

Fallon Range Training Complex Modernization

FINAL ENVIRONMENTAL IMPACT STATEMENT

VOLUME 1

ABSTRACT | EXECUTIVE SUMMARY | CHAPTERS 1 & 2 | SECTIONS 3.1 - 3.9

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Fallon Range Training Complex Modernization Final Environmental Impact Statement



Volume 1

Abstract
Executive Summary
Chapters 1 & 2
Sections 3.1 – 3.9

January 2020

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Final
Environmental Impact Statement
Fallon Range Training Complex Modernization

Lead Agency: United States Department of the Navy

Cooperating Agencies:

Bureau of Land Management
Federal Aviation Administration
United States Fish and Wildlife Service
Nevada Department of Wildlife
Nevada Department of Minerals
Nevada Department of Agriculture
Nevada Department of Transportation
Nevada Governor's Office of Energy
Churchill County, Nevada
Eureka County, Nevada
Lander County, Nevada
Mineral County, Nevada
Nye County, Nevada
Pershing County, Nevada

Title of the Proposed Action: Fallon Range Training Complex Modernization
Designation: Final Environmental Impact Statement

Abstract

The Commander, United States (U.S.) Pacific Fleet, a Command of the U.S. Department of the Navy (Navy), proposes to modernize the land and airspace configurations of the Fallon Range Training Complex (FRTC) in northwest Nevada. The Navy prepared this Environmental Impact Statement (EIS) to comply with the National Environmental Policy Act. This EIS evaluates the potential environmental impacts of expanding land ranges and modifying associated airspace configurations in the FRTC and Special Use Airspace:

- The No Action Alternative consists of not renewing the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021, and not withdrawing or acquiring any new land. Current and proposed training at the FRTC would likely need to be accommodated elsewhere, which would result in the loss of the integrated nature of training at the FRTC, causing fragmentation and total loss of essential training functions.
- Under Alternative 1, all bombing ranges and training areas would be expanded, except Bravo (B)-19 and the Shoal Site. The Navy would restrict public activity at each bombing range on withdrawn or acquired lands.
- Under Alternative 2, the Navy would expand the bombing ranges and training areas in the same way as under Alternative 1. Under Alternative 2, the Navy proposes managed access for public activities where compatible with military training on bombing ranges.
- Alternative 3 is similar to Alternatives 1 and 2 in terms of its proposed land withdrawals and acquisitions, except with respect to the orientation, size, and location of B-16, B-17, B-20, and the Dixie Valley Training Area. Alternative 3 is similar to Alternative 2 in terms of managed access; however, land south of U.S. Route 50 would not be withdrawn or acquired as part of the Dixie Valley Training Area.

The resources evaluated include geological resources, land use, mining and mineral resources, livestock grazing, transportation, airspace, noise, air quality, water resources, biological resources, cultural resources, recreation, socioeconomics, public health and safety and the protection of children, and environmental justice. This EIS also addresses the cumulative impacts of the direct and indirect effects of past, present, and reasonably foreseeable future actions coupled with the Proposed Action on the human environment.

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Acronyms

- ACEC: Area of Critical Environmental Concern
- AUM: animal unit months
- B: Bravo
- BLM: Bureau of Land Management
- CEQ: Council on Environmental Quality
- CFR: Code of Federal Regulations
- dBA: A-weighted decibels
- DMLGB: Dual Mode Laser Guided Bomb
- DNL: day-night average sound level
- DVTA: Dixie Valley Training Area
- EIS: Environmental Impact Statement
- FAA: Federal Aviation Administration
- FRTC: Fallon Range Training Complex
- JDAM: Joint Direct Attack Munition
- LGW: Laser Guided Weapon
- MEDEVAC: medical evacuation
- MSL: mean sea level
- NAS: Naval Air Station
- NAWDC: Naval Aviation Warfighting Development Center
- NDOT: Nevada Department of Transportation
- NDOW: Nevada Department of Wildlife
- NEPA: National Environmental Policy Act
- NWR: National Wildlife Refuge
- OHV: off-highway vehicle
- PILT: payments in lieu of taxes
- RMP: Resource Management Plan
- ROW: rights-of-way
- SEAL: Sea, Air, and Land
- SHPO: State Historic Preservation Officer
- TTP: tactics, techniques, and procedures
- USFWS: U.S. Fish and Wildlife Service
- U.S.: United States
- WSA: Wilderness Study Area

Introduction

The Fallon Range Training Complex (FRTC) is the United States (U.S.) Department of the Navy's (Navy) premier aviation training range, supporting aviation and ground training, including live-fire training. The Navy trains 100 percent of deploying naval aviation and naval special warfare units at the FRTC. The training conducted here is critical for defending and securing the United States and its interests abroad.

The Navy's ability to counter evolving current and future threats worldwide depends on the effectiveness of existing aviation training requirements. The FRTC is currently operating with significant gaps in aviation weapons training and ground mobility training capability. The current size of the Bravo (B) ranges and the Dixie Valley Training Area (DVTA) severely restricts the extent to which the Navy can use its various weapons systems to train, which has resulted in aircrews and special operations forces being unable to train in sufficiently realistic conditions. Thus, the Navy must reconfigure the FRTC to ensure the safety and success of service members in combat.



Modernization of the Bravo ranges and the DVTA would provide training capabilities that are more realistic and are needed to meet changing aviation and ground training requirements, while maintaining the safety of local communities.

The Navy's proposal to modernize the FRTC includes:

- Renewal of the current public land withdrawal.
- Land range expansion through additional withdrawal of federal land and acquisition of non-federal land.
- Airspace expansion and modifications.
- Upgrades to range infrastructure.

To assess the potential environmental impacts of the proposed modernization of the FRTC, the Navy has prepared a Final Environmental Impact Statement (EIS).

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is a U.S. law that requires federal agencies to identify and analyze potential impacts on the environment before making a decision on a proposed action. The Council on Environmental Quality (CEQ) implementing regulations for NEPA (40 Code of Federal Regulations [CFR] part 1500) provide guidance for considering alternatives to a proposed action. This guidance requires rigorous exploration and objective evaluation of reasonable alternatives (See 40 CFR section 1502.14). Only those alternatives that meet the purpose of and need for the proposed action, and are determined by the Navy to be reasonable, require detailed analysis. The law also encourages and facilitates community involvement in decisions that may affect the quality of the environment.

The Navy is the lead agency for the EIS (pursuant to 40 CFR section 1501.5), and has prepared the Final EIS in accordance with NEPA, as implemented by CEQ and Navy regulations.

Cooperating agencies for the EIS (pursuant to 40 CFR section 1501.6 and section 1508.5) include:

- Bureau of Land Management.
- Federal Aviation Administration.
- U.S. Fish and Wildlife Service.
- Nevada Department of Agriculture.
- Nevada Department of Transportation.
- Nevada Department of Wildlife.
- Nevada Division of Minerals.
- Nevada Governor's Office of Energy.
- Churchill County, Nevada.
- Eureka County, Nevada.
- Lander County, Nevada.
- Mineral County, Nevada.
- Nye County, Nevada.
- Pershing County, Nevada.

The Navy also worked with 13 federally recognized Indian Tribes and the Inter-Tribal Council of Nevada to prepare the Final EIS.

The Navy's mission is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. U.S. naval forces must be ready to respond to a wide range of situations, from contingency-type operations to large-scale conflicts, and missions related to homeland security, humanitarian assistance, and disaster relief. This mission requires personnel to be fully trained and prepared to perform these various and demanding military operations at a moment's notice.

The FRTC has served as a vital and irreplaceable asset for training naval aviation forces for more than 75 years. The Bravo ranges and the DVTA are supported logistically by Naval Air Station (NAS) Fallon. The ranges and training area are used to train deploying air and ground units in a realistic environment and prepare them for overseas operations.

Military readiness activities conducted at the Fallon Range Training Complex include:

- Air warfare.
- Strike warfare.
- Electronic warfare.
- Naval special warfare.
- Joint forces training.
- Expeditionary warfare.
- Tactics and weapons courses, such as TOPGUN and TOPDOME.



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Location

Located in northern Nevada, approximately 65 miles east of Reno, Nevada, the FRTC is made up of 12,256 square nautical miles of airspace and approximately 232,000 acres of Navy-managed land. Land areas include target areas for both live and inert ordnance release, radio and camera instrumentation and training systems, and electronic warfare training systems.

The FRTC spans multiple county jurisdictions, from Elko County in the east to Washoe County in the west. Land-based ranges (B-16, B-17, B-19, B-20, and the DVTA [Figure 1]) are located primarily in Churchill County.

Training

The FRTC is the only location where an entire carrier air wing, consisting of more than 60 aircraft and associated support crews, can work together and train. Every Navy carrier air wing trains at the FRTC prior to deployment. Personnel who complete tactical courses at the FRTC are known throughout the Navy as experts in the latest and most effective tactics.

The Navy uses simulators to provide early skill repetition and enhance teamwork through classroom learning and computer training; however, there is no substitute for live training in a realistic environment. To reduce the potential for substantial loss of life among U.S. service members in combat, the Navy must train the way it is required to fight. This standard is achieved by continuously analyzing what occurred during past conflicts and making the changes necessary to improve future warfighting tactics.

Bravo Ranges and the Dixie Valley Training Area

The FRTC includes four Bravo ranges and the DVTA. The Bravo ranges, B-16, B-17, B-19, and B-20, are used for air-to-ground munitions delivery, close air support, tactical ground mobility, and live-fire training. The DVTA is typically used for convoy training, fixed-wing and helicopter night vision device training, helicopter mountain-flying training, and combat search and rescue activities.

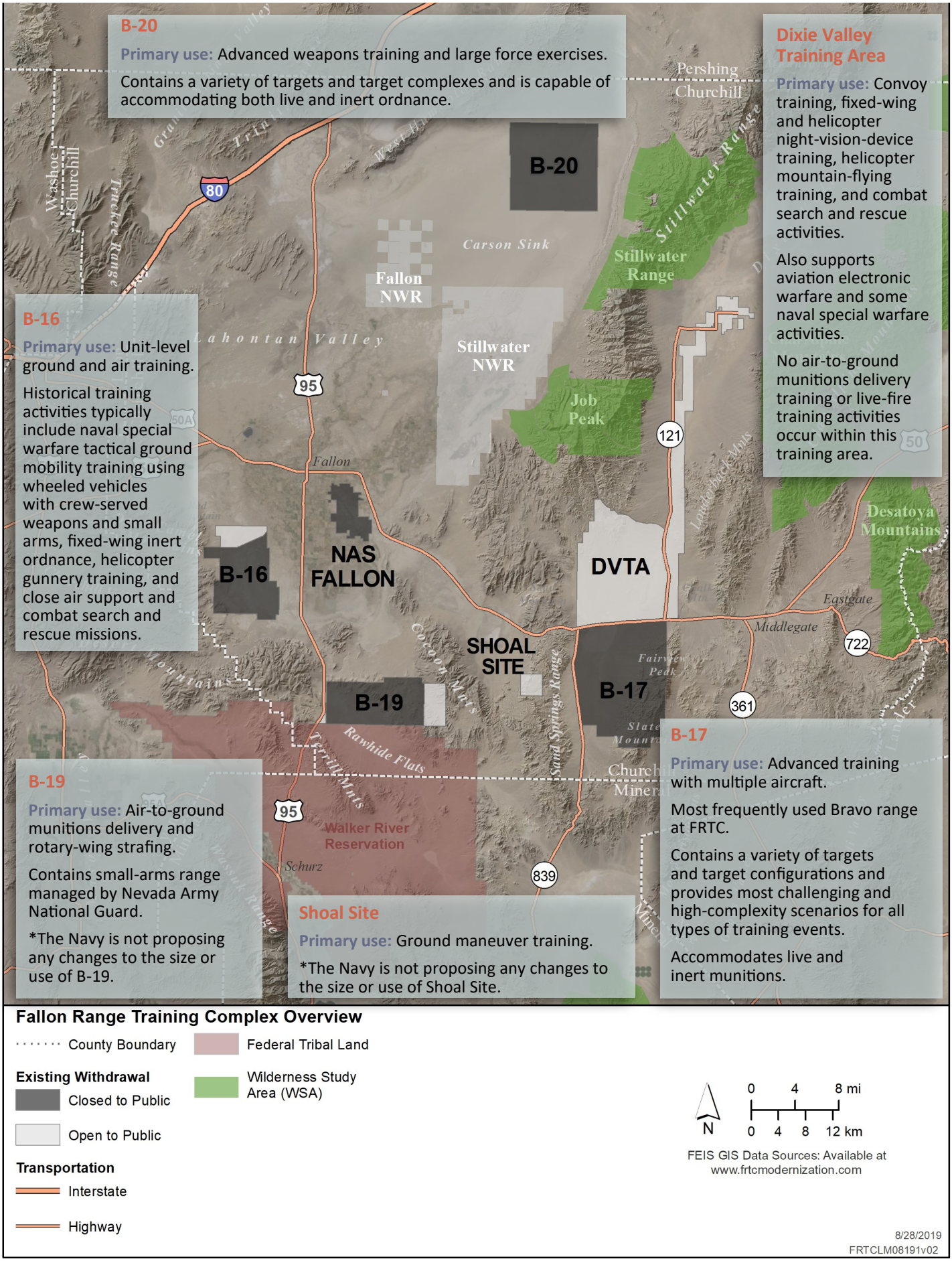


Figure 1: Current Fallon Range Training Complex Overview

The purpose of the Proposed Action is to provide sustainable and modernized airspace, ranges, maneuver areas, training facilities, and range infrastructure to support acceptably realistic air training activities and special operations ground training activities to meet emergent and future threats.

Ninety Days to Combat Study

To evaluate the Navy's ability to counter evolving current and future threats worldwide, the Naval Aviation Warfighting Development Center (NAWDC), naval aviation's warfare authority, initiated the *Ninety Days to Combat Required Training Capabilities Study* to evaluate the effectiveness of existing aviation training requirements and assess the need to reconfigure the FRTC. Through the study, the Navy identified significant gaps in aviation weapons training. At the same time, the U.S. Navy Sea, Air, and Land (SEAL) teams identified similar gaps in ground mobility training and actions needed to support such training at the FRTC. The analysis showed that the current size of the Bravo ranges and the DVTA severely restricts the extent to which the Navy can use its various weapons systems to train. As a result, aircrews and special operations forces are unable to train in sufficiently realistic conditions, which compromises their safety and success in combat.

Training Space Needs

Current aircraft and weapons require a far greater amount of training space than previous aircraft and weapons required (Figure 2). Historically, older aircraft flew at lower altitudes (10,000 feet), approached targets from close distances (4 to 5 miles away), and required a smaller impact area for weapons. Now, modern aircraft fly at higher altitudes (30,000 feet), release weapons from 10 to 12 miles away, and require a larger weapons safety area during training for containment.

At the FRTC, a number of new weapons systems have been introduced into the fleet in recent years, such as joint direct attack munitions. Additionally, new systems, including new aircraft, such as the F-35C Lightning II Joint Strike Fighter and EA-18G Growler, will need to be employed in future training activities. However, the Bravo ranges and the DVTA have not changed substantially in size or configuration since the 1990s.

Figure 3 depicts what the B-17 range would need to look like with full implementation of NAWDC's current tactics, techniques, and procedures (TTP). In this scenario, the weapons danger zones at B-17 would extend significantly beyond the current controlled range property. Therefore, to ensure public safety, the Navy currently trains at far below maximum capabilities.

While the Navy continues to train at the FRTC, the current configuration of the Bravo ranges forces the Navy to limit training in the air and on the ground. Training is limited to scenarios that only partially resemble what personnel would experience in actual combat, and that limit the extent to which the Navy can replicate enemy capabilities.



The Navy evaluated the identified training capability gaps against the real-world constraints (e.g., regional roadways, commercial airspace, population centers) on achieving full TTP compliance. Full compliance would require a prohibitively large area, approximately double the amount of land as proposed in the Final EIS. This evaluation resulted in the development of modified range tactical requirements that would approach full TTP specifications. Even though not all TTP specifications would be met, the proposed modernization would still allow the Navy to achieve an acceptable level of training capabilities. Concurrently, Naval Aviation Warfighting Development Center worked with Naval Special Warfare to identify similar gaps and actions that would support ground mobility training requirements that acceptably approach the full TTP (see the Ground Mobility Training Need versus Current Range Capability section of Chapter 1 of the Final EIS).

Figure 4 depicts the proposed modernization of the B-17 range with tactically acceptable parameters. These parameters do not represent the full capability recommended in *Ninety Days to Combat Study*, but were determined to be acceptable by the Navy for training purposes.

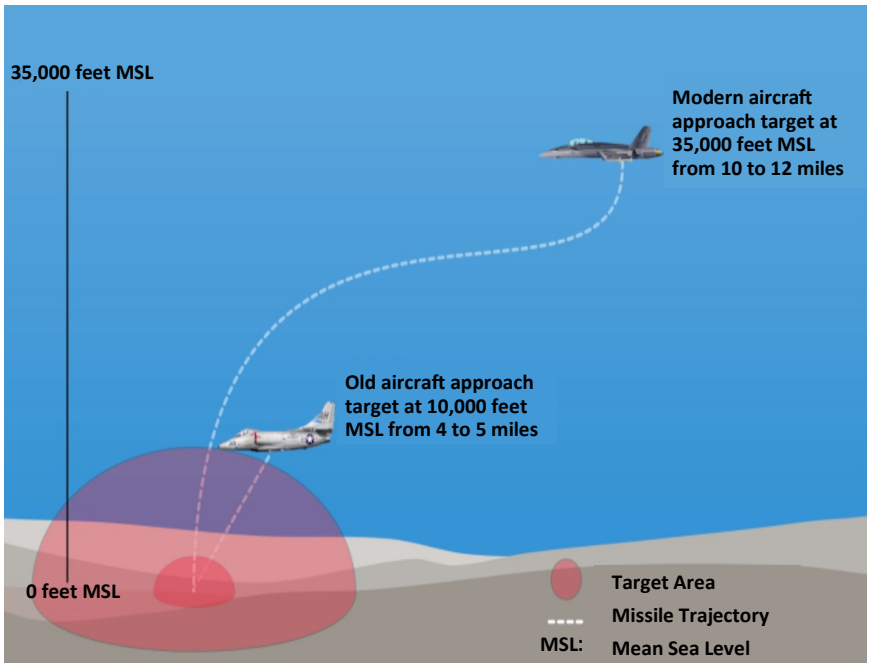


Figure 2: Current and Historic Training Space Needs

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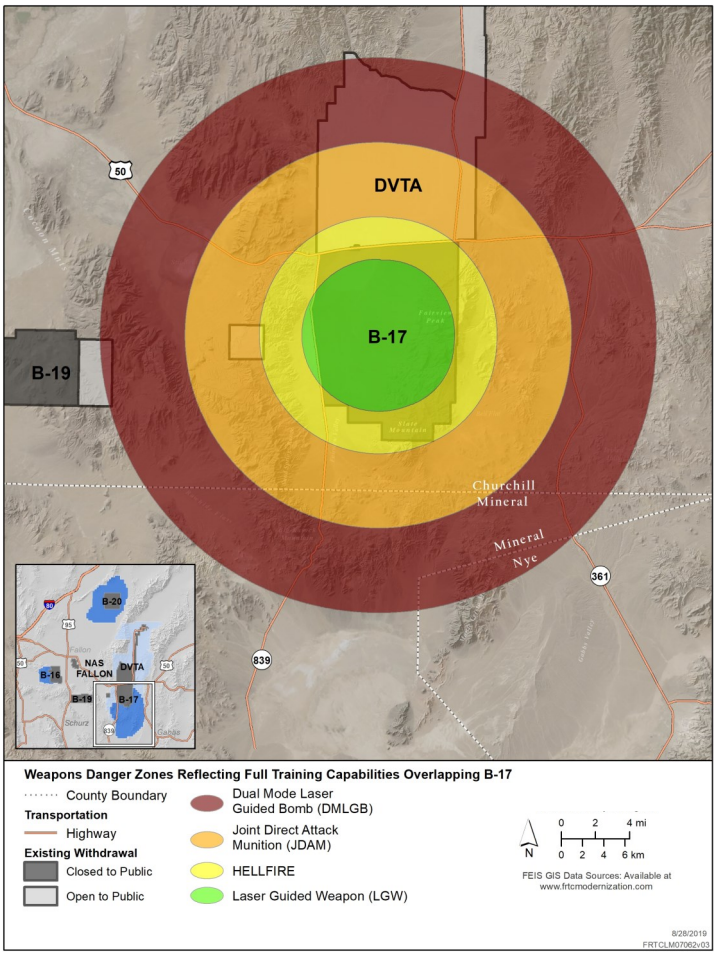


Figure 3: Weapons Danger Zones Reflecting Full Training Capabilities Overlapping Current B-17

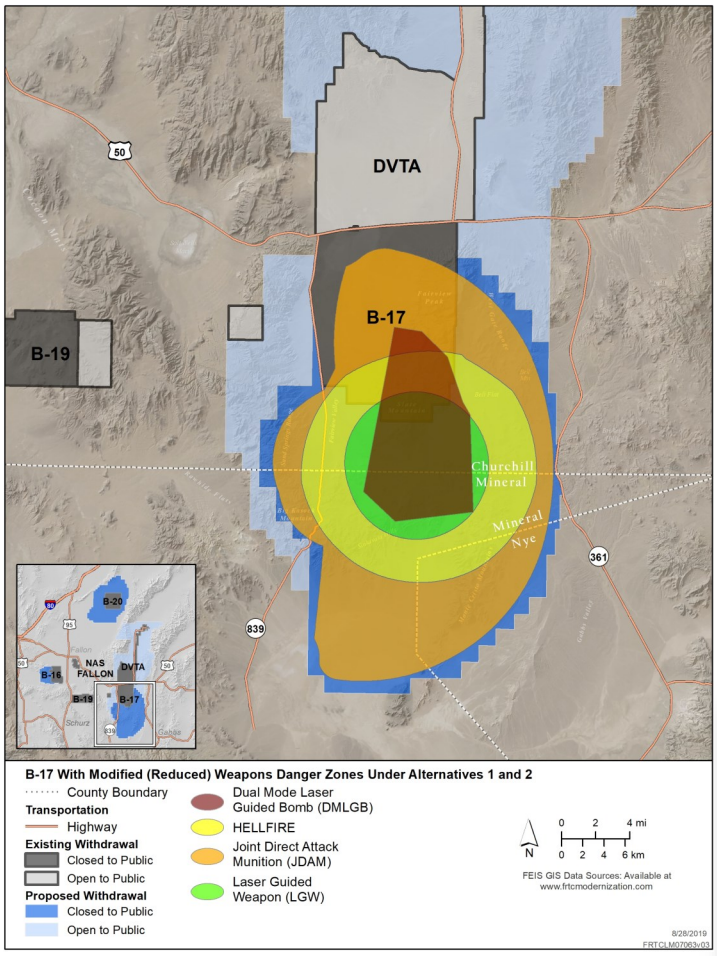


Figure 4: B-17 with Modified (Reduced) Weapons Danger Zones Under Alternatives 1 and 2

The modernization proposal would address the gaps between current training capabilities and current and future training requirements. Modernization of the ranges would provide the land and airspace necessary to train to tactically acceptable parameters in accordance with the Navy mission.

The Navy has conducted rigorous exploration and objective evaluation of reasonable action alternatives. Reasonable alternatives are those that meet the purpose and need and screening factors, and are practical or feasible from a technical and economic standpoint.

The Navy used the following primary screening factors to evaluate potential alternatives:

- Provide a realistic training environment that meets tactically acceptable parameters.
- Provide a training environment capable of supporting readiness training, including the use of high-explosive ordnance, in a manner that protects the safety of the public and military personnel.
- Provide adequate training tempo to support year-round air-to-ground and air-to-air carrier air wing training.



The Navy's Proposed Action is to modernize the FRTC, which would include the renewal of the Navy's current withdrawal, land range expansion through additional withdrawal of public lands and acquisition of non-federal land, airspace expansion and modifications, and upgrades to range infrastructure.

Under Alternatives 1, 2, and 3, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempo as currently authorized. The Navy is not proposing to increase the number of training activities under any of the alternatives in the Final EIS. Rather, the Navy would redistribute training activities across the expanded ranges for more effective use of training space. Expanding B-16, B-17, and B-20 would accommodate the larger safety zones needed for standoff weapons training. Expanding the DVTA would enhance the safety of aviators during low-altitude and nighttime non-weapons training events, and offer a more realistic environment for electronic warfare, convoy training, and search and rescue training. In general, construction activities would include the installation of perimeter fencing; land grading for placement of container express (conex) boxes and small, pre-engineered buildings; and construction of ground targets and communication towers.

All alternatives were compared to the environmental baseline to determine potential impacts on existing conditions. The environmental baseline for the Final EIS is based on current aviation and ground training activities and the existing land withdrawals at the FRTC.

No Action Alternative

The No Action Alternative consists of not renewing the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021, and not withdrawing or acquiring any new land.

Alternative 1 (Modernization of the Fallon Range Training Complex)

Under Alternative 1, the FRTC would be expanded, except for B-19 and the Shoal Site (Figure 5).

Specifically, under Alternative 1, the Navy would:

- Request Congressional renewal of 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021.
- Request Congress withdraw and reserve for military use up to 618,727 acres of additional federal land for a term of 25 years.
- Acquire approximately 65,159 acres of private or state-owned (non-federal) land.
- Construct range infrastructure to support modernization, including new target areas.
- Expand and reconfigure existing special use airspace and establish new airspace within the FRTC airspace boundary to accommodate expanded Bravo ranges.

Alternative 1 includes the extension of B-17 over a portion of State Route 839 and part of the Paiute Pipeline, a natural gas pipeline. Implementation of Alternative 1 would require the rerouting of State Route 839 and the relocation of a portion of the Paiute Pipeline because Navy policy does not allow public land use of any kind to occur within active weapons danger zones. Follow-on, site-specific NEPA analysis of the anticipated impacts associated with any potential route(s) would be required.

Except for a slight expansion beyond the current northern boundary, airspace modifications would be within existing FRTC boundaries.

Currently, public use is allowed on public lands that are requested for withdrawal. Some of these uses include grazing, hunting, locatable mining, geothermal development, salable mining, solar and wind energy development, utilities and rights-of-way (ROW), off-highway vehicle (OHV) use, camping and hiking, academic and ceremonial visits, management access, and large-scale races. Under Alternative 1, the Navy would restrict public access from B-16, B-17, B-19, and B-20 for security and to safeguard against potential hazards associated with military activities. The DVTA would remain open to the public for certain uses.

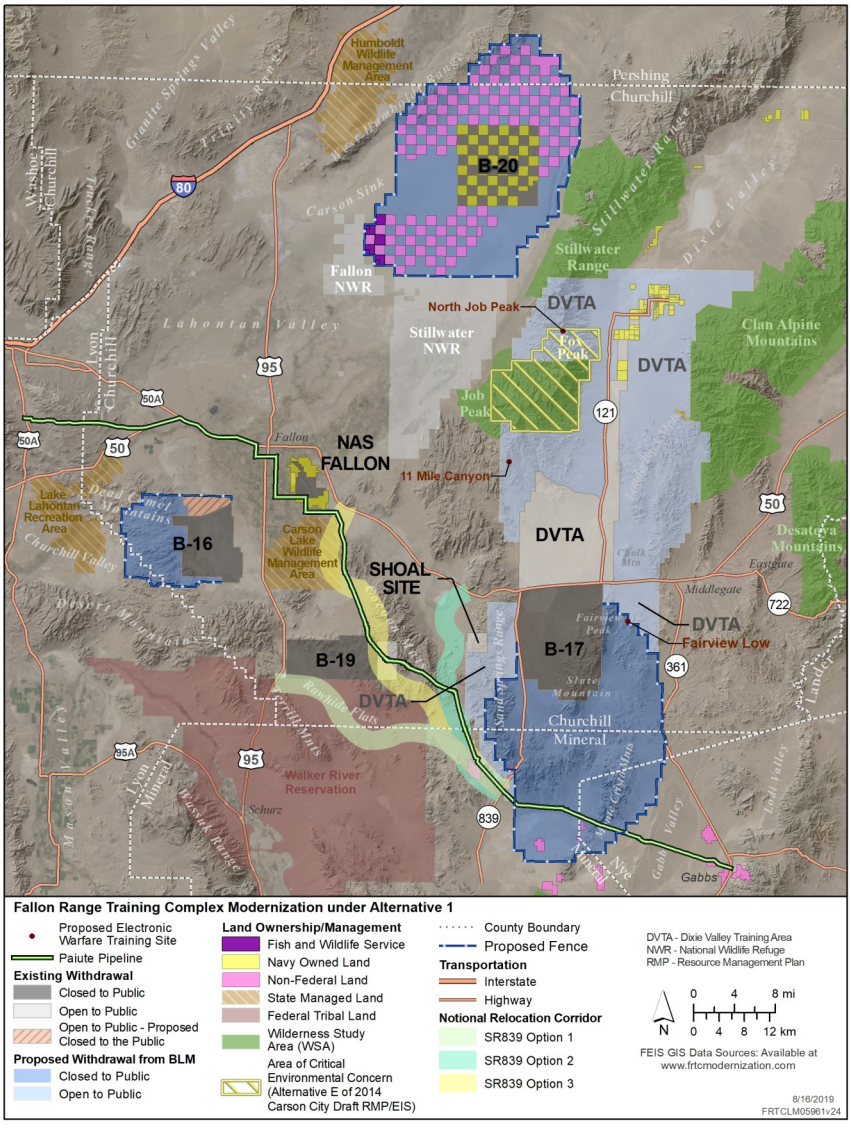


Figure 5: Fallon Range Training Complex Modernization Under Alternative 1

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Activities Within the Land Areas of the Fallon Range Training Complex Under Alternative 1





The Navy issued a notice of intent to prepare an EIS on Aug. 26, 2016, and provided information to the public and collected comments from the public, cooperating agencies, and tribal participants regarding potential impacts and concerns, as well as suggestions for alternatives. The Navy reviewed all submitted comments and analyzed potential viable alternatives that met the purpose, need, and screening factors. The Navy met with various stakeholders to discuss potential alternatives and impacts. Many comments indicated the desire to have an alternative with a reduced level of public access restrictions. Alternative 2 (Managed Access) and Alternative 3 (Preferred Alternative) allow more public access for recreation, hunting, and leasable (geothermal) and salable mining than Alternative 1. Additionally, Alternative 3 would maintain greater access for locatable mining than Alternatives 1 and 2.

Alternative 2 (Managed Access)

Under Alternative 2, the Navy would expand the FRTC to the same extent as described in Alternative 1 and continue to allow certain public uses within specified areas of B-16, B-17, B-19, and B-20 when the ranges are not operational. However, under Alternative 2, the Navy proposes to allow a bighorn sheep hunting program on B-17, as described in the Draft Memorandum of Agreement between the Navy and Nevada Department of Wildlife (NDOW) in Appendix D (Memoranda, Agreements, and Plans) of the Final EIS.

Additionally, geothermal and salable materials exploration and development and water development would be conditionally allowed on the DVTA. Academic research, ceremonial and cultural visits, land management activities, and large event off-road races would be allowed on all ranges, subject to coordination with the Navy.

Allowing such public access would be more complex and challenging for the Navy. However, Alternative 2 would still meet the Navy's purpose and need to ensure the FRTC possesses the present and future capabilities necessary to train deploying forces for combat.

Activities Within the Land Areas of the Fallon Range Training Complex Under Alternative 2







Alternative 3 (Preferred Alternative)

Alternative 3 (Preferred Alternative) is similar to Alternatives 1 and 2 in terms of its requested land withdrawals and proposed acquisitions, except with respect to the orientation, size, and location of B-16, B-17, B-20, and the DVTA, and similar to Alternative 2 in terms of managed access, as shown in Figure 6. With respect to B-16, unlike Alternatives 1 and 2, Simpson Road and the lands south of it would not be withdrawn. Additionally, currently withdrawn lands south of Simpson Road would be relinquished by the Navy back to the Bureau of Land Management (BLM). Alternative 3 would move B-17 farther to the southeast and rotate it slightly counterclockwise, retaining access to Rawhide Mine, entirely avoiding Fairview Peak, and retaining access to Sand Springs Range. Under Alternative 3, the Navy would not withdraw East County Road or the land east of it for B-20.

Between the Draft EIS and Final EIS, the Navy received public comments requesting the size of the withdrawal and acquisition be reduced as much as possible. The Navy has reduced the size of the withdrawal from the proposal in the Draft EIS. This change in area is shown for B-17 in Figure 7 and for B-20 in Figure 8.

Under Alternative 3, the land requested for withdrawal for the DVTA north of U.S. Route 50 would remain the same as Alternative 1. Unlike Alternatives 1 and 2, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes Congress categorize this area as a Special Land Management Overlay created through legislation. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as "military electromagnetic spectrum special use zones." These two areas would be public lands under the jurisdiction of the BLM and would not be withdrawn by the Navy for land-based military training. The zones would remain open to public access and available for all BLM-allowable uses (e.g., grazing, hunting, recreation) and mining. However, prior to issuing any decisions on projects, permits, leases, studies, and other land uses, the BLM would consult with the Navy to ensure compatibility with training requirements.

In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration, but would expand eastward, requiring the rerouting of State Route 361. B-17 would also expand southward, requiring the relocation of a portion of the Paiute Pipeline.

Under Alternative 3, airspace changes would be implemented largely in the same way as Alternatives 1 and 2. However, the Navy would create a new restricted area (R-4805) south of existing restricted areas (R-4804 A/B and R-4812) to overlay the reconfigured land withdrawal for B-17 (see the Airspace section of the Final EIS for details).

The Navy's Preferred Alternative is Alternative 3 because it best meets the purpose of and need for modernization while minimizing impacts on public land access and use.

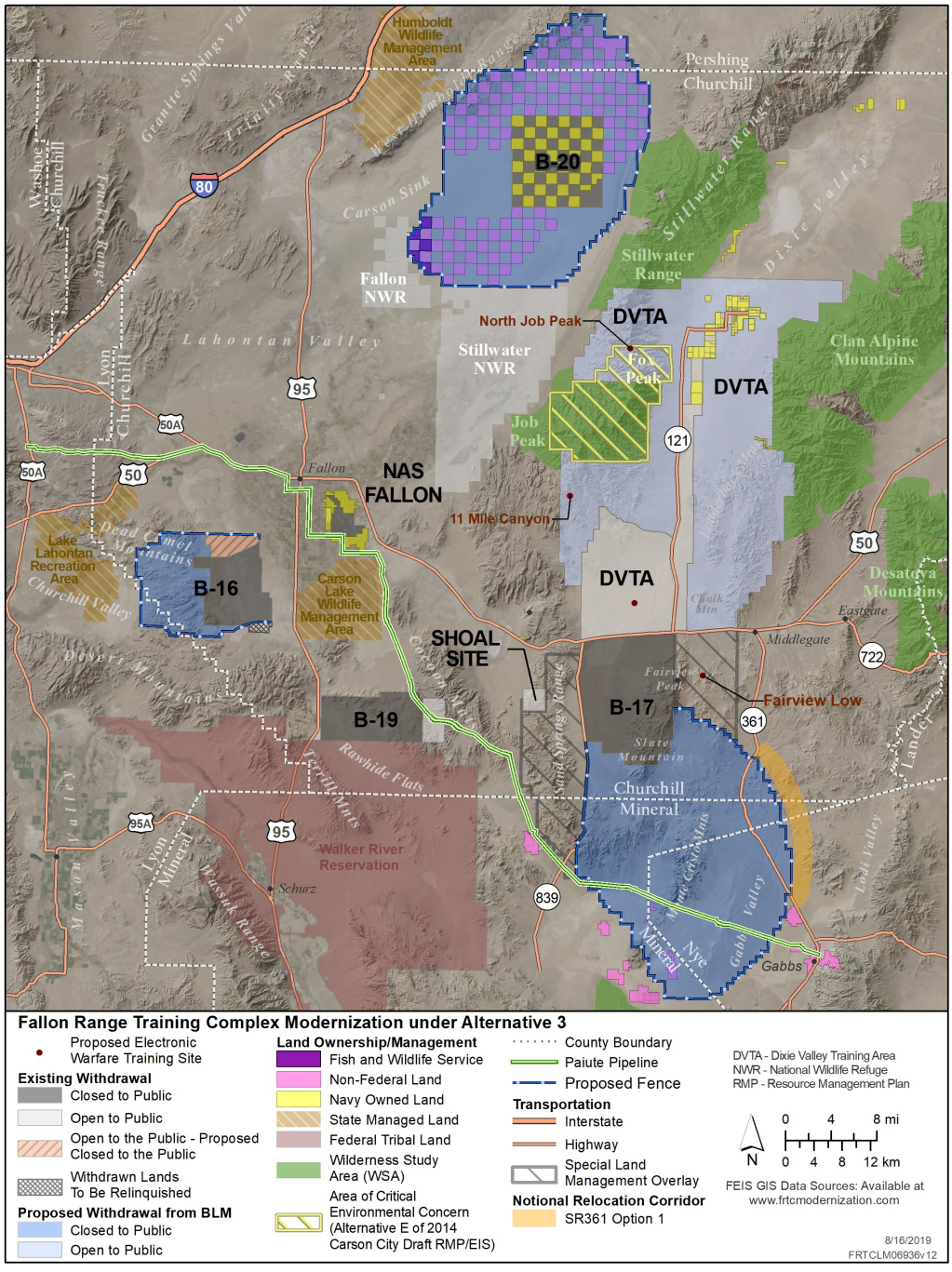
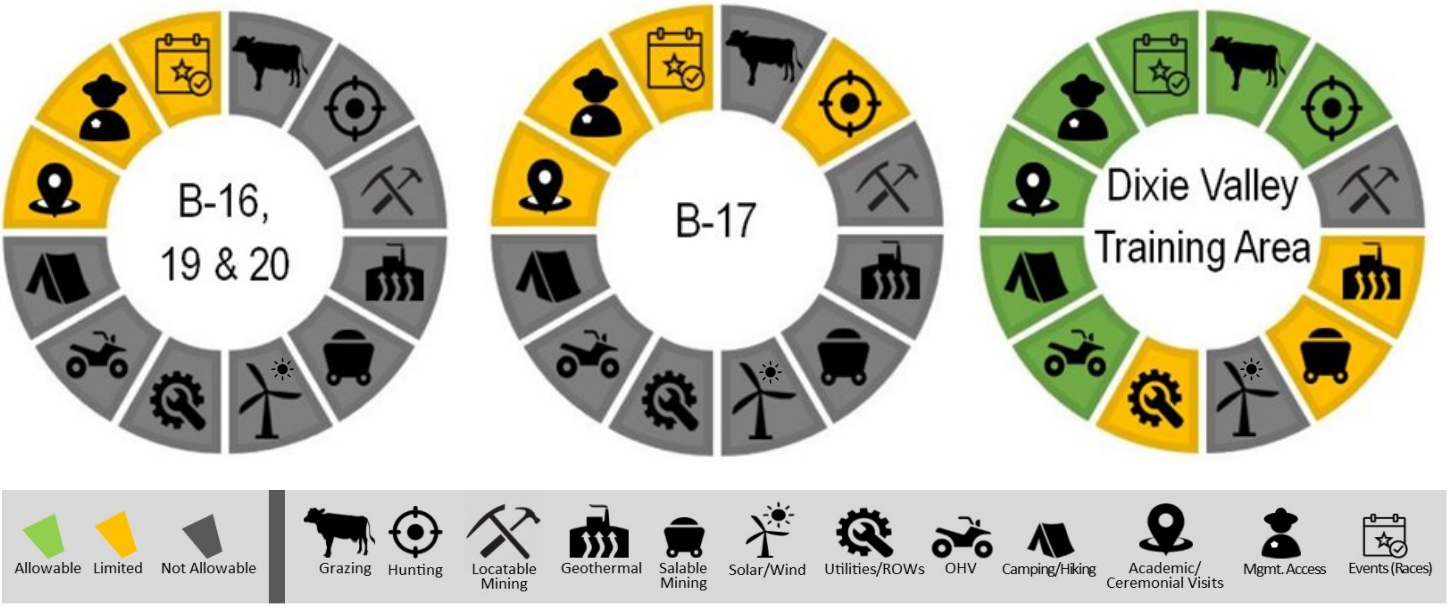


Figure 6: Fallon Range Training Complex Modernization Under Alternative 3

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Activities Within the Land Areas of the Fallon Range Training Complex Under Alternative 3 (Preferred Alternative)



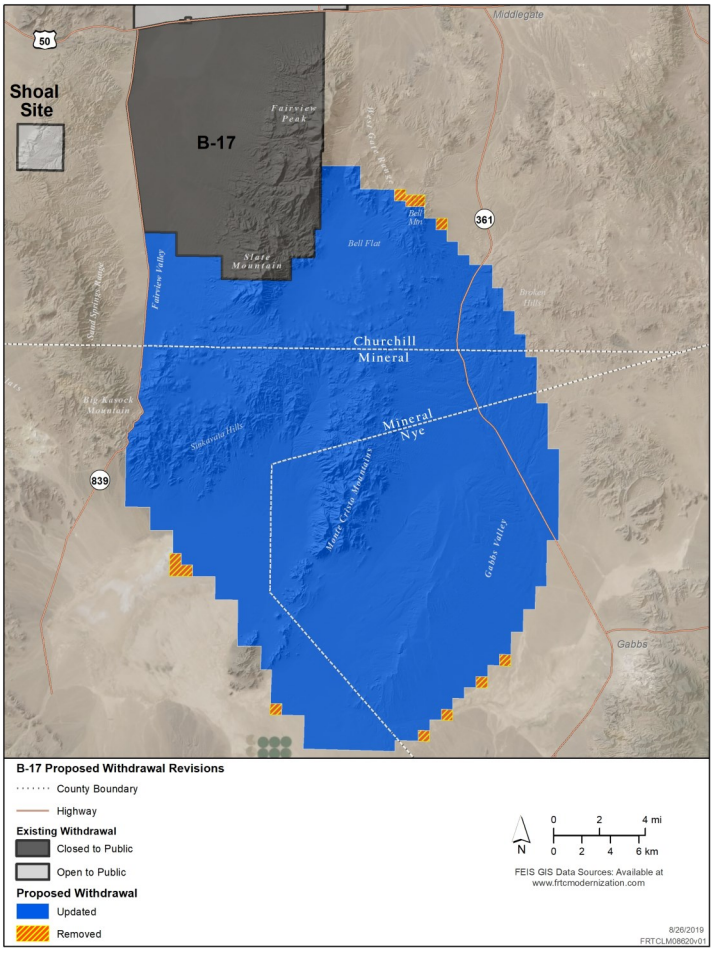


Figure 7: B-17 Proposed Withdrawal Revisions

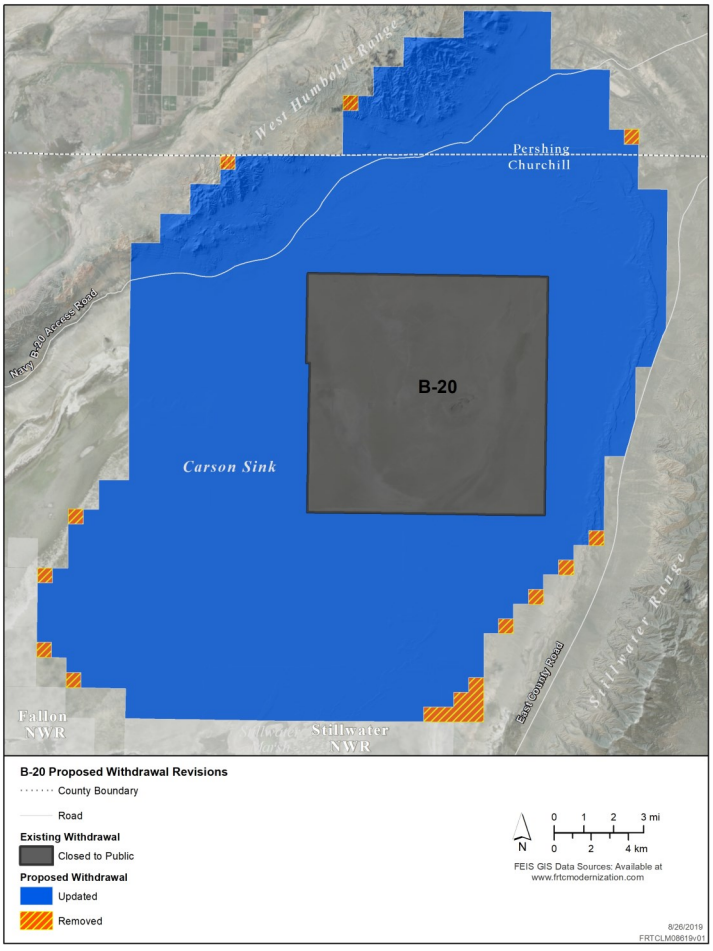


Figure 8: B-20 Proposed Withdrawal Revisions

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The Final EIS documents the results of the environmental analysis and potential impacts of all alternatives on 15 resource areas. Additionally, the Navy conducted 20 supporting studies and worked closely with cooperating agencies and Indian Tribes to thoroughly review and incorporate the best available science relevant to analyzing environmental impacts.



The cumulative impacts of past, present, and reasonably foreseeable future actions were also assessed.

The following sections describe potential environmental impacts of Alternative 3 (Preferred Alternative) for each resource area and identify instances where potential impacts differ from Alternatives 1 and 2. Tables depicting potential impacts of all alternatives can be found at the bottom of each resource page of this Executive Summary.

The Navy currently has, or is proposing, management practices, monitoring, and mitigation measures to reduce impacts on the environment from the proposed modernization. More details on potential impacts and management practices, monitoring, and mitigation measures can be found in the Final EIS.

The Navy analyzed potential impacts on:

- Geological Resources.
- Land Use.
- Mining and Mineral Resources.
- Livestock Grazing.
- Transportation.
- Airspace.
- Noise.
- Air Quality.
- Water Resources.
- Biological Resources.
- Cultural Resources.
- Recreation.
- Socioeconomics.
- Public Health and Safety and Protection of Children.
- Environmental Justice.

