U.S. Department of the Interior
Bureau of Land Management

Muddy Mountains Special Recreation Management Area

TRAVEL MANAGEMENT PLAN AND ENVIRONMENTAL ASSESSMENT

DOI-BLM-NV-S010-2024-0087-EA

U.S. Department of the Interior
Bureau of Land Management
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JULY 2024

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1 INTRODUCTION

The Bureau of Land Management (BLM) Las Vegas Field Office (LVFO) has prepared the Muddy Mountains Special Recreation Management Area (SRMA) Travel Management Plan (TMP) considering information received through public and cooperating agency input through initial public outreach and public scoping (Section 1.9 of this Environmental Assessment [EA]). The intent of the TMP is to establish a comprehensive travel network, meeting both current and future access needs on public lands in this area, while avoiding and minimizing potential effects to sensitive resources. Acronyms and abbreviations for this EA are provided in Appendix A; Chapter 3 figures are provided in Appendix B; Appendix C provides the TMP, which identifies a system of roads, primitive roads, and trails, and the terms for their use and maintenance; and Appendix D provides the route reports from the route evaluation.

The TMP outlines the route network to be designated for recreational use through route closure or limitation of the types of vehicles and uses within the Travel Management Area (TMA). Additionally, there are multiple existing user-created roads or trails identified during inventory of the SRMA that are proposed to be incorporated as routes into the route network identified in the TMA. No new construction of routes or trails is proposed under the TMP. The travel network identified in the TMP is comprised of proposed motorized routes. The BLM Travel and Transportation Handbook H-8342 (BLM 2012a) provides definitions for route and use type that are provided in Chapter 2 and the TMP.

For the purposes of this EA and TMP, and as defined in the BLM Travel and Transportation Handbook (BLM 2012a), the term "route" will be used to refer to roads, primitive roads, primitive routes, trails, temporary routes, and transportation linear disturbances. This EA provides analysis of a No Action Alternative (Alternative A) and three action alternatives (Alternative B, Alternative C, and Alternative D) including the Proposed Action (Alternative D) considered during the travel management planning process, in compliance with the National Environmental Policy Act (NEPA) and other Federal and State laws and regulations.

1.1 General Setting

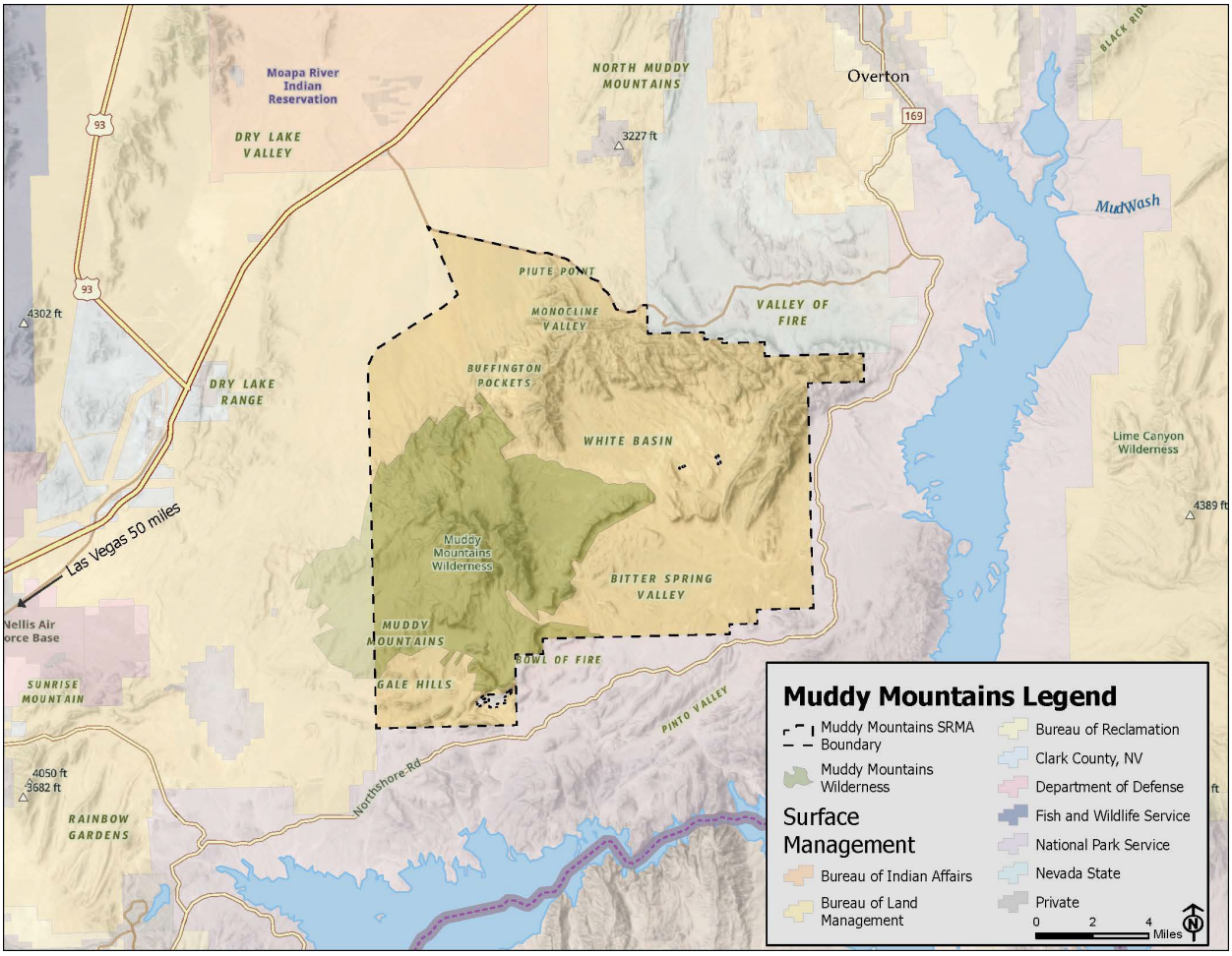
The TMA is formally referred to as the Muddy Mountains Special Recreation Management Area (SRMA). The TMA is in a mountainous landscape of the southern Nevada Mojave Desert at elevations from 1,500 to 5,200 feet above mean sea level. The TMA Planning Area encompasses approximately 133,483 acres of BLM-administered lands (Figure 1). The TMA is within an approximately one-to-two-hour drive from Las Vegas, Nevada's largest population center. This generates demand for a variety of year-round outdoor recreation opportunities. Public lands near cities and smaller communities are valued for their open space, wildlife habitat, outdoor recreation, and quality of life. BLM-administered lands in the TMA are near the Moapa River Indian Reservation, Lake Mead National Recreation Area, Valley of Fire State Park, and the

Bitter Springs Back Country Byway. The TMA also encompasses the majority of the Muddy Mountains Wilderness Area (Figure 1).

Routes on BLM-administered land are part of an interconnected network of routes that may cross multiple jurisdictions. Highways with connecting routes to public lands in the TMA include interstate highway 15 (I-15) and state highways 169/167. Public access to BLM-administered lands from the public highways is mostly provided by the county-maintained road system, with existing turnouts that provide access to local route networks. The BLM is only making decisions on the BLM-administered lands.

Land uses and recreation in the TMA include but are not limited to mining and mineral exploration, off-highway vehicle (OHV) recreation, camping, hunting, canyoneering, rock climbing, wildlife viewing, hiking, horseback riding, and mountain biking, including electric bicycles (e-bikes). The wide variety of resources and recreational experiences available to the public in the TMA attracts a diverse group of users and requires multiple-use management to avoid and minimize conflicts. A total of 263 miles of routes on BLM-administered land were identified and inventoried in preparation for the route evaluation for the TMA.

Figure 1. Overview Map



1.2 Identifying Information

1.2.1 Title, EA Number, and Type of Project

Muddy Mountains Travel Management Plan /Environmental Assessment, DOI-BLM-NV-S010-2024-0087-EA, Travel Management.

1.3 Background

The BLM manages motorized vehicle use on public lands pursuant to public land regulations in 43 CFR §8340 and the OHV use designations established in accordance with 43 Code of Federal Regulations (CFR) §8342.1. Land use allocation decisions in the current Resource Management Plan (RMP) were considered in the route evaluation criteria. These land use planning decisions must be considered in any travel management planning decisions. Current OHV designations limit motorized vehicle use on public lands to existing roads, trails, and dry washes except in the Muddy Mountains Wilderness Area, which is designated closed to motor vehicles and mechanized transportation.

Public demand and use have grown since the RMP land use allocations were established and route use has increased since the inventory was completed. Increasing public demand for access to recreational opportunities is expected to continue with growing impacts along existing routes in and near the developing urban-rural interface.

A TMP is needed to address the following:

- Guide priorities for resolution of legal access issues on BLM-administered land;
- Guide priorities for maintaining routes to provide public access for the different uses;
- Identify management strategies and practices to provide for recreational use while protecting resources within the TMA; and
- Avoid or minimize conflicts among users.

1.4 Purpose and Need for Action

The purpose of the TMP is to establish an access and transportation system to provide public access on BLM-administered lands for multiple land uses, while avoiding and minimizing user conflicts and protecting sensitive natural and cultural resources. The need is established by the Federal Land Policy and Management Act (FLPMA) and under Title 43 CFR 8342.1. Action is needed to manage the most important routes that are appropriate for use and access to public lands; identify the type of use for each route; determine route designations; and determine route maintenance levels.

The 1998 Las Vegas RMP specified the following Special Recreation Management Area Objective and Management Direction for the Muddy Mountains SRMA (among others):

Objective RC-2: Manage 128,300 acres of the Muddy Mountain area to provide semi-primitive recreation opportunities and integrated management of wildlife habitat cultural resources, and other recreational uses.

Management Direction RC-2-a: Manage the majority of the area (78,480 acres) for semi-primitive non-motorized recreation opportunities as this area is within the Muddy Mountains Wilderness Area.

Management Direction RC-2-b: Manage the remaining area (44,897 acres) for semi-primitive motorized recreation opportunities. (Note: There is acreage discrepancy between the RMP and Geographic Information System [GIS] acres due to the exact acres designated by Congress as the Muddy Mountains Wilderness Area and a recently conducted cadastral survey that has resulted in an update on the acreage for the Muddy Mountains SRMA.)

1.5 Decision to be Made

Based on the analysis contained in this EA, the BLM Authorized Officer will decide whether to designate identified routes as open to OHVs, limited (to only a certain type of user, or a certain type of vehicle, or based on season or time of day), or closed (to motorized or limited to

administrative use), and will designate routes for the BLM's travel system. Additionally, the Authorized Officer may specify required mitigation and monitoring.

1.6 Land Use Plan Conformance

Resource management decisions regarding access and transportation, as well as use of motorized vehicles and recreational use on BLM-administered lands in the TMA were made in the Las Vegas Field Office Proposed RMP, Record of Decision (ROD) Approved October 1998.

In conformance with Land Use Plans, the TMP incorporates management decisions that provide adequate access for the maintenance and management of wildlife habitat, wilderness, vegetation communities, minerals, realty, fire management, cultural and paleontological resources, and various recreation activities, among other resources and resource uses.

1.7 Relationship to Statutes, Regulations, Other NEPA Documents

Documents containing national and statewide travel management goals, regulations, and polices include, but are not limited to:

- Travel and Transportation Handbook (BLM 2012a)
- Travel and Transportation Manual (TTM) (BLM 2016a)
- National Management Strategy for Motorized OHV Use on Public Lands (BLM 2001)
- Land Use Planning Handbook (BLM 2005)
- Executive Orders (EO) 11644/11989 – Off-Road Vehicle Management Policies
- 2019 John D. Dingell, Jr. Conservation, Management, and Recreation Act (Public Law 116-9)
- Public Law 117-114 Modernizing Access to Our Public Land Act, Congress enacted on April 29, 2022, federal agencies to provide public information on the status of roads and trails, the classes of vehicles and types of recreational uses that are permissible on each segment of roads and trails
- BLM-State Historic Preservation Office (SHPO) Programmatic Agreement (BLM 2018)
- American Indian Religious Freedom Act of 1978
- Archaeological Resources Protection Act of 1979
- Clark County Conservation of Public Land and Natural Resources Act of 2002
- Clean Air Act of 1990
- Clean Water Act of 1987
- Endangered Species Act of 1973
- Executive Order (EO) 12898—Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13007—Indian Sacred Sites
- EO 13175—Consultation and Coordination with Indian Tribal Governments
- Federal Land Policy and Management Act of 1976

- Federal Land Recreation Enhancement Act Federal Noxious Weed Act (Public Law 93-629, 1990
- Fish and Wildlife Improvement Act of 1978
- Migratory Bird Act of 1918
- National Environmental Policy Act (NEPA) of 1969
- National Historic Preservation Act of 1966, as amended
- Wilderness Act of 1964

National policy for travel management is set by documents such as the Travel and Transportation Handbook (BLM 2012a), National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (BLM 2001), Land Use Planning Handbook (BLM 2005a), and Outstanding Recreational Values (ORV) management policies established in EO 11644/11989.

1.8 Route Inventory and Evaluation Process and Terminology

Approximately 235 miles of existing routes were identified during the field inventory conducted between December 9, 2022 and December 14, 2022, using global positioning system (GPS) equipment and a standardized data dictionary. Following the route inventory an additional 27.8 miles, which were authorized through the BLM's Special Recreation Permit (SRP) process, were added prior to the completion of the route evaluation. The route evaluation process for 263 miles of routes on BLM-administered land was based on direction from the BLM national standards related to travel and transportation management, the 1998 Las Vegas RMP/Final Environmental Impact Statement (FEIS) and ROD, Interdisciplinary Team (IDT) direction, and public input. The route inventory and evaluation processes are detailed in the TMP (Appendix C), as well as: regulatory OHV designations and TTM definitions; Travel and Transportation Handbook (BLM 2012a) definitions for components of a managed travel network; and route designation categories.

1.9 Scoping and Issue Identification

The BLM conducted public scoping from April 12, 2023 to May 26, 2023, a total of 44 days. Public involvement is a vital part of the NEPA and travel management processes. The BLM conducted this public scoping period to identify issues to be addressed and to determine the appropriate scope of the forthcoming NEPA analysis.

The BLM held two public meetings during the public scoping period. An in-person meeting was held on April 27, 2023, from 6pm to 8pm at the Overton Community Center (320 North Moapa Boulevard). The meeting included a project overview presentation to provide members of the public an opportunity to learn about the project. After the presentation, a formal comment session was conducted to gather input from members of the public in attendance. A second virtual meeting was held on May 2, 2023, from 6pm to 8pm on the Zoom webinar platform. This meeting included a presentation followed by a question-and-answer portion and then a formal comment period. The virtual meeting was also recorded and can be found on the BLM Nevada

YouTube channel at https://www.youtube.com/watch?v=uVjIVcwh1qI. Public scoping information and materials can be accessed on the project ePlanning page at https://eplanning.blm.gov/eplanning-ui/project/2033229/510.

The BLM received correspondence during the public comment period via electronic comments submitted through the BLM ePlanning website, email comments submitted through the project email or to the BLM project manager, written comments mailed to the LVFO, oral comments made during the in person public meeting and the virtual public meeting, and via an Online Comment Tool through ArcGIS online (AGOL). AGOL is a mapping tool that allows commentors to capture the uses, issues, and opportunities for specific routes geospatially.

The BLM received a total of 53 scoping comment submissions distributed as follows 19 commentors via the BLM National NEPA Register website, eight commentors via email, 16 commentors via AGOL, and nine commentors with oral comments made during the in person public meeting, and a single commentor with oral comments made during the virtual public meeting.

The public scoping comments included the following topics: cooperating agency relationships, purpose and need, range of alternatives, best available information and baseline data, information and education, data and science, unauthorized routes, route proliferation, access, travel management plan, noise, lands with wilderness characteristics, route maintenance, recreation, OHV use, mechanized use, nonmotorized recreation, camping, hiking/Climbing, recreation opportunities for youth, solitude, cultural and paleontological resources, biological resources, visual resources, socioeconomics and environmental justice, air quality and climate, water, vegetation, soil resources, minerals, livestock grazing, wild horses, public health and safety, special designations [Areas of Critical Environmental Concern (ACEC) and Wilderness Areas], and other topics.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Overview of Alternatives

The Proposed Action (Alternative D) is one of three action alternatives considered in this analysis, in addition to the No Action alternative. The action alternatives were developed with careful consideration of administrative actions, goals, and objectives of the route designation process and public scoping input. The TMP incorporates management decisions that provide adequate access for the maintenance and management of wildlife habitat, wilderness, vegetation communities, minerals, realty, cultural and paleontological resources, and various recreation activities among other resources and resource uses. Table 2.1-1 provides an overview of the alternatives by route designation and limitation (see the TMP (Appendix C) for descriptions and definitions of categories). Table 2.1-2 presents route densities across the alternatives. County roads are not included in the route mileages. The alternatives analyzed in this EA are:

- Alternative A (No Action) represents a continuation of current management and provides a baseline from which to identify potential environmental consequences when compared to Alternatives B, C, and D.
- Alternative B (Access) allows for the greatest extent of open routes while maintaining some resource conservation measures to protect physical, biological, and heritage resource values. Alternative B generally closes the least number of routes except for Alternative A.
- Alternative C (Conservation) emphasizes conservation of physical, biological, and heritage resources with the most constraints on resource uses (open routes) compared to all other alternatives.
- Alternative D (Blended) is generally a blend of Alternative B and Alternative C, often referred to as the "Balanced" alternative which emphasizes balanced levels of access, resource protection, and restoration.

Table 2.1-1. Proposed Regulatory Designation Miles by Alternative

Designation	Alternative A	Alternative B	Alternative C	Alternative D
Open to All Use	234.7	180.7	113.5	145.9
Closed to All Use	0	28.9	94.4	58.1
Open to Authorized Users Only	0	14.6	24.4	20.1
Open to Motorcycle (Single Track)	0.6	38.9	24.3	30.3
Open to All Use Seasonally	0	0	6.6	8.6
Non-Inventoried Route*	27.8	0	0	0
Total	**263.2**	**263.2**	**263.2**	**263.2**

*Non-inventoried routes include Special Recreation Permit (SRP) authorized routes and additional routes permitted for other types of special recreation events, such as OHV competition or rock crawling events. These have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 2.1-2. Route Density[1] within the TMA by Alternative

Designation	Alternative A	Alternative B	Alternative C	Alternative D
Open to All Use	1.17	0.90	0.57	0.73
Closed to All Use	0.00	0.14	0.47	0.29
Open to Authorized Users Only	0.00	0.07	0.12	0.10
Open to Motorcycle (Single Track)	0.00	0.19	0.12	0.15

Designation	Alternative A	Alternative B	Alternative C	Alternative D
Open to All Use Seasonally	0.00	0.00	0.03	0.04
Non-Inventoried Route*	0.14	0.00	0.00	0.00

[1]Number of route miles per square mile (route miles/TMA miles[2])

*Non-inventoried routes include SRP authorized routes and additional routes proposed for other types of special recreation events, such as OHV competition or rock crawling events. These have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

2.1.1 Minimization Criteria

Pursuant to 43 CFR §8342.1, route management designations under all alternatives are based on the protection of the resources of the public lands; the promotion of the safety of all the users of the public lands; and the minimization of conflicts among various users of the public lands. The route evaluation considered the criteria below pursuant to 43 CFR §8342.1.

(a) To minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.

(b) To minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.

(c) To minimize conflicts between OHV use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, considering noise and other factors.

(d) Outside officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the Authorized Officer determines that OHV use in such locations will not adversely affect their natural, aesthetic, scenic, or other values for which such areas are established.

2.1.2 OHV Designations

The TMP would designate existing routes as OHV open or OHV closed for regulatory purposes in accordance with designation procedures in 43 CFR §8342. No routes within the TMA would be designated as OHV limited per 43 CFR §8342. Where necessary, route designations would include limitations or best management practices (BMPs) to protect resources, public safety, or avoid and minimize conflict among users.

2.1.3 Transportation Route Designations

The TMP would designate routes according to type of authorized access. The types of access include road, primitive road, or trail. Some routes would be closed to OHVs and designated for restoration or authorized use only. Route evaluation reports provided in Appendix D present information on the various route types considered.

2.1.4 Route Maintenance (Goals for first 5 years)

Maintenance guidelines are provided in the TMP to inform future route maintenance, improvement projects, and new route development. Maintenance priorities are evaluated on an individual routes' asset type in the Facility Asset Management System (FAMS) and consider the functional significance and type and amount of use for each route. Route improvements and new route construction would be subject to project-specific development requirements, including project survey, design, and appropriate environmental compliance review prior to implementation. The TMP includes adaptive management strategies to implement route management actions or modify management designations based on monitoring, changes in land use, external or agency proposals, or by unforeseen conditions and circumstances affecting access to public lands. Priority management actions would be identified for implementation in the first five years after approval of the TMP.

2.1.5 Use Restrictions

All use and operation of motor vehicles would be subject to operating conditions pursuant to 43 CFR §8340, and State of Nevada motor vehicle regulations. Special use restrictions may be established to protect sensitive resources, public safety, or to avoid conflicts among users. The TMP would establish use restrictions on some routes to only allow administrative access.

2.1.6 New Route Development

No new construction of routes within the TMA is proposed under the alternatives. Future proposals for new route construction would be subject to project-specific planning, survey, design, and review for compliance with the TMP, NEPA, and other regulatory and consultation requirements.

2.1.7 Minor Realignments

Minor route adjustments or realignments would be implemented as appropriate, to address sustainability deficiencies such as to correct steep grades or ineffective drainage, to avoid sensitive areas, or to address other deficiencies identified during maintenance project planning, survey, and design. Minor realignments that cause new ground disturbance would be subject to site-specific review for compliance with the TMP, NEPA, and other regulatory and consultation requirements.

2.1.8 Route Closures

Routes designated for closure as transportation linear disturbances would be closed to public access, decommissioned administratively, and allowed to passively revegetate. Route closures may include signage, barricades, and passive restoration. Closed routes would be surveyed for existing invasive weeds and non-native plants and drainage and erosion issues. Measures may be taken to stabilize eroded areas and treat weed infestations and may include:

- Routes designated closed would be surveyed for erosional features and the presence of non-native invasive plants. If found, a treatment plan would be developed.
- The access point and approximately 100 feet of the route entrance would be obstructed/disguised and revegetated with native plant materials if needed to avoid attracting attention and use.
- Any route restoration treatments would be performed with hand tools or compact equipment to minimize disturbance.
- If any surface disturbing activities are needed for closed route restoration, the treatment plan would be subject to Section 106 compliance to avoid potential impacts on undiscovered cultural resources, seasonal restrictions, or other BMPs to protect resources or conflicts with other uses.
- Closed routes would be closed to all motorized and mechanized use. Routes would remain accessible for hiking and equestrian uses unless specifically restricted.

2.1.9 Access to Existing Authorizations and Rights-of-Way

Access to existing authorizations, including rights-of-way (ROWs) would be provided in accordance with the terms and conditions of the authorizations. Access to private land inholdings on routes across BLM-administered land would continue as currently authorized. Access would be requested from the BLM for existing access and construction of new routes, in accordance with the 43 CFR 2800, "Public Lands", and local BLM office criteria.

2.1.10 Cultural Resources

Consultation and coordination with the SHPO and compliance with Section 106 of the National Historic Preservation Act (NHPA) would be conducted in accordance with the BLM Nevada Programmatic Agreement of December 22, 2014, for implementing the NHPA (BLM and SHPO 2014).

2.1.11 Wildlife Resources

Consultation with U.S. Fish and Wildlife Service (USFWS) would be conducted in accordance with Section 7 of the Endangered Species Act (ESA). Conservation measures to protect threatened and endangered species would be identified.

2.1.12 Electric Bicycles

Use of e-bikes would be subject to current regulations and definitions pursuant to 43 CFR §8340.0-5(a)(5), revised December 2, 2020. E-bike use would be allowed on routes designated as open to motorized use. A determination on the use of e-bikes on non-motorized trails would be made in the route management designations identified in the TMP.

2.1.13 Future Improvements

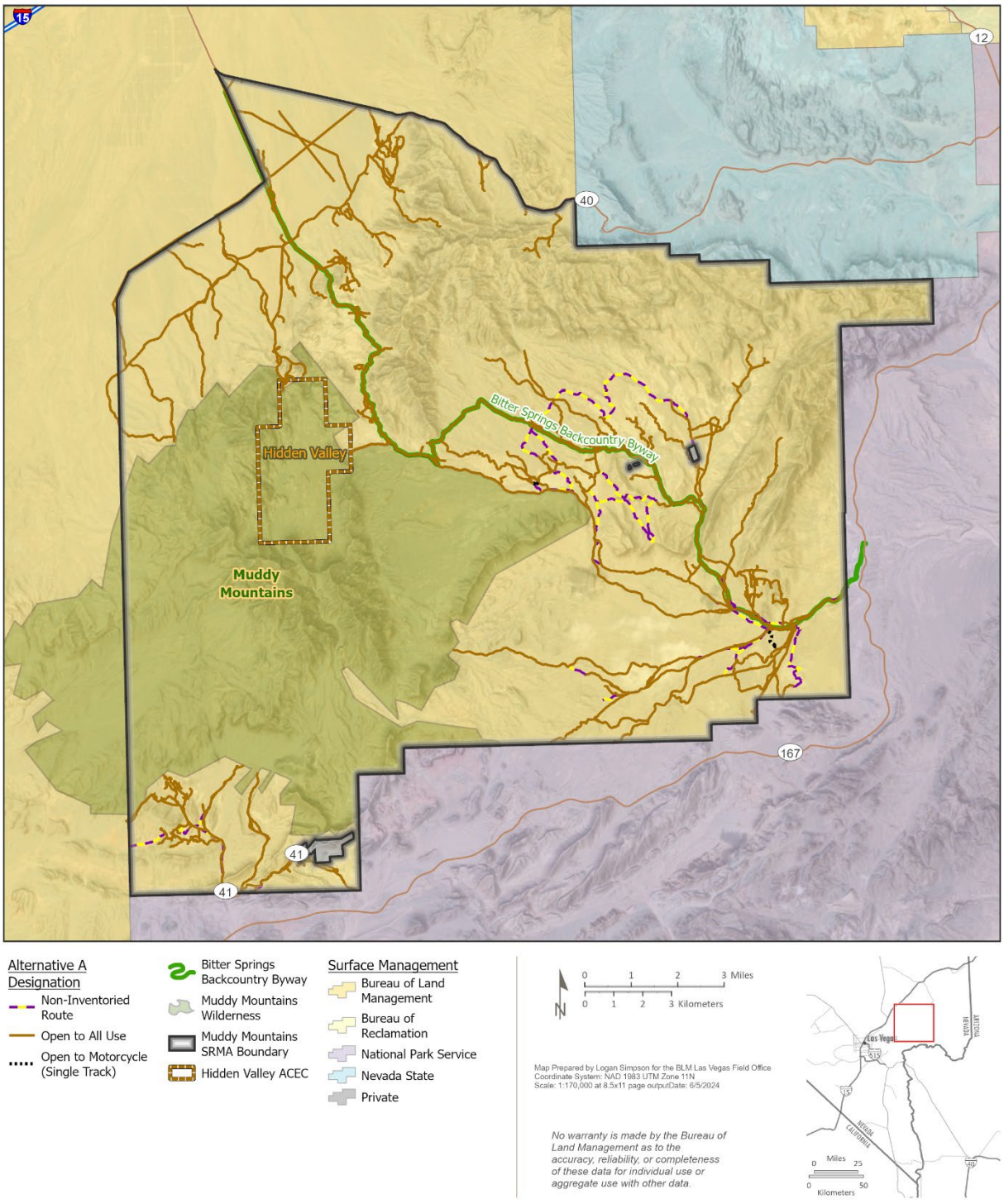
The TMP provides specifications for associated TMA maps and signage, including signage for ports-of-entry. The TMP considers routes that provide access on public lands, recreational

opportunity areas (e.g., camping, climbing, etc.), and allows for future improvements (e.g., staging areas, motorized, non-motorized, non-mechanized routes). Any improvements beyond those discussed in the TMP would require separate site-specific NEPA analysis. Easements may also be pursued with private property owners, as well as in cooperation with the Nevada Department of Wildlife (NDOW) in accordance with Secretarial Order 3447. The TMP is meant to be a living document and BLM would use adaptive management opportunities to minimize impacts and conflicts resulting from use of the travel network and to maximize multiple use benefits.

2.2 Alternative A (No Action)

Alternative A retains existing conditions and management of the travel network, as inventoried, and the current balance of authorized uses and resource conservation. Existing routes would remain open to vehicle use without specific designations or maintenance. Approximately 27 miles of routes under Alternative A are designated as "proposed" which includes SRP authorized routes and additional routes proposed for other types of special recreation events, such as OHV competition or rock crawling events. No improvements or route closures would occur under this alternative. Roads, primitive roads, or trails may be designated on a case-by-case basis in response to specific maintenance or improvement proposals or applications. Public access issues to public lands would be considered on a case-by-case basis. Recreation visitor services and information would be provided at current custodial levels. Figure 2 and Table 2.1-1 present the miles of each route type under Alternative A. Table 2.1-2 presents the density of routes by designation under Alternative A. Alternative A provides the baseline for route network comparison across alternatives considered in this EA.

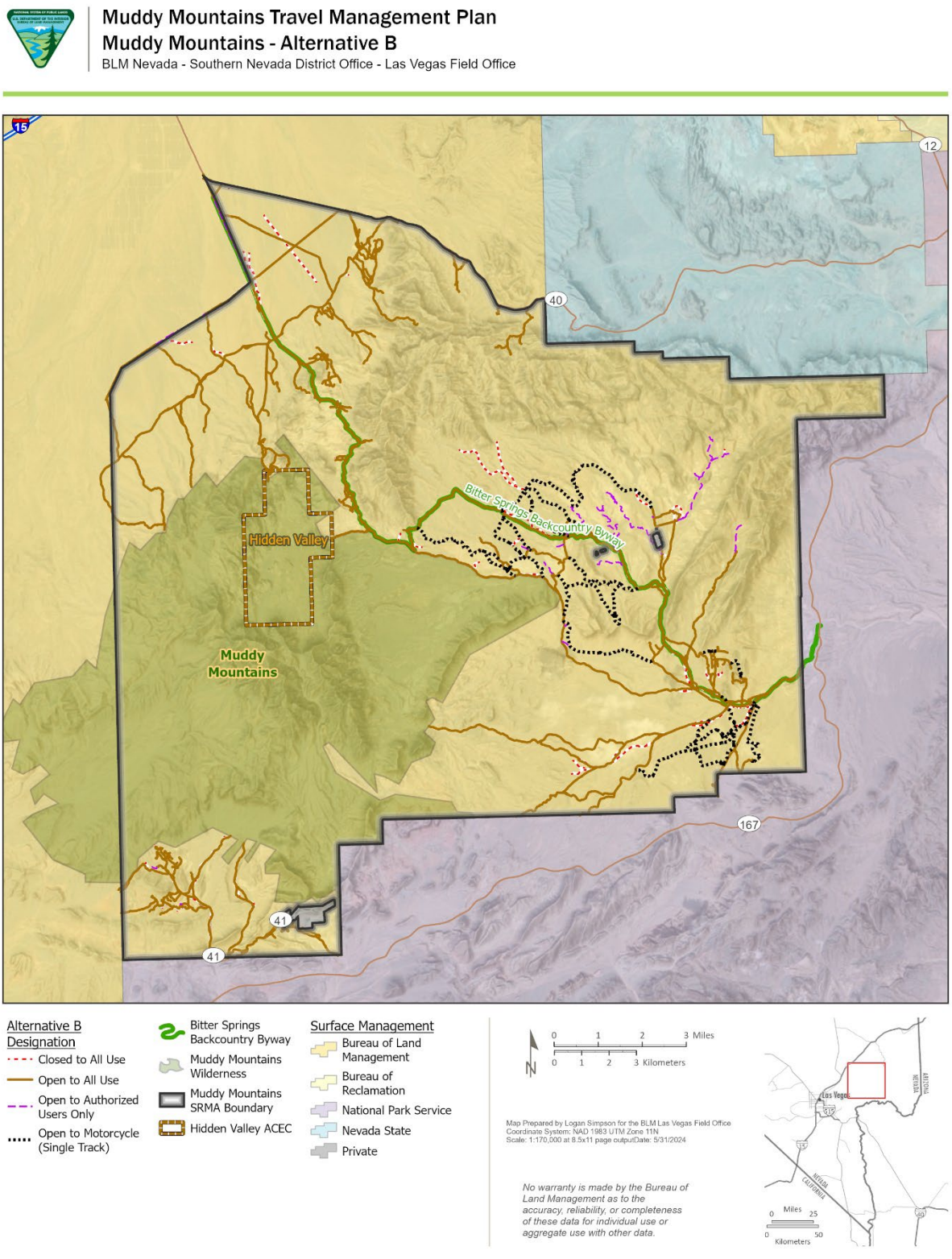
Figure 2. Alternative A (No Action)



2.3 Alternative B (Access)

Alternative B is designed to provide for the greatest use of existing routes for public land access, while protecting sensitive resources. Alternative B maximizes access for multiple use, including OHV recreation with minimal restrictions. This is the least restrictive action alternative with the least number of closed routes. Existing routes would be designated to provide different types of access for the land-use activities served. The most important or functionally significant routes would be maintained depending on a route's service area and type of use. Roads, primitive roads, and trails would be designated and maintained according to guidelines and best practices established in the TMP. Existing routes with limited function would be designated open to OHV use, but not maintained. Recreation visitor services and information would be provided to improve awareness of public land resource values, route management designations and use restrictions, and to encourage low impact public use. Figure 3 and Table 2.1-1 in present the mileage of each route designation under Alternative B. Table 2.1-2 presents the density of routes by designation under Alternative B.

