect of noise on wildlife: A literature review. World Forum for Acoustic Ecology Online Reader. Internet website: http://wfae.proscenia.net/library/articles/radle_effect_noise_wildlife.pdf.
- Rooney, C. P., R. G. McLaren, and L. M. Condron. 2007. "Control of lead solubility in soil contaminated with lead shot: Effect of soil pH." *Environmental Pollution* 149:149–157.
- Santa Fe County GIS (geographic information systems). 2023. Interactive zoning map. Internet website: <https://sfcomaps.santafecountynm.gov/mapsvc/apps/webappviewer/index.html?id=dea8fce5092468883caf0d691852bcd>.
- Schwartz, D. 2016. State agency shoots for gun range southwest of Santa Fe. Santa Fe New Mexican. Internet website: https://www.santafenewmexican.com/life/features/state-agency-shoots-for-gun-range-southwest-of-santa-fe/article_174409dc-1951-5c48-a2d4-0956773852a6.html.
- Soil Science Division Staff. 2017. Chapter 8—"Interpretations: The Impact of Soil Properties on Land Use" In: Soil Survey Manual. C. Ditzler, K. Scheffe, and H.C. Monger (eds.). United States Department of Agriculture Handbook 18. Government Printing Office, Washington, DC.
- Turquoise Trail Association. 2006. Turquoise Trail National Scenic Byway Corridor Management Plan. Internet website: <https://www.turquoisetrail.org/nsb/cmp.html>.
- US Census Bureau. 2022. Santa Fe city, New Mexico QuickFacts. Internet website: <https://www.census.gov/quickfacts/fact/table/santafecitynewmexico/PST045222>.
- US Department of Energy. 2012. Range Design Criteria. Office of Health, Safety, and Security. Internet website: https://www.energy.gov/sites/prod/files/2013/05/fl/Range_Design_Criteria.pdf.
- US Department of Transportation, Federal Highway Administration. 2004. Synthesis of Noise Effects on Wildlife Populations. Publication No. FHWA-HEP-06-016. Internet website: <https://www.nrc.gov/docs/ML1224/ML12241A397.pdf>.
- USEPA (US Environmental Protection Agency). 2005. Best Management Practices for Lead at Outdoor Shooting Ranges. EPA-902-B-01-001. Region 2. Internet website: <https://www.epa.gov/lead/best-management-practices-lead-outdoor-shooting-ranges>.

- USFWS (US Fish and Wildlife Service). 2023. Information, Planning, and Conservation (IPaC) online screening tool. Internet website: <https://ecos.fws.gov/ipac/location/index>.
- USGS (US Department of the Interior, US Geological Survey). 2022. Science in Your Watershed. 13 Rio Grande Region. Internet website: https://water.usgs.gov/wsc/a_api/wbd/region13/13.html.
- Weil, R. R., and N. C. Brady. 2019. *Elements of the Nature and Properties of Soils*, Fourth Edition. Pearson, New York, New York.
- Willmsen, Christine, Lewis Kaim, and Justin Mayo. 2014. "Loaded with Lead." *Seattle Times*. Seattle, Washington. Internet website: <https://projects.seattletimes.com/2014/loaded-with-lead>.

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