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Methodology

In accordance with NEPA and the Administrative Procedure Act of 1946 (5 U.S. Code sections 551–559), the Navy used the best available data accepted by the appropriate regulatory and scientific communities. The Navy reviewed primary literature, including journals; books; periodicals; bulletins; Department of Defense operations reports; county master plans; species management plans; other technical reports published by government agencies, private businesses, or consulting firms; and academic theses and dissertations to assist in the analysis of potential environmental consequences. The Navy conducted internet searches and evaluated websites for the credibility of the source, the quality of the information, and the relevance of the content to ensure the use of high-quality information.

The Navy considered both direct and indirect effects resulting from each alternative. Direct effects occur in the same location and at the same time as the agency action (40 CFR part 1508.8). Indirect effects are reasonably foreseeable and caused by the action, but occur later in time or at a distance (40 CFR part 1508.8).

The terms *significantly* and *significance*, as used in NEPA, require consideration of both context and intensity. *Context* means analyzing the significance of an action in several perspectives, such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. *Intensity* refers to the severity or extent of the potential environmental impact. Intensity also relates to the potential extent of the likely change. In general, the more sensitive the receptor, the less intense a potential impact would need to be to be considered significant. The less sensitive the receptor, the more intense a potential impact would need to be to be considered significant.

The Navy developed mitigation methods to reduce the potential for or the severity of a potential impact. Please see resource pages 12 to 26 and page 28 of this Executive Summary for a description of these mitigation methods, as well as Chapter 5 of the Final EIS.

The Navy reviewed and evaluated additional information, such as unique resource characteristics; public and cooperating agency comments; previous environmental analyses; agency and tribal consultations; resource-specific information; and applicable laws, regulations, and executive orders. This process helped focus information presented in affected environment sections and analyses presented in the environmental consequences sections.

In the impact summary tables presented on each resource page, the following symbols are used to generally identify the impacts of each alternative; more detail is presented in Chapter 3 of the Final EIS. The public is highly encouraged to read the more detailed discussion and analysis.

●= Some impact.

◑= Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.

○= Minimal impact.

Blank= No impact.



While specific methods used to analyze the effects of the alternatives vary by resource, all resource analyses follow this general approach:

- Review existing federal and state regulations and standards relevant to each resource-specific management or protection.
- Describe existing resource conditions (affected environment) based on geographic areas within the FRTC or as otherwise appropriate based on the resource-area-specific region of influence. Because the FRTC is a large area, each resource section splits the affected environment discussion into five main areas (B-16, B-17, B-20, the DVTA, and special use airspace). Impacts pertaining to B-19 are analyzed in a more limited manner since the Navy is not proposing or requesting any changes to the current configuration of B-19.
- Identify resource conditions or areas that require specific analytical attention.
- Analyze specific actions within a given alternative (environmental consequences) to determine what components of the alternative may affect the particular resource.
    - Review and analyze data sources for information on the resource, including modeling efforts and scientific research.
    - Determine specific impacts on the resource that could result from Navy activities, given the applicable regulatory framework.
    - Adjust initial impact determinations as appropriate to account for use of standard operating procedures, management practices, and other impact avoidance, minimization, or mitigation measures.
    - Determine overall impacts on the resource associated with the alternatives.
- Summarize impact findings concerning resource impacts.

Geological Resources

When determining potential impacts on geological resources, the land's topography and soils are assessed along with its geology. The *region of influence* for geological resources includes the topography, rocks, geologic structure, and soil within the proposed withdrawal areas.

Geology: study of the earth, the materials of which it is made, the structure of those materials, and the processes that influence them. Geology includes rock types, geologic structures (e.g., faults, folds, tilting of rocks), mineral deposits, and fossil remains.

Topography: location of landforms and physical features of a land area. Topography is typically described with respect to a given area's elevation, slope, and surface features.

Soil: an accumulation of organic material and weathered rock and minerals that overlay bedrock in layers or horizons. Soil is the upper layer of the earth where plants grow and is typically described in terms of type, slope, physical characteristics, and whether or not it can support specific types of land use, such as construction or agriculture, including prime, unique, or important farmland.

Environmental Consequences

New target areas would be created at B-16, B-17, and B-20. Ordnance strikes would occur on targets in active target areas, resulting in the potential for munition constituents to impact soil or shallow bedrock; however, existing management practices would minimize long-term permanent impacts. Under Alternative 3 (Preferred Alternative), construction activities would permanently impact up to an estimated 241 acres (approximately 347 under Alternatives 1 and 2) and temporarily impact approximately 451 acres (approximately 454 acres under Alternatives 1 and 2).

Ground convoy training would result in soil disturbance and compaction, exposing soils to erosion in some limited areas.

Alternative 3 would not result in significant impacts on geological resources. Under the No Action Alternative, geological resources in the region of influence could be impacted by potentially foreseeable mineral development that may occur should the area not be withdrawn for Navy use.

Management Practices, Monitoring, and Mitigation

Current: The Navy would continue to implement management practices to avoid and minimize potential impacts on geological resources. Practices include conducting regular range-condition assessments and periodic range clearance activities to minimize accumulation of munitions constituents in target areas, mandating secondary containment areas for refueling activities, using drip pads under parked equipment, and requiring vehicles to use existing roads and two-track trails.

Proposed: During construction, personnel would stay within established corridors and follow posted speed limits. If warranted, pedestrian field surveys would be conducted by a qualified BLM-permitted paleontologist prior to surface grading or excavation. If there were an unanticipated discovery of a potential paleontological resource, surface-disturbing activities would cease in the immediate area of the discovery until the significance of the discovery could be analyzed and any applicable regulatory requirements could be met.



Table 1: Potential Impacts on Geological Resources	Alternatives			
	1	2	3	No Action*
Munitions constituents more widely distributed	◑	◑	◑	
Soil compaction or erosion increased	◑	◑	◑	●
Permanent impact from construction	●	●	●	●
Temporary impact from construction	◑	◑	◑	◑
Prime, unique, or important farmland converted				●

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Land Use

The term *land use* refers to property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. The two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. The meanings of land use descriptions, labels, and definitions may vary among jurisdictions.

For the Final EIS, the environmental analysis for land use includes the area on and within approximately five miles of the FRTC land and special use airspace. The region of influence is within western and central Nevada and includes all or portions of Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe counties.

Environmental Consequences

Withdrawn and acquired land would no longer be managed for the purpose of multiple use due to the hazardous nature of military activities occurring on the Bravo ranges (but not the DVTA). Access to previously open land would be closed and restricted from public use except for activities when authorized by and coordinated with the Navy, such as ceremonial site visits, research and academic pursuits, and regulatory or management activities conducted by the BLM, Bureau of Reclamation, the USFWS, or NDOW.

The expanded B-20 boundary would overlap the National Wildlife Refuge Complex, including 3,200 acres of the Fallon National Wildlife Refuge under Alternatives 1 and 2 and 2,720 acres under Alternative 3 (Preferred Alternative), and 1,920 acres of adjoining Churchill County conservation easements under Alternatives 1, 2, and 3. The refuge lands would continue to be maintained as refuge; however, the public would not have access to the portion of the refuge under the weapons danger zone.

The expanded DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak Area of Critical Environmental Concern (ACEC). The BLM would change the boundaries of the Fox Peak ACEC to remove those areas within the expanded DVTA, as these acres would be withdrawn for the benefit of the Navy.

There would be no conversion of prime or unique farmland or farmland of statewide importance. Utility planning corridors within the range expansion areas would be incompatible with military operations.

Energy development and infrastructure, minerals exploration and development, and transportation would not be allowed on the expanded Bravo ranges due to the restriction of public access.

Changes in airspace, including the extension of military operations areas in the eastern portion of the FRTC special use airspace, would not result in low-altitude overflights.

Alternative 3 would result in less than significant impacts on land use.

Wilderness Study Area: an area for further study to determine whether it meets criteria to be designated by Congress as a Wilderness Area.

Wildlife Refuge: an area managed by the U.S. Fish and Wildlife Service for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats.

Area of Critical Environmental Concern: areas where special management is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values, or wildlife resources.

Unique or Important Farmland: land used for production of specific high-value food and fiber crops, or that is of statewide or local importance and used for the production of food, feed, fiber, forage, or oilseed crops.

Utility Planning Corridor: tract of land that may serve as a passageway through which various commodities, such as oil, gas, and electricity, could be transported.

Management Practices, Monitoring, and Mitigation

Current: The Navy would continue to implement current land use policies and procedures, such as avoiding noise-sensitive areas.

Proposed: Due to changes in airspace, the Navy is proposing to designate Crescent Valley and Eureka as noise-sensitive areas and implement buffer zones (five nautical miles and 3,000 feet above ground level) to reduce noise impacts on these communities.

Table 2: Potential Impacts on Land Use

	Alternatives			
	1	2	3	No Action*
Public access restricted from Bravo ranges proposed for withdrawal or acquisition	●	◑	◑	
Public access restricted from the DVTA proposed for withdrawal or acquisition				
Proposed expansion area overlaps portions of Fallon National Wildlife Refuge	◑	◑	◑	
Proposed expansion area overlaps 11,600 acres of BLM's proposed Fox Peak Area of Critical Environmental Concern	◑	◑	◑	
Utility planning corridors within proposed Bravo range expansion areas not allowed	●	●	●	
Renewable resource development	●	◑	◑	
Prime, unique, or important farmland converted				●

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◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
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* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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A *mineral resource* is defined as a concentration of naturally occurring solid, liquid, or gaseous material in or on the earth's crust in such form that economic extraction of a commodity is currently or potentially feasible. The term *economic* implies that profitable extraction or production under defined investment assumptions has been established, analytically demonstrated, or assumed with reasonable certainty.

Environmental Consequences

The Navy's proposed modernization of the FRTC would impact and/or potentially impact planning activities related to mining and mineral resources, as well as potential exploration, development, and production of such resources. Although Alternative 3 (Preferred Alternative) includes changes from Alternatives 1 and 2 meant to reduce impacts on mineral resources, this alternative would still include the withdrawal of lands with high potential for locatable, leasable (geothermal), and salable minerals, and may have an economic impact if market conditions were favorable for more mineral resource development.

Under Alternative 3:

- Locatable mining would not be allowed within Bravo ranges or the DVTA.
- Access would be allowed to the mining districts west of State Route 839 B-17 and would not overlap active mine workings.
- Salable mining would be allowed in the DVTA with required design features.
- Geothermal development would be impacted; however, development would be allowed on the west side of the DVTA with required design features.
- Access for mining exploration and development in the Special Land Management Overlay would be allowed south of the U.S. Route 50.

Though anticipated to have fewer impacts than Alternatives 1 and 2, Alternative 3 would result in potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.

Management Practices, Monitoring, and Mitigation

Proposed: Under Alternative 3, the Navy proposes to allow geothermal development and salable mining activities to continue on the DVTA as long as the actions are compatible with training activities and approved by the Navy. The Navy would allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures and inclusion of required design features, would allow geothermal development west of State Route 121.

The Navy is currently proposing the following required design features for geothermal development:

- Expand two ROWs adjacent to the current transmission corridor (as close to the current line as possible) to be a 90-foot (maximum) permanent and 300-foot (maximum) temporary ROW.
- Construct an underground transmission line connection from proposed facilities to existing transmission line ROW along State Route 121.
- Use compatible lighting with downward facing shades, and at a frequency that doesn't "wash out" night-vision devices and motion sensors.
- Use cooling towers and other permanent structures no higher than 40 feet.
- Avoid steam field piping blocking current access roads to/ from State Route 121 and canyon areas.
- Require a glint and glare analysis for photovoltaic solar/ geothermal hybrid design prior to construction.
- Coordinate with the Navy on frequency spectrum, exploratory and construction activities, temporary vertical obstruction safety lighting, and use of unmanned aerial vehicles in the DVTA.

Locatable minerals: Includes metallic minerals (e.g., gold, copper, silver, molybdenum, tungsten, iron, uranium) and industrial minerals (e.g., diatomaceous earth, sulfur, fluorspar, gypsum, barite).

Leasable minerals: Includes solid minerals (e.g., phosphate, coal, oil shale) and fluid minerals (e.g., oil, gas, geothermal resources).

Salable minerals: Minerals that are used mainly for construction materials and building roads (e.g., sand, stone, gravel, pumice, pumicite, cinders, petrified wood).

Table 3: Potential Impacts on Mining and Mineral Resources	Alternatives 1	2	3	No Action*
Exploration and development of locatable mineral resources restricted within proposed land boundaries of FRTC	●	●	◑	
Exploration and development of geothermal resources restricted within proposed land boundaries of FRTC	●	◑	◑	
Mineral exploration and development restricted within existing withdrawn areas	●	●	●	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Livestock Grazing

The resource discussion in the Final EIS includes current and planned livestock grazing and outlines the policies that regulate livestock grazing on public lands. The Navy identified and analyzed impacts on livestock grazing allotments, pastures, and areas that would be affected by the alternatives. The impacts on public land grazing in the proposed land boundaries of the FRTC would potentially affect 11 BLM grazing allotments and one Bureau of Reclamation grazing area. An *allotment* is a designated area or management unit that allows grazing and can be made up of multiple pastures.

The Navy reviewed grazing allotments on lands within or adjacent to the proposed FRTC withdrawal areas, whether or not grazing occurs there. If a particular grazing allotment would be affected, the region of influence would extend beyond the proposed FRTC withdrawal area to include the entire allotment. The environmental analysis also included any area that could potentially be impacted by construction noise, training noise, sonic booms, or engine noise from aircraft. This region is largely rural and is composed of public and private lands as well as Indian Reservations.

Environmental Consequences

The analysis indicates that Alternative 3 (Preferred Alternative) would result in a significant impact on livestock grazing due to the closure of approximately 335,255 acres of BLM allotments. The Navy obtained Geographical Information System data for each potentially affected allotment from the BLM in November 2017. These data were used to calculate potential changes to allotment acreage for each alternative and represent the most up-to-date information regarding potentially affected allotments. While a restrictive analysis provides the potential change in Animal Unit Months (AUMs) on the associated grazing permits due to a loss of acreage on the allotment, significance determinations for purposes of analysis of livestock grazing were made based on the combination of the percentage of allotment impacted, the quality of forage on removed acres, and range improvements lost under the alternatives.

Between 0 percent and 88 percent of the allotments would close under Alternative 3. Changes are presented by allotment in the Livestock Grazing and Socioeconomics sections of the Final EIS. Unlike Alternatives 1 and 2, this alternative would not split the Phillips Well Allotment into two non-contiguous areas, but it would close a larger portion of the allotment. A larger portion of the Eastgate Allotment would also be closed under this alternative. Alternative 3 would close off an area of the Pilot-Table Mountain Allotment where water ponds and rangeland improvements have been made; however, this alternative does not close as much of this land overall as Alternatives 1 and 2.

Therefore, Alternative 3 would result in significant impacts on livestock grazing.

Management Practices, Monitoring, and Mitigation

Current: The Navy would continue to implement policies and procedures in the Integrated Natural Resources Management Plan to avoid conflicts between livestock grazing and natural resources.

Proposed: Existing standard operating procedures address unauthorized livestock on the FRTC training ranges; these would be updated upon the withdrawal and would continue to be implemented. Livestock-friendly erosion controls would be used during construction on or adjacent to grazing land actively being used. The Navy would expand fence line patrol and maintenance procedures to include fences on withdrawn lands. The Navy proposes to establish two Conservation Law Enforcement Officers at NAS Fallon. Part of their duties would include patrolling the added fence line for trespassing and reporting to the Navy broken or downed fences for maintenance repair. The Navy would continue to work with local counties and municipalities and federal property land managers, including BLM, USFWS, U.S. Forest Service, Bureau of Reclamation, and Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe counties, to plan for compatible grazing beneath FRTC special use airspace. The Taylor Grazing Act provides the Navy with the authority to make payments for certain grazing-related losses. The Navy would work with grazing permittees on a case-by-case basis to try to minimize losses resulting from the cancellation of any grazing permits. The Navy would follow the process for determining payment amounts for losses resulting from permit modification or cancellation as documented in the Final EIS.

Potentially Affected Allotments

- Bell Flat.
- Bucky O'Neill.
- Copper Kettle.
- Cow Canyon.
- Dixie Valley.
- Eastgate.
- Frenchman Flat.
- Horse Mountain.
- Humboldt Sink.
- La Beau Flat.
- Lahontan.
- Mountain Well-LaPlata.
- Phillips Well.
- Pilot-Table Mountain.
- Rochester.
- Salt Wells.
- Sheckler Pasture.
- White Cloud.

Table 4: Potential Impacts on Livestock Grazing

	Alternatives			
	1	2	3	No Action*
BLM allotments or Bureau of Reclamation pastureland closed	●	●	●	
BLM allotments or Bureau of Reclamation pastureland closed on the DVTA				
AUMs lost	●	●	●	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

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Transportation

For the purpose of the Final EIS, *transportation* is defined as the capacity of individuals to move themselves or others, as well as to move vehicles and/or various goods over and through land areas. The Navy evaluated roadways, railways, bikeways, and trails as transportation facilities that overlap or are adjacent to existing and proposed Bravo ranges and the DVTA. The Airspace section of the Final EIS addresses special use airspace and impacts on airports, airspace, and air transportation. The Recreation section of the Final EIS addresses recreational characteristics of transportation facilities, such as OHV use.

In 2017, the Navy prepared a Transportation Study as part of the EIS effort to analyze on-road vehicle use within affected areas under Alternatives 1 and 2. In 2018, the Navy completed a Transportation Study for on-road vehicle use within affected areas under Alternative 3 (see Supporting Study: Transportation Study, available at **www.FRTCModernization.com**. OHV counts occurred on unpaved roads and trails near ranges B-16 and B-17. The Navy collected OHV traffic data across two seasons on roads and trails that would be subject to closure as a result of Alternative 3 (Preferred Alternative).



Environmental Consequences

Implementation of Alternative 3 would result in significant impacts on transportation and traffic by restricting access to range areas, road and OHV area closures, and the rerouting of State Route 361.

Traffic patterns on roads near B-16 would be impacted due to the closure of Sand Canyon Road. The expansion of B-17 and B-20 would result in the loss of access via customary and familiar transit routes due to the closure of non-traditional roads and Pole Line Road. Simpson Road would remain open for public use under Alternatives 2 and 3.

The level of service on all applicable roads and at intersections would not change because of the potential rerouting of State Route 361 as shown in the Transportation Study.

Management Practices, Monitoring, and Mitigation

Proposed: Using funding provided by the Navy, the Federal Highways Administration, in cooperation with the Nevada Department of Transportation (NDOT), would be responsible for planning, designing, permitting, and constructing any realignment of State Route 839 (under Alternatives 1 and 2) or State Route 361 (under Alternative 3). The Navy would coordinate with NDOT during each of these phases. The Navy has submitted a Needs Report requesting funding through the Department of Defense's Defense Access Roads program. If approved, the Navy would coordinate construction through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Routes 839 or 361, and the Navy would not use any portion of an expanded B-17 range (if implemented) that overlaps the existing State Routes 839 or 361 unless and until a new route has been completed and made available to the public.

Monitoring measures are warranted for transportation based on the analysis presented in the Transportation section of the Final EIS. The Navy proposes to continue to work with ROW users to review potentially impacted county-designated access roads and other potential ROW in the lands requested for withdrawal or proposed for acquisition, and to look for appropriate replacement routes if appropriate and applicable.

Table 5: Potential Impacts on Transportation	Alternatives			
	1	2	3	No Action*
Portion of State Route 839 or 361 closed or relocated	●	●	●	
Transportation access via state/county ROWs or non-traditional roads closed to the public within expanded Bravo ranges	●	●	●	
Transportation access via state/county ROWs or non-traditional roads closed to the public within the DVTA				
Simpson Road closed	●	◑		

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

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Airspace

Airspace is defined in both vertical and horizontal dimensions and by time. It is considered to be a finite national resource that must be managed for the benefit of all aviation sectors, including commercial, general, and military. The Federal Aviation Administration (FAA) manages all airspace within the United States and its territories.

The Navy analyzed potential impacts from the reconfiguration of restricted areas over the Bravo ranges, changes in commercial and public use of the FRTC airspace, and effects on civil and private airports. The Navy and the FAA closely coordinated on the Final EIS. The FAA reviews Navy airspace proposals and conducts an aeronautical study to determine potential impacts on the National Airspace System.

Environmental Consequences

The Navy proposes to reconfigure existing military operating areas and air traffic control assigned airspace and create additional restricted airspace. The design of this special use airspace would maximize the Navy's use of the airspace while allowing as much public and commercial use as possible.

Under Alternative 3 (Preferred Alternative), the reconfiguration of B-17 would require new restricted airspace, named R-4805. Reconfigured airspace would not interfere with existing commercial air traffic patterns or airports/airstrips. To minimize aviation impacts under each of the alternatives, the Navy is requesting the FAA create "airport exclusion areas" (3-nautical-mile radius, surface to 1,500 feet above ground level) around the Gabbs, Crescent Valley, and Eureka airports. These exclusion areas would ensure those airports could continue to operate under all of the alternatives. Military aircraft would continue to comply with noise-sensitive area and airport exclusion area guidelines.



The Navy conducts activities in controlled airspace and implements safety procedures:

- Abiding by visual and instrument flight rules.
- Scheduling activities through the Naval Aviation Warfighting Development Center.
- Ensuring hazard zones are clear before beginning hazardous activities.
- Coordinating with range safety officers before expending military munitions.
- Continuing close working relationships with the FAA to manage special use airspace.

There would be no increase in collision potential between military and non-participating civilian operators, as the level of military operations would remain at current levels. There would be no impact on the extended Visual Flight Rules corridor or commercial or general aviation's use of the FRTC airspace. Unrestricted medical evacuation (MEDEVAC), wildlife management activity, and fire-suppression flights would continue to be supported, and civilian aviation would not be significantly restricted. Therefore, Alternative 3 would not result in significant impacts on airspace.

Management Practices, Monitoring, and Mitigation

Current: The Navy would continue current levels of operations and manage the FRTC airspace under the guidance of official policies, procedures, and Navy instructions, and maintain a close working relationship with the FAA in the management of FRTC special use airspace. The Navy would continue proactive outreach to civilian and commercial aviation to ensure safe and efficient transit across the FRTC via the Visual Flight Rules corridor, and safe and efficient managed access and civilian flight profiles within special use airspace.

Proposed: The Navy would continue to implement policies and procedures to avoid conflicts in new or reconfigured airspace and ensure range operations manuals are maintained with the most current airspace information, restrictions, and compliance requirements. The Navy would update operational guidance on any noise-sensitive areas and confirm FAA airport exclusion area guidelines.

Table 6: Potential Impacts on Airspace

	Alternatives			
	1	2	3	No Action*
Collision potential between military and non-participating civilian operators increased				
Visual Flight Rules corridor or commercial and general aviation's use of airspace impacted				
Existing commercial air traffic patterns or airports/airstrips interfered with			◑	
MEDEVAC flights interfered with or restricted				

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○=Minimal impact.
Blank=No impact.

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The Final EIS includes an analysis of the types or sources of noise and associated sensitive receptors in the human environment, as well as noise in relation to biological resources and wildlife species. The environmental analysis includes the lands on and within the proposed FRTC and special use airspace. Noise from NAS Fallon is not addressed, as no proposed alternative changes the type or number of airfield operations.

Environmental Consequences

Overall, while noise would change in comparison to the environmental baseline, Alternative 3 (Preferred Alternative) would not have significant noise impacts in the areas surrounding the Bravo ranges. With the exception of B-16, all Day-Night Average Sound Level (DNL) contours above 65 A-weighted decibels (dBA) from air-to-ground munitions activities would be contained within the range boundaries. At B-16, the area where DNLs above 65 dBA would reach off range are similar to the environmental baseline and do not overlap sensitive receptors.

In the proposed military operations areas within the eastern portion of the FRTC airspace, DNLs would increase 10-20 dBA, although the noise contours themselves do not exceed 65 dBA. There would be a slight increase in the number of incidents of indoor and outdoor speech interference and classroom interference, and a slightly higher probability of awakening, especially for sensitive receptors near Gabbs.

While the number of supersonic activities would not change, the expansion of supersonic training areas would create new areas that could be impacted by sonic booms. While individual sonic booms may provide a brief, impulsive noise, the contribution to C-weighted DNLs would not represent a degradation of the noise environment with respect to DNLs.

Overall, noise associated with training activities occurring in special use airspace, away from the Bravo ranges, would result in significant impacts on the acoustic environment, but would not interfere with normal land use activities.

Management Practices, Monitoring, and Mitigation

Current: Existing policies and procedures would continue to be implemented to ensure proper use of the FRTC airspace and adherence to munitions release rules. The Navy's Air Operations Office would continue to log and respond to noise complaints. Pilots flying over designated noise-sensitive areas (Figure 9) are instructed to maintain altitudes no lower than 3,000 feet above ground level to minimize potential impacts.

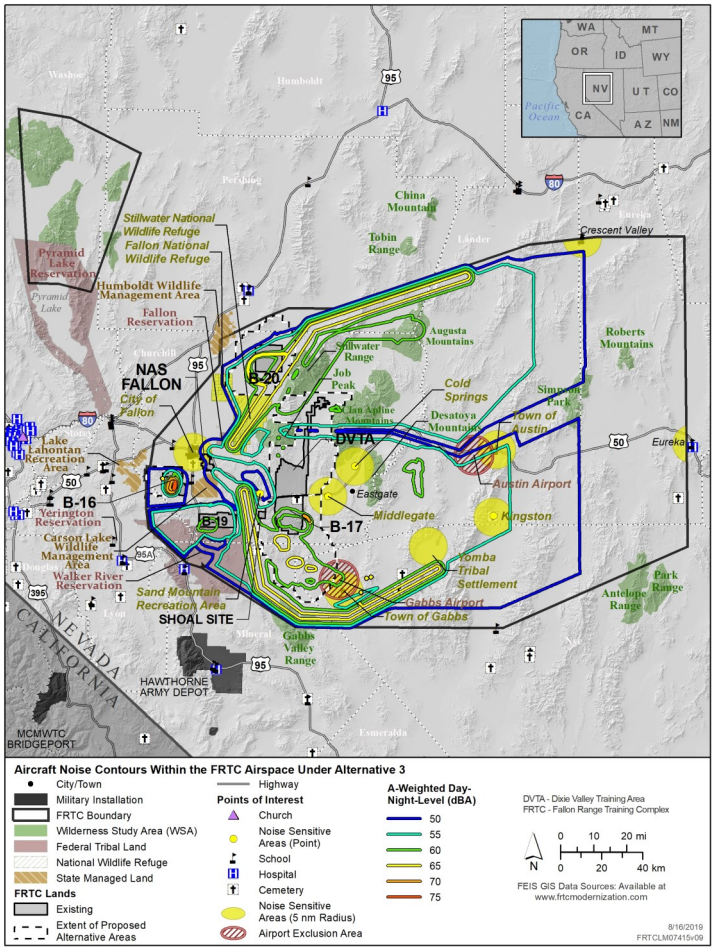


Figure 9: Aircraft Noise Contours Within the Fallon Range Training Complex Under Alternative 3 (Preferred Alternative)

Proposed: The Navy is proposing new noise-sensitive areas around the incorporated areas of Crescent Valley and Eureka. The establishment of these noise-sensitive areas is considered compatible with military training activities and would include a 5-nautical-mile radius and an elevation of 3,000 feet above ground level to reduce noise impacts on these communities. Additionally, the Navy is requesting the FAA create "airport exclusion areas" (3-nautical-mile radius, surface to 1,500 feet above ground level) around the Gabbs, Crescent Valley, and Eureka airports. Though established for airspace separation, the exclusion areas would serve as an additional means to reduce low-level overflights near Gabbs, Crescent Valley, and Eureka.

Table 7: Potential Impacts on Noise	Alternatives 1	2	3	No Action*
New areas of noise exposure created on lands under the eastern portion of FRTC special use airspace	●	●	●	
New areas potentially receiving sonic booms created	●	●	●	
Sensitive receptors impacted by noise contours above 65 dBA from aircraft and ordnance use near Bravo ranges	●	●	●	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Air Quality

Air quality is defined by atmospheric concentrations of specific air pollutants that the U.S. Environmental Protection Agency determined may affect the health or welfare of the public. The six major air pollutants of concern, called *criteria pollutants*, are carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter, and lead. Particulate matter is further categorized as particulates less than or equal to 10 microns in diameter (PM_{10}) and fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). For the Final EIS, the environmental analysis includes resources in the Nevada Intrastate Air Quality Control region.

The environmental baseline for the Final EIS is comprised of the air emissions associated with the same general types and levels of aviation and ground training as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final EIS*. Because no changes are proposed to the level of training, this analysis focuses on air emissions from proposed construction activities.

Environmental Consequences

Small increases in emissions of criteria and hazardous air pollutants would occur, relative to baseline Nevada emissions and the environmental baseline for the Final EIS. Measurable changes in air quality would be expected locally, but the attainment status in the Northwest Nevada Intrastate Air Quality Control Region and Nevada Intrastate Air Quality Control Region would not be affected.

Small increases in fugitive dust from construction activities would occur; however, management practices would minimize the generation of dust. Construction emissions would be localized and temporary, minimizing the overall impact on ambient air quality. Alternative 3 (Preferred Alternative) includes the installation of approximately three additional miles of fence compared to Alternatives 1 and 2. However, this installation would not result in a significant change in air quality. The environmental analysis indicates there would not be significant impacts on air quality.

Management Practices, Monitoring, and Mitigation

Current: Strategies for dust control are described in the Navy's current dust control plan and would continue to be implemented.



Proposed: The Navy would implement the best practical methods available for fugitive dust suppression. Some of the procedures include:

- Phase activities, such as grading, leveling, or shoulder dragging, to reduce the surface area disturbed at one time.
- Use water trucks for water spraying.
- Schedule surface area disturbance activities immediately following periods of precipitation.
- Suspend operations when winds or other meteorological conditions make dust control difficult.
- Properly maintain equipment in accordance with applicable Navy requirements and federal and state emission standards.
- Minimize dust by operating vehicles on existing roads and two-track trails whenever possible.
- Implement traffic control measures by vehicles on unpaved surfaces, including vehicle speed controls.
- Restrict non-project vehicles in affected areas during surface area disturbance activities.
- Promptly remove any visible material tracked from surface area disturbance locations onto adjoining paved roads.
- Clean equipment and machinery at a designated on-base facility.
- Determine additional dust abatement measures during pre-construction planning.

Table 8: Potential Impacts on Air Quality	Alternatives 1	2	3	No Action*
Criteria and hazardous air pollutants increased above *de minimis* levels relative to baseline Nevada emissions and environmental baseline	○	○	○	
Fugitive dust above $PM_{2.5}$ and PM_{10} criteria levels increased from construction activities	○	○	○	
Attainment status affected in the Northwest Nevada Intrastate Air Quality Control Region and Nevada Intrastate Air Quality Control Region	○	○	○	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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For the EIS, *water resources* includes surface water (streams, floodplains, and playas), groundwater (confined and unconfined aquifers), climate factors that contribute to hydrologic conditions, and water rights. The Navy analyzed water resources in the project footprint of the proposed acquisition and withdrawal areas and any other area that could be directly or indirectly impacted by modernization.

Environmental Consequences

Under Alternative 3 (Preferred Alternative), there would be temporary impacts from road construction and facilities, but the Navy would implement current management practices to reduce impacts on water quality. Potential impacts on water quality would not be significant due to:

- Limited amount of disturbance from munitions use within withdrawal areas.
- Localized areas of disturbance from munitions use within withdrawal areas.
- Small footprint of new infrastructure.
- Management practices and mitigation measures specifically designed to reduce or avoid potential impacts on surface water and groundwater.
- Periodic removal of expended munitions and munitions fragments through operational range clearance activities in training ranges where they are expended (B-16, B-17, B-19, and B-20), thereby removing a source of potential contamination to surface and groundwater.
- Chemical compounds in expended munitions not retrieved and therefore likely to dry and degrade in the arid environment.

Under Alternative 3, the Navy would not seek to acquire water rights within the DVTA. Water rights holders would continue to exercise their beneficial uses associated with the water right. The Navy has and would continue to consult with Churchill County planners and engineers to ensure future water development projects are designed to meet Churchill County water development goals with project design features consistent with military training activities within the DVTA.

Management Practices, Monitoring, and Mitigation

Current: The Navy would continue to implement current management practices to minimize impacts on water resources, such as avoiding incidental spills, using drip pads under equipment, addressing potential groundwater contamination issues through regular range condition assessments, complying with the operational range clearance plan, and avoiding ground training in streams, ponds, and wetlands.

Proposed: The Navy completed a water resources study after the publication of the Draft EIS. This study includes a discussion of vested water rights. The findings of the study were incorporated into the Water Resources section of the Final EIS and are available at **www.frtcmodernization.com**. Private water rights would be purchased as real property, as necessary. Acquisition of water rights would be factored into the processes for valuing grazing and mining-related just compensation or other authorized payments. However, the Navy would not seek to acquire existing water rights in the DVTA. The Navy does not have the authority or the expertise to validate vested water rights or assist water rights holders with any other water rights actions, such as change applications. Only the State Engineer can validate water rights. However, valid water rights would be treated as real property in the valuation process.

Based on the analysis, mitigation measures are not warranted for water resources. As part of the Alternative 3, the Navy would acquire existing and valid water rights within the proposed withdrawal areas if the water right can be maintained for beneficial use. If a condition of the water right can be modified, e.g., the point of use moved outside for the withdrawal areas, then the water right would not be acquired by the Navy. The Navy would reimburse the movement of the water right on a case-by-case basis. If wells are associated with the water right, then the Navy would evaluate the disposition of the well, e.g., continued beneficial use or capping of the well, on a case-by-case basis. The Navy does not plan to use any water rights purchased for stock water but would request to modify the beneficial use as appropriate relative to mission requirements.

The Navy would continue to implement management practices to avoid and minimize potential impacts on water quality, as described in the Water Resources section (Proposed Management Practices, Monitoring, and Mitigation) of the Final EIS.

Table 9: Potential Impacts on Water Resources	Alternatives			
	1	2	3	No Action*
Potential for surface and subsurface contamination with trace amounts of residual munitions constituents increased	◑	◑	◑	
Water resources from road construction and facilities impacted	◑	◑	◑	
Surface and groundwater features from training activities impacted	◑	◑	◑	
Water rights changed	◑	◑	◑	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Biological Resources

Biological resources include living, native, or naturalized plant and animal species and habitats. Plant associations are referred to generally as *vegetation*, and animal species are referred to generally as *wildlife*. *Habitat* is defined as the resources and conditions present in an area that support a plant or animal.

For the purposes of the EIS, biological resources are divided into three categories: *vegetation types*, *wildlife*, and *special-status species*. Vegetation types include dominant plant species that occur within the project areas, and the study of wildlife includes all common animal species, such as birds, mammals, reptiles, fishes, and amphibians.

Environmental Consequences

Under Alternative 3 (Preferred Alternative), military training levels would continue at the same level of activities analyzed in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final EIS*, with activities dispersed more widely with the inclusion of the proposed expansion areas. Alternative 3 would not result in significant impacts on biological resources.

Training activities within newly configured airspace would expand the area where birds and aircraft overlap. However, through the Navy's Bird/Animal Aircraft-Strike Hazard program, potential impacts on migratory birds would be avoided and minimized.

Based on available literature and the analysis, impacts on sage grouse are expected to be minimal. However, NDOW expressed concern regarding increased low-level overflights and requested a long-term study to further assess potential impacts. The Navy is proposing to fund a study that would be conducted by NDOW to monitor sage grouse lek behavior during aircraft overflights. Any commitment by the Navy to undertake a study will be addressed in the Record of Decision.

Construction activities would impact vegetation communities and wildlife habitat; however, the areas potentially impacted are small, relative to the extent of surrounding areas. Potentially impacted areas include approximately 5,730 acres under Alternative 3 and approximately 4,460 acres under Alternatives 1 and 2.

Implementation of Alternative 3 would not result in significant impacts on biological resources.

For the EIS, special-status species include:

- *Endangered Species Act-listed species.
- BLM-listed sensitive species.
- Bald eagle and golden eagle pursuant to the Bald and Golden Eagle Protection Act.
- Migratory Bird Treaty Act species.
- Birds of Conservation Concern as identified by the USFWS.
- Species listed as threatened, endangered, sensitive, or otherwise protected by the State of Nevada under the Nevada Administrative Code.
- Species listed as Species of Conservation Priority by NDOW in the 2013 Nevada Wildlife Action Plan.
- Species ranked by the Nevada Natural Heritage Program as critically imperiled, imperiled, or vulnerable.

*Considered in environmental analysis but none occur in the region of influence.

Management Practices, Monitoring, and Mitigation

Current: Current requirements and management practices for wildlife and vegetation present at the FRTC focus on minimizing disturbance, controlling invasive plants, and restoring native habitats. Management practices applied to existing ranges would continue to be implemented and expanded to withdrawn lands.

Proposed: If Alternative 1, 2, or 3 is implemented, the Navy would revise its Integrated Natural Resources Management Plan to include the expanded withdrawn and acquired lands. The Navy would coordinate with BLM, NDOW, and USFWS when revising the plan and consider whether additional management or monitoring activities should be incorporated. To the maximum extent possible, and if compatible with mission training requirements, the Navy would avoid placing targets in biologically sensitive areas as identified by NDOW.

Table 10: Potential Impacts on Biological Resources

	Alternatives			
	1	2	3	No Action*
Noise exposure stressors to biological resources increased from training activities within and near existing ranges and lands proposed for withdrawal or requested for acquisition	◑	◑	◑	◑
Wildlife populations impacted by proposed overflights at altitudes less than 500 feet	◑	◑	◑	○
Impacts on wildlife populations increased as a result of experiencing sonic booms	○	○	○	○
Potential impacts on migratory birds increased from proposed military aircraft activities	○	○	○	○
Vegetation impacted by proposed construction activities	◑	◑	◑	
Bighorn sheep and pronghorn habitat directly impacted by proposed construction activities within expansion areas	◑	◑	◑	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Cultural resources, as defined by the National Historic Preservation Act, are any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places. Properties of religious and cultural significance to Indian Tribes may be eligible for inclusion in the National Register of Historic Places.

Archaeological resources (prehistoric and historic): locations where human activity measurably altered the earth or left deposits of physical remains.

Architectural resources: buildings, structures, landscapes, and other built-environment resources of historic or aesthetic significance.

Traditional Cultural Properties: historic properties eligible for inclusion in the National Register of Historic Places due to their association with cultural practices and beliefs of a living community that are: 1) rooted in the community's history, and 2) important to maintaining the continuing cultural identity of the community.

The Navy currently abides by the 2011 Programmatic Agreement with the Nevada SHPO, BLM, and the Advisory Council on Historic Preservation for the identification, evaluation, and treatment of historic properties on lands managed by the Navy to ensure protection of cultural resources. Additionally, the NAS Fallon Integrated Cultural Resources Management Plan provides guidance to ensure all laws, regulations, policies, and directives related to cultural resources are appropriately followed while fulfilling the installation's mission.

For purpose of the EIS, the region of influence for cultural resources is referred to as a *potential impact area*, a term analogous to the National Historic Preservation Act Section 106 term *area of potential effect*. The present analysis differs from Section 106 to the degree that it: 1) considers an array of proposed actions that are not undertakings, and 2) considers the impact on a wider range of cultural resources than National Register of Historic Places-eligible or potentially eligible historic properties. Importantly, areas of potential effect and assessments of effect on historic properties under Section 106 would be addressed when specific undertakings are proposed and known in detail in the future. The Navy would continue to engage with all interested Indian Tribes. The Navy is working with the Nevada SHPO and the Advisory Council on Historic Preservation to amend the current 2011 Programmatic Agreement for withdrawn lands. The Navy would complete Section 106 consultation on impacts due to loss of access for Indian Tribes prior to fencing newly withdrawn and acquired lands after any ultimate Congressional decision.

Environmental Consequences

The Navy anticipates that through implementation of an amended 2011 Programmatic Agreement, management practices of avoidance, the use of monitors, and mitigation measures, the impacts of the Proposed Action on cultural resources would be lessened to a level less than significant with respect to training activities, construction, and aircraft overflights. Access to cultural resources within the FRTC would be managed and not eliminated. Given the proposed access Memorandum of Understanding has not been finalized, and the high degree of concern with respect to the potential loss of access documented in comments received from Indian Tribes, the Navy concludes limiting tribal access to cultural resources may result in significant impacts.

Management Practices, Monitoring, and Mitigation

Current: Current management practices would continue to be implemented on existing withdrawn lands and lands requested for withdrawal and proposed for acquisition.

Proposed: Management of proposed expansion areas would require updates to the Integrated Cultural Resources Management Plan. If the Proposed Action is implemented, the Integrated Cultural Resources Management Plan would be revised to include management practices for cultural resources in the expansion areas. The Navy would coordinate with BLM, Nevada SHPO, and affected Indian Tribes and consider whether additional management or monitoring activities can be incorporated. This coordination would include archaeological and tribal monitoring, as appropriate.

An amended 2011 Programmatic Agreement and Integrated Cultural Resources Management Plan would continue to be implemented on existing withdrawn lands and lands requested for withdrawal and proposed for acquisition. The Navy would consult with Indian Tribes who attach religious and cultural significance to any Traditional Cultural Properties. The Navy also proposes to manage access through a Memorandum of Understanding with Indian Tribes who attach religious and cultural significance to sites within the Potential Impact Area.

In cases where avoidance and minimization of adverse effects on historic properties is not possible, the process outlined in an amended 2011 Programmatic Agreement and 36 CFR Section 800.6 (resolution of adverse effects) would be followed. The Navy acknowledges that there may be impacts yet to be defined and would continue to develop and incorporate mitigation measures consistent with the established process.

Table 11: Potential Impacts on Cultural Resources

	Alternatives			
	1	2	3	No Action*
Cultural resources impacted from decommissioning, decontamination, and reuse of the closed range				●
Access for ceremonial or cultural activities restricted	◑	◑	◑	
Caves, rockshelters, or rock formations containing petroglyphs damaged as a result of noise and vibration from sonic booms	○	○	○	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Recreational activities refer to outdoor activities conducted in the region of influence such as hunting, fishing, hiking, popular racing events, camping, wildlife viewing, rock/fossil collecting, horseback riding, operating OHVs, sightseeing, and visiting historic sites. Recreation areas include federal, state, or local designated parks, playgrounds, recreation management areas, and wildlife refuges, as well as other discernable areas where the public regularly recreates.



Environmental Consequences

Alternative 3 (Preferred Alternative) would have significant impacts on public recreation, as approximately 421,005 acres would no longer be accessible to the public. However, impacts would be reduced to some extent by allowing bighorn sheep hunting within B-17 through a Memorandum of Agreement between NDOW and the Navy. Also, large racing events that currently occur near B-16, B-17, and B-19 would continue on those ranges in accordance with the requirements listed in the Large Event Race Activities section of Chapter 2 of the Final EIS. Additionally, B-17 would be shifted off the Sand Springs Range and Fairview Peak; therefore, these areas would remain publicly accessible.

Under Alternative 3, the Navy is proposing that Congress remove the designation as a Wilderness Study Area from those portions of the Clan Alpine, Job Peak, and Stillwater Wilderness Study Areas within the DVTA to accommodate training activities. The BLM would continue managing the remaining portions of the Wilderness Study Areas.

With the implementation of any proposed action alternatives, the Navy would recommend the removal of a portion of the ACEC designation that is proposed in the Carson City Draft Resource Management Plan 2014 (Preferred Alternative E) for the proposed Fox Peak ACEC within the DVTA. The BLM would change the boundaries to remove those portions of the ACEC that would be within the expanded DVTA.

Under all alternatives, refuge lands would continue to be maintained as refuge; however, the public would not have access to the portion of the refuge under the weapons danger zone. Under Alternatives 1 and 2, 3,200 acres of the Fallon National Wildlife Refuge would be closed to the public. However, under Alternative 3, 2,720 acres of the refuge would be closed. The USFWS would still be provided management access through a Memorandum of Understanding with the Navy on the Fallon National Wildlife Refuge-withdrawn lands. Approximately 1,920 acres of adjoining Churchill County conservation easements would also be withdrawn as the B-20 range under all action alternatives.

Management Practices, Monitoring, and Mitigation

Current: Management practices in place for other resources, such as noise and land use, which also affect recreation would continue to be implemented and serve to avoid and minimize impacts on recreation under special use airspace.

Proposed: The Navy and NDOW would manage and annually review the bighorn sheep hunting program on B-17, as described in the Draft Memorandum of Agreement in Appendix D (Memoranda, Agreements, and Plans) of the Final EIS.

The BLM or NDOW would continue to be able to access areas previously managed by these agencies on the Bravo ranges for management purposes through access agreements. The Navy would continue to support NDOW actions to install and maintain water guzzlers for wildlife within range or training areas.

The Navy would install wildlife-friendly fencing for any new fences and remove all existing fences not required for safety and security purposes within the withdrawal area. The Navy would expand their fence line patrol and maintenance procedures to include fences that are on withdrawn lands.

Table 12: Potential Impacts on Recreation	Alternatives 1	2	3	No Action*
Existing withdrawn lands under Public Law 106-65 not renewed and potentially converted to recreational use				●
General dispersed recreation (hunting, hiking, wildlife viewing, OHV use, mountain biking, rock hounding, and exploring) changed on lands proposed for Bravo ranges	●	●	●	
Public access restricted on the DVTA				
Large racing events and hunting opportunities lost on B-16, B-17, and B-20	●	◑	◑	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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In the context of NEPA, *socioeconomics* encompasses impacts on economic and social conditions of the region potentially affected by a proposed action. The purpose of the socioeconomic analysis in the Final EIS is to assess potential socioeconomic impacts of the proposed modernization in the region of influence. The region of influence includes Churchill, Lyon, Mineral, Pershing, and Nye counties because they would be directly affected by the proposed modernization. Eureka, Elko, and Lander counties are not included in the region of influence because impacts within these counties would be negligible.



The socioeconomic analysis includes economic data for communities affected by proposed modernization related to population and demographics, housing occupancy status, employment characteristics, economic activity, and tax revenue. Unlike other sections in the Final EIS, this section is analyzed in the context of state, regional, and local trends rather than in terms of the defined geographical areas (e.g., B-16, B-17).