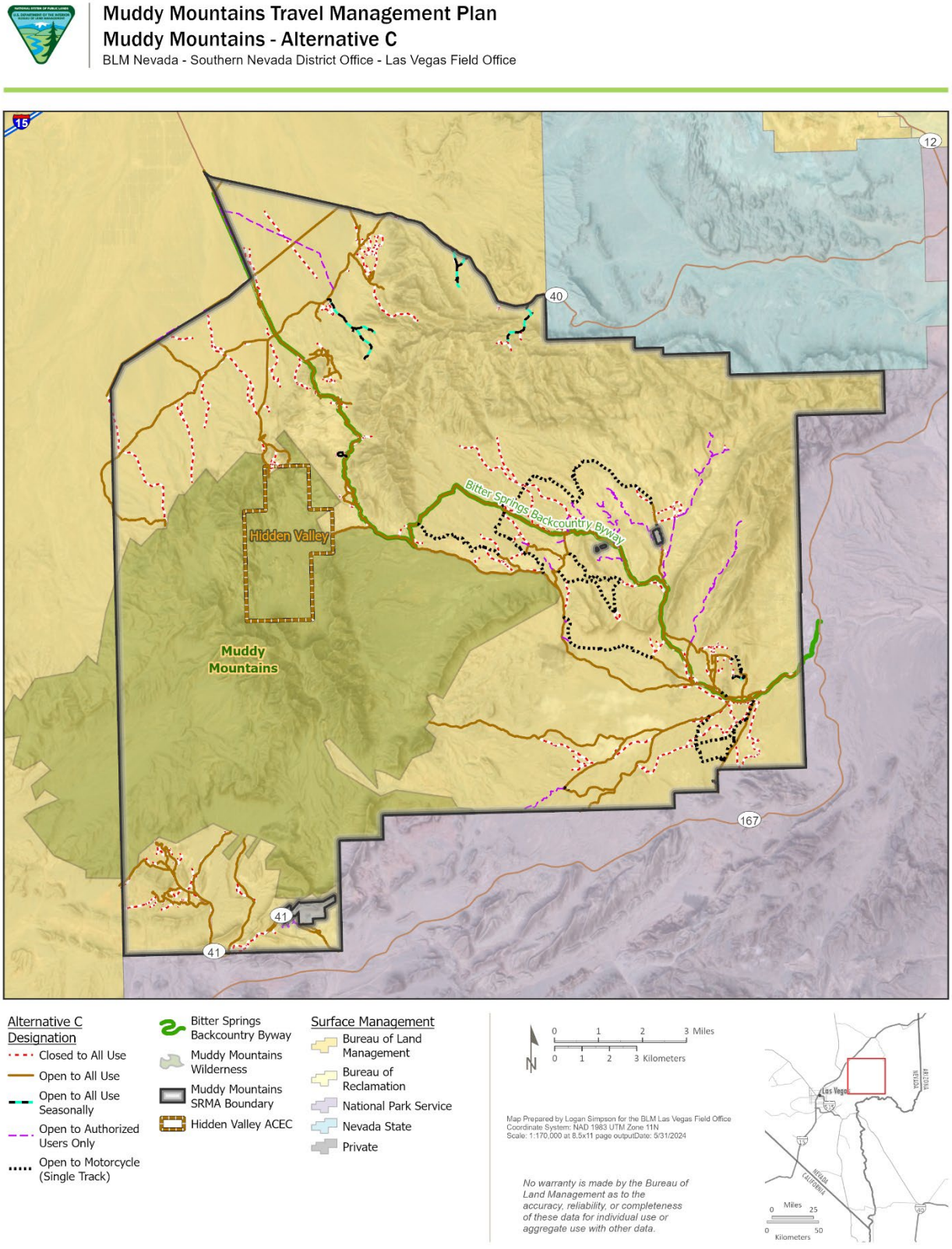
Figure 3. Alternative B (Access)



2.4 Alternative C (Conservation)

Alternative C is designed as the most restrictive of the action alternatives and would provide the greatest resource protection. Access would be provided for multiple uses, including recreational opportunities, while allowing route use where resource protection conflicts do not exist. Routes would be designated to provide different types of access depending on the land use activities and types of use. The most important or functionally significant routes would be maintained. Roads, primitive roads, and trails would be designated and maintained according to the guidelines and best practices established in the TMP. The use of some routes would be limited to administrative purposes. Existing routes in reclaiming condition and limited access function and routes with significant safety hazards would be closed to vehicle use and allowed to naturally revegetate. Motor vehicle use would be allowed on route segments located on existing routes designated 'open' to motor vehicle use. Motor vehicle use limited to administrative or authorized purposes would be allowed on some existing routes. Figure 4 and Table 2.1-1 present the miles of each route type under Alternative C. Table 2.1-2 presents the density of routes by designation under Alternative C.

Figure 4. Alternative C (Conservation)

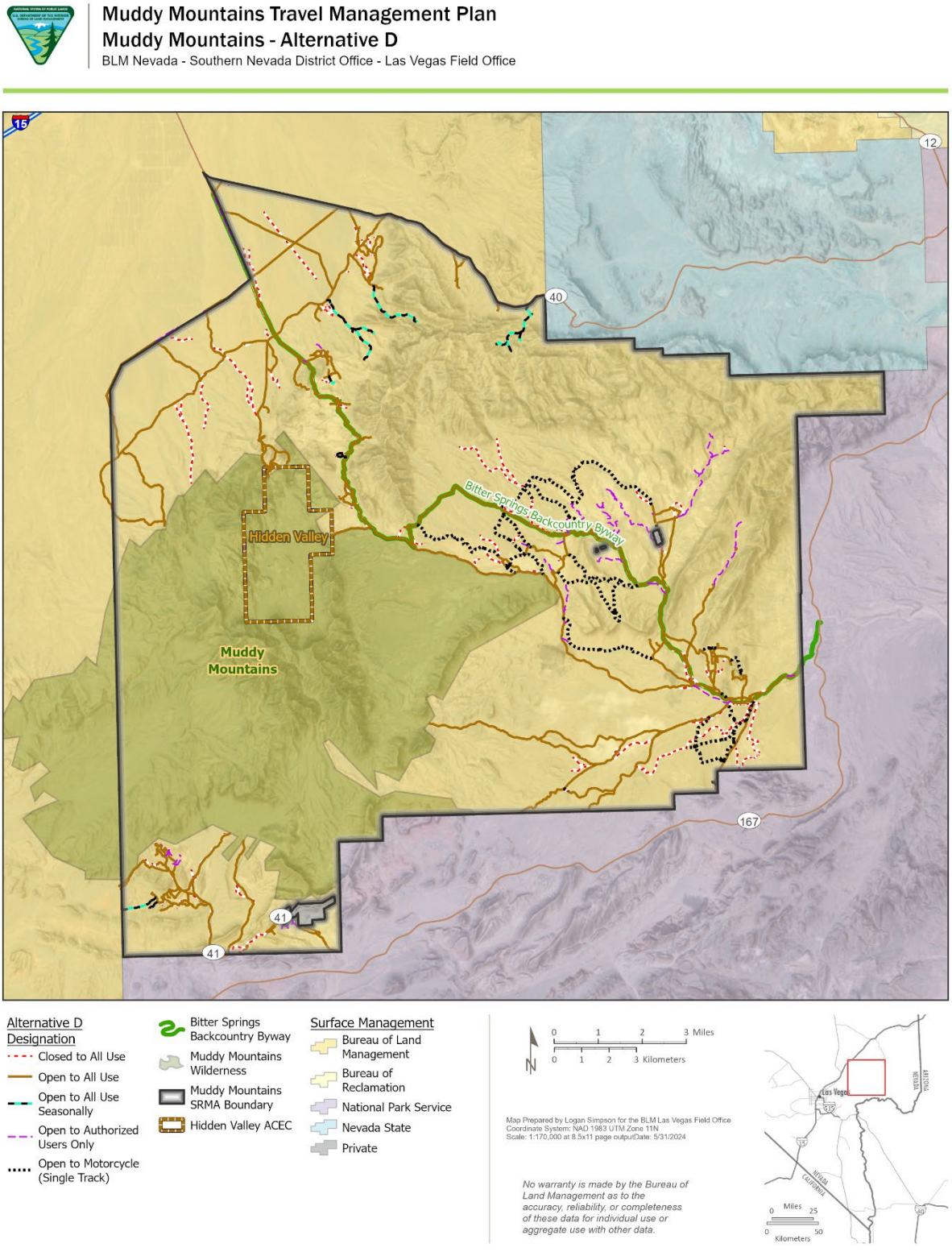


2.5 Alternative D (Blended) (Proposed Action)

The Proposed Action, Alternative D, is designed to provide balanced levels of public access and resource protection. Public access would be provided for multiple uses and recreational opportunities would be improved by providing a maintained route network and improved visitor education information. Existing routes would be designated to provide different types of access for the land-use activities served. The most important or functionally significant routes would be maintained based on the route's service area and type of use. Roads, primitive roads, and trails would be designated and maintained according to guidelines and best practices established in the TMP. Existing routes with limited function or outside areas with sensitive resource values would be designated open to OHV use, but not maintained.

Alternative D emphasizes adaptive management where reasonable and practicable, based on available funding and personnel. Routes with limited function and service areas located in areas with sensitive or fragile resource values would be closed to vehicle use and allowed to naturally revegetate. Recreation visitor services and information would be provided to improve awareness of public land resource values, route management designations and use restrictions. Alternative D reduces route redundancy and habitat fragmentation and offers additional protection of sensitive resources. Figure 5 and Table 2.1-1 present the miles of each route type under Alternative D. Table 2.1-2 presents the density of routes by designation under Alternative D.

Figure 5. Alternative D (Blended) (Proposed Action)



2.6 Alternatives Considered but Eliminated from Further Analysis

None determined at this time.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Resources and Uses

This chapter presents the existing environment (i.e., the physical, biological, social, and economic values, and resources) of the TMA, the issues analyzed, the impacts to the analyzed resources, and design features that would be carried forward into the Decision Record as conditions of approval of the proposal. While many potential issues may arise during scoping, not all of them warrant analysis. Issues raised through scoping are analyzed if:

- Analysis of the issue is necessary to make a reasoned choice between alternatives;
- The issue is significant (e.g., an issue associated with a significant impact, such as a potential violation of a law imposed to protect the environment); and/or
- Analysis of the issue is necessary to determine if the impacts are significant, which includes impacts that are later in time or farther removed in distance.

Table 3.1-1 documents the resources evaluated in this EA. Potential impacts to resources/concerns were evaluated in accordance with criteria listed above to determine if detailed analysis was required. Consideration of some of these items is to ensure compliance with laws, statutes, or EOs that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the LVFO.

Many times, a project would have some degree of effect upon a resource or concern, but that effect does not approach a threshold of significance after consideration of short- and long-term effects, beneficial and adverse effects, effects on public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment. Such effects are described as "negligible" in the rationale for dismissal from analysis.

Resources present and potentially affected by the Proposed Action and alternatives will be carried forward for analysis. Resources present but not potentially affected are detailed in the rationale column in Table 3.1-1.

Table 3.1-1. Resources Analyzed in this Environmental Assessment

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Notes
Air Quality (Including greenhouse gasses)		X		The Proposed Action and alternatives do not include a significant increase in particulate matter emissions or other regulated constituents beyond existing conditions.

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Notes
Soil Resources			X	See Section 3.2.
Surface Water, Water Quality, Hydrology and Ground Water			X	See Section 3.3. There would be no impact to ground water hydrology or ground water quality with implementation of any alternative because the alternatives in the Proposed Action consist only of surface activities. Construction of new routes is not proposed under any of the alternatives. Access would be provided for existing water well maintenance and operation.
Minerals, Fluid	X			Fluid minerals are not known to occur in the TMA.
Minerals, Solid		X		Access for any mining activity is described and approved in mining notices, and mining plan(s). Public use would be managed to avoid impacts to minerals. Management of access to mineral resources within the TMA would be the same under all TMP alternatives. Mining is an authorized uses and mineral access would be analyzed under a different decision.
Upland Vegetation, Wetlands, Riparian Zones, Invasive, Non-Native Plant Species, and Special Status Plant Species			X	See Section 3.4.
Terrestrial Wildlife, Aquatic Wildlife, Migratory Birds, and Special Status Wildlife Species			X	See Section 3.5.
T&E Wildlife			X	See Section 3.6

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Notes
Wild Horses and Burros		X		The current appropriate management level (AML) is set for wild horses at zero and 50 for wild burros. Impacts of the Proposed Action and alternatives would not have a significant effect upon wild horses and wild burros that may still occur in the SRMA.
Cultural Resources			X	See Section 3.7
Native American Concerns			X	See Section 3.8
Paleontological Resources			X	See Section 3.9
Environmental Justice and Socioeconomic Values			X	See Section 3.10
Hazardous or Solid Wastes	X			The establishment of a travel network would not result in a significant increase in the potential for hazardous waste spills. Construction activities for new routes would follow BLM BMPs for HazMat management and spill prevention. Hazardous or solid wastes would be handled according to the appropriate corrective action for releases.
Lands with Wilderness Characteristics			X	See Section 3.11
Visual Resources			X	See Section 3.12
Access and Transportation			X	See Section 3.13
Fuels/Fire Management		X		The SRMA would continue to be managed under the BLM Wildfire Management Plan. No effects to BLM wildfire management are anticipated.

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Notes
Livestock Operations	X			There are no authorized livestock grazing allotments in the TMA.
Lands, Right-of-Ways, and Acquisitions			X	Realty authorizations exist within the TMA; however, they would not be affected by changes in route designations or implementation of the TMP. Existing rights were considered during route-by-route evaluation. Administrative use restrictions on some ROW access routes to protect resources would be subject to the terms and conditions of the ROW agreement and BLM will work with ROW holders to maintain access. Therefore, changes in route designations or implementation of the TMP would not impact existing lands and realty authorizations. See Section 3.14
Recreation Resources			X	See Section 3.15
Areas of Critical Environmental Concern (ACEC)			X	See Section 3.16
National Historic Trails		X		The Old Spanish National Historic Trail (OSNHT) is a congressionally designed historical trade route that connected northern New Mexico to Los Angeles, California. The Northern Route segment is currently mapped 0.7 mile west of the project area. This segment is bisected by an established open high clearance road. There is no physical evidence of the trail being found as the area has been developed. Protection and management of the OSNHT would not apply to this segment. The Proposed Action would not affect the nature, purpose, and primary uses of the OSNHT Northern Portion segment. This resource will not be analyzed further.

Resource	Not Present	Present/Not Affected	Present/May be Affected	Rationale/Notes
Wilderness			X	Route designations aren't considered in the Muddy Mountain Wilderness. See Section 3.11 for discussion of Lands with Wilderness Characteristics

3.1.1 Cumulative Impacts Analysis

This section describes other actions that overlap geographically and temporally with the decision area. Actions cause cumulative effects on the environment when incremental impacts of the Proposed Action combine with other past, present, and reasonably foreseeable future actions (RFFA), regardless of what agency (federal or nonfederal) or person undertakes such actions. These can result from individually minor but collectively significant actions taking place over time (40 CFR 1508.7). The cumulative impacts analysis area (CIAA) for past, present and RFFAs is the TMA.

3.1.2 Past, Present and Reasonably Foreseeable Future Actions

Past and present actions are encompassed in the description of the affected environment for each resource below. In general, past, and present actions include construction and maintenance of facilities, such as the bathrooms and associated parking/staging areas as well as installation of barriers for resource protection, and the development of user-created routes.

RFFAs potentially affecting public lands in the TMA include the following:

- Potential increased use of other lands adjacent to the decision area for the mineral materials extraction, renewable resources, ROW, and/or locatable minerals.
- Increasing growth and urbanization in Moapa Valley and greater Las Vagas Region.
- Increasing recreation demand on adjacent lands, such as Valley of Fire State Park, NPS administered Lake Mead National Recreation Area, and neighboring BLM lands.
- Potential utility scale solar energy developments in the adjacent Dry Lake Solar Energy Zone.

There are currently no other specific future actions being considered within the Muddy Mountains SRMA and TMA.

3.2 Soils and Geology

Issue: How would route designation and implementation of the TMP affect soil resources within the TMA?

3.2.1 Affected Environment

The LVFO RMP/FEIS (BLM 1998) provides detailed information about soil management in the TMA. The RMP identified wind and water erosion and salinity as concerns for soil resources within the TMA. This information is incorporated directly or referenced in this analysis.

BLM-administered lands within the TMA are in the Mojave Desert Physiographic Province (Natural Resources Conservation Service [NRCS] 2022). Elevations range from 500 feet to 1,600 feet amsl. In general, soils within the TMA developed under hot and dry conditions. The TMA is encompassed by one Major Land Resource Area (MLRA): Mojave Desert MLRA 38. MLRA's are characterized by areas with similar patterns of soils, geology, climate, water resources, and land use (NRCS 2022a). Soil textures in the TMA are largely sand or sandy loam. Loam is classified as having equal parts of sand, silt, and clay; a sandy loam has slightly more sand. Both of these soil textures often have minimal development and are highly erodible. Dominant soils within the TMA are largely associated with the Zeheme-Rock outcrop association and the St. Thomas-Rock outcrop complex.

3.2.1.1 Soil Suitability and Hazards

The following analysis provides details of soil suitability and hazards within the TMA, regarding erosion. These analyses detail acres of wind erodibility groups (WEG), water erodibility (K-factor), and slope to characterize the soils in the TMA. Table 3.3-1 presents information regarding these criteria for soils within the TMA. Ratings within these categories help determine locations that are suitable for recreation, while also minimizing impacts to adjacent environments.

WEG

WEGs are groupings of soils with similar properties (in cultivated areas) that influence their resistance to soil blowing. Soil properties that affect blowing include size and durability of surface clodiness, fragments, organic matter, and carbonate concentration (South Dakota 2002). WEG ratings of 1-3 indicate severe erosion hazard, while ratings of 6-8 indicate a slight erosion hazard. The TMA is primarily (~80 percent) rated with slight WEG (Table 3.2-1). Not rated soils are those that have not been assessed for WEG.

K-Factor

K-factor indicates the susceptibility of a soil to sheet and rill erosion by water (NRCS 2024). Deposition of the detached soil particles (sediment) occurs where water slows and accumulates on the land surface (NRCS 2001). Vegetation cover and high soil porosity can make soils less susceptible to water erosion (Weil and Brady 2019). K-factor ratings below 0.15 indicate low erosion hazard, while ratings above 0.4 indicate a high erosion hazard. The TMA is primarily (~85 percent) rated with low water erosion hazard potential.

Slope

Slope is used to determine where areas are more vulnerable to erosion. Slope influences the lateral movement of water in soil, which can result in runoff and soil erosion. In general, runoff generation and soil erosion typically increase as the percent slope increases (BLM 2022). Slope ratings of 0-2 percent slope indicate low erosion hazard, while ratings above 15 percent slope indicate high erosion potential. The TMA is divided by moderate (~47 percent) and high (~46 percent) erosion potential.

Table 3.2-1. Soil Suitability and Hazards within the TMA

Ratings	Wind Erodibility Group (acres)	K-Factor (acres)	Slope (acres)
High	7,791	4,415	59,114
Moderate	8,611	8,555	59,980
Slight	106,204	109,637	9,197
Not rated	5,685	5,684	0
Totals	**128,291**	**128,291**	**128,291**

Source: NRCS 2021

3.2.2 Environmental Consequences

3.2.2.1 Impacts Common to All Alternatives

Soils in the TMA have been naturally eroded by wind and water and from recreation uses, especially from motorized vehicles. Localized soil erosion that results in soil loss is considered a long-term and irreversible effect (BLM 2022).

3.2.2.2 Alternative A (No Action)

Implementation of Alternative A would include the highest density of OHV open routes. Under Alternative A, erosion of existing routes and trails would continue and potentially increase with use. Minimal restrictions on off-route travel under Alternative A would allow motorized use to continue to impact soils and denude the TMA of vegetation. Routes located on steep slopes would also be prone to increased runoff and erosion, leading to the formation of rills and gullies, if left unmitigated.

Table 3.2-2. Existing Route Mileage and Associated Wind Erodibility Under Alternative A

Designation	Slight Wind Erodibility	Moderate Wind Erodibility	Severe Wind Erodibility	Not Rated
Open to All Use	176	25	21	13
Closed to All Use	0	0	0	0
Open to Authorized Users Only	0	0	0	0

Designation	Slight Wind Erodibility	Moderate Wind Erodibility	Severe Wind Erodibility	Not Rated
Open to Motorcycle (Single Track) Open to Motorcycle (Single Track)	0.6	0	0	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	25	0.1	3	0
Total	**201.6**	**25.1**	**24**	**13**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-3. Existing Route Mileage and Associated Water Erodibility Under Alternative A

Designation	Slight Water Erodibility	Moderate Water Erodibility	Severe Water Erodibility	Not Rated
Open to All Use	191	23	7	13
Closed to All Use	0	0	0	0
Open to Authorized Users Only	0	0	0	0
Open to Motorcycle (Single Track)	0.6	0	0	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	28	0	0	0
Total	**219.6**	**23**	**7**	**13**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-4. Existing Route Mileage and Associated Slope Erodibility Under Alternative A

Designation	Slight Slope Erodibility	Moderate Slope Erodibility	Severe Slope Erodibility	Not Rated
Open to All Use	50	169	15	0
Closed to All Use	0	0	0	0
Open to Authorized Users Only	0	0	0	0

Designation	Slight Slope Erodibility	Moderate Slope Erodibility	Severe Slope Erodibility	Not Rated
Open to Motorcycle (Single Track)	0.1	0.5	0	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	4	21	2	0
Total	**54.1**	**190.5**	**17**	**0**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

3.2.2.3 Alternative B (Access)

Implementation of Alternative B prioritizes access and would designate a transportation network focused on motorized use with minimal restrictions. This alternative maximizes public access and motorized opportunities, with some restrictions. Among the action alternatives, the least number of closed routes would occur under Alternative B. While the same effect of trails in use would occur as in Alternative A, decommissioning of some routes across several fragile soil limitations would allow for passive revegetation of the soils. This would lead to reduced runoff and soil erosion in those areas.

Table 3.2-5. Existing Route Mileage and Associated Wind Erodibility Under Alternative B

Designation	Slight Wind Erodibility	Moderate Wind Erodibility	Severe Wind Erodibility	Not Rated
Open to All Use	129	23	16	13
Closed to All Use	23	2	3	0.4
Open to Authorized Users Only	13	0.4	0.8	0
Open to Motorcycle (Single Track)	37	0	3	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	0	0	0	0
Total	**202**	**25.4**	**22.8**	**13.4**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-6. Existing Route Mileage and Associated Water Erodibility Under Alternative B

Designation	Slight Water Erodibility	Moderate Water Erodibility	Severe Water Erodibility	Not Rated
Open to All Use	143	21	4	13
Closed to All Use	27	1	1	0.4
Open to Authorized Users Only	14	0.4	0	0
Open to Motorcycle (Single Track)	36	0	3	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	0	0	0	0
Total	**220**	**22.4**	**8**	**13.4**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-7. Existing Route Mileage and Associated Slope Erodibility Under Alternative B

Designation	Slight Slope Erodibility	Moderate Slope Erodibility	Severe Slope Erodibility	Not Rated
Open to All Use	37	130	13	0
Closed to All Use	8	20	0.7	0
Open to Authorized Users Only	4	10	0.7	0
Open to Motorcycle (Single Track) Open to Motorcycle (Single Track)	5	30	3	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	0	0	0	0
Total	**54**	**190**	**17.4**	**0**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

3.2.2.4 Alternative C (Conservation)

Implementation of Alternative C would prioritize resource protection. Decommissioning of closed routes would allow for existing vegetation cover to increase, which would further reduce soil erosion, slowly reduce compaction, increase soil productivity, and protect sensitive soils. Additionally, costs associated with road and trail maintenance would likely decrease.

Table 3.2-8. Existing Route Mileage and Associated Wind Erodibility Under Alternative C

Designation	Slight Wind Erodibility	Moderate Wind Erodibility	Severe Wind Erodibility	Not Rated
Open to All Use	84	11	13	6
Closed to All Use	69	12	7	6
Open to Authorized Users Only	22	0.4	1	0.5
Open to Motorcycle (Single Track)	22	0	3	0
Open to All Use Seasonally	5	2	0	0.2
Proposed Route*	0	0	0	0
Total	**202**	**25.4**	**24**	**12.7**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-9. Existing Route Mileage and Associated Water Erodibility Under Alternative C

Designation	Slight Water Erodibility	Moderate Water Erodibility	Severe Water Erodibility	Not Rated
Open to All Use	93	11	3	6
Closed to All Use	75	11	2	6
Open to Authorized Users Only	23	0.4	0	0.6
Open to Motorcycle (Single Track)	22	0	2	0
Open to All Use Seasonally	6	0.5	0	0.2
Proposed Route*	0	0	0	0
Total	**219**	**22.9**	**7**	**12.8**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-10. Existing Route Mileage and Associated Slope Erodibility Under Alternative C

Designation	Slight Slope Erodibility	Moderate Slope Erodibility	Severe Slope Erodibility	Not Rated
Open to All Use	25	80	8	0

Designation	Slight Slope Erodibility	Moderate Slope Erodibility	Severe Slope Erodibility	Not Rated
Closed to All Use	19	70	5	0
Open to Authorized Users Only	7	16	1	0
Open to Motorcycle (Single Track)	3	19	2	0
Open to All Use Seasonally	0.3	5	1	0
Proposed Route*	0	0	0	0
Total	**54.3**	**190**	**17**	**0**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

3.2.2.5 Alternative D (Blended)

Implementation of Alternative D would provide a balance between resource use and protection. There would be fewer routes open to OHV use and route density would be reduced. Routes in areas with high erosion hazard could be strategically closed to minimize maintenance costs and allow for passive restoration. Soil erosion and compaction of existing routes would decrease on closed routes. Additionally, as decommissioned routes naturally revegetate, soil erosion rates would decrease.

Table 3.2-11. Existing Route Mileage and Associated Wind Erodibility Under Alternative D

Designation	Slight Wind Erodibility	Moderate Wind Erodibility	Severe Wind Erodibility	Not Rated
Open to All Use	108	14	14	10
Closed to All Use	41	9	5	3
Open to Authorized Users Only	17	0.6	2	0
Open to Motorcycle (Single Track)	28	0	3	0
Open to All Use Seasonally	6	2	0	0.4
Proposed Route*	0	0	0	0
Total	**200**	**25.6**	**24**	**13.4**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-12. Existing Route Mileage and Associated Water Erodibility Under Alternative D

Designation	Slight Water Erodibility	Moderate Water Erodibility	Severe Water Erodibility	Not Rated
Open to All Use	118	15	3	10
Closed to All Use	45	8	2	3
Open to Authorized Users Only	20	0.4	0	0
Open to Motorcycle (Single Track)	28	0	2	0
Open to All Use Seasonally	8	0	0	0.4
Proposed Route*	0	0	0	0
Total	**219**	**23.4**	**7**	**13.4**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

Table 3.2-13. Existing Route Mileage and Associated Slope Erodibility Under Alternative D

Designation	Slight Slope Erodibility	Moderate Slope Erodibility	Severe Slope Erodibility	Not Rated
Open to All Use	32	102	10	0
Closed to All Use	13	44	2	0
Open to Authorized Users Only	5	14	1	0
Open to Motorcycle (Single Track)	4	24	3	0
Open to All Use Seasonally	0.4	7	1	0
Proposed Route*	0	0	0	0
Total	**54.4**	**191**	**17**	**0**

Source: NRCS 2021

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under all alternatives.

3.2.3 Cumulative Impacts

Most of the soils within the SRMA are erodible by wind and water and vegetation cover is sparse due to aridity. Past and existing actions that affect soil compaction, stability, and quality include mineral development, ROWs for roads, vegetation treatments, and recreational OHV use.

RFFAs within, or adjacent to, the SRMA include the potential development of energy generation facilities. During construction, soil would be disturbed, and soil compaction would increase. Vegetation would be cleared, which would decrease soil cover and increase erosion. The BLM would require soil protection BMPs that would be applicable for all RFFA project disturbances that are likely to occur in the analysis area.

Cumulative impacts associated with the alternative would be similar. The Proposed Action would be confined to the SRMA. It is not anticipated that effects would extend beyond the analysis area. Implementation of the Proposed Action would contribute very little cumulatively, if not reduce the cumulative impacts to soil resources.

Many of the soils in the SRMA have potential for erosion. Past and existing actions that affect soil compaction, stability, and quality include mineral development and OHV and recreational OHV use. Over time, soil conditions near closed, and to some degree limited, routes are expected to improve. The BLM would require BMPs for soil protection applicable across all RFFA project disturbances. Implementation of Alternative D would contribute minimally to cumulative impacts to soil resources. Areas where erosion potential for soil is moderate to severe should be prioritized for closures and avoided when establishing new routes.

3.3 Water Resources

Issue: How would route designation and implementation of the TMP affect water resources/hydrologic condition and water quality within the TMA?

3.3.1 Affected Environment

Natural water resources in the TMA consist of 27 miles of intermittent streams, 479 miles of ephemeral streams, and three miles of artificial paths (canals). The intermittent streams on the southern portion of the TMA include Government Wash, West End Wash, Lovell Wash, Callville Wash which flow south eventually entering Lake Mead at Callville Bay (EPA, Buffington Pockets (150100120703), 2024) (EPA, Muddy Mountain Spring (150100120701), 2024) (EPA, Upper Echo Wash (150100051003), 2024) (EPA, White Basin (150100051002), 2024). Echo Wash is the dominant intermittent stream feature of the eastern section of the TMA ending at Echo Bay in the Overton Arm of Lake Mead. The ephemeral streams across the TMA transport stormwater. There are no perennial streams in the TMA. Figure 6 in Appendix B presents the surface hydrology within the TMA.

There are nine natural springs concentrated in five geographic locations. The dominant feature is Bitter Spring located in Echo Wash toward the eastern end of the TMA. Artificial water resources include a single reservoir (Owl Dam), seven drinkers (one in wilderness) and nine guzzlers, four of which are in wilderness. The principal purpose of these drinkers and guzzlers is to provide water resources for big game and other wildlife. Table 3.3-1 presents a summary of mapped surface water features located in the TMA.

Table 3.3-1. National Wetlands Inventory Features within the TMA

Wetland Type	NWI Code	NWI Definition	Acres	Precent of TMA
Freshwater Pond	PUBF	Palustrine; Unconsolidated Bottom; Semi-permanently Flooded	149	11
Riverine	R4SBC	Riverine; Intermittent; Streambed; Seasonally Flooded	1186	88
Riverine	R5UBH	Riverine; Unknown Perennial; Unconsolidated Bottom; Permanently Flooded	7	1
Totals	**N/A**	**N/A**	**1,342**	**100**

Source: (USGS, 2024)

N/A: Not Applicable

It should be noted that springs in the TMA have limited wetland/riparian signatures and thus typically don't meet the criteria as a jurisdictional wetland (ACOE 2024). These features can, however, create localized Groundwater Dependent Ecosystems (GDE) in the TMA. (Johnson 2023).

The LVFO RMP Water Resource Management Objective WT-1 directs the BLM to:

- Maintain the quality of waters presently incompliance with State and/or Federal water quality standards.
- Improve the quality of waters found to be in noncompliance.

The Environmental Protection Agency Clean Water Act Section 303(d) specifies listing impaired waters total maximum daily loads (TMDL) for waterbodies documented to be in non-compliance. A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the baseline for restoring water quality (EPA 2024).

There are no impaired waterways in the Muddy Mountains SRMA (Pahl 2002).

3.3.2 Environmental Consequences

The primary impacts to water resources from route use generally occur at stream crossings and include stream bank erosion and compaction, increased sedimentation, total dissolved solids, increased turbidity, increased water temperature, potential loss of riparian vegetation from crushing, and introduction of non-native plant species. Additionally, fluid spills from motor vehicles have the potential to degrade water quality. All these impacts combined can influence overall watershed health and stability, and water quality.

Erosion and soil compaction along stream banks can change the overall physical structure of a stream, which impacts how water is conveyed during precipitation events and run-off in ephemeral streams. While stream channels naturally move and evolve over time, repetitive

impacts from OHVs and other route uses may not allow for these areas to stabilize (Levick, 2008).

Moreover, OHVs and other route uses negatively affect the riparian vegetation associated with streams, as operators drive over vegetation, potentially crushing and ripping it from the ground while compacting the soils underneath. As soils compact, the pore space between soil particles is eliminated, reducing the soil's ability to retain water (increased runoff or flooding) and impeding plant root growth (nothing keeping soil in place) (DuPont 2012). Thus, compacted soil results in increased erosion during precipitation events.

As erosion potential increases from OHV and other route uses, sediment can move into waterways. Sedimentation results in increased turbidity, which decreases light penetration into water, impacting photosynthesis of aquatic plants and macroinvertebrate habitat quality. Sediments are often nutrient rich, which can lead to the transport of high concentrations of nitrogen and phosphorus downstream, negatively impacting water quality (Ashraf, 2017).

To compare these potential effects on water resources within the TMA, a summary of the number of route stream crossings of intermittent or ephemeral streams under each alternative are presented in Table 3.3-2. This analysis provides a measure of potential impact to streams from designated routes.

Table 3.3-2. Route Stream Crossings per Alternative by Route Designation

Route Designation	Feature Type	Alternative A	Alternative B	Alternative C	Alternative D
Open	Intermittent Stream/River	47	36	28	31
Open	Ephemeral Stream/River	423	305	204	242
Open	Artificial Path (canal)	14	8	7	7
Limited	Intermittent Stream/River	0	1	1	2
Limited	Ephemeral Stream/River	0	67	75	91
Limited	Artificial Path (canal)	0	0	0	1
Closed	Intermittent Stream/River	0	10	18	14
Closed	Ephemeral Stream/River	0	51	144	90

Route Designation	Feature Type	Alternative A	Alternative B	Alternative C	Alternative D
Closed	Artificial Path (canal)	0	6	7	6

Source: BLM 2023

Route mileage within each watershed by alternative is summarized in Table 3.3-3 as an indicator of potential impacts on watershed conditions and water quality.

Table 3.3-3. Miles of Route Designations by Watershed within the TMA

Alternative	Route Designation	Echo Wash (miles)	Government Wash (miles)	Gypsum Wash (miles)	California Wash (miles)
Alternative A	Open	118.1	1.8	25.4	92.4
	Proposed	24.7	0.9	2.0	0.2
Alternative B	Open	74.6	2.7	23.7	82.0
	Limited	38.9	0.0	0.0	0.0
	Closed	29.2	0.0	3.7	10.6
Alternative C	Open	55.9	1.3	16.8	41.4
	Limited	24.9	0.0	0.0	5.9
	Closed	61.9	1.4	10.6	45.2
Alternative D	Open	67.6	1.5	19.2	59.5
	Limited	30.5	1.0	0.3	7.2
	Closed	44.6	0.1	7.9	25.8

Source: National Hydrography Dataset 2023

Under each of the action alternatives, routes designated as closed would be decommissioned and passively restored. Passive restoration allows for natural revegetation, which would help to reduce additional erosion and sediment delivery to adjacent waterbodies (Diaz-Garcia et al. 2020). Active decommissioning would occur on steeper side slopes (>10 percent) that are actively eroding where sediment is potentially reaching a stream, or when a road is within 30 meters of a waterbody. Soil compaction from OHVs and other route uses may persist long-term and continue to impact water resources.

3.3.2.1 Alternative A (No Action)

Alternative A would have the highest density of stream crossings per watershed of the four alternatives. Under Alternative A, the BLM would not implement a TMP; therefore, resource protection, recreation uses and infrastructure, and travel and trails management would continue to be based on management direction from the 1998 Las Vegas RMP (BLM 1998). Erosion and

sedimentation, from OHVs and other route uses, into waterbodies would be expected to continue at current levels or increase with increased use including the potential proliferation of user-created routes. Travel on routes near drainages and at stream crossings could elevate total suspended sediment concentrations and turbidity in downslope waterbodies following runoff. There would be a higher potential for water quality impacts from fluid spills (e.g., petroleum products) from motorized vehicles, due to the higher number of stream crossings. Under this alternative, overall watershed health and stability within the TMP can decline as route use continues or increases. Additionally, with Alternative A, the impacts of unmanaged dispersed camping could not be mitigated.