Social impacts are addressed but are not discussed with respect to each action alternative individually because discussion of such impacts is captured in the analysis of impacts on other resource areas, and potential social impacts on the human environment would not be significantly different among the various alternatives.

Environmental Consequences

Alternative 3 (Preferred Alternative) would not result in significant impacts on population and demographics, housing, agriculture, property values, or recreation and tourism revenues.

Alternative 3 would, however, result in permanent economic impacts associated with lost federal land grazing. While there would be impacts on individual ranchers, there would not be a significant impact on the total economic activity within the affected counties.

Alternative 3 could potentially result in significant impacts with respect to mining and geothermal opportunities that could be lost. In general, impacts would be less compared to Alternative 1 due to greater access for geothermal operations within the DVTA and recreational opportunities (bighorn sheep hunting program) within B-17. Further, locatable, salable, and leasable activities would continue to be allowed within the Special Land Management Overlay, with coordination with the Navy.

Under Alternative 3, there would be no change in payments in lieu of taxes (PILT) for Churchill, Mineral, Nye, or Pershing counties, and minimal changes in PILT for Lyon County. While there would be no significant impact from lost sales and tax revenue, lost hunting opportunities could result in a reduction in wildlife application fees and funding sources for NDOW.

Management Practices, Monitoring, and Mitigation

Proposed: For any acquisition of privately owned property, landowners would receive just compensation for loss of any privately owned land (as well as water rights and certain improvements to real property) acquired by the United States due to the proposed expansion. Just compensation would be determined by calculating the fair market value of parcels in accordance with federal appraisal rules. The Final EIS has been updated to include the process by which the Navy would make payments to holders of mining claims, federal grazing permit holders, and water rights holders. These processes are discussed in the Mining and Mineral Resources, Livestock Grazing, and Water Resources sections of the Final EIS.

Table 13: Potential Impacts on Socioeconomics

	Alternatives			
	1	2	3	No Action*
PILT for Lyon County decreased	●	●	●	
PILT for Churchill, Mineral, Nye, or Pershing counties decreased				
Economic or employment opportunities lost	◑	◑	◑	●
Population and demographics changed	○	○	○	○
Property values reduced	○	○	○	●
Agriculture changed	○	○	○	●
Grazing opportunities lost	◑	◑	◑	
Mining and geothermal resource opportunities lost	●	◑	◑	
Recreational opportunities lost	●	◑	◑	

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
Blank=No impact.

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The discussion of public health and safety and protection of children in the Final EIS includes consideration of activities, occurrences, or operations that have the potential to affect the safety, well-being, or health of the public. A *safe environment* is one in which there is either no potential, or an optimally reduced and ultimately minimal potential, for death, serious bodily injury, illness, or property damage.

The environmental analysis for public health and safety covers the entire FRTC, including both special use airspace and Navy-managed lands, and immediately adjacent lands. Within the region of influence, areas of heightened sensitivity to public health and safety and protection of children concerns include areas where large groups of people may gather, such as recreational areas and parks.

Environmental Consequences

Under Alternative 3 (Preferred Alternative), current plans and procedures for emergency services, aircraft and ground operations, range clearance, electromagnetic energy, use of lasers, and abandoned mine lands would continue to be implemented and include expanded range areas. B-16, B-17, B-19, and B-20 would be fenced and the public would be restricted from accessing the ranges except for managed access.

The DVTA would remain accessible to the public and safety procedures would be implemented to minimize risk to the public. Construction and improvement activities would follow standard safety measures to include construction fencing, signs, and security to minimize safety risks and unauthorized access. Therefore, Alternative 3 would not result in significant impacts on public health and safety and protection of children, and there would be no disproportionate environmental health or safety risks to children.

Management Practices, Monitoring, and Mitigation

Current: Measures are in place to ensure nonparticipants are not endangered by actions at the FRTC, and would remain in effect with the implementation of any of alternative. Standard operating procedures and range clearance procedures would remain in place to ensure training areas are clear of nonparticipants before an activity commences.

Proposed: The Navy is actively developing a Wildland Fire Management Plan to reduce the risk of wildfire in the region of influence. A draft outline of the Navy's updated Wildland Fire Management Plan has been added to Appendix D (Memoranda, Agreements, Plans).

With the implementation of existing management practices on lands requested for withdrawal or proposed for acquisition, no additional management practices or monitoring or mitigation measures are proposed for public health and safety and protection of children.

The following management practices would be implemented to reduce hazards associated with unexploded ordnance:

- Post signs warning of areas where unexploded ordnance clearance has not been confirmed when the public is authorized on Bravo ranges.
- Implement procedures, such as escorts, range clearance, and explosive ordnance disposal sweeps, to protect the public if authorized to enter the ranges.
- Maintain the Range Sustainability Environmental Program Assessment.
- Continue operational range clearance activities which remove unexploded ordnance and other materials to reduce munitions constituent loading.

Table 14: Potential Impacts on Public Health & Safety & Protection of Children	Alternatives 1	2	3	No Action*
Emergency responses within the FRTC restricted				
Aircraft-related accidents increased	○	○	○	
Exposure to aircraft-delivered ordnance increased	○	○	○	
Exposure to electromagnetic radiation increased	○	○	○	
Exposure to lasers increased				
Access to abandoned mines within Bravo ranges and the DVTA increased	○	○	○	
Exposure to hazardous materials and waste increased	○	○	○	

●=Some impact.
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○=Minimal impact.
Blank=No impact.

* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. *Fair treatment* means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Meaningful involvement* means:

- People have an opportunity to participate in decisions about activities that may affect their environment or health.
- The public's contribution can influence the regulatory agency's decision.
- Public concerns will be considered in the decision-making process.
- Decision makers seek out and facilitate involvement of those potentially affected.

The environmental analysis for environmental justice considered any minority or low-income population that could be exposed to a disproportionately high and adverse human health or environmental effect as a result of implementing any of the alternatives. These populations include census block groups that overlap or are adjacent to existing Bravo ranges and training areas (also known as fence line communities) and any other community that could experience DNL noise of 65 dBA or above as a result of naval training activities.

Environmental Consequences

Implementation of Alternative 3 (Preferred Alternative) would not cause disproportionately high and adverse human health or environmental effects on any minority or low-income populations. Therefore, there would be no significant impact on environmental justice. Despite this finding, the Navy has embarked on robust community outreach and tribal engagement programs as part of the EIS process and will continue to engage with affected communities. The Navy acknowledges that there may be impacts that have yet to be defined and will continue to develop and incorporate mitigation measures as necessary.

Management Practices, Monitoring, and Mitigation

Current: It is the Navy's policy to identify and address any disproportionately high and adverse human health or environmental effects of its actions on minority and low-income populations.

Proposed: No new management practices, monitoring, or mitigation measures are warranted for environmental justice impacts based on the analysis.



Table 15: Potential Impacts on Environmental Justice	Alternatives 1	2	3	No Action
Noise contours above 65 dBA DNL would adversely affect minority or low-income communities in a manner that would be greater than comparison groups				
Air emissions or water discharges would adversely affect minority or low-income communities in a manner that would be greater than comparison groups				

●=Some impact.
◑=Some impact, but reduced as a result of project design changes, implementation of current or proposed management practices, monitoring, or mitigation.
○=Minimal impact.
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* Assumes that the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to BLM for reincorporation into the public domain. The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65.

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Cumulative Impacts

Cumulative impacts were analyzed for each resource category across all action alternatives and in combination with past, present, and reasonably foreseeable future actions. In accordance with CEQ guidance, the cumulative impacts analysis focused on impacts that are "truly meaningful." Specific projects and actions identified as having the greatest likelihood to generate potential cumulative impacts when added to the Proposed Action are shown visually in the following figure (Figure 10), and described the Cumulative Impacts section of the Final EIS.

As a result of this analysis, the following conclusions were determined for each analyzed resource:

- The incremental contribution of Alternative 3 (Preferred Alternative) to cumulative impacts on geological resources, airspace, air quality, biological resources, cultural resources, public health and safety, and environmental justice would not have the potential to contribute meaningfully to any potential significant cumulative impact with respect to these resource areas.

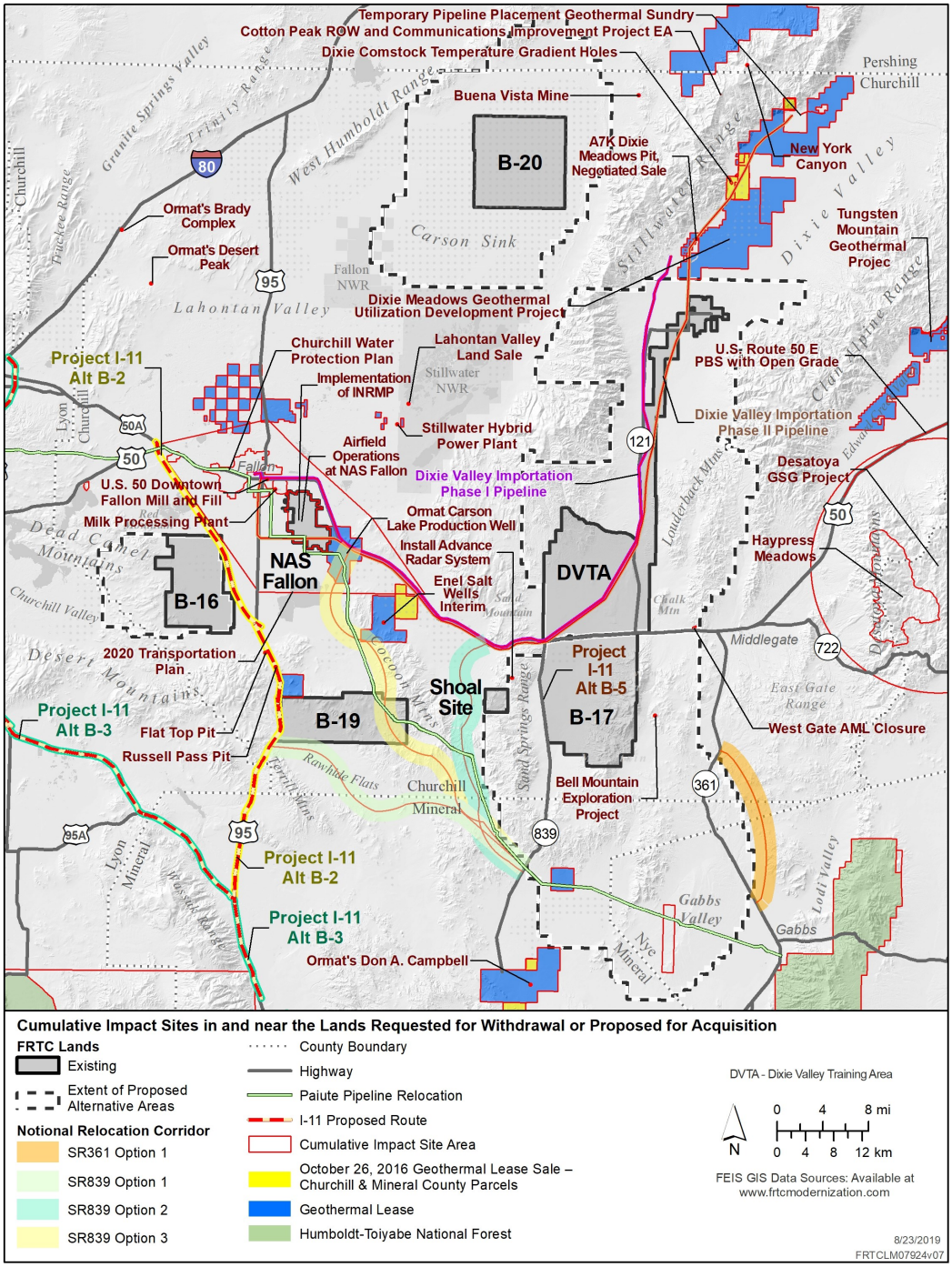


Figure 10: Cumulative Impact Sites in and near the Lands Requested for Withdrawal or Proposed for Acquisition

- The incremental contribution of Alternative 3 to cumulative impacts on socioeconomics would be appreciable due to the potential loss of revenue in some of the counties within the region of influence. However, for most counties these impacts would not rise to the level of significance except for potential impacts on mining and mineral resources. Additionally, Nye County would experience a significant impact on their economic resources due to the cumulative nature of the U.S. Air Force's Nevada Test and Training Range Proposed Action and therefore, the Navy's Proposed Action.

- The incremental contribution of Alternative 3, viewed in conjunction with other projects in the area, would result in cumulatively significant impacts with respect to land use, mineral resources and mining (including as an aspect of socioeconomics), grazing, transportation, water resources, noise, and recreation.

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Management Practices, Monitoring, and Mitigation Measures

As part of the Navy's commitment to sustainable use of resources and environmental stewardship, the Navy incorporates measures to avoid, reduce, or minimize impacts on the environment and the community from its activities. Measures may include the employment of management practices, standard operating procedures, monitoring programs, mitigation measures, conservation practices, or others. Each of the alternatives considered in the Final EIS include proposed measures intended to avoid, reduce, or minimize potential impacts.



There are three categories that serve to potentially reduce impacts from any proposed alternative:

- **Management Practices:** Policies, procedures, or plans that aim to preserve the environment or the integrity of the ranges. Management practices are implemented to reduce impacts that projects can generally have on the surrounding environment.
- **Monitoring:** Measures that involve systematic sampling of physical and biological resources to derive knowledge of the environment, its resources, and processes or activities that affect them. Monitoring can be conducted for a number of purposes, including establishing environmental baselines and trends, informing decision-making for management actions, assessing the effects of natural and human influences, assessing the effectiveness of management practices and mitigation measures, and ensuring compliance with environmental regulations. Monitoring results inform coordination with regulatory agencies to ensure effective measures are employed. Monitoring measures facilitate adaptive management efforts and help to track completion of measures the action proponent has committed to implement in an environmental planning decision document.
- **Mitigation Measures:** Measures that reduce specific impacts a project or action could have on a particular resource, replace the impacted resource, or relocate threatened resources to a new location.

In addition to existing management practices and standard operating procedures that would be applied if the analysis identified potential adverse impacts on a resource from implementing the No Action or action alternatives, the Navy identified methods to minimize or mitigate those impacts through coordination with cooperating agencies and Indian Tribes, where appropriate and practicable. Cooperating agencies, Indian Tribes, and other stakeholders were solicited for potential mitigation or management actions through meetings, as well as through the public scoping process, and the public comment process on the Draft EIS. The Navy evaluated the suggestions received for compatibility with military training activities and range safety. The Navy conducted several mitigation working group meetings with cooperating agencies and Indian Tribes to discuss their concerns, as well as the feasibility of their suggested management practices or mitigations.

The Navy continued to work with cooperating agencies, tribal participants, and other public stakeholders between the Draft and Final EIS to refine or augment mitigation methods to reduce potential impacts. Suggestions for management practices, monitoring, and mitigation measures from the cooperating agencies and tribal participants, and other public comments received during scoping and the commenting period on the Draft EIS have been added to the Final EIS in Tables 5-1 through 5-16. General mitigation suggestions are shown along with the Navy's responses for each suggestion indicating whether it was adopted or not, including reasoning for considering but eliminating the suggestion, if applicable. Suggestions specific to different resource categories are discussed under their respective resource headers in Sections 5.2 through 5.16.

The Council on Environmental Quality regulations identify five ways to reduce or mitigate the severity or intensity of adverse impacts:

- Avoid the impact altogether by not taking all or part of the action.
- Minimize the impact by limiting the degree or magnitude of the action and its implementation.
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
- Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
- Compensate for the impact by replacing or providing substitute resources or environments.

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Community involvement is an important part of the NEPA process. Input from the public, agencies, and tribes allows decision makers to benefit from local knowledge and consider the concerns of the community. The public is given the opportunity to participate in the NEPA process during the scoping period, Draft EIS public review and comment period, and the Final EIS public review and wait period. The Navy has held additional stakeholder meetings with cooperating agencies and tribal participants since January 2017 to discuss constituent concerns and improve the analysis of potential impacts.

Notice of Intent and Public Scoping Period

Scoping is an early and open public process for developing the scope of issues to be addressed in an EIS and for identifying significant issues related to a proposed action. The Navy requested public input at this early stage to ensure public, agency, and tribal concerns were considered and appropriately addressed in the Final EIS.

- **Notice of Intent to Prepare an EIS and to Announce Public Scoping Meetings (Aug. 26, 2016):** The publication of this notice in the Federal Register initiated the public involvement phase of the NEPA process.
- **Scoping Period (Aug. 26 to Dec. 12, 2016):** The scoping period provided an opportunity for the public to learn more about the proposed modernization and comment on the scope of the environmental analysis and viable alternatives to be considered in the EIS. The Navy extended the public comment period at the request of the public, for a 109-day scoping period.
- **Public Scoping Meetings (Oct. 3-7, 2016):** The Navy held seven public scoping meetings in Fallon, Lovelock, Reno, Austin, Eureka, Hawthorne, and Gabbs, Nevada to provide information and answer questions from the public. Informational materials from the public scoping meetings can be found at **www.FRTCModernization.com**.
- **Public Scoping Comments:** A total of 328 comment letters were received during the scoping period. The Public Scoping section provides a summary of public comments. The Navy reviewed these comments and conducted more than 170 additional meetings with stakeholders and Indian Tribes to discuss potential alternatives.

Draft EIS Public Review and Comment Period

With the initiation of the Draft EIS public review and comment period, the public was able to further comment on the proposed modernization and the draft environmental impact analysis. This input was considered in the development of the Final EIS.

- **Notice of Public Meetings for the Draft EIS for the Modernization of the FRTC, Nevada (Nov. 15, 2018):** The publication of this notice in the Federal Register announced the dates and locations of seven public meetings and the beginning of the Draft EIS public review and comment period.
- **Notice of Availability (Nov. 16, 2018):** The publication of this notice in the Federal Register announced the availability of the Draft EIS for public review and comment.
- **Draft EIS Public Review and Comment Period (Nov. 16, 2018, to Feb. 14, 2019):** The public review and comment period provided an opportunity for the public to comment on the analysis presented in the Draft EIS. Comments were accepted via the website, by email, by mail, or at public meetings. The Navy extended the public comment period at the request of the public, for a 91-day comment period.
- **Draft EIS Public Meetings (Dec. 10-13, 2018):** The Navy held seven public meetings in Hawthorne, Gabbs, Austin, Eureka, Fallon, Lovelock, and Reno, Nevada to provide information, answer questions, and receive comments from the public. Informational materials from the public meetings can be found at **www.FRTCModernization.com**.
- **Draft EIS Comments:** The Navy received comment letters, postcards, form letters, oral comments, and electronic submissions during the Draft EIS public review and comment period. The Navy's responses to comments received on the Draft EIS are presented in Appendix F (Public Comment and Responses).

Final EIS Public Review and Wait Period

This Final EIS includes updates and revisions to the Draft EIS, all substantive public comments received on the Draft EIS, and the Navy's responses to these comments (see Appendix F in the Final EIS). The Navy's responses to public comments may also take other forms, including correction of data, clarifications of and modifications to analytical approaches, and inclusion of additional data or analysis in the Final EIS.

- **Notice of Availability of the Final EIS (Jan. 10, 2020):** The publication of this notice in the Federal Register announced the availability of the Final EIS. The Final EIS can be found at **www.FRTCModernization.com**.
- **Final EIS Public Review and Wait Period (Jan. 10, 2020, to Feb. 8, 2020):** The Navy provides a 30-day wait period after the Final EIS is released to the public before the Navy may take action.

Next Steps

A 30-day wait period follows the issuance of the Final EIS. The Navy will consider any public comments received and subsequently sign a Record of Decision. The Navy will publish a Notice of Availability of the Record of Decision in the Federal Register and local newspapers; distribute the Record of Decision to Indian Tribes, agencies, and interested parties; and post the Record of Decision on the project website. The Record of Decision will document the Navy's final decision on the Proposed Action (to include identifying an action alternative as a proposal to be submitted to Congress for action), the rationale behind that decision, and any commitments to mitigation and monitoring. Congress will then review the Navy's proposal and Record of Decision and consider legislation for the proposed land withdrawal. Congress must approve any land withdrawal before any alternative can be implemented.

The Record of Decision is expected to be completed in February 2020. The Navy will continue to discuss potential mitigation measures with cooperating agencies and federally recognized Indian Tribes.

See **www.FRTCModernization.com** for more information.

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Environmental Impact Statement

Fallon Range Training Complex Modernization

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7 LIST OF PREPARERS

There are no tables in this chapter.

8 DISTRIBUTION LIST

There are no tables in this chapter.

Abbreviations and Acronyms

Acronym	Definition
°	Degree(s)
µg/m^3	Micrograms per cubic meter
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADNL	A-Weighted Day Night Level
ADS-B	Automated Dependent Surveillance – Broadcast
AGL	Above Ground Level
AHAS	Avian Hazard Advisory System
AICUZ	Air Installations Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AMP	Allotment Management Plan
ANSI	American National Standards Institute
AOPA	Aircraft Owners and Pilots Association
APE	Area of Potential Effect
ARPA	Archeological Resources Protection Act
ARTCC	Air Route Traffic Control Center
ATCAA	Air Traffic Control Assigned Airspace
ATV	All Terrain Vehicle
AUM	Animal Unit Month
B	Bravo
BASH	Bird/Animal Aircraft Strike Hazard
BGEPA	Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	Best Management Practice
BNOISE	Blast Noise Prediction
CAA	Clean Air Act
cal	Caliber
CCD	Carson City District
CCDO	Carson City District Office
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CNAF	Commander, Naval Air Force
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
CPLO	Community Planning Liaison Officer
CRMP	Consolidated Resource Management Plan
CVW	Carrier Air Wing
CWA	Clean Water Act
dB	Decibel(s)
dBA	A-Weighted Decibel(s)
dBC	C-Weighted Decibel(s)
dBP	Peak Decibel(s)
DDT	Dichlorodiphenyltrichloroethane
DNL	Day Night Level
DoD	Department of Defense
DoDAA	Department of Defense Appropriations Act
DOE	Department of Energy
DOI	Department of Interior
DoIT	Department of Information Technology
DOT	Department of Transportation
DR	Decision Record
DVTA	Dixie Valley Training Area
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJSCREEN	Environmental Justice Screening and Mapping Tool
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
EWR	Electronic Warfare Receiver

Acronym	Definition
FAA	Federal Aviation Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FL	Flight Level
FLPMA	Federal Land Policy Management Act
FONSI	Finding of No Significant Impact
FR	Federal Register
FRTC	Fallon Range Training Complex
FRWR	Federal Reserve Water Rights
FY	Fiscal Year
GA	General Aviation
GHG	Greenhouse Gas
GHMA	General Habitat Management Area
GIS	Geographic Information System
GPS	Global Positioning System
HA	Herd Area(s)
HAP	Hazardous Air Pollutant
HLR	Hydrological Landscape Region
HMA	Herd Management Area
HMX	High Melting Explosive
Hwy	Highway
Hz	Hertz
I	Interstate
IAD	Immediate Action Drill
IBLA	Interior Board of Land Appeal
ICRMP	Integrated Cultural Resources Management Plan
IFR	Instrumented Flight Rules
IMPLAN	Impact Analysis for Planning
INRMP	Integrated Natural Resources Management Plan
IVC	International Vegetation Classification
JDAM	Joint Direct Attack Munitions
K05U	Eureka Airport
km	Kilometer(s)
km^2	Square kilometer(s)
L_{eq}	Equivalent Sound Level
L_{eq24}	24-hour Equivalent Sound Level
L_{max}	Maximum A-Weighted Sound Level
LOS	Level of Service
LOU	Letter of Understanding
MARSA	Military Assumes Responsibility for Separation of Aircraft
MBTA	Migratory Bird Treaty Act
MCON	Military Construction, Veterans Affairs, and Related Agencies Appropriations Act
MEDEVAC	Medical Evacuation
MLFO	Mount Lewis Field Office
mm	Millimeter
MOA	Military Operations Area or Memorandum of Agreement
MOU	Memorandum of Understanding
MP	Management Practice
MR_NMAP	Range Noise Model
MSAT	Mobile Source Air Toxics
MSL	Mean Sea Level
MW	Megawatt
m.y.	Million Year
N	North
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NACO	Nevada Association of Counties
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	Naval Air Station
Navy	United States Department of the Navy
NAWDC	Naval Aviation Warfighting Development Center
NAWDCINST	Naval Aviation Warfighting Development Center Instruction
NAWS	Naval Air Weapons Station
NCA	National Conservation Area
NDAA	National Defense Authorization Act
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act

Acronym	Definition
NHPA	National Historic Preservation Act
NIPTS	Noise Induced Permanent Threshold Shift
NM	Nautical Mile(s)
NM^2	Square nautical miles
NNHP	Nevada Natural Heritage Program
NNSS	Nevada National Security Site
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
NOTAM	Notice to Airmen
NPIAS	National Plan of Integrated Airport Systems
NRA	National Recreation Area
NRC	Nuclear Regulatory Commission
NRCS	National Resource Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statutes
NTTR	Nevada Test and Training Range
NVCRIS	Nevada Cultural Resources Information System
NWP	Nationwide Permit
NWR	National Wildlife Refuge
OHV	Off-highway vehicle
OPNAVINST	Chief of Naval Operations Instruction
OU2	Operable Unit 2
PA	Programmatic Agreement
Pb	Lead
PEA	Programmatic Environmental Assessment
PIA	Potential Impact Area(s)
PILT	Payment(s) In Lieu of Taxes
PM_{10}	fine particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	fine particulate matter less than or equal to 2.5 microns in diameter
ppm	Parts per million
psf	Pounds per square foot
PSI	Present Serviceability Index
R	Restricted Area(s)
RAICUZ	Range Air Installation Compatible Use Zone
RCZ	Range Compatibility Zone
RDF	Required Design Features
RDX	Royal Demolition Explosive
REPI	Readiness and Environmental Protection Integration
RFD	Reasonably Foreseeable Development
RM	Resource Management
RMP	Resource Management Plan
RMZ	Resource Management Zone
ROD	Record of Decision
ROW	Right(s) of Way
RR	Rural Resource
RS	Revised Statute
RSEPA	Range Sustainability Environmental Program Assessment
S	South
SDZ	Surface Danger Zone
SEC	Section
SEL	Sound Exposure Level
SGM	Suitable Growth Media
SHPO	State Historic Preservation Officer
SOA	Supersonic Operating Area
SO_x	Sulfur Dioxide
SRMA	Special Recreation Management Area
SUA	Special Use Airspace
SWPPP	Stormwater Pollution Prevention Plan
T	Tesla
T&R	Training and Readiness
TCP	Traditional Cultural Property
TMDL	Total Maximum Daily Load
tpy	Tons per year
TTP	Tactics, Techniques, and Procedures
UFC	Unified Facilities Criteria
UAS	Unmanned Aircraft System
U.S.	United States

Acronym	Definition
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Society
VFR	Visual Flight Rules
VOC	Volatile Organic Compound
VORTAC	Very High Frequency Omnidirectional Range/Tactical Aircraft Control
VRM	Visual Resource Management
WAP	Wildlife Action Plan
WD/HRFO	Winnemucca District, Humboldt River Field Office
WDL	Liquid Waste Disposal System
WDO	Winnemucca District Office
WDZ	Weapons Danger Zone
WSA	Wilderness Study Area
WSR	Wild and Scenic River

Notable Changes Between the Draft and Final Environmental Impact Statement

This section summarizes key information that has changed in the Environmental Impact Statement (EIS) between the Draft and Final versions of the EIS.

- **Abstract**
    - Added the United States (U.S.) Fish and Wildlife Service to the list of cooperating agencies.
- **Chapter 2, Description of Proposed Action and Alternatives**
    - The U.S. Department of the Navy (Navy) followed the Public Lands Survey System, which is based upon a grid layout. A description of the grids is used to define the area for withdrawal. The Weapons Danger Zones (WDZs) are modeled based on a curve. In order to fit the grid to the curve, the Navy refined the areas impacted along the WDZs into successively smaller grids in accordance with the rules of the Public Lands Survey System.
    - The proposed B-16 withdrawal Surface Danger Zone has been corrected to now correctly show the extent of the weapons safety zone associated with the proposed expanded training area (see Figures 2-2, 2-11, and 2-15).
    - Although the nature and overall scope of the Proposed Action have not changed, acreages for withdrawal and acquisition of each Bravo (B) range and the Dixie Valley Training Area were updated in Table 2-6, in all applicable locations in Chapter 2, and throughout the Final EIS to reflect the refinement (referred to throughout the document as "adjustment") of the area requested for withdrawal and proposed for acquisition under Alternative 3. The acreage changes reflect better cadastral data that defines the land requested for withdrawal in greater detail.
    - Figures comparing the proposed withdrawal areas as depicted in the Draft EIS to the newly-refined areas (as referenced in the bullet just above) have been added to the Final EIS Alternative 3 (See Figures 2-13 and 2-14).
    - More-detailed information has been provided regarding the proposed process for determining payments for losses due to cancelled or modified federal grazing permits and allotment improvements, valuation and processing of valid existing mining claims, process for transfer of water rights, as well as new information regarding the proposed hunting program at B-17.
- **Section 3.1, Geological Resources**
    - Added information on Salt Cave to Affected Environment and Environmental Consequences sections, including adding its location on Figures 3.1-5, 3.1-6, and to figures in Section 3.11 (Cultural Resources) as applicable.
    - Under the No Action Alternative, the Navy added the following statement, where appropriate, "However, any future uses would be subject to all applicable Federal, state and local laws, regulations, and ordinances, which may permanently or temporarily minimize impacts."

- **Section 3.3, Mining and Mineral Resources**
    - Further discussion has been provided concerning the process by which it would acquire valid existing mining claims within the areas proposed for withdrawal or requested for acquisition, in addition to offering nominal payments for claims within such areas that have not been validated. This process covers valid existing mining claims, patented mining claims, and unpatented mining claims, to include any unvalidated claims for which only nominal payments would be offered (see Section 3.3.4.2, Alternative 1: Modernization of the Fallon Range Training Complex).
- **Section 3.4, Livestock Grazing**
    - The discussion of Animal Unit Months (AUMs) that was in Section 3.4.1.3.1 (Determining Loss of Animal Unit Months) has been moved to Section 3.13.1.3.1 (Determining Loss of Animal Unit Months) of the Socioeconomics section. This move was made in order to avoid potential confusion about the Navy's valuation process for losses to permittees as a result of implementation of the Proposed Action. This process would be conducted on a case-by-case basis subsequent to any such ultimate implementation. AUMs were used as a metric for calculating the socioeconomic impact to the agricultural industry and therefore are more appropriately discussed in Section 3.13 (Socioeconomics).
    - Further discussion of the valuation process for losses resulting from permit cancellation has been added and can be found in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Cancellation), as well as Section 3.4.3.3.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Cancellation) and Section 3.4.3.4.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Cancellation).
    - Revised the restrictive analysis for determining potential AUMs lost based on new information regarding distance to water. Incorporated changes here as well as in Section 3.13 (Socioeconomics).
- **Section 3.5, Transportation**
    - The Supporting Study: Transportation Study (see https://frtcmodernization.com/) was completed for the re-route option of State Route 361 in late Fall 2018. The results of the study were incorporated into and analyzed in the Final EIS.
- **Section 3.7, Noise**
    - Added uniform distribution of population tables and percent of Census Tract/Block overlapped by DNL levels at or above 65 dBA.
    - Inserted Census Tract/Block figures with noise contours overlaid on the census tracts.
    - Performed additional aerial image evaluation at a 1:15,000 scale to identify potential sensitive receptor locations. Inserted applicable information into the Final EIS analysis.

- **Section 3.8, Air Quality**
    - Flares and chaff have been added to the list of potential fire inducers.
    - Added a clause that summarizes the effects of Hazardous Air Pollutants on ambient air quality and added a paragraph describing the average prevailing wind speed and direction for different times of the year.
- **Section 3.9, Water Resources**
    - Added "water rights" to the list of water resources components analyzed in this section.
    - Information has been added discussing the process by which water rights would be valued for payment in Section 3.9.3.2 (Alternative 1: Modernization of the Fallon Range Training Complex, Disposition of Water Rights and Water Wells) and Section 3.9.3.5.3 (Proposed Mitigation).
    - Updated the data in all figures and text showing water rights following a re-evaluation of existing rights by the Navy and Bureau of Land Management.
- **Section 3.10, Biological Resources**
    - Additional survey data was incorporated as surveys were completed during the Fall 2018, Winter 2018, Spring 2019, and Summer 2019, and are available as Supporting Studies on the FRTC Modernization EIS website (https://frtcmodernization.com/).
    - The discussion has been revised to include citations to additional studies addressing impacts to sage grouse.
    - The Navy is proposing to fund a study that would be conducted by the Nevada Department of Wildlife (in cooperation with the Navy) to monitor behavior of sage grouse on leks during aircraft overflights.
- **Section 3.11, Cultural Resources**
    - Revised this section between the Draft EIS and Final EIS based on comments received during the public comment period as well as comments from Cooperating Agencies and Tribal Participants during the National Environmental Policy Act process.
    - Revised the discussion of the Study Area from a discussion of the Area of Potential Effect to Potential Impact Areas (PIAs), a term analogous to the NHPA Section 106 Area of Potential Effect. The present analysis, however, differs from Section 106 to the degree that it (1) considers a wide array of proposed actions that at present are not defined enough to be undertakings per 36 Code of Federal Regulations Part 800.16(y), as well as (2) considers the impact to a wider range of cultural resources than National Register of Historic Places eligible or potentially-eligible historic properties.
    - The PIAs addressed in this document are based on activities associated with the Proposed Action to holistically assess potential impacts to cultural resources. PIA boundaries are defined in consideration of potential impacts to cultural resources from ground disturbance; vibrations from sonic booms, aerial target strikes, and military expended material strikes; visual and auditory intrusions; and changes in access (see Figure 3.11-2, Figure 3.11-3, Figure 3.11-4, and Figure 3.11-5).

- Added information regarding the Navy Section 106 consultation. The Navy has also updated the process to amend the current 2011 Programmatic Agreement to support operations and activities associated with the Proposed Action.
- Added and analyzed data from the completed Class III Cultural Resources Inventory (see Supporting Study: Class III Cultural Resources Inventory available at https://www.frtcmodernization.com) of new target areas and convoy routes under Alternative 3.
- A draft of the proposed Amended Programmatic Agreement Among Naval Air Station, Fallon, Nevada, The Nevada State Historic Preservation Officer and the Advisory Council on Historic Preservation Regarding the Identification, Evaluation and Treatment of Historic Properties on Lands Managed by Naval Air Station, Fallon, has been added to Appendix D (Memoranda, Agreements, and Plans).
- Further analysis of anticipated impacts associated with bombing training has been added to the discussion of Training Activities, with respect to both target/buffer areas and non-target areas.
- After discussions with interested Indian Tribes, the Navy acknowledges that there is a potential for significant impacts to access under all action alternatives. The discussion of Public Accessibility-related impacts in the Final EIS has been revised to indicate that impacts to tribal access to cultural resources may be significant.

- **Section 3.12, Recreation**
  - The Draft Memorandum of Agreement for the proposed bighorn sheep hunt program at B-17 between the United States Department of the Navy Naval Aviation Warfighting Development Center and Naval Air Station Fallon and the State of Nevada, Nevada Division of Wildlife, has been added to Appendix D (Memoranda, Agreements, and Plans), and appropriate updates and references to it have been added to this section.
- **Section 3.13, Socioeconomics**
  - Revised the restrictive analysis for determining potential AUMs lost based on new information regarding distance to water.
  - Tables from Section 3.4 (Livestock Grazing) were inserted into the Socioeconomics section along with the discussion on Determining Loss of Animal Unit Months, now found in Section 3.13.1.3.1 (Determining Loss of Animal Unit Months). AUMs were used as a metric for calculating the potential socioeconomic impact to the agricultural industry and therefore are more appropriately discussed in this section.

- **Section 3.14, Public Health and Safety and Protection of Children**
    - Historical fire data was added to the section as available, and figures were created on a range by range basis to more accurately show the data on wildfire potential in the expanded range areas.
    - The Draft Outline of the Wildland Fire Management Plan has been added to Appendix D (Memoranda, Agreements, and Plans), and appropriate updates and references to it have been added to the EIS.
- **Chapter 4, Cumulative Impacts**
    - Only routes B-2 and B-3 of the I-11 project are included in the figures and analysis in Chapter 4, as the other routes have been removed from consideration following the recently completed planning and environmental linkage study done by the Nevada Department of Transportation.
    - Projects suggested during the public comment period were researched, assessed, and incorporated as applicable into this chapter.
- **Chapter 5, Management Practices, Monitoring, and Mitigation**
    - Added tables to each resource section discussing the management practices, monitoring, and mitigations suggested by cooperating agencies, tribal participants, and in public comments received during scoping and the commenting period on the Draft EIS, along with the Navy's responses for each suggestion indicating whether it was adopted or not, including reasoning for considering but not adopting the suggestion as applicable.
- **Appendices**
    - A summary of Tribal Correspondence and additional correspondence items have been added to Appendix B (Tribal Correspondence).
    - Updated correspondence items have been added to Appendix C (Agency Correspondence).
    - Draft EIS Appendix D (Public Participation) has been changed to Appendix E (Public Participation).
    - Created a new Appendix D (Memoranda, Agreements, and Plans), which contains the drafts of proposed memoranda, agreements, and plans between the Navy and stakeholders as available for the Final EIS.
    - A new Appendix, Appendix F (Public Comments and Responses), has been added to the Final EIS and presents all comments submitted to the Navy during the Draft EIS public commenting period, the Navy's responses, and where applicable, notations to where the EIS has been modified.

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1.0 Purpose and Need

Environmental Impact Statement

Fallon Range Training Complex Modernization

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1 Purpose of and Need for the Proposed Action

1.1 Introduction

The Commander, United States (U.S.) Pacific Fleet, a Command of the U.S. Department of the Navy (Navy), proposes to modernize the land and airspace configurations of the Fallon Range Training Complex (FRTC) in northwest Nevada.

The Navy constantly evaluates its warfighting tactics, techniques, and procedures for their effectiveness against changing threats worldwide. As new weapons systems are developed and introduced to the Fleet and tactics updated to successfully employ these weapons systems, training requirements also change. Changes to training requirements can, in turn, drive the need to expand or modify training ranges. At the FRTC, a number of new weapons systems have been introduced to the Fleet in recent years (e.g., Joint Direct Attack Munitions); and new systems, including new aircraft (e.g., F-35C, EA-18G), will need to be employed in future training activities. However, the FRTC bombing ranges (Bravo [B]-16, B-17, B-19, and B-20) and the Dixie Valley Training Area (DVTA) have not changed substantially in size or configuration since the 1990s. To configure the FRTC bombing ranges to meet modern training requirements, the Navy proposes the following actions:

- Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres for a term of 25 years, which is scheduled to expire in November 2021;
- withdrawal and reservation by Congress for military use additional federal land for a term of 25 years;
- acquisition of private or state-owned (non-federal) land;
- expansion of associated Special Use Airspace (SUA) and reconfiguration of existing airspace; and
- modification of range infrastructure to support modernization.

The elements of this proposal are based on the results of a comprehensive assessment of air warfare by the Naval Air Warfare Development Center (NAWDC), which is the Naval Aviation Warfighting Center of Excellence for the Navy, to address current, emergent, and future FRTC training capabilities. The assessment is titled *Ninety Days to Combat* (U.S. Department of the Navy, 2015a) (discussed in full in Section 1.4, Purpose of and Need for the Proposed Action), which was not a decision document, and informed the decisions that ultimately became this Proposed Action. With the implementation of the proposed modernization, the FRTC would be capable of supporting the aviation and ground training and readiness requirements for the training missions assigned to the FRTC, into the foreseeable future.

Under the Proposed Action, the type and tempo of aviation and ground training would be similar to what was evaluated in Alternative 2 of the 2015 *Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015a). In addition to analyzing the type and tempo of military readiness training activities within the FRTC, that Environmental Impact Statement (EIS) accounted for the introduction of new platforms (aircraft) and weapons systems. This current EIS analyzes physical changes to the FRTC.

At the time the Record of Decision (ROD) for the 2015 *Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* was signed, NAWDC's assessment of the capabilities of the FRTC to meet future training requirements was still under consideration by the Navy. Changes in future range design and tactics at the FRTC were not considered in that EIS. The ROD acknowledged that the Navy would analyze any proposed physical or operational changes to the FRTC in

accordance with the National Environmental Policy Act (NEPA) when such changes were considered ripe for analysis.

The Navy has prepared this current EIS in accordance with NEPA, as implemented by the Council on Environmental Quality (CEQ) and Navy Regulations. The Navy is the lead agency for this EIS pursuant to 40 Code of Federal Regulations (CFR) section 1501.5. Cooperating agencies for this EIS, pursuant to 40 CFR section 1501.6 and section 1508.5, include:

- Bureau of Land Management (BLM)
- Federal Aviation Administration (FAA)
- U.S. Fish and Wildlife Service
- Nevada Department of Wildlife
- Nevada Department of Minerals
- Nevada Department of Agriculture
- Nevada Department of Transportation
- Nevada Governor's Office of Energy
- Churchill County, Nevada
- Eureka County, Nevada
- Lander County, Nevada
- Mineral County, Nevada
- Nye County, Nevada
- Pershing County, Nevada

The Navy is also working closely with the Inter-Tribal Council of Nevada and the following 13 federally recognized Indian Tribes to prepare this EIS:

- Duckwater Shoshone Tribe
- Fallon Paiute-Shoshone Tribe
- Fort McDermitt Paiute and Shoshone Tribe
- Lovelock Paiute Tribe
- Pyramid Lake Paiute Tribe
- Reno-Sparks Indian Colony
- Summit Lake Paiute Tribe
- Te-Moak Tribe of Western Shoshone Indians of Nevada (comprised of the Battle Mountain Band, Elko Band, South Fork Band, and Wells Band)
- Washoe Tribe of Nevada and California
- Walker River Paiute Tribe
- Winnemucca Paiute Tribe
- Yerington Paiute Tribe
- Yomba Shoshone Tribe
- Inter-Tribal Council of Nevada

In accordance with 36 CFR part 800 (regulations implementing Section 106 of the National Historic Preservation Act [NHPA] of 1966 [54 United States Code {U.S.C.} 300101 et seq.], as amended); Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*; and regulations implementing NEPA (40 CFR part 1500 et seq.), consultation with Indian Tribes has been ongoing throughout the development of this EIS. The Navy solicited comments from the listed Indian Tribes by letter, phone, and e-mail, and has received both written and oral responses. The Navy invited the listed Indian Tribes to be present at meetings with cooperating agencies and hosted separate meetings with these Indian Tribes regarding the proposal. The Navy will continue to consult with Indian Tribes on a Government-to-Government basis, including but not limited to consultation under NHPA Section 106.

1.2 Location

The FRTC is located in northern Nevada and encompasses approximately 202,864 acres of training land (Table 1-1) and 8,670 acres of land at the Naval Air Station (NAS) Fallon main base. In addition, the FRTC has approximately 12,256 square nautical miles (NM^2) of SUA associated with NAS Fallon. The FRTC airspace overlies large parts of Churchill, Lander, and

Special Use Airspace

Airspace of defined dimensions wherein activities (e.g., military training flights) must be confined because of the nature of their activities or wherein limitations may be imposed upon aircraft operations that are not a part of those activities.

Eureka counties, as well as small portions of Pershing County in the north, Nye County in the south, Elko County in the east, Mineral County in the southwest, and Lyon and Washoe Counties in the west. U.S. Highway 50 bisects the FRTC and is a main east-west transportation route through the complex (Figure 1-1).

Table 1-1: Management of Current Fallon Range Training Complex Land Assets

Area	Land Category	
	Withdrawn[1] (acres)	Navy Fee Owned[2] (acres)
B-16	27,359	0
B-17[1]	53,546	25
B-19	29,012	0
B-20	21,576	19,429
DVTA	68,809	28
Shoal Site	2,561	0
Totals[+]	202,864	19,483

[1]The existing withdrawn acreage represents the area that is presented in the Navy's withdrawal request segregation package and are lands that the Navy is requesting for renewal. As a result of numerous land surveys by the BLM since 1999, this number does not match the acreage values as described in PL 106-65.
[+]Due to rounding of acreage values at the category level, some total columns may not match calculated totals.
[2]In addition to the Withdrawn and Navy Fee-Owned lands, there are approximately 1,215 acres of Navy controlled non-federal lands as part of the B-17 range not listed in the table.

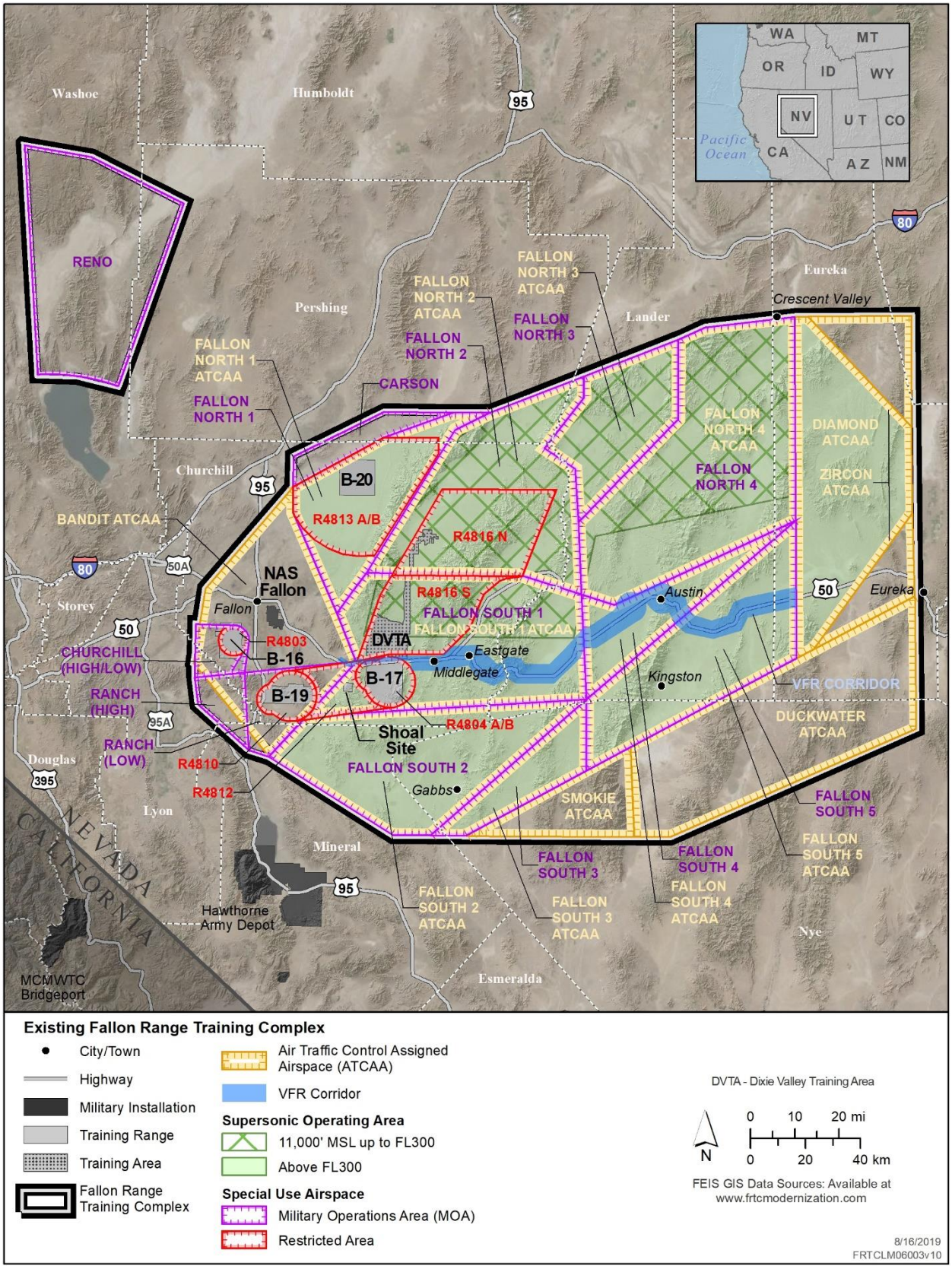


Figure 1-1: Existing Fallon Range Training Complex

1.3 Background

The FRTC hosts training for aviation and ground military units necessary to ensure military readiness for the defense and security of the United States and its interests abroad. Since World War II, the Navy has extensively used the ranges and airspace of the FRTC to conduct military air warfare and ground training, including live-fire training activities. The area in which the FRTC is located provides an ideal training environment due to its climate, potentially usable land areas, terrain, and military airspace.

The FRTC's characteristics include suitable weather for year-round training and designated airspace for overland supersonic training. The region provides large areas suitable for realistic training and space for freedom of tactical maneuver, where naval personnel can build and sustain combat skills and readiness.

The FRTC consists of four live-fire ranges (B-16, B-17, B-19, and B-20) and one non-firing training area (the DVTA, which includes the Shoal Site):

History of the FRTC

1942	U.S. Army airfield established in Fallon
1943	First training range established (B-20)
1944	Naval Auxiliary Air Station commissioned with transfer of a property from the Army
1953	Establishment of B-16, B-17, and B-19. Public Land Order 898 indefinitely withdrew 56,011 acres of land for B-16, B-17, and B-19 for military use (Figure 1-2).
1984	Naval Strike Warfare Center based at NAS Fallon
1996	Naval Strike and Air Warfare Center (NSAWC) formed which consolidated the Naval Strike Warfare Center, Navy Fighter Weapons School (TOPGUN), and Carrier Airborne Early Warning Weapons School (TOPDOME)
1986	Public Law 99-606 enacted, withdrew 21,576 acres for use of B-20 for training for a 15-year term.
1999	Public Law 106-65 signed, which withdrew approximately 201,933 acres of land for military use expiring November 5, 2021. Land was withdrawn for B-16 (27,253 acres), B-17 (52,830 acres), B-19 (29,276 acres), B-20 (21,577 acres), the DVTA (68,437 acres), and the Shoal Site (2,560 acres). This number does not match the acreage values as described in the BLM segregation package (and land acreage tables within this EIS) as a result of numerous map revisions and land surveys by the BLM since 1999.

- B-16's primary use is unit-level ground and air training. Typical training activities that have historically occurred include Naval Special Warfare tactical ground mobility training using wheeled vehicles with crew-served weapons and small arms, fixed-wing inert ordnance (practice bombs armed only with small spotting charges in order to identify weapon impact location), helicopter gunnery (machine gun) training, and Close Air Support and Combat Search and Rescue missions. Naval Special Warfare Tactical Ground Mobility Course training, Naval Aviation basic air-to-ground training, and Helicopter Gunnery Training Range training have historically occurred at B-16. The majority of B-16 is closed to the public due to safety reasons, with only small portions accessible to the public under the terms of the 1999 Military Lands Withdrawal Act (Public Law 106-65). Table 2-9 provides a complete list of training activities conducted at B-16.

Combat Search and Rescue

A specific task performed by rescue forces to recover distressed personnel during war or military operations other than war. Also called CSAR.

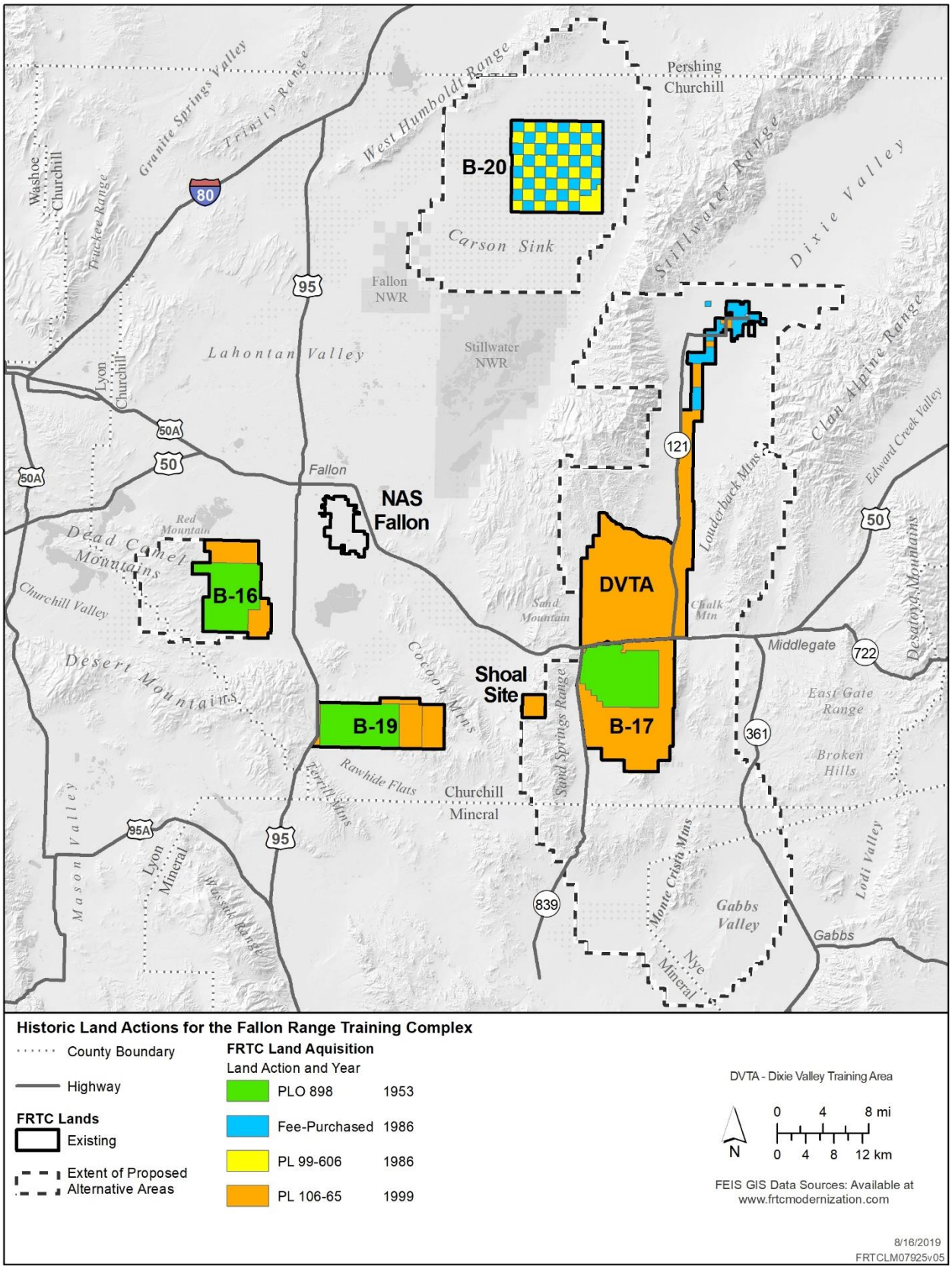


Figure 1-2: Historic Land Actions for the Fallon Range Training Complex

- B-17's primary use is advanced training with multiple aircraft. The Navy has heavily developed B-17 and it is the most frequently used bombing range within the FRTC. The range contains a variety of targets and target configurations and provides the most challenging and high-complexity scenarios for all types of training events. It accommodates live and inert munitions. B-17 is not accessible by the public for safety reasons. Table 2-9 provides a complete list of training activities conducted at B-17.
- B-19 is used for Air-to-Ground munitions delivery and rotary-wing strafing (firing at a ground target from helicopter). The range also has a small arms range managed by the Nevada Army National Guard. Small portions of B-19 are accessible to the public under the terms of the 1999 Military Lands Withdrawal Act. Table 2-9 provides a complete list of training activities conducted at B-19. No changes are proposed for this range.
- B-20's primary use is for advanced weapons training and large force exercises. It contains a variety of targets and target complexes and is capable of accommodating both live and inert ordnance. B-20 is not accessible by the public for safety reasons. Table 2-9 provides a complete list of training activities conducted at B-20.
- The DVTA is typically used for Convoy Training, fixed-wing and helicopter Night Vision Device training, helicopter mountain-flying training, and Combat Search and Rescue activities. The DVTA also supports aviation electronic warfare and some Naval Special Warfare activities. No Air-to-Ground munitions delivery training or live-fire training activities occur within the DVTA. The majority of the DVTA is accessible to the public under the terms of the 1999 Military Lands Withdrawal Act. There are several facilities on the DVTA that are fenced and locked, including radar sites, a maintenance yard, and an electronic support facility (Centroid Complex). Table 2-9 provides a complete list of training activities conducted at the DVTA.
- The Navy typically uses the Shoal Site for Combat Search and Rescue activities. There is no air-to-ground munitions delivery or live-fire training conducted. The Shoal Site is accessible to the public under the terms of the 1999 Military Lands Withdrawal Act. No changes are proposed for this area.

The FRTC's SUA includes 9 restricted areas, 15 Military Operations Areas (MOAs), 14 Air Traffic Control Assigned Airspaces (ATCAA), 2 supersonic operating areas (where aircraft can exceed Mach 1, or the speed of sound), and a Civilian Visual Flight Rules (VFR) corridor. Specifically, the FRTC SUA includes:

- Restricted Airspaces (established by 14 CFR part 73) are areas of airspace that, when activated, are closed to commercial and general aviation aircraft. Restricted areas activate as necessary to support safe range operations, during specific land bombing events and as needed for specific non-ordnance activities, such as lasing. Outside of normal operating hours (during which restricted areas are generally activated), activation of the Restricted Airspace is communicated to the public via FAA-issued Notices to Airmen.
- MOAs are areas of SUA used to separate certain non-hazardous military activities from instrument flight rules flights. Non-hazardous activities can include air combat maneuvers, air intercepts, and low-altitude tactics. MOAs are joint use, in that Civilian VFR traffic has access and priority flight traffic (emergency flights, Medical Evacuations) may transit through the airspace. General aviation pilots using visual flight rules may fly though active MOAs during military training, but many avoid doing so.

- ATCAAs are airspace assigned by FAA Air Traffic Control to segregate air traffic between the specified activities being conducted within the assigned airspace and other Instrumented Flight Rules (IFR) traffic. They may be requested by the military to support SUA, and are evaluated concurrently with SUA to determine the overall aeronautical impact of the SUA proposal. When not activated, the area can be used for commercial or other IFR traffic. IFR are rules and regulations established by the FAA to govern flight under conditions in which flight by VFR is not safe. IFR flight depends upon flying by reference to instruments in the flight deck, and navigation is accomplished by reference to electronic signals.
- Supersonic operating areas are defined airspace within SUAs and ATCAAs where aircraft can perform activities with airspeeds greater than the speed of sound. Two supersonic operating areas have been established at FRTC to conduct military training that requires high-performance flight profiles, including aircraft flying at supersonic speeds (i.e., greater than the speed of sound or Mach 1). Supersonic Operating Area A is comprised of the entire FRTC boundary for all altitudes above Flight Level 300 (standardized pressure altitude of 30,000 feet) (9,144 meters) above mean sea level (MSL). Area B is from 11,000 feet (3,353 meters) above MSL up to Flight Level 300. Area B is above approximately 2,682,705 acres (1,085,652 hectares) of BLM land and 131,424 acres (53,185 hectares) of private land. Land use beneath Area B is mostly ranching, farming, and public land recreation, but recently solar energy development is occurring on both BLM and private land.
- VFR corridors are routes that aircraft (civilian and military) can operate within using visual references without an air traffic control clearance or communication with air traffic control. In general, a pilot operating under VFR must be able to see outside the cockpit to control the aircraft's altitude, navigate, and avoid obstacles and other aircraft. If weather conditions are such that the pilot cannot operate according to VFR, he or she must use IFR and cannot use the VFR corridor unless directed by air traffic control. The current VFR corridor is defined in FAA Order 7400.10A and runs in a west-east direction from Sand Mountain through Austin, Nevada, terminating at the eastern boundary of the Fallon South 5 MOA. Civilian and military aircraft may use it to transit the FRTC airspace. Within the Fallon MOAs, military aircraft avoid the VFR corridor between the altitudes of 2,000 feet above ground level and 8,500 feet MSL, unless abiding by VFR criteria.

In terms of range infrastructure, the FRTC has a sophisticated threat Integrated Air Defense System (comprised of 37 real or simulated radars throughout the DVTA), a Tactical Combat Training System range (the system collects time, space, position, and weapon employment information from participants in training exercises and transfers the information to a ground system that can provide live monitoring of tactical scenarios and debriefing), multiple target types (e.g., bull's-eye, simulated compounds, missile launchers/air defense sites, tanks, simulated petroleum and oil facilities, laser-guided bomb targets, and radar vans), and supporting target facilities.

The FRTC includes an Electronic Warfare Complex, which consists of a variety of systems, both mobile and fixed in place, located beneath the FRTC airspace. These systems are widely dispersed on Navy fee-owned, withdrawn BLM, and BLM rights-of-way lands, with most of the fixed sites in the general vicinity of B-17 and the DVTA. The systems train aircraft crews in defensive maneuvers and tactics by simulating and disabling the electronic jamming capabilities of attacking aircraft. The various fixed and mobile systems offer tailored configurations and levels of complexity to meet many mission scenarios (such as strike/attack, helicopter penetration and reconnaissance, and Combat Search and Rescue).

The FRTC is supported by NAS Fallon. NAS Fallon includes an airfield with control tower, runways, personnel housing; and maintenance, support, retail, recreation, administration, and utility support facilities.

The FRTC is the only location available to the Navy that can support, house, and train an entire Carrier Air Wing (upward of 60 aircraft and all aircrew and support crews) for advanced Strike Warfare, Electronic Warfare, and Air Warfare training. In fact, every Navy Carrier Air Wing trains at the FRTC prior to deployment as part of the Optimized Fleet Response Plan (an approximately 36-month cycle of maintenance, basic and integrated training, deployment, and sustainment). The FRTC supports five main weapons and tactics courses: TOPGUN (F-18 Super Hornet), SEAWOLF (MH-60 helicopter), HAVOC (EA-18G Growler), Carrier Airborne Early Warning Weapons School (E-2D, Hawkeye), and Viper University (F-16 Viper). The Naval Special Warfare Command also utilizes the FRTC for unit-level training in Tactical Ground Mobility, Special Reconnaissance, Sniper Sustainment, and Land Navigation prior to deployment. The FRTC offers joint (involving multiple Services) integrated training opportunities, which are vital to advanced-level Carrier Air Wing training; support for other mission areas and Tactical Development and Evaluation (including military Unmanned Aircraft Systems [UAS] and other intelligence, surveillance, and reconnaissance platforms); and support for training activities of other Services and government agencies.

Advanced Strike Warfare

Operations to destroy or neutralize enemy targets on land.

Electronic Warfare

Operations to enable aircrews to detect and identify the kind of electronic signals they might encounter flying in hostile territory. Electronic Warfare training does not include the use of munitions.

Air Warfare

Operations involving detection, tracking, destruction, or neutralization of enemy air platforms and airborne weapons.

Tactical Ground Mobility

Use of non-standard vehicles (HUMVEE or MRAP) for tactical driving, vehicle operations, and basic maintenance in the field.

1.4 Purpose of and Need for the Proposed Action

The overarching purpose of any military force is to be able to successfully conduct combat operations in support of national policy and security objectives. To accomplish this purpose, the military force must train regularly and with sufficient realism. The purpose of the Proposed Action, therefore, is to provide sustainable and modernized airspace, range, maneuver areas, training facilities, and range infrastructure, in order to support acceptably realistic air warfare training activities as well as special operations ground training activities in order to meet emergent and future threats. These activities are prescribed by NAWDC, and other Naval Warfare authorities, such as the Naval Special Warfare Command.

Current range configurations do not support realistic training as identified in *Ninety Days to Combat.* The Proposed Action is needed because the existing FRTC bombing ranges (B-16, B-17, B-19, and B-20) have not changed substantially in size or configuration since the 1990s. As new weapons systems are developed and introduced to the Fleet, and tactics are updated to successfully employ these weapons systems, training requirements also change. Changes to training requirements can, in turn, drive the need to expand or modify training ranges. At the FRTC, new weapons systems have been introduced to the Fleet in recent years (e.g., Joint Direct Attack Munitions) and new systems, including new aircraft (e.g., F-35C, EA-18G), will need to be employed in future training activities. As documented in *Ninety*

Days to Combat (U.S. Department of the Navy, 2015b), warfare technology has continued to evolve, most notably with regards to the distance at which munitions can be employed.

In addition to the training activities that occur on the bombing ranges, the Navy also conducts critical non-hazardous training within the DVTA, such as Electronic Warfare training, Dynamic Targeting operations, Combat Search and Rescue, Naval Special Warfare, and other training activities. The DVTA has also not changed substantially in size or configuration since its creation in the 1990s, and in recent years it has been increasingly threatened by encroaching development, especially in low-altitude, dark, and low-light conditions. The DVTA must be retained and expanded to preserve a viable location to train the Navy's air and ground forces in these critical non-ordnance training activities.

With the implementation of the proposed modernization, the FRTC would be fully capable of supporting the aviation and ground training and readiness requirements for the training missions assigned to the FRTC, into the foreseeable future. In this regard, the Proposed Action fulfills the Navy's execution of its congressionally mandated roles and responsibilities under 10 U.S.C. section 5062 and 10 U.S.C. section 167.

1.5 Training Needs and the Capabilities Evaluation Process

To achieve success in combat, the Navy develops a strategy for successfully employing its assets. NAWDC takes this strategy and develops it into combat doctrine. NAWDC is responsible for conducting and providing a continuous and comprehensive assessment of Air Warfare to address current, emergent, and future capabilities to the Fleet and is directly responsive in real time to our deployed Naval forces. NAWDC, through its subject matter experts, is responsible for developing aviation Tactics, Techniques, and Procedures (TTP) that support this combat doctrine and drive advanced naval aviation training. NAWDC's specific duties include

- providing the most threat-realistic training environment available to deploying forces;
- developing and validating aviation TTP. These training requirements define tactical level guidance for the effective employment of weapons systems, platforms (specific aircraft and other vehicles), and forces. In other words, TTPs identify the required combat skills a warfighter needs to repetitively practice prior to deployment to be ready to respond in an actual combat situation when deployed;
- assessing warfighting requirements across all Strike Warfare missions;
- providing independent assessments and recommendations to the Chief of Naval Operations regarding investments in or proposed changes to existing programs that may impact naval aviation; and
- promoting prioritization, rapid development, and delivery of new doctrine, technologies, and training.

Similarly, the Naval Special Warfare subject matter experts develop the TTP for ground mobility training and non-weapons training capabilities using the same principles as outlined for NAWDC.

The current FRTC bombing ranges (B-16, B-17, B-19, and B-20) have not changed substantially in size or configuration since the 1990s. However, warfare technology has continued to evolve. Modern weapons can reach targets at greater distances than ever before, but current range boundaries limit the distance from which pilots can release ordnance. In response to gaps in training capabilities at the FRTC identified as a result of NAWDC's continuous assessment of capabilities for the Fleet, NAWDC completed a comprehensive study in 2015 titled *Ninety Days to Combat* to formalize FRTC requirements (U.S.

Department of the Navy, 2015b). This document included a focused analysis of the capabilities the FRTC should provide to fully sustain Navy training across mission areas, as well as a comparison of the FRTC's current capabilities against required capabilities. This comparison revealed that none of the training requirements supporting the TTP for the delivery of precision-guided munitions and Air Warfare (including Large Force Exercise) events can be fully met at the FRTC as presently configured (see Section 1.5.1, Weapons Release Training and Need for Expanded Range Area).

What is a Large Force Exercise?

Large Force Exercises at the FRTC are based on the principle of "crawl, walk, run." Training exercises begin with simple scenarios and advance to scenarios involving the entire Carrier Air Wing. Training exercises bring together squadrons and teach them to work together under real world scenarios. During the advanced phase of training, Large Force Exercise scenarios include standoff strike, force concentration, self-escort, defense in depth, long-range strike, and other activities.

The Navy evaluated the identified training capability gaps against the real-world constraints (e.g., regional roadways, commercial airspace, population centers) on meeting all TTP requirements. The process of developing the alternatives considered additional input from the Cooperating Agencies and Tribal Participants. To fully meet the requirements would require a prohibitively large area, approximately double the amount of land as proposed in this EIS (see Section 1.5.2, Airspace Training Need versus Current Range Capability). This evaluation resulted in the development of modified range tactical requirements that would approach full TTP specifications. Even though not all TTP specifications would be met, implementation of the Proposed Action would still allow the Navy to achieve an acceptable level of training capabilities. Concurrently, NAWDC worked with Naval Special Warfare to identify similar gaps and actions that would support ground mobility training requirements that acceptably approach the full TTP (see Section 1.5.3, Ground Mobility Training Need versus Current Range Capability).

What is Tactically Acceptable?

The weapon release parameters listed in Table 2-1 represent the NAWDC-approved, tactically acceptable release (threshold) parameters for the current cadre of Navy Non-Combat Expenditure Allocations. "Threshold" range requirements were defined as the minimum capabilities to allow training to an acceptable readiness level.

In summary, current FRTC training capabilities do not, and will not, meet future and emergent needs of the Fleet and Unified Combatant Commands with the FRTC's current configuration. The current capabilities are so constrained that they limit the overall quality of the training provided. The Navy's Proposed Action to modernize the FRTC would close training capability gaps to tactically acceptable levels but would still not achieve full TTP compliance because that would require land and airspace approximately double what is being requested. The sections below present the comparisons of training needs against the current capabilities of the FRTC.

1.5.1 Weapons Release Training and Need for Expanded Range Area

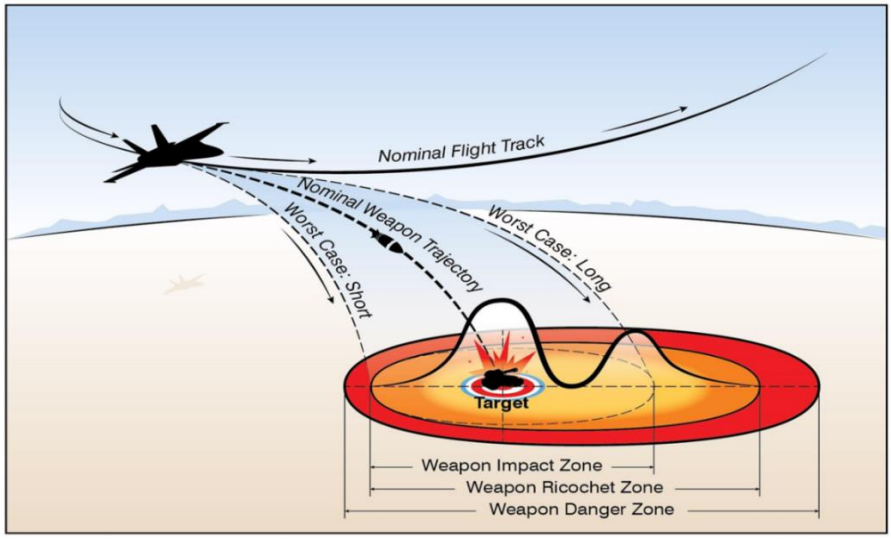
In *Ninety Days to Combat* (U.S. Department of the Navy, 2015b), NAWDC analyzed the land and airspace (see Section 1.5.2, Airspace Training Need versus Current Range Capability, for discussion of airspace requirement) needed to meet combat training requirements for modern aircraft and weapon systems. When comparing older aircraft and mission profiles with modern aircraft and weapons systems, NAWDC noted the following differences:

- Older aircraft flew at lower altitudes, approached targets at closer distances (4–5 miles) before dropping munitions, and because of this close-range release, required a smaller safety area surrounding the target area during training.
- Modern aircraft fly at higher altitudes, release munitions at targets from 10 to 12 miles away, and require a larger safety area surrounding the target area during training.

Though munitions can reach targets at greater distances than ever before, current range boundaries (which do not accommodate modern weapons safety requirements) limit this type of training. Even if actual target areas were to remain the same, if release distances are increased, the safety area that is required during training in case of weapons failure also increases.

To fully meet the TTP for weapons release parameters and to employ longer-range weapons systems, aircrews would need to be able to release weapons from any direction (a 360-degree attack azimuth) and at substantial distances from a target (Table 1-2, Full TTP Compliance column). These release parameters have associated Weapons Danger Zones (WDZ). A WDZ represents the minimum safety requirements designed for aviation weapons training on Department of Defense ranges to protect public safety. A WDZ encompasses the ground and airspace for horizontal and vertical containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of aviation-delivered ordnance. This three-dimensional zone is calculated for each specific weapon type as delivered by a specific aircraft type up to specific air speeds, attack angle, heading, and distance from the target by the aircraft. The WDZ accounts not only for weapon accuracy, but also for potential weapon failures, ricochets, or broaches (a broach occurs when a weapon impacts the ground, burrows underground, and re-surfaces in another area, before finally coming to rest). To ensure public safety, and per Chief of Naval Operations Instruction 3710 and FAA Joint Order 7400.2M, the Navy must both (1) control and restrict public use of any land that is within a WDZ, and (2) ensure that restricted airspace configuration matches WDZs.

Figure 1-3 illustrates the WDZ for a single weapon delivery. The WDZ represents the entire expected weapon hazard pattern from weapon release to impact and detonation, based on a probability of containment accuracy of 99.99 percent. The outermost oval represents the farthest that the weapon may travel based upon release conditions and depicts the area that the weapon will fall within (with 99.99 percent accuracy). The inner oval considers all potential weapon flight paths or failure modes, to include the worst-case “long” (past the target) or worst-case “short” (not reaching the target) weapon impacts, along with weapon ricochets.



Source: Marine Corps Order 3570.1, Range Safety

Figure 1-3: Weapons Danger Zone for a Single Firing Azimuth

When using multiple weapons or firing azimuths (release headings), the WDZ analysis tool calculates the hazard pattern for all ordnance trajectories, called a "Composite WDZ." The Composite WDZ depicts the hazard pattern for a combination of weapons released to the same target but with multiple firing azimuths. The WDZ analysis tool performs this by calculating the individual weapon WDZs and then combines them into one larger hazard pattern. In Figure 1-4, Panel A shows a single weapon WDZ for a northern (0 degree) firing azimuth. Panel B displays three firing azimuths for three cardinal headings (0, 90, and 270 degrees). Panel C adds two more firing azimuths. Finally, Panel D overlays all azimuths, and the outer perimeter of all combined WDZs becomes the new Composite WDZ. The Navy then used the composite WDZs described above (and Surface Danger Zones for ground-based ordnance) for each scenario to assist in the design of ranges, as well as to determine how much land is required in order to contain the WDZ.

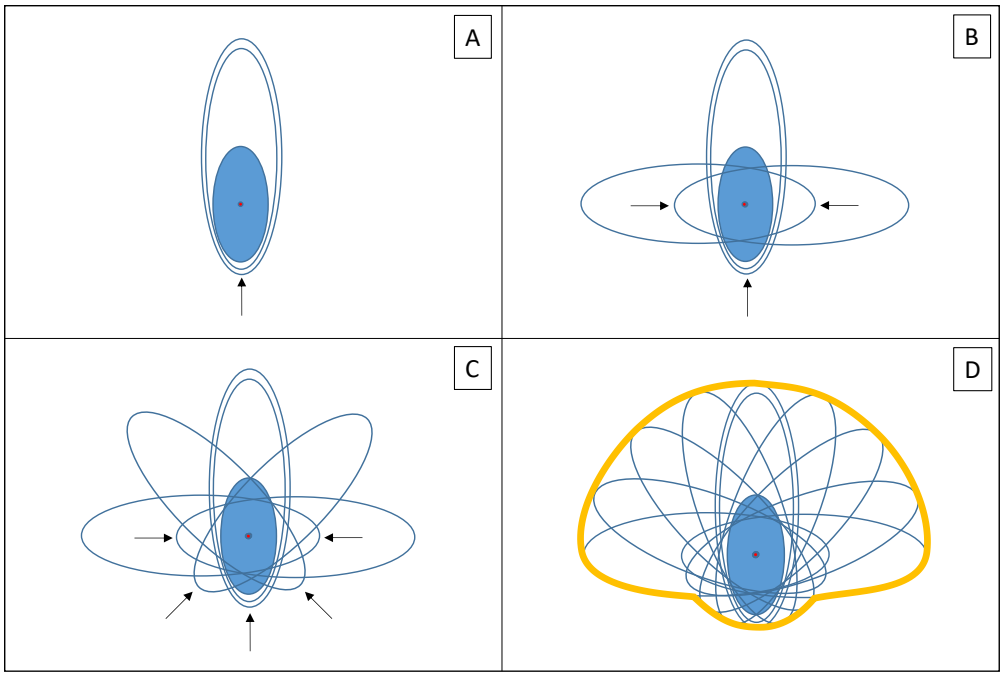


Figure 1-4: Creation of Composite Weapons Danger Zone from Numerous Firing Azimuths

NAWDC has identified the weapons release parameters for the ideal case (360-degree firing azimuth) (U.S. Department of the Navy, 2015b). By overlapping the ideal case over existing ranges at the FRTC, the Navy noted the following:

- Existing range boundaries would not be able to contain the WDZs associated with the ideal case (Figure 1-5, Panel B and Figure 1-6, Panel B).
- The Navy would need to request withdrawal or propose acquisition of a very large amount of land to meet the WDZ requirements of the ideal case. Doing so would be both unattainable as a practical matter and undesirable because of the potential level of impacts on the surrounding area and communities.

Noting these real-world constraints, NAWDC has refined parameters to the "tactically acceptable" level (180-degree firing azimuth) and has identified more achievable land and airspace requirements (Figure 1-5 and Figure 1-6, Panel C, which shows the WDZ for the Joint Direct Attack Munitions [the largest of the WDZs] at the B-17 and B-20 ranges as proposed for expansion).

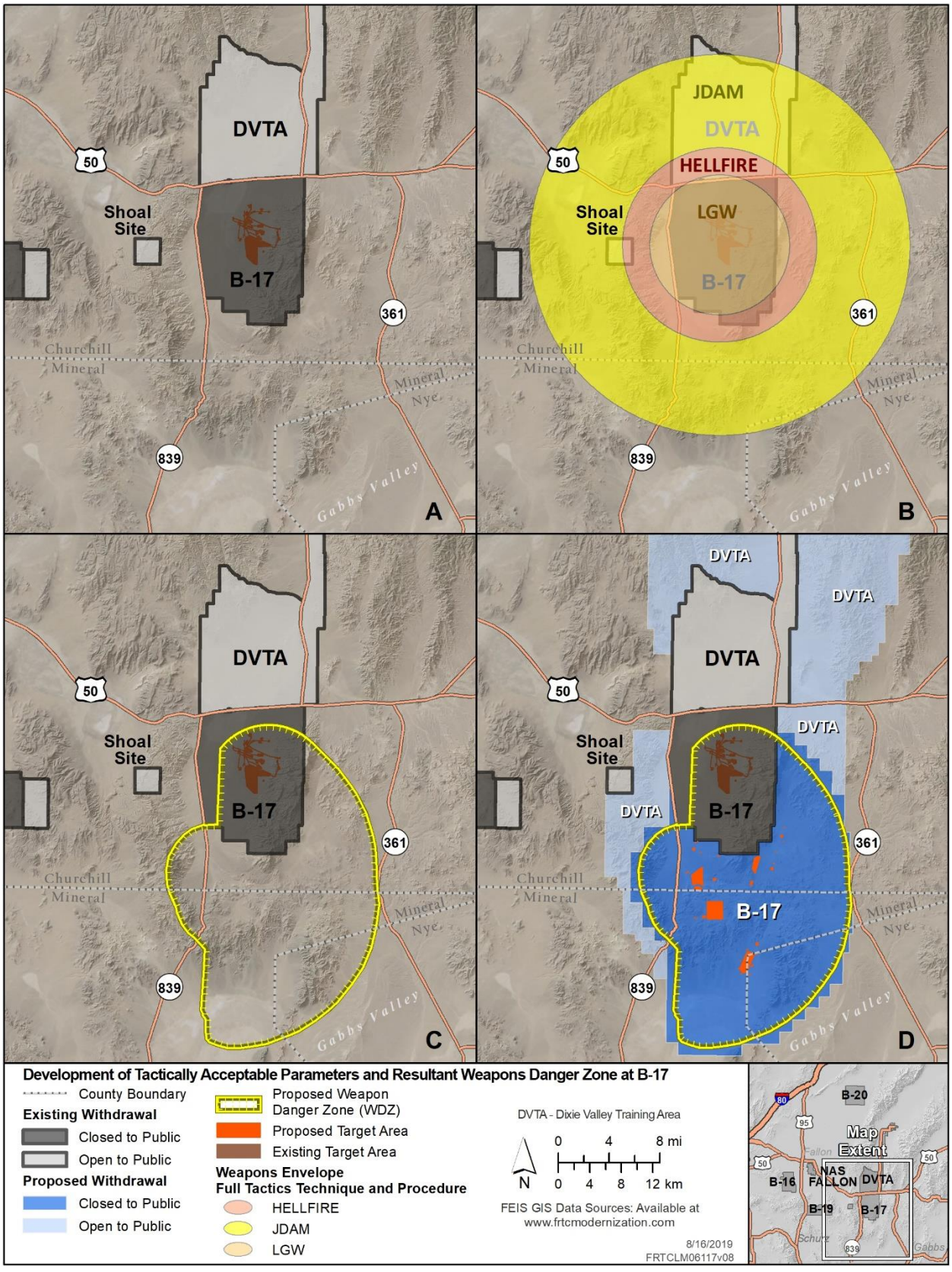


Figure 1-5: Development of Tactically Acceptable Parameters and Resultant Weapons Danger Zone at B-17

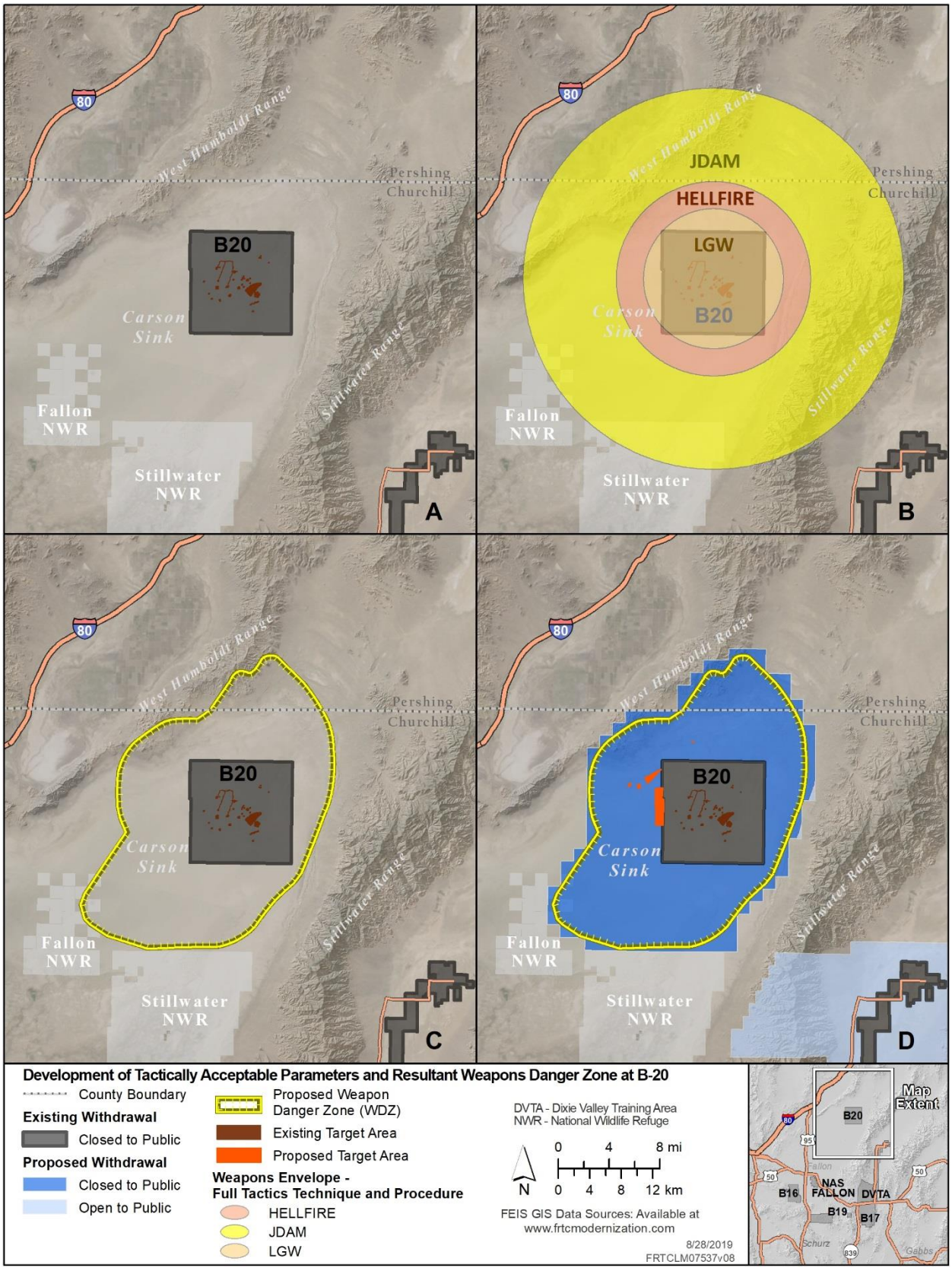


Figure 1-6: Development of Tactically Acceptable Parameters and Resultant Weapons Danger Zone at B-20

The parameter changes are tactically acceptable because they would allow the Navy to acceptably approach full TTP compliance. If modernization of the ranges does not occur, the current capabilities of the FRTC do not allow the Navy to approach full TTP compliance to a tactically acceptable level. Panel D (Figure 1-5 and Figure 1-6) displays the area of land under the WDZ needed at B-17 and B-20 for the Navy to both (1) control and restrict public use of any lands that are within a WDZ, and (2) ensure that restricted airspace configuration matches WDZs.

Table 1-2 shows the full TTP compliance and tactically acceptable release parameters compared against the FRTC's current capabilities. All of the WDZs for munitions listed in Table 1-2 (Laser-Guided Weapons, HELLFIRE, and Dual-Mode Laser-Guided Bomb) are smaller than, and fit within, the WDZ for the Joint Direct Attack Munition. The tactically acceptable parameters for Dual-Mode Laser-Guided Bomb are smaller than that of the Joint Direct Attack Munition. While in an optimal situation the Dual-Mode Laser-Guided Bomb WDZ is larger than the Joint Direct Attack Munition WDZ, in the tactically acceptable scenario, the WDZ for Dual-Mode Laser-Guided Bomb is contained within the Joint Direct Attack Munition WDZ.

Table 1-2: Tactics, Techniques, and Procedures Supportable Weapons Release Training Versus Capabilities

Weapons Class[1]	Parameter	Full TTP Compliance	Current Capability	Tactically Acceptable Parameters
Laser-Guided Weapons	Release Range (NM [miles])	6.8 (7.8)	5 (5.8)	5 (5.8)
	Release Altitude (ft. MSL)	35,000	30,000	30,000
	Attack Azimuth (degrees)	360	360	360
Joint Direct Attack Munitions	Release Range (NM [miles])	13 (14.9)	4 (4.6)	10 (11.5)
	Release Altitude (ft. MSL)	35,000	30,000	30,000
	Attack Azimuth (degrees)	360	180	180
HELLFIRE	Release Range (NM [miles])	5 (5.8)	3 (3.5)	4.3 (4.9)
	Release Altitude (ft. MSL)	2,000	700	2,000
	Attack Azimuth (degrees)	360	35	180
Dual-Mode Laser-Guided Bomb	Release Range (NM [miles])	14 (16.1)	7 (8.1)	14 (16.1)
	Release Altitude (ft. MSL)	35,000	30,000	30,000
	Attack Azimuth (degrees)	360	40	<180

[1] WDZs for Laser-Guided Weapons and HELLFIRE are smaller than, and fit within, the WDZ for the Joint Direct Attack Munition. Release parameters for Dual-Mode Laser-Guided Bomb are estimated. The Dual-Mode Laser-Guided Bomb has not yet been deployed to the Fleet, and minimally acceptable TTPs have not yet been developed.

Notes: ft. = feet; MSL = mean sea level; NM = nautical mile(s); TTP = Tactics, Techniques, and Procedures.

1.5.2 Airspace Training Need versus Current Range Capability

To fully meet training to advanced combat TTP and support Air Warfare (including Large Force Exercise) events, *Ninety Days to Combat* states that SUA would require at least the following characteristics:

- Size – 100 x 200 nautical miles of SUA (20,000 NM^2). The current FRTC SUA is 8,958 NM^2.

- Vertical Range – From 500 feet above ground level to 50,000 feet mean sea level. The current FRTC SUA varies in vertical limits, and only small portions approach required specifications.
- Supersonic Capability – SUA must be fully supersonic capable. Currently, the FRTC meets this requirement only within portions of the existing MOA boundaries.

Achieving this size of SUA at the FRTC is unlikely due to heavily used commercial routes that surround the FRTC airspace and general civilian aviation using the National Airspace System in the western United States. Regional airspace surrounding the FRTC, and including the FRTC when the SUA is not active, is administered and controlled by Air Route Traffic Control Centers in Oakland, CA for the western FRTC airspace and Salt Lake City, UT for the eastern airspace. Accordingly, NAWDC, in developing the FRTC airspace component of the Proposed Action during meetings with FAA in 2016, 2017, and 2018, configured airspace training scenarios to conform to the National Airspace System limitations, reduced weapons release parameters by modifying Navy requirements for restricted airspace associated with the bombing ranges, and modified the supersonic capability requirement. While not a perfect solution, the Navy deemed this configuration tactically acceptable because the Navy would still be able to train to scenarios of advanced combat TTP. Further, by modifying vertical airspace, the Navy would be able to meet training and tempo requirements by being able to schedule activities at distinct elevations, or "stacking" activities on top of each other. Additionally, the airspace must be available for blocks of time, year-round to accommodate pre-deployment training tempo. The airspace must also be available during darkness to meet nighttime training, to include non-weapons training such as combat search and rescue.

1.5.3 Ground Mobility Training Need versus Current Range Capability

To fully support training to TTP for ground mobility training, land areas would need to be controlled by the Navy and fully contain the Surface Danger Zones for both the firing range (distance) and firing direction (azimuth) for the largest fire-and-maneuver activities, which include basic and advanced Immediate Action Drills and Integrated Close Air Support. The largest land area required would be that associated with Integrated Close Air Support, which would require a firing distance of 9.2 NM (10.6 miles) and azimuth of 360° (Table 1-3, Full TTP Compliance column). The existing B-16 range can only accommodate a 60° radius area over a distance of 2.5 miles for individual and crew-served weapons firing across open ground, which severely limits the training and realism available for individual and crew-served weapons employed in live-fire scenarios.

Immediate Action Operations

Activities to train proper responses to enemy visual or physical contact.

Close Air Support

Close Air Support is air action by fixed-wing and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and requires detailed integration of each air mission with the fire and movement of those forces.

NAWDC worked with Naval Special Warfare to identify similar gaps and actions that would support ground mobility training requirements that acceptably approach the full TTP, as TTPs for Naval Special Warfare activities also cannot fully be met at FRTC in its current configuration. The Navy identified the weapons release or firing parameters for the ideal case (360-degree firing azimuth). By overlapping the ideal case for all proposed weapon use (a composite SDZ/WDZ, both air-to-ground and ground based) over existing ranges at B-16, the Navy noted that:

- Existing range boundaries (Panel A, Figure 1-7) would not be able to contain the WDZs/SDZs associated with the ideal case (Panel B, Figure 1-7).

- The Navy would need to locate the proposed Immediate Action Drill WDZ/SDZ to the west of the existing targets on B-16 to allow concurrent use to meet tempo requirements (Panel C, Figure 1-7).
- The Navy would need to request withdrawal or propose acquisition of land to the west of the existing B-16 to meet the WDZ/SDZ requirements of the ideal case (Panel D, Figure 1-7).