3.3.2.2 Alternative B (Access)

Implementation of Alternative B prioritizes public access and would designate a transportation network focused on motorized use with minimal restrictions. While Alternative B would eliminate some stream crossings, it would maintain a higher number of crossings than the other action alternatives and would therefore maintain the highest amount of access crossing surface water of the action alternatives. It is anticipated that this change would result in a decrease in user-created trails and access due to management enforcement of designations and, in turn, potential erosion and sedimentation, compared with Alternative A. There would continue to be the potential for water quality impacts from sediment load and motorized vehicle fluid spills. Camping could be limited to designated dispersed sites where erosion and other water impacts could be managed. Alternative B also prescribes signate in sensitive areas which could increase public awareness of the potential of watershed impacts.

3.3.2.3 Alternative C (Conservation)

Implementation of Alternative C prioritizes resource protection with the fewest stream crossings. Alternative B would provide the greatest protection of water resources and allow for restoration of some stream crossings and riparian areas through route closures. Fewer stream crossings reduce the potential for erosion and sedimentation and allow for passive restoration and stabilization of important riparian habitats within the TMA's watersheds. Like other active management alternatives, designating camping and informative signage could increase public awareness of recreational impacts.

3.3.2.4 Alternative D (Blended)

Implementation of Alternative D balances resource use with resource protection, with fewer routes open to OHV use than under Alternative A or B, but more than Alternative C. Route density would be reduced by closing and decommissioning routes. Alternative D closes routes near highly degraded areas to allow time for stabilization and improved water quality. This would improve water resources by reducing the number of stream crossings and overall density of routes within watersheds, reducing erosion and sedimentation. Alternative D would include implementation of informative signage and efforts to reduce the impact of dispersed camping.

3.3.3 Cumulative Impacts

RFFAs within, or adjacent to, the SRMA include the potential development of energy generation facilities. During construction, soil would be disturbed, and soil erosion would increase. Vegetation would be cleared, which would decrease soil cover and also increase erosion. The BLM would require erosion minimization BMPs to avoid impacts to surface water resources that would be applicable for all RFFA project disturbances that are likely to occur in the analysis area.

Cumulative impacts associated with the alternative would be similar. The Proposed Action would be confined to the SRMA. It is not anticipated that effects would extend beyond the analysis area. Implementation of the Proposed Action would contribute very little cumulatively, if not reduce the cumulative impacts to water resources.

3.4 Vegetation Resources

Issue: How would route designation and implementation of the TMP affect upland vegetation, special status plant species, and invasive, non-native plant species within the TMA?

3.4.1 Affected Environment

3.4.1.1 LANDFIRE EVT Data and Upland Communities

The U.S. Geological Survey (USGS) LANDFIRE Existing Vegetation Type (EVT) existing vegetation dataset was used to determine current distribution of terrestrial plant community types present within the TMA (USGS 2017). A total of 17 vegetation communities are present in the TMA (Figure 7, Appendix B) (Table 3.4-1). The dominant vegetation community within the TMA is Sonora-Mojave Creosotebush-White Bursage Desert Scrub (Table 3.4-1). This vegetation community is typically found in valleys, lower bajadas, plains and low hills in the Mojave and lower Sonoran deserts, where climate is semi-arid to arid. Dominant plant species include shrubs creosotebush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Other common plant species for this vegetation community include saltbush (*Atriplex* spp.), ephedra (*Ephedra* spp.) and siltbush (*Grayia spinosa*) (NatureServe 2024a).

The Mojave Mid Elevation Mixed Desert Scrub community constitutes nearly one third of the TMA (Table 3.4-1). This vegetation community is typically found in the transition zone above creosotebush-white bursage desert scrub and below the lower montane woodlands. Landforms include valleys, bajadas, mountain slopes, ridges, mesas or alluvial fans bordering intermountain basins. Vegetation in this community is variable. Dominant species are yucca (*Yucca brevifolia*) and/or blackrush (*Coleogyne ramosissima*). Other common species include wooly bursage (*Ambrosia eriocentra*), greenleaf manzanita (*Arctostaphylos patula*), Cooper's goldenbush (*Ericameria cooperi*), California buckwheat (*Eriogonum fasciculatum*), *Ephedra spp*., crisp-leaf wild buckwheat (*Eriogonum corymbosum*), spiny hopsage (*Grayia spinosa*), Anderson thornbush (*Lycium andersonii*), spiny menodora (*Menodora spinescens*), *Nolina spp.,* buckhorn cholla (*Cylindropuntia acanthocarpa*), cliffrose (*Purshia spp*.), bladder sage (*Salazaria*

mexicana), turpentinebroom (*Thamnosma montana*), and goldeneye (*Viguiera parishii*). Desert grasses found in this community include needlegrass (*Achnatherum spp*.), bush muhly (*Muhlenbergia porteri*), galleta (*Hilaria spp.*), bluegrass (*Poa secunda*), and bluebunch wheatgrass (*Pseudoroegneria spicata*) (NatureServe 2024b).

Many of the plant species within desert scrub habitats are sensitive to disturbance from recreation and because of their growth habit and environment are slow to recover (Stevens and Falk 2009). Introduction of invasive, non-native plant species from human activities has altered fire frequency and intensity across the west, negatively impacting native vegetation composition and wildlife species that rely on these areas for forage and cover (Stevens and Falk 2009). Additional upland plant community descriptions found within the TMA can be found in the LVFO RMP/FEIS (BLM 1998).

Table 3.4-1. Vegetation Communities within the TMA

Vegetation Community/Land Use	Acres	Percent of TMA
Developed-Low Intensity	3	0.0
Developed-Roads	123	0.1
Great Basin Pinyon-Juniper Woodland	23	0.0
Inter-Mountain Basins Semi-Desert Grassland	15	0.0
Mojave Mid-Elevation Mixed Desert Scrub	40,082	31.3
North American Warm Desert Badland	6	0.0
North American Warm Desert Bedrock Cliff and Outcrop	1,190	0.9
North American Warm Desert Pavement	1,809	1.4
North American Warm Desert Playa	71	0.1
North American Warm Desert Ruderal & Planted Grassland	123	0.1
North American Warm Desert Ruderal & Planted Scrub	598	0.5
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	83,725	65.2
Sonora-Mojave Mixed Salt Desert Scrub	426	0.3
Sonora-Mojave Semi-Desert Chaparral	68	0.1
Western Warm Temperate Urban Herbaceous	15	0.0
Western Warm Temperate Urban Shrubland	23	0.0
Totals	**128,300**	**100**

Source: USGS 2017 LANDFIRE EVT

3.4.1.2 Special Status Plant Species

Special status plant species are those for which state or federal agencies afford an additional level of protection by law, regulation, or policy. BLM special status species (BLM Sensitive species) are designated by the BLM State Director in accordance with the criteria provided in the

revised Special Status Species Management Manual (BLM 2008), which defines BLM special status species as 1) species listed or proposed for listing under the ESA, and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act of 1973 (ESA). Special status species/subspecies/taxon (species) analyzed in this section include BLM Sensitive and Status Species List, which includes designation and rankings from the Nevada Natural Heritage Program, NatureServe, the US Forest Service, and other (Table 3.4-2). The LVFO carries out management for the conservation of state-listed plant species. State laws protecting these species apply to all BLM programs and actions to the extent that they are consistent with FLPMA (43 USC. 1701 et seq.) and other federal laws.

No federally listed, candidate, or proposed plant species have potential to occur in the TMA (USFWS 2023a). Within the Southern Nevada District Office, 52 plant species are listed as sensitive or special status (Table 3.4-2) (BLM 2023). Of the 52 species, six have critical habitat designated and an associated recovery plan (Table 3.4-2).

In addition to the species designated by the Southern Nevada District Office, the LVFO has 14 plant species designated as sensitive (Table 3.4-3) (BLM 2023).

Table 3.4-2. BLM Sensitive and Special Status Species in the Southern Nevada District Office

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
Alkali mariposa lily	*Calochortus striatus*	Wetland-riparian in shadscale scrub or chaparral; usually occurs in wetlands but occasionally found in non-wetlands	NS-S (S1); NS (G3)	None	None
Amargosa niterwort	*Nitrophila mohavensis*	Limited to highly alkaline, moist, salt-encrusted clay soils within the southern portion of Carson Slough	FWS (E); NAC (CE); NS-S (S1); NS (G1)	Yes	Final Recovery Plan 1990
Antelope Canyon goldenbush	*Ericameria cervina*	Rock crevices and talus in shadscale and Douglas-fir-bristlecone pine communities at 1600 to 2685 m elevation; often on calcareous substrates; less commonly on ash flow tuff	NS-S (S1); NS (G3?)	None	None
Ash Meadows blazingstar	*Mentzelia leucophylla*	Known to occupy alkaline soils in dry washes and on barren bluffs distributed along the eastern edge of Ash Meadows; associated with the Ash Meadows sunray; always associated with dry soils apparently uninfluenced by seepage from springs or seeps	FWS (T); NAC (CE); NS-S (S1); NS (G1Q)	Yes	Final Recovery Plan 1990
Ash Meadows gumplant	*Grindelia fraxinopratensis*	Thrives on salty soils — especially the moist, salt-encrusted, alkali soils of Ash Meadows in the Amargosa Valley	FWS (T); NAC (CE); NS-S (S2); NS (G2)	Yes	Final Recovery Plan 1990
Ash Meadows milkvetch	*Astragalus phoenix*	Occurs only in Nye County, Nevada on dry, hard, white, barren saline, clay flats, knolls, and slopes and in the Amargosa River drainage	FWS (T); NAC (CE); NS-S (S2); NS (G2)	Yes	Final Recovery Plan 1990
Ash Meadows mousetails	*Ivesia kingii* var. *eremica*	Grows in alkali washes throughout Ash Meadows; prefers moist, clay soils with a prominent salt crust	FWS (T); NAC (CE); NS-S (S1S2); NS (G4T1T2Q)	Yes	Final Recovery Plan 1990
Ash Meadows sunray	*Enceliopsis nudicaulis* var. *corrugata*	Known to occupy alkaline soils in dry washes and on barren bluffs distributed along the eastern edge of Ash Meadows; associated with the Ash Meadows blazing star; always associated with dry soils	FWS (T); NAC (CE); NS-S (S2); NS (G5T2)	Yes	Final Recovery Plan 1990

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
		apparently uninfluenced by seepage from springs or seeps			
Beatley scorpion flower	*Phacelia beatleyae*	Dry, open, nearly barren scree and loose gravelly soils on slopes and bases of white to brownish volcanic tuff outcrops on all slopes and aspects, and in adjacent drainages, in the mixed- shrub, blackbrush, shadscale, and upper creosote-bursage zones.	NS-S (S3); NS (G3)	None	None
Beaver Dam breadroot	*Pediomelum castoreum*	Found in sandy washes and roadcuts in the eastern Mojave Desert of Nevada	NS-S (S3); NS (G3)	None	None
Black woollypod	*Astragalus funereus*	Dry, open scree, talus, or gravelly alluvium derived from light-colored volcanic tuff, on east, south, less commonly west, rarely north aspects	NS-S (S2); NS (G2)	None	None
Blue Diamond cholla	*Cylindropuntia multigeniculata (Opuntia whipplei* var. *multigeniculata)*	Dry, open carbonate ledges, crevices, and rocky colluvium on gentle to steep slopes of all aspects, but predominantly on northerly exposures, canyon walls, or other cooler or more protected exposures, near overlying gypsum beds up-slope, and associated with numerous other succulent and shrub species of the creosote bush and blackbrush vegetation zones	NAC (CE); NS-S (S2); NS (G4?T2Q)	None	None
Bullfrog Hills sweetpea	*Lathyrus hitchcockianus*	Washes and canyon bottoms in rocky volcanic gravelly or sandy soil; desert scrub above creosote bush; 4,495 to 5,200 feet. Often grows entangled with nearby shrubs; desert and shrubland/chaparral	NS-S (S2); NS (G2)	None	None
Darin buckwheat	*Eriogonum concinnum*	Deep loose sand derived from, or in crevices of, light-colored tuff or other volcanic rocks, often at bases of cliffs or outcrops, the soil sometimes covered by talus or scree, or on road cuts or other disturbances crossing such habitats, in the pinyon-juniper, sagebrush, mixed-shrub, blackbrush, and	NS-S (S2); NS (G2)	None	None

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
		shadscale zones: possibly dependent on sand dunes or deep sand.			
Death Valley beardtongue	*Penstemon fruticiformis* ssp. *amargosae*	Grows in rocky scrub and woodland habitat	NS-S (S2); NS (G4T3)	None	None
Death Valley sage	*Salvia funerea*	Dry washes and rocky places, canyons to 3,000 feet, northeastern Mojave Desert	NS-S (S1); NS (G3)	None	None
Gilman milkvetch	*Astragalus gilmanii*	On light-colored volcanic tuff slopes in pinyon-juniper woodland	NS-S (S1); NS (G2)	None	None
Gold Butte moss	*Didymodon nevadensis*	On or near gypsiferous deposits and outcrops or limestone boulders, especially on east to north facing slopes of loose uncompacted soil, often associated with other mosses and lichens	NS-S (S1); NS (G4)	None	None
Halfring milkvetch	*Astragalus mohavensis* var. *hemigyrus*	Carbonate gravels and derivative soils on terraced hills and ledges, open slopes, and along washes in the creosote-bursage, blackbrush, and mixed-shrub zones	NS-S (S2S3); NS (G3G4T2T3)	None	None
Jaeger beardtongue	*Penstemon thompsoniae* ssp. *jaegeri*	Gravelly limestone soils on knolls, slopes, and small drainages, mostly under conifers or other woody species, from the pinyon- juniper to the subalpine conifer zones	USFS (S); NS-S (S2); NS (G4T2)	None	None
Jaeger ivesia	*Ivesia jaegeri*	Grows in cracks and crevices in the limestone cliffs and slopes of the desert mountains	USFS (S); NS-S (S2S3); NS (G2G3)	None	None
Las Vegas bearpoppy	*Arctomecon californica*	Open, dry, spongy or powdery, often dissected ("badland") or hummocked soils with high gypsum content, often with well- developed soil crust, in areas of generally low relief on all aspects and slopes, with a sparse cover of other gypsum- tolerant species	NAC (CE); NS-S (S3); NS (G3)	None	None

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
Las Vegas buckwheat	*Eriogonum corymbosum* var. *nilesii*	Confined to gypsum-rich soils in central and eastern Clark County and southern Lincoln County, Nevada	NS-S (S1S2); NS (G5T2)	None	None
Mojave thistle (Virgin River thistle)	*Cirsium mohavense (or C. virginense)*	Damp soils around desert springs, streams, and ditches; 1,500 to 9,000 feet elevation; Open, moist, alkaline clay soils of seep and spring areas or gypsum knolls. Aquatic or wetland dependent in Nevada	NS-S (SNR); NS (G2G3)	None	None
Mokiak milkvetch	*Astragalus mokiacensis*	Loose, sandy to gravelly soils, mostly in and near dry drainages or other periodic disturbances, sometimes on bluffs, cliff terraces, badlands, or basalt talus, in the creosote-bursage, blackbrush, and mixed-shrub zones	NS-S (S1S2); NS (G3G4Q)	None	None
Nevada willowherb	*Epilobium nevadense*	Limestone soils, talus, cliffs, and rock outcrops with slopes of varying steepness from 5 to 45 percent	USFS (S); NS-S (S2); NS (G3)	None	None
Pahrump silverscale	*Atriplex argentea* var. *longitrichoma*	Alkaline or gypsiferous, sometimes seasonally moist, often disturbed silty clay soils of valley bottoms in salt desert vegetation surrounded by the creosote-bursage zone, or on roadsides or in abandoned fields	NS-S (S1); NS (G5T2)	None	None
Pahrump Valley buckwheat	*Eriogonum bifurcatum*	Mostly in barren, saline, heavy clay or silty hardpan soils on and near dry playa margins, and on adjacent shore terraces and stabilized sand dunes	NS-S (S2); NS (G3)	None	None
Pahute Mesa beardtongue	*Penstemon pahutensis*	In loose soil and rock crevices among boulders in pinyon-juniper woodlands and sagebrush shrublands	NS-S (S3); NS (G3)	None	None
Parish phacelia	*Phacelia parishii*	Moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crusted silty-clay soils on valley bottom flats, lake deposits, and playa edges, often near seepage areas, sometimes on gypsum deposits	NS-S (S2S3); NS (G2G3)	None	None
Polished blazing star	*Mentzelia polita*	Occurs on limestone or gypseous soils between 3,900 to 4,900 feet	NS-S (S1S2); NS (G2)	None	None

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
Red Rock Canyon aster	*Ionactis caelestis*	Dry and rocky slopes: desert checkerspot (*Charidryras neumoegeni*) caterpillars rely on the nectar of Mojave aster	NS-S (S1); NS (G1)	None	None
Rock purpusia	*Ivesia arizonica var. saxosa*	Crevices of cliffs and boulders on volcanic and possibly carbonate rocks in the upper mixed-shrub, sagebrush, and pinyon-juniper zones	NS-S (S1); NS (G3T1)	None	None
Rosy twotone beardtongue	*Penstemon bicolor* ssp. *roseus*	Rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, and mixed-shrub zones	NS-S (S3); NS (G3T3Q)	None	None
Rough angelica	*Angelica scabrida*	Endemic to the Spring Mountains; bottoms of canyons and in avalanche chutes; often grows near ponderosa pine	USFS (S); NS-S (S2); NS (G1G2)	None	None
Rough dwarf greasebush	*Glossopetalon pungens* var. *pungens*	Crevices of carbonate cliffs and outcrops	NS-S (S2); NS (G2G3T2Q)	None	None
Scrub lotus	*Lotus argyraeus var. multicaulis*	Pinyon-juniper woodlands; sandy washes, ledges or clay slopes in canyons	NS-S (S1?); NS (G4?T2)	None	None
Sheep fleabane	*Erigeron ovinus*	Often associated with cliffs and ridgeline outcrops in the pinyon- juniper and montane conifer zones at elevations from 3,600 to 8,400 feet	NS-S (S2); NS (G2)	None	None
Silverleaf sunray	*Enceliopsis argophylla*	Clay and gypsum cliffs to gravelly slopes in southern deserts at elevations 1,200 to- 2,000 feet; partial to eroded soils containing gypsum	NS-S (S1?); NS (G2)	None	None
Smooth dwarf greasebush	*Glossopetalon pungens* var. *glabrum*	Crevices of carbonate cliffs and outcrops	USFS (S); NS-S (S1); NS (G2G3T1Q)	None	None

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
Spring-loving centaury	*Centaurium namophilum*	Open, moist alkali areas, including seeps and meadows at elevations from 2,100 to 3,500 feet	FWS (T); NAC (CE); NS-S (S2); NS (G2Q)	Yes	Final Recovery Plan 1990
Spring Mountains milkvetch	*Astragalus remotus*	Endemic to the southern portion of the Spring Mountains of Clark County; occurs in canyons and on rocky hillsides	USFS (S); NS-S (S2); NS (G2)	None	None
Sticky buckwheat	*Eriogonum viscidulum*	Sand loving, annual plant endemic to Clark and Lincoln Counties in southern Nevada	NAC (CE); NS-S (S2); NS (G2)	None	None
Sticky ringstem	*Anulocaulis leiosolenus var. leiosolenus*	Sandy washes and gravelly slopes to 3,000 feet; creosote bush scrub	NS-S (S2); NS (G4T3)	None	None
Straw milkvetch	*Astragalus lentiginosus* var. *stramineus*	Sandy and gravelly valley flats, washes, and dunes in the creosote-bursage, blackbrush, and mixed-shrub zones	NS-S (S1S2); NS (G5T2T3)	None	None
Stream stippleback lichen (Silverskin lichen)	*Dermatocarpon luridum*	On wet rocks, usually along edges of stream at waterline	NS-S (S1); NS (G4G5)	None	None
Tecopa birdbeak	*Cordylanthus tecopensis*	Open, moist to saturated, alkali-crusted clay soils of seeps, springs, outflow drainages, and meadows	NS-S (S2); NS (G2)	None	None
Threecorner milkvetch	*Astragalus geyeri* var. *triquetrus*	Open, deep sandy soil or dunes, generally stabilized by vegetation and/or a gravel veneer. Dependent on sand dunes or deep sand	NAC (CE); NS-S (S2S3); NS (G4T2T3)	None	None
Torrey milkvetch	*Astragalus calycosus* var. *monophyllidius*	Tends to grow in rocky places, at elevations from 4,900 to11,600 feet.	NS-S (S2); NS (G5T2Q)	None	None
White bearpoppy	*Arctomecon merriamii*	Rocky limestone slopes and gravel washes in northeast Mojave Desert around 29 to 4,600 feet	NS-S (S3); NS (G3)	None	None

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: Nevada Division of Natural Heritage; U.S. Forest Service; USFWS, State of Nevada Protections, BLM	Critical Habitat Designated	Recovery Plan
White-margined beardtongue	*Penstemon albomarginatus*	Prefers the base of hills and mountains in wind-blown sand dune-like areas, but are also found in deep loose sand in wash bottoms; may also occur in fine alluvial sand in a wide canyon within a creosote bush scrub community where deep and stabilized sands, hold the long taproot in place	NS-S (S2); NS (G2)	None	None
Yellow twotone beardtongue	*Penstemon bicolor* ssp. *bicolor*	Calcareous or carbonate soils in washes, roadsides, rock crevices, outcrops, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, mixed-shrub, and lower juniper zones	NS-S (S2); NS (G3T2Q)	None	None

Sources: BLM 2023, Nevada Division of Natural Heritage (NDNH) 2022, USFWS 2024 ECOS

Table Key

Rank Abbreviation	Definition
NatureServe (Natural Heritage) Conservation Status Rank Definitions	
G	Refers to the global population of a species.
S	Refers to the subnational (state) population of a species, subspecies, or variety
T	Refers to the subspecific or variety taxonomic level (used in conjunction with G rank); uses numeric ranks 1-5 in the same way that G and S ranks are applied.
1	Critically Imperiled – At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.
2	Imperiled – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
3	Vulnerable – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
4	Apparently Secure – At fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors
5	Secure – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

Rank Abbreviation	Definition
S#S#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate uncertainty about the exact status of a taxon. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4). A range rank could also be applied at the global scale as well (e.g., G2G3).
Q	Questionable taxonomy – taxonomic distinctiveness of the entity at the current level is questionable or currently being reviewed; resolution of this uncertainty may result in change from a species to a subspecies, variety or hybrid, or the inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority conservation status.
USFWS Endangered Species Act Listing	
LE	Listed Endangered – in danger of extinction in all or a significant portion of its range.
LT	Listed Threatened – likely to be classified as Endangered in the foreseeable future if threats continue.
BLM Status	
S	Sensitive Species – Species designated Sensitive by State Director of Nevada BLM.
USFS Status	
USFS (S)	Forest Sensitive Species
State of Nevada Protection and Designations (Nevada Administrative Code [NAC] 503)	
CE	Critically endangered plant
NS	
NS-S	

Table 3.4-3. LVFO Designated Sensitive Plant Species Potentially Occurring in the TMA

Common Name	Scientific Name	Habitat
Clark Mountain Agave	*Agave utahensis var nevadensis*	Considered an endemic species to the Mohave Desert. It occurs in desert scrub to conifer woodlands on calcareous outcrops the Desert Mountains physiographic province in California (NatureServe 2024c).
Las Vegas Bearpoppy	*Arctomecon californica*	Open, dry, spongy or powdery, often dissected ("badland") or hummocked soils with high gypsum content, often with well-developed soil crust, in areas of generally low relief on all aspects and slopes, with a sparse cover of other gypsum- tolerant species (NatureServe 2024d).
Rosy King Sandwort	*Arenaria kingii ssp rosea*	Rocky slopes, summits, dry foothills, basalt flats (Oregon Flora 2024).
Threecorner Milkvetch	*Astragalus geyeri var triquetrus*	Open, deep sandy soil or dunes, generally stabilized by vegetation and/or a gravel veneer. Dependent on sand dunes or deep sand (NatureServe 2024e).
Nye Milkvetch	*Astragalus nyensis*	Foothills of desert mountains, outwash fans, and gravelly flats, sometimes in sandy soil. Associated plants are *Larrea tridentata*, *Ambrosia dumosa, Oryzopsis hymenoides, Hymenoclea salsola, Coleogyne ramosissima, Hilaria rigida, Krameria parvifolia, Astragalus geyeri var. triquetrus* (NatureServe 2024f).
Lancaster Milkvetch	*Astragalus preussii var. laxiflorus*	Obligate gypsophile meaning it can only grow in gypsum soil. This variety is often found between 7200-8200 ft elevations with creosote bush communities (Utah DWR 2019).
Seriate Crossidium	*Crossidium seriatum*	On silt, edge of arroyo, 990-2,310 ft. Found in very dry gypsiferous soil, with sparse nitrified grass vegetation. Sandy soil or rocks, along dry washes, in open or shaded places in deserts at moderate elevations (NatureServe 2024g).
Gold Butte Moss	*Didymodon nevadensis*	On or near gypsiferous deposits and outcrops or limestone boulders, especially on east to north facing slopes of loose uncompacted soil, often associated with other mosses and lichens (BLM 2017).
Silverleaf Sunray	*Enceliopsis argophylla*	Clay and gypsum cliffs to gravelly slopes in southern deserts at elevations 1,200 - 2,000 ft; partial to eroded soils containing gypsum (BLM 2017).
Las Vegas Buckwheat	*Eriogonum corymbosum var nilesii*	Confined to gypsum-rich soils in central and eastern Clark County and southern Lincoln County, Nevada (BLM 2017).
Rosy Two-Toned Penstemon	*Penstemon bicolor ssp. roseus*	This subspecies is found on gravelly soils, and roadsides, as well as juniper woodlands, desert scrub, talus slopes, and arroyos (BLM 2017).
Palmer's phacelia	*Phacelia palmeri*	Dominant component of vegetation communities on gypsum-rich soils in the Upper Sonoran (Boone 2022)
Parish Phacelia	*Phacelia parishii*	Moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crusted silty-clay soils on valley bottom flats, lake deposits, and playa edges, often near seepage areas, sometimes on gypsum deposits (BLM 2017).

Sources: BLM 2023, NatureServe 2024c-2024g, Oregon Flora 2024, Utah DWR 2019

3.4.1.3 Invasive, Nonnative Plants

Invasive, non-native plants and noxious weeds may lack the natural population-limiting factors of their native lands and can often out-compete native vegetation, especially on recently disturbed sites. On federal lands, these weeds have been known to spread at an average rate of over 5,000 acres per day (USFS 2013b).

The State of Nevada list of invasive plant species is presented in Table 3.4-4. Noxious weeds in the TMA are treated through cooperative efforts utilizing chemical, mechanical, and biological control methods. Invasive plants not classified as noxious and regulated by law exist along roadways and other disturbed areas. Unlisted invasive species may pose just as serious a threat to natural ecosystems. Native ecosystems adjacent to BLM-administered lands may also be impacted when invasive plants spread from BLM-administered lands.

Table 3.4-4. Noxious Weed Species of Nevada

Common Name	Scientific Name
African mustard	*Brassica tournefortii*
African rue	*Peganum harmala*
Australian fieldcress	*Rorippa austriaca*
Black henbane	*Hyoscyamus niger*
Camelthorn	*Alhagi maurorum*
Canada thistle	*Cirsium arvense*
Common crupina	*Crupina vulgaris*
Common St. Johnswort	*Hypericum perforatum*
Crimson fountaingrass	*Pennisetum setaceum*
Dalmatian toadflax	*Linaria dalmatica*
Diffuse knapweed	*Centaurea diffusa*
Dyer's woad	*Isatis tinctoria*
Eurasian watermilfoil	*Myriophyllum spicata*
Giant reed	*Arundo donax*
Giant salvinia	*Salvinia molesta*
Goatsrue	*Galega officinalis*
Hoary cress	*Cardaria draba*
Horsenettle	*Solanum carolinense*
Houndstongue	*Cynoglossum officinale*
Hydrilla	*Hydrilla verticillate*
Iberian starthistle	*Centaurea iberica*

Common Name	Scientific Name
Johnsongrass	*Sorghum halepense*
Leafy spurge	*Euphorbia esula*
Malta starthistle	*Centaurea melitensis*
Mayweed chamomile	*Anthemis cotula*
Mediterranean sage	*Salvia aethiopis*
Medusahead	*Taeniatherum caput-medusae*
Musk thistle	*Carduus nutans*
Perennial pepperweed	*Lepidium latifolium*
Perennial sowthistle	*Sonchus arvensis*
Poinson hemlock	*Conium maculatum*
Puncturevine	*Tribulus terrestris*
Purple loosestrife	*Lythrum salicaria*
Purple starthistle	*Centaurea calcitrapa*
Rush skeletonweed	*Chondrilla juncea*
Russian knapweed	*Acroptilon repens*
Saltcedar	*Tamarix spp.*
Scotch thistle	*Onopardium acanthium*
Silverleaf nightshade	*Solanum elaegnifolium*
Spotted knapweed	*Centaurea biebersteinii*
Squarrose knapweed	*Centaurea virgata var. squarrosa*
Sulfur cinquefoil	*Potentilla recta*
Swainsonpea	*Sphaerophysa salsula*
Syrian beancaper	*Zygophyllum fabago*
Waterhemlock	*Cicuta spp.*
Yellow starthistle	*Centaurea solsitialis*
Yellow toadflax	*Linaria vulgaris*

Source: NDA 2024

3.4.2 Environmental Consequences

3.4.2.1 Impacts Common to All Alternatives

Route designation, open route use, and route maintenance would impact vegetation in various ways.

Route designation

Through the route designation process for this TMP, routes are proposed to be designated as open, closed, or with limitations. Some routes would be closed and decommissioned under all alternatives except for in the no action alternative. Native vegetation would be expected to re-establish along closed and decommissioned routes over time, depending on existing invasive and non-native populations. Additional restoration measures, such as seeding and weed and erosion control, would be done if closed routes are not revegetating adequately on their own (see measures in Section 2.1.8, *Route Closures*). Routes designated as open would have impacts due to recreational and other route uses.

Open route use

Motorized and non-motorized travel on routes would crush and potentially uproot and remove vegetation through tires from motor vehicles and bikes, equestrian and stock hoof action, and human foot action. In general, vegetation within existing linear features, camping areas, and pullouts has already been removed through crushing by current route use. This would be expected to continue along open routes. In addition, it is reasonable to assume that routes that intersect areas with slopes less than ten percent are susceptible to dispersed camping within a 100-foot-wide corridor along routes. These activities increase bare and disturbed soil and the potential for introduction and spread of invasive, non-native plant species.

Fugitive dust created by route use would be a common but minor impact to vegetation under all alternatives. Dust generated by vehicles settles on vegetation, potentially affecting photosynthesis and resulting in diminished growth, or mortality, which may alter the structure and composition of plant communities. The severity of fugitive dust generated by these activities varies depending on wind, frequency and timing of precipitation events, soil and dust particle size, and effectiveness of dust control measures. Dust from roads that have been improved by bringing in foreign surface material may influence the adjacent soil chemistry, impacting the localized growing conditions for native vegetation and encouraging noxious weed establishment (Sheley et al. 1999).

Route Maintenance

Route maintenance activities vary depending on route type and range from using hand tools on foot paths to other heavy equipment, such as dozers, back-hoes, and motor graders for road maintenance (maintenance guidelines are described in the TMP). Impacts to vegetation from route maintenance activities would include vegetation clearing and removal from route grading, creating drainage paths, and erosion control.

New Route Construction

Proposed routes have been evaluated as existing routes in Alternative B, C, and D. No new construction of routes is proposed under any alternative (Section 2.2.6). Under Alternative A, The TMP describes estimated disturbance activities related to construction/maintenance of the different routes. Design features such as avoidance of densely vegetated areas and large cacti and trees would be followed to limit impacts.

Invasive Plant Species

The risk of introducing invasive, non-native plant species is anticipated under all alternatives. The potential for spread of infestations increases with the miles of open or limited routes and the amount of route use. Extensive areas of sparse vegetation and flat terrain make it easy to drive vehicles off-road or cross-country, leading to proliferation of off-route vehicle use in places, particularly in the sparse creosote flats and bajada uplands (BLM 2010). Off-route driving also contributes to the infestation and spread of invasive plant and noxious weed species.

Potential impacts common to all alternatives would include:

- Noxious weed establishment and spread where route use disturbs or exposes soil;
- OHVs and other motorized and mechanized vehicles have potential to spread invasive, non-native plant species;
- Established motorized and non-motorized routes are optimal for dispersal of noxious weeds;
- Route maintenance activities have potential to spread invasive, non-native plant species;
- Parking and dispersed camping within a 100-foot corridor along routes have potential to spread invasive, non-native plant species;
- The probability of invasive, non-native plant establishment likely increases after fire, in combination with recreational use; and
- Anywhere a route crosses a water feature, there is potential for dispersal of invasive, non-native plant species.

Weed seed can be transported or spread on soil and debris from a vehicle's frame/undercarriage. It can be present in livestock feed and transported on a person's apparel and gear. Since the TMA receives recreational use by visitors from throughout the state and the region, there is potential for weed seed to be introduced from more distant locations. Illegal dumping of household backyard debris is also a potential source of weed infestations on public land (BLM 2010). The potential for introduction of weed seed by vehicles driven into the area, or weed seed exporting from the area, would be reduced by visitor education themes on preventing the spread of invasive plants and noxious weeds. The potential for dispersal of weed seed from sources within the area by vehicles will continue. Weed surveys would detect infestations and appropriate treatment plans would be developed on a case-by-case basis (BLM 2010). Refer to Table 3.4-5 through Table 3.4-16 for miles of routes in vegetation communities under each alternative.

3.4.2.2 Alternative A (No Action)

Under Alternative A, the route network would remain as it currently exists with the exception of 27.8 miles of newly designated user-created routes that were identified during route inventory (Table 2.1-1, Figure 1). Alternative A would have the highest density of open or limited routes of the alternatives. Implementation of Alternative A would result in a higher level of impacts on vegetation communities than the other alternatives. With no route closures, the greatest area of existing native vegetation would continue to be impacted by OHV use of the route network.

Impacts to vegetation communities from fugitive dust would continue to occur along existing unpaved routes. Table 3.4-5 presents the mileage of route designations and limitations within vegetation communities within the TMA under Alternative A. Off-route access by vehicles would continue to impact soils, as described in Section 3.3, Soil Resources. Off-route use also contributes to the establishment and spread of invasive, non-native plant species.

3.4.2.3 Alternative B (Access)

Alternative B provides the greatest amount of OHV access amongst the action alternatives and the types of potential impacts to vegetation would be the same as presented under impacts common to all. Under Alternative B, approximately 180.7 miles of routes would be designated as OHV open representing the greatest number of miles of open routes amongst the action alternatives. Approximately 28.9 miles of previously open OHV routes would be closed to OHV use representing the least amount of closures amongst the action alternatives. Table 3.4-6 presents the mileage of route designations and limitations within vegetation communities within the TMA under Alternative B.