Table 1-3: Ground Mobility Training Need versus Current Range Capability

Training Event	Weapon Caliber	Parameter	Full TTP Compliance[1]	Current Capability	Tactically Acceptable Parameters
Static Live Fire	5.56, 7.62, 300WM, .50 Cal, 40mm, 84mm	Azimuth (degrees)	40	20	40
		Range (miles [km])	4.7 (7.5)	6.8	4.7 (7.5)
Basic Live Fire IADs (Open Terrain)	5.56, 7.62, 40mm, 84mm	Azimuth (degrees)	360	20	360
		Range (miles [km])	2.5 (4.1)	2.5 (4.1)	2.5 (4.1)
Advanced Live Fire IADs (Open Terrain)	5.56, 7.62, 40mm, 84mm	Azimuth (degrees)	360	60	360
		Range (miles [km])	2.5 (4.1)	2.5 (4.1)	2.5 (4.1)
Advanced Live Fire IADs (.50 Cal open terrain)	.50 Cal	Azimuth (degrees)	180	None	180
		Range (miles [km])	4.2 (6.8)	None	4.2 (6.8)
Advanced Live Fire IADs (Urban Village)	5.56, 7.62, 40mm, 84mm	Azimuth (degrees)	360	None	360
		Range (miles [km])	2.5 (4.1)	None	2.5 (4.1)
Integrated Close Air Support	MK-76, 20mm TP	Azimuth (degrees)	360	None	360
		Range (miles [NM])	10.6 (9.2)	None	5.8 (5.0)

Notes: cal = caliber, IADs = Immediate Action Drills, km = kilometer, mm = millimeter, NM = nautical mile(s), TTP = Tactics, Techniques, and Procedures. Distances calculated for munitions ranges are initially provided in kilometers from requirements calculations.

[1] While almost all training events can achieve full TTP compliance under the proposed modernization, Integrated Close Air support cannot support the full TTP of up to 10.6 miles (9.2 NM). The value presented here is the Tactically Acceptable Parameter for Integrated Close Air Support. Integrated Close Air Support is presented in nautical miles because these munitions are delivered from an aerial platform.

The current Naval Special Warfare Tactical Ground Mobility course training area does not have sufficient space to accommodate the firing directions and distances needed for advanced live-fire and integrated Close Air Support activities. Table 1-3 shows what would hypothetically be required for full compliance with TTP as well as the tactically acceptable parameters identified by the Navy for ground mobility training compared against FRTC's current capabilities. The tactically acceptable parameters are very close to the full TTP (the exception is Close Air Support) as defined by Naval Special Warfare.

1.5.4 Non-Weapons Training Need and the Current Range Capability

To approach meeting the advanced combat TTP, non-weapons capabilities (Electronic Warfare, Combat Search and Rescue, Land Navigation, and Convoy Escort) must include the required airspace, varied topography land areas, range tracking, instrumentation, and communications infrastructure. The

placement of electronic signal transmitters requires various terrain elevations in order to replicate opposition forces and threats. In addition, any area chosen must be free of electromagnetic interference to preserve a "clean" spectrum for Electronic Warfare training.

The existing DVTA is a non-live-fire training area on Navy-managed land that is generally open to public use (e.g., recreation, and limited off-highway vehicle use). Infrastructure, mining, and geothermal development existing near the DVTA has degraded training realism and potentially compromises aircrew safety, particularly in low-altitude, dark, and low-light conditions. If allowed to continue unabated, aircrew and Special Forces personnel would be unable to safely train or train to tactically acceptable parameters within the DVTA. Currently, given the extent of existing development, the Navy can utilize only undesirably predictable and repetitive scenarios due to the limited availability of multiple signal locations and elevations, and due to having only a minimal set of combat search and rescue recovery sites for helicopters.

Section 2.2.1 (Realistic Training Environment) of the Final EIS describes the capabilities needed to meet non-weapons training requirements. Additionally, Section 2.2.2 (Safety) describes the safety parameters that need to be met in the DVTA to ensure the safe operation of aircraft. Potential hazards include cables, wires, and towers; as well as cultural lighting (from cities, streets, and infrastructure), which is incompatible with the use of Night Vision Devices. The proposed new boundaries for the DVTA were determined utilizing terrain features to readily contain spectrum and limit environmental lighting. Bounding the DVTA east-west to ridgelines of the neighboring mountains facilitates line of sight. The northern boundary was drawn to provide the minimum area necessary to facilitate free maneuver and allow the Navy to spread out the threat emitters that are included as part of the proposed training activities. The southern boundary was limited by U.S. Route 50.

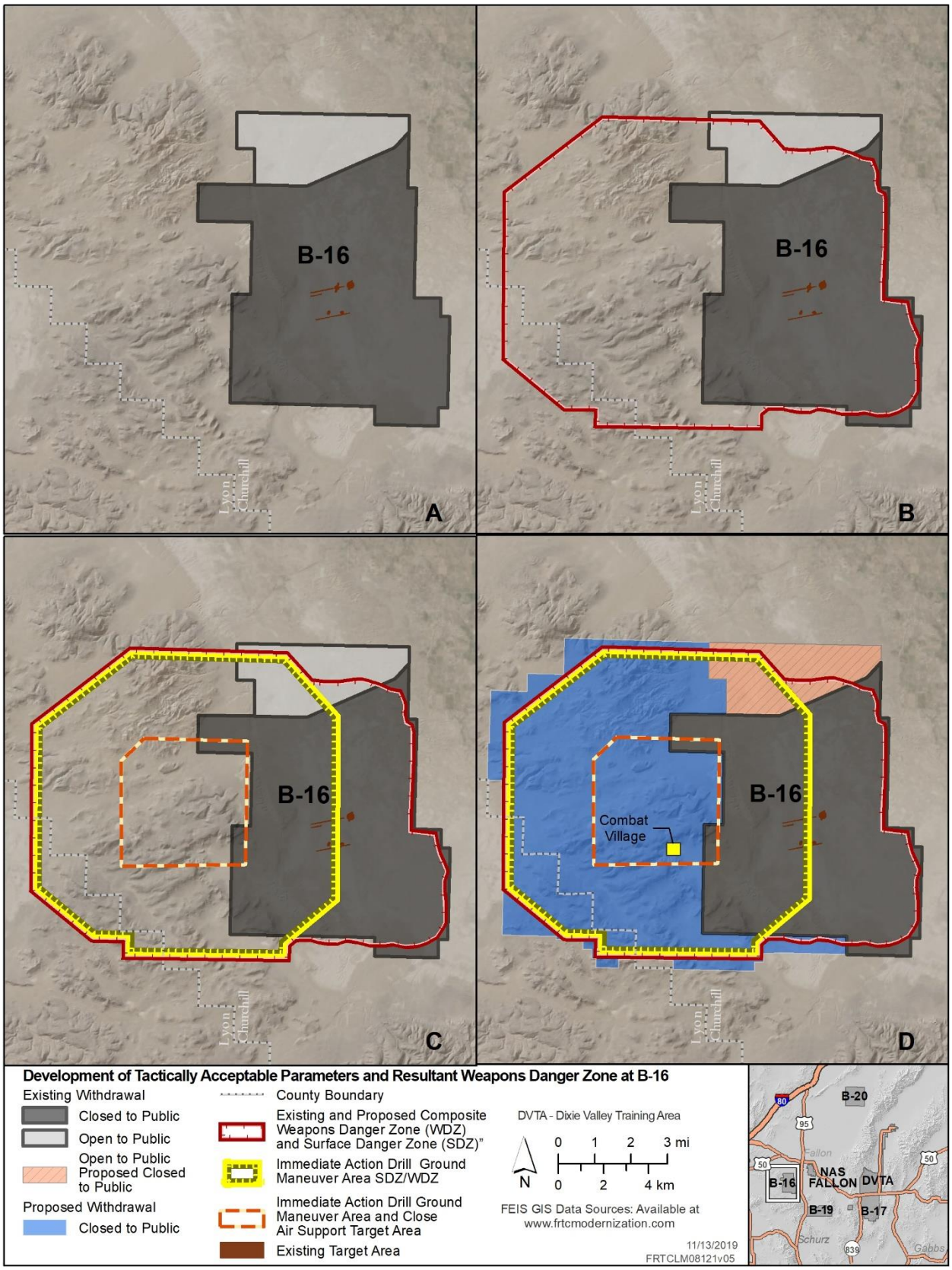


Figure 1-7: Development of Tactically Acceptable Parameters and Resultant Weapons Danger Zone at B-16

1.6 Scope of Environmental Analysis

CEQ implementing regulations for NEPA (40 CFR part 1500) provide guidance about considering alternatives to a federally proposed action. This guidance requires rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined by the Navy to be reasonable and that meet the purpose and need of the proposal require detailed analysis (see 40 CFR section 1502.14.). Reasonable alternatives are those that meet the purpose and need, meet screening factors, and are practical or feasible from a technical and economic standpoint. The range of alternatives initially considered includes reasonable alternatives as well as alternatives that the Navy ultimately did not carry forward for detailed study after having determined that they either would not meet the purpose and need or would otherwise not be reasonable.

The Navy developed the alternatives considered in this EIS after careful input and assessment by subject matter experts, including military units and commands that use the ranges, military range management professionals, cooperating agencies, tribal participants, and Navy environmental managers and scientists. Additionally, the public submitted comments on the scope of the analysis, including environmental issues and potential viable alternatives, during the scoping period for this EIS (August 26, 2016 through December 12, 2016). The Navy incorporated all substantive comments submitted during the scoping process into its identification and development of potential alternatives as well as alternatives to the Proposed Action.

The Navy has considered what it believes are all potentially relevant environmental resource areas for analysis in this EIS. To comply with NEPA, as well as CEQ, Department of the Navy, BLM, and FAA regulations, the discussion of the affected environment (i.e., existing conditions) focuses on those resource areas that would potentially be subject to more-than-negligible impacts as a result of the Navy implementing a given alternative. The level of detail describing a resource is commensurate with the anticipated level of potential impact.

Describing the environment and analyzing impacts requires a comprehensive and systematic review of relevant literature and data to ensure that the Navy uses the best available information for analysis. Section 1.6.1 (Methodology) describes the data used and the characteristics of the best available data, and provides a general approach to analysis. Each resource section lists the regulations applicable to that resource, discusses the affected environment and the environmental consequences of implementing the No Action and action alternatives, and summarizes potential impacts.

Chapter 3 (Sections 3.1 through 3.15) assesses the potential impacts on 15 resource categories.

- Geological Resources
- Land Use
- Mining and Mineral Resources
- Livestock Grazing
- Transportation
- Airspace
- Noise
- Air Quality
- Water Resources
- Biological Resources
- Cultural Resources
- Recreation
- Socioeconomics
- Public Health and Safety and Protection of Children
- Environmental Justice

Chapter 3 (Affected Environment and Environmental Consequences) applies current resource protection measures (e.g., standard operating procedures, management practices, and conservation measures that

are integral to the activities covered by the Proposed Action and alternatives) as part of the process of determining environmental consequences. If the analysis identifies potential adverse impacts on the resource from implementing the No Action or action alternatives, the Navy will identify methods and coordinate with cooperating agencies to minimize or mitigate those impacts, where appropriate and practicable. Mitigation measures are discussed at the end of each resource section and summarized in Chapter 5 (Management Practices, Monitoring, and Mitigation).

Through the environmental impact analysis process, the Navy has identified potentially impacted resources, defined the expected geographic scope (called the region of influence) for each resource, and analyzed potential impacts on those resources. The region of influence is the geographic area where impacts may potentially occur. For most resources, the region of influence coincides with the air and land training areas of the proposed modernized FRTC. However, there will be variations in the breadth of the region of influence for some resource areas, with some regions of influence being relatively smaller and some being relatively larger. For example, the region of influence for geological resources includes only the footprint encompassing the requested withdrawals and proposed acquisitions, but the region of influence for noise includes land areas underlying SUA that experience aircraft noise.

Because some topics may affect multiple resources, several sections may address the same resources. For example, infrastructure (defined in this EIS as physical and organizational structures and facilities, such as buildings, roads, and power supplies), as it relates to removing or relocating utilities, is discussed in the transportation, air quality, socioeconomics, and environmental justice sections.

As described in Section 1.1 (Introduction), several federal and state agencies are cooperating agencies for this EIS. As the FAA and BLM have specific policies, procedures, and organizational structures for NEPA analyses, the Navy has compared the resource categories defined by each federal agency with the Navy's resource categories and organizations. The Navy has worked to develop an overall approach to the NEPA analysis for this EIS that integrates FAA and BLM practices and policies, as these two agencies must prepare rule-making documents that may either utilize or adopt the information described in this EIS.

The FAA is a cooperating agency for this EIS, as the Proposed Action would require FAA rulemaking for SUA pursuant to FAA Joint Order 7400.2M. Establishment of new MOA and restricted area airspace would require rulemaking or non-rulemaking actions, as applicable, in each case per requirements in FAA Orders 1050.1 and 7400.2. The airspace modifications proposed in this EIS require the FAA to complete an aeronautical study that examines the potential impacts of each SUA proposal on the safe and efficient use of airspace and Air Traffic Control procedures. A draft concept of the airspace proposals is typically presented to the FAA during the initial planning processes and, as feasible, the FAA study of the finalized proposals is normally performed concurrently with the Draft EIS review processes. Such study includes an overview of the existing airspace structure and use, and an analysis of the proposed actions on the existing air traffic environment, to include (1) IFR and VFR en route operations, (2) public airports and charted private airfields, (3) Air Traffic Control services, and (4) other airspace proposals and cumulative impacts in the region. This analysis also considers measures to mitigate or avoid, minimize, or reduce any impacts of these actions. FAA Order 1050.1F, which identifies "environmental impact categories," includes procedures for ensuring NEPA compliance. Table 1-4 presents each FAA Environmental Impact Category and the section(s) within this EIS that address those resources.

The BLM is also a cooperating agency for this EIS, as the Proposed Action includes the withdrawal of BLM public lands. The BLM complies with policies and procedures outlined in BLM NEPA Handbook H-1790-1 (Bureau of Land Management, 2008) to ensure NEPA compliance for its major actions. These policies and procedures support BLM rulemaking under the Federal Land Policy and Management Act of 1976 (43 U.S.C. section 1701 et seq.). In the same way as the Navy and other federal agencies, the BLM identifies issues based on scoping comments (40 CFR part 1502.6) and focuses on issues significant to a proposed action (40 CFR part 1500.1). Table 1-4 presents issues commonly considered as "elements" by BLM and the section(s) within this EIS that address each element.

Table 1-4: Federal Aviation Administration Categories, Bureau of Land Management Elements, and Environmental Impact Statement Categories

FAA Category	BLM Element	EIS Resource Section Where Addressed
Air Quality	Air Quality	Air Quality
–	Areas of Critical Environmental Concern	Land Use Cultural Resources Water Resources[1] Public Health and Safety and Protection of Children
Biological resources (including fish, wildlife, and plants)	Fish Habitat Invasive and Nonnative Species and Noxious Weeds Migratory Birds Special Status Species Vegetation Wildlife Wild Horses and Burros	Biological Resources
–	Cave and Karst Resources	Geological Resources
Climate	Climate Change	Air Quality
Coastal Resources	–	n/a[2]
Department of Transportation Act, Section 4(f)	–	n/a[3]
Farmlands	Farmlands (prime or unique)	Land Use Geological Resources
Hazardous materials, solid waste, and pollution prevention	Hazardous Wastes	Public Health and Safety and Protection of Children Water Resources Geological Resources
Historical, architectural, archeological, and cultural resources	Cultural Resources Historic Trails Indian Tribe Concerns	Cultural Resources Recreation
Land Use	–	Land Use Noise
Natural resources and energy supply	–	n/a[4]
Noise and compatible land use	Noise	Land Use Noise

Table 1-4: Federal Aviation Administration Categories, Bureau of Land Management Elements, and Environmental Impact Statement Categories (continued)

FAA Category	BLM Element	EIS Resource Section Where Addressed
Socioeconomics, environmental justice, and children's environmental health and safety risks	Socioeconomic Values Human Health and Safety Environmental Justice	Socioeconomics Public Health and Safety and Protection of Children Environmental Justice
–	Forests and Rangelands	Land Use
–	Forest Products	Land Use
–	Floodplains	Water Resources
–	Geology and Minerals	Geological Resources Mining and Mineral Resources[5]
–	Land Use, Realty, and Transportation	Land Use Transportation
–	Lands with Wilderness Characteristics Outside Existing Wilderness Study Areas	Land Use
Visual effects (including light emissions)	Visual Resources	Cultural
–	Livestock Grazing	Grazing
–	Renewable Energy	Mineral and Mining Resources
–	Soils	Geological Resources
–	Paleontological Resources	Geological Resources
Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)	Water Resources Wetlands and Riparian Zones Wild and Scenic Rivers	Land Use Water Resources Biological Resources
–	Wildland Fire Ecology and Management	Public Health and Safety and Protection of Children Biological Resources
Cumulative Impacts	–	Cumulative Impacts

[1]Water rights are included in this EIS resource section.
[2]Not addressed in this EIS; the region of influence is geographically separate from coastal areas.
[3]Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (Public Law 105-85) provided that "[n]o military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of section 303(c) of title 49, United States Code."
[4]This category evaluates potential impacts on supplies of energy and natural resources needed to build and maintain airports, which is not part of the Proposed Action or Alternatives.
[5]Geothermal exploration and development are addressed in this EIS resource section.

1.6.1 Methodology

In accordance with NEPA and the Administrative Procedure Act of 1946 (5 U.S.C. sections 551–559), the analyses used the best available data accepted by the appropriate regulatory and scientific

communities. The Navy reviewed primary literature, including journals, books, periodicals, bulletins, Department of Defense operations reports, County Master Plans, theses, dissertations, species management plans, and other technical reports published by government agencies, private businesses, or consulting firms to assist in analysis of potential environmental consequences. The Navy conducted internet searches and evaluated websites for the credibility of the source, the quality of the information, and the relevance of the content to ensure the use of high-quality information.

The Navy considered both direct and indirect effects resulting from the action alternatives. Direct effects occur in the same location and at the same time as the agency action (40 CFR part 1508.8). Indirect effects are reasonably foreseeable and caused by the action, but occur later in time or at a distance (40 CFR part 1508.8).

The term "significantly" or "significance," as used in NEPA, requires considerations of both context and intensity. Context means analyzing the significance of an action in several perspectives, such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. Intensity refers to the severity or extent of the potential environmental impact. Another understanding of intensity is in terms of the potential extent of the likely change. In general, the more sensitive the context, the less intense a potential impact would need to be to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would need to be to be considered significant.

While specific methods used to analyze the effects of the Proposed Action vary by resource, all resource analyses follow this general approach:

1. Describe existing resource conditions (affected environment) based on geographic areas within the FRTC or as otherwise appropriate based on the resource area-specific region of influence. Because the FRTC is a large area, each resource section splits the affected environment discussion into the five main areas (B-16, B-17, B-20, the DVTA, and Special Use Airspace [Impacts pertaining to B-19 are not analyzed since the Navy is not proposing or requesting any changes with respect to the current configuration of B-19.]).
2. Review existing federal, state, and local regulations and standards relevant to resource-specific management or protection.
3. Identify resource conditions or areas that require specific analytical attention, such as designated critical habitat for federally listed species.
4. Analyze the specific actions entailed within a given alternative to determine what components of the alternative may affect the particular resource.
    a. Review and analyze data sources for information on the resource, including modeling efforts and scientific research.
    b. Determine specific impacts on the resource that could result from Navy activities.
    c. Adjust initial impact determinations as appropriate to account for the use of standard operating procedures, management practices, and other impact avoidance, minimization, or mitigation measures.
    d. Determine overall impacts on the resource associated with the Proposed Action and Alternatives, given the applicable regulatory framework.

5. Summarize impact findings concerning resource effects.

The Navy reviewed and evaluated additional information, such as unique resource characteristics; public and agency scoping comments; previous environmental analyses; agency and tribal consultations; resource-specific information; and applicable laws, regulations, and Executive Orders. This process helped focus the information presented in the affected environment and the analysis presented in the environmental consequences sections.

1.7 Key Documents

Key documents are sources of information incorporated into this EIS. Documents are considered to be key because of similar actions, analyses, or impacts that may apply to this Proposed Action. CEQ guidance encourages incorporating documents by reference. Documents incorporated by reference in part or in whole include the following:

- *Final Legislative Environmental Impact Statement for Withdrawal of Public Lands for Range Safety and Training Purposes*, May 1998 (U.S. Department of the Navy, 1998)
- *Final Legislative Environmental Impact Statement for the Renewal of the B-20 Land Withdrawal*, December 1998 (U.S. Department of the Navy, 1998)
- *Final Environmental Impact Statement, Proposed Fallon Training Range Complex Requirements*, January 2000. A ROD was also prepared by the FAA for airspace changes proposed in this EIS. (U.S. Department of the Navy, 2000)
- *Environmental Assessment for Airfield Operations at Naval Air Station Fallon*, August 2013 (U.S. Department of the Navy, 2013)
- *Environmental Assessment for Proposed Addition of Training Activities and Range Enhancements at Naval Air Station Fallon on Training Range Bravo-16, Churchill County, Nevada*, September 2014 (U.S. Department of the Navy, 2014)
- *Ninety Days to Combat: Required Training Capabilities for the Fallon Range Training Complex 2015-2035,* June 2015 (U.S. Department of the Navy, 2015b)
- *Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement,* December 2015 (U.S. Department of the Navy, 2015a)

The Navy has made the above-referenced documents available on the project website (https://www.frtcmodernization.com). Other documents incorporated by reference in this EIS will be made available—or information provided as to how to access such documents—upon request.

1.7.1 Final Environmental Impact Statement for Withdrawal of Public Lands for Range Safety and Training Purposes – May 1998

In this EIS, the Navy proposed to withdraw federally administered land within the FRTC to facilitate and improve the realistic operational and strategic combat training conducted on existing FRTC lands (see History of the FRTC in Section 1.3, Background) and to provide public safety buffers. All lands requested for withdrawal at the time were being administered by the BLM, Bureau of Reclamation, or the Department of Energy. The focus was on the FRTC ranges B-16, B-17, B-19, the Shoal Site, and Dixie Valley Training Area. A separate Legislative EIS (see below) evaluated the land withdrawal renewal for B-20. Besides the No Action Alternative, the Navy evaluated three action alternatives. Identified impacts of the withdrawal included the closure of public access and potential effects on mining, visual resources, and recreation from development of small sites and from integrated air and ground training activities. The withdrawal of the requested 202,864 acres of public lands was approved by Congress in the Military

Lands Withdrawal Act of 1999 (Public Law 106-65) in October 1999, with an expiration in November 2021.

1.7.2 Final Legislative Environmental Impact Statement for the Renewal of the Bravo-20 Land Withdrawal – December 1998

This Legislative EIS supported the Congressional reauthorization of the withdrawal of public lands comprising B-20. In November 1986 under the Military Lands Withdrawal Act of 1986 (Public Law 99-606), the Navy applied for the renewal of 21,576 acres of withdrawn land and the continued use of B-20 for training operations as specified in Section 1(a)(2)(A) and (B) of Public Law 99-606. Under the Proposed Action, there were no increases in aircraft operations. As presented in the analysis of the EIS, the Proposed Action would not result in any significant impacts. The Military Lands Withdrawal Act of 1999 (Public Law 106-65) reauthorized the withdrawal of these public lands in October 1999, with an expiration in November 2021.

1.7.3 Final Environmental Impact Statement, Proposed Fallon Training Range Complex Requirements, January 2000

In 1998, the Naval Strike and Air Warfare Center (now NAWDC) conducted an evaluation (resulting in a Training Requirements Document) of the training assets at NAS Fallon and compared these capabilities against Navy tactical aviation training objectives. The Training Requirements Document assessed and reported current and future training needs and operational requirements for NAS Fallon and outlined changes necessary to both update and consolidate Navy training on public and Navy-managed lands and update airspace parameters overlying these lands.

Under the Proposed Action, the Navy proposed to develop Electronic Warfare sites on public and Navy-managed lands, four tracking instrumentation subsystem remote sites on public lands, fiber optic cable routes from the air station to the B-16 and B-19 training ranges, and helicopter gunnery ranges on B-17 and B-19. The Navy also proposed to use Navy-managed lands in Dixie Valley for Close Air Support training, revise the operating hours of the Reno MOA, and raise the ceiling of restricted area airspace to allow for high-altitude weapons delivery training at B-17 and B-20. Because actions were going to occur on lands managed by both the Navy and the BLM Carson City and Battle Mountain Field Offices and required rights-of-way from BLM, the Navy and the BLM prepared the EIS as joint lead agencies.

The Navy did not identify any significant impacts from any of the alternatives analyzed. The ROD, released on April 14, 2000, announced the decision to implement the Preferred Alternative, Alternative 2, for the Proposed FRTC Requirements. Changes to the FRTC under Alternative 2 included developing new fixed and mobile Electronic Warfare sites; developing new Tracking Instrumentation Subsystem sites; developing additional targets at B-17 and B-19; laying fiber optic cable to B-16 and B-19; utilizing Navy-managed lands in Dixie Valley for Close Air Support training; performing Hellfire missile and high-altitude weapons delivery training at B-17 and B-20; and proposing changes to special use airspace.

1.7.4 Environmental Assessment for Airfield Operations at Naval Air Station Fallon, August 2013

The Navy evaluated the potential for environmental impacts if it maintained then-currently conducted airfield operations, conducted operations with introduction of new types of aircraft, and increased airfield operations to meet future training requirements. The Navy was scheduled to progressively transition from aging aircraft to newer aircraft beginning in 2015, with the transition complete by 2028. As aircraft transitions occur, Carrier Air Wings and other aviation units would arrive at NAS Fallon to

participate in training events with newer aircraft, such as the F-35C Lightning II, EA-18G Growler, and RQ-21A Blackjack. Under the Proposed Action, F-35C training courses were expected to begin in 2017. Proposed facility development required to support aircraft missions at NAS Fallon would include space for aircraft maintenance, crew and equipment, administration, training, and a UAS runway and staging area. This Environmental Assessment was focused on airfield operations only and did not include analysis of training activities in the FRTC. As described in the Finding of No Significant Impact dated August 19, 2013, it was determined that the Proposed Action would not significantly affect the quality of the human environment.

1.7.5 Environmental Assessment for the Proposed Addition of Training Activities and Range Enhancements at Naval Air Station Fallon on Training Range Bravo-16, Churchill County, Nevada, September 2014

The Navy proposed to conduct additional training activities and provide training enhancements for the existing Tactical Ground Mobility platform and air/ground inter-operability training that had been conducted at B-16 since 2008. The Proposed Action was to improve the B-16 training range to meet Navy and joint training requirements by (1) closing to public entry two portions of B-16 that were then open to the public and installing a new fence around these areas; (2) installing rail-mounted moving target systems for live-fire training; (3) developing and operating a semi-prepared expedient landing zone for C-130 aircraft; (4) developing and operating a launch and recovery area for unarmed, UAS training; (5) re-routing the primary access road to the Drop Zone to accommodate the new C-130 aircraft and UAS operations; (6) installing a new range tower within the Drop Zone; (7) installing visual cueing items, including relocatable habitat units; and (8) establishing two free maneuver areas in the southwestern and northwestern portions of B-16.

The Navy evaluated the environmental consequences of the two action alternatives and a No Action Alternative. Both action alternatives would have provided additional training activities and training enhancements and improved the B-16 training range to meet Navy and joint training requirements. As described in the Finding of No Significant Impact dated September 29, 2014, it was determined that the Proposed Action would not result in significant impacts on the human or natural environment.

1.7.6 Ninety Days to Combat: Required Training Capabilities for the Fallon Range Training Complex 2015–2035, June 2015

This document identifies the required warfighting capabilities for naval aviation and Naval Special Warfare, describes the current capability of NAWDC and the FRTC to support those requirements, and is the foundation of the Proposed Action described in full in Chapter 2 (Description of Proposed Action and Alternatives). It compares the current range capabilities against what would be needed to be able to fully train to Navy Doctrine TTP. These TTP are informed by current policies, available resources, current strategy and campaign concepts, threats, lessons learned, fielded or emerging technologies, and threat tactics and procedures. Finally, it identifies FRTC land and airspace capability gaps that inhibit the ability to train aircrew and Special Forces to a tactically acceptable level of combat capability prior to deployment.

1.7.7 Final Environmental Impact Statement for Military Readiness Activities at Fallon Range Training Complex, December 2015

The Navy evaluated the potential for environmental impacts from conducting military readiness activities at the FRTC in its current configuration. The Proposed Action was to continue and enhance training activities within the existing FRTC by:

- increasing existing aviation and ground training activities,
- conducting training activities with new platforms and systems as they transition into the fleet to replace older platforms and systems, and
- conducting new ground training activities (e.g., Dismounted Fire and Maneuver Training and Ground LASER Training).

The Proposed Action included adjusting activities from then-current (baseline) levels to levels needed to accommodate evolving mission requirements. The Proposed Action was a step toward ensuring the continued vitality and viability of the FRTC as an essential training resource. The Proposed Action resulted in increases in training activities to achieve and maintain a state of military readiness commensurate with the Navy national defense mission. Chapter 2 (Description of Proposed Action and Alternatives) of this current Modernization EIS (Section 2.4, Environmental Baseline [Current Training Activities]) discussed the types and tempos of training performed under Alternative 2 (the Alternative selected in the ROD). As described in the ROD dated February 26, 2016, Alternative 2, as described above would have no significant impacts for any of the resource areas analyzed, and no mitigation measures were identified.

1.8 Relevant Laws, Regulations, and Policies

The Navy has prepared this EIS based upon federal, state, and local statutes, regulations, and policies that are pertinent to the implementation of the Proposed Action. Relevant laws, regulations, and policies include the following:

- NEPA (42 U.S.C. sections 4321 et seq.)
- CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500–1508)
- Navy procedures for implementing NEPA (32 CFR part 775)
- Clean Air Act (42 U.S.C. sections 7401 et seq.)
- Federal Water Pollution Control Act "Clean Water Act" (33 U.S.C. sections 1251 et seq.)
- Federal Land Policy Management Act (43 U.S.C section 1701 et seq.)
- FAA Order 1050.1F, Environmental Impacts: Policies and Procedures
- FAA Joint Order 7400.2L, Procedures for Handling Airspace Matters
- NHPA (54 U.S.C. section 300101 et seq.)
- National Materials and Minerals Policy, Research and Development Act of 1980 (30 U.S.C. sections 1601-1605)
- National Wildlife Refuge System Administrative Act and the National Wildlife Refuge Systems Improvement Act (16 U.S.C. sections 668dd–668ee and Public Law 105-57)
- National Trails System Act (16 U.S.C. section 1241 et seq.)
- Nevada Revised Statutes Chapter 405, Control and preservation of public highways
- Endangered Species Act (16 U.S.C. section 1531 et seq.)
- Migratory Bird Treaty Act (16 U.S.C. sections 703–712)
- Bald and Golden Eagle Protection Act (16 U.S.C. sections 668–668d)

- Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. section 9601 et seq.)
- Emergency Planning and Community Right-to-Know Act (42 U.S.C. section 11001 et seq.)
- Federal Noxious Weed Act (7 U.S.C. section 2801 et seq.)
- Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. section 136 et seq.)
- Resource Conservation and Recovery Act (42 U.S.C. section 6901 et seq.)
- Taylor Grazing Act (43 U.S.C. sections 315–316o)
- Nevada Revised Statutes Chapter 568, Grazing and ranching
- Farmland Protection Policy Act (7 U.S.C. sections 4201 et seq.)
- General Mining Law of 1872 (30 U.S.C. sections 22 et seq.)
- Mineral Leasing Act (30 U.S.C. sections 181 et seq.)
- Materials Act of 1947 (30 U.S.C. sections 601–604)
- Geothermal Steam Act (30 U.S.C. section 1001 et seq.)
- The Military Construction Authorization Act (10 U.S.C. section 2671)
- Federal Cave Resources Protection Act (16 U.S.C. sections 4301 et seq.)
- Earthquake Hazards Reduction Act (42 U.S.C. sections 7701 et seq.)
- Defense Withdrawal ("Engel Act") (43 U.S.C. sections 155-158)
- Paleontological Resources Preservation Act (16 U.S.C. sections 470aaa et seq.)
- The Sikes Act of 1960 (16 U.S.C. sections 670a–670o, as amended by the Sikes Act Improvement Act of 1997, Pub. L. No. 105-85)
- Archeological Resources Protection Act (16 U.S.C. sections 470aa–mm)
- Native American Graves Protection and Repatriation Act (25 U.S.C. sections 3001–3013)
- American Indian Religious Freedom Act (42 U.S.C. section 1996)
- Wild and Free-Roaming Horses and Burros Act (16 U.S.C. sections 1331–1340)
- Wilderness Act (16 U.S.C. sections 1131 et seq.)
- Land and Water Conservation Fund Act (54 U.S.C. 200301 et seq.)
- Nevada Revised Statutes Chapter 533, Adjudication of vested water rights
- Nevada Revised Statutes Chapter 534, Underground water and wells
- Nevada Revised Statutes Chapter 569, Estrays and Livestock
- Executive Order (EO) 11988, *Floodplain Management*
- EO 11990, *Protection of Wetlands*
- EO 12088, *Federal Compliance with Pollution Control Standards*
- EO 12630, *Governmental Actions and Interference with Constitutionally Protected Property Rights*
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
- EO 13007, *Indian Sacred Sites*
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*
- EO 13112, *Invasive Species*
- EO 13175, *Consultation and Coordination with Indian Tribal Governments*
- EO 13406, *Protecting the Property Rights of the American People*
- EO 13693, *Planning for Federal Sustainability in the Next Decade* (revoked by EO 13834, *Efficient Federal Operations)*
- EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*

- EO 13817, *A Federal Strategy To Ensure Secure and Reliable Supplies of Critical Minerals*

1.9 Public and Agency Participation and Intergovernmental Coordination

A Notice of Intent to prepare an EIS was published in the Federal Register (FR) on August 26, 2016 (78 FR 31909; Appendix A, Federal Register Notices). The Notice of Intent announced the public scoping period and the dates, times, and locations of public scoping meetings. Notices announcing the intent to prepare an EIS and of scoping meetings were placed in local newspapers (*Battle Mountain Bugle, Eureka Sentinel, Lahontan Valley News, Lovelock Review-Miner, Mineral County Independent News, Nevada Appeal, Reno Gazette-Journal,* and *Tonopah Times-Bonanza*) and on the project's website (https://frtcmodernization.com). The Notice of Intent also announced that the Navy would operate an informational phone line (775-426-4081) for public, Indian tribe, and agency inquiries. The Navy solicited public and agency comments during a scoping period from August 26, 2016, through November 25, 2016. To allow time for additional public input, the Navy extended the public scoping comment period from November 25, 2016, until December 12, 2016. A Notice of Extension was published in the FR on November 10, 2016 (81 FR 78999) and in the aforementioned newspapers. Public scoping meetings were held in Fallon, Lovelock, Reno, Austin, Eureka, Hawthorne, and Gabbs, Nevada from October 3 through 7, 2016.

1.9.1 Public Scoping

The Navy considered comments from the public, government agencies and officials, Indian Tribes, and nongovernmental organizations, in the preparation of this EIS. Comments received are categorized in Table 1-5. A total of 328 comment letters were received with over 1,500 distinct comments. Comment letters were submitted via the project website's electronic comment form (181), postal mail and e-mail (111), in writing at the scoping meetings (21), and orally (15) at the scoping meetings. The comment summary below provides a brief overview of the general issues or concerns expressed by the public. The majority of comments expressed general opposition to the proposal. The following list is intended as a general summary and presents issues and concerns in no particular order:

- General concerns about land withdrawal and expansion (too much land proposed to be removed from public use)
- Requests to change the boundaries of proposed land withdrawal
- Impacts on the local customs, culture, and economy
- Impacts on land use, public access (including access to historical sites), and road closures
- Impacts on wilderness areas and wildlife refuges, wildlife, grazing, mining claims, geothermal leases, general recreation (particularly hunters and off-highway vehicles), and landowners
- Impacts on the economy, specifically socioeconomic impacts on ranch and cattle owners, loss of tax revenue from land withdrawal, and impacts on property value
- Concerns about current investments made to improve water supplies for wildlife (small and big game guzzlers) and habitat
- Unexploded ordnance concerns and impacts on wildlife
- Requests for fair compensation for economic losses
- Request for scoping comment period extension by 60 or 90 days (with most comments referring to the original November 25, 2016, comment period deadline)
- Various requests to be a cooperating agency

Table 1-5: Categorization of Public Scoping Comments by Resource Area

Resource Area	Number of Comments[1]	Percentage of Comments
Land Use *(total)*	285	18%
Minerals and Mining (specific)	*105*	*7%*
Grazing (specific)	*101*	*6%*
Land Use (not grazing, minerals, or mining)	*79*	*5%*
Proposed Action	219	14%
Recreation (total)	206	13%
Recreation (not Off-Highway Vehicle or hunting)	*82*	*5%*
Hunting (specific)	*73*	*5%*
Off-Highway Vehicle (specific)	*51*	*3%*
Socioeconomics	162	10%
Biological Resources	88	6%
Water Resources and Quality	68	4%
National Environmental Policy Act Process/Public Participation	63	4%
Other	62	4%
Alternatives Development	56	4%
Utilities/Infrastructure	50	3%
Transportation	48	3%
Cultural Resources, including Indian Tribe Traditional Resources	43	3%
Airspace and Aviation	37	2%
Airborne Noise	33	2%
Mitigation	30	2%
Public Health and Safety	30	2%
Comment Extension Request	20	1%
Hazardous Materials/Wastes	19	1%
Cumulative Impacts	15	1%
Air Quality/Climate	13	1%
Soils	11	1%
Environmental Justice and the Protection of Children	9	1%
Total	1567	100%

[1] Comment totals by resource issue exceed the actual number of total comments received, as some contained multiple comments on more than one resource area.

Following the public scoping period, the Navy reviewed comments and conducted over 170 additional meetings with various stakeholders and Indian Tribes to discuss potential action alternatives as well as alternatives to the Proposed Action. Many comments indicated the desire to have an alternative that would generally avoid restrictions on land uses (or that would involve fewer restrictions than originally envisioned by the Navy), or requested reconfigurations of the Bravo ranges to alleviate potential impacts on hunting, grazing, recreation, transportation, and other concerns. While not all of these suggestions met the purpose and need or the screening factors, the Navy has incorporated some of the suggestions into Alternatives 2 and 3 of this EIS.

1.9.2 Draft Environmental Impact Review Process

The Draft EIS was released for public review on November 16, 2018, for a 60-day public comment period. A Notice of Public Meetings was published in the FR on November 15, 2018, and a Notice of Availability of the Draft EIS was published in the FR on November 16, 2018. Public meetings were held in Fallon, Lovelock, Reno, Austin, Eureka, Hawthorne, and Gabbs, Nevada from December 10 through 13, 2018. The purpose of the public meetings was to describe the environmental impacts of the Proposed Action and alternatives and to receive comments on the Draft EIS impacts analyses. The Navy also set up a general phone information line at 775-426-4081, which described the NEPA process and was monitored during the public review period in the event that a member of the public had a question or required assistance. Display advertisements were published in local newspapers to advertise the notice of availability of the Draft EIS, the public meetings, and the public review and comment period. The first series of advertisements was published to coincide with publication of the FR notice. A second series was published 5–10 days before the public meetings, and a third series was published for each public meeting for three consecutive days in the appropriate newspapers for each meeting location. Adjustments were made according to the newspaper's publication frequency (e.g., daily, semi-weekly, or weekly).

The Navy extended the public comment period 30 days to February 14, 2019, and a notice announcing the extension of the public review and comment period was published in the FR on December 27, 2018. All FR notices are found in Appendix A (Federal Register Notices). Additional newspaper ads were published to notify the public of the extension of the public review and comment period. Advertisements ran a total of 44 times in eight local and regional newspapers between November 17, 2018, and January 5, 2019.

The purpose of public involvement and outreach during the public review and comment period of the Draft EIS was (1) to notify and inform stakeholders and the public about the Proposed Action and the release of the Draft EIS, and (2) to provide the opportunity for the public and stakeholders to comment on the Draft EIS.

1.10 Draft Environmental Impact Statement Public Participation: Comment Themes

The following sections summarize the Navy's responses to comments based on topics raised during the Draft EIS public comment period by multiple entities. Themes are recurring topics raised by commenters across the three public comment periods. Theme topics are detailed below, including information on how these themes are considered within the EIS analysis. Themes are organized under their respective resource area, in the order they are presented in the EIS. When applicable, theme descriptions include references to analysis in the EIS where expanded or additional information is located.

1.10.1 Description of the Proposed Action

1.10.1.1 Use of Simulators for Training

Although virtual training and simulators are an important aspect of naval training, there are numerous ways in which they do not sufficiently re-create fully integrated, real-life situations that may be encountered in a combat environment. For example, as discussed in Chapter 2 (Description of Proposed Action and Alternatives) of the Final EIS, virtual training and simulators cannot re-create the physical stresses, such as increased heart rates and adrenalin levels, that a live-fire exercise provides.

The FRTC is the only location where an entire carrier air wing, consisting of more than 60 aircraft and associated support crews, can train as a single unit conducting the full arc of the mission, including pre-

flight planning, ordnance handling, in-air activities, weapons deployment, and post-flight briefing. This cannot be accomplished via simulations.

1.10.1.2 Other Alternatives

Section 2.5.3, Alternate Training Locations) of the Final EIS discusses various alternatives the Navy considered, including those suggested by the public. The Final EIS provides screening criteria in Section 2.2 (Screening Factors) and rationale for not carrying specific alternatives forward for further analysis.

While it would hypothetically be possible to develop training systems at Nellis Air Force Base, the U.S. Air Force and U.S. Air Force-sponsored training currently uses nearly all of the complex's available training capacity (time and space). Shared use of Nellis Air Force Base, as currently configured or as proposed, would not be able to support the intensity of both Navy and Air Force training, and therefore was not carried forward for further analysis.

1.10.1.3 Governor's Alternative (The Nevada Alternative)

Most of the components of the Governor's Alternative were considered in the development of Alternative 3. However, some components could not be accommodated due to incompatibility with the Navy's need to provide sufficient land for military training and range safety requirements (see Section 1.4, Purpose of and Need for the Proposed Action). A detailed discussion is provided in Chapter 2 (Description of Proposed Action and Alternatives), specifically Section 2.5.7 (Governor's Alternative ["Nevada Alternative"]).

1.10.2 Level of Significance

The approach to analysis, including significance criteria for potential impacts, are presented in the Final EIS for each resource section. The approach to analysis and significance criteria varies but was developed based on applicable laws, regulations, and policies for each resource area. In addition, context, intensity, and relevant thresholds were considered when determining significance.

1.10.3 Land Use

The Navy analyzed potential social impacts, including impacts on customs and culture, in Section 3.13 (Socioeconomics). In addition, the Navy addresses impacts on resource areas that contribute to customs and culture in separate sections in the Final EIS, such as land use (Section 3.2), mining and mineral resources (Section 3.3), livestock grazing (Section 3.4), cultural resources (Section 3.11), recreation (Section 3.12), and cumulative impacts (Chapter 4).

1.10.4 Mining and Mineral Resources

1.10.4.1 Minerals and Mining (Locatable)

In the Final EIS, when a mineral resource potential is classified as either moderate or high, a lost exploration opportunity would represent a significant impact on that mineral resource. The resource potential classification considers occurrence, geologic relationship, and historic production for each mineral resource.

As discussed in Section 3.3 (Mining and Mineral Resources), the land proposed for withdrawal would no longer be open to new mining claims, and the lands would be barred from future mineral exploration and development. Implementation of any of the action alternatives would result in potential significant impacts on the exploration and development of locatable, leasable, and salable mineral resources.

1.10.4.2 Mining Claim Loss

The Final EIS has been updated to include the process by which the Navy would make payments to holders of mining claims. Valid and existing mining rights, existing patented mining claims, and unpatented mining claims are discussed in Section 3.3 (Mining and Mineral Resources).

For there to be a valid existing mining right, the claim holder must demonstrate that the claim contains a discovery of a valuable mineral deposit. Having a valid existing claim would exclude any such claim from any moratorium imposed by the requested withdrawal legislation for development of the claim. Therefore, under the Proposed Action, the Navy would acquire any valid existing claims within the proposed withdrawal at fair market value.

For existing patented mining claims, the federal government has passed the title of these lands to the claimant, making these lands private lands. The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary.

Holders of unpatented mining claims on public lands may conduct a validity exam, which is a formal process that determines whether the claim holder has a valid existing right. The Secretary of the Interior determines the validity of a claim based on this validity examination. However, holders of unpatented mining claims are not required to conduct a validity exam. In instances where a claim holder has not conducted a validity exam, any value associated with the claim is assumed to be nominal. Accordingly, the Navy would offer to claim holders without a validity exam demonstrating a valuable mineral deposit a nominal amount to extinguish the claim.

1.10.4.3 Geothermal Development

The Final EIS identifies the process by which interested parties could pursue compatible geothermal development in a portion of the Dixie Valley Training Area. The proposed required design features (RDFs) are necessary for the Navy to meet training requirements. Development of the RDFs affords an opportunity for geothermal development that would otherwise be lost. The Navy acknowledges that complying with RDFs could add cost to a potential geothermal development; however, the Navy is committed to working with the developer on a case-by-case basis. This is addressed in Section 3.3 (Mining and Mineral Resources).

1.10.5 Livestock Grazing

1.10.5.1 Water Rights

The Navy acknowledges that the loss of water rights could be a factor in the proposed process for determining payments for losses due to cancelled or modified federal grazing permits and allotment improvements. Section 3.4 (Livestock Grazing), specifically Section 3.4.3.2 (Alternative 1: Modernization of the Fallon Range Training Complex) addresses the proposed process for determining payments for losses due to cancelled or modified federal grazing permits. This valuation process would also apply to Alternatives 2 and 3.

1.10.5.2 Grazing loss/Valuation of Permits

The Taylor Grazing Act of 1934 (43 U.S.C. sections 315q) provides the Navy with the authority to make payments for certain grazing-related losses. The Navy would work with grazing permittees on a case-by-case basis to try to minimize losses resulting from the cancellation of a grazing permit. The Final EIS further describes the valuation proposed process for determining payments for losses due to cancelled or modified federal grazing permits. This process allows for the valuation of the cost of providing

replacement forage and/or losses resulting from an inability to provide replacement forage. The process also determines the value of improvements made by permit holders (e.g., value of wells, corrals, fencing, and other real property). The Navy would use this process to determine payments to individuals who may experience losses resulting from the cancellation or modification of grazing permits or other disruption of their livestock grazing operations as a result of implementation of any of the action alternatives.

The following information has been included in Section 3.4 (Livestock Grazing), specifically Section 3.4.3.2 (Alternative 1: Modernization of the Fallon Range Training Complex), and also applies to Alternatives 2 and 3 in the Final EIS.

1.10.5.3 Payment for Losses

The Navy would first consider costs associated with obtaining replacement forage and otherwise restoring/maintaining a permittee's existing operational capacity. Working with BLM and the permittee, the Navy would determine the costs necessary to replace the area/capacity removed from a grazing permit. These costs could include, but would not be limited to, preparing new allotment applications; complying with BLM environmental requirements and water rights studies; procuring private market replacement forage; shipping or transporting forage, cattle, and/or ranch personnel and their horses and equipment; one-time relocation expenses associated with any full or partial transferring of operations to any new location(s); any reasonably anticipated lost profits arising as a result of operational downtime while restoring and/or relocating operations; and any other costs identified, which would be properly payable under 43 U.S.C. section 315q.

Should a permit holder decide not to seek replacement forage in conjunction with restoring operational capacity, or when restoring such capacity is not practicable, the Navy would make a good faith estimate of the financial impact the loss of that individual's permit would be expected to have on his or her ranching operation. The Navy would ask each permit holder to provide recent business operating expenses associated with the permit, their total operating expenses, an estimate of that portion of income believed to be directly related to utilization of the permit, and total income and taxes. This information would be used to determine a payment amount to compensate for losses resulting from permit cancellation, including reasonably anticipated lost profits for what would otherwise have been the duration of the permit. If a permit holder does not wish to share their financial information, or if the information shared is incomplete, the Navy would make an estimate of the value of the losses based on existing information from other sources.

It is possible that a payment amount would be based both on replacement forage along with other operational restoration-related costs, and on the financial impact the loss of a permit would be expected to have on a ranching operation (i.e., part of the payment would be based on obtaining replacement forage to the extent practicable and the rest based on payment for losses to the extent obtaining replacement forage is not practicable). In those instances, the costs to restore operational capacity would first be determined, and the remaining payment amount would then be determined in accordance with the paragraph above discussing permits holders who may elect not to seek replacement forage capacity.

1.10.5.4 Payment for Allotment Improvements

Improvements such as corrals, fencing, wells, and other appurtenances that cannot be relocated are considered real property, similar to a building. The Navy would appraise the value of all real property owned by a permit holder and would offer fair market value for the purchase of any such real property.

Equipment, such as relocatable water tanks, is not considered real property, and the permit holder would be afforded an opportunity to remove their equipment prior to cancellation of a permit.

1.10.5.5 Timing of Permit Cancellation

The Navy anticipates issuing its Record of Decision with respect to FRTC modernization in January 2020. However, any Congressional withdrawal of the area currently supporting grazing permits would not be expected until September 30, 2020, or later. Similarly, any Congressional appropriation for implementing the FRTC Modernization action, which would include funds for making payments to grazing permit holders, would not be expected until September 30, 2020, or later. Accordingly, the earliest the Navy would request that the BLM modify any permit would be October 1, 2020.

If the Congressional withdrawal is enacted, and if Congress appropriates funds to implement the FRTC Modernization effort, the Navy would ask BLM to contact each affected permit holder. BLM would coordinate with the Navy on any action to initiate modification of a permit. Under 43 CFR Part 4100 Subpart 4110.4-2 (Decrease in Land Acreages), BLM would be required to provide two years advance notice of any permit modification. Once a given notification is made, the Navy, with assistance from BLM, would begin discussions with affected permit holders to determine payment amounts in accordance with the processes described herein.

1.10.6 Transportation

1.10.6.1 Relocation of State Route 839

As discussed in Section 3.5 (Transportation), under Alternatives 1 and 2, the WDZ would extend over a portion of State Route 839. That segment would be closed and rerouted outside of the WDZ due to mission and public safety requirements. However, under Alternative 3 (Preferred Alternative), the WDZ in its entirety would shift to avoid rerouting of State Route 839.

Relocation of State Route 839 would not cut off access to Rawhide Mine. Notional relocation corridors for the potential rerouting of State Route 839 are presented in Section 3.5.3 (Environmental Consequences).

Any proposed rerouting is still conceptual in nature and would be evaluated prior to closure of the route. Follow-on NEPA analysis would be conducted for the potential relocation of State Route 839 if Alternative 1 or 2 were to be selected. Refer to Chapter 2 (Description of Proposed Action and Alternatives), specifically Section 2.3.4.4.4 (Road and Infrastructure Improvements to Support Alternative 1) for further details. If Alternative 1 or 2 were to be selected, the Navy would transfer any funds appropriated for relocating the road to the Federal Highway Administration, which in turn would make these funds available to Nevada Department of Transportation (NDOT) for planning, designing, and constructing the replacement road to meet state standards.

1.10.6.2 Relocation of State Route 361

Under Alternative 3, the proposed WDZ for B-17 would extend over a portion of SR 361. That segment would be closed and rerouted outside of the WDZ due to mission and public safety requirements.

The potential closure and rerouting of SR 361 associated with the expansion of B-17 would only occur if Congress were to select Alternative 3. However, the affected segment of State Route 361 would not be closed unless and until a suitable replacement route is established. Relocation of State Route 361 would not cut off access to Gabbs or Berlin Ichthyosaur State Park. The notional relocation corridor for the potential re-routing of State Route 361 can be found in Section 3.5.3 (Environmental Consequences).

Any proposed rerouting is still conceptual in nature and would be evaluated prior to closure of the route. Follow-on NEPA analysis would be conducted for the potential relocation of State Route 361 if Alternative 3 were to be selected. Refer to Chapter 2 (Description of Proposed Action and Alternatives), specifically Section 2.3.6.2.4 (Road and Infrastructure Improvements to Support Alternative 3) for further details. If Alternative 3 were to be selected, the Navy would transfer any funds appropriated for relocating the road to the Federal Highway Administration, which in turn would make these funds available to NDOT for planning, designing, and constructing the replacement road to meet state standards.

1.10.6.3 County Roads (RS2477)

The Navy does not take a position on the validity or non-validity of any claimed RS2477 road or right-of way. In working with the BLM, no adjudicated RS2477 roads have been identified in the lands requested for withdrawal and proposed for acquisition. The Navy recognizes there would be loss of access to certain withdrawn or acquired areas and potentially to non-traditional roads. However, other means of accessing available areas would still remain; therefore, roads would not need to be relocated.

1.10.7 Airspace

1.10.7.1 Airspace Buffers—Airports

When developing the proposed alternatives, the Navy designed special use airspace to maximize the Navy's use of the airspace while allowing as much public and commercial use as possible. To minimize aviation impacts under each of the alternatives, the Navy is requesting the FAA create "airspace exclusion zones" (3-nautical-mile radius, surface to 1,500 feet Above Ground Level [AGL]) around the Gabbs, Crescent Valley, and Eureka airports. These exclusion zones would ensure those airports could continue to operate under all of the alternatives. The Navy would avoid the exclusion areas unless the airport is specifically being used for takeoffs and landings associated with military training activities. Airspace exclusion zones are discussed further in Section 3.6.2.2.4 (Local and Regional Airports).

1.10.7.2 Flight Tracks and FAA Regulations—sage-grouse seasonal habitat overflight avoidance

The Navy is required to train year-round and is unable to restrict flying during certain seasons. Based on available literature and the analysis presented in Section 3.10 (Biological Resources), specifically, Section 3.10.3.1 (Potential Stressors) of the Final EIS, impacts on sage grouse are expected to be minimal. However, the Nevada Department of Wildlife (NDOW) expressed concern regarding increased low-level overflights and requested the Navy undertake a long-term study to further assess potential impacts. Because there is no specific literature available regarding overflights and impacts on sage grouse or their leks, the Navy is proposing to fund and partner with NDOW on a future study that would directly address aircraft overflight and its potential impacts, both locally and to the overall population data. The Navy looks forward to assisting in this study with NDOW. The Navy anticipates using the results from the study to help inform potential future actions and adaptive management strategies, if necessary.

1.10.7.3 Lowering of Restricted Areas/Military Operations Areas

General aviation aircraft would continue to be allowed to transit through the FRTC outside of active restricted airspace or through the VFR corridor, as currently done. This same approach would also apply to any proposed restricted airspace. Typically, restricted airspace is inactive on weekends and holidays, and when ground ranges are closed for maintenance. Therefore, there would continue to be regular opportunities for general aviation aircraft to transit through inactive restricted airspace. Proposed changes to airspace would not significantly impact recreational/general aviation aircraft. Impacts on

general aviation for each alternative are discussed in Section 3.6 (Airspace), specifically in Section 3.6.3 (Environmental Consequences).

1.10.8 Noise

1.10.8.1 Impacts on Humans

The Navy does not anticipate any risk of hearing loss because noise would not rise to a level at which hearing loss would occur. Areas that could experience noise levels of 65 A-weighted decibels (dBA) or greater due to underlying Day-Night Level (DNL) contours above 65 dB are located in Churchill, Lander, Lyon, Mineral, Nye, and Pershing counties. However, intermittent aircraft operations, coupled with the time most people spend indoors, means it is very unlikely that individuals would experience noise exposure that would result in hearing loss.

The EIS includes figures (Figure 3.7-32 and Figure 3.7-41) that depict where changes to noise levels would occur, using existing and proposed noise contour data.

1.10.8.2 Additional Noise Buffers

In the past, the Navy has established Noise Sensitive Areas around wildlife refuges, incorporated areas, and certain tribal areas. As part of the Proposed Action and alternatives, the Navy is proposing new Noise Sensitive Areas around the incorporated areas of Crescent Valley and Eureka. The establishment of these Noise Sensitive Areas is considered compatible with military training activities and will include a 5-nautical-mile radius and an elevation of 3,000 feet AGL.

1.10.8.3 Defining Locations for Noise Sensitive Areas

The Navy acknowledges that people may live on the edges of town and in adjacent areas. However, the Navy cannot define Noise Sensitive Areas using a town's perimeter because doing so would significantly constrain proposed training activities. Tracking irregular areas underneath aerial training areas would require pilots to pay more attention to where they are flying rather than concentrating on the mission that they are training for.

1.10.8.4 Noise Complaints

As stated in Section 3.7.3.5 (Proposed Management Practices, Monitoring, and Mitigation), the Air Operations Office logs noise complaints at Naval Air Station Fallon. The office records information about the time, location, and nature of the complaint; and initiates investigation of what, if any, Navy airspace operations were being conducted by the Navy at the FRTC. If the caller requests, range personnel will follow up with a return phone call to explain the resolution of the complaint. The Navy may be contacted for noise complaints and operational suggestions at 775-426-2419.

1.10.8.5 Sensitive Receptors

Sensitive receptors are those areas where noise interferes with normal activities associated with its use (such as residential, educational, health, and religious structures and sites; parks; recreational areas [including areas with wilderness characteristics]; tribal reservations; wildlife refuges; and cultural and historical sites). The Navy modeled the existing and proposed noise levels associated with military training activities, described in Section 3.7 (Noise). As discussed in Section 3.2 (Land Use), specifically Section 3.2.3.2.5 (Fallon Range Training Complex Special Use Airspace), aerial maps of the areas where the DNL is above 65 dBA were visually inspected to determine the presence or absence of sensitive receptors, such as residences, lodging, and medical facilities. The EIS provides supplemental noise data for representative sensitive receptors.

Potential noise impacts on Indian Tribes were analyzed as they relate to environmental justice. Implementation of any of the action alternatives would not cause disproportionately high or adverse human health or environmental effects, including noise impacts, on minority and low-income populations, including Indian Tribes. This analysis is discussed in Section 3.15 (Environmental Justice).

1.10.8.6 Noise Modeling

Noise modeling presented in Section 3.7 (Noise) included 24 representative locations throughout the FRTC that could be considered sensitive receptors, including Austin, Kingston, the Yomba Tribal area, Reese River Valley, Antelope Valley, and Lander County. Noise-sensitive areas that include a 5-nautical-mile radius and ground surface to 3,000 feet AGL avoidance buffer currently include Austin, Kingston, and the Yomba Tribal Settlement.

1.10.9 Air Quality

The Navy is not proposing to increase the types or levels of training activities under any alternative. Therefore, there would be no increase in greenhouse gas emissions. See Section 3.8 (Air Quality), specifically Sections 3.8.3.2.9 (Greenhouse Gas Emissions), 3.8.3.3.9 (Greenhouse Gases), and 3.8.3.4.9 (Greenhouse Gases) of the Final EIS for more information.

1.10.10 Water Rights

1.10.10.1 Acquisition of Water Rights

The Navy recognizes the potential impact of the loss of water rights on the community. The Navy would purchase private water rights as real property. Additionally, acquisition of water rights would be factored into the processes for valuing grazing and mining-related just compensation or other authorized payments as appropriate. As discussed in Section 3.9 (Water Resources), the Navy does not have the authority to assist water rights holders with other water rights actions (e.g., change applications).

1.10.10.2 Stock Water Rights

The Navy does not plan to use water rights purchased for stock water but would instead request to modify the beneficial use, as appropriate, relative to mission requirements. In the Dixie Valley Training Area (DVTA), the Navy would not seek to acquire existing water rights. Section 3.9 (Water Resources), specifically Section 3.9.3 (Environmental Consequences), of the Final EIS has been updated with a discussion of the evaluation of water rights.

1.10.10.3 Vested Water Rights

The Navy completed a water resources study after the publication of the Draft EIS. This study, which is available at https://frtcmodernization.com, includes a discussion of vested water rights. The findings of the study were incorporated into the Final EIS in Section 3.9 (Water Resources), specifically Section 3.9.3 (Environmental Consequences).

The Navy does not have the authority to validate vested water rights. Only the State Engineer can validate water rights. However, valid water rights would be treated as real property in the valuation process.

1.10.11 Biological Resources

1.10.11.1 Biological Resources General Concern

The Final EIS includes a thorough impact analysis conducted by qualified wildlife biologists. Potential impacts on wildlife species, including bighorn sheep and greater sage grouse, as well as their habitat are discussed in Section 3.10 (Biological Resources), specifically Sections 3.10.3.3 (Alternative 1: Modernization of the Fallon Range Training Complex), 3.10.3.4 (Alternative 2: Modernization of Fallon Range Training Complex and Managed Access), and 3.10.3.5 (Alternative 3: Bravo-17 Shift and Managed Access [Preferred Alternative]) of the Final EIS.

Populations of species are distributed throughout current FRTC boundaries. Based on species distribution data, historical coexistence with training activities, and the analysis presented in the Final EIS, populations would not be significantly impacted by proposed training activities. While the analysis indicates a less than significant impact, the Final EIS has been updated to include a discussion of potential impacts on individuals of a species.

1.10.11.2 Greater Sage Grouse/Consistency with State Plans

Currently, state management plans focus on habitat availability, wildfire, and land-based chronic noise sources.

Greater sage grouse lek location data indicates that they are east of the land areas proposed for withdrawal or acquisition. Sage grouse in these areas would be exposed to noise from aircraft overflights. Available science indicates that short-term noise intrusion does not play a significant role in lek success.

The Navy would work closely with BLM and NDOW to manage sage grouse and other species on land under the Navy's control. Because there is no specific literature available regarding overflights and impacts on sage grouse or their leks, the Navy is proposing partnering with NDOW on a future study that would directly address aircraft overflight and its potential impacts, both locally and to the overall population data. The Navy looks forward to assisting in this study with NDOW. The Navy anticipates using the results from the study to help inform potential future actions and adaptive management strategies, if necessary.

1.10.11.3 Noise and Greater Sage Grouse Nesting—Types of Noise Metrics Used

State management plans use L10 and L90 metrics for determining impacts on sage grouse. In the absence of this type of data, the Navy applied maximum decibel level, sound exposure level, the DNL, and equivalent sound level metrics to determine potential impacts. The Navy has determined that the analysis presented in the Final EIS is comprehensive and based on the best available science for assessing potential population impacts. Because there is no specific literature available regarding overflights and impacts on sage grouse or their leks, the Navy is proposing partnering with NDOW on a future study that would directly address aircraft overflight and its potential impacts, both locally and to the overall population data. The Navy looks forward to assisting in this study with NDOW. The Navy anticipates using the results from the study to help inform potential future actions and adaptive management strategies, if necessary.

1.10.11.4 Fencing

Fences would be installed according to BLM and USFWS standards. Strand configuration would be based on the predominant wildlife in the area (e.g., pronghorn antelope, bighorn sheep). Fencing is not

anticipated to impact sage grouse, as individuals or leks were not observed in the proposed withdrawal or acquisition areas during biological surveys and are not likely to occur within the ground range boundaries, per NDOW data (Figure 3.10-27).

1.10.11.5 Sonic Boom Response

As discussed in Section 3.10 (Biological Resources), the response to sonic booms or other sudden disturbance is similar among many wildlife species. Sudden and unfamiliar sounds usually act as an alarm and trigger a "flight" response; however, reaction to a given noise can vary widely depending on factors such as time of day, physical condition of the animal, physical environment, or whether other physical stressors are present. Although the startle effect of a sonic boom can be stressful to an animal, it is difficult to generalize animal responses to noise disturbances across species. Recent literature suggests a startle is a common response across a variety of species and ultimately leads to habituation. It has been reported that the intensities and durations of the startle response decrease as the number and frequency of exposures increase, suggesting no long-term adverse effects. It is recognized that short-term impacts on individual animals may occur from sonic booms; however, overall no long-term adverse effects to populations are expected.

Given the historical use of the airspace and the coexistence of wildlife, animals within the MOA are likely habituated to aircraft overflights and associated noise, such as sonic booms.

Many of the above-listed behavioral and physiological responses to noise are within the range of normal adaptive responses to external stimuli, such as predation, that wild animals face regularly. In many cases, individuals would return to homeostasis or a stable equilibrium almost immediately after exposure to a brief stimulus such as an aircraft overflight or sonic boom. Section 3.10 (Biological Resources), specifically Section 3.10.3.1 (Potential Stressors), of the Final EIS was updated to incorporate the best available science regarding noise and startle effects on wildlife.

1.10.12 Cultural Resources

1.10.12.1 Section 106

The Navy abides by stipulations found within the current 2011 Programmatic Agreement between Nevada State Historic Preservation Office (SHPO), BLM, and the Advisory Council on Historic Preservation (ACHP) with respect to withdrawn lands.

The Navy has completed cultural resources surveys in B-16, B-17, and B-20 where there is a reasonable expectation of direct impact from the placement of targets and in construction areas. Additionally, the Navy conducted cultural resource inventories in potential target areas on B-16 and B-17 to provide some latitude for the placement of targets should there be a conflict between targets and eligible cultural properties. The Navy is consulting with Indian Tribes on the identification of any additional known cultural resources and associated potential direct and indirect impacts from the Proposed Action.

Under the withdrawal and acquisition, the Navy acknowledges that it would be restricting access to cultural resources to a considerable extent. Consistent with Executive Order 13007, *Indian Sacred Sites*, the Navy will continue to work with Indian Tribes to develop protocols for access to cultural resources through the creation of an MOU.

The Final EIS was updated with information in Section 3.11 (Cultural Resources) regarding Navy Section 106 consultation with the Nevada SHPO, ACHP, and Indian Tribes, including the proposal for an

amended 2011 Programmatic Agreement to establish protocols for the future management of historic properties and any MOUs with Indian Tribes in association with the Proposed Action.

1.10.12.2 Potential Impact Areas

The Navy determined the Potential Impact Areas (PIAs), a term analogous to the NHPA Section 106 Area of Potential Effect (APE). The SHPO concurred with the Navy's determination that the APE accounts for potential direct, indirect, and cumulative effects that may result from this undertaking. The present analysis, however, differs from Section 106 to the degree that it (1) considers a wide array of proposed actions that are not undertakings per 36 CFR Part 800.16, and (2) considers the impact on a wider range of cultural resources than NRHP-eligible or potentially eligible historic properties alone. Importantly, APEs and assessments of effect to historic properties under Section 106 would be addressed when specific undertakings are proposed and known in detail in the future, consistent with an amended 2011 *Programmatic Agreement Among Naval Air Station, Fallon, Nevada, The Nevada State Historic Preservation Officer and the Advisory Council on Historic Preservation Regarding the Identification, Evaluation and Treatment of Historic Properties on Lands Managed by Naval Air Station, Fallon*.

The PIAs addressed in this document are based on activities associated with the Proposed Action and are used to holistically consider the potential impacts on cultural resources. PIA boundaries are defined in consideration of potential impacts on cultural resources from ground disturbance; vibrations from sonic booms, aerial target strikes, and military expended material strikes; visual and auditory intrusions; and changes in access.

1.10.12.3 Programmatic Agreement

The Navy abides by stipulations found within the current 2011 Programmatic Agreement between Nevada SHPO, BLM, and the Advisory Council on Historic Preservation with respect to withdrawn lands.

Currently, existing withdrawn lands are managed under the prescriptions of the 2011 Programmatic Agreement. The Navy is required to consult with the signatories of the 2011 Programmatic Agreement (ACHP, SHPO, and BLM) for approval of an amendment that would add the newly withdrawn lands. As part of this action, the Navy would revise the 2011 Programmatic Agreement for consultation and completion by 2021 (when the 2011 Programmatic Agreement expires). This amended Programmatic Agreement would stipulate requirements for Navy cultural resources management of all Navy-managed lands (withdrawn and purchased). NAS Fallon undertakings within the operational area of NAS Fallon in the state of Nevada will be carried out in accordance with NAS Fallon's Integrated Cultural Resources Management Plan. Section 3.11 (Cultural Resources) of the Final EIS was updated regarding the Programmatic Agreement process.

1.10.12.4 Legacy Issues – Munitions on Walker River Paiute Reservation

The Navy implemented operational changes in November 1989 to eliminate off-range munitions, including reorienting strafing/bomb run-in lines and increasing surveillance of all drops. These operational changes have been effective in reducing off-range ordnance occurrences. A Memorandum of Understanding between NAS Fallon and the Walker River Paiute Tribe establishing protocols for both the Indian Tribe and the Navy to follow in responding to potential future off-range ordnance incidents (e.g., notification and coordinating access to reservation lands) was signed on May 14, 2007. A Memorandum of Agreement between the Indian Tribe and Navy was signed on May 24, 2017, updating and clarifying procedures for addressing any future off-range ordnance incidents on the Reservation. The Navy is actively working with the Indian Tribe to seek a mutually agreeable resolution for the issue

of historical off-range ordnance present on the Reservation. An effort to locate and clear historic ordnance was conducted, and the Navy implemented measures that seek to eliminate (or at least dramatically reduce) the possibility of off-range ordnance near the southern boundary of training range B-19.

Per Navy policy (OPNAVINST 3710.7 [Series]), the release of any air-to-surface ordnance should be accomplished within Restricted Airspace, and all such releases should impact on Navy land. As required by the Department of Defense Military Munitions Rule Implementation Procedures (April 2017), ordnance that inadvertently lands outside Navy property would be retrieved as soon as possible once the Navy learns that it has landed off range. NAS Fallon has conducted cleanup operations in the past and repaired facilities in accordance with tribal wishes, and is planning to conduct additional cleanup operations in the near future.

Resolution of legacy off-range munitions will continue to be addressed with the Walker River Paiute Tribe as a separate issue from the FRTC Modernization EIS. Since the Navy's requirements do not call for an expansion of B-19, legacy off-range ordnance is beyond the scope of this EIS and therefore is discussed only for purposes of background information.

1.10.12.5 Tribal Consultation

In accordance with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, Department of Defense policies, the National Historic Preservation Act, and Navy instructions, the Navy engaged in Tribal consultations during scoping and following the public release of the Draft EIS. The Navy invited culturally affiliated Indian Tribes to participate in the NEPA process as Tribal Participants for this EIS (Appendix C, Tribal Correspondence). The Navy invited these Indian Tribes to (1) participate in project meetings, (2) provide additional information related to cultural resources, (3) provide internal document review (e.g., the Class III Cultural Resources Inventory Report), and (4) review the draft reports in order to provide additional information regarding site locations during the development of the Draft EIS to assist the Navy in making the final determinations of eligibility of sites for listing on the National Register of Historic Places.

The Navy invited and engaged in Government-to-Government consultations with the Inter-Tribal Council of Nevada and the following federally recognized Indian Tribes: the Duckwater Shoshone Tribe, Fallon Paiute-Shoshone Tribe, Fort McDermitt Paiute and Shoshone Tribes, Lovelock Paiute Tribe, Pyramid Lake Paiute Tribe, Reno-Sparks Indian Colony, Summit Lake Paiute Tribe, Te-Moak Tribe of Western Shoshone Indians of Nevada (consisting of the Battle Mountain Band, Elko Band, South Fork Band, and Wells Band), Washoe Tribe of Nevada and California, Walker River Paiute Tribe, Winnemucca Paiute Tribe, Yerington Paiute Tribe, and Yomba Shoshone Tribe. Appendix C (Tribal Correspondence) of the Final EIS was updated to include a summary of all outreach conducted by the Navy and official correspondence.

1.10.13 Recreation

1.10.13.1 Loss of Recreation

The Navy acknowledges the concerns regarding potential closures of some recreational areas and analyzes potential impacts in Section 3.12 (Recreation). Closure of existing recreational areas would likely result in the public shifting their recreational activities to other areas.

While recreational activities such as running, hiking, horseback riding, rock collecting, fossil hunting, and sightseeing would not be allowed in the bombing ranges, these activities could continue to occur in the DVTA and surrounding areas.

1.10.13.2 Off-Highway Vehicle Areas

Off-Highway Vehicles (OHV) use would continue to be allowed within the DVTA. The BLM has proposed to open/un-restrict OHV use in the Sand Mountain and the proposed Dead Camel Mountain Special Recreation Management Areas, as well as on the playa north of the DVTA. Continued OHV use would also be allowed in the Special Land Management Overlay and potentially within new areas of the withdrawn portions of the Clan Alpine Mountains, Job Peak, and Stillwater Range Wilderness Study Areas after Congress removes any Wilderness Study Area designation. Due to safety reasons, OHV activities would not be allowed within the proposed withdrawal areas associated with B-16, B-17, and B-20.

Topography and OHV trails similar to those in B-17 also occur in the DVTA or other nearby public lands and could be used by recreationists. These areas would not be impacted by the proposed withdrawal or acquisition and would continue to be available for full public use and recreation, as discussed in Section 3.12 (Recreation).

1.10.13.3 De-Designating Wilderness Study Areas

The proposed de-designation of portions of Wilderness Study Areas is necessary to meet certain training requirements, such as installing stationary and mobile electronic threat emitters, landing helicopters, and maneuvering by special operations forces (along with other non-hazardous training activities, such as night vision goggle training and low-altitude flights). This type of training within Wilderness Study Areas is not currently permitted, and any de-designation would require Congressional action, as discussed in Section 3.12 (Recreation).

1.10.13.4 Loss of Hunting Opportunities

The Navy would allow access to B-17 for an annual bighorn sheep hunt. NDOW would be the managing agency and would set quotas, distribute permits, and maintain wildlife habitat. The Navy is developing a Memorandum of Agreement with NDOW for managed access to B-17 for the hunting program. Further details are provided in Section 3.12 (Recreation).

The Navy acknowledges the potential loss of hunting opportunities for species other than bighorn sheep and would conduct an annual review to determine if additional hunts may be feasible and compatible with the Navy mission.

The Navy would continue to coordinate with NDOW for access to maintain guzzlers and manage wildlife.

1.10.13.5 Aviation – Gabbs and Eureka Airports

The Navy would implement a 3-nautical mile radius and a surface-to-1,500 feet AGL airspace exclusion zone around the Gabbs Airport to allow for safe arrivals and departures, as discussed in Section 3.6 (Airspace).

1.10.14 Socioeconomics

1.10.14.1 Future Projections—Payment in Lieu of Taxes

A detailed Payment in Lieu of Taxes (PILT) analysis is included in the *Supporting Study: Socioeconomic Report*, available at https://frtcmodernization.com and discussed in Section 3.13 (Socioeconomics). There would be no change in PILT for Churchill, Mineral, Nye, and Pershing counties, and very little change in PILT for Lyon County. Therefore, there would be no significant impact from lost revenue from reduced PILT under any of the action alternatives.

1.10.14.2 Tourism

In Section 3.13 (Socioeconomics) of the EIS, the Navy determined that there would be no significant impacts on tourist areas, such as Fairview Peak earthquake fault, Berlin Ichthyosaur State Historic Park, Middlegate Station, Sand Mountain Recreation Area, and Lahontan State Recreation Area because these areas would be available for public use. In addition, tourism activities would continue to be allowed on lands surrounding the proposed withdrawal and acquisition area.

1.10.15 Public Health and Safety

1.10.15.1 Wildland Fire Management

The Navy has implemented and would continue to implement operational and administrative controls to reduce wildfires. The Navy is developing a Wildland Fire Management Plan; where possible, proposed plan elements and goals are included in the Final EIS. For further information on wildfire and wildfire mitigation, see Section 3.14 (Public Health and Safety and Protection of Children), specifically Section 3.14.2.1.2 (Wildfire Management).

1.10.15.2 Hazardous Materials and Wastes

The safety of the public and military personnel is of utmost importance to the Navy. As discussed in Section 3.14 (Public Health and Safety and Protection of Children), the Navy has implemented a strict Hazardous Material Control and Management Program and a Hazardous Waste Minimization Program for all activities. The Navy continuously monitors its operations to find ways to minimize the use of hazardous materials and to reduce the generation of hazardous wastes. Spills would be managed and cleaned up in accordance with applicable state and federal regulatory requirements. If a spill were to exceed reportable quantities as defined by the U.S. Environmental Protection Agency for regulated material, it would be immediately reported to the NAS Fallon Environmental Division for appropriate action per the Integrated Contingency Plan (U.S. Department of the Navy, 2009).

Additionally, the Department of Defense created the Installation Restoration Program to identify, evaluate, and clean up contamination from past operations on military bases. The program was designed to ensure Department of Defense compliance with federal and state environmental laws and regulations.

Lastly, the Navy complies with Chief of Naval Operations Instruction 3571.4, Operational Range Clearance Policy for Navy Ranges, which establishes the policy and requirements for performing operational range clearance on Navy ranges. Under this program the impact areas are routinely swept of ordnance and target debris. This debris is disposed of or, if possible, recycled in accordance with all applicable regulations.

1.10.15.3 Munitions Constituent Migration

While impact areas have been identified, the Navy has not yet determined specific target placement. The placement of the targets within the impact areas would avoid washes. The Navy has revised sections in the Final EIS, specifically in Chapter 2 (Description of Proposed Action and Alternatives) and Section 3.14 (Public Health and Safety and Protection of Children), with this information.

1.10.15.4 Abandoned Mines

As discussed in Section 3.14 (Public Health and Safety and Protection of Children), the Navy would be responsible for abandoned mines in B-16, B-17, B-19, and B-20 and would follow risk-based evaluations and procedures established by the State of Nevada if securing such abandoned mines were required for

public health and safety needs. The BLM would be responsible for securing abandoned mines in the DVTA.

1.10.16 Environmental Justice

The Navy used the Environmental Protection Agency's Environmental Justice Screening and Mapping Tool (EJSCREEN) to initially screen for areas with minority and low-income populations, potential environmental quality issues, and environmental and demographic indicators. Data was also pulled from the U.S. Census Bureau's 2010 Census and 2012-2016 American Community Survey to characterize minority and Hispanic or Latino populations and to define low-income populations. Populations associated with Indian Tribes are included in the county populations. The Fallon Paiute Shoshone Tribe identified themselves as a minority community. Based on the analysis of all action alternatives, minority and low-income populations are present within the affected area. However, implementation of any of the action alternatives would not cause disproportionately high or adverse human health or environmental effects on minority and low-income populations. The approach to analysis is further discussed in Section 3.15 (Environmental Justice), specifically Section 3.15.1.3 (Approach to Analysis) of the Final EIS.

1.10.17 Cumulative Impacts

1.10.17.1 Local Projects considered for cumulative impacts

Chapter 4 (Cumulative Impacts) lists past, present, and reasonably foreseeable future actions that have had or are expected to have impacts either within, or within distances of up to 30 miles from, the FRTC. This includes the counties of Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe. In determining which projects to include in the cumulative impacts analysis for a given resource area, the Navy made a preliminary determination regarding each past, present, or reasonably foreseeable action. Specifically, using criteria included in Section 4.2 (Approach to Analysis), the Navy determined whether a relationship exists such that the affected resource areas of the Proposed Action (included in this EIS) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship existed, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (Council on Environmental Quality 2005), those actions considered but excluded from further cumulative effects analysis are not catalogued in the Final EIS, because the intent is to focus the analysis on the meaningful actions relevant to inform decision making.

1.10.17.2 Military Actions – Nevada Test and Training Range Military Land Withdrawal at Nellis Air Force Base

The Nevada Test and Training Range (NTTR) Military Land Withdrawal at Nellis Air Force Base and the FRTC Modernization EIS are distinct and separate actions based on their mission, type of training activities, and training schedules.

The proposed action for NTTR was evaluated in Chapter 4 (Cumulative Impacts) in the Final EIS. There would be no overlap between the residents or resources affected by aircraft noise in the FRTC range areas and those affected by aircraft noise in the areas surrounding the NTTR (Figure 4-1, 4-2, and 4-3). However, the Navy determined, based on the analysis in the Final EIS, that Nye County would experience a significant impact on recreation and economic resources due to the cumulative nature of the NTTR Proposed Action (refer to Chapter 4, Cumulative Impacts, in particular Sections 4.4.12, Recreation; and 4.4.13, Socioeconomics) and the FRTC Preferred Alternative, and the loss of lands for

recreation activities such as hunting, which generate economic resources for the county (see Section 3.13, Socioeconomics). The Navy is working and will continue to work with Nye County and other impacted counties to avoid, minimize, and mitigate impacts when feasible and consistent with the Navy's authority.

1.10.17.3 Cumulative Noise Impact Analysis

The Navy's model for noise impacts included the quantitative analysis of potential cumulative impacts from existing operations (baseline) plus each alternative. Section 4.4.7 (Noise) details the full cumulative impact analysis from noise. Military and construction activities, such as development of a new facility, demolition or renovation of existing facilities, or road construction/maintenance, make up the majority of past, present, and reasonably foreseeable Navy actions considered as part of the cumulative impacts of noise.

A detailed discussion of noise modeling is found in Section 3.7 (Noise), specifically Section 3.7.3 (Environmental Consequences). The results of the modeling include noise contour maps, which provide a visual depiction of areas exposed to different noise levels associated with the Proposed Action. Past, present, and reasonably foreseeable actions where there would be overlap with the Navy's noise contours were noted to account for potential cumulative impacts.

1.10.18 Mitigation

1.10.18.1 General Mitigation

The Navy has developed and proposed specific mitigation for each alternative that can be implemented and would avoid or minimize impacts. As such, alternatives include actions specifically designed to avoid, minimize, or mitigate potential impacts, to the extent practicable under existing authorities and consistent with military training activities.

1.10.18.2 Reducing the Withdrawal and Acquisition

There are a variety of comments about reducing the extent of the proposed expansion of different Bravo ranges for a variety of reasons (specific to each commenter). For the majority of comments, reasons include the proposed withdrawal bringing Navy activities too close to property/housing in certain Bravo ranges as a result of the Proposed Action; causing the loss of mining claims, grazing allotments, and water resources; or causing access loss for recreational purposes.

The Navy acknowledged the significance of the potential impacts and instead revised its proposal to only include the minimum 180-degree requirement for realistic training events; it also reduced the size of the overall area requested and proposed for withdrawal, to the extent consistent with mission requirements.

The Navy added figures (Figure 2-13 and Figure 2-14) in Chapter 2 (Description of Proposed Action and Alternatives) of the Final EIS that illustrates the proposed withdrawal and requested acquisition lands included in the Draft EIS and highlights additional reductions that have been made to the lands requested for withdrawal and proposed for acquisition between the Draft and Final EIS under Alternative 3.

For the Navy to reach full tactics, techniques, and procedures compliance that would allow air and ground forces to train in a realistic 360-degree combat scenario for all training scenarios, the Navy would need to withdraw or acquire almost twice the amount of land requested under the Proposed Action (approximately 1.3 million acres), as well as make extensive revisions to special use and civilian

airspace. The Navy considered this as an alternative, but did not carry it forward for detailed analysis in the EIS due to disruptive impacts on the local area. For example, this alternative would greatly increase the amount of public lands that would need to be closed for weapons safety considerations.

1.10.18.3 Mitigation for Loss of Grazing Areas

The Navy would make payments to federal grazing permit holders for losses as a result of the withdrawal or other use of former federal grazing lands for war or national defense purposes (43 U.S.C. section 315q of the Taylor Grazing Act of 1934, as amended).

The Final EIS, specifically Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation), describes the Navy's proposed process for determining payments for losses due to cancelled or modified federal grazing permits.

1.10.18.4 Mitigation for Access Loss

Alternative 3 (the Preferred Alternative) would allow limited public access to the extent compatible with mission training requirements and public safety. Certain types of water development, mining, and geothermal development would be allowed in the DVTA. Grazing would continue to be allowed in the DVTA.

Because of public safety concerns, areas defined as WDZs are not compatible with public access. However, the Navy would allow certain activities, such as wildlife management, cultural visits, bighorn sheep hunting, and events that are coordinated with the Navy in advance.

Mitigation for loss of access generally was determined to be either not possible because of mission requirements or not warranted because many of the affected activities (e.g., grazing, mining, recreation) could be conducted in adjacent or nearby areas (refer to Section 3.4, Livestock Grazing; Section 3.3, Mining and Mineral Resources; and Section 3.12, Recreation).

1.10.18.5 Mitigation for Socioeconomic Loss

The Navy recognizes the potential socioeconomic impacts on the community. To mitigate these impacts, affected private landowners would receive just compensation for loss of any privately owned land and all rights associated with that land acquired by the United States. Claim holders for mining and water would be compensated as described in Section 3.3 (Mining and Mineral Resources) and Section 3.9 (Water Resources).

Pursuant to the Taylor Grazing Act of 1934, as amended (43 U.S.C. section 315q), the Navy would make payments to federal grazing permit holders for losses as a result of the withdrawal or other use of former federal grazing lands for war or national defense purposes.

1.11 Final Environmental Impact Statement and Record of Decision

This Final EIS includes updates and revisions to the Draft EIS, a complete set of all substantive comments received on the Draft EIS, and the Navy's responses to such comments (Appendix F, Public Comments and Responses). Response to public comments may also take other forms, including correction of data, clarifications of and modifications to analytical approaches, and inclusion of additional data or analysis.

A 30-day waiting period will follow the issuance of the Final EIS. The Navy will sign a ROD after consideration of the Final EIS and public comments. The Navy will publish a *Notice of Availability of the ROD* in the *FR*; distribute the ROD to Indian Tribes, agencies, interested parties, and local newspapers; and post it on the FRTC EIS website. The ROD will document the Navy's final decision on the Proposed

Action (to include identifying an action alternative as a proposal to be submitted to Congress for action), the rationale behind that decision, and any commitments to mitigation and monitoring. Congress will then review the Navy's proposal and ROD and will consider legislation for the proposed land withdrawal.

Should Congress decide to authorize the Proposed Action, it is anticipated that the Navy's Office of Economic Adjustment Program will provide technical and financial assistance to state and local governments to undertake Compatible Use Studies (formally known as Joint Land Use Studies) in response to Military Department compatibility concerns. Compatible Use Studies represent a planning process that promotes open, continuous dialogue among the Military, surrounding jurisdictions, and states to support long-term sustainability and operability of military missions. The last Joint Land Use Study was completed for NAS Fallon in May 2015 and serves as a comprehensive strategic plan with specific implementation actions to address and prevent incompatible civilian development that could impair the operational utility of military missions or impact available resources (e.g., air, land, electromagnetic spectrum).

The following discusses the funding process for certain payments and other anticipated costs associated with potential implementation of the Proposed Action. Under the Proposed Action, the Navy would need to acquire certain privately held property in conjunction with the proposed expansion of the Bravo ranges and the DVTA—around 360 total parcels totaling approximately 67,000 acres, from around 100 different owners. (Discussion of action alternatives can be found in Chapter 2, Description of Proposed Action and Alternatives.) Private land owners would receive just compensation for any loss of privately-owned land acquired by the United States, to be determined by calculating the fair market value of parcels in accordance with federal appraisal rules codified in the Uniform Appraisal Standards for Federal Land Acquisitions. Additionally, as discussed in Chapter 5 (Management Practices, Monitoring, and Mitigation), the EIS identifies a variety of measures to avoid, minimize, or otherwise mitigate certain anticipated environmental impacts of the Navy's Proposed Action. While not all such measures identified in the EIS would necessarily be implemented, any mitigation measures committed to in the ROD would be binding upon the Navy. Further, pursuant to 43 U.S.C. section 315q of the Taylor Grazing Act of 1934, as amended, the Navy would make payments to federal grazing permit holders for losses suffered by the permit holders as a result of the withdrawal or other use of former federal grazing lands for war or national defense purposes.

The EIS acknowledges these projected costs and/or analyzes the environmental impacts associated with them; however, the actual funding for these costs would be provided outside the EIS and the Navy's NEPA process, as part of any legislative authorization of the Proposed Action subsequent to issuance of a Navy ROD. For example, implementation of mitigations would be paid for either (1) through project-specific appropriations associated with any potential overall legislative implementation of the Proposed Action as part of the National Defense Authorization Act (NDAA) (which directs DoD action and policy and authorizes construction and mitigation, but does not make appropriations of funds) and the Military Construction, Veterans Affairs, and Related Agencies Appropriations Act (MCON) (which appropriates funding for military construction projects such as the Proposed Action, including funding for project-specific mitigations); or (2) through funds appropriated for general Navy operations through the Department of Defense Appropriations Act (DoDAA) (which appropriates funding for operations and maintenance of military installations, including range and environmental management).

The NDAA, MCON and DoDAA are annual legislative actions. The overall proposed land withdrawal is projected to be included as part of the NDAA for Fiscal Year (FY) 2021. Funding for the proposed acquisition of non-federal property (to include valid and existing compensable water rights) and for any

payments under 43 U.S.C. section 315q is projected for MCON FY 2021. Funding for range and environmental management is projected for DoDAA FY 2021 and subsequent years.

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2.0 Description of Proposed Action and Alternatives

Environmental Impact Statement
Fallon Range Training Complex Modernization
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2 Description of Proposed Action and Alternatives

2.1 Proposed Action

The Commander, United States (U.S.) Pacific Fleet, a command of the U.S. Department of the Navy (Navy), proposes to modernize the Fallon Range Training Complex (FRTC) by expanding land ranges and modifying associated airspace configurations. The Proposed Action would have the following elements:

- Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres for a term of 25 years, which is scheduled to expire in November 2021;
- withdrawal and reservation by Congress for military use of additional federal land for a term of 25 years;
- acquisition of private or state-owned (non-federal) land;
- expansion of associated Special Use Airspace (SUA) and reconfiguration of existing airspace; and
- modification of range infrastructure to support modernization.

The Navy is not proposing to change the level or type of aviation or ground training from what was analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement (EIS)* (U.S. Department of the Navy, 2015a). Rather, the Navy would redistribute training activities for more effective use of the training space.

The Navy is proposing to withdraw or acquire all property that falls within Weapons Danger Zones (WDZs) and Surface Danger Zones (SDZs) in the live fire ranges, and all property in Dixie Valley necessary to support non-live fire training. The specific properties and exact acreage of withdrawal areas and property to be acquired will depend on the alternative chosen. If Congress ultimately approves the Proposed Action, the Navy would strive to minimize the actual withdrawal/acquisition acreage with a goal to track the actual boundaries of any approved WDZ/SDZ and non-live fire training area while considering terrain features and individual parcel characteristics. This Final EIS contains more refined boundary locations and acreage figures than those presented in the Draft EIS.

2.2 Screening Factors

The Navy developed screening factors to evaluate potential alternatives to determine what would meet the purpose of and need for the Proposed Action. Screening factors are based on the training capability gaps identified in the *Ninety Days to Combat Required Training Capabilities Study* (U.S. Department of the Navy, 2015b) to provide the training capabilities needed by Navy and other Department of Defense personnel in order to meet evolving current and future threats. The Navy used the following primary screening factors to evaluate potential alternatives:

- Provide a realistic training environment that meets tactically acceptable parameters.
- Provide a training environment capable of supporting readiness training, including the use of high-explosive ordnance, in a manner that protects the safety of the public and of military personnel.
- Provide adequate training tempo to support year-round air-to-ground and air-to-air Carrier Air Wing training.

The Navy also considered terrain features (e.g., mountains), existing civilian infrastructure (e.g., highways), known environmental concerns, and the concerns of local and regional populations in developing potential alternatives. The following subsections describe the screening factors in detail.

2.2.1 Realistic Training Environment

A training complex must provide a realistic and dynamic training environment for weapons systems and platforms, and accommodate new combat Tactics, Techniques, and Procedures (TTP). Specifically, a land-based training complex and airspace that serves or provides training for Advanced Integrated Strike Warfare must meet the screening sub-factors listed below:

- Meet the air-to-ground tactically acceptable weapons release parameters.
  - Have sufficient airspace to protect civilian aviation from hazardous activities associated with air-to-ground weapons employment.
  - Present a realistic level of threat scenario complexity by providing multiple range targets and target complexes.
  - Accommodate a weapons release altitude up to 30,000 feet above mean sea level.
  - Allow a 360-degree (°) attack azimuth for the laser-guided weapons class of munition.
  - Allow a 180° attack azimuth for all other munitions classes.
  - Have a release range for all joint direct attack munitions up to 10 nautical miles.
- Meet air-to-air tactically acceptable parameters with adequate airspace availability.
  - Have sufficient airspace to conduct realistic aviation training.
  - Support large force exercise training with associated supersonic capabilities.
- Meet tactically acceptable parameters for Tactical Ground Mobility to fulfill the Naval Special Warfare mission.
  - Provide multiple training areas with multiple threats and targets to accommodate Immediate Action Drill training.
  - Possess a 360° field of fire at multiple firing positions for small arms.
  - Have a 180° field of fire for .50 caliber firearms.
  - Be able to integrate with fixed-wing and rotary-wing aircraft for Close Air Support training.
  - Host training in a variety of terrains (e.g., mountains, playas, valleys and areas with high topographic variability).
  - Meet free-maneuver area training requirements.
- Meet non-weapons requirements.
  - Provide a dedicated training area for non-live-fire training activities critical to warfighting tactics and skills development, such as Combat Search and Rescue, Convoy Escort training, and dynamic targeting events.
  - Accommodate installation of Electronic Warfare transmitters in mountainous terrain to replicate real-world threats.
  - Able to conduct Electronic Warfare training without interference from or to civilian electronic systems.
  - Able to support precision range tracking, systems scoring instrumentation systems, and robust communications infrastructure to relay information back to a base or airfield.