3.4.2.4 Alternative C (Conservation)

Under Alternative C there would be fewer open routes and route density would be reduced by closing routes (Table 2.1-1, Figure 3). Under Alternative C, approximately 113.5 miles of routes would be designated as OHV open representing the lowest number of miles of open routes amongst the action alternatives. Approximately 94.4 miles of previously open OHV routes would be closed to OHV use representing the greatest amount of route closures compared to the action alternatives. Route closures and limitations would reduce cross-country travel and route proliferation. This would allow for increased overall vegetative production and decrease fragmentation of the adjacent plant communities within the TMA. The dispersal of invasive, non-native species by motorized or non-motorized travel would be limited under Alternative C in comparison to Alternatives A, B, and D. Increased effects to vegetation communities from fugitive dust are expected to be minor both in the short and long term. Implementation of Alternative C would result in the lowest route density amongst all alternatives (Table 2.1-2). Table 3.4-7 presents the mileage of route designations and limitations within vegetation communities within the TMA under Alternative C.

Route closures and limitations would reduce impacts from motorized travel on vegetation communities and the potential for soil compaction and sedimentation. Implementation of Alternative C would allow for passive restoration of plant communities along decommissioned routes. Additionally, it would reduce the potential for introduction of non-native species.

3.4.2.5 Alternative D (Blended)

Under Alternative D, there would be a balance of open and closed routes within the TMA (Table 2.1-1, Figure 4) and impacts to vegetation communities would continue and potentially increase

with increased use. Under Alternative D, approximately 145.9 miles of routes would be designated as OHV open. Approximately 58.1 miles of previously open OHV routes would be closed to OHV use. The removal of disturbance typically associated with motorized vehicles on closed and limited routes could reduce the potential for the introduction of invasive, non-native plant species. Impacts from fugitive dust would continue along limited and open routes. Table 3.4-8 presents the mileage of route designations and limitations within vegetation communities within the TMA under Alternative D.

Table 3.4-5. Existing Route Mileage in Vegetation Communities/Land Uses within the TMA, under Alternative A

Vegetation Community/Landform	Non-Inventoried Route Alternative A only (miles)	Open to All Use (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Developed-Roads	0	0.5	0.0	0.5
Mojave Mid-Elevation Mixed Desert Scrub	1.0	26.6	0.0	27.5
North American Warm Desert Badland	0	0.0	0.0	0.0
North American Warm Desert Bedrock Cliff and Outcrop	0.4	2.5	0.0	2.9
North American Warm Desert Pavement	1.1	7.7	0.1	8.9
North American Warm Desert Playa	0	0.8	0.0	0.8
North American Warm Desert Ruderal & Planted Grassland	0	0.1	0.0	0.1
North American Warm Desert Ruderal & Planted Scrub	0.1	0.3	0.0	0.4
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	25.2	188.5	0.5	214.2
Sonora-Mojave Mixed Salt Desert Scrub	0.1	0.4	0.0	0.5

Vegetation Community/Landform	Non-Inventoried Route Alternative A only (miles)	Open to All Use (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Western Warm Temperate Urban Herbaceous	0	0.1	0.0	0.1
Western Warm Temperate Urban Shrubland	0	0.1	0.0	0.1
Totals	**27.8**	**227.5**	**0.6**	**256.0**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-6. Existing Route Mileage in Vegetation Communities/Land Uses within the TMA under Alternative B

Vegetation Community/Landform	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Developed-Roads	0.0	0.4	0.0	0.0	0.5
Mojave Mid-Elevation Mixed Desert Scrub	2.8	22.2	0.7	1.9	27.5
North American Warm Desert Badland	0.0	0.0	0.0	0.0	0.0
North American Warm Desert Bedrock Cliff and Outcrop	0.3	2.2	0.0	0.4	2.9
North American Warm Desert Pavement	1.0	4.5	2.0	1.4	8.9
North American Warm Desert Playa	0.2	0.6	0.0	0.0	0.8
North American Warm Desert Ruderal & Planted Grassland	0.0	0.1	0.0	0.0	0.1
North American Warm Desert Ruderal & Planted Scrub	0.0	0.3	0.0	0.1	0.4
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	24.2	145.2	9.6	35.2	214.2

Vegetation Community/Landform	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Sonora-Mojave Mixed Salt Desert Scrub	0.0	0.4	0.0	0.0	0.5
Western Warm Temperate Urban Herbaceous	0.0	0.1	0.0	0.0	0.1
Western Warm Temperate Urban Shrubland	0.0	0.1	0.0	0.0	0.1
Totals	**28.5**	**176.1**	**12.4**	**38.9**	**256.0**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-7. Existing Route Mileage in Vegetation Communities/Land Uses within the TMA under Alternative C

Vegetation Community/Landform	Closed to All Use (miles)	Open to All Use (miles)	Open to All Use Seasonally	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Developed-Roads	0.2	0.2	0.0	0.0	0.0	0.4
Mojave Mid-Elevation Mixed Desert Scrub	9.9	12.6	2.5	1.2	1.3	27.5
North American Warm Desert Badland	0.0	0.0	0.0	0.0	0.0	0.0
North American Warm Desert Bedrock Cliff and Outcrop	1.2	1.2	0.1	0.2	0.3	2.9
North American Warm Desert Pavement	3.2	2.8	0.0	2.0	0.8	8.9
North American Warm Desert Playa	0.3	0.4	0.0	0.0	0.0	0.8
North American Warm Desert Ruderal & Planted Grassland	0.1	0.0	0.0	0.0	0.0	0.1
North American Warm Desert Ruderal & Planted Scrub	0.3	0.1	0.0	0.0	0.0	0.4
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	78.2	91.6	4.0	18.6	21.7	214.2

Vegetation Community/Landform	Closed to All Use (miles)	Open to All Use (miles)	Open to All Use Seasonally	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Sonora-Mojave Mixed Salt Desert Scrub	0.3	0.2	0.0	0.0	0.0	0.5
Western Warm Temperate Urban Herbaceous	0.1	0.0	0.0	0.0	0.0	0.1
Western Warm Temperate Urban Shrubland	0.0	0.0	0.0	0.0	0.0	0.1
Totals	93.7	109.2	6.6	22.1	24.2	**256.0**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-8. Existing Route Mileage in Vegetation Communities/Land Uses within the TMA under Alternative D

Vegetation Community/Landform	Closed to All Use (miles)	Open to All Use (miles)	Open to All Use Seasonally	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Totals
Developed-Roads	0.1	0.3	0.0	0.0	0.0	0.5
Mojave Mid-Elevation Mixed Desert Scrub	5.8	15.9	3.4	0.8	1.7	27.5
North American Warm Desert Badland	0.0	0.0	0.0	0.0	0.0	0.0
North American Warm Desert Bedrock Cliff and Outcrop	0.6	1.7	0.0	0.2	0.3	2.9
North American Warm Desert Pavement	1.6	4.2	0.0	2.0	1.1	8.9
North American Warm Desert Playa	0.3	0.5	0.0	0.0	0.0	0.8
North American Warm Desert Ruderal & Planted Grassland	0.0	0.0	0.0	0.0	0.0	0.1
North American Warm Desert Ruderal & Planted Scrub	0.0	0.3	0.0	0.0	0.1	0.4
Sonora-Mojave Creosotebush-White Bursage Desert Scrub	49.1	117.9	5.2	14.8	27.1	214.2

Vegetation Community/Landform	Closed to All Use (miles)	Open to All Use (miles)	Open to All Use Seasonally	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Totals
Sonora-Mojave Mixed Salt Desert Scrub	0.0	0.4	0.0	0.0	0.0	0.5
Western Warm Temperate Urban Herbaceous	0.0	0.1	0.0	0.0	0.0	0.1
Western Warm Temperate Urban Shrubland	0.0	0.1	0.0	0.0	0.0	0.1
Totals	**57.7**	**141.4**	**8.6**	**17.8**	**30.3**	**256.0**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-9. Existing Route Mileage within a 50-Foot Buffer of BLM Sensitive Species under Alternative A

BLM Sensitive Species	Proposed Route (Alternative A only) (miles)	Open to All Use (miles)	Total (miles)
Lancaster milkvetch	0	0	0
Las Vegas bearpoppy	0	0.8	0.8
Las Vegas buckwheat	0	0.3	0.3
Parish phacelia	0	0	0
Rosy two-toned penstemon	0	0	0
Threecorner milkvetch	0	0.1	0.1
Totals	**0**	**1.2**	**1.2**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-10. Existing Route Mileage within a 50-Foot Buffer of BLM Sensitive Species, under Alternative B

BLM Sensitive Species	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle, Non-Motorized, Non-Mechanized (miles)	Total (miles)
Lancaster milkvetch	0	0	0	0	0
Las Vegas bearpoppy	0.1	0.4	0.2	0.1	0.8
Las Vegas buckwheat	0	0	0.2	0	0.2
Parish phacelia	0	0	0	0	0
Rosy two-toned penstemon	0	0	0	0	0
Threecorner milkvetch	0	0.1	0	0	0.1
Totals	**0.1**	**0.5**	**0.4**	**0.1**	**1.1**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-11. Existing Route Mileage within a 50-Foot Buffer of BLM Sensitive Species under Alternative C

BLM Sensitive Species	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle, Non-Motorized, Non-Mechanized (miles)	Total (miles)
Lancaster milkvetch	0	0	0	0	0
Las Vegas bearpoppy	0.1	0.4	0.2	0.1	0.8
Las Vegas buckwheat	0	0	0.2	0	0.2
Parish phacelia	0	0	0	0	0
Rosy two-toned penstemon	0	0	0	0	0
Threecorner milkvetch	0	0.1	0	0	0.1
Totals	**0.1**	**0.5**	**0.4**	**0.1**	**1.1**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-12. Existing Route Mileage within a 50-Foot Buffer of BLM Sensitive Species under Alternative D

BLM Sensitive Species	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle, Non-Motorized, Non-Mechanized (miles)	Total (miles)
Lancaster milkvetch	0	0	0	0	0
Las Vegas bearpoppy	0.2	0.3	0.2	0.1	0.8
Las Vegas buckwheat	0	0	0.2	0	0.2
Parish phacelia	0	0	0	0	0
Rosy two-toned penstemon	0	0	0	0	0
Threecorner milkvetch	0	0	0	0	0
Totals	**0.2**	**0.3**	**0.4**	**0.1**	**1.0**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-13. Existing Route Mileage within a 100-Foot Buffer of BLM Sensitive Species, under Alternative A

BLM Sensitive Species	Open to All Use	Total (miles)
Lancaster milkvetch	0.1	0.1
Las Vegas bearpoppy	2.2	2.2
Las Vegas buckwheat	0.7	0.7
Nye milkvetch	0.1	0.1
Parish phacelia	0	0
Rosy two-toned penstemon	0	0
Silverleaf sunray	0	0
Threecorner milkvetch	0.2	0.2
Totals	**3.3**	**3.3**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-14. Existing Route Mileage within a 100-Foot Buffer of BLM Sensitive Species under Alternative B

BLM Sensitive Species	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Total (miles)
Lancaster milkvetch	0	0	0	0	0
Las Vegas bearpoppy	0.3	1.1	0.3	0.6	2.3
Las Vegas buckwheat	0	0	0.5	0.1	0.6
Nye milkvetch	0	0.1	0	0	0.1
Parish phacelia	0	0	0	0	0
Rosy two-toned penstemon	0	0	0	0	0
Silverleaf sunray	0	0	0	0	0
Threecorner milkvetch	0	0.2	0	0	0.2
Totals	**0.3**	**1.4**	**0.8**	**0.7**	**3.2**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-15. Existing Route Mileage within a 100-Foot Buffer of BLM Sensitive Species under Alternative C

BLM Sensitive Species	Closed to All Use (miles)	Open to All Use (miles)	Open to all use seasonally	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Totals
Lancaster milkvetch	0	0	0	0.1	0	0.1
Las Vegas bearpoppy	0.8	0.7	0	0.4	0.3	2.2
Las Vegas buckwheat	0.1	0	0	0.5	0	0.6
Nye milkvetch	0	0.1	0	0	0	0.1
Parish phacelia	0	0	0	0	0	0
Rosy two-toned penstemon	0	0	0	0	0	0
Silverleaf sunray	0	0	0	0	0	0
Threecorner milkvetch	0.1	0.2	0	0	0	0.3
Totals	**1.0**	**1.0**	**0**	**1.0**	**0.3**	**3.3**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

Table 3.4-16. Existing Route Mileage within a 100-Foot Buffer of BLM Sensitive Species under Alternative D

BLM Sensitive Species	Closed to All Use (miles)	Open to All Use (miles)	Open to Authorized Users Only (miles)	Open to Motorcycle (Single Track) (miles)	Totals
Lancaster milkvetch	0	0	0.1	0	0.1
Las Vegas bearpoppy	0.8	0.7	0.5	0.4	2.4
Las Vegas buckwheat	0.1	0	0.5	0	0.6
Nye milkvetch	0	0.1	0	0	0.1
Parish phacelia	0	0	0	0	0
Rosy two-toned penstemon	0	0	0	0	0
Silverleaf sunray	0	0	0	0	0
Threecorner milkvetch	0	0.2	0	0	0.2
Totals	**0.9**	**1.0**	**1.1**	**0.4**	**3.4**

Sources: BLM 2023a, USGS 2017 LANDFIRE EVT, USFWS 2021c NWI

3.4.3 Cumulative Impacts

Past and present activities such as livestock grazing, mineral development, ROWs for roads, pipelines, oil and gas developments, vegetation treatments, and recreational OHV use have impacted the vegetative cover within the CIAA. Where public lands are grazed, riparian areas and areas around water sources generally see an increase in invasive, non-native plant species and a decrease in vegetative cover unless they are actively managed.

RFFAs within the CIAA include the TWE and EGS transmission lines. During construction vegetation would be cleared, cut, or trampled. The BLM has BMPs and stipulations that would reduce the impacts to vegetation from RFFAs. Implementation of the TMP would contribute very little cumulatively, if not reduce these impacts to vegetation resources.

Cumulative impacts associated with the alternative would be similar. The Proposed Action would be confined to the analysis area that includes the three draws. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMP is not anticipated to contribute to cumulative impacts to vegetation resources.

RFFAs such as livestock grazing, mineral development, ROWs for roads, pipelines, wildland fires, and recreational OHV have impacted vegetation communities within the TMA. The proposed action and alternatives would be expected to benefit vegetation communities. Impacts from past and present actions would generally be reduced from current conditions if proposed routes are closed and reclaimed. Best management practices, conservation measures, and certain project design features would reduce impacts to vegetation from RFFAs. Implementation of the TMP would contribute only incremental cumulative impacts or even reduce adverse cumulative impacts to vegetation resources with route designation and implementation of monitoring to ensure that the routes are being used as intended and maintained. Any improvement of the health, vigor, and recruitment of native plant species would result in increased resilience and resistance to disturbance for the community.

3.5 Wildlife Resources

Issue: How would route designation and implementation of the TMP affect terrestrial wildlife, aquatic wildlife, and migratory birds within the TMA?

3.5.1 Affected Environment

The TMA provides habitat for a wide variety of common and special status wildlife species. In Nevada, many wildlife species are dependent upon riparian and aquatic habitats for some or all of their habitat requirements. Wildlife species in the TMA are present as year-round residents, seasonal residents (breeding and non-breeding seasons), or migrants. The typical avian breeding season in southern Nevada is from mid-May to late June. However, the protocol implemented by the Nevada Breeding Bird Atlas team included surveys from April through August to capture the full suite of species with potential to breed in the region (Corman and Wise-Gervais 2005). Terrestrial wildlife species in the TMA include big game, small game (including waterfowl and furbearers), and nongame species (including migratory birds). Aquatic wildlife species included in this analysis include amphibians and fish.

The TMA also provides habitat for special status species including species listed by the Nevada Department of Wildlife (NDOW) as Species of Greatest Conservation Need (SGCN), BLM Sensitive Species, and U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern (BCC).

Greater species diversity typically occurs in areas with greater vegetation structure, soil moisture, and areas with the consistent presence of water, such as wetlands and riparian areas. Vegetation communities within the TMA are discussed in Section 3.4. The dominant vegetation community within the TMA is Sonora-Mojave Creosotebush-White Bursage Desert Scrub. Other vegetation

communities and landforms that provide habitat for wildlife include, but are not limited to, warm desert pavement, warm desert playa, ruderal and planted grassland and scrub, and warm desert bedrock cliff and outcrop. In the desert southwest, wildlife species use riparian areas disproportionately more than any other type of habitat and many species are considered riparian-obligates that only use only riparian habitats. The zone of influence of riparian habitats on wildlife species extends well beyond riparian boundaries into the adjacent desert communities. Many riparian-obligate wildlife species, as well as many native fish species are either federally listed or considered special status species by the federal government (USFWS and BLM) or NDOW. Wetlands and riparian zones are analyzed in Section 3.4, Upland Vegetation, Special Status Plant Species, and Invasive, Non-native Plant Species.

3.5.1.1 Important Wildlife Habitats in the TMA

Wildlife Movement Corridors

The TMA encompasses important movement corridors for wildlife species. Riparian corridors are very important for wildlife movement and migration. A total of 1,015 acres of mapped movement corridors for bighorn sheep are within the TMA (BLM 2019). A total of 1,193 acres of riverine corridors are within the TMA (USFWS 2021c NWI). These riverine corridors likely provide riparian habitat for wildlife species.

Desert wash corridors are important habitats for many wildlife species due to the increased vegetation cover, structure, and composition caused by the added moisture collected in the natural drainage system. Banks of these corridors provide habitat for burrows and birds nest and roost in trees. Ephemeral runoff and pools create seasonal habitat for amphibians and provide water sources for wildlife (BLM 2010).

No Audubon Important Bird Areas are within the TMA (National Audubon Society 2024).

3.5.1.2 Terrestrial Wildlife Species in the TMA

Big Game Species

Four big game species/subspecies inhabit the TMA: desert bighorn sheep (*Ovis canadensis nelsoni*), mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), and pronghorn antelope (*Antilocapra americana*) (NDOW 2024a).

Desert Bighorn Sheep

Suitable desert bighorn sheep habitat (including a 3-acre buffer) is present on 111,984 acres within the TMA (BLM 2019). The population estimate for desert bighorn sheep in the Muddy Mountains Habitat Management Area is 500-550 individuals. These sheep are present in the TMA in four distinct herd areas including Blacks, Muddys, Muddys/Blacks, and North Muddys herd areas. Routes intersecting year-round bighorn sheep habitat were designated with a seasonal limitation from January 1 through April 18 within a 100-meter buffer. Routes within bighorn sheep migration corridors were limited within a 100-meter buffer. The availability of water is a seasonal limitation to bighorn sheep distribution. Bighorn sheep are known to use water along

major rivers that have not been substantially impacted by development or recreation activities. Figure 8 in Appendix B presents desert bighorn sheep habitat within the TMA.

Mountain Lion

In Nevada, mountain lions inhabit a variety of habitats and environmental conditions. Preferred habitat is dense cover or rocky, rugged terrain and some riparian habitats that flow through mountainous areas. They may also occur in low desert areas. Mountain lion habitat is typically associated with pinyon pine, juniper, and mountain mahogany. Mule deer is the primary prey species for mountain lions in Clark County, Nevada although they also have been documented to prey upon bighorn sheep, small mammals, and domestic livestock (NDOW 2024a).

Mule Deer

In the 1998 Las Vegas Field Office Proposed RMP/FEIS (BLM 1998), mule deer were described as having such low population numbers that NDOW did not conduct population censuses. The TMA is within the NDOW game management unit 268. This unit is not listed for mule deer (NDOW 2024b). Suitable habitat is limited by the amount of preferred vegetation types, water, and competition with livestock, wild horses, and wild burros.

Small Game Species

Small game species that inhabit the TMA include upland game birds, small game mammals, furbearers, and waterfowl. Potential habitat for small game species (except waterfowl) within the TMA occurs across the various existing vegetation communities and landforms. Potential habitat for waterfowl within the TMA is limited to areas of open water, wetland, and riparian vegetation communities (See Table 3.4-1). Table 3.5-1 presents representative small game, furbearer, and waterfowl species with potential to occur in the TMA. The list is not comprehensive.

The TMA is part of the Pacific flyway, which acts as a major migration corridor for many waterfowl species (USFWS 2024). Proximity to Lake Mead and the Colorado River system provides migratory habitat for waterfowl and other avian species. Many species of ducks and geese migrate through the TMA or are winter residents only.

Table 3.5-1. Representative Small Game, Furbearer, and Waterfowl Species with Potential to Occur in the TMA

Species Common Name	Scientific Name
American coot	*Fulica americana*
American wigeon	*Mareca americana*
Black-tailed jackrabbit	*Lepus californicus*
Bobcat	*Lynx rufus*
Canada goose	*Branta canadensis*
Canvasback	*Aythya valisineria*

Species Common Name	Scientific Name
Desert cottontail	*Sylvilagus audubonii*
Eurasian collared-dove	*Streptopelia decaocto*
Gadwall	*Mareca strepera*
Gambel's quail	*Callipepla gambelii*
Gray fox	*Urocyon cinereoargenteus*
Greater white-fronted goose	*Answer albifrons*
Green-winged teal	*Anas carolinensis*
Kit fox	*Vulpes macrotis*
Lesser scaup	*Aythya affinis*
Mallard	*Anas platyrhynchos*
Mourning dove	*Zenaida macroura*
Muskrat	*Ondatra zibethicus*
North American beaver	*Castor canadensis*
Northern pintail[1]	*Anas acuta*
Northern shoveler	*Spatula clypeata*
Raccoon	*Procyon lotor*
Red fox	*Vulpes vulpes*
Redhead[1]	*Aythya americana*
Ring-necked duck	*Aythya collaris*
Ring-necked pheasant	*Phasianus colchicus*
Ringtail	*Bassariscus astutus*
Ross's goose	*Anser rossii*
Snow goose	*Anser caerulescens*
Tundra swan	*Cygnus columbianus*
White-winged dove	*Zenaida asiatica*
Wilson's snipe	*Gallinago delicata*

Sources: NDOW 2024

[1] Species are also listed in Table 3.6-5 with additional status.

3.5.1.3 Aquatic Wildlife Species in the TMA

The types of waterways in the TMA are presented in Table 3.3-3 and in Figure 6 in Appendix B. These include intermittent streams/rivers, ephemeral streams/rivers, and an artificial path (canal). (Table 3.3-2) In addition, ponds and springs are important local habitats for aquatic species. See Section 3.3, *Water Resources*.

Habitat for aquatic wildlife within the TMA is limited to areas that exhibit consistent surface water flows or open water. The existence of consistent water sources varies seasonally within the TMA. Aquatic wildlife species with potential to occur within the TMA include invertebrates, amphibians, gastropods (snails), and fish. Fish species are not likely to be present in most of the ephemeral and intermittent streams within the TMA. Table 3.5-2 presents representative amphibians with potential to occur within suitable habitat in the TMA. Table 3.5-3 presents representative fish species with potential to occur in suitable habitat in the TMA although surface water flows consistent enough to support fish species are limited. Aquatic habitat is limited by low flows that cause the rivers to run dry at times, hot water temperatures, and low water oxygenation levels.

Little is known about Nevada's native crustaceans and mollusks, including those that may inhabit aquatic habitats within the TMA. Most of these species occur in isolated springs or other waters. Amphibians including frogs and toads would be expected to occur in the riparian and wetland communities in the TMA.

Table 3.5-2. Common Reptile and Amphibian Species with Potential to Occur in the TMA

Species Common Name	Scientific Name
Chuckwalla	*Sauromalus ater*
Desert horned lizard	*Phrynosoma platyrhinos*
Desert iguana	*Dipsosaurus dorsalis*
Desert night lizard	*Xantusia vigilis*
Gila monster	*Heloderma suspectum*
Great Basin gopher snake	*Pituophis catenifer deserticola*
Great Basin rattlesnake	*Crotalus oreganus lutosus*
Mojave green rattlesnake	*Crotalus scutulatus*
Smith's black-headed snake	*Tantilla hobartsmithi*
Spotted leaf-nosed snake	*Phyllorhynchus decurtatus*
Sonoran mountain kingsnake	*Lampropeltis pyromelana*
Western banded gecko	*Coleonyx variegatus*
Western brush lizard	*Urosaurus graciosus*
Western diamondback rattlesnake	*Crotalus atrox*
Western red-tailed skink	*Plestiodon gilberti rubricaudatus*
Western threadsnake	*Rena humilis*
Zebra-tailed lizard	*Callisaurus draconoides*

Source: NDOW 2024

Table 3.5-3. Common Fish Species with Potential to Occur in the TMA

Species Common Name	Scientific Name
Bullhead catfish	*Ameiurus melas*
Bluegill sunfish	*Lepomis macrochirus*
Green sunfish	*Lepomis cyanellus*
Rainbow trout	*Oncorhynchus mykiss*

Source: NDOW 2024

3.5.1.4 Nongame Wildlife Species in the TMA

A variety of nongame species (e.g., small mammals, bats, birds, amphibians, reptiles, and invertebrates) inhabit the vegetation communities present in the TMA. Nongame species serve as predators, prey, scavengers, and pollinators in ecosystems.

Small Mammal Species

The TMA provides habitat for many small nongame mammal species, including special status species. A diversity of bat species has potential to occur within the TMA. Foraging habitat for bats includes springs, tinajas, wooded and braided channel floodplains, and the riparian corridors along the rivers (Hoffmeister 1986). Representative small mammal species with potential to occur in the TMA are presented in Table 3.5-4.

Table 3.5-4 Representative Nongame Species with Potential to Occur in the TMA

Species Common Name	Scientific Name
Mammal Species	
American badger	*Taxidea taxus*
Coyote	*Canis latrans*
Dark kangaroo mouse	*Microdipodops megacephalus*
Spotted skunk	*Mephitis mephitis*
Western long-eared bat	*Myotis evotis*
Yellow-bellied marmot	*Marmota flaviventris*
Bird Species	
Cactus wren	*Campylorhynchus brunneicapillus*
Common raven	*Corvus corax*
Killdeer	*Charadrius vociferus*
Mountain bluebird	*Sialia currucoides*
Mountain chickadee	*Parus gambeli*
Mourning dove	*Zenaida macroura*
Roadrunner	*Geococcyx californianus*
Rufous hummingbird	*Selasphorus rufus*
Turkey vulture	*Cathartes aura*
Western kingbird	*Tyrannus verticalis*
Reptile Species	
Western fence lizard	*Sceloporus occidentalis*
Sagebrush lizard	*Sceloporus graciosus*
Racer	*Coluber constrictor*

Source: NDOW 2024

Migratory Bird Species

Most bird species in North America are protected by the Migratory Bird Treaty Act (MBTA) of 1918, as amended. The Bald and Golden Eagle Protection Act of 1940 (BGEPA) and the ESA offer additional protection to certain bird species. The USFWS Information for Planning and Consultation System (IPaC) decision support system was queried to establish a list of threatened, endangered, proposed, and candidate species, designated critical habitats, and BCC species potentially occurring within the TMA (USFWS 2023). Federally listed and candidate species with potential to occur in the TMA are analyzed in Section 3.6, Endangered, Threatened, and Candidate Wildlife Species.

Migratory bird species include shorebirds, waterbirds, waterfowl, passerines (perching birds), and raptors. These species may breed or winter in the vegetation communities present in the

TMA. Raptors typically produce one clutch per year and exhibit high fidelity to nests and breeding territories. For this reason, raptor nests are identified and monitored by a variety of agencies and organizations.

Precipitous rock formations and mature trees provide important nesting sites for raptors. Backwater lakes, riparian vegetation, and desert wash corridors provide suitable habitat for the prey base that supports raptor populations (BLM 1998).

The TMA provides habitat for hundreds of bird species throughout the year, most of which are nongame species. Many of these species breed in the TMA, while others are migrants or are seasonal (summer or winter) residents. The greatest variety and abundance of birds occur in the riparian and wetland habitats, which often provide an oasis within the upland desert scrub habitat. Vegetation communities, including riparian and wetland communities are described in Section 3.4, *Vegetation Resources*.

Amphibian and Reptile Species

Many amphibian and reptile species are abundant and seasonally conspicuous in the TMA, especially the desert-dwelling species. Commonly encountered species are presented in Table 3.5-2. Approximately 2,920 acres of sandstone formations that provide habitat for the banded Gila monster are within the TMA.

3.5.2 Environmental Consequences

Environmental consequences for wildlife species were analyzed based on the miles of designated routes and limitations in the TMA under each alternative. Potential impacts to terrestrial wildlife species were analyzed based on the miles of routes within the vegetation communities in the TMA that provide potential habitat for these species (Section 3.4, *Vegetation Resources*). Potential impacts to aquatic species were calculated based on the number of stream crossings under each alternative, as presented in Section 3.3, *Water Resources*.

3.5.2.1 Impacts Common to All Alternatives

The existing travel route network and associated uses result in impacts to wildlife habitat, some disruption of movement corridors, and disturbance of wildlife. Travel management planning can reduce the level of disturbance that a travel network has on wildlife species and habitats through closure and decommissioning/restoration of routes and management of uses.

Big game, small game, and nongame wildlife species and their habitats would be subject to the same types of potential impacts from route designations and use. Travel route spurs to guzzlers (and springs and livestock waters) would potentially result in disturbance to watering wildlife. Camping in these areas would also be disruptive to watering wildlife species due to the presence of humans and the noise, light, and dust generated by off-road vehicles (BLM 2010).

The types of potential impacts associated with the proposed network and common to all alternatives include disturbance to game and nongame species resulting from OHV use. In addition, the following potential impacts are common to all species and alternatives:

- Soil and vegetation disturbance resulting from route maintenance activities.
- Injury or mortality from collisions with vehicles or by crushing of nests and burrows.
- Habitat loss, degradation, and fragmentation caused by travel routes and uses; and
- Avoidance of otherwise suitable habitat due to disturbance from noise and human activity. Wildlife responses to human disturbance can vary by species according to several factors, including habitat type and the location and duration of disturbance.

Impacts from route closures and other restrictions common to all species and alternatives include:

- Decreased injury or mortality from collisions with vehicles;
- Decreased noise and human activity, which can cause behavioral changes for wildlife species;
- Improved habitat connectivity resulting from active or passive restoration of routes;
- Permanent route closures could result in the removal of previous disturbance impacts and allow wildlife species to return to previously avoided habitats;
- Increased habitat suitability in areas where routes are closed and revegetated; and
- Increased ecosystem resiliency to adverse effects from other natural and anthropogenic disturbances associated with OHV recreation.

Potential impacts to wildlife species and habitats would occur under all alternatives, but to differing degrees. Disturbance to vegetation communities that provide wildlife habitat is discussed in Section 3.4, Upland Vegetation, Special Status Plant Species, and Invasive, Non-native Plant Species. Passive restoration would occur on closed routes, which would reduce previous habitat loss, degradation, and fragmentation. However, remaining routes and route use within potential habitat for wildlife species would continue to cause disturbance to individuals and habitats. Soil and vegetation disturbance would result from route maintenance activities on remaining open routes.

Table 2.1-2 in Appendix B provides a summary of route density, by alternative. Route density is defined as the number of linear route miles per square mile. This metric provides a comparison of habitat disturbance and fragmentation within the TMA.

3.5.2.2 Aquatic Wildlife Species Impact Analysis

Potential impacts to aquatic wildlife species were analyzed based on the number of stream crossings by designated routes within suitable habitats. Some impacts to these species would be common to all alternatives and consistent with the impacts analyzed in Section 3.4, *Water Resources*. These impacts include sedimentation from increased erosion along travel routes and off-route travel areas, resulting in water quality degradation. The potential exists for hazardous

fluid spills (e.g., petroleum products) from motorized vehicles. This impact would be proportional to the number of open and limited routes and the amount of use on each.

Each of the action alternatives would reduce potential impacts to aquatic species through route closures and limitations that reduce the number and use of stream crossings. Where stream crossings occur, bank-stabilizing vegetation may be impacted. A loss of bank vegetation would alter habitat for aquatic species by reducing cover and increasing water temperatures. Water temperature variations can diminish water quality and render streams uninhabitable for fish and aquatic invertebrates. Destabilized banks create erosion and sedimentation in streams, degrading habitat for aquatic species.

The types of impacts to aquatic wildlife species and habitats would occur under all alternatives, but to differing degrees. Suitable habitat for aquatic species is limited in the TMA. No perennial waterways are present (Table 3.3-3). The impacts presented below were analyzed using the stream crossing calculations provided in Section 3.3, *Water Resources*.

None of the alternatives would be expected to directly impact aquatic species. However, watershed-level indirect impacts may occur because of damage to riparian vegetation and potential for runoff and sedimentation to enter these rivers through streams and tributaries affected in the TMA. Impacts to riparian areas would also potentially impact water quality and water temperature, which could have a negligible impact on downstream aquatic habitat (See Section 3.4, *Vegetation Resources*).

3.5.2.3 Important Wildlife Habitats

Wildlife Movement Areas

Table 3.5-6 presents the miles of route designations and limitations within desert bighorn sheep movement areas across alternatives. Each of the action alternatives would reduce the miles of open routes within wildlife movement areas. Alternative C would retain the most open routes of the action alternatives.

Table 3.5-6. Designated Routes and Limitations in Desert Bighorn Sheep Movement Corridors within the TMA, by Alternative[1]

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to all motorized use	None	2.1	2.1	0.2	1.6
Closed to public motorized use	Closed	0	0	0.8	0.1

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to all use seasonally	Seasonal	0	0	1.1	0.4
Totals	**N/A**	**2.1**	**2.1**	**2.1**	**2.1**

[1] Route designations and limitations are described in Chapter 2 of this EA. Only route designations and limitations with mileage under the alternatives are included in this table. Other designations and limitations have no mileage under the alternatives.
Source: BLM 2023
N/A: Not Applicable

3.5.2.4 Big Game Habitats

Human disturbance can cause big game species to disperse from suitable habitat, temporarily forcing them out of sheltered areas with available food sources and leaving them vulnerable to extreme weather and predation. Travel routes crossing big game ranges and movement corridors also reduce, degrade, and fragment habitat. Table 3.5-7 provides a summary of the miles of designated routes and limitations within desert bighorn sheep habitat, by alternative.

Table 3.57. Designated Routes and Limitations in Desert Bighorn Sheep Habitat within the TMA, by Alternative[1]

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to all motorized use	None	169.0	124.9	83.8	104.5
Closed to public motorized use	Closed	0	21.6	65.3	37.7
Open to Motorcycle (Single Track)	Limited	0.6	38.9	24.2	30.3
Open to all use seasonally	Seasonal limitation	0	0	5.8	7.8
Open to authorized users only	Limited	0	11.8	18.3	17.0

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Proposed route	Proposed	27.6	0	0	0
Totals	**NA**	**197.3**	**197.3**	**197.3**	**197.3**

[1] Route designations and limitations are described in Chapter 2 of this EA. Only route designations and limitations with mileage under the alternatives are included in this table. Other designations and limitations have no mileage under the alternatives.
Sources: BLM 2023

3.5.2.5 Migratory Bird Species

The types of impacts to migratory bird species and habitats would occur under all alternatives, but to differing degrees. The types of potential impacts to migratory bird species associated with a travel network and common to all alternatives include the bulleted items in Section 3.5.2.1 and the following:

- Routes traversing occupied raptor breeding habitats have the potential to disrupt courtship, nest site selection, or brood-rearing activities. Raptor species are particularly sensitive to disturbance in the vicinity of active nest sites.
- Nest abandonment (all species) in response to noise and human disturbance.

This section focuses on the environmental consequences of each of the alternatives to migratory bird species. Impacts to migratory bird species and habitats under each alternative were analyzed based on the route miles within the various vegetation communities in the TMA (Section 3.4, *Vegetation Resources*). Route density within the TMA under each alternative was also calculated (Table 2.1-2). These metrics are relative indicators of the level of potential disturbance to migratory bird species and their habitats from route use.

3.5.2.6 Small Game and Other Nongame Species

The types of impacts to small game and other nongame species would be like those described above in Section 3.5.2.1. Impacts to vegetation communities that provide habitat for small game and nongame species are discussed in Section 3.4, Upland Vegetation, Special Status Plant Species, and Invasive, Non-native Plant Species. Route density within the TMA under each alternative was also calculated (Table 2.1-2). These metrics are relative indicators of the level of potential disturbance from designated routes to small game and nongame species and their habitats. Table 3.5-8 presents designated routes and limitations in banded Gila monster habitat within the TMA, by alternative.

Table 3.5-8. Designated Routes and Limitations in Banded Gila Monster Habitat within the TMA, by Alternative[1]

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to all motorized use	None	2.1	2.8	0.2	1.5
Closed to public motorized use	Closed	0	0	1.3	0.1
Open to Motorcycle (Single Track)	Limited	0	0.1	0	0.1
Open to all use seasonally	Seasonal limitation	0	0	1.4	1.2
Proposed route	Proposed	0.8	0	0	0
Totals	**NA**	**2.9**	**2.9**	**2.9**	**2.9**

[1] Route designations and limitations are described in Chapter 2 of this EA. Only route designations and limitations with mileage under the alternatives are included in this table. Other designations and limitations have no mileage under the alternatives.
Sources: BLM 2023

3.5.2.7 Aquatic Wildlife Species

Activities occurring in upland terrestrial habitats can affect water quality and other attributes of aquatic habitats. Some impacts to aquatic wildlife species would be common to all alternatives and consistent with the impacts analyzed in Section 3.3, *Water Resources*. These impacts include increased erosion along travel routes and off-route travel areas, resulting in water quality degradation from sedimentation. The potential exists for hazardous fluid spills (e.g., petroleum products) from motorized vehicles. This impact would be proportional to the number of open routes and the amount of use on each.

Each of the action alternatives would reduce potential impacts to aquatic species through route closures that reduce the number of stream crossings. Where stream crossings occur, bank-stabilizing vegetation may be impacted or removed. A loss of bank vegetation would alter habitat for aquatic species by reducing vegetative cover often resulting in increased water temperatures. Water temperature variations can diminish water quality and render streams uninhabitable for

fish and aquatic invertebrates. Destabilized banks create erosion and sedimentation in streams, degrading habitat for aquatic species.

The types of impacts to aquatic species and habitats would occur under all alternatives, but to differing degrees. The impacts presented below were analyzed using the stream crossing calculations provided in Section 3.3, *Water Resources*.

Watershed-level impacts may occur because of damage to riparian vegetation and potential for runoff and sedimentation to enter rivers through streams and tributaries affected in the TMA. Impacts to riparian areas would also potentially impact water quality and water temperature, which could impact on downstream habitat for aquatic wildlife species.

3.5.2.8 Alternative A (No Action)

Under Alternative A, route use in the TMA would continue and potentially increase (Table 2.1-1, Figure 2). Potential impacts to terrestrial and aquatic wildlife species and habitats would continue and potentially increase with increased route use. Alternative A would have the highest density of routes and resultant habitat loss, degradation, and fragmentation (Table 2.1-2). The number of stream crossings would remain the same, which would be the highest of the four alternatives (Table 3.3-2, *Water Resources*). Potential impacts from hazardous fluid spills (e.g., petroleum products) from motorized vehicles would be highest under this alternative. Implementation of Alternative A would result in a higher level of impact on terrestrial and aquatic wildlife species and their habitats than the other action alternatives.

Continued route use can also increase the potential for spread of invasive, non-native plant species. With no route closures, native vegetation may not re-establish on portions of the route network. Potential impacts to vegetation communities would continue and potentially increase with increased route use (See Section 3.4, Upland Vegetation, Special Status Plant Species, and Invasive, Non-native Plant Species). Impacts to native vegetation communities from fugitive dust would continue to occur along existing routes. Off-route travel by passenger vehicles or OHVs would continue to compact soils, damage biological soil crusts and aid in the distribution of invasive, non-native plant species that may out-compete desired native vegetation.

Table 3.5-6 presents designated routes and limitations in desert bighorn sheep movement corridors within the TMA under Alternative A. Table 3.5-7 designated routes and limitations in desert bighorn sheep habitat within the TMA under Alternative A. Table 3.5-8 presents designated routes and limitations in banded Gila monster habitat within the TMA under Alternative A.

3.5.2.9 Alternative B (Access)

Alternative B prioritizes public access and would implement a transportation network focused on motorized use with minimal restrictions on the type of use. Implementation of Alternative B would maintain the most access of the action alternatives and provide for minimal closures within wildlife habitats (Table 2.1-2 and Figure 3). Implementation of Alternative B would result

in the types of impacts described in Section 3.5.2.1, Impacts Common to All Alternatives. It would result in a reduction in total route miles and density and a decrease in habitat loss, degradation, fragmentation, and human disturbance (Table 2.1-2).

Table 3.5-6 presents designated routes and limitations in desert bighorn sheep movement corridors within the TMA under Alternative B. Table 3.5-7 presents designated routes and limitations in desert bighorn sheep habitat within the TMA under Alternative B. Table 3.5-8 presents designated routes and limitations in banded Gila monster habitat within the TMA under Alternative B.

Impacts to other terrestrial wildlife species are presented as a function of impacts to vegetation communities that serve as habitats for those species (Section 3.4, *Vegetation Resources*).

Alternative B would maintain the most open routes of the action alternatives, providing the potential for dispersed erosion that results from overuse of routes and adverse impacts to the vegetation communities that provide habitat for wildlife species. Under this alternative, routes within the TMA would remain unchanged and impacts to vegetation communities would continue and potentially increase with increased use.

Implementation of Alternative B would minimally reduce the number of stream crossings compared to Alternative A. Reduced stream crossings and passive restoration on closed routes would result in improved habitat for aquatic wildlife species. However, remaining routes and stream crossings would continue to cause a certain level of disturbance to aquatic wildlife species. The number of stream crossing reductions in each HUC 8 watershed (stream crossings that have either been closed or limited in some form) under Alternative B are presented in Table 3.3-4.

Implementation of Alternative B would result in the highest route density of the action alternatives (Table 2.1-2). The closure of routes under Alternative B would reduce the potential for the introduction of non-native species and disturbances associated with road maintenance and herbicide application. Additionally, soil conditions would be expected to improve along closed routes allowing for improved opportunities for establishment of native vegetation. Impacts from fugitive dust would continue along limited and open routes; however, the existing vegetation communities in the TMA are already subjected to these impacts and increased disturbance is expected to be minor.

3.5.2.10 Alternative C (Conservation)

Alternative C is the most restrictive of the action alternatives and would provide the greatest extent of resource protection, while still allowing route use where conflicts with resource protection do not exist. Implementation of Alternative C would preserve and restore the most wildlife habitat of the action alternatives through the closure of selected routes (Table 2.1-1 and Figure 4). Implementation of Alternative C would result in the same types of impacts as described in Section 3.5.2.1, *Impacts Common to All Alternatives*. It would result in a reduction

in total route miles and density and a decrease in habitat loss, degradation, fragmentation, and human disturbance (Table 2.1-2).

Table 3.5-6 presents designated routes and limitations in desert bighorn sheep movement corridors within the TMA under Alternative C. Table 3.5-7 presents designated routes and limitations in desert bighorn sheep habitat within the TMA under Alternative B. Table 3.5-8 presents designated routes and limitations in banded Gila monster habitat within the TMA under Alternative B.

Impacts to other terrestrial wildlife species are presented as a function of impacts to vegetation communities that serve as habitats for those species (Section 3.4, Vegetation Resources). Implementation of Alternative C would have the same types of impacts on game species, nongame species, migratory bird species, and habitats as Alternative A, but to a lesser degree.

Implementation of Alternative C would preserve and restore the most aquatic habitats of the action alternatives through closure of select routes. Reduced stream crossings and passive restoration on closed routes would result in improved habitat for aquatic species. However, remaining routes and stream crossings would continue to cause a certain level of disturbance to aquatic species. The number of stream crossing reductions (stream crossings that have either been closed or limited in some form) under Alternative C are presented in Table 3.3-4.

Implementation of Alternative C would result in the lowest route density of the action alternatives (Table 2.1-2). The closure of routes under Alternative C would reduce the potential for the introduction of non-native plant species and disturbances associated with route use. Additionally, soil conditions would be expected to improve along closed routes allowing for improved opportunities for establishment of native vegetation. Impacts from fugitive dust would continue along limited and open routes; however, the existing vegetation communities in the TMA are already subjected to these impacts and increased disturbance is expected to be minor.

Under Alternative C, additional use limitations or closures would be applied to reduce harmful impacts in areas within the TMA with sensitive resources. This alternative would provide for route network connectivity and meet use needs while curbing impacts such as dispersed erosion that results from overuse of routes.

3.5.2.11 Alternative D (Blended)

Alternative D emphasizes mixed levels of public access and resource protection. Under Alternative D, there would be fewer open routes within wildlife habitats and route density would be reduced by closing routes and allowing them to passively restore (Table 2.1-2 and Figure 5). Implementation of Alternative D would result in the same types of impacts as described in the Impacts Common to All Alternatives Section 3.6.2.1. It would result in a reduction in total route miles and density and a decrease in habitat loss, degradation, fragmentation, and human disturbance (Table 2.1-2).

Table 3.5-6 presents designated routes and limitations in desert bighorn sheep movement corridors within the TMA under Alternative C. Table 3.5-7 presents designated routes and limitations in desert bighorn sheep habitat within the TMA under Alternative B. Table 3.5-8 presents designated routes and limitations in banded Gila monster habitat within the TMA under Alternative B.

Impacts to other terrestrial wildlife species are presented as a function of impacts to vegetation communities that serve as habitats for those species (Section 3.4, Vegetation Resources). Implementation of Alternative D would have the same types of impacts on migratory bird, small game, and nongame species and habitats as Alternative A, but to a lesser degree.

Under Alternative D, there would be fewer open routes crossing potential habitat for aquatic species and route density would be reduced by closing and decommissioning routes. Reduced stream crossings and passive restoration on closed routes would result in improved habitat for aquatic species. However, remaining routes and stream crossings would continue to cause a certain level of disturbance to aquatic species. The number of stream crossing reductions (stream crossings that have either been closed or limited in some form) under Alternative D are presented in Table 3.3-4. Reduced stream crossings and passive restoration on closed routes would result in improved habitat for aquatic species. However, remaining routes and stream crossings would continue to cause a certain level of disturbance.

3.5.3 Cumulative Impacts

Past and present activities such as vegetation treatments and recreational OHV use resulted in habitat loss, degradation, and fragmentation within the CIAA.

RFFAs such as renewable energy development within the adjacent Dry Lake Solar Energy Zone would continue to contribute to cumulative impacts to wildlife species due to a loss of vegetation, continued habitat degradation and fragmentation, a decrease in grazing/browsing areas, and potential mortality from vehicle collisions.

Cumulative impacts associated with the alternatives would be similar. The Proposed Action would be confined to the TMA that includes the three draws. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMP is not anticipated to contribute to cumulative impacts to terrestrial wildlife species and habitats.

Past, present, and RFFAs, including uses on the current transportation network, have fragmented and degraded wildlife habitat within the TMA. RFFAs that involve vegetation removal would continue to contribute to cumulative impacts to wildlife species and habitats. Habitat fragmentation would continue and increase accordingly because of vegetation removal, potential increases in invasive, non-native species, and increased recreational use. RFFAs would decrease wildlife grazing, browsing, and foraging habitat and increase the potential for wildlife mortality

from motor vehicle collisions. Noise and human disturbance from RFFAs would combine with the current and increasing level of disturbance from recreational and other route uses.

The National Audubon Society produces a Climate Change Report entitled Survival by Degrees: 389 Bird Species on the Brink (National Audubon Society 2019). This report identifies bird species that are at risk of impacts from climate change. Species are identified as having high vulnerability, moderate vulnerability, low vulnerability to climate change or with populations that are apparently stable. According to this report, the types of climate change impacts on bird species include the following:

- Wildfires incinerate habitat and if they burn repeatedly, prevent it from recovering.
- Spring heat waves endanger young birds in the nest.
- Urbanization destroys habitat in areas that birds require for breeding, nonbreeding, and migration seasons.

Implementation of the TMP would incrementally reduce the existing levels of disturbance and habitat fragmentation by closing or limiting route use and restoring previous disturbance to vegetation communities. Habitat loss, degradation, and fragmentation would decrease when routes are closed (transportation linear disturbances), or use is limited to non-motorized or non-mechanized use.

Past, present, and RFFAs, including uses on the current transportation network, have fragmented and degraded wildlife habitat within the TMA. RFFAs that involve vegetation removal would continue to contribute to cumulative impacts to special status species and habitats. Habitat fragmentation would continue and increase accordingly because of vegetation removal, potential increases in invasive, non-native species, and increased recreational use. RFFAs would decrease special status wildlife species habitat and increase the potential for mortality from motor vehicle collisions. Noise and human disturbance from RFFAs would combine with the current and increasing level of disturbance from recreational and other route uses.

Implementation of the TMP would incrementally reduce the existing levels of disturbance and habitat fragmentation by closing or limiting route use and restoring previous disturbance to vegetation communities. Habitat loss, degradation, and fragmentation would decrease when routes are closed, or use is limited.

3.6 Special Status Species

Issue: How would route designation and implementation of the TMP affect federally listed and candidate species, BLM Sensitive Species, and their habitats within the TMA?

3.6.1 Affected Environment

Special status species are those wildlife and plant species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. BLM special status species (BLM Sensitive Species) are designated by the BLM State Director in accordance with the

criteria provided in the revised Special Status Species Management Manual (BLM 2008), which defines BLM special status species as 1) species listed or proposed for listing under the ESA, and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA of 1973. Special status species/subspecies/taxon (species) analyzed in this section include BLM Sensitive species, Species of Greatest Conservation Need (SGCN), USFWS BCC, and raptor species.

The LVFO conducts management for the conservation of state-listed plant and wildlife species. State laws protecting these species apply to all BLM programs and actions to the extent that they are consistent with FLPMA (43 United States Code [U.S.C.] 1701 et seq. [BLM 1976]) and other federal laws.

3.6.1.1 Federally Listed Species

A U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) report was generated for the TMA to identify listed species and designated critical habitat that may occur (USFWS 2023a). Federally listed and candidate wildlife species documented or with potential to occur in the TMA are presented in Table 3.6-1. No designated critical habitats are within the TMA. The following section presents general life history and habitat information for federally listed and candidate species that may occur within the TMA.

Table 3.6-1. Federally Listed and Candidate Wildlife Species with Potential to Occur in the TMA

Species Common Name	Scientific Name	Federal Status	Designated Critical Habitat in TMA	Carried Forward for Further Analysis
Birds				
Southwestern willow flycatcher	*Empidonax traillii extimus*	Endangered	No	Yes
Yellow-billed cuckoo (Western DPS)	*Coccyzus americanus*	Threatened	No	Yes
Yuma Ridgway's rail	*Rallus obsoletus yumanensis*	Endangered	No	No
Fish				
Moapa dace	*Moapa coriacea*	Endangered	No	No
Reptiles				
Mojave desert tortoise	*Gopherus agassizii*	Threatened	No	Yes
Invertebrates				
Monarch butterfly	*Danaus plexippus*	Candidate	No	Yes

Sources: BLM 2023, USFWS 2023a
DPS – Distinct Population Segment

Southwestern Willow Flycatcher

The southwestern willow flycatcher is a riparian obligate subspecies, breeding only in dense riparian vegetation near a permanent or semipermanent source of water or saturated soils throughout the southwestern United States. Southwestern willow flycatchers are found below 8,500 feet in elevation, where there is suitable breeding habitat of dense riparian tree and shrub communities (cottonwood, willow, and tamarisk) along streams, rivers, or other wetlands. This subspecies is not typically found nesting in areas without willows, tamarisk, or both (USFWS 2023b).

Southwestern willow flycatchers nest primarily in swamp thickets of willow or tamarisk 13 to 23 feet or more in height. Habitat patches as small as 1.2 acres can support one to two nesting pairs. This subspecies nests in a branch fork or on a horizontal limb of a small tree, shrub, or vine, at a height of 1.6 to 21 feet, with dense vegetation above and around the nest. The southwestern willow flycatcher consumes mainly insects caught in flight, sometimes gleans insects from foliage, and occasionally has been documented eating berries from riparian vegetation (Sogge et al. 2010).

The southwestern willow flycatcher winters in Mexico, Central America, and northern South America. Migrating southwestern willow flycatchers use a variety of stop-over areas, which can be both riparian and non-riparian habitats or patches (small areas of riparian vegetation) not typically suitable for nesting. Such migration stop-over areas may be critically important resources affecting productivity and survival (USFWS 2002).

Approximately 1,186 acres of riparian habitat is within the TMA, found along 27 miles of intermittent stream/river waterways and 479 acres of ephemeral stream/river waterways (NWI 2021, USGS NHD 2023, BLM 2023). USGS LANDFIRE EVT data Table 3.4-1) does not list willow or tamarisk habitat within the TMA. It is possible that the shrub species that are present within the TMA could provide migratory or non-breeding habitat for this species.

Yellow-billed Cuckoo (Western Distinct Population Segment)

The yellow-billed cuckoo winters in Central and South America and migrates north to breed from northern Mexico to southern Canada. The species feeds on large insects and small amphibians and reptiles, including caterpillars, grasshoppers, moths, crickets, beetles, flies, spiders, frogs, and small lizards (USFWS 2023c).

Yellow-billed cuckoos are associated with cottonwood-willow dominated riparian habitat. The species breeds in lowland riparian woodlands below 7,000 feet in elevation that contain a variable combination of Fremont cottonwood, willow, mesquite, velvet ash, and tamarisk (Corman 2005). Suitable breeding habitat for this species is not likely present within the TMA. It is possible that the shrub species that are present within the TMA could provide migratory or non-breeding habitat for this species.

Yellow-billed cuckoos are long-distance migrants and arrive on the breeding grounds beginning in mid- to late May, nest from June to August, and depart the breeding grounds by mid-September. During migration, yellow-billed cuckoos use a variety of riparian habitat corridors, including remnant riparian habitats (Corman 2005).

Approximately 1,186 acres of riparian habitat is within the TMA, found along 27 miles of intermittent stream/river waterways and 479 acres of ephemeral stream/river waterways (NWI 2021, USGS NHD 2023, BLM 2023).

Yuma Ridgway's Rail

The Yuma Ridgway's rail primarily occurs along the Colorado River and its tributaries in southern Nevada. Suitable cattail marsh habitat that is interspersed with open water is not present in the TMA. The Yuma Ridgway's rail is not carried forward for further analysis in this EA.

Reptile Species

Mojave Desert Tortoise

The Mojave desert tortoise primarily occurs in the Mojave Desert north and west of the Colorado River. A total of 89,414 acres of modelled high value contiguous habitat for the species are within the TMA (USGS 2020). Desert tortoises require cover and shade to regulate their body temperatures, avoid predators, and reduce water loss. They dig burrows, but will also use rock shelters, plant cover, and artificial shade. Young tortoises will use rodent burrows rather than digging their own. Desert tortoises are herbivores and require an abundance of annual forbs and other vegetation (NDOW 2022).

Fish Species

Moapa Dace

The Moapa dace is endemic to the thermal headwaters of the Muddy River and the mainstem Muddy River. Suitable habitat includes shallow, fast, thermal, clear flowing water with a substrate of mud, sand, gravel, or pebble (NDOW 2022). Waterways in the TMA include intermittent and ephemeral streams/rivers (Table 3.3-3). Suitable habitat for this species is not present in the TMA. The Moapa dace is not carried forward for further analysis in this EA (See Table 3.6-1 in Appendix B).

Invertebrate Species

Monarch Butterfly

The monarch butterfly has a complex, multi-generational migratory life cycle. Suitable breeding habitat for the monarch butterfly includes vegetative communities that contain milkweed. Winter habitat for the species is in high-altitude forests in Mexico and coastal California (NatureServe

Explorer 2023). The species has potential to occur in the TMA in vegetative communities that contain milkweed. No critical habitat is currently proposed for designation for the species.

3.6.1.2 BLM Sensitive, Species of Greatest Conservation Need, Birds of Conservation Concern, Nevada Protected Species, and Raptor Species

Table 3.5-5 presents special status wildlife species with potential to occur in the TMA. Raptor species with potential to occur in suitable habitat in the TMA are included in this analysis because seasonal and spatial restrictions are typically recommended to protect raptor nests. Suitable habitat for special status species is assumed to be present in the various vegetation communities and water resources in the TMA (Section 3.4, Vegetation Resources; Section 3.3 Water Resources).

Table 3.5-5. Special Status Wildlife Species with Potential to Occur in the TMA

Common Name	Scientific Name	Status
Mammals		
Allen's big-eared bat (Allen's lappet-browed bat)	*Idionycteris phyllotis*	SGCN, BLM, PM
Belted range pocket gopher	*Thomomys bottae nanus*	BLM
Big free-tailed bat	*Nyctinomops macrotis*	SGCN, BLM
Brazilian free-tailed bat	*Tadarida brasiliensis*	PM
California leaf-nosed bat	*Macrotus californicus*	SGCN, BLM, SM
California myotis	*Myotis californicus*	BLM
Canyon bat	*Parastrellus hesperus*	SGCN, BLM
Cave myotis	*Myotis velifer*	SGCN, BLM, SGCN Tier 2
Dark kangaroo mouse	*Microdipodops megacephalus*	SGCN, BLM
Desert bighorn sheep	*Ovis canadensis*	SGCN, BLM, GM
Desert kangaroo rat	*Dipodomys deserti*	SGCN, BLM
Desert pocket mouse	*Shaetodipus penicillatus*	SGCN, BLM
Fringed myotis	*Myotis thysanodes*	SGCN, BLM, PM
Greater bonneted bat	*Eumops perotis*	SGCN, BLM
Hoary bat	*Lasiurus cinereus*	SGCN, BLM
Inyo shrew	*Sorex tenellus*	SGCN, BLM
Little brown bat	*Myotis lucifugus*	SGCN, BLM
Long-eared myotis	*Myotis evotis*	BLM
Long-legged myotis	*Myotis volans*	SGCN, BLM
Kawich pocket gopher	*Thomomys bottae brevidens*	BLM
Merriam's shrew	*Sorex merriami*	SGCN, BLM

Common Name	Scientific Name	Status
Mexican free-tailed bat	*Tadarida brasiliensis*	SGCN, BLM, PM
Pale kangaroo mouse	*Microdipodops pallidus*	PM
Pallid bat	*Antrozous pallidus*	SGCN, BLM, PM
Panamint kangaroo rat	*Dipodomys panamintinus*	SGCN, BLM
Silver-haired bat	*Lasionycteris noctvagans*	SGCN, BLM
Spotted bat	*Euderma maculatum*	SGCN, BLM, TM
Townsend's big-eared bat	*Corynorhinus townsendii*	SGCN, BLM, SM
Western red bat	*Lasiurus blossevillii*	SGCN, BLM, SM
Western small-footed myotis	*Myotis ciliolabrum*	SGCN, BLM
Yuma myotis	*Myotis yumanensis*	SGCN, BLM
Birds		
American avocet	*Recurvirostra americana*	SGCN, BCC, MBTA
American bittern	*Botaurus lentginosus*	SCP, MBTA
American white pelican	*Pelecanus erythrorhynchos*	SGCN, MBTA
American kestrel	*Falco sparverius*	SGCN, MBTA, raptor
American peregrine falcon	*Falco peregrinus anatum*	SCP, BLM, EB, MBTA, raptor
Arizona Bell's vireo	*Vireo bellii arizonae*	SGCN, BLM, MBTA
Bald eagle	*Haliaeetus leucocephalus*	BGEPA, State Endangered, SGCN, BLM, MBTA
Bank swallow	*Riparia riparia*	SGCN, BLM, MBTA
Barn owl	*Tyto alba*	MBTA, raptor
Bendire's thrasher	*Toxostoma bendirei*	State Threatened, SGCN, BLM, BCC, MBTA
Black tern	*Chlidonias niger*	SGCN, MBTA
Black-chinned sparrow	*Spizella atrogularis*	SGCN, BLM, BCC, MBTA
Black-throated gray warbler	*Setophaga nigrescens*	SGCN, BLM, MBTA
Brewer's sparrow	*Spizella breweri*	SGCN, BLM, SB, MBTA
Broad-tailed hummingbird	*Selasphorus platycercus*	BLM, MBTA
Canvasback	*Aythya valisineria*	SGCN, MBTA
Cassin's finch	*Haemorhous cassinii*	SGCN, BLM, MBTA
Clark's grebe	*Aechmophorus clarkii*	BCC, MBTA
Common nighthawk	*Chordeiles minor*	SGCN, BLM, MBTA
Cooper's hawk	*Accipiter cooperii*	MBTA, raptor

Common Name	Scientific Name	Status
Costa's hummingbird	*Melanerpes uropygialis*	SGCN, BCC, MBTA
Crissal thrasher	*Toxostoma crissale*	SGCN, BLM, MBTA
Ferruginous hawk	*Buteo regalis*	SGCN, BLM, MBTA, raptor
Flammulated owl	*Psiloscops flammeolus*	SGCN, BLM, MBTA, raptor
Gila woodpecker	*Melanerpes uropygialis*	BCC, MBTA
Gilded flicker	*Colaptes chrysoides*	SGCN, BLM, MBTA
Golden eagle	*Aquila chrysaetos*	BGEPA, SGCN, BLM, MBTA
Grace's warbler	*Setophaga graciae*	SGCN, BLM, MBTA
Great Basin willow flycatcher	*Empidonax traillii adastus*	SGCN, BLM, MBTA
Great horned owl	*Bubo virginianus*	MBTA, raptor
Le Conte's thrasher	*Toxostoma lecontei*	SGCN, BLM, BCC, MBTA
Lewis's woodpecker	*Melanerpes lewis*	SGCN, BLM, BCC, MBTA
Loggerhead shrike	*Lanius ludovicianus*	SGCN, BLM, SB, MBTA
Long-billed curlew	*Numenius americanus*	SGCN, BLM, MBTA
Long-billed dowitcher	*Limnodromus scolopaceus*	SGCN, MBTA
Long-eared owl	*Asio otus*	SGCN, BLM, BCC, MBTA, raptor
Marbled godwit	*Limosa fedoa*	BCC, MBTA
Merlin	*Falco columbarius*	MBTA, raptor
American goshawk	*Accipiter tricapillus*	SGCN, MBTA, raptor
Northern harrier	*Circus hudsonius*	MBTA, raptor
Northern pintail	*Anas acuta*	SGCN, MBTA
Northern pygmy-owl	*Glaucidium gnoma*	SGCN, MBTA, raptor
Northern saw-whet owl	*Aegolius acadicus*	MBTA, raptor
Olive-sided flycatcher	*Contopus cooperi*	SGCN, BLM, MBTA
Osprey	*Pandion haliaetus*	MBTA, raptor
Phainopepla	*Phainopepla nitens*	BLM, BCC, MBTA
Pinyon jay	*Gymnorhinus cyanocephalus*	SGCN, BLM, BCC, MBTA
Prairie falcon	*Falco mexicanus*	SGCN, MBTA, raptor
Redhead	*Aythya americana*	BCC, MBTA
Red-shouldered hawk	*Buteo lineatus*	MBTA, raptor
Red-tailed hawk	*Buteo jamaicensis*	MBTA, raptor
Rough-legged hawk	*Accipiter striatus*	MBTA, raptor

Common Name	Scientific Name	Status
Sagebrush sparrow	*Artemisiospiza nevadensis*	SGCN, BLM, MBTA
Sage thrasher	*Oreoscoptes montanus*	SGCN, BLM, SB, MBTA
Scott's oriole	*Icterus parisorum*	SGCN, BLM, BCC, MBTA
Sharp-shinned hawk	*Accipiter striatus*	MBTA, raptor
Short-eared owl	*Asio fammeus*	SGCN, BLM, MBTA, raptor
Swainson's hawk	*Buteo swainsoni*	SGCN, BLM, MBTA, raptor
Verdin	*Auriparus flaviceps*	BLM, BCC, MBTA
Virginia's warbler	*Vermivora virginae*	SGCN, BLM, BCC, MBTA
Western burrowing owl	*Athene cunicularia*	SGCN, BLM, BCC, MBTA, raptor
Western grebe	*Tringa semipalmata*	BCC, MBTA
Western screech-owl	*Otus kennicottii*	MBTA, raptor
Western snowy plover	*Charadrius nivosus nivosus*	SGCN, BLM, BCC, MBTA
Willet	*Tringa semipalmata*	BCC, MBTA
Wilson's phalarope	*Phalaropus tricolor*	SGCN, MBTA
Reptiles		
Banded Gila monster	*Heloderma suspectum cinctum*	SGCN, BLM, PR
Common chuckwalla	*Sauromalus ater*	SGCN, BLM
Desert horned lizard	*Phrynosoma platyrhinos*	SGCN
Desert iguana	*Dipsosaurus dorsalis*	SGCN, BLM
Desert night lizard	*Xantusia vigilis*	SGCN
Desert rosy boa	*Lichanura trivirgata*	BLM
Gilbert's skink	*Plestiodon gilberti rubricaudatus*	SGCN, BLM
Great Basin collared lizard	*Crotaphytus bicinctores*	SGCN
Mojave fringe-toed lizard	*Uma scoparia*	SGCN, BLM
Mojave shovel-nosed snake	*Chionactis occipitalis talpina*	SGCN, BLM
Ring-necked snake	*Diadophis punctatus*	SGCN, BLM
Sidewinder	*Crotalus cerastes*	SGCN
Amphibians		
Arizona toad	*Anaxyrus microscaphus*	SGCN, BLM
Great Basin spadefoot	*Spea intermontana*	SGCN
Great Plains toad	*Anaxyrus cognatus*	SGCN, BLM

Common Name	Scientific Name	Status
Northern leopard frog	*Lithobates pipiens*	SGCN, BLM
Red-spotted toad	*Anaxyrus punctatus*	SGCN
Relict leopard frog	*Lithobates onca*	SGCN, BLM, PA
Western toad	*Anaxyrus boreas*	SGCN, BLM
Fish Species		
Flannelmouth sucker	*Catostomus latipinnis*	SGCN, BLM
Moapa speckled dace	*Rhinichthys osculus moapae*	SGCN, BLM, SF
Oasis Valley speckled dace	*Rhinichthys osculus ssp. 6*	SGCN, BLM, SF
Virgin River chub (Muddy River population)	*Gila seminuda pop. 2*	SGCN, BLM, SF
Invertebrate Species		
A Perdita bee	*Perdita stephanomeriae*	BLM
Amargosa miloderes weevil	*Miloderes amargosensis*	BLM
Amargosa tyronia	*Tryonia variegata*	SGCN, BLM
Apache plume fairy bee	*Perdita fallugiae*	BLM
Atomic tarantula	*Aphonopelma atonicum*	BLM
Big-headed perdita	*Perdita cephalotes*	SGCN, BLM
Carole's fritillary	*Argynnis coronis ssp. carolae*	BLM
Crystal springsnail	*Pyrgulopsis crystalis*	SGCN, BLM
Distal-gland springsnail	*Pyrgulopsis nanus*	SGCN, BLM
Dune honey ant	*Myrmecocystus arenarius*	BLM
Eastern desert snail	*Eremarionta rowelli*	BLM
Elongate-gland springsnail	*Pyrgulopsis isolata*	SGCN, BLM
Giuliani's dune scarab	*Pseudocotalpa giulianii*	BLM
Grand Wash springsnail	*Pyrgulopsis bacchus*	SGCN, BLM
Grated tyronia	*Tryonia clathrata*	SGCN, BLM
Gypsum booklouse	*Speleketor flocki*	BLM
Interior tiger beetle	*Parvindela terricola continua*	BLM
Knight's aegialian scarab	*Aegialia knigti*	BLM
Large aegialian scarab	*Aegialia magnifica*	BLM
Las Vegas fairy bee	*Perdita cracens*	BLM
Leaf beetle species	*Trirhabda gurneyi*	BLM
MacNeill's sootywing	*Hesperopsis gracielae*	BLM

Common Name	Scientific Name	Status
May beetle species	*Phyllophaga benwarneri*	BLM
Median-gland springsnail	*Pyrgulopsis pisteri*	SGCN, BLM
Mercury miloderes weevil	*Miloderes mercuryensis*	BLM
Moapa fairy bee	*Perdita fulvescens*	SGCN, BLM
Moapa mydas fly	*Rhaphiomidas moapa*	BLM
Moapa pebblesnail	*Pyrgulopsis avernalis*	SGCN, BLM
Moapa poppy bee	*Perdita meconis*	SGCN, BLM
Moapa warm spring riffle beetle	*Stenelmis moapa*	BLM
Mojave gypsum bee	*Andrena balsamorhizae*	SGCN, BLM
Mojave mountain fairy bee	*Perdita vicina*	BLM
Mojave twilight bee	*Perdita celadona*	BLM
Neararctic riffle beetle	*Stenelmis occidentalis*	BLM
Nevada admiral	*Limenitis Archippus obsoleta*	BLM
Prodigious fairy bee	*Perdita prodigiosa*	BLM
Red-tailed blazing star bee	*Megandrena mentzeliae*	BLM
Red Rock Canyon amphipod	*Hyalella azteca sp. 33*	BLM
Robber fly species	*Stackelberginia cerberus*	BLM
Sanchez pyrg	*Pyrgulopsis sanchezi*	SGCN, BLM
Sin City scorpion	*Pseudouroctonus peccatum*	BLM
Southwest Nevada pyrg	*Pyrgulopsis turbatrix*	SGCN, BLM
Southwest viceroy butterfly	*Limenitis Archippus obsoleta*	BLM
Sportinggoods tyronia	*Tryonia angulata*	SGCN, BLM
Spurge-loving perdita	*Perdita euphorbiae*	SGCN, BLM
Tiquilia fairy bee	*Perdita exusta*	BLM
Two-tine fairy bee	*Perdita bipicta*	BLM

Sources: BLM 1998, BLM 2023, USFWS 2021 BCC, NDOW 2024a, NDOW 2022, NDNH 2021
BLM: BLM Sensitive Species verified presence in the Southern Nevada District Office
SGCN = Nevada Species of Greatest Conservation Need, BCC = Birds of Conservation Concern; BGEPA = Bald and Golden Eagle Protection Act; MBTA = Migratory Bird Treaty Act; SF = NDOW Sensitive Fish; PA = NDOW Protected Amphibian; PR = NDOW Protected Reptile; SB = NDOW Sensitive Bird; EB = NDOW Endangered Bird; PM = NDOW Protected Mammal; SM = NDOW Sensitive Mammal; TM = Threatened Mammal

BLM Sensitive Species

BLM Sensitive species include those species listed as proposed, candidate, threatened, or endangered under the ESA, as well as those species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the

ESA. The BLM often includes state-listed species on the sensitive species list when habitat for those species overlaps with BLM-administered lands. In addition, all species delisted under the ESA would be conserved as BLM Sensitive species in the five years following delisting. Land use planning decisions are consistent with BLM's mandate to protect and recover species listed under the ESA and with objectives and recommended actions in approved recovery plans, conservation agreements and strategies, Memorandums of Understanding (MOUs), and applicable Biological Opinions for threatened or endangered species. BLM Sensitive species with potential to occur in the TMA were determined by reviewing the species documented in the Southern Nevada District Office (BLM 2023).