2.2.2 Safety

The Navy must conduct training activities in a way that ensures the safety of the public and military personnel. Specifically, a land-based training complex and associated airspace that serves or provides training for Advanced Integrated Strike Warfare must meet the screening sub-factors listed below:

- Ensure air-to-ground training areas encompass WDZs sufficient to contain high-explosive munitions and their constituents to ensure range safety by complying with ordnance safety requirements associated with weapons release parameters.
- Ensure ground-based fire-and-maneuver training areas fully contain SDZs sufficient to contain projectiles of various calibers to ensure range safety by complying with safety requirements associated with the use of crew-served and small arms weapons.
- Ensure Navy-controlled land is free of safety hazards for aircraft, including cables, wires, towers, as well as cultural lighting (from cities, streets, and infrastructure), incompatible with the use of Night Vision Devices.

2.2.3 Tempo

The training complex would support training for an entire Carrier Air Wing, which consists of upwards of 60 aircraft. Specifically, a land-based training complex and airspace that serves or provides training for Advanced Integrated Strike Warfare must meet the following screening factors:

- Support a year-round training tempo and provide airspace for an entire Carrier Air Wing, as required by the Optimized Fleet Response Plan (Chief of Naval Operations Instruction [OPNAVINST] 300.15). This tempo includes 8–12 major training events (up to four weeks per event) per year (Carrier Air Wings and Advanced Readiness Programs). This training is required before the Carrier Air Wing can deploy with its Carrier Strike Group and must be scheduled to align with the associated Carrier Strike Group deployment schedule.
- Accommodate maintenance and basic training events that are part of the Optimized Fleet Response Plan timeline, including weapons and tactics training, and unit-level strike and air warfare training.
    - Support 8–10 Weapons Tactics Courses per year (up to 16 weeks per course, with potential overlap) (e.g., TOPGUN).
    - Support continuous unit-level basic training for naval aviation.
- Support 8–12 events (up to two weeks per event) per year for Naval Special Warfare.
- Allow the Navy to execute up to 35 percent of missions at night using realistic tactics.

2.3 Alternatives Carried Forward for Analysis

The Navy issued the Notice of Intent for this EIS without defined alternatives. The purpose was to collect responses from the public and stakeholders regarding potential impacts, concerns, and suggestions for other alternatives. The public, including interested individuals, government agencies and officials, Indian Tribes, and nongovernmental organizations, submitted comments during the public scoping period. Following the public scoping period, the Navy reviewed submitted comments and conducted additional meetings with various stakeholders to discuss potential alternatives to Alternative 1.

The Navy then used the screening and sub-factors as described in Section 2.2 (Screening Factors) to evaluate whether potential alternatives met the purpose of and need for the Proposed Action. In addition to the No Action Alternative, the Navy identified three action alternatives for detailed analysis in this EIS. Because the No Action Alternative does not include the renewal of the existing withdrawn lands under Public Law 106-65 nor does it request any withdrawal or propose any acquisition of new land, it does not represent the “status-quo,” or the current status, of military training activities at the FRTC. Therefore, an "environmental baseline" for this EIS was needed to compare the potential impacts of all alternatives to existing conditions and is based on aviation and ground training activities as established under Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training*

Complex, Nevada Final Environmental Impact Statement (U.S. Department of the Navy, 2015a). The Navy compared the action alternatives and the No Action Alternative to the environmental baseline as presented in Section 2.4 (Environmental Baseline [Current Training Activities]).

Under all alternatives within this EIS, the Navy would conduct the same types of aviation and ground training at the same tempos as analyzed by the U.S. Pacific Fleet in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015a). The Navy would redistribute training activities for more effective use of the training space.

The alternatives considered include management practices intended to reduce environmental effects of training. Chapter 5 (Management Practices, Monitoring, and Mitigation) further discusses management practices.

2.3.1 No Action Alternative

The Council on Environmental Quality implementing regulations require inclusion of a No Action Alternative and analysis of reasonable alternatives to provide a clear basis for choice among options by the decision maker and the public (40 Code of Federal Regulations [CFR] section 1502.14). Council on Environmental Quality guidance identifies two approaches in developing the No Action Alternative (46 Federal Register 18026). One approach for activities that have been ongoing for long periods of time is for the No Action Alternative to be thought of in terms of continuing the present course of action, or current management direction or intensity, such as the continuation of Navy training at Naval Air Station (NAS) Fallon and the FRTC at current levels. Under this approach, the analysis compares the effects of continuing current activity levels (i.e., the "status quo") with the effects of the Proposed Action. The second approach involves a scenario where no authorizations or permits are issued, the Navy's training activities do not take place, and the resulting environmental effects from taking no action are compared with the effects of the Proposed Action.

This Final EIS follows the second approach, as the No Action Alternative consists of not renewing the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021, and not withdrawing or acquiring any new land. Under the No Action Alternative, current and proposed training at FRTC would likely need to be accommodated elsewhere. This would result in the loss of the integrated nature of training, as well as the fragmentation and total loss of essential training functions. Consequently, the No Action Alternative of not renewing existing withdrawn lands or requesting additional withdrawals or proposals is inherently unreasonable in that it does not meet the Navy's purpose and need based on the requirement to provide a realistic training environment, as discussed in Section 2.2.1 (Realistic Training Environment). However, the analysis associated with the No Action Alternative is carried forward in order to compare the Environmental Baseline (the current affected environment) with the conditions that would occur if the Proposed Action did not occur.

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65[1]) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate

[1] The Public Law 106-65 language indicates 204,953 acres. However, the legal description per the published Federal Register is 201,933 acres. For cadastral purposes, the legal description governs. Further, since publication, numerous land surveys and GIS advances have been made. This is apparent in the acreage listed in the BLM segregation package, which lists the total withdrawn acreage as 202,864 acres.

the Navy's authority to use nearly all of the FRTC's bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC. The Navy would remove training infrastructure and instrumentation from these lands, including those that are part of the Electronic Warfare Complex.

The Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to the Bureau of Land Management (BLM) for reincorporation into the public domain. The Navy would also continue to be responsible for the 35,012 acres of public lands permanently withdrawn for military use under Public Law Order 898 (1953) and the 30,383 acres acquired by the Navy through purchase in 1986 (see Figure 1-2). The Public Law Order 898 lands are divided among the B-16, B-17, and B-19 ranges, and the 1986 acquisition lands are at the existing B-20 range (19,430 acres in checkerboard pattern) and the very northern portion of the Dixie Valley Training Area (DVTA) (10,953 acres). The Navy could still perform some training activities within the FRTC that are independent of the land withdrawn under Public Law 106-65, but these remaining land holdings would provide a land area less than 30 percent of the size of the existing FRTC, dispersed among many geographic areas. Therefore, training would be significantly limited.

Further, some non-hazardous training activities could continue to be accommodated within the FRTC after expiration of the withdrawal, such as non-firing air combat maneuvers, Combat Search and Rescue, and Close Air Support. However, it must be emphasized that the 35,012 acres of permanently withdrawn land and the 30,383 acres of acquired land, which are spread out over multiple geographic areas, would be insufficient to conduct existing integrated strike warfare training for an entire Carrier Air Wing or Special Forces ground training, and would not meet the future aviation warfare training needs identified in *Ninety Days to Combat*.

If the 1999 Public Law 106-65 land withdrawal were not renewed, air-to-surface training could no longer be conducted due to the lack of available lands for the bombing ranges. The restricted airspace associated with these bombing ranges would no longer be required. Air-to-air training could continue in existing Military Operating Areas (MOAs), although it would not include the advanced integrated phase of training, which includes the Large Force Exercise training that accommodates both air-to-air and air-to-surface training in a single mass event. Training exercises bring together squadrons, teach them to work together under real world scenarios, and are required before the Carrier Air Wing can deploy with its Carrier Strike Group. Large Force Exercises are the critical last step in ensuring all components of an air wing are fully prepared for deployment. As the FRTC is the sole location available to the Navy that can support, house, and train an entire Carrier Air Wing for advanced integrated training, the non-renewal of Public Law 106-65 would severely impact pre-deployment training. The air-to-air mission could continue to use the Military Training Areas for basic level air-to-air training only. Following any relinquishment of Public Law 106-65 lands, the Navy would evaluate the future use of special use airspace and coordinate with the Federal Aviation Administration (FAA) on the disestablishment of special use airspace, as required. The Navy anticipates that any relinquished airspace would likely become available pursuant to applicable FAA policy, procedure, guidance, and orders.

Given the dramatic reduction in training capabilities at the FRTC in the absence of continued use of the withdrawn lands provided by Public Law 106-65, the Navy also anticipates needing to re-evaluate the mission of NAS Fallon, as well as the continued use of currently available assets of the training complex, including the remaining permanently withdrawn and acquired lands.

This evaluation of the mission would also consider how and where—and whether and to what extent—existing and future naval aviation and ground training could continue to be conducted if the FRTC's usage were to cease under the No Action Alternative. As explained in Chapter 1 (Purpose of and Need for the Proposed Action) of this EIS, the aviation and ground training conducted within the FRTC is essential to the national security interests of the United States, and the Navy would thus need to attempt to relocate and continue these training activities at some other location. In Section 2.5 (Alternatives Considered but Not Carried Forward for Detailed Analysis) of this EIS, the Navy analyzes whether it would be possible to move the FRTC's aviation and ground training activities in whole or in part to other Department of Defense installations and ranges within the continental United States and abroad, such as Naval Air Weapons Station (NAWS) China Lake, Nevada Test and Training Range, and Utah Test and Training Range. While these installations and ranges could support some training, their current missions would effectively deny the Navy the necessary capacity to support the required tempo and level of training unless (1) the activities currently conducted at these locations were displaced or (2) these ranges significantly expanded. The Navy has determined that these two options are not reasonable. While developing training systems is possible at other locations, without terminating the existing testing and training activities that occur there, other locations as currently configured would not be able to support the tempo and level of Navy training, or the scheduling priorities required by the Optimized Fleet Response Plan. Converting other ranges to accommodate Navy training would not be technically or economically feasible, and even if the Navy were hypothetically able to undertake such a conversion, doing so would not eliminate the scheduling conflicts. Please see Section 2.5 (Alternatives Considered but Not Carried Forward for Detailed Analysis) of this EIS for a more detailed discussion of alternatives considered but not carried forward for analysis.

In summary, under the No Action Alternative, current and proposed training at FRTC would need to be accommodated elsewhere. This would result in the potential loss of the integrated nature of training, as well as the fragmentation and total loss of essential training functions. At this time, identifying where and how those training needs could be accommodated—and what the ultimate consequences of such a scenario would be—would involve a complex planning, budgeting, and acquisition program that is speculative and beyond the scope of this EIS. Therefore, the analysis of the No Action Alternative addresses the relinquishment of the withdrawn lands to BLM as well as the associated potential environmental impacts of the land management and land use changes.

2.3.2 Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, bombing ranges and training areas would be expanded (Figure 2-1). The Navy does not propose to expand B-19 and the Shoal Site. Expanding bombing ranges B-16, B-17, and B-20 would accommodate the larger safety zones needed to accommodate standoff weapons training. Expanding the DVTA would enhance the safety of aviators during low-altitude and nighttime non-weapons training events, as well as offer a more realistic non-weapons environment for Electronic Warfare, convoy training, and search and rescue training.

What is a Standoff Weapon?

Standoff weapons are munitions that launch at a distance from a target to allow attacking forces to evade defensive fire from the target area. When used in practice, weapons release occurs from the aircraft at certain heights, speeds, and distances for safety, to remain on target, and to meet training objectives.

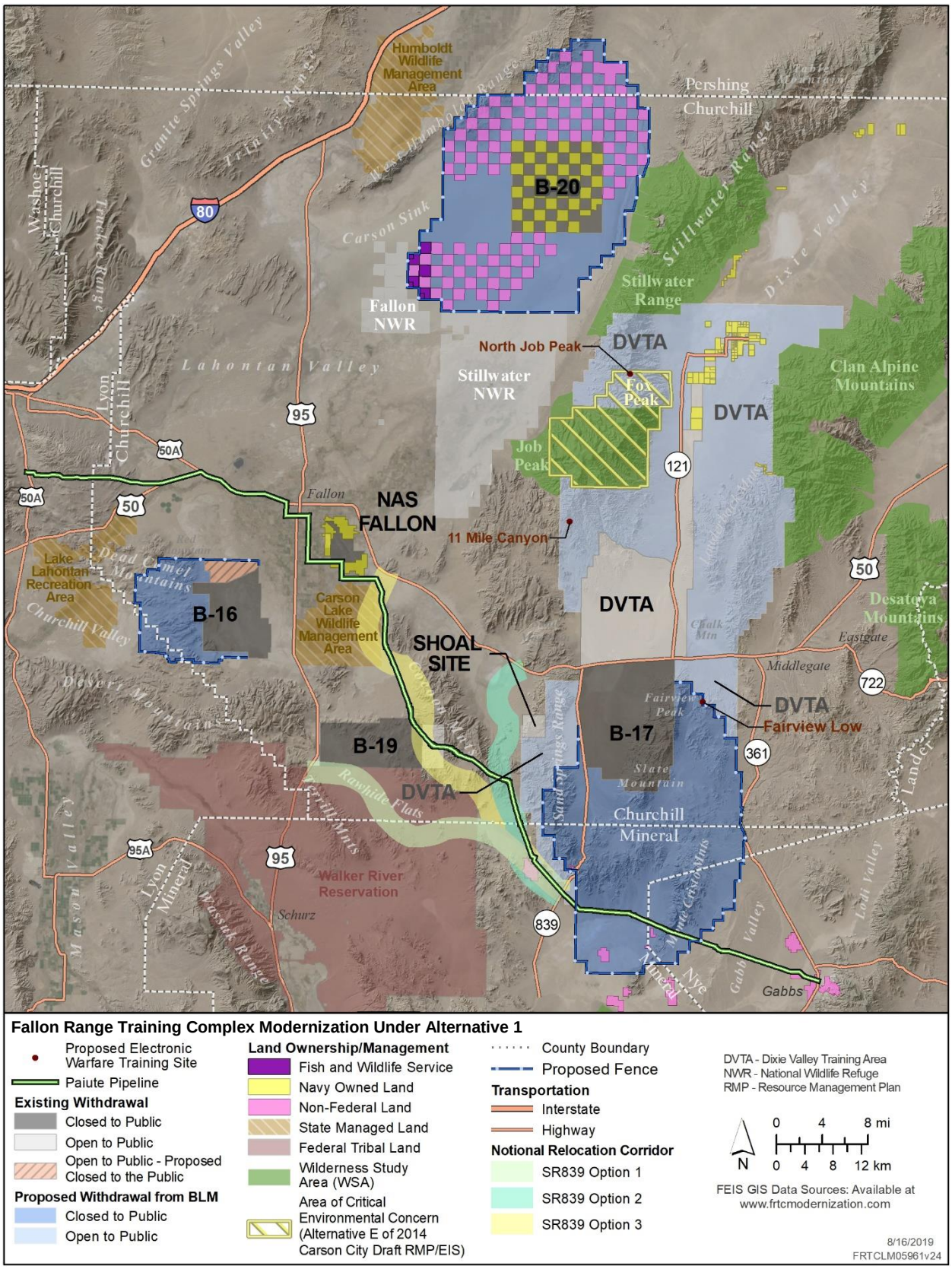


Figure 2-1: Fallon Range Training Complex Modernization Under Alternative 1

Specifically, under Alternative 1, the Navy would take the following actions:

- Request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021 (Table 2-1).
- Request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land (Table 2-1).
- Acquire approximately 65,159 acres of private or state-owned (non-federal) land (Table 2-1).
- Construct range infrastructure to support modernization, including new target areas.
- Expand and reconfigure existing SUA to accommodate the expanded bombing ranges (Figure 2-7).

Table 2-1: Alternative 1 Requested Withdrawal and Proposed for Acquisition by Range

Area	Existing Acreage			Requested Additional Withdrawal and Proposed Acquisition		Grand Total
	Withdrawn[1] (acres)	Non-Federally Owned (acres)	Navy Fee Owned (acres)	Withdrawn[1] (acres)	Non-Federally Owned (acres)	
Bombing Ranges						
B-16	27,359	0	0	32,201	0	59,560
B-17	53,546[2]	1,215	25	176,977	1,036	232,799
B-19	29,012	0	0	0	0	29,012
B-20	21,576	0	19,429	118,564	61,765	221,334
Total	131,493	1,215	19,454	327,742	62,801	542,705
Training Areas						
DVTA	68,809	0	8,750	290,985	2,358*	370,903
Shoal	2,561	0	0	0	0	2,561
Total	71,370	0	8,750	290,985	2,358	373,464
Totals[+]	**202,864**	**1,215**	**28,205**	**618,727**	**65,159**	**916,168**

[1]Withdrawn lands are lands withheld from the operation of public land laws for the use or benefit of an agency by reservation, withdrawal, or other restrictions for a special government purpose. The existing withdrawn acreage represents the area currently withdrawn that Navy is requesting for renewal. This number does not match the acreage values as described in PL 106-65 as a result of numerous map revisions and land surveys by the BLM since 1999.

[2]The Navy is currently performing a land parcel survey to allow the potential relinquishment of 12 acres of land on the existing B-17 adjacent to State Route 839 to allow continued use of the area for local livestock and wildlife watering efforts.

*Six of these acres are State lands. [+]Due to rounding of acreage values at the category level, some total columns may not match calculated totals.

Notes: B = Bravo, DVTA = Dixie Valley Training Area, Navy = United States Department of the Navy

Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military*

Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement (U.S. Department of the Navy, 2015a). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

2.3.3 Follow-On National Environmental Policy Act Actions

The WDZ proposed at B-17 would extend over portions of State Route 839, as well as portions of a natural gas pipeline (referred to as the "Paiute Pipeline"). Navy policy does not allow public land use of any kind to occur within active WDZs (OPNAVINST 3550.1A) for safety reasons. Implementation of Alternative 1 would require two follow-on actions:

- **Reroute State Route 839.** While any proposed rerouting is still conceptual in nature and would be evaluated in follow-on NEPA documentation, preliminary discussions with the Nevada Department of Transportation (NDOT) indicate that NDOT would need to submit an application to BLM, or other land managers, for the rights of way (ROWs) for any proposed new road section. The BLM or other land manager would conduct follow-on, site-specific National Environmental Policy Act (NEPA) analysis of any proposed routes for such ROWs, prior to making any decision with respect to any final route. The Navy would support, fund, and if necessary, participate in any such NEPA analysis. The NDOT would ensure that construction of any new route is complete before any closure of any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public.
- **Relocate a portion of the Paiute Pipeline.** The Navy would purchase and pay for relocation of that portion of the pipeline that would need to be relocated. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

Currently, all activities listed in Table 2-2 are allowed on public lands requested for withdrawal and proposed for acquisition. Under Alternative 1, the Navy would restrict public activity at each range on withdrawn or acquired lands. Public access to certain ranges (e.g., B-16, B-17, B-19, and B-20) within the FRTC would be restricted for security and to safeguard against potential hazards associated with military activities. Table 2-2 shows public activities the Navy would allow under Alternative 1 within FRTC land areas. Table 2-3 shows the percentage of each county requested for withdrawal or proposed for acquisition by land category (open or closed to the public) by each County.

Table 2-2: Alternative 1 Allowable Activities Within Range Boundaries

Area	Activity											
	Grazing	Hunting	Mining			Solar /Wind	Utilities /ROWs	OHV	Camping /Hiking	Site Visits (Ceremonial, Cultural, Research)	Mgmt* Access	Events (Races)
			Locatable+	Leasable	Salable							
B-16	1	1	1	1	1	1	1	1	1	2	2	1
B-17	1	1	1	1	1	1	1	1	1	2	2	1
B-19	1	1	1	1	1	1	1	1	1	2	2	1
B-20	1	1	1	1	1	1	1	1	1	2	2	1
DVTA	3	3	1	1	1	1	2	3	3	3	3	3

Notes: 1. Grey = Activity not allowed because of concern for public safety. The public has no access to these areas.
2. Yellow = Activity allowable. Limited public access. 3. Green = Open to public access. No change to current restrictions.
+ Locatable minerals are those which, when found in valuable deposits, can be acquired under the General Mining Law of 1872, as amended. Examples of locatable minerals include, but are not limited to, those minerals containing gold, silver, tungsten, fluorite, copper, lead, and zinc. Examples of leasable minerals include, but are not limited to, oil, gas, coal, oil shale, and geothermal resources. (17 Stat. 91; 30 U.S.C. 22 et seq.). The Geothermal Steam Act (30 U.S.C. 1001 et seq.) controls geothermal resources Salable minerals (mineral materials, 43 Code of Federal Regulations 3600) are common varieties of sand, stone, gravel, pumice, pumicite, cinders, and clay.
*Mgmt = Management (i.e., BLM, Bureau of Reclamation, NDOW, USFWS, local government access). The Navy would work with land managers who need access for management activities to ensure that their access is coordinated and compatible with military training activities on all ranges and in the DVTA.

Table 2-3: Lands Requested for Withdrawal and Proposed for Acquisition by Percentage of County Under Alternative 1

Area	Land Category	County				
		Churchill	Nye	Pershing	Mineral	Lyon
B-16	Open	0	0	0	0	0
	Closed	0.88%	0	0	0	0.31%
B-17	Open	0	0	0	0	0
	Closed	2.15%	0.26%	0	3.22%	0
B-20	Open	0.01%	0	0	0	0
	Closed	4.95%	0	0.56%	0	0
DVTA	Open	8.95%	0	0	0.25%	0
	Closed	0	0	0	0	0
Total Percentage of County	**Open**	**8.96%**	**0.00%**	**0.00%**	**0.25%**	**0.00%**
	Closed	**7.98%**	**0.26%**	**0.56%**	**3.22%**	**0.31%**

Acreage values are derived from the GIS layers of the proposed withdrawal and expansion and may not equal values developed from the real estate cadastre. Also, acreage values do not include Navy-Fee Owned lands in calculation.

2.3.4 Impacts Minimization Methods Incorporated into the Proposed Action

The Navy recognizes the potential socioeconomic impacts on the community, and is proposing to incorporate processes within the Proposed Action that could reduce potential impacts on private landowners, mining claim holders, water-right owners, and public land grazing permit holders, as described below. To minimize some of these impacts, affected private landowners would receive just compensation for loss of any privately-owned land acquired by the United States and any compensable rights associated with such land. Mining claim holders and owners of water rights would be compensated as described below. Pursuant to the Taylor Grazing Act of 1934, as amended (43 United States Code [U.S.C.] section 315q), the Navy would make payments to federal grazing permit holders for losses as a result of the withdrawal or other use of former federal grazing lands for war or national defense purposes.

2.3.4.1 Grazing

As presented in Table 2-2, grazing activities would be prohibited on the existing and expanded bombing ranges (B-16, B-17, and B-20). The Taylor Grazing Act of 1934 (43 U.S.C. sections 315q) provides the Navy with the authority to make payments for certain grazing-related losses. The Navy would work with grazing permittees on a case-by-case basis to try to minimize losses resulting from the cancellation of a grazing permit. This process allows for the valuation of the cost of providing replacement forage or losses resulting from an inability to provide replacement forage. The process also determines the value of improvements made by permit holders (e.g., value of wells, corrals, fencing, and any other improvements considered to be real property). The Navy would use this process to determine payments to individuals who may experience losses resulting from the cancellation of grazing permits or other disruption of their livestock grazing operations as a result of implementation of any of the action alternatives. This process includes

- **Payment for Losses**. The Navy would first consider costs associated with obtaining replacement forage and otherwise restoring/maintaining a permittee's existing operational capacity. Working with BLM and the permittee, the Navy would determine the costs necessary to replace the area/capacity removed from a grazing permit. These costs could include, but would not be limited to, preparing new allotment applications; complying with BLM environmental requirements and water rights studies; procuring private market replacement forage; shipping or transporting forage, cattle, and/or ranch personnel and their horses and equipment; one-time relocation expenses associated with any full or partial transferring of operations to any new location(s); any reasonably anticipated lost profits arising as a result of operational downtime while restoring and/or relocating operations; and any other costs identified, which would be properly payable under 43 U.S.C. section 315q.
  Should a permit holder decide not to seek replacement forage in conjunction with restoring operational capacity, or when restoring such capacity is not practicable, the Navy would make a good faith estimate of the financial impact the loss of that individual's permit would be expected to have on his or her ranching operation. The Navy would ask each permit holder to provide recent business operating expenses associated with the permit, their total operating expenses, an estimate of that portion of income believed to be directly related to utilization of the permit, and total income and taxes. This information would be used to determine a payment amount to compensate for losses resulting from permit cancellation, including reasonably anticipated lost profits that would otherwise have accrued during the duration of the permit.

If a permit holder does not wish to share their financial information, or if the information shared is incomplete, the Navy would make an estimate of the value of the losses based on existing information from other sources.

It is possible that a payment amount would be based both on replacement forage along with other operational restoration-related costs, and on the financial impact the loss of a permit would be expected to have on a ranching operation (i.e., part of the payment would be based on obtaining replacement forage to the extent practicable and the rest based on payment for losses to the extent obtaining replacement forage is not practicable). In those instances, the costs to restore operational capacity would first be determined, and the remaining payment amount would then be determined in accordance with the paragraph above discussing permits holders who may elect not to seek replacement forage capacity.

- **Payment for Allotment Improvements**. Improvements such as corrals, fencing, wells, and other appurtenances that cannot be relocated are considered real property, similar to a building. The Navy would appraise the value of all real property owned by a permit holder and would offer fair market value for the purchase of any such real property. Equipment, such as relocatable water tanks, is not considered real property, and the permit holder would be afforded an opportunity to remove their equipment prior to cancellation of a permit.
- **Timing of Permit Cancellation**. The Navy anticipates issuing their Record of Decision with respect to FRTC modernization in January 2020. However, any Congressional withdrawal of the area currently supporting grazing permits would not be expected until September 30, 2020, or later. Similarly, any Congressional appropriation for implementing the FRTC Modernization action, which would include funds for making payments to grazing permit holders, would not be expected until September 30, 2020, or later. Accordingly, the earliest the Navy would request that BLM modify any permit would be October 1, 2020.

  If the Congressional withdrawal is enacted, and if Congress appropriates funds to implement the FRTC Modernization effort, the Navy would ask BLM to contact each affected permit holder. BLM would coordinate with the Navy on any action to initiate modification of a permit. Under 43 CFR Part 4100 Subpart 4110.4-2 (Decrease in Land Acreages), BLM would be required to provide two years advance notice of any permit modification. Permits would therefore not be modified until October 2022. Once a given notification is made, the Navy, with assistance from BLM, would begin discussions with affected permit holders to determine payment amounts in accordance with the processes described herein.

2.3.4.2 Mining

Similar to grazing activities, mining activities would not be allowed under Alternative 1. The Navy is proposing to make payments to holders of mining claims under all three action alternatives.

- **Valid Existing Claims**. For there to be a valid existing mining right, the claim holder must demonstrate that the claim contains a discovery of a valuable mineral deposit. Having a valid existing claim would exclude any such claim from any moratorium imposed by the requested withdrawal legislation for development of the claim. Under Alternative 1, 2, or 3, the Navy would acquire any valid existing claims within the proposed withdrawal areas at fair market value.

- **Existing Patented Mining Claims**. For existing patented mining claims, the federal government has passed the title of these lands to the claimant, making these lands private lands. The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary. The existence of a patented mining claim does not in itself indicate whether there has been any discovery of a valuable mineral deposit associated with lands in question.
- **Unpatented Mining Claims**. Holders of unpatented mining claims on public lands may conduct a validity exam, which is a formal process that determines whether the claim holder has a valid existing right. The Secretary of the Interior determines the validity of a claim based on this validity examination. However, holders of unpatented mining claims are not required to conduct a validity exam. In instances where a claim holder has not conducted a validity exam, any value associated with the claim is assumed to be nominal. Accordingly, the Navy would offer claim holders without a validity exam a nominal amount to extinguish the claim.

2.3.4.3 Bravo-16

2.3.4.3.1 Land Withdrawal and Acquisition

Under Alternative 1, the B-16 range would expand to the west by approximately 32,201 acres of public federal BLM and Bureau of Reclamation land (Table 2-1, Figure 2-2), increasing the range's total area to approximately 59,560 acres. The combined existing and expanded B-16 area proposed under Alternative 1 would support tactically acceptable training requirements. The current size of the B-16 range does not accommodate either concurrent training or realistic Tactical Ground Mobility training. Expansion would allow concurrent training operations with Naval Special Warfare tactical ground mobility training activities in the proposed western expansion area and air operations (helicopter and fixed wing) in the eastern portion of the existing B-16 range using existing targets.

2.3.4.3.2 Public Accessibility

Currently, all activities listed in Table 2-2 are allowed on non-private lands requested for withdrawal and proposed for acquisition. Under Alternative 1, the B-16 range would be closed to public use (grazing, hunting, mining, solar/wind, utilities/ROWs, off-highway vehicle [OHV] use, camping/hiking, and special race events would not be allowed), except for Navy-authorized activities such as ceremonial or cultural site visits, research/academic pursuits, or regulatory or management activities (e.g., BLM or Bureau of Reclamation).

The Navy would close Sand Canyon Road, the main east-west road through the requested withdrawal, to the public as well as Hooten Well Road and Red Mountain Road. Additionally, Simpson Road and a small portion of land south of Simpson Road would also be closed to public use. The road identified as Simpson Road on Figure 2-2 does not follow the historic alignment of the road. To be consistent with BLM documents, the Navy calls the road Simpson Road.

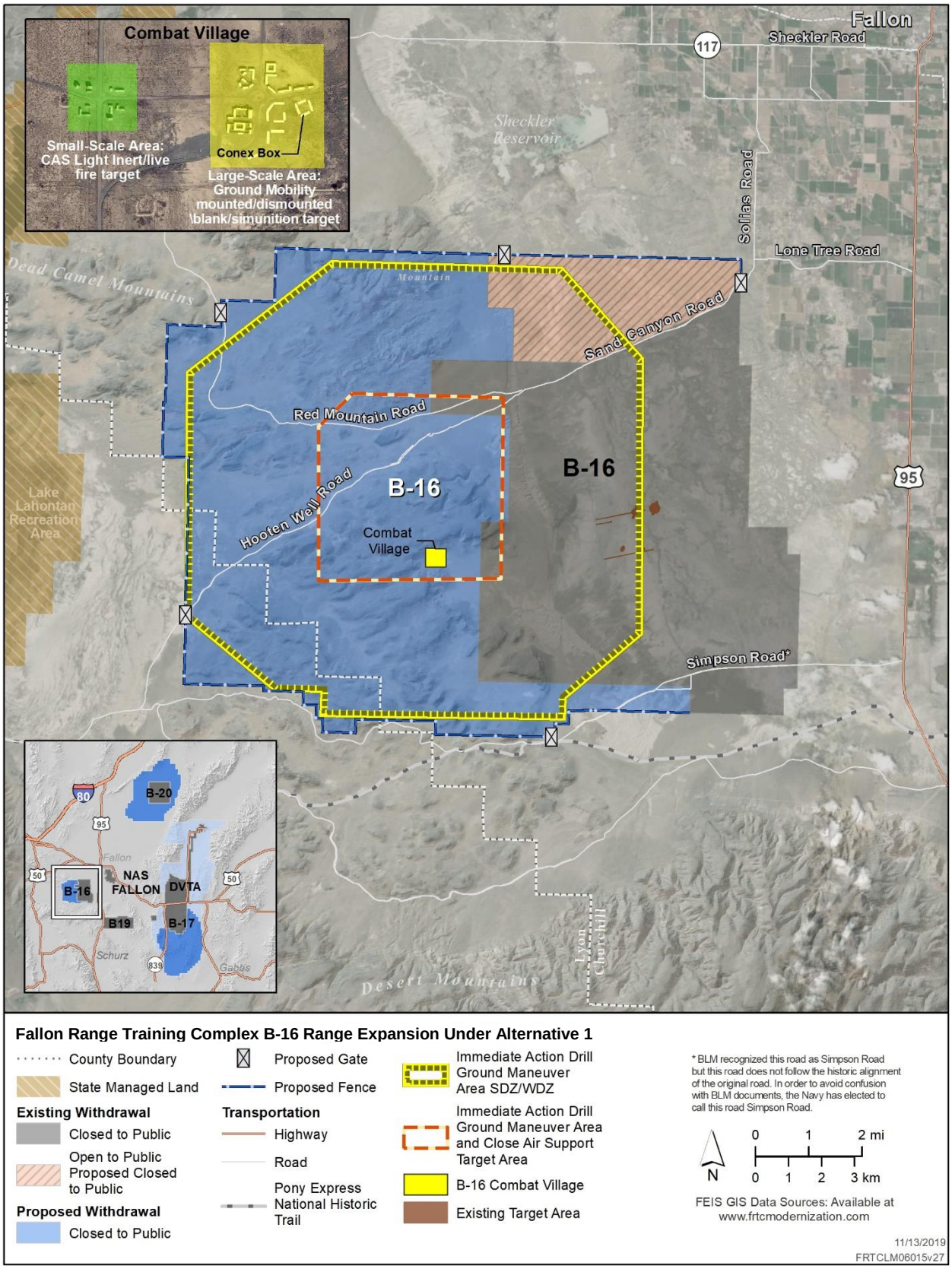


Figure 2-2: Fallon Range Training Complex B-16 Range Expansion Under Alternative 1

2.3.4.3.3 Construction

Under Alternative 1, the following construction activities would occur at B-16:

- The Navy would construct a combat village to make the ongoing Tactical Ground Mobility training at B-16 (Figure 2-2) more realistic. The combat village would have two separate areas, 1,600 feet apart. Direct action operations would use the larger areas (25–30 conex boxes) to the west, while close air support would occur in the smaller area (10–15 conex boxes). Conex (i.e., "container express") boxes are steel shipping containers used to transport materials and products by rail, truck, or ship. The Navy would level the ground up to 20 feet around each conex box. The combat village would not require paved roads or utilities. The total amount of land needed would be approximately 150 acres.
- The perimeter of the proposed expansion lands would be fenced using 31 miles of wildlife friendly configured four-wire fencing (with additional coordination with Nevada Department of Wildlife [NDOW]) with five 20-foot double swinging gates (Figure 2-2) for controlled access into the range. Spacing of wires would be configured appropriately for the wildlife in the area. The Navy would place signage at regular intervals along the perimeter fencing. The fencing would join with existing fences at B-16 (Figure 2-2). Additionally, the Navy analyzed proposed fencing in the *Environmental Assessment for the Proposed Addition of Training Activities and Range Enhancements at Naval Air Station Fallon on Training Range Bravo-16, Churchill County, Nevada, September 2014* (U.S. Department of the Navy, 2014),. This fencing would now be installed, joining with existing fencing and other new proposed fencing in this EIS around the proposed expansion lands. The construction process would follow recommendations in BLM's Handbook 1741-1, such as avoiding bulldozer clearing or other major soil-disturbing methods. One crew could install perimeter fencing in approximately six months. Following installation, the Navy would incrementally remove the interior fencing that remains within the expanded range.

2.3.4.4 Bravo-17

2.3.4.4.1 Land Withdrawal and Acquisition

Under Alternative 1, approximately 178,013 acres (176,977 acres of BLM-administered lands and 1,036 acres of non-federal lands) would be withdrawn or acquired to expand the B-17 range to the south (Figure 2-3), increasing its total area to approximately 232,800 acres. Convoy routes, military vehicle training routes, or ground target areas would occupy approximately 3,000 acres (Figure 2-3).

2.3.4.4.2 Public Accessibility

Currently, all uses listed in Table 2-2 are allowed on the non-private lands requested for withdrawal and proposed for acquisition. Under Alternative 1, the entire B-17 range would be closed to public use (grazing, hunting, mining, solar/wind, utilities/ROWs, OHV use, camping/hiking, and special race events), except for Navy-authorized activities such as research/academic pursuits, ceremonial or cultural site visits, or regulatory or management activities (e.g., BLM, USFWS, local government, or NDOW activities) (Table 2-2). The WDZ proposed for training activities at B-17 would extend over State Route 839 (see Section 2.3.4.4.4, Road and Infrastructure Improvements to Support Alternative 1 1). For public safety purposes, the Navy is proposing to reroute the portion of State Route 839 that would overlap with the proposed expansion area, subject to follow-on NEPA analysis of environmental impacts, as discussed in Section 2.3.2 (Alternative 1 – Modernization of the Fallon Range Training Complex).

2.3.4.4.3 Construction

Under Alternative 1, the following construction activities would occur at B-17:

- The Navy would construct one target maintenance building and one vehicle maintenance building (approximately 60 feet by 100 feet pre-engineered metal buildings) on existing disturbed B-17 lands, near the existing entry gate on State Route 839 (Figure 2-3). The Navy proposes to connect to existing aboveground powerlines to supply power to the buildings. The Navy would install heat and evaporative cooling systems, install a septic system, and develop a water well to supply potable water. The Nevada Department of Environmental Protection would review and approve the wastewater collection and disposal system design if the overall system or any eventual post-treatment discharge would be into Waters of the U.S. The Navy would request and obtain any necessary water rights from the Nevada Division of Water Resources, or purchase existing and valid water rights, before implementing any alternative discussed in or based on this EIS. The Navy would also install a tank and fire pump for fire-water storage if it were to decide that fire suppression is necessary during either construction or future operation. The Navy would use existing roads and not construct new access roads to the maintenance buildings.
- The Navy would install two communication towers within the proposed expansion area west of State Route 839, at locations compatible with military training. The communications towers would likely be solar powered, not require fiber-optic cabling, and be accessible by existing dirt roads from State Route 839.
- The Navy would construct new convoy routes, military vehicle training routes, and ground target areas on approximately 3,000 acres of B-17 (Figure 2-3). The Navy would install new targets and continue to use existing targets in the existing B-17.
- The Navy would fence the perimeter of the proposed expansion lands using approximately 75 miles of wildlife friendly configured four-wire fencing (final length would depend on topography and final routing) with eight 20-foot double swinging gates for access (Figure 2-3) and signage placed at regular intervals. Spacing of wires would be configured appropriately for the wildlife in the area. The configuration of fencing would be evaluated to accommodate the local area wildlife (bighorn-sheep-friendly versus pronghorn-friendly fencing configurations). Installation of fencing would follow recommendations described in BLM's Handbook 1741-1 and Nevada Revised Statute (NRS) 569.431 through NRS 569.471, such as avoiding bulldozer clearing or other major soil-disturbing methods. For analysis purposes, it is expected that two crews would take approximately six months to install perimeter fencing. After installation is complete, the Navy would incrementally remove the interior fencing within the expanded B-17 range.

2.3.4.4.4 Road and Infrastructure Improvements to Support Alternative 1

Relocate State Route 839

Under Alternative 1, the WDZ proposed for training activities at B-17 would extend over approximately 24 miles of State Route 839. As a result, the Navy is proposing, for public safety purposes, to reroute the portion of State Route 839 that would overlap with the proposed expansion area. Such proposed rerouting would be subject to follow-on NEPA analysis, as discussed above at Section 2.3.2 (Alternative 1 – Modernization of the Fallon Range Training Complex. The Navy proposes the concept of a new road section outside of the requested withdrawal area in one of three notional relocation corridors (Figure 2-3). All three corridors cross public lands managed by BLM and could potentially improve vehicle access

to these areas. The Navy would seek funding from Congress to pay for relocation of the road. Funds received would be used by the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, to plan, design, and construct the replacement road segment. NEPA documentation would be completed by the Federal Highway Administration prior to any road construction. To facilitate constructing this supporting road and closing State Route 839, NDOT would need to submit an application to BLM, or other land managers, for the ROWs for any proposed new road section. The Navy would support, fund, and participate in any such NEPA analysis.

NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public.

Potential routes and project specifics would not be identified and analyzed until after the Record of Decision for this EIS is signed. However, in general, any replacement road section would have similar specifications to State Route 839. The Navy has preliminarily identified the following three options to relocate the road:

- Option 1 would reroute State Route 839 approximately 27.5 miles along existing road/trails from U.S. Route 95 (south of the city of Fallon) to State Route 839, just south of the Rawhide mine (Figure 2-1). Rerouting State Route 839 would change traffic flow from a north/south direction to an east/west direction along the 27.5-mile stretch. This route would traverse land managed by BLM and by the Walker River Paiute Tribe. Coordination and formal consultation with the Indian Tribe and the Bureau of Indian Affairs would be required before constructing the road.
- Option 2 would reroute the existing State Route 839 at the U.S. Route 50 intersection to approximately 23.5 miles of existing roads west of the B-17 Range (Figure 2-1). Unlike Option 1, this route would maintain a primarily north/south traffic pattern for State Route 839. This new route would be approximately 23.5 miles long and traverse land managed by BLM, which is available for multiple uses.
- Option 3 would reroute the existing State Route 839 at the U.S. Route 50 intersection to approximately 36 miles of existing roads along the existing Paiute Pipeline route (Figure 2-3). This new route would traverse public land managed by BLM, Navy (e.g., B-19), and Bureau of Reclamation.

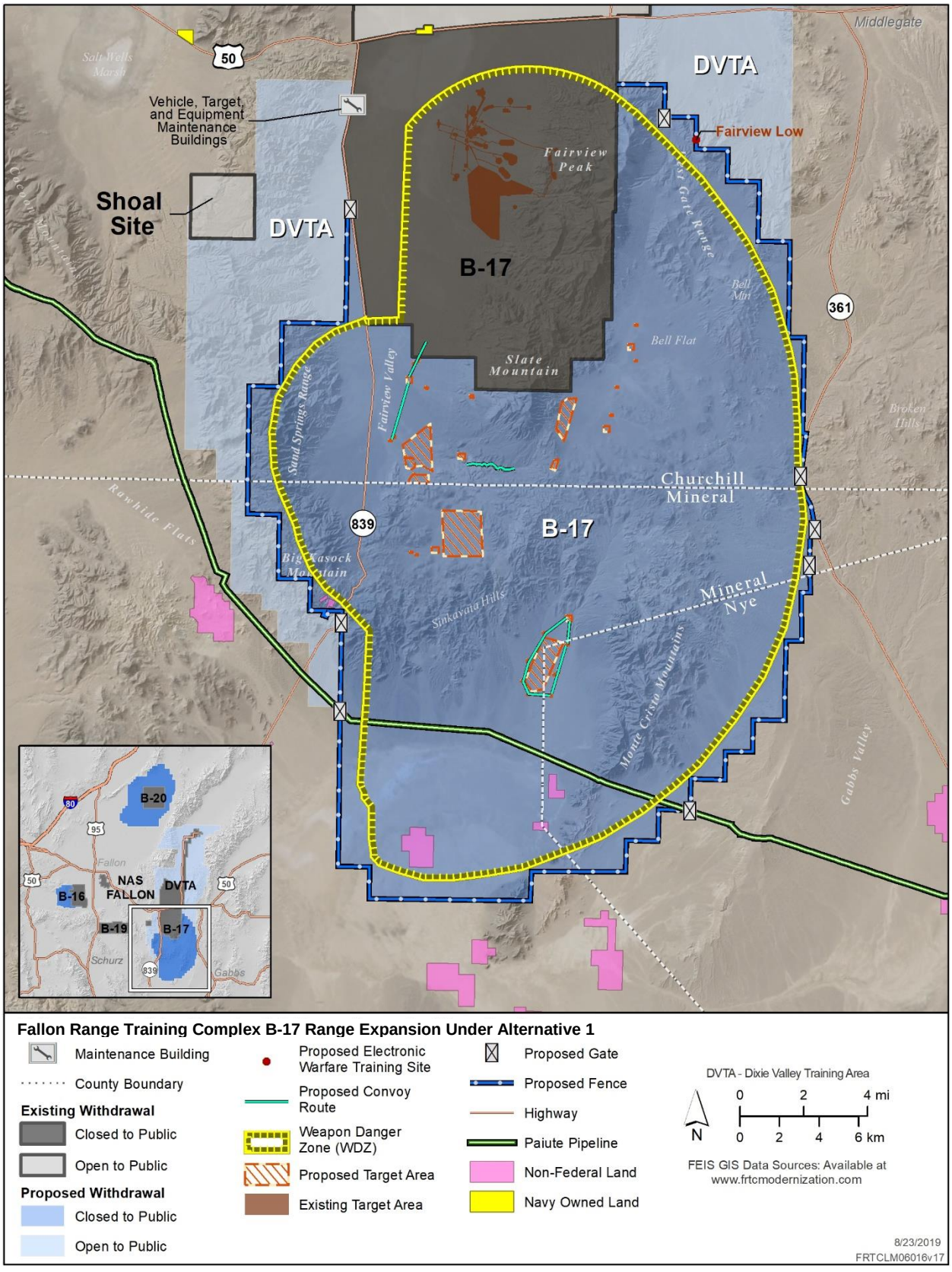


Figure 2-3: Fallon Range Training Complex B-17 Expansion Under Alternative 1

Relocate Paiute Pipeline

Under Alternative 1, the Navy would purchase the approximately 12 miles of the existing Paiute Pipeline south of the proposed expansion area of B-17. The Paiute Pipeline relocation segment would include the same specifications as the existing pipeline. The Navy would purchase and fund relocation of that portion of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur. Using funds provided by the Navy, the pipeline owner would be responsible for planning, designing, permitting, and constructing any realignment of the pipeline. The Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

2.3.4.5 Bravo-20

2.3.4.5.1 Land Withdrawal and Acquisition

B-20's primary use is air-to-ground delivery of live munitions to a variety of targets. Under Alternative 1, B-20 would expand in all directions, growing by approximately 180,329 acres (Table 2-1) and increasing in total size to approximately 221,334 acres. This expansion would include approximately 3,200 acres of land currently withdrawn by USFWS as a portion of the 17,848-acre Fallon National Wildlife Refuge. The Navy is not proposing to develop targets in the refuge. Due to the safety concerns associated with being within a WDZ, those portions of the refuge lands would be closed to the public. The Navy anticipates entering into an agreement (Memorandum of Understanding [MOU]) with the USFWS, to allow the continued management of portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge.
Under Alternative 1, expanding B-20 would allow for an additional 1,450 acres for target areas for Naval Aviation Advanced Strike Warfare and Large Force Exercise training (Figure 2-4).