The TMA encompasses potentially suitable habitat for 167 special status wildlife species (non-federally listed) (Table 3.5-5). These special status species can be grouped as follows: 31 mammal species (20 are bat species), 66 bird species, 12 reptile species, seven amphibian species, four fish species, and 47 invertebrate species.

Species of Conservation Priority

The Nevada State Wildlife Action Plan (SWAP) (NDOW 2022) designates Species of Greatest Conservation Need (SGCN). NDOW also designates State of Nevada Protections and Designations per Nevada Administrative Code (NAC) 503. Table 3.5-5 presents SGCN and State protected species with potential to occur in the TMA.

Birds of Conservation Concern

The USFWS identifies BCC as avian species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973 (USFWS 2021). The TMA falls within Bird Conservation Region 33: Sonoran and Mohave Deserts. Table 3.5-5 presents BCC species with potential to occur within the TMA during some or all of their life stages.

Raptor Species

Nesting, foraging, migration, and winter habitats for common and special status raptor species are present throughout the TMA. Raptor species with potential to occur in the TMA include breeding, non-breeding, year-round resident, and migratory species. Although bald and golden eagles are not listed under the ESA, they are afforded Federal protections under the BGEPA and the MBTA.

3.6.2 Environmental Consequences

3.6.2.1 Impacts Common to All Alternatives

Potential impacts to federally listed and candidate species were analyzed based on the miles of designated routes and limitations within suitable habitat for those species. The existing travel route network and associated uses result in impacts to wildlife habitat, some disruption of movement corridors, and disturbance of wildlife. Travel management planning can reduce the

level of disturbance that a travel network has on wildlife species and habitats through closure and decommissioning/restoration of routes and management of uses.

Terrestrial wildlife species and their habitats would be subject to the same types of potential impacts from route designations and use. Travel route spurs to water sources (springs, guzzlers, livestock water sources) would potentially result in disturbance to watering wildlife. Camping in these areas would also be disruptive to wildlife species due to the presence of humans and the noise, light, and dust generated by off-road vehicles (BLM 2010).

The types of potential impacts associated with the proposed network and common to all alternatives include disturbance to wildlife species resulting from OHV use. In addition, the following potential impacts are common to all species and alternatives:

- Soil and vegetation disturbance resulting from route use and maintenance activities;
- Injury or mortality from collisions with vehicles or by crushing of nests and burrows;
- Habitat loss, degradation, and fragmentation caused by travel routes and uses; and
- Avoidance of otherwise suitable habitat due to disturbance from noise and human activity. Wildlife responses to human disturbance can vary by species according to several factors, including habitat type and the location and duration of disturbance.

Impacts from route closures and other restrictions common to all species and alternatives include:

- Decreased injury or mortality from collisions with vehicles;
- Decreased noise and human activity, which can cause behavioral changes for wildlife species;
- Improved habitat connectivity resulting from active or passive restoration of routes;
- Permanent route closures could result in the removal of previous disturbance impacts and allow wildlife species to return to previously avoided habitats;
- Increased habitat suitability in areas where routes are closed and revegetated; and
- Increased ecosystem resiliency to adverse effects from other natural and anthropogenic disturbances associated with OHV recreation.

Potential impacts to wildlife species and habitats would occur under all alternatives, but to differing degrees. Disturbance to vegetation communities that provide wildlife habitat is discussed in Section 3.4, *Vegetation*. Passive restoration would occur on closed routes, which would reduce previous habitat loss, degradation, and fragmentation. However, remaining routes and route use within potential habitat for wildlife species would continue to cause disturbance to individuals and habitats. Soil and vegetation disturbance would result from route maintenance activities on remaining open routes.

Table 2.1-2 provides a summary of route density, by alternative. Route density is defined as the number of linear route miles per square mile. This metric provides a comparison of habitat disturbance and fragmentation within the TMA.

3.6.2.2 Alternative A (No Action)

Under Alternative A, route use in the TMA would continue and potentially increase (Table 2.1-1, Figure 2). Potential impacts to terrestrial wildlife species and habitats would continue and potentially increase with increased route use. Alternative A would have the highest density of routes and resultant habitat loss, degradation, and fragmentation (Table 2.1-2). The number of stream crossings would remain the same, which would be the highest of the four alternatives (Table 3.3-4). Potential impacts from hazardous fluid spills (e.g., petroleum products) from motorized vehicles would be highest under this alternative. Implementation of Alternative A would result in a higher level of impact on terrestrial wildlife species and their habitats than the other action alternatives.

Continued route use can also increase the potential for spread of invasive, non-native plant species. With no route closures, native vegetation may not re-establish on portions of the route network. Potential impacts to vegetation communities would continue and potentially increase with increased route use. Impacts to native vegetation communities from fugitive dust would continue to occur along existing routes. Off-route travel by passenger vehicles or OHVs would continue to compact soils, damage biological soil crusts and aid in the distribution of invasive, non-native plant species that may out-compete desired native vegetation.

Table 3.6-2 presents the designated routes and limitations in Mojave Desert Tortoise Modelled Habitat within the TMA under each alternative.

Table 3.6-2. Designated Routes and Limitations in Mojave Desert Tortoise Modelled Habitat within the TMA, by Alternative[1]

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to all motorized use	None	142.6	97.5	57.4	77.4
Closed to public motorized use	Closed	0	21.1	63.6	43.4
Open to Motorcycle (Single Track)	Limited	0.6	34.7	21.3	26.1
Open to authorized users only	Limited	0	11.2	18.4	14.4
Open to all use seasonally	Seasonal limitation	0	0	3.9	3.3

OHV Designation	Limitation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Proposed route	Proposed	21.3	0	0	0
Total	**NA**	**164.6**	**164.6**	**164.6**	**164.6**

[1] Route designations and limitations are described in Chapter 2 of this EA. Only route designations and limitations with mileage under the alternatives are included in this table. Other designations and limitations have no mileage under the alternatives.
Sources: BLM 2023

3.6.2.3 Alternative B (Access)

Alternative B prioritizes public access and would implement a transportation network focused on motorized use with minimal restrictions on the type of use. Implementation of Alternative B would maintain the most access of the action alternatives and provide for minimal closures within wildlife habitats (Table 2.1-2 and Figure 3). Implementation of Alternative B would result in the types of impacts described in Section 3.6.2.1, Impacts Common to All Alternatives. It would result in a slight reduction in total route miles and density and a slight decrease in habitat loss, degradation, fragmentation, and human disturbance (Table 2.1-2).

Table 3.6-2 presents the designated routes and limitations in Mojave Desert Tortoise Modelled Habitat within the TMA under Alternative B.

Alternative B would maintain the most open routes of the action alternatives, providing the potential for illegal off-route use and adverse impacts to the vegetation communities that provide habitat for wildlife species. Under this alternative, routes within the TMA would remain unchanged and impacts to vegetation communities would continue and potentially increase with increased use.

Implementation of Alternative B would minimally reduce the number of stream crossings compared to Alternative A. Reduced stream crossings and passive restoration on closed routes could result in improved habitat for the southwestern willow flycatcher and western yellow-billed cuckoo. However, remaining routes and intermittent stream crossings could continue to cause a certain level of disturbance to these species. The number of stream crossing reductions in each HUC 8 watershed (stream crossings that have either been closed or limited in some form) under Alternative B are presented in Table 3.3-4.

Implementation of Alternative B would result in the highest route density of the action alternatives (Table 2.1-2) The closure of routes under Alternative B would reduce the potential for the introduction of non-native species and disturbances associated with route use. Additionally, soil conditions would be expected to improve along closed routes allowing for improved opportunities for establishment of native vegetation. Impacts from fugitive dust would

continue along limited and open routes; however, the existing vegetation communities in the TMA are already subjected to these impacts and increased disturbance is expected to be minor.

3.6.2.4 Alternative C (Conservation)

Alternative C is the most restrictive of the action alternatives and would provide the greatest level of resource protection, while still allowing route use where conflicts with resource protection are minimized or avoided. Implementation of Alternative C would preserve and restore the most wildlife habitat of the action alternatives through the closure of selected routes (Table 2.1-1 and Figure 4). Implementation of Alternative C would result in the same types of impacts as described in the Impacts Common to All Alternatives Section 3.6.2.1. It would result in a reduction in total route miles and density and a decrease in habitat loss, degradation, fragmentation, and human disturbance (Table 2.1-2).

Table 3.6-2 presents the designated routes and limitations in Mojave Desert Tortoise Modelled Habitat within the TMA under Alternative C.

Implementation of Alternative C would preserve and restore the most aquatic habitats of the action alternatives through closure of select routes. Reduced stream crossings and passive restoration on closed routes could result in reduced habitat fragmentation for the southwestern willow flycatcher and western yellow-billed cuckoo. However, remaining routes and stream crossings could continue to cause a certain level of disturbance to these species. The number of stream crossing reductions (stream crossings that have either been closed or limited in some form) under Alternative C are presented in Table 3.3-4.

Implementation of Alternative C would result in the lowest route density among the action alternatives (Table 2.1-2). The closure of routes under Alternative C would reduce the potential for the introduction of non-native species and disturbances associated with route use. Additionally, soil conditions would be expected to improve along closed routes allowing for opportunities for establishment of native vegetation. Impacts from fugitive dust would continue along limited and open routes; however, the existing vegetation communities in the TMA are already subjected to these impacts and increased disturbance is expected to be minor.

Under Alternative C, additional use limitations or closures would be applied to reduce harmful impacts in areas within the TMA with sensitive resources. This alternative would provide for route network connectivity and meet use needs while curbing impacts such as dispersed erosion that results from overuse of routes.

3.6.2.5 Alternative D (Blended)

Alternative D emphasizes mixed levels of public access and resource protection. Under Alternative D, there would be fewer open routes within wildlife habitats and route density would be reduced by closing and routes and allowing them to passively restore (Table 2.1-2 and Figure 5). Implementation of Alternative D would result in the same types of impacts as described in the Impacts Common to All Alternatives Section 3.6.2.1. It would result in a reduction in total route

miles and density and a decrease in habitat loss, degradation, fragmentation, and human disturbance compared to Alternatives A and C (Table 2.1-2).

Table 3.6-2 presents the designated routes and limitations in Mojave Desert Tortoise Modelled Habitat within the TMA under Alternative D.

Reduced stream crossings and passive restoration on closed routes would result in improved habitat for the southwestern willow flycatcher and western yellow-billed cuckoo. However, remaining routes and stream crossings would continue to cause a certain level of disturbance to these species. The number of stream crossing reductions (stream crossings that have either been closed or limited in some form) under Alternative D are presented in Table 3.3-4. However, remaining routes and stream crossings would continue to cause a certain level of disturbance.

3.6.3 Cumulative Impacts

Past and present activities such as historic livestock grazing, mineral development, ROWs for roads, pipelines, oil and gas developments, vegetation treatments, and recreational OHV use resulted in habitat loss, degradation, and fragmentation within the Cumulative Impacts Analysis Area (CIAA).

RFFAs such as transmission line construction and future oil and gas development would continue to contribute to cumulative impacts to wildlife species due to a loss of vegetation, continued habitat degradation and fragmentation, a decrease in grazing/browsing areas, and mortality from vehicle collisions.

Cumulative impacts associated with the alternatives would be similar across the action alternatives. The Proposed Action would be confined to the TMA that includes the three draws. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMP is not anticipated to contribute to cumulative impacts to terrestrial wildlife species and habitats.

Past, present, and RFFAs, including uses on the current transportation network, have fragmented and degraded wildlife habitat within the TMA. RFFAs that involve vegetation removal would continue to contribute to cumulative impacts to wildlife species and habitats. Habitat fragmentation would continue and increase accordingly because of vegetation removal, potential increases in invasive, non-native species, and increased recreational use. RFFAs would decrease the amount of wildlife grazing, browsing, and foraging habitat and increase the potential for wildlife mortality from motor vehicle collisions. Noise and human disturbance from RFFAs would combine with the current and increasing level of disturbance from recreational and other route uses.

The National Audubon Society produces a Climate Change Report entitled Survival by Degrees: 389 Bird Species on the Brink (National Audubon Society 2019). This report identifies bird species that are at risk of impacts from climate change. Species are identified as having high

vulnerability, moderate vulnerability, low vulnerability to climate change or with populations that are apparently stable. Birds and other wildlife species and their habitats are negatively impacted by climate change.

Implementation of the TMP would incrementally reduce the existing levels of disturbance and habitat fragmentation by closing or limiting route use and restoring previous disturbance to vegetation communities. Habitat loss, degradation, and fragmentation would decrease when routes are closed (transportation linear disturbances), or use is limited to non-motorized or non-mechanized use.

Special status plant species may be impacted by the designation of open and limited routes within the TMA, and implementation of the TMP may contribute to incremental cumulative impacts. Impacts could result from users travelling off-route in areas where special status plant species occur. However, with increased management presence impacts should be minimized.

When combined with past, present, and RFFAs, effects of the implementation of the TMP may result in negligible adverse cumulative impacts on special status plant species within the TMA. Route closures under the action alternatives provide a beneficial effect to special status plant species, which may help balance or mitigate the effects of other actions. Cumulative disturbance to special status plant populations from new routes and other projects in the TMA would be minimized through surveys and design to avoid individuals and populations. Prior to implementation, inventories for special status plant species would occur along new routes to avoid impacts and the removal of individual special status plants.

3.7 Cultural Resources

3.7.1 Affected Environment

Cultural resources are features of the human environment (cf. 40 CFR 1508.14) including specific locations of human activity, occupation, or traditional use identifiable through field inventory, historical documentation, or oral evidence (BLM 2021). The term includes archaeological, historic, and architectural sites and structures, and places with traditional cultural or religious importance for a social or cultural group. Relevant laws, ordinances, policies, regulations, and agreements other than the NEPA include:

- Antiquities Act of 1906 (16 USC 431–433);
- National Historic Preservation Act of 1966 (54 USC 300301 *et seq.*, as amended);
- Archaeological Resources Protection Act of 1979 (16 USC 470aa–470mm); and
- Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001–3013).
- Native Indian Religious Freedom Act (AIRFA)

The NHPA, along with other legislation, requires federal agencies to consider the effects of an undertaking on historic properties and established the National Register of Historic Places (NRHP). The implementing regulations (36 CFR 800) of Section 106 of the NHPA define

historic properties as "…any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the [NRHP]." Historic properties also can include properties of traditional religious or cultural importance to Native Americans.

The BLM LVFO has determined that inventory for this project is not necessary as per Appendix B.D.3 of the Nevada State Protocol Agreement (Revised December 22, 2014) which states Inventories are not required when designations would allow OHV use to continue on routes that have been effectively open or limited in use.

Lands managed by the LVFO have a rich and diverse cultural heritage. The land has supported Native American groups, such as the Nuwuvi (Southern Paiute), Newe (Western Shoshone), Nüwüwü (Chemehuevi), and Hualapai, as well as Mexican and Euro-American settlers.

The ancestors of today's Native American Tribes lived in the region for thousands of years. Identified prehistoric archaeological cultures for the region include the Paleoindian, Archaic, Puebloan, and multiple Indigenous traditions representing the ancestors of all the groups currently present in the area (ITCN 1976a, 1976b; Lyneis 1995, La Valley et al. 2022).

Nevada's written historic period began in the 1700s, when Spanish explorers passed through present-day southern Nevada searching for a route to connect settlements in New Mexico with those in California. European-American trappers, traders, and missionaries passed through during the subsequent 50 years.

The conglomeration of trails crossing portions of modern-day New Mexico, Colorado, Utah, Arizona, Nevada, and California is what is now known as the Old Spanish Trail. By the 1830s, Spanish and American traders were using the route to move between Santa Fe and the Pacific coast (NPS 2022). Alta California, which included the area of present-day Utah and Nevada, belonged to Spain until Mexican independence in 1821; and then to Mexico, but was ceded to the United States in 1848 at the end of the Mexican American War. The discovery of gold at Sutter's Mill in California in the same year sparked a wave of westward migration (McBride 2002).

Emigrants who were members of The Church of Jesus Christ Latter Day Saints (the Church) followed the Old Spanish Trail to California after the 1850s, but increasingly became permanent residents, particularly on water sources. Additionally, members of the Church sought to convert the Indigenous peoples, thus leading to further conflict (ITCN 1976a:56; Knack 2001). Eventually the federal government stepped in with policies of reservations and indoctrination, the effects of which are still felt.

Ranching in the Las Vegas Valley and prospecting in the surrounding ranges continued throughout the nineteenth century. During this period the area now known as Clark County which was originally part of the Utah Territory shifted to the Arizona Territory before getting incorporated into the new State of Nevada in 1867. Increased interests and investments in the

regions mineral resources around the turn of the century precipitated the construction of new railroads and resulting in the rapid development of Las Vegas and other rural areas.

Las Vegas was established in 1905 and incorporated in 1911. It was a railroad town along the San Pedro, Los Angeles, and Salt Lake Railroad. The town was a convenient stop along the route, as it provided access to water and an opportunity to refuel. Las Vegas continued to grow throughout the twentieth century (La Valley et al. 2022).

Cultural resources in the area represent an archaeological record of Native American, Mexican, and Euro-American populations that occupied the area, built dwellings, and utilized natural resources to survive. Common prehistoric site types that may occur in the TMA would include campsites, flaked stone scatters and macroflaking loci, artifact scatters, stacked rock features, agricultural/irrigation features, roasting pits, habitations, and resource processing/ procurement sites. Historic sites could include roads, railroads, bridges, utilities, irrigation networks, mines, ranches, refuse features, and in-use structures. These traces of past activities require a wide variety of approaches and methods for their effective management, including cultural site protection, surveys for identification and evaluation, scientific research, ethnographic and oral history research, interpretive development, and public education.

3.7.2 Environmental Consequences

3.7.2.1 Impacts to Cultural Resources Common to All Alternatives

Cultural resources are subject to numerous types of impacts. Adverse impacts can be characterized as those that result in the loss, degradation, or destruction of NRHP-listed or NRHP-eligible cultural properties and BLM LVFO's priority cultural resources. Because cultural resources are finite and non-renewable, avoidance is always preferred, but other mitigation can reduce and resolve adverse effects to significant cultural properties. Any construction of new routes, modification or alteration of existing routes, and route maintenance activities would require a cultural resources assessment (including, but not limited to, a Class I cultural resource records review, a Class III cultural resource inventory, or site mitigation) under the review of NHPA and NEPA.

Public access to cultural resources can present potential impacts categorized into loss/destruction, degradation, or beneficial impacts to important cultural resources. Areas surveyed for the presence of cultural resources still experience a risk of sub-surface resource disturbance, exposure, or loss. Unauthorized cross-country travel can inadvertently damage sites from surface disturbance or provide vehicular access to previously remote areas, which may result in artifact collection, breakage, displacement, vandalism, and looting.

Off-route parking for camping has the potential to damage cultural resources from compaction, artifact breakage, and displacement, resulting in loss of scientific data. Continued use of routes in areas of high site density may increase the potential for vandalism and damage to cultural resources. When hikers, bikers, and equestrian users stray from established trails, adverse

impacts may occur to indigenous cultural resources like rock piles, quarries, and trail networks. Bicycles and horses can adversely impact cultural resources in sensitive soils.

Limiting OHV travel to designated routes would provide a clearly delineated travel network, reduce route proliferation, and facilitate law enforcement. This approach would have the beneficial effect of controlling impacts of OHV use on cultural resources. Additionally, within SRMAs and Areas of Critical Environmental Concern (ACECs), vehicles would be restricted to the existing routes and would be restricted from pulling off 100 feet to either side. Requiring and enforcing the public to remain on identified non-motorized trails would further reduce potential impacts to cultural resources from non-motorized recreation.

Table 3.8-1 in Appendix B represents route designations within 150 feet of cultural/historic sites/features and the designations of those routes under each alternative. Table 3.8-2 in Appendix B represents route designations within 0.25-mile of cultural/historic sites/features and the designations of those routes under each alternative. The route evaluation criteria for both tables were determined by the IDT during development to represent potential impacts to cultural resources.

3.7.2.2 Alternative A (No Action)

Implementation of Alternative A would result in the greatest impacts to cultural resources with a total of 12.7 miles of route within 150 feet and 46.4 miles of route within 0.25 mile of a cultural resource that would remain open to all motorized use (Table 3.7-1 and Table 3.7-2 in Appendix B). This alternative maintains existing access to cultural resources because minimal routes are closed, and user-created routes would remain in use. Cultural sites would continue to be impacted by the ongoing use of existing routes (i.e., through erosion of vehicular routes) located on, or in proximity to, known cultural sites and those yet to be identified.

Implementation of Alternative A would retain all routes without change in use. OHV use would not be limited. Without the designation of existing routes, there would be continued minimal management with existing signs and user maps, as well as a lack of enforcement capability. This would lead to increased route proliferation.

3.7.2.3 Alternative B (Access)

Implementation of Alternative B would result in a greater reduction in impacts to cultural resources than Alternative A by closing or restricting motorized route use to 0.55 miles of route within 150 feet (2.85 miles within 0.25 mile) of a cultural resource (Table 3.7-1 and Table 3.7-2).

3.7.2.4 Alternative C (Conservation)

Implementation of Alternative C would reduce potential impacts to cultural resources more than Alternative A and Alternative B. Under Alternative C, 5.3 miles of route within 150 feet (20.9

miles within 0.25 mile) of a cultural resource would be closed or restricted for motorized use (Table 3.7-1 and Table 3.7-2).

3.7.2.5 Alternative D (Blended)

Implementation of Alternative D would result in continued access and potential impacts to cultural resources. It would have less impact on cultural resources compared to Alternative A and Alternative B but greater impact than Alternative C. Under Alternative D, 2.4 miles of routes within 150 feet (10.9 miles within 0.25 mile) of a cultural resource would be closed or restricted for motorized use (Table 3.7-1 and Table 3.7-2).

Table 3.7-1. Route Designations within 150 feet of Cultural Resources in the TMA, by Alternative

OHV Designation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to All Use	12.7	12.2	7.4	10.0
Closed to All Use	0.0	0.6	5.3	2.4
Open to Authorized Users Only	0.0	<0.1	<0.1	0.2
Open to Motorcycle (Single Track)	0.1	0.1	0.0	0.1
Open to All Use Seasonally	0.0	0.0	0.2	0.3
Proposed Route*	0.2	0.0	0.0	0.0
Total	**12.9**	**12.9**	**12.9**	**12.9**

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D.

Table 3.7-2. Route Designations within 0.25-mile of Cultural Resources in the TMA, by Alternative

OHV Designation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to All Use	46.4	42.0	23.6	32.4
Closed to All Use	0.0	2.9	20.9	10.9
Open to Authorized Users Only	0.0	1.1	1.1	1.4
Open to Motorcycle (Single Track)	0.1	1.8	0.4	1.0
Open to All Use Seasonally	0.0	0.0	0.0	2.1
Proposed Route*	1.2	0.0	0.0	0.0
Total	**47.8**	**47.8**	**47.8**	**47.8**

*Proposed routes have been evaluated as existing routes in Alternative B, C, and D.

3.7.3 Cumulative Impacts

Past, current, and future use of the Muddy Mountains SRMA for recreation, ranching, hunting, and vegetation management and wildfire suppression activities can cause and have caused irreparable damage/disturbance to historic properties because cultural resources are irreplaceable items of heritage. All RFFAs would require cultural resource inventories and any anticipated impacts would be reviewed at that time.

Cumulative impacts associated with the alternatives would be similar. The Proposed Action would be confined to the analysis area that includes the three draws. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMP is not anticipated to contribute to cumulative impacts to cultural resources and Native American religious concerns.

Past, present, and RFFAs would be monitored to assess impacts to cultural resources. The primary impacts to cultural resources have traditionally been due to non-permitted route proliferation. Implementing the TMP is intended to reduce non-permitted route proliferation and close routes that are redundant or that are dead-end and serve no purpose. All RFFAs would require inventories of cultural resources and any anticipated impacts would be reviewed through the appropriate process (i.e., NEPA, NHPA Section 106) at that time. Implementation of the TMP by designating routes should limit non-permitted route proliferation and help protect cultural resources. Protections for cultural resources will be further defined by the NHPA Section 106 process through the 2018 BLM Travel Management PA.

3.8 Native American Concerns

This section discusses potential Native American concerns related to the Muddy Mountains SRMA TMP. The section addresses the regulatory context; affected environment; identification of potential Native American concerns; potential impacts; and potential measures to avoid, minimize, and/or mitigate impacts to Native American concerns. This section has not been crafted in consultation with Native American Tribes and therefore only addresses potential Native American concerns. Many common physical areas of Native American concern, such as trails, areas of ceremonial usage, and natural landscape elements related to creation stories or oral histories, are not public knowledge and can only be known through direct discussion with Native American Tribes which takes time, thoughtful communication, and trust. The same is true for indirect areas of Native American concern, such as issues surrounding cultural sensitivity and/or environmental impacts. It is critically important that Tribal consultation occur to accurately identify Native American concerns, impacts related to Native American concerns, and measures to avoid, minimize, and/or mitigate these impacts.

The 1978 American Indian Religious Freedom Act (AIRFA) protects and preserves Native Americans groups' inherent right of freedom to believe, express, and exercise their traditional religions including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. It also directs federal agencies to

evaluate policies and procedures in consultation with Native American traditional religious leaders to determine appropriate changes necessary to protect and preserve Native American religious cultural rights and practices.

Executive Order (EO) 13007 (Indian Sacred Sites) was passed in 1996 and called for federal agencies to accommodate access to and ceremonial use of Native American sacred sites and avoid adversely affecting the physical integrity of sacred sites. The EO defines sacred site as:

> …any specific, discrete, narrowly delineated location on federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of and Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.

Procedures set forth in EO 13007 sate that federal agencies shall implement procedures to carry out the provisions of the order, provide reasonable notice of proposed actions or land management policies that may restrict access or use of sacred sites or adversely affect them.

As discussed in the Cultural Resources section, the 1966 National Historic Preservation Act (NHPA) marked a new era of federal historic preservation after years of urban renewal resulted in the loss of many historic buildings across the country. The NHPA included many components, such as establishing State Historic Preservation Offices (SHPOs), Tribal Historic Preservation Offices (THPOs), and the Advisory Council on Historic Preservation (ACHP); authorizing the National Register of Historic Places (NRHP); and introducing Section 106, among other inclusions. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and offer the ACHP a reasonable opportunity to comment. The Muddy Mountains SRMA TMP is considered a federal undertaking subject to the compliance requirements of Section 106 of the NHPA. The NHPA is relevant to Native American concerns because it considers Traditional Cultural Places (TCPs) to be eligible for listing in the NRHP and subject to compliance with Section 106.

3.8.1 Affected Environment

The land within the Muddy Mountains SRMA TMA has supported Native American groups for time immemorial. The proposed alternatives fall squarely within the traditional homelands of the Nuwuvi (Southern Paiute). The traditional territory of the Nüwüwü (Chemehuevi) lies just south and west of the proposed alternatives, while the traditional territory of the Hualapai lies just to the south and east. The traditional territory of the Newe (Western Shoshone) lies slightly farther away. Tribal members still live in Southern Nevada today.

Cultural resources in the area are likely reflective of recent and ancient activities of these surrounding Native American groups. While some Indigenous cultural resources in the area are

what remains of lifeways of the past, other Indigenous cultural resources, such as stacked rock features, may, if present, experience ongoing ceremonial use. Indigenous cultural resources are often considered interconnected with people and landscapes; therefore, it is highly important for consultation with Native American groups to occur to accurately understand how aspects of both the cultural and natural environment articulate with the concerns of local communities.

3.8.1.1 Nuwuvi and Nüwüwü

The Nuwuvi (or Southern Paiute) lands include areas generally west and north of the Colorado River in Nevada, Utah, Arizona, and California—an exception being the San Juan Southern Paiute who live east of the Colorado and south of the San Juan River (ITCN 1976a:5). Traditional Nuwuvi lifestyle was tied to this land, as they were dependent on the earth, or tu-weap, for life. If one did not respect the land or know how to find food and water, they would not survive. Across this vast region many local groups or bands were formed, each with their own territory.

There may have been at least 35 distinct bands around 1850. In southern Nevada these included the Moapits, Tantibooits, Shebits, Pahranagits, Parumpits Kwiengomits, Pegesits, Movweits, and Chemehuevis (Hebner 2010:192; ITCN 1976a; Knack 2001). By 1934 only four bands were recognized in southern Nevada—Moapa/Pahranagit, Las Vegas, Pahrump, and Chemehuevi—and 15 Southern Paiute bands total (Hebner 2010:190).

Prior to non-Indigenous incursions, Southern Paiute primarily hunted and gathered for a living and most bands also farmed to some degree (ITCN 1976a:12). Resource abundance, location, and timing varied with the seasons and dictated the movement and activities of the Southern Paiute. The early spring was the most difficult as winter stores were depleted, and most plants had not yet matured. Mescal was collected during this time and hunting of deer and small game became necessary for some years, despite fall being the primary hunting season (ITCN 1976a:12-13). Later in the spring, fields were sowed and corn, beans, pumpkin, squash, and sunflowers were planted. Irrigation methods were employed for those areas nearest to reliable water, while dry land farming was utilized by those groups in more arid climates. During the summer the Nuwuvi would travel away from the farmlands to collect other plants, occasionally returning to weed and tend the crops. Gathered plants included mesquite beans, yucca, agave, and seeds. Many were processed with grinding implements or fashioned into cordage and basketry (ITCN 1976a:14). Salt was also mined from salt caves for preserving food and trading to neighboring groups such as the Hualapai (Deur and Confer 2012). Like most groups in the Great Basin, the Nuwuvi also depended heavily on the fall pine nut harvest. Mountain ranges in each band's territories provided pine nuts as well as respite from the summer heat. Deer, antelope, and bighorn sheep were hunted in the uplands during the fall and deer provided the bulk of the meat consumed. Rabbit drives were also common and provided an opportunity for inter-band relationship building and information sharing (ITCN 1976a:15-16). The fall was when crops were harvested, winter homes (kanees) were constructed, and food processed/stored for the leaner months ahead.

Throughout the year, the Nuwuvi would hold gatherings both small and large where ceremonies and dances would take place. Three major dances were the Circle or Round dance, the Cry, and the Bear dance (Deur and Confer 2012; ITCN 1976a:18). Song cycles associated with these, and other events were sung throughout the year and provide stories and connections to various places on the landscapes and were shared between bands (Cultural Conservancy 2022; Deur and Confer 2012).

This way of life persisted for centuries until non-Indigenous intruders from the east entered the region. The first direct interaction between the Nuwuvi and the Spanish occurred in 1776 during the Escalante-Dominguez and Garcés explorations in the north and southern reaches, respectively, of Nuwuvi territory. Fur trappers, including Jedediah Smith, sporadically passed through during the subsequent 50 years, but it was not until the 1830s that the Old Spanish Trail was in full use (ITCN 1976a). This route was utilized by Spanish and American traders to move between Santa Fe and the Pacific coast. Not only did the increase in non-Indigenous peoples interrupt farming practices and gathering activities of the Nuwuvi bands throughout the region, but frequent conflicts also arose fueled by the intruders' aggression toward Native Americans and the enslavement of Nuwuvi children (ITCN 1976a:36-51). Emigrants who were members of The Church of Jesus Christ Latter Day Saints (the Church) followed this route to California after the 1850s, but increasingly became permanent residents throughout Nuwuvi territory, particularly on water sources. Additionally, members of the Church sought to convert the Nuwuvi, thus leading to further conflict (ITCN 1976a:56; Knack 2001). Eventually the federal government stepped in with policies of reservations and indoctrination, the effects of which are still felt today.

While colonization permanently altered the Nuwuvi way of life, the Nuwuvi people still manage to preserve their identity, language, and traditions. Today in southern Nevada, several Nuwuvi groups remain steadfast in their ancestral homelands, including the Moapa Band of Southern Paiutes, the Las Vegas Paiute Tribe, the Pahrump Band of Southern Paiutes, and the Chemehuevi Indian Tribe (the Nüwüwü). Most members of these groups reside in Las Vegas, Moapa, Overton, Pahrump, and neighboring communities. Recent attempts to rebuild inter-band relationships and heal the people and land continue to be made through the persistence of the Salt Song Cycle/Trail (Cultural Conservancy 2022). Although many traditional ways have been disrupted, the resiliency and flexibility—the same traits which gave the Nuwuvi centuries of success in the arid desert—have remained (Hebner 2010; ITCN 1976a; Knack 2001).

3.8.1.2 Hualapai

The ancestral land of the Hualapai include approximately 5 million acres in areas within the southern portion of the Colorado Plateau and the Grand Wash Cliffs escarpment. The name Hualapai reflects these lands, as it means "People of tall-pines". Today, the Hualapai reservation runs along the Colorado River and Grand Canyon (Hualapai Tribe n.d.; Hualapai Department of Cultural Resources 2010).

Hualapai oral tradition states that Hualapai Bands were entrusted with the responsibility to care for the environment as well as for natural resources within the traditional Hualapai territory. While 14 bands of Hualapai exist, oral tradition explains that "Pai" means "people", and so all "Pai" bands are part of one cultural nation. Altogether, approximately 2,300 Hualapai people live both on and off the Hualapai reservation (Hualapai Tribe n.d.; Hualapai Department of Cultural Resources 2010).

The Colorado River is important to the Hualapai and they have connections to nearby areas to the river. Resources have long included game animals; native plants such as bear grass, cacti, cane reed, desert tobacco, and edible grass seeds; as well as various roots and minerals. Seasonal hunting and gathering opportunities offered the Hualapai opportunities to pass traditions across generations via subsistence activities, song, the sharing of oral history, and the practice of environmental stewardship (Hualapai Department of Cultural Resources 2010).

Like the Nuwuvi and Nüwüwü, the Hualapai first engaged in contact with the Spanish in 1776, however Spanish goods such as belts and awls were already in possession of the Hualapai due to trade networks they had developed with the Hopi. Shortly thereafter, gold was discovered within the traditional lands of the Hualapai which led to violent conflict to resist incursions of ranchers and the United States government on Hualapai territory. In 1868, the United States government and the Hualapai signed a peace agreement to prevent further pain and loss across all parties (Hualapai Department of Cultural Resources 2010).

The peace between federal authorities and the Hualapai was, however, short lived. By 1871, a military fort, known as Fort Beale Springs, was established on Hualapai lands, west of what is now Kingman, Arizona. As Americans poured into the area, the military separated the Hualapai from the rest of the population, all the while impeding the abilities of the Hualapai to engage in their traditional subsistence and land use practices. In 1874, the Bureau of Indian Affairs ordered the United States military to remove the Hualapai "from their homes against their will", sending them "south to bake in the desert of the Colorado River lowlands, a place the officer in charge called the 'Sahara of the Colorado'" (Hualapai Department of Cultural Resources 2010). The military forced the Hualapai to walk along the Trail of Tears to live within a confined area. Along the walk, young Hualapai women were often assaulted by individuals within the military while older Hualapai individuals frequently died due to starvation, disease, and exposure to harsh natural elements (Hualapai Department of Cultural Resources 2010).

In 1883, President Chester Arthur established the Hualapai Reservation, which is the roughly 1-million-acre area in which the Hualapai reside today. The Hualapai offer a variety of outdoor tourism opportunities to the community at large, inclusive of hunting and fishing licenses, guided river rafting adventures, and access to trails along the Grand Canyon (Hualapai Tribe n.d.).

The Hualapai remain connected to their history in a number of ways including through important natural and cultural resources local to the area. The Wikame, for example, is the Sacred

Mountain of Creation for the Hualapai people which is visible along the lower Colorado River. Petroglyphs telling the story of the creation of the Hualapai people are present within a canyon that is also home to Ha'thi-el, or "Salty Spring". The Colorado River is considered a life-giving source called Ha'yidada, or the spine of the river, as the Hualapai origin stories explain the Hualapai were created from sediment and clay within the river. While the Hualapai have faced numerous violent conflicts and tragedies in their past, they remain strong and dynamic in their cultural practices and retain a powerful connection to their land (Hualapai Department of Cultural Resources 2010).

3.8.1.3 Newe

The Newe (or Western Shoshone) territory traditionally covered a large swath of land from Death Valley, California to the south, up to Idaho and Utah in the north-northeast, including much of central Nevada (ITCN 1976b:3). The Newe always lived here, and the land contained an abundance of resources prior to the intrusion of non-Indigenous peoples. Depending on local conditions, some Newe groups were more mobile than others, sometimes moving great distances to acquire resources when in season, but typically within particular geographic regions (Deur and Confer 2012:83; ITCN 1976b:5). Western Shoshone bands were flexible in membership and distribution, and these were poorly documented during initial record keeping by non-Indigenous settlers.

Throughout Newe territory, mountains were typically full of wildlife and plants on which the Newe subsisted; even valleys contained significant sources of food. In the north, waters flowed from numerous mountain ranges including the Reese and Little Humboldt Rivers (ITCN 1976b:3). In the south, water was less abundant, or at least tethered to specific areas. Like their neighbors, Newe lifeways were well-planned to correspond with the cycle of nature. Resources in the warmer, southern reaches of Newe territory were spread further apart, requiring forays up to 50 miles from winter camps (Steward 1997:96-97). In early spring, greens and Joshua buds were acquired locally (Steward 1997:96). As with all Great Basin groups, the Newe also relied heavily on the fall pine nut harvest, which required travel to the north. Throughout the year, but specifically during events such as the pine nut harvest or rabbit hunts, Newe groups would interact with one another, exchange information, revisit relatives, and conduct festivals. Hunting was also primarily conducted in the fall; deer, antelope, and rabbit were the main game (ITCN 1976b). Both antelope and rabbit drives were communal and required a larger number of people than any given village could provide. The medicine man would direct antelope drives while a kammu taikwahni (or rabbit chief) would direct the rabbit drives. The Newe constructed brush wings up to one mile long that narrowed to a small corral where the antelope would be funneled and could more easily be dispatched. Rabbit drives involved large nets and clubs (Steward 1997:97-98). Newe prepared much of the year for the winter and subsisted largely on processed, dried, and stored foods (ITCN 1976b:11).

Religion was a part of daily Newe life and not seen as a separate distinct category as Westerners often view it. Night songs were sung for healing; Cry Dance was conducted during mourning;

and the Rain and Warm Dances were performed to affect the weather (ITCN 1976b:13). Ethnographic overviews of Newe land use describe several kinds of ceremonial locations including doctor (or medicine rocks) and "places where objects have been ritually placed or retired" (Bengston 2003:77). Additionally, Newe representatives have identified rock alignments, cairns, and stone circles in areas of "spiritual significance" (Dufort 1998:1, as cited in Bengston 2003: E.84). Rock cairns or stacks are placed at high points along paths or vision quests, and viewscape is an important part of these activities (Arnold and Stoffle 2006).

Newe lives, traditions, and homelands were forever changed by non-Indigenous intruders beginning in the early nineteenth century. Fur trappers, including Jedediah Smith and Peter Skene Ogden, first entered Newe territory in the north along the Humboldt River as they sought to kill as many beavers as was possible (ITCN 1976b:14-18). The reduction in beavers, large game, and destruction of crucial plants by cattle significantly affected groups in this area. Soon after the fur trapping industry overharvested the region, numerous emigrant trails were established through Newe lands ushering in prospectors, members of the Church, and other non-Indigenous peoples seeking a new life (ITCN 1976b:23-34). Unfortunately for the Newe, these newcomers had no regard for the lands on which they occupied or the people who already resided there. Additionally, the newcomers were denigrating the Newe's food supply through increased demand and livestock grazing. These conflicts led to raids against the settlers and subsequent massacres against the indigenous people. The Newe, like all other Native American groups, were then seen as a problem. In 1863 (prior to Nevada statehood), the U.S. government entered into a treaty with the Wester Shoshone known as the Treaty of Ruby Valley (RIT_326, NAI_178907585). Not included in that treaty was the ceding of the land to the U.S. government. To this day, that treaty stands as valid although the United States has not lived up to that obligation. Subsequent to this unmet obligation, the Newe have been forcibly removed from the lands on which they had lived since time immemorial and further caused disparities in Newe communities (ITCN 1976b:102-103).

In the last 200 years, the Newe have endured tremendous hardships, but they have also begun to reclaim their land, preserve their traditions, and rebuild. Today the Newe largely reside in more than a dozen places throughout central Nevada and are recognized in varying degrees by state and federal governments (ITCN 1976b).

3.8.2 Environmental Consequences

3.8.2.1 Impacts to Native American Resources Common to All

Native American concerns may include a number of elements or could include very few, which is why consultation with local Native American group is essential in identifying concerns accurately. Possible concerns could include, but are not limited to, environmental impacts such as dust, litter, increased vehicular noise, or reduction in air quality; lack of access to places of historical or modern importance which could be caused by crowds, traffic, or road closures; impacts to cultural resources due to looting, vandalism, littering, offroad vehicle usage, road

construction and maintenance activities, recreational camping activity, or increased visitation; publicization of previously infrequently visited cultural resources due to interpretive signage or increased visitation within the area; physical, visual, olfactory, or auditory impacts to ceremonially important areas inclusive of cultural resources, trails, and culturally unmodified landscape elements; and racial insensitivity from an influx of workers, tourists, and/or recreationalists who are unfamiliar with local Native American groups.

Avoidance, minimization, or mitigation of impacts to Native American concerns must be created and implemented in coordination with local Native American groups. It is common for Native American Tribes to request the presence of Tribal monitors throughout all ground disturbing activity, if occurring, as well as the ability to present cultural sensitivity trainings to all individuals working on road construction, improvement, and/or maintenance. However, it cannot be assumed these measures are desired by local Native American Tribes without soliciting their input directly.

3.8.2.2 Alternative A (No Action)

Implementation of Alternative A has the potential to result in the greatest impact to areas of Native American concern, though it may also result in fewer impacts than Alternative B. Alternative A maintains existing access to possible areas of Native American concern because minimal routes are closed, and user-created routes would remain in use. If present, areas of Native American concern exist and are currently being impacted by OHV use, however, they would continue to be impacted by the ongoing use of existing routes (i.e., through erosion of vehicular routes) located on, or in proximity to, cultural resources and possible areas of ceremonial use.

3.8.2.3 Alternative B (Access)

Implementation of Alternative B could result in a greater reduction in impacts to areas of Native American concern than Alternative A, as it would be the most restrictive alternative and limit route use to areas in which resource protection conflicts do not exist. However, if areas of Native American concern, such as possible locations of modern ceremonial activity, are accessed via routes which will be closed, there is potential for Alternative B to result in an increase to impacts of areas of Native American concern as opposed to the impacts potentially caused by Alternative A.

3.8.2.4 Alternative C (Conservation)

Implementation of Alternative C has the potential to reduce impacts to areas of Native concern more than Alternative A or Alternative B. Alternative C will create balanced levels of access and resource protection. Visitor education information would also be improved under Alternative C, which could reduce the threat of racial insensitivity, if it is an area of Native American concern, and celebrate the lifeways of local Native American Tribes. However, if educational signage is not written in conjunction with Native American input, if signage increases recreational visitation to areas which contain previously infrequently visited cultural resources, or if signage

increases vehicular traffic in a manner which causes physical, visual, auditory, or olfactory impacts to areas which undergo modern ceremonial usage, Alternative C could have a greater impact to areas of Native American concern than either Alternative A or Alternative B.

3.8.2.5 Alternative D (Blended)

Implementation of Alternative D has the potential to have less or more of an impact to areas of Native American concern than Alternatives A, B, or C. Alternative D provides the greatest use of existing routes for public land access while protecting sensitive resources. Therefore, Alternative D could allow for continued access to areas of modern ceremonial usage if they exist. However, if existing routes are allowing for recreationalists to interfere with areas of modern ceremonial usage and/or are impacting cultural resources, it is possible continued use of these routes with limited oversight could greatly impact areas of Native American concern. Alternative D also includes development of visitor education information which could reduce the threat of racial insensitivity, if it is an area of Native American concern, and celebrate the lifeways of local Native American Tribes. However, if educational signage is not written in conjunction with Native American input, if signage increases recreational visitation to areas which contain previously infrequently visited cultural resources, or if signage increases vehicular traffic in a manner which causes physical, visual, auditory, or olfactory impacts to areas which undergo modern ceremonial usage, Alternative D could have a similar impact to areas of Native American concern than Alternative C, and a greater impact to areas of Native American concern then either Alternative A or Alternative B.

3.8.3 Cumulative Impacts

Past, current, and future use of the Muddy Mountains for recreation, ranching, hunting, and vegetation management and wildfire suppression activities can cause and have caused irreparable damage/disturbance to areas of Native American concern. However, it is possible that Alternative A, B, C, and D do not directly (physically intersect) or indirectly (visually, olfactorily, or auditorily) impact areas of Native American concern. Therefore, it is of critical importance that local Native American Tribes engage in a formal consultation process regarding the implementation of any of the proposed alternatives rather than speculating and/or assuming what is of local Native American concern.

Cumulative impacts associated with the alternatives are the same as the possible impacts common to all of the alternatives. They could include, but are not limited to, environmental impacts such as dust, litter, increased vehicular noise, or reduction in air quality; lack of access to places of historical or modern importance which could be caused by crowds, traffic, or road closures; impacts to cultural resources due to looting, vandalism, littering, offroad vehicle usage, road construction and maintenance activities, recreational camping activity, or increased visitation; publicization of previously infrequently visited cultural resources due to interpretive signage or increased visitation within the area; physical, visual, olfactory, or auditory impacts to ceremonially important areas inclusive of cultural resources, trails, and culturally unmodified

landscape elements; and racial insensitivity from an influx of workers, tourists, and/or recreationalists who are unfamiliar with local Native American groups. These potential impacts could be cumulative, as they are reflective of all recreational, tourist, and OHV travel in the area at large rather than limited to the routes within the alternatives discussed here. However, it is not possible to adequately assess cumulative impacts to areas of Native American concern prior to consultation with local Native American groups.

3.9 Paleontological Resources

3.9.1 Affected Environment

Southern Nevada contains many paleontological resources. Paleontological resources (fossils) are the remains or traces of organisms that have been preserved by natural processes in the earth's crust. Periodically, fossils become exposed on the ground surface. The Study Area contains Cretaceous marine invertebrate fossils and Triassic (early Jurassic) vertebrate trace fossils.

Federal laws applicable to paleontological resources on BLM lands include the Paleontological Resources Preservation Act (PRPA) of 2009 (16 U.S.C. 470aaa – aaa-11), the NEPA of 1969, and the FLPMA (Pub.L. 94–579) of (BLM 1976). The PRPA requires all federal agencies to develop plans and procedures for the inventory and monitoring of paleontological resources on and from federal land in accordance with applicable laws and regulations.

As defined by the Potential Fossil Yield Classification (PFYC) system, the potential for paleontological resources within the TMA is documented using Classes 1, 2, 3, 4, 5, U, and W. These classes, their descriptions, and road mileages are presented in Table 3.9-1 below.

Table 3.9-1. PYFC Classifications, Road Miles, and Known Fossil Types

PYFC Class	Class Definition	Road Mile Intersections	Known Fossil Types in TMP/EA Analysis Area
1	Very Low. Geologic units that are not likely to contain recognizable paleontological resources	0	No mapped PYFC 1
2	Low. Geologic units that are not likely to contain paleontological resources	36	None
3	Moderate. Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence	95	Marine Invertebrates
4	High. Geologic units that are known to contain a high occurrence of paleontological resources	14	Vertebrate Trace Fossils
5	Very High. Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.	0	No mapped PYFC 5

PYFC Class	Class Definition	Road Mile Intersections	Known Fossil Types in TMP/EA Analysis Area
U	Unknown Potential. Geologic units that cannot receive an informed PFYC assignment	161	Unknown
W	Water. Includes any surface area that is mapped as water	0	No mapped areas of water

3.9.2 Environmental Consequences

3.9.2.1 Impacts to Paleontological Resources Common to All Alternatives

The TMP/EA analysis area contains PFYC Classes 2, 3, 4, and U. These ratings show the potential for fossil yield as described in Table 3.9.1. Proposed route designations by alternative located within a PFYC class within the TMA/EA analysis area are shown in Table 3.9-2 provides a comparison of the route designations under each alternative. Alternatives B, C, and D would designate the network of routes, including minor realignments to avoid sensitive features. Only 36 percent of the road miles in the TMA/EA cross moderate (31 percent) to high (5 percent) potential to yield formations. No Class 1 or Class 5 area are mapped in the analysis area. Class 2 (12 percent) is located in Quaternary (young) alluvium and no known fossils are present. The PYFC classification rated as Unknown accounts for 52 percent of the intersecting road miles. The fossils located in PYFC Class 3 area are Cretaceous marine invertebrate fossils, most commonly sponges (Shapiro and Rigby 2004, Harrington 1987). Vertebrate trace fossils have been located in the PYFC Class Early Jurassic (201 – 145 mya) Aztec Formation (Rowland and Haight 2016).

Generally, the more restrictive the alternative, the less impact on potential paleontological resources because of potential rutting from vehicle routes, accelerated erosion from routes which could expose or damage sites, and indirect impacts from visitation including collection and/or vandalism of paleontological sites.

The various alternatives pose differing levels of impacts to PFYC Classes. More restrictive alternatives would lessen the effects on areas with moderate to high or low potential for paleontological resources due to more restrictive access. Less restrictive alternatives would keep OHV use at its current threshold and therefore be less adequate for enabling management of paleontological resources.

3.9.2.2 Alternative A (No Action)

Implementation of Alternative A would retain all routes without change in use (Table 3.9-2 OHV use would not be limited. Without the designation of existing routes, there would be continued minimal management with existing signs and user maps, as well as a lack of enforcement capability.

Table 3.9-2. Sum of Miles by PYFC Class and Route Type Under Alternative A

PFYC CLASS	Route Designation	Miles
2	Proposed Route (Alt A only)	2.9
	Open to All Use	33.4
3	Proposed Route (Alt A only)	13.9
	Open to All Use	80.9
	Open to Motorcycle (Single Track)	0.5
4	Proposed Route (Alt A only)	0.9
	Open to All Use	13.1
Unmapped	Proposed Route (Alt A only)	16.6
	Open to All Use	144.4
	Open to Motorcycle (Single Track)	0.6
	Total	**307.2**

3.9.2.3 Alternative B (Access)

Implementation of Alternative B would result in the closure of some routes (Table 3.9-3) within PFYC Classes, but the closures are minimal and this alternative does not differ much from Alternative A in terms of potential impacts to paleontological resources.

Table 3.9-3. Sum of Miles by PYFC Class and Route Type Under Alternative B

PFYC CLASS	Route Designation	Miles
2	Closed	3.0
	Open to All Use	29.6
	Open to Authorized Use Only	1.4
	Open to Motorcycle (Single Track)	2.2
3	Closed	9.5
	Open to All Use	63.5
	Open to Authorized Use Only	3.3
	Open to Motorcycle (Single Track)	19.0
4	Closed	0.6
	Open to All Use	13.1
	Open to Motorcycle (Single Track)	0.4
Unmapped	Proposed Route	23.1
	Open to All Use	99.6
	Open to Authorized Use Only	10.1
	Open to Motorcycle (Single Track)	28.8
	Total	**307.2**

3.9.2.4 Alternative C (Conservation)

Under Alternative C, potential for impacts to paleontological resources drops by 30 percent in Class 3 and nearly 36 percent in Class 4 areas from Alternative A. This alternative also drops

road usage through PYFC Unknown areas by 14 percent. (Table 3.9.4) This alternative is most protective to paleontological resources.

Table 3.9.4. Sum of Miles by PYFC Class and Route Type Under Alternative C

PFYC CLASS	Route Designation	Miles
2	Closed	13.5
	Open to All Use	15.6
	Open to Seasonal Use	2.2
	Open to Authorized Use Only	2.8
	Open to Motorcycle (Single Track)	2.2
3	Closed	29.8
	Open to All Use	44.1
	Open to Seasonal Use	2.2
	Open to Authorized Use Only	7.5
	Open to Motorcycle (Single Track)	11.8
4	Closed	5.1
	Open to All Use	6.6
	Open to Seasonal Use	1.9
	Open to Motorcycle (Single Track)	0.2
Unmapped	Proposed Route	62.5
	Open to All Use	66.0
	Open to Seasonal Use	0.6
	Open to Authorized Use Only	15.2
	Open to Motorcycle (Single Track)	17.4
	Total	**307.2**

3.9.2.5 Alternative D (Blended)

Under Alternative D, potential for adverse impacts to paleontological resources from route use would be the greatest of the action alternatives. This alternative (Table 3.9.5) would provide more protection than Alternatives A and B, but less protection than Alternative C.

Table 3.9.5. Sum of Miles by PYFC Class and Route Type Under Alternative D

PFYC CLASS	Route Designation	Miles
2	Closed	7.5
	Open to All Use	23.0
	Open to Seasonal Use	1.6
	Open to Authorized Use Only	2.2
	Open to Motorcycle (Single Track)	2.2
3	Closed	19.7
	Open to All Use	53.4
	Open to Seasonal Use	3.1
	Open to Authorized Use Only	5.6
	Open to Motorcycle (Single Track)	13.5

4	Closed	1.4
	Open to All Use	8.9
	Open to Seasonal Use	3.2
	Open to Motorcycle (Single Track)	0.4
Unmapped	Proposed Route	42.2
	Open to All Use	82.5
	Open to Seasonal Use	0.8
	Open to Authorized Use Only	13.7
	Open to Motorcycle (Single Track)	22.3
	Total	**307.2**

3.9.3 Cumulative Impacts

Disturbances within moderate and high yield fossil areas likely may result in some irreversible loss of fossil material. It is anticipated that any disturbance that would cross moderate and high yield fossil areas would incrementally reduce the quantity of near-surface fossil resources as more of the ground surface is disturbed. The quantities of fossils recovered and contributed to scientific collections also would incrementally increase. The risk of unauthorized collection of fossils would increase because of easier access and more bedrock exposure from construction activities. The BLM has BMPs and stipulations that would reduce the impacts to paleontological resources from RFFAs.

Cumulative impacts associated with the alternatives would be similar. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMA/EA alternatives is not anticipated to contribute to cumulative impacts to paleontological resources.

Past, present, and RFFAs, including uses on the current travel network, can contribute to inadvertent and intentional damage to paleontological resources. RFFAs that involve vegetation removal could continue to contribute to cumulative impacts to paleontological resources by exposing fossils and potentially damaging them. Implementation of the TMP would incrementally reduce the existing levels of disturbance by closing or limiting route use.

3.10 Environmental Justice and Socioeconomic Values

Issue: How would route designation and implementation of the TMP affect environmental justice and socioeconomic values within the TMA?

3.10.1 Affected Environment

The TMA exists within Clark County, NV. Clark County is the geographic scope of the analysis area utilized to discuss impacts to environmental justice and socioeconomic values. Social and economic factors are typically reported at the county level; therefore, this Planning Area provides the best representation of the TMA. The following demographic statistics, unless otherwise noted, are provided by Headwaters Economics' Economic Profile System, which uses published statistics from federal data sources, including the U.S. Bureau of Economic Analysis

and the U.S. Census Bureau. The U.S. Census Bureau data uses American Community Survey (ACS) 5-year estimates; 2020 represents 2016-2020 (ACS 2020).

Clark County's estimated 2024 population is 2,350,611 with a growth rate of 0.6 percent in the past years according to the most recent U.S. census data. Clark County is the most populous county in Nevada. The 2010 population was 1,952,640 and has seen an estimated growth of approximately 20 percent since that time (World Population Review 2024). Table 3.10-1 presents the notably populated places near the TMA.

Table 3.10-1. Areas of Notable Population Near the TMA

Settlement	Status	Estimated Population (2024)
Las Vegas	City	665,811
Henderson	City	343,791
Moapa Valley	City	7,580

Source: ACS 2020

3.10.1.1 Economic and Financial Factors

Clark County's primary industry is services. Other notable industries in the county include retail trade, government, and construction (Headwaters Economics 2024).

Federal lands play a significant role in the local economy. The public lands administered by the LVFO are primarily contiguous and in large blocks; however, some areas have substantial interspersed private lands. In these areas where the terrain allows, private lands have steadily been developed, primarily for residential purposes. To provide access and utilities to these areas it is often necessary to cross public lands.

3.10.1.2 Environmental Justice

Executive Order (EO)12898 and BLM IM 2022-059 requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations (EO 12898, 59 Federal Register 7629) (US Environmental Protection Agency [EPA] 1994).

The CEQ provides the following definitions to provide guidance for compliance with environmental justice requirements in NEPA:

> Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

> Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect (CEQ 1997).

Moreover, the BLM will provide opportunities for meaningful involvement for minority, low-income, and Native American populations in the decision-making process through outreach and public comment.

Low income and minority populations exist in the analysis area. In Clark County, 13.4 percent of people in Clark County are in poverty compared to 12.5 percent in the U.S. Just over fifty percent (50.1%) of the Clark County population identifies as non-White, however, one minority population does not exceed 50 percent. Black or African American includes 12.0 percent of the population and American Indians make up 1.1 percent of the Clark County population. (Headwaters Economics 2024). Although not represented in the Clark County data, the Moapa River Indian Reservation exists near the western edge of the TMA.

Additionally, Clark County has slightly higher rates of other disadvantaged communities compared to the U.S. at large. In Clark County, 13.4 percent of people have less than a High School Education (percent of total 2022) compared to the 10.9 percent of the U.S. and 6.1 percent of people speak English "not well" compared to 4.1 percent in the U.S. (Headwaters Economics 2024).

3.10.2 Environmental Consequences

The route network provides access and transportation needs for mineral resource development and management and recreation opportunities. Changes to the route network could result in direct and indirect changes in infrastructure, employment, income, business costs, and/or tax revenue, as well as nonmarket values that would have impacts to the overall social and economic conditions within the TMA.

3.10.2.1 Impacts Common to All Alternatives

All action alternatives would modify the network of routes available for recreational activities, resulting in positive impacts to the socioeconomics from enhanced recreational experiences. These improved conditions would affect various businesses, including guides, equipment dealerships and rental companies, lodging establishments, and restaurants due to increased route management. A minor increase in visitation and associated tourism-related expenditures is anticipated under all action alternatives, which indicates that any increases in employment or economic activity within the analysis area would also be minor. While low-income and minority populations exist within the analysis area, implementation of any of the alternatives would not disproportionally affect these populations. Route closures are minimal and dispersed across

TMA; therefore, there is no evidence that impacts would be concentrated in locations where minority or low-income populations are present. It is not anticipated that there would be any disproportionate impact on the existing populations within the analysis area.

The TMA offers unique recreational access to low-income, minority, and Tribal communities through dispersed camping, recreational shooting, horseback riding, hiking, and OHV use. Cultural heritage site protection is addressed sufficiently in the plan alternatives. Outreach and public involvement have been extensive and detailed in Section 1.9, *Scoping and Issue Identification*, and Section 4.1.1, *Native American Tribal Consultation*. Outreach and consultation should continue with the Moapa River Indian Reservation and other interested tribes. This determination may change as further information and public comment becomes available.

3.10.2.2 Alternative A (No Action)

Under Alternative A, the existing route network would remain as it currently exists. OHV use would not be limited. Without designation of existing routes there would be continued minimal management with existing signs and user maps, as well as a lack of enforcement capability. This would likely lead to increased route proliferation and a reduced recreational experience which would have a negative impact on socioeconomics.

Under Alternative A, impacts to natural resources could impact the overall quality of recreation and travel experiences and grazing operations. Unmanaged noise, dust, and increased use could be expected to impact local residents and users alike. If travel and recreation opportunities degrade, visitation and use levels may drop, resulting in reduced economic benefits to local economies and impacts on the current social setting of the analysis area.

3.10.2.3 Alternative B (Access)

Alternative B would modify the network of routes available for recreational activities to increase the quality of the recreation experience and implement monitoring and active management of the route network. This would result in improved socioeconomic conditions due to enhanced recreational experiences. These improved conditions would affect a variety of businesses, including guides, equipment dealerships and rental companies, lodging establishments, and restaurants because of increased route management. A minor increase in visitation and associated tourism-related expenditures is anticipated under Alternatives B, which indicates that any increases in employment or economic activity within the analysis area would also be minor. It is possible that a more formal, stable, and organized route network would support the ability of local communities, interest groups, and user groups, to produce maps, guides, and other promotional materials that increase public awareness of the recreation opportunities within the analysis area.

The most miles of routes would remain open to OHV use, and some would be limited to administrative or limited motorcycle, non-motorized, non-mechanized under Alternative B.

Routes designated as closed under this alternative do not add to the recreational experience and primarily consist of redundant routes, short dead-end routes, routes with impacts to cultural sites or sensitive soils, or create fragmentation. Open routes would be distributed throughout the analysis area to provide a complete network of recreational opportunities, including recreational loops for public OHV recreation, resulting in generally positive impacts to socioeconomics because of enhanced recreational experiences through increased signage and better maintained trails.

3.10.2.4 Alternative C (Conservation)

Alternative C would modify the route network available for recreational activities to increase the quality of the recreation experience and implement monitoring and active management of the route network for the long-term sustainable management of recreation trails and resources. This would result in improved socioeconomic conditions because of enhanced recreational experiences. These improved conditions would affect various businesses, including guides, equipment dealerships and rental companies, lodging establishments, and restaurants due to increased route management. A minor increase in visitation and associated tourism-related expenditures is anticipated under Alternatives C, which indicates that any increases in employment or economic activity within the analysis area would also be minor. It is possible that a more formal, stable, and organized route network would support the ability of local communities, interest groups, and user groups, to produce maps, guides, and other promotional materials that increase public awareness of the recreation opportunities within the analysis area

Alternative C would close the most routes of any of the alternatives. Routes that would be closed are generally redundant, located in sensitive resource areas, consist of short dead-end routes, or would be closed to limit conflicts between motorized and non-motorized uses. Some routes would be limited to authorized users only under Alternative C. This alternative would result in generally positive impacts to socioeconomics because of enhanced recreational experiences through increased signage and better maintained trails.

3.10.2.5 Alternative D (Blended)

Alternative D would modify the network of routes available for recreational activities to designate the greatest number of routes open to OHV use. Routes designated as closed (transportation linear disturbances) under this alternative do not add to the recreational experience and primarily consist of redundant routes and routes with impacts to resources or that create fragmentation. Open routes would be distributed throughout the analysis area to provide a complete network of recreational opportunities, resulting in positive impacts to socioeconomics because of enhanced recreational experiences through increased signage and better maintained trails.

Alternative D would designate routes as open to all modes of travel. Routes designated as limited to Open to Motorcycle (Single Track) only under Alternative D would benefit recreation by providing more opportunity for multiple uses in the analysis area. Alternative D would provide a

mixed recreation system for the long-term sustainable management of recreation trails and other resources. Open routes would be distributed throughout the analysis area to provide a complete network of recreational opportunities, including loops for motorized and mechanized recreation. The 58.1 miles of routes proposed as closed under Alternative D primarily consist of redundant routes, lack connectivity, or adversely impact soil erosion or special status species, resulting in generally positive impacts to socioeconomics because of enhanced recreational experiences through increased signage and better maintained trails.

3.10.3 Cumulative Impacts

Implementation of the Proposed Action would have positive impacts to the local economy and would enhance economic productivity by creating a high-quality recreation area that promotes environmental protection and tourism. The Proposed Action would provide opportunities for creating partnerships for funding. It would also strengthen local businesses, attract and support new and existing industries, and provide tax revenue to support the local economy. Additionally, BLM would partner with the community to support a variety of activities and events. It is anticipated that the Proposed Action would support local recreation businesses and the community with new opportunities and infrastructure. While there are identified potential low-income and Tribal populations that are present in the analysis area, no anticipated minority or economically disadvantaged communities or populations would be disproportionately adversely affected by the proposed action or alternatives. OHV use in the analysis area would continue to occur and is expected to increase.

3.11 Lands with Wilderness Characteristics

Issue: How would route designation and implementation of the TMP affect lands with wilderness characteristics within the TMA?

3.11.1 Affected Environment

Section 201 of the FLPMA requires BLM to maintain on a continuing basis an inventory of all public lands and their resources, including wilderness characteristics. The LVFO began the process of identifying and inventorying potential lands with wilderness characteristics within its administrative boundaries in 2015 by evaluating “Roadless” (i.e., not containing highway, county, or mechanically maintained BLM roads) areas greater than 5,000 acres. The inventory, as of 2015, has resulted in the identification of six units totaling 50,583 acres or 39 percent of the TMA’s land surface. Initial inventory data shows that all of the six units, totaling 50,583 acres, have been identified as possessing wilderness characteristics. Figure 9 in Appendix B illustrates the lands with the presence for wilderness characteristics within the TMA.

3.11.1.1 Muddy Mountains Wilderness

The TMA includes part of the existing Muddy Mountains Wilderness, designated by Congress in 2002. In total, the wilderness area is approximately 44,633 acres. A total of 38,404 acres of the Muddy Mountains Wilderness exists within the TMA.

The Wilderness boundary is accessed from existing routes on the south, east, and north sides. The Muddy Mountains Wilderness Area is managed by the BLM in accordance with the Wilderness Act of 1964 (Public Law 88-577 as amended) and public land regulations pursuant to 43 CFR 6300 BLM Wilderness Management regulations and BLM Manual 6340 – Management of Designated Wilderness Areas (Public). The wilderness characteristics are resource values which may be considered by the BLM in developing management strategies and were considered in the route evaluation for the TMP.

Public interest in wilderness areas and wilderness preservation is expected to continue. Public use in the Muddy Mountains Wilderness is expected to continue considering its proximity to the Las Vegas area.

3.11.2 Environmental Consequences

3.11.2.1 Impacts Common to All Alternatives

Vehicle access to the Wilderness boundary would be available to the east, central, and west parts of the area. Access for ROW and infrastructure maintenance on sections without surface access would continue by aerial methods. Routes entering the areas with wilderness characteristics would be designated to provide access for infrastructure maintenance and operation, and public use.

3.11.2.2 Alternative A (No Action)

Implementation of Alternative A would continue to provide vehicle access to the Wilderness boundary from the north, east, and south routes. Routes would continue to provide access to lands with wilderness characteristics.

3.11.2.3 Alternative B (Access)

Implementation of Alternative B would be like Alternative A except for differences in mileage between route designations. Vehicle access to the Wilderness boundary from the north, east, and south would remain. Access to the lands with wilderness characteristics would be limited by reducing public motorized access by 17 percent.

3.11.2.4 Alternative C (Conservation)

Implementation of Alternative C would provide less access to the Wilderness boundary compared to all other alternatives. Access to the northern Wilderness boundary would be limited while access from the south and east would remain the same as under Alternatives A and B. Access to the lands with wilderness characteristics would be more limited than Alternatives A, B, and D by reducing public motorized access by 47 percent.

3.11.2.5 Alternative D (Blended)

Implementation of Alternative D would balance access to the Wilderness boundary and lands with wilderness characteristics with reduced vehicle access to the Wilderness boundary from the north, while the eastern and southern routes remain open to all use. Access to lands with

wilderness characteristics would reduce motorized access 27 percent in comparison to Alternative A, but would have balanced access in comparison to Alternatives B and C.

Table 3.11-1. Comparison of Route Designation, by Alternative within Areas Identified as Possessing Wilderness Characteristics

Designation	Alternative A (miles)	Alternative B (miles)	Alternative C (miles)	Alternative D (miles)
Open to All Use	70.0	58.7	33.0	48.0
Closed to All Use	0	9.0	26.0	14.0
Open to Authorized Users Only	0	4.0	9.5	6.7
Open to Motorcycle (Single Track)	0	4.0	3.7	4.0
Open to All Use Seasonally	0	0	3.5	3.0
Proposed Route*	5.7	0	0	0
Totals	**75.7**	**75.7**	**75.7**	**75.7**

Source: BLM 2023.

3.11.3 Cumulative Impacts

Cumulative impacts associated with the alternatives would be similar. The Proposed Action would be confined to the analysis area. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMP alternatives is not anticipated to contribute to cumulative impacts to the Wilderness or lands with wilderness characteristics.

3.12 Visual Resources

Issue: How would route designation and implementation of the TMP affect visual resources within the TMA?

3.12.1 Affected Environment

The term “visual resources” refers to the composite of basic terrain, geologic and hydrologic features, vegetative patterns, and built features that influence the visual appeal of a landscape. This section describes the existing context of the visual environment in the TMA and assesses the potential impacts from implementation of the Proposed Action and alternatives within the TMA.

Visual resources in the TMA are characteristic of the Mojave Basin and Range physiographic region with outstanding mountain ranges, broad basins, and slopes, with a variety of complex geologic characteristics throughout the upper elevations. Public lands with outstanding visual quality include the Muddy Mountains Wilderness, Hidden Valley ACEC, Bitter Spring Valley, Monocline Valley, White Basin, and Buffington Pockets.

Important platforms for viewing public land include Bitter Springs Backcountry Byway, Bitter Springs Road, Valley of Fire Highway, and several OHV roads.

Existing landscape modifications that are noticeable and affect visual quality in the TMA include existing OHV use, mining extraction, and the Gemini Solar Project.

The BLM manages visual resources in accordance with procedures in Manual 8400 to establish Visual Resource Management (VRM) classes in RMPs, Handbook 8410-2 to inventory visual resources, and Manual 8431 to evaluate visual impacts of proposed activities that modify the landscape.

3.12.1.1 Visual Resource Management

VRM objectives for public lands in the TMA were established in the Las Vegas RMP to ensure consideration of visual or scenic values in land management. VRM classes describe the visual quality objectives (BLM 1986):

- Class I Objective: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II Objective: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Class III Objective: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- Class IV Objectives: The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Approximately half of the land within the TMA (67,173 acres, 52 percent of the total acreage) is designated for management as VRM Class II. Most of this land exists along the Bitter Springs Backcountry Byway, adjacent to Muddy Mountains Wilderness. Approximately 38,404 acres of Class I areas (30 percent of the total acreage) exists within Muddy Mountains Wilderness (Figure

10 in Appendix B). The remainder of Class III and IV are on the outer portions of the TMA. Table 3.12-1 presents the total acres within each VRM Class for the TMA.

Table 3.12-1. VRM Classes within the TMA

VRM Class	Acres	Percent of Total
I	38,404	30
II	67,360	53
III	22,090	17
IV	446	<1
Total*	**128,300**	**100**

Source: BLM 2023
VRM = Visual Resource Management

3.12.2 Environmental Consequences

3.12.3 Impacts Common to All Alternatives

Routes can impact visual resources by creating lines and breaks in the landscape that may extend from foreground views to the background. Dust clouds caused by moving vehicles can be seen at even greater distances. Modifications to topography resulting from route development create dissimilarities in color, texture, and line on the landscape. Visual impacts of routes can be seen on the landscape for years, even if the routes are not traveled frequently.

The visual impact of routes designated as Open to OHV Use would not change their visual condition, and their visual impact would be the same. The visual impact of routes designated Limited would reduce traffic and promote revegetation, reducing visual impacts over time. Private locked gates, barriers or fencing and signs would have local impacts. Visual impact of routes designated Closed would prevent vehicle use and promote revegetation, reducing existing visual impacts over time.

Regulatory and informational signage can also impact visual resources in the immediate foreground. Over the long-term, it is expected that closed routes would blend back into the landscape, reducing the impact on the visual landscape. Implementation of the action alternatives would reduce the overall density of linear features on the landscape when compared to current conditions. Table 3.12-2 through Table 3.12-5 present the miles of route designations and limitations by VRM class, by alternative. In general, the greater the length and density of open routes, the greater the level of impacts on visual resources. There are several proposed new routes identified in the TMA. These proposed motorized are currently existing within the TMA but have not been formally analyzed in the travel management process.

3.12.3.1 Alternative A (No Action)

Under Alternative A, the visual impact of existing routes would remain in current condition. Low use routes may continue to naturally revegetate and the visual impact from these routes would be reduced over time. Minimal signage would have localized visual impacts noticeable in the immediate vicinity.

Table 3.12-2. Route Designations and Limitations by VRM Class under Alternative A

OHV Designation	VRM Class I (miles)	VRM Class II (miles)	VRM Class III (miles)	VRM Class IV (miles)
Open to All Use	0	144.0	82.0	1.0
Closed to All Use	0	0	0	0
Open to Authorized Users Only	0	0	0	0
Open to Motorcycle (Single Track)	0	0.6	0	0
Open to All Use Seasonally	0	0	0	0
Proposed Route*	0	26.0	2.0	0
Totals	**0**	**170.6**	**84.0**	**1.0**

Source: BLM 2023

3.12.3.2 Alternative B (Access)

Under Alternative B the visual impact of routes would be similar under all action alternatives as described above, except for the mileage. The visual impact of open routes designated for route access would all be similar under all action alternatives as described above, except for mileage.

Portals at public land access points with access roads and parking areas, information kiosks, and signing would all have localized visual impacts that are noticeable in the immediate vicinity. Allowing the use of vehicles off the vehicle route (within 100 feet) for parking and camping may create bare ground spots with visual impacts that are noticeable from the immediate vicinity along the travel routes. New route access would create new visual impacts noticeable in the project area vicinity.

Table 3.12-3. Route Designations by VRM Class within the TMA for Alternative B

OHV Designation	VRM Class I (miles)	VRM Class II (miles)	VRM Class III (miles)	VRM Class IV (miles)
Open to All Use	0	101.0	74.0	1.0
Closed to All Use	0	19.0	9.0	0
Open to Authorized Users Only	0	12.0	1.0	0
Open to Motorcycle (Single Track)	0	39.0	0	0

Open to All Use Seasonally	0	0	0	0
Proposed Route	0	0	0	0
Totals	**0**	**171.0**	**84.0**	**1.0**

Source: BLM 2023

3.12.3.3 Alternative C (Conservation)

Under Alternative C, the visual impact of designated routes would be similar under all action alternatives, as described above, except for the mileage. The visual impact of open routes designated for route maintenance would all be similar under all action alternatives as described above, except for mileage. Impacts would be like those described under Alternative B; however, Alternative C would include fewer miles of open routes.

Table 3.12-4. Route Designations by VRM Class within the TMA under **Alternative C**

OHV Designation	VRM Class I (miles)	VRM Class II (miles)	VRM Class III (miles)	VRM Class IV (miles)
Open to All Use	0	68.0	40.0	0
Closed to All Use	0	54.0	39.0	0
Open to Authorized Users Only	0	18.0	4.0	0
Open to Motorcycle (Single Track)	0	0	0	0
Open to All Use Seasonally	0	5.0	1.0	0
Proposed Route	0	0	0	0
Totals	**0**	**171.0**	**84.0**	**0**

Source: BLM 2023

3.12.3.4 Alternative D (Blended)

Under Alternative D, the visual impact of designated routes would be similar under all action alternatives as described above, except for the mileage. The visual impact of open routes designated for route maintenance would all be similar under all action alternatives as described above, except for mileage. Impacts would be like those described under Alternative B and C; however, Alternative D would include a higher mileage of open routes than C, but fewer open routes than B.

Table 3.12-5. Route Designations by VRM Class within the TMA under Alternative D

OHV Designation	VRM Class I (miles)	VRM Class II (miles)	VRM Class III (miles)	VRM Class IV (miles)
Open to All Use	0	84	57	0

OHV Designation	VRM Class I (miles)	VRM Class II (miles)	VRM Class III (miles)	VRM Class IV (miles)
Closed to All Use	0	34	24	0
Open to Authorized Users Only	0	16.0	2.0	0
Open to Motorcycle (Single Track)	0	30.0	30.0	0
Open to All Use Seasonally	0	6.0	2.0	1.0
Proposed Route*	0	0	0	0
Totals	**0**	**171.0**	**84.0**	**1.0**

Source: BLM 2023

3.12.4 Cumulative Impacts

Cumulative impacts associated with the alternatives would be similar. The Proposed Action would be confined to the analysis area. It is not anticipated that effects would extend beyond the analysis area. Implementation of the TMP alternatives is not anticipated to contribute to cumulative impacts to visual resources.

Past, present, and RFFAs may result in contrasts to the existing landscape characteristics. Implementation of the TMP would result in minor or weak contrasts to visual resources within VRM Class I and III areas from existing conditions. The motorized and limited routes analyzed under the action alternatives are currently meeting VRM management objectives, resulting in weak contrasts within the immediate foreground of the SRMA. When combined with present visually impacting actions, implementation of the proposed TMP would not result in measurable cumulative impacts. Due to the low-profile size of this project, type, amount of traffic, and vegetative and topographic screening, VRM Class I and III objectives would still be met throughout the SRMA.

3.13 Access and Transportation

Issue: How would route designation and implementation of the TMP affect access and transportation within the TMA?

3.13.1 Affected Environment

The existing route system provides access for multiple land uses including hunting and other outdoor recreation in accordance with RMP allocations. The route system provides opportunities for motorized and non-motorized users and access for many purposes.

Regional public access is provided by major public roads and highways including US 15, US 91, Nevada Scenic State Route (SR) 167 (Northshore Road), and SR 147 (Lake Mead Boulevard). Local public access is provided by roads maintained by Clark County. Existing routes provide access to public lands directly from public roads or highways, though many routes require

crossing non-BLM lands. Existing routes on BLM land are presently undesignated but open to all motor vehicle use on existing trails and dry washes (except the routes in the Muddy Mountains Wilderness Area).

Routes within the TMA provide access for the major land use activities on or adjacent to public lands including mining, mineral exploration, non-commercial photography, hunting, OHV recreation, non-motorized trail recreation, camping, sport climbing, sightseeing and other activities. Public demand and use have grown since the RMP land use allocations were established, and use of the routes has increased since the route inventory was completed. Increasing public demand for access to recreational opportunities is expected to continue, with growing impacts along existing access routes. Current impacts are especially apparent on routes that have direct connections to county roads, and those near the developing urban-rural interface.

3.13.1.1 Route Inventory

The comprehensive route inventory for the TMA is comprised of entirely motorized vehicle access. The only nonmotorized routes are those that access the Muddy Mountains Wilderness and Hidden Valley ACEC.

Route conditions that would be affected by route characteristics include:

Surface: Public land access routes are mostly unpaved, natural soil surface, with fine grained soils and sand in the washes, and rocky, gravely soils outside of the washes. Sections inside of the Buffington Pocket area consist of solid rock. Fine grained soils are prone to dust generation and become muddy when wet, affecting route use.

Width: Most public land access routes are well established and greater than 15 feet in width. A few of the routes are two-lane up to 24-feet wide. Approximately 96 miles of inventoried routes are in washes, using stream channels with substrates that range from sandy, gravelly, to rocky.

3.13.2 Environmental Consequences

3.13.2.1 Impacts Common to All Alternatives

In general, implementation of the TMP and designation of routes within the TMA would enhance the BLM's ability to meet resource objectives because the TMP provides a formal system and strategies for network management. Impacts on access and transportation vary with each alternative.

Open routes would be available for all public motorized vehicle use for multiple land uses. Mileage varies by alternative. Some routes are limited to administrative vehicle use only and are not open to public vehicle use-access. Routes identified as reclaiming/reclaimed and not being used for vehicle access would be designated closed. These routes may be re-opened to provide vehicle access on a case-by-case basis in response to proposals (subject to project development process requirements).

New route construction could be considered by BLM to provide access to landlocked public land. Staging areas could be installed at public land ingress-egress points, with parking, orientation/information kiosks and signing.

The TMP would guide priorities for resolution of legal access issues, for maintenance of existing routes to provide necessary access, and to manage use and activities to protect resources along the routes and avoid or minimize conflicts among users.

Table 2.1-1 presents the route designations/limitations within the TMA under each alternative. Route designations would not affect BLM ROWs, permitted uses, county or state roads, or other valid existing rights. Restrictions would apply only to motorized public access and recreational use. All designated routes would be available for hiking and equestrian uses. Bicycles and other mechanized uses would be permitted on open routes and routes with limitations that do not specify no mechanized use. The use of e-bikes would be consistent with existing rules and regulations. E-bike use in the TMA has been minimal. However, there is potential for e-bike use and popularity to increase in the future. For the purposes of this TMP, the use of e-bikes would be congruous to motorized use.

Maintaining routes as open while closing redundant and reclaiming routes would benefit access and transportation by streamlining the transportation system within the TMA. Some closures would create a need for the installation of gates, barricades, and other closure devices to reinforce the travel restrictions. Minor or major restoration activities may occur on closed routes. Additional signage would also be implemented to designate the allowable travel uses on the designated routes. Implementation of the TMP would benefit BLM management of access and transportation within the TMA and would provide the BLM with guidance to implement signage, maintenance, and monitoring within the TMA and to identify areas where future access may need to be addressed through other processes, easements, or other agreements with other land management agencies.

3.13.2.2 Alternative A (No Action)

Implementation of Alternative A would maintain the current travel network in its existing condition. Use and travel by motorized and non-motorized vehicles would be allowed on all existing routes except where not currently permitted. Minimal signage and visitor information would be provided to inform and orient visitors. Access and enforcement challenges would continue. This alternative would lead to continued user-created route proliferation and illegal access via private land.

A road maintenance program would not be implemented, but maintenance may be provided on a case-by-case basis in response to proposals. New route construction could be implemented to provide access to landlocked public land areas or other emerging land uses on a case-by-case basis in response to proposals.

3.13.2.3 Alternative B (Access)

Implementation of Alternative B would close more routes than Alternative A but less than Alternative C. Under Alternative C and D, some existing routes would be closed. With the closure and decommissioning of routes, signage and barriers would be necessary to enforce these closures. Impacts would be like those under Alternative C and D, with differences in mileage.

3.13.2.4 Alternative C (Conservation)

Implementation of Alternative C would be the most restrictive. Alternative C would result in the greatest number of closed routes. Closures would create the need for installation of gates, barricades, and other closure devices to enforce the travel restrictions. Screening, signing, and user maps are also techniques for closing and/or managing the route network.

Routes designated as open to all vehicles would continue to provide public vehicle access. Routes designated as limited to administrative vehicles would cause a loss of public vehicle access. Routes designated as closed to all vehicles would cause loss of all vehicle access.

New route construction would improve public land access to landlocked areas and improve connectivity of local access route networks. Main routes could be maintained in the future under BLM's transportation asset management system. This could lead to legal access acquisition priorities. Portal site improvements at public land ingress-egress points would help inform visitors of local route networks and use restrictions.

3.13.2.5 Alternative D (Blended)

Implementation of Alternative D would prioritize access to the TMA for all users. This alternative would provide a high level of motorized access and would address route redundancy as well as implement a comprehensive, diverse transportation system. Impacts would be like those under Alternative B and C, with differences in mileage.

3.13.3 Cumulative Impacts

Past, present, and RFFAs may impact the transportation network. Implementation of the TMP would close routes that are redundant or serve no purpose. It is expected that implementation of the proposed TMP would improve transportation by improving signage, improving route designations, and addressing future access needs to decrease user conflict and resource degradation. Cumulative impacts are not anticipated from implementation of the alternatives.

3.14 Lands, Rights-of-Way, and Access

3.14.1 Affected Environment

3.14.1.1 Lands

The Muddy Mountains TMA consists of 128,290 acres of which 236 acres (<1 percent) are private inholdings. The inholdings consist of four separate sections, the largest being the Anniversary Mine inholding southeast of Lovell Wash totaling 215 acres. The remaining 21 acres consist of the old workings of the American Borax Company mine in the eastern part of White Basin.

3.14.1.2 Rights-of-Way

The BLM authorizes rights-of-ways for various land uses such as access roads, communication site equipment and transmission lines. The BLM also administratively manages the various Utility Corridors throughout the West that are Congressionally and Department mandated. Muddy Mountains is located adjacent to one major Corridor, but it not impacted by it within the boundaries of the SRMA. Material site authorizations in the TMA consist of existing access routes to mining claims, mineral patents, and water resources outside of the Wilderness boundary. Currently, the Bitter Springs Backcountry Byway (FAMS ID - L109504/5.044 miles), and Access Road N-76932 (West End Wash, T20S 65E) are designated as material site authorization. Existing routes to the water resources in Table 3.14-1 were evaluated as either open or limited to authorized use.

Table 3.14-2 - Guzzlers, Drinkers, Reservoirs, and Stock Tanks in the TMA

Agency	Name	Type	Wilderness	UTM	Easting	Northing
NDOW	Muddy 8 Alt	Drinker	No	11S	722662	4024736
NDOW	Muddy 8	Drinker	No	11S	722292	4024635
NDOW	Muddy 7	Drinker	Wilderness	11S	707800	4016200
NDOW	Muddy 9	Drinker	No	11S	720628	4027310
NDOW	Muddy 2	Drinker	No	11S	722714	4024816
NDOW	Muddy 3	Drinker	No	11S	721175	4027958
NDOW	Muddy 4	Drinker	No	11S	718903	4029893
SNDO	Bitter Spring	Guzzler	No	11S	723324	4018433
SNDO	Cliff Site - Muddy #1	Guzzler	No	11S	721689	4022333
SNDO	White Basin - Muddy #2	Guzzler	No	11S	722746	4024792
SNDO	Flipper - Muddy #3	Guzzler	No	11S	721196	4028034
SNDO	Five Ram - Muddy #4	Guzzler	No	11S	718862	4029853
SNDO	Tinaja	Guzzler	Wilderness	11S	705251	4026199
SNDO	Jerry - Muddy #5	Guzzler	Wilderness	11S	708955	4018123
SNDO	Safari - Muddy #6	Guzzler	Wilderness	11S	708126	4016891
SNDO	Fish Tank Guzzler - 6/1/1956	Guzzler	Wilderness	11S	703910	4018444
Unknown	Owl Dam Reservoir	Reservoir	No	11S	707124	4029103

Source: Cepero-Rios 2023; (Johnson E. L. 2023

3.14.1.3 Access

The TMA is accessed from the north from the Valley of Fire Highway through either the northwest end of the Bitter Springs Backcountry Byway, or dirt road turnoffs 3.25 miles southeast of the Byway access. On the east end of the Bitter Springs Backcountry Byway, access

is through National Park Service land from Northshore Road into Echo Wash. Entering the TMA from the south there are three access points off Northshore Road (all of which cross NPS land): Bittersprings Road, Callville Wash, and West End Wash. During route evaluation it was recommended that alignment and access permission needed to be confirmed with the NPS and appropriate signage should be installed.

3.14.2 Environmental Consequences

3.14.2.1 Impacts Common to All Alternatives

In general, implementation of the TMP and designation of routes within the TMA would enhance the BLM's ability to meet resource objectives because the TMP provides a formal system and strategies for network management. All alternatives maintain the same access routes as currently exist with alignment and signage agreements with the NPS recommended. Rights-of-way routes to water resources are designated as either open or limited to authorized users only depending on the level of multi-use value of the route (i.e. recreational value).

3.14.2.2 Alternative A (No Action)

Implementation of Alternative A would maintain the current route network in its existing condition. Rights-of-Way and access locations would remain in their current conditions with any signage for surface management changes left as they exist. The BLM would continue managing ROWs consistent with the 1998 Las Vegas RMP (BLM 1998). Authorized access for ROW holders and mineral development operations in the decision area would continue to be managed per objective RW-1 in the 1998 Las Vegas RMP. Increases in visitor use could result in new user-created access points which could impact soil, water, habitat, and protected area.

3.14.2.3 Alternative B (Access)

Alternative B would result in the greatest number of open routes in the TMA. Rights-of-way, material site access and water resource access routes would, with few exceptions, be open to public OHV travel. NPS property alignment and signage recommendations would be implemented. Monitoring for new user-created access points would also be implemented along with recommended methods for mitigation (closure) of newly created access routes.

3.14.2.4 Alternative C (Conservation)

Implementation of Alternative C would close the largest number of routes in the TMA and restrict several water resource access routes to open to authorized users only. NPS alignment, signage, and monitoring for new access routes would be the same as Alternative B with a perhaps stronger emphasis on proactively preventing the creation of new access points.

3.14.2.5 Alternative D (Blended)

Implementation of Alternative D differs from Alternative B only in the number of miles of water resource access routes that are designated as open to authorized users only. Under Alternative D, some of these routes remain designated open to all use, but fewer of them are open as compared

to Alternative B. NPS alignment, signage, and new access route prevention would be the same as under Alternative B.

3.14.3 Cumulative Impacts

There are currently no reasonably foreseeable projects that would occur within the TMA that would impact surface management, ROW, or access areas. Therefore, under all alternatives the continuation of the existing conditions, coupled with no reasonably foreseeable projects, would result in no appreciable cumulative effects.

3.15 Recreation Resources

Issue: How would route designation and implementation of the TMP affect recreation resources within the TMA?

3.15.1 Affected Environment

The Muddy Mountains TMA provides a range of recreational opportunities that meet public demand and are compatible with the BLM's stewardship responsibilities. The TMA was designated as a SRMA in the 1998 Las Vegas Resource Management Plan (BLM 1998) with the objective, "to provide semi-primitive recreation opportunities and integrated management of wildlife habitat, cultural resources, and other recreational uses" (BLM 2014). As such, recreation opportunities and recreation setting characteristics in the TMA are recognized for their unique value, importance, and/or distinctiveness.

Recreational access to the TMA consists of undeveloped often unsigned routes from Northshore Road (SR167) to the south and east, and routes branching from Valley of Fire Highway to the north. Common recreational activities within the TMA are listed in Table 3.15-1.

Table 3.15-3 - Common Recreation Activities within the TMA

Hiking	Backpacking	Dispersed Camping	Shooting
OHV recreation	OHV competition	Rock Crawling	Scenic Touring
Mountain Biking	Wildlife Viewing	Rock Climbing	Geocaching

The motorized route network is cleanly divided at the boundaries of the Muddy Mountains Wilderness and Hidden Valley ACEC where dispersed campsites and hiking trailheads are found. Recreation inside these sensitive areas is limited to non-motorized and non-mechanized travel and are primary destinations for hiking, backpacking, camping, and wildlife viewing.

For motorized recreation, the Bitter Springs Back County Byway is a designated 26-mile point-to-point route that bisects the TMA. This challenging 4-wheel-drive-only route is used primarily for scenic driving and provides access to the greatest portion of the recreation areas inside of the TMA. It is accessible year-round, and travel is limited to existing roads, trails, and dry washes.

Motorized routes leading to the Colorock Quarry and Hidden Valley ACEC are designated as high benefit recreation resources by providing public access to the northern sections of Hidden Valley and the Muddy Mountains Wilderness areas. Moderate level recreation benefit routes include those used by Special Recreation Permit holders and others used for dispersed campsite access. High and moderate benefit routes comprise 103.3 miles of routes, or approximately 39 percent of the total route miles.

The TMA hosts periodic and annual motorized events for 4-wheel-drive clubs (Vegas Valley 4 Wheelers), off-road motorcycle competition events (MRAN), and occasional motorized social events by local residents. Cross-country OHV use was noted in areas near the Bittersprings/Back County Byway intersection and southeast of the Valley of Fire Highway and Route 167 intersection. Dispersed camping was located along the Back Country Byway in the Buffington Pockets area and at the north wash crossing to the pockets, in the north part of the TMA just off the Valley of Fire Highway in the same area as the cross-country OHV travel.

There are no existing restroom facilities in the TMA.

The Gemini Solar Project is currently occupying 138 acres of the TMA north of Hidden Valley. A fence was constructed to encompass the area that is currently blocking Route 167, which was a primary access to trailheads in the northwest area of the Muddy Mountains Wilderness.

Some of the key recreation attractions are listed below.

3.15.1.1 Bitter Springs Back Country Byway

In 1989, the Bitter Springs Back Country Byway was designated as a Type II Back Country Byway and became part of the National Scenic Byway System (BLM, H-8357-1 Byways, 1993). Since then, this route has been documented and promoted by the Nevada Off-Highway Vehicles Department and numerous recreation enthusiasts' groups. The route connects to Northshore Road near Lake Mead's Echo Bay then travels northwest through Echo Wash, White Basin, Buffington Pockets, then ends on the Valley of Fire Highway. This is a popular backcountry day trip near Las Vegas and provides access to many unique sandstone rock formations and springs. A high-clearance vehicle is required for segments of this route.

3.15.1.2 Hidden Valley and Colorock Quarry & Canyon

The Hidden Valley trailhead is the northern gateway to the Muddy Mountain Wilderness. It is a wide drainage with a series of nice summits lining its western reaches, large pockets of sandstone among limestone, and occasional petroglyphs carved into sandstone. The abandoned historic Colorock Cabin is found near the motorized accessible trailhead to Colorock Canyon.

3.15.1.3 Lovell Wash and Anniversary Narrows

The southernmost area of the TMA is a popular destination area for OHV 4-wheel-drive exploration (including rock crawling sections) and for hiking the narrow slot canyons in the

region. The unique geologic formations of this area and its proximity to Las Vegas and Lake Mead make it a popular day trip for a wide variety of recreationists.

3.15.1.4 Recreation Trends

Demand for outdoor recreation opportunities on public lands in the TMA is increasing with the population growth from the Las Vegas area. Post pandemic, outdoor recreation contributed roughly $6.1 billion to the state's economy in 2022, which was a 25.3 percent increase from 2021 (NVOVC 2023). According to the Nevada Department of Conservation and Natural Resources, "Nevada saw a significant year-over-year growth in RVing, motorcycling/ATVing, climbing, hiking and camping" (DNR 2022).

As these types of outdoor recreational use continue to increase on public lands, it is anticipated that the demand for access, developed recreation sites, and open areas with demand for dispersed camping would increase accordingly.

3.15.2 Environmental Consequences

3.15.2.1 Impacts Common to All Alternatives

Motorized and non-motorized recreational activities would continue in the TMA under all alternatives. Open routes would be available for all OHV motorized vehicle use. Some routes would be limited to seasonal usage or to vehicle type or size. Routes designated as administrative use only would result in a loss of motorized public access to recreation opportunities but would allow access to existing infrastructure for authorized users. Routes designated as closed would result in a loss of motorized public access.

Improvement of popular access routes as BLM transportation assets would ensure local route networks are accessible for multiple use and would help mitigate the impact of popular routes as demand increases. Routes maintained for primitive road access would be available for high clearance vehicles and all OHVs. Table 2.1-1 provides a comparison of the route designations and limitations under each alternative. Alternatives B, C, and D would designate the network of routes for recreational activities and implement maintenance activities, signage, and monitoring resulting in an overall benefit to the recreational experience.

3.15.2.2 Alternative A (No Action)

Selection of Alternative A would retain the existing route network as open to all use. Approximately 27 miles of routes under Alternative A are designated as "proposed" which includes SRP authorized routes and additional routes proposed for other types of special recreation events, such as OHV competition or rock crawling events.

A primitive route maintenance program would not be established with Alternative A, which may lead to loss of access due to damage from erosion or revegetation. New route creation may be authorized on a case-by-case basis in response to proposals.

Without designation of existing routes there would continue to be minimal route management with existing signs and user maps. In the absence of clearly decommissioned routes, this would likely lead to increased route proliferation. Impacts on special status species vegetation habitat would be uncontrolled. There would be little or no change to available facilities. Therefore, implementation of this alternative would not improve the overall recreational setting or individual experience in the TMA.

3.15.2.3 Alternative B (Access)

Implementation of Alternative B would prioritize access to the TMA for all users and would limit OHVs to designated routes rather than existing routes. This alternative would provide a high level of motorized access but would not implement as comprehensive and diverse a transportation system as Alternative D (Blended). Implementation of Alternative B would result in the fewest route closures (28.9 miles). Designated routes open to all uses (180.7 miles) would be distributed throughout TMA to provide a complete network of recreational opportunities. Impacts from route designations and maintenance would be similar under all alternatives, but the mileage would vary. Implementation of Alternative B would include enhanced signage, maintenance, monitoring, and management of the TMA natural resources including sensitive habitats, inventoried lands with wilderness characteristics, and special status vegetation species areas.

3.15.2.4 Alternative C (Conservation)

Implementation of Alternative C would be the most restrictive of the alternatives. Alternative C would result in the greatest number of routes closed to all use (94.4 miles) with a total of 113.5 miles of routes remaining open to all use.

As under the other alternatives, impacts from route designations and maintenance would be similar. Decommissioning of closed routes would require closure mechanisms such as installation of post and cable barricades, boulders, and other closure techniques to enforce the travel restrictions. Screening, signing, and user maps are also techniques for closing and/or managing the route network.

Implementation of Alternative C would designate more signage, maintenance, monitoring, and management of the TMA than the other alternatives, and would protect natural resources to the greatest extent possible while still enabling most recreational opportunities.

3.15.2.5 Alternative D (Blended)

Under Alternative D, 145.9 miles of routes would be designated as open to all use, and 58.1 miles of routes would be closed and decommissioned using techniques outlined under Alternative B. Alternative D would provide a mixed recreation system for the long-term sustainable management of recreation trails and natural resources. Open routes would be distributed throughout the TMA to provide a complete access network of recreational opportunities. Signage and post and cable type barriers would enforce closures. Implementation

of Alternative D would include enhanced signage, maintenance, monitoring, and management of the TMA that would improve the overall recreational setting or individual experience in the TMA.

3.15.3 Cumulative Impacts

In general, route designation cumulative impacts to recreation resources primarily fall into public access and maintainability considerations. In all alternatives, access to non-OHV recreation resources is minimally impacted. Maintenance requirements of recreation resources vary by alternative.

As mentioned in 3.15.2.2, Alternative A (no change) would likely lead to increased route proliferation in the TMA due to anticipated increased in public utilization. Impacts on special status species vegetation habitat would be uncontrolled. There would be little or no change to available facilities so existing recreational resources (routes, facilities, campsites) would likely deteriorate with continued & increasing public use.

Implementation of Alternative B (access) would limit travel to existing road, trails, and sand washes while maximizing access to all identified recreation resources including public OHV activity and special events (examples include off-road motorcycle/ATV races, 4x4 scenic touring/camping, and club organized rock crawling events). Of the three management alternatives, Alternative B would have the least amount of cumulative impact on recreation resources. However, with an anticipated increase in public utilization of the SRMA, increased utilization of existing roads, trails, and sand washes would be widely distributed and would have broad impact on natural resources. In the absence of regulation or mitigation measures, this alternative could increase proliferation of dispersed campsites and other human based activity.

Alternative C (conservation) would close the maximum number of routes with a maximum reduction in OHV recreation opportunities. Routes that are limited or eliminated would decrease access to some non-OHV recreation resources (examples include some campsites and route alternatives near the Bitter Springs Back Country Byway and most areas north of the Byway in White Basin). With the decrease in route opportunities, increasing public demand would likely increase user conflict and would concentrate utilization in the remaining roads, trails, and sand washes leading to an increase in natural resource impact albeit in more limited areas. SRP planning and permitting would likely be more difficult with a reduction in open routes providing connectivity to permitted sections.

Alternative D (blended) as defined would split the difference between Alternatives B and C. All known existing campsites and trailheads would remain accessible as would most existing route network connectivity for OHV activity. SRP planning would be largely unchanged with some of the more sensitive routes designated as seasonally limited in order to minimize impact on wildlife and other biological resources. Routes with either redundant or limited recreation value would remain designated as limited or closed.

3.16 Areas of Environmental Concern

Issue: How would route designation and implementation of the TMP affect Areas of Critical Environmental Concern within the TMA?

3.16.1 Affected Environment

Areas of Critical Environmental Concern (ACECs) are areas where special management attention is needed to protect and prevent damage to important historical, cultural, and scenic values; fish, or wildlife resources; or other natural systems or processes (BLM 2017). Managing ACECs to protect and prevent damage to the resources and values for which they were designated is part of BLM's multiple-use mission. Routes to and within these areas provide important public access for their use and enjoyment.

The Hidden Valley ACEC is designated within the Muddy Mountains TMA (Figure 11 in Appendix B). Hidden Valley consists of 3,357 acres (2.6 percent of the TMA) of which the majority, 3,323 acres, are contained within the Muddy Mountains Wilderness. The purpose of the Hidden Valley ACEC is to conserve crucial habitat for threatened desert tortoise (*Gopherus agassizii*), protect sensitive biological soil crust (Williams, Buck, & Beyene, 2012), and to provide a valuable recreation resource for non-mechanized exploration. Also contained in the ACEC are historic and prehistoric habitation, petroglyphs, and raptor nesting areas. OHV travel inside the ACEC is currently limited to designated routes which enable access to trailheads and an informational kiosk at the northern boundary of the ACEC.

3.16.2 Environmental Consequences

Designating established routes within the ACEC would enhance visitor experiences while helping to preserve the unique natural and cultural resources. After designation, targeted improvements would decrease soil erosion, re-establish and stabilize vegetation, and improve wildlife habitat. Seasonally restricting travel in biologically sensitive areas would reduce nearby wildlife habitat impact and potentially reduce paleontological, cultural, and historic resources from a high level of visitation.

Routes designated as open would continue to provide public access to the ACEC and allow the BLM to concentrate on management and improvements on the designated transportation network.

3.16.2.1 Impacts Common to All Alternatives

Motorized access to the Hidden Valley ACEC is concentrated at the northern and eastern boundaries through a limited network of routes. The eastern access consists of a single route which is blocked about 30 yards outside of the ACEC boundary. There is an unimproved dispersed campsite at that location that could benefit from signage and impact-minimizing improvements. Access to the north consists of a small network of routes through the ACEC boundary leading to trailheads, dispersed campsites, and an information kiosk, all of which could benefit from stabilization.

3.16.2.2 Alternative A (No Action)

Alternative A would result in no change to current management of the route network and leave approximately 0.5-mile of routes within ACECs open to OHV use primarily to access the features described above. These routes are concentrated in a 0.1-mile length of the north boundary of the ACEC, none of which enter the Muddy Mountains Wilderness. Access route soil stability would remain an issue. The kiosk and other signage would remain in a state of decay.

3.16.2.3 Alternative B (Access)

Alternative B would be identical to Alternative A where no action would be taken to change the current route network. No signage nor impact mitigation is suggested under Alternative B.

3.16.2.4 Alternative C (Conservation)

Alternative C closes approximately 0.25-mile of routes in the north area used to access dispersed camping and the information kiosk but leaves the western route to the southern-most trailhead open. The motivation for closing the eastern routes is to minimize impact on wildlife habitat and cultural buffers identified in that area. Signage is recommended for identification of raptor nest avoidance areas and monitoring for cultural resources is specified.

3.16.2.5 Alternative D (Blended)

Alternative D is identical to Alternative B but includes adding signage as in Alternative C.

3.16.3 Cumulative Impacts

Past, present, and RFFAs that could impact the transportation network would include current or anticipated mining activity or expansion of the Gemini solar project which would increase the use of access points and routes and create new temporary routes within the TMA.

Implementation of the TMP would close routes that are impactful, redundant, or serve no purpose. It is expected that implementation of the proposed TMP would improve transportation by improving signage, improve route designations, and address future access needs to decrease user conflict and resource degradation. Cumulative impacts are not anticipated from implementation of the alternatives.

4 CONSULTATION AND COORDINATION

The following tribes, agencies, organizations, businesses, and individuals were consulted with or participated in the scoping process.

4.1.1 Native American Tribal Consultation

To inform relevant Native American Tribes about all proposed federal undertakings within the planning area, LVFO periodically provides interested tribes with an information packet that summarizes each undertaking, along with a map. With such information, the tribes may determine if the undertaking is within an area of tribal concern.

The BLM has initiated Government-to-Government consultation with the following Native American Tribes by letter on February 9 and 14, 2023: Bishop Paiute Tribe, Chemehuevi Indian Tribe, Colorado River Indian Tribes, Fort Independence Indian Community of Paiute Tribes, Fort Mojave Indian Tribe, Kaibab Band of Paiute Indians, Las Vegas Paiute Tribe, Moapa Band of Paiutes, Lone Pine Paiute-Shoshone Tribe, Paiute Indian Tribe of Utah, San Juan Southern Paiute Tribe, Timbisha Shoshone Tribe, Twenty-Nine Palms Band of Mission Indians, Hopi Tribe, Hualapai Tribe, and Utu Utu Gwaitu Paiute Tribe (Owens Valley Paiute Benton Reservation). The Pahrump Paiute Tribe was invited to offer feedback, as well. Letters were followed by e-mail on February 14, 2023.

The Fort Independence Indian Community of Paiute Tribes stated by e-mail on February 20, 2023 that local tribes should be contacted, which include Moapa Band of Paiutes, Las Vegas Paiute Tribe, and the Pahrump Paiute Tribe. Regarding this response, the BLM has reached out to those three tribes. The BLM will continue to consult with interested Tribes through the NEPA process.

5 LIST OF PREPARERS/REVIEWERS

Table 5.1-1 BLM Preparers

Name	Role
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Name	Role
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