2.3.4.5.2 Public Accessibility

Currently, all activities listed in Table 2-2 are allowed on public lands requested for withdrawal and proposed for acquisition. Under Alternative 1, the majority of B-20 withdrawn and acquired lands would be closed to public use (grazing, hunting, mining, solar/wind, utilities/ROWs, OHV use, camping/hiking, and special race events), except for Navy-authorized activities such as ceremonial or cultural site visits, or regulatory or management activities (e.g., BLM, NDOW, USFWS). In addition, the B-20 Navy Access Road (known locally as Pole Line Road) would be closed to public access.

Since the proposed WDZ for B-20 lies immediately west of East County Road, the Navy proposes that East County Road and approximately 300 acres of requested withdrawal land east of East County Road would remain open to the public.

The Navy anticipates entering into an agreement with the USFWS to ensure that the 3,200 acres of the Fallon National Wildlife Refuge requested for withdrawal be managed consistently with the goals and objectives of the refuge (U.S. Fish and Wildlife Service, 2002) but closed to public access to ensure human health and safety.

2.3.4.5.3 Construction

Under Alternative 1, the following construction activities would occur at B-20:

- The Navy would construct one vehicle, target, and equipment maintenance building (approximately 60 feet by 100 feet pre-engineered metal building) on proposed B-20 lands just inside of the new access gate located on the west side of B-20 along the Navy B-20 access road. Approximately 5 acres of land surrounding this building would be graded and used for vehicle parking and staging. Existing aboveground powerlines would serve the building. The Navy would install heat and evaporative cooling systems and a restroom and toilet with septic system.
- The Nevada Department of Environmental Protection would review and approve the wastewater collection and disposal system design if the overall system or any eventual post-treatment discharge would be into Waters of the U.S. Potable water would be supplied to the building through a water well, though well design parameters have not been determined.
- The Navy would either purchase existing and valid water rights or request and obtain any necessary water rights from the Nevada Division of Water Resources before implementing any alternative discussed in or based on this EIS.
- The Navy would also install a tank and fire pump for fire-water storage if it were to decide that fire suppression is necessary during either construction or future operation.
- The Navy would not construct new roads.
- Requested withdrawal lands would be fenced (approximately 90 miles) with wildlife friendly configured four-wire fencing (and which complies with NRS requirements) with five 20-foot double swinging gates installed to provide controlled access (Figure 2-4) into the B-20 range; the gates will not prevent use of East County Road. Spacing of wires would be configured appropriately for the wildlife in the area.
- Signs would be posted at regular intervals.
- Fencing installation would follow recommendations described in BLM's Handbook 1741-1 (Fencing), such as avoiding bulldozer clearing or other major soil-disturbing methods.
- Any area requiring clearance for fence installation would use the most practicable and unobtrusive methods to minimize soil and vegetation disturbance.
- For analysis purposes, it is anticipated that two crews would take approximately six months to install the fencing. Once installation is complete, the Navy would incrementally remove the fencing that remains within the new B-20 range perimeter.

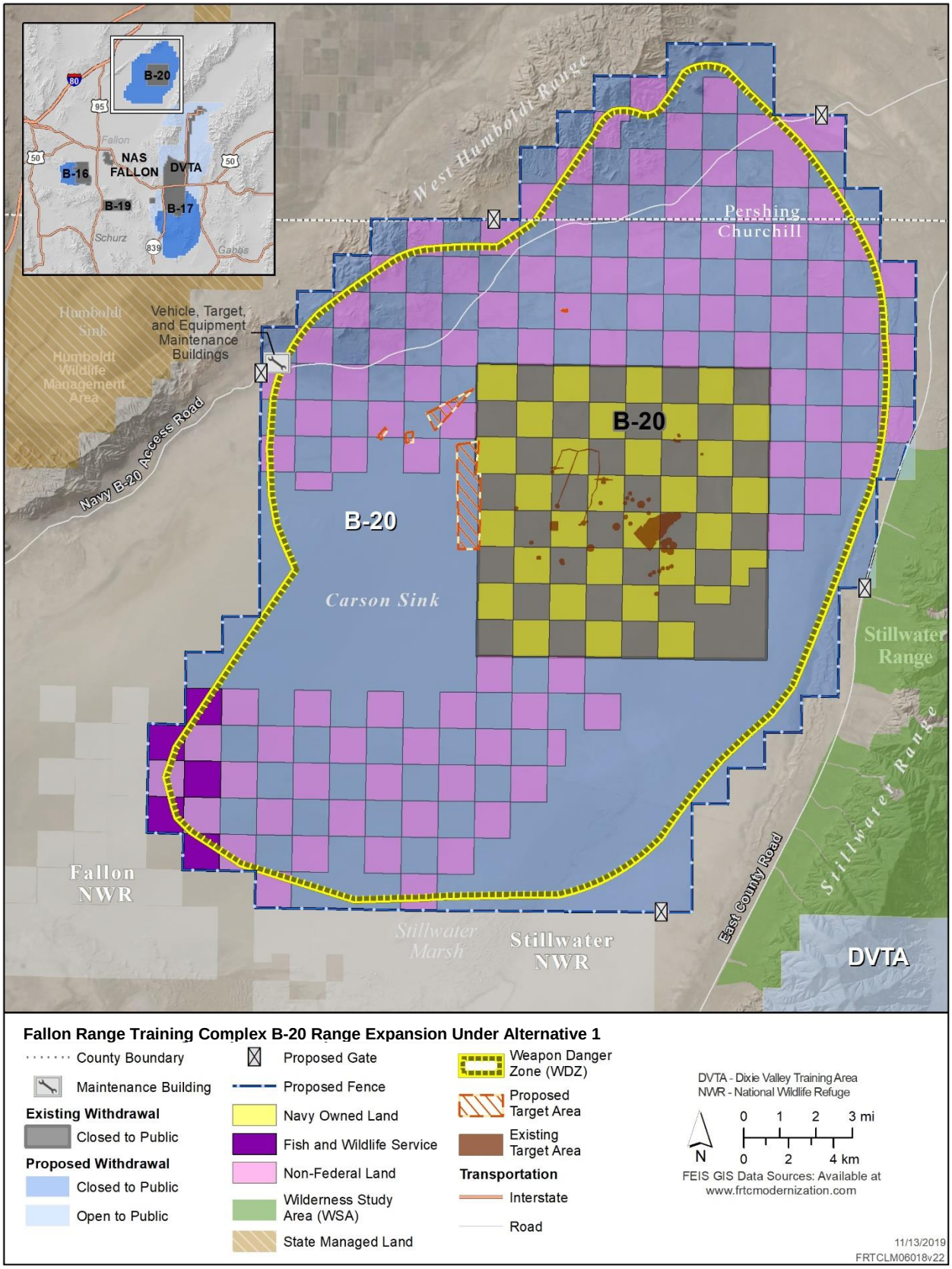


Figure 2-4: Fallon Range Training Complex B-20 Expansion Under Alternative 1

2.3.4.6 Dixie Valley Training Area

2.3.4.6.1 Land Withdrawal and Acquisition

What is an Area of Critical Environmental Concern?

Area of Critical Environmental Concern (ACEC) designations highlight areas that need special management attention to protect important historical, cultural, and scenic values, or fish and wildlife or other natural resources. ACECs can also be designated during the land-use planning process to protect human life and safety from natural hazards.

Under Alternative 1, the DVTA would expand in all directions by approximately 293,343 acres (Figure 2-5), increasing its total size to approximately 370,903 acres. The proposed expansion overlaps portions of the Clan Alpine Mountain Wilderness Study Area (WSA), the Job Peak WSA, the Stillwater Range WSA, and the BLM-proposed Fox Peak ACEC (proposed under Alternative E of the Carson City District Draft Resource Management Plan). Under Alternative 1, Congressional withdrawal legislation would remove the WSA designation from those portions of the Clan Alpine WSA, Job Peak WSA, and Stillwater WSA within the DVTA in order to accommodate training activities in the DVTA. Alternative 1 would also propose removing a portion of the proposed Fox Peak ACEC designation described in the *Carson City Draft Resource Management Plan* 2014 (Preferred Alternative E) within the DVTA. The BLM would change the boundaries of the Fox Peak ACEC to remove those areas within the DVTA. The BLM would continue managing the remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs.

2.3.4.6.2 Public Accessibility

Under Alternative 1 ground training would continue to occur on existing roads and trails, and the lands would remain open for certain public uses and land management activities. Allowable public uses of the lands would not change from current conditions, including hunting, camping, hiking, fishing, OHV use, site visits, and grazing. However, under Alternative 1, the Navy would not allow mining, geothermal development, new or expanded utility corridors or new utilities, or other renewable energy (solar or wind) projects. The current utility corridor would remain in place. The Navy would be responsible for the inventory, monitoring, and proper handling of any Abandoned Mine Land features on Navy property. The Navy would follow Nevada's Bureau of Mines and Geology procedures for management of Abandoned Mine Lands on the DVTA.

The existing hunting program requirements that would be applied to proposed DVTA lands include

- hunting within the DVTA managed by NDOW,
- seasonal hunting activities and hunting dates established by NDOW, and
- continuous availability of Dixie Valley land access for authorized hunting programs.

2.3.4.6.3 Construction

Alternative 1 would create three Electronic Warfare sites: North Job Peak, 11-Mile Canyon, and Fairview Low (Figure 2-5). Each site would be located on a small (up to 5 acres) flat parcel of land to minimize soil disturbance and grading activities. The Navy would fence each Electronic Warfare site with 8-foot chain link fencing and a 16-foot swing gate. A mobile emitter placed at each site would minimize the amount of construction necessary (Figure 2-6). The Navy would use existing trails and roads to transport construction materials to the new Electronic Warfare sites and provide service access.

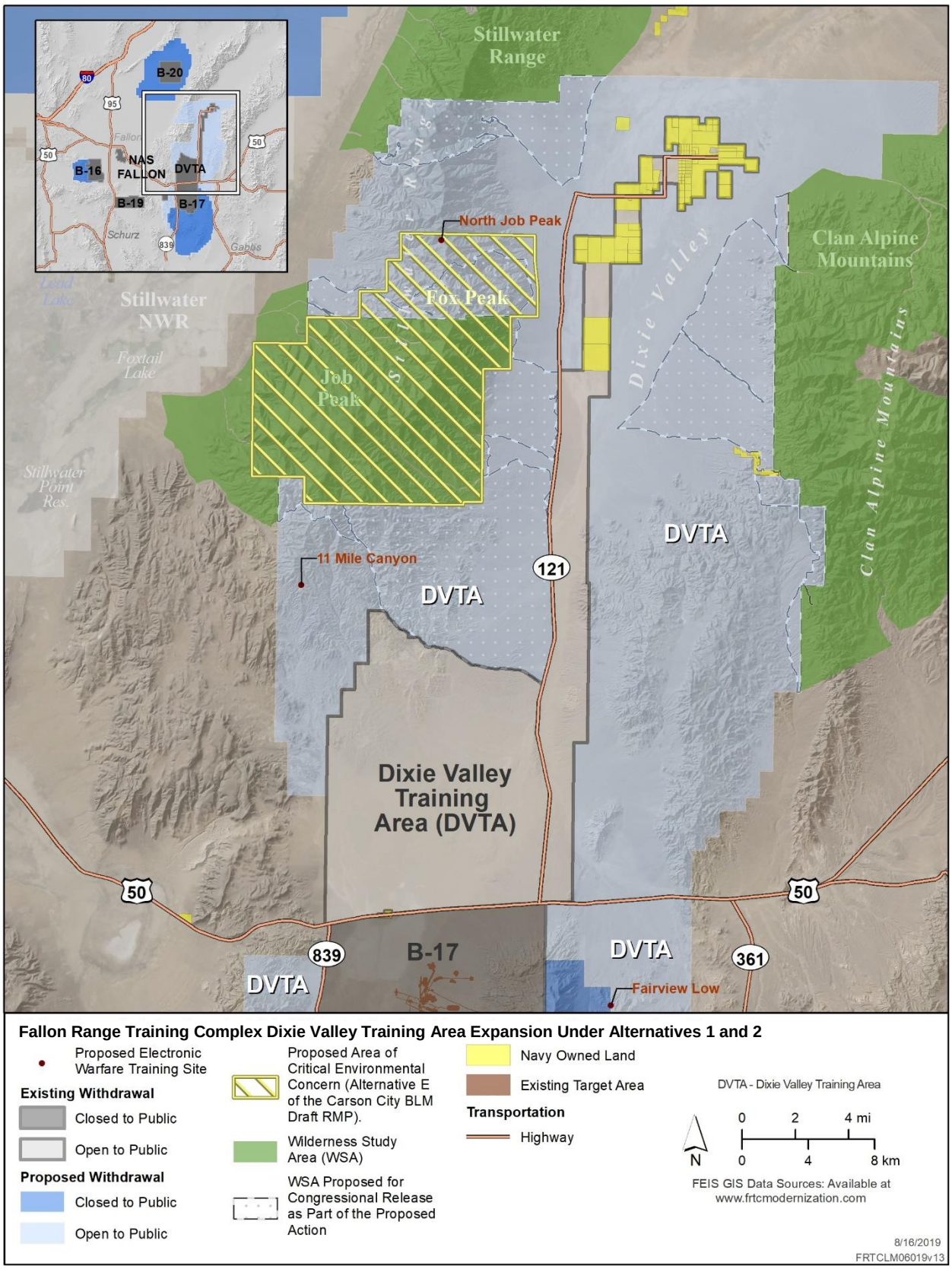


Figure 2-5: Fallon Range Training Complex Dixie Valley Training Area Expansion Under Alternatives 1 and 2



Figure 2-6: Example of Electronic Warfare Site with Mobile Transmitter

2.3.4.7 Special Use Airspace Modifications

Except for a slight expansion beyond the current northern boundary of the FRTC (Table 2-4 and Figure 2-7), the requested airspace modifications would be within the existing boundary of the FRTC airspace and consist of reorganizing airspace blocks and redefining airspace ceilings and floors and establishing new airspace. The objective of these changes is to use airspace more efficiently during Large Force Exercises while providing civilian aviators the maximum access possible, and maintaining priority for emergency flights through the airspace. SUA would be reconfigured horizontally and would also increase vertical tactical airspace by 22 percent. Table 2-4 shows the existing airspace configurations and the proposed changes.

Table 2-4: Proposed Special Use Airspace Changes

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
Restricted Areas					
R-4803	R-4803	Up to 17,999 feet MSL	No change	Increase in horizontal size to the west, to match associated land range changes.	Provides expanded live-fire training capability in B-16.
R-4804A[2]	R-4804A[2]			No Change	-
R-4804B	R-4804B	18,000 feet MSL or as ATC Assigned			
-	R-4804C	-	35,000 feet MSL to 50,000 feet MSL	No Change	-

Table 2-4: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
Restricted Areas (continued)					
-	R-4805A	-	Surface to 17,999 feet MSL	Abuts R-4804 and extends airspace to the south to encompass the new B-17	-
-	R-4805B	-	18,000 feet MSL to 50,000 MSL		
R-4810	R-4810	Surface to 17,000 feet MSL	No Change	No Change	-
-	R-4810B	-	17,000 feet MSL to 17,999 feet MSL	Established to increase safety and improve efficiency by mirroring the existing R-4812, and the modifications to the adjoining Ranch MOA	
R-4812[2]	R-4812[2]	Surface to 17,999 feet MSL	No Change	No Change	-
R-4813A	R-4813A	Surface to 17,999 feet MSL	No Change	No Change	-
R-4813B	R-4813B	18,000 feet MSL to 34,999 feet MSL	No Change	No Change	
-	R-4813C	-	35,000 feet MSL to 50,000 feet MSL	No Change	
-	R-4814	-	Surface to 29,000 feet MSL	Established to match associated B-20 range land changes to optimize training.	
-	R-4816S (Low)	-	Surface to 499 feet AGL[4]	Established to allow better use of current associated proposed land range changes in the Dixie Valley Training Area.	
R-4816N	R-4816N (Low)	-	Surface to 1499 feet AGL[4]	Established to allow better use of current associated proposed land range changes in the Dixie Valley Training Area.	
R-4816N	R-4816N	1,500 feet AGL to 17,999 feet MSL	No Change	-	
R-4816S	R-4816S	500 feet AGL up to 17,999 feet MSL	No change	-	
Military Operations Areas (MOA)					
Churchill High	Churchill	9,000 feet MSL/ Up to 17,999 feet MSL	500 feet AGL/ Up to 17,999 feet MSL	No change	
Churchill Low		500 feet AGL/9,000 feet MSL			

Table 2-4: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
Military Operations Areas (MOA) (continued)					
Fallon North 1	Fallon North 1	MOA: 100 feet AGL up to 17,999 feet MSL.	No change	Each of the Fallon North 1 to 3 MOAs northern borders would be expanded slightly to the North.	
Fallon North 2	Fallon North 2	ATCAA: 18,000 feet MSL to (as coordinated).			
Fallon North 3	Fallon North 3				
Fallon North 4	Fallon North 4	MOA: 200 feet AGL up to 17,999 feet MSL.		The Fallon North 4 MOA northern border would be expanded to the North.	
		ATCAA: 18,000 feet MSL to (as coordinated).			
Fallon South 1	Fallon South 1	MOA: 100 feet AGL up to 17,999 feet MSL.	No change	No change	
		ATCAA: 18,000 feet MSL to 50,000 feet MSL			
Fallon South 2	Fallon South 2	MOA: 100 feet AGL up to 17,999 feet MSL.		For the Fallon 2 through Fallon 5 MOA/ATCAAs, there are no changes to the airspace but they would be re-aligned in the NAWDC working areas through internal processes.	
Fallon South 3		ATCAA: 18,000 feet MSL to 50,000 feet MSL			
Fallon South 4	Fallon South 3	MOA: 200 feet AGL up to 17,999 feet MSL.			
Fallon South 5	-	ATCAA: 18,000 feet MSL to 50,000 feet MSL	-	-	
Ranch High	Ranch	9,000 feet MSL to 13,000 feet MSL	-	No change	Modify the altitudes of the Ranch Low and High to be combined into a single Ranch MOA
Ranch Low		500 feet AGL to 9,000 feet MSL	500 feet AGL to 17,999 feet MSL		
Reno	Reno	MOA: 13,000 feet MSL up to 17,999 feet MSL.	MOA: 1,200 feet AGL to 17,999 feet MSL.	-	Chaff and flare release capability. Supersonic Capable above 30,000 feet
		ATCAA: 18,000 feet MSL to 31,000 feet MSL.	ATCAA: 18,000 feet MSL to 31,000 feet MSL. Up to 40,000 feet MSL on request.		

Table 2-4: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
Military Operations Areas (MOA) (continued)					
-	Ruby	-	MOA: 1,200 feet AGL up to 17,999 feet MSL.	New MOA/ATCAA (formerly Diamond North ATCAA)	-
		-	ATCAA: 18,000 feet MSL to 28,000 feet MSL.		
-	Zircon	-	MOA: 1,200 feet AGL up to 17,999 feet MSL.	-	New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 50,000 feet MSL.	No change		
-	Diamond	-	1,200 feet AGL up to 17,999 feet MSL.	Southeast corner of current Diamond ATCAA	Northern Diamond ATCAA renamed Ruby ATCAA
		ATCAA: 18,000 feet MSL to 29,000 feet MSL.	18,000 feet MSL to 50,000 feet MSL or as assigned.		
-	Duckwater	-	MOA: 200 feet AGL up to 17,999 feet MSL.	The borders would be modified horizontally to better align with local air traffic routes.[4]	New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	ATCAA: 18,000 feet MSL to 50,000 feet MSL.		
-	Smokie	-	MOA: 200 feet AGL up to 17,999 feet MSL. ATCAA: 25,000 feet MSL to 29,000 feet MSL		New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	-		

[1]MSL = Mean Sea Level
[2]Excluding that portion of the VFR corridor from 2,000 AGL up to 8,500 MSL along U.S. Route 50.
[3]AGL = Above Ground Level
[4]Current alignment of Smokie and Duckwater ATCAAs are east and west. Navy proposes (with FAA concurrence) to realign Smokie and Duckwater in a north/south alignment with Duckwater to the north and Smokie to the south. These changes would provide better alignment with local FAA routes in the area.
Notes: MOA = Military Operations Area, SUA = Special Use Airspace, ATCAA = Air Traffic Control Assigned Airspace, NAWDC = Naval Aviation Warfighting Development Center

Figure 2-7 shows a summary of proposed airspace changes, while Figure 2-8 through Figure 2-10 show the individual components (Restricted Area, MOA, and Air Traffic Control Assigned Airspaces [ATCAAs]) of the airspace under Alternative 1. MOAs are designated to contain non-hazardous activities, including, but not limited to, air combat maneuvers, air intercepts, and low-altitude tactics. ATCAAs are defined airspace that is available for military training use but are only activated by the FAA when requested by the military. ATCAAs most often overlie MOAs but can also be adjacent to a MOA. Collectively, the horizontal boundaries of the MOAs and ATCAAs represent the boundaries of the FRTC Study. Restricted Areas separate activities considered hazardous to other aircraft and typically occur within a MOA (Section 3.6.2.1, Special Use Airspace, provides a detailed description of airspace types).

Potential adversaries are increasingly using sophisticated anti-aircraft systems with the capability to threaten our aircrews at much greater ranges. As a result, the FRTC modernization includes a proposal to increase the volume of the supersonic training area by laterally expanding the area (including "low supersonic") eastward into the proposed Zircon and Ruby MOAs/ATCAAs. Supersonic operating area (SOA) A (above 30,000 feet MSL) would extend into the Duckwater Air Traffic Control Assigned Airspaces and SOA B (11,000–30,000 feet MSL) would be extended to the east horizontally, into the Zircon and Ruby MOA/Air Traffic Control Assigned Airspaces (though in the Ruby MOA/Air Traffic Control Assigned Airspace the ceiling is proposed to be 28,000 feet MSL). The Reno MOA would also be modified to support supersonic activities above 30,000 feet MSL.

As a general policy, sonic booms shall not be generated below 30,000 feet of altitude. However, deviations from this general policy are authorized for tactical mission training that requires supersonic speeds at lower altitudes. For example, mission-critical training activities in both air-to-air and air-to-ground combat tactics often require supersonic flight at lower altitudes in order to practice evading threats such as enemy surface-to-air and air-to-air missiles. When required, this mission-critical training would be conducted in specified areas, and may be at altitudes as low as 11,000 feet above MSL.

Under Alternative 1, supersonic activities would be redistributed throughout the expanded SOAs and larger area within the FRTC airspace would experience direct overflights of a supersonic aircraft. While a greater area may be subject to sonic booms with the expansion of the SOAs, there is no proposed increase in the number of supersonic activities; therefore, the chance of experiencing a sonic boom in any one location would actually be lower than under current conditions.

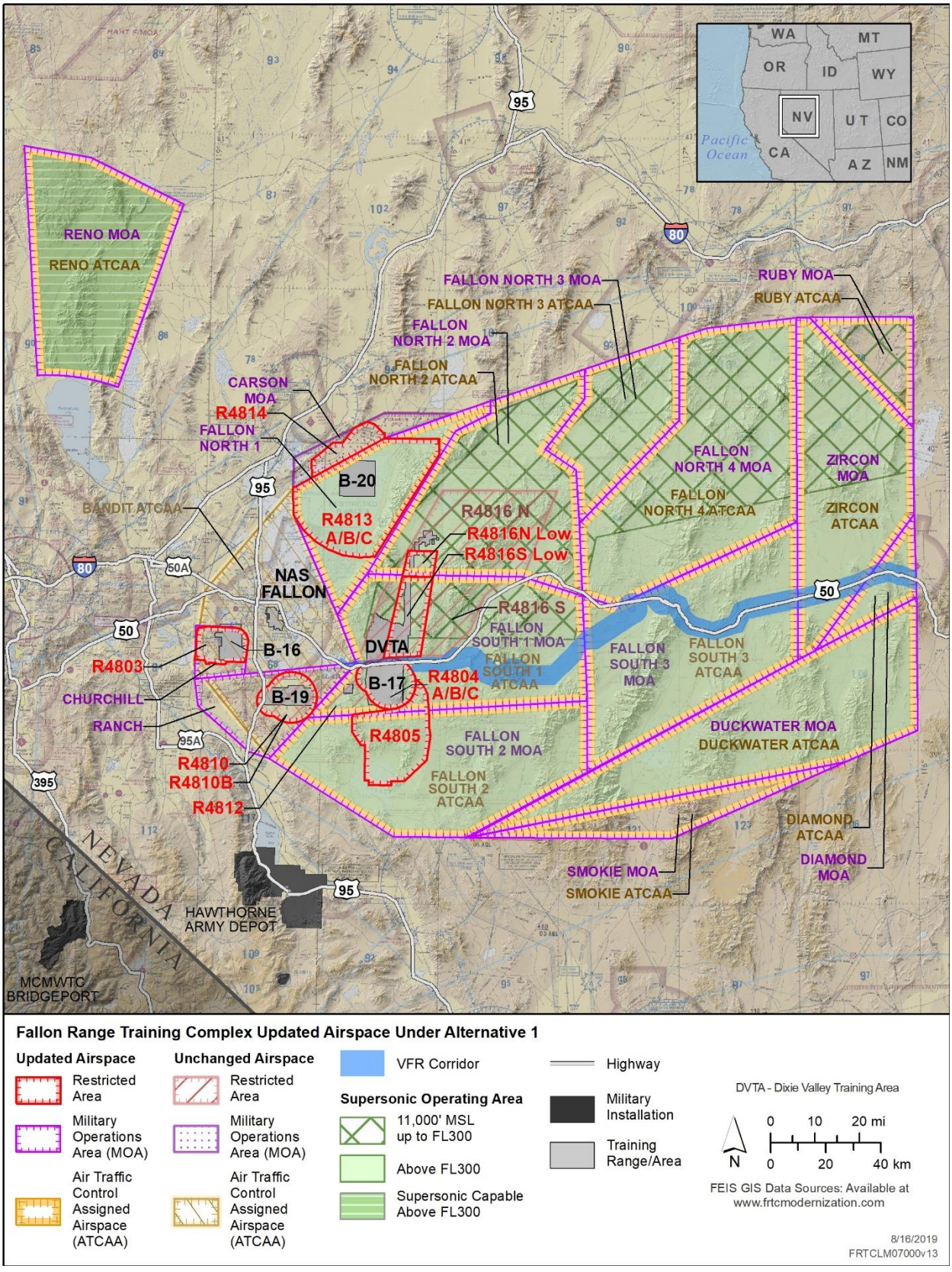


Figure 2-7: Fallon Range Training Complex Updated Airspace Under Alternative 1

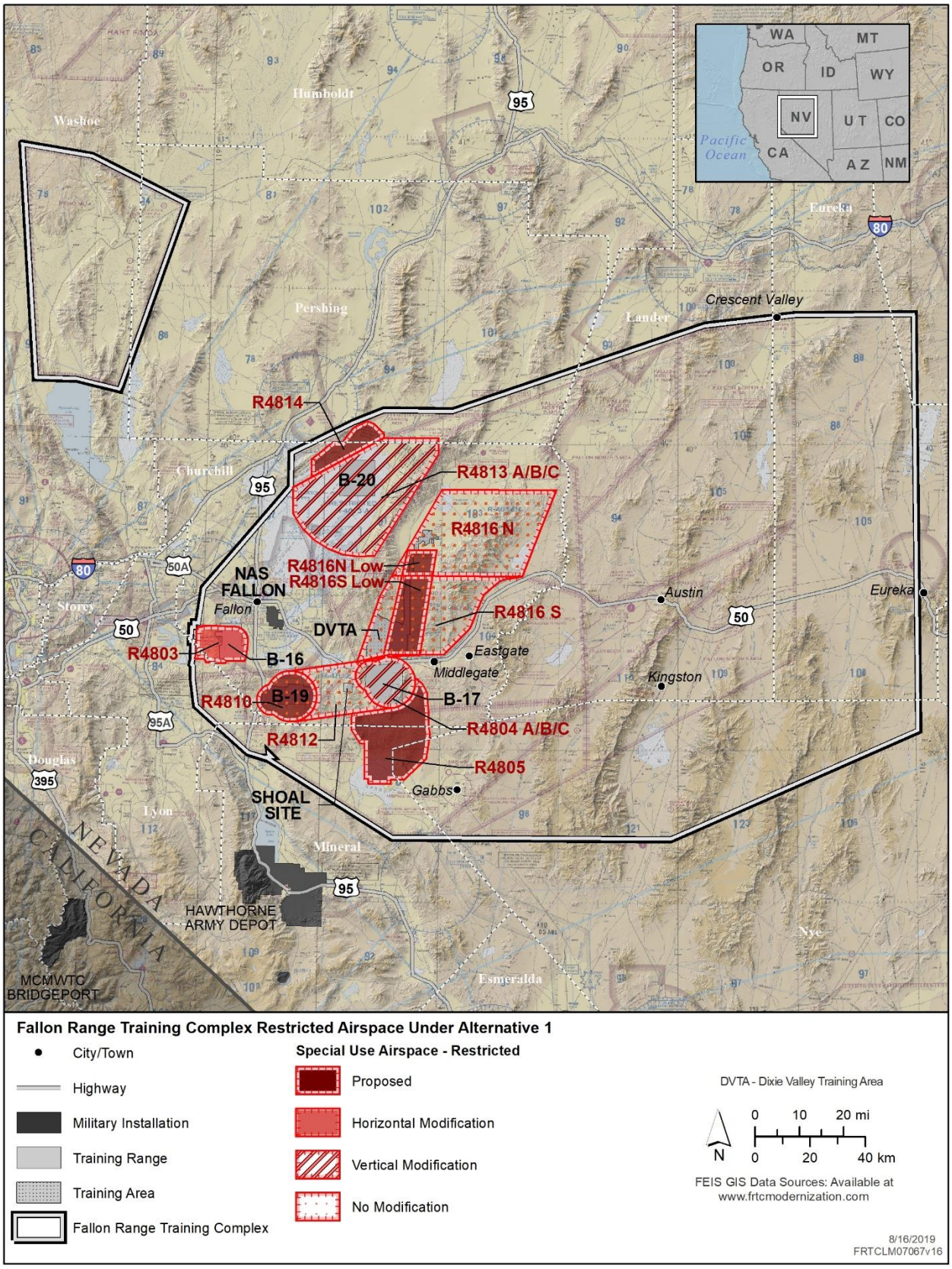


Figure 2-8: Fallon Range Training Complex Restricted Airspace Under Alternative 1

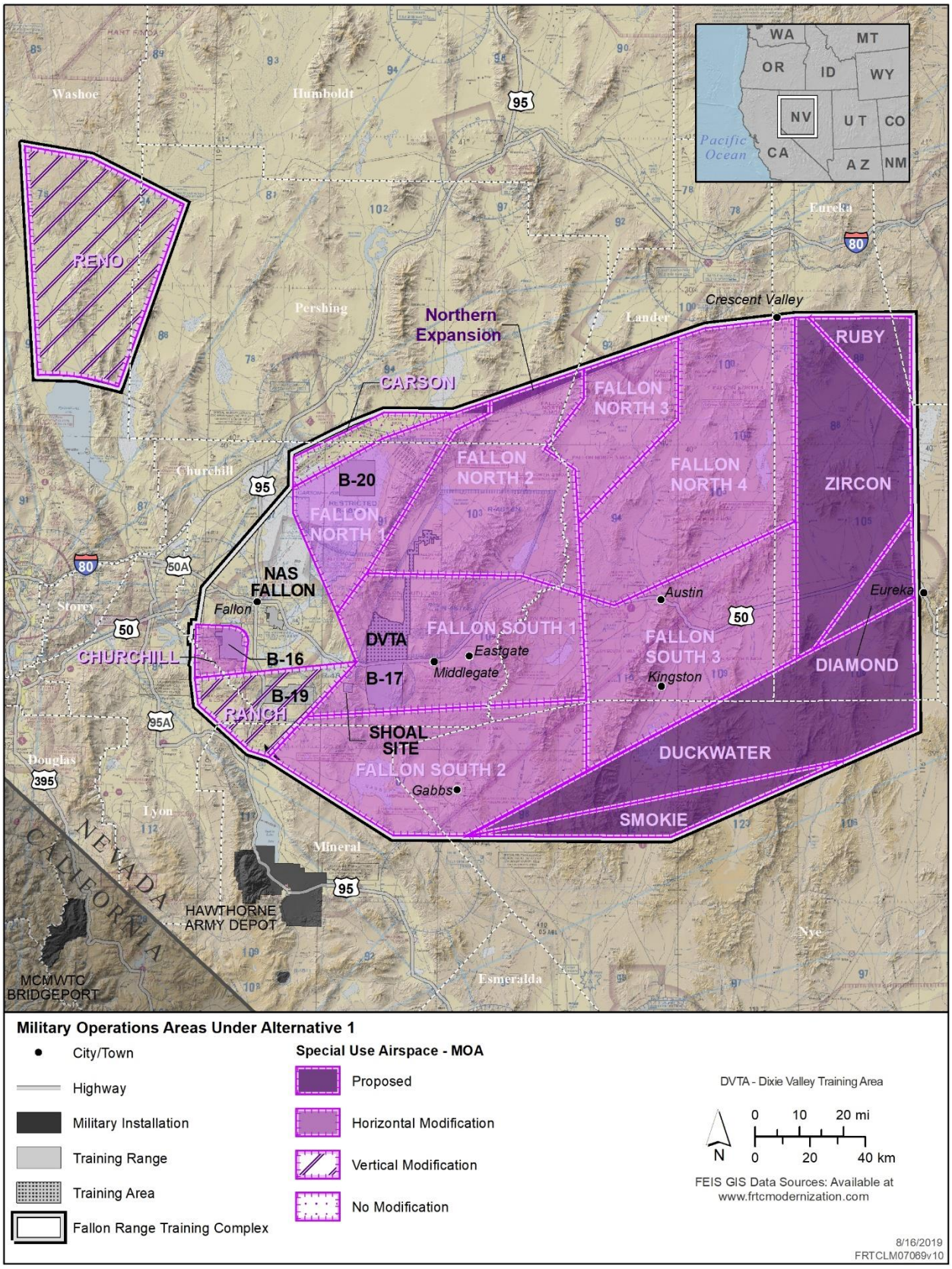


Figure 2-9: Military Operations Areas Under Alternative 1

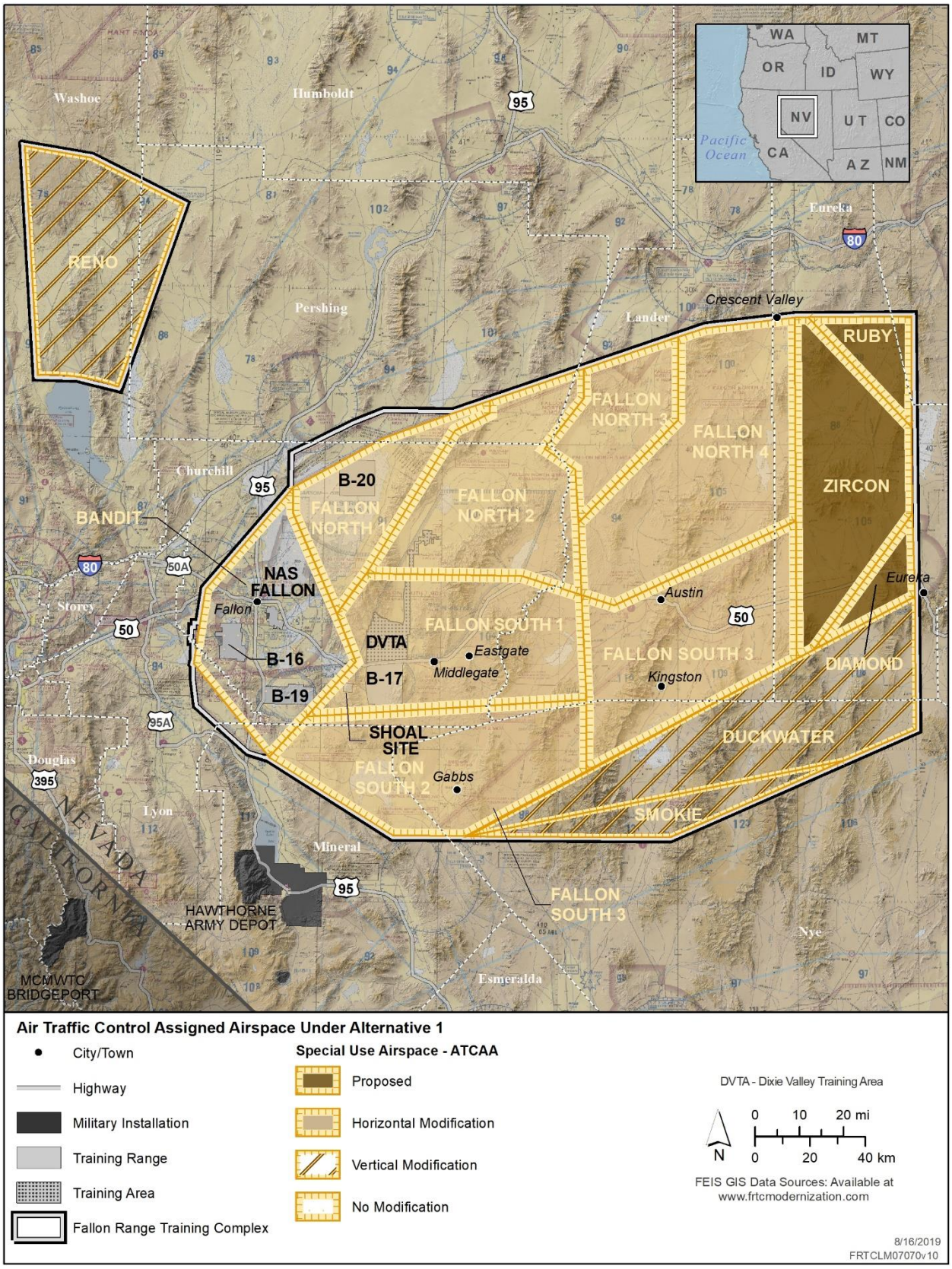


Figure 2-10: Air Traffic Control Assigned Airspace Under Alternative 1

2.3.5 Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

The Navy issued the Notice of Intent for this EIS without defined alternatives. The purpose was to collect responses from the public and stakeholders regarding potential impacts, concerns, and suggestions for other alternatives. The public, including interested individuals, government agencies and officials, Indian Tribes, and nongovernmental organizations, submitted comments during the public scoping period. Following the public scoping period, the Navy reviewed submitted comments and conducted additional meetings with various stakeholders to discuss potential alternatives to the general Proposed Action (as reflected in Alternative 1). Many comments indicated the desire to have an alternative without restrictions or with a reduced level of restrictions on possible use for activities. Similar to Alternative 1, under Alternative 2, the Navy would still expand bombing ranges to accommodate the larger safety zones needed to accommodate standoff weapons training (Table 2-1). The Navy would also still expand the DVTA to enhance the safety of aviators during low-altitude and nighttime non-weapons training events, as well as offer a more realistic non-weapons environment for Electronic Warfare, convoy training, and search and rescue training. Under Alternative 2, the Navy would allow for certain public activities on certain areas of B-16, B-17, and B-20 at designated times when the ranges would not be operational (i.e., typically weekends, holidays, and when closed for scheduled maintenance).

2.3.5.1 Land Withdrawal and Acquisition

Alternative 2 would have the same withdrawals, acquisitions, and airspace changes as proposed in Alternative 1 (Table 2-1).

2.3.5.2 Public Accessibility

Similar to Alternative 1, Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, B-19, and B-20 (ceremonial, cultural, or academic research visits; and land management activities) when the ranges are not operational (typically weekends, holidays, and when closed for maintenance) (Table 2-5). Simpson Road at B-16 and a small portion of land south of Simpson Road would be open to public use under Alternative 2 (Figure 2-11). Sand Canyon Road would continue to be closed under Alternative 2. Alternative 2 would also continue to allow grazing, hunting, OHV usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally, under Alternative 2 the Navy would allow the following activities:

- Hunting (see Section 2.3.5.2.2, Hunting Activities) would be conditionally allowed on designated portions of B-17,
- geothermal and leasable material exploration would be conditionally allowed on the DVTA (see Section 2.3.5.2.3, Mining Activities),
- and large event off-road races (see Section 2.3.5.2.6, Off-Highway Vehicle Activities) would be allowable on all ranges subject to coordination with the Navy.

Allowing such public access would be more complex and challenging for the Navy. For example, the Navy would need to increase staffing and funding for management, coordination, and safety. However, Alternative 2 would still meet the Navy requirement to ensure that the FRTC possesses the present and future capabilities necessary to train and assess deploying forces for combat readiness, as reflected in the purpose of and need for the Proposed Action.

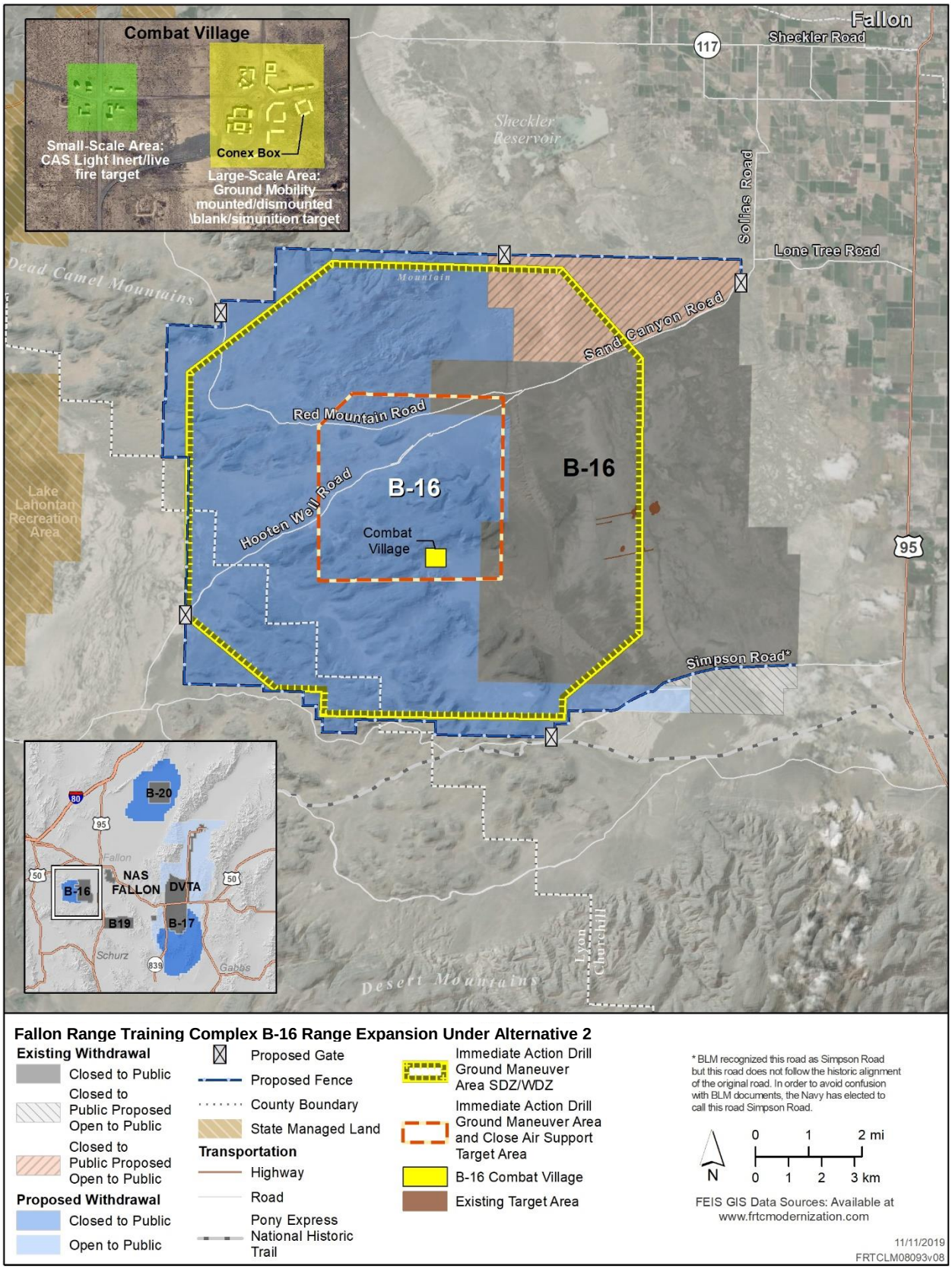


Figure 2-11: Fallon Range Training Complex B-16 Range Expansion Under Alternative 2

2.3.5.2.1 Grazing Activities

Under Alternative 2, grazing would not be available for the B-16, B-17, B-19, or B-20 ranges for safety reasons and for general incompatibility with the Navy's mission requirements (see Section 2.5.6.1, Livestock Grazing on Live-Fire [Bravo] Ranges, for a discussion on how the Navy developed this position). Similar to Alternative 1, the BLM would continue to permit and manage domestic livestock grazing activities within the proposed DVTA under Alternative 2.

Table 2-5: Alternative 2 Allowable Activities Within Range Boundaries

Area	Activity											
	Grazing	Hunting	Mining			Solar /Wind	Utilities /ROWs	OHV	Camping /Hiking	Site Visits (Ceremonial, Cultural, or Research)	Mgmt^ Access	Events (Races)
			Locatable	Leasable	Salable							
B-16	1	1	1	1	1	1	1	1	1	2	2	2
B-17	1	2+	1	1	1	1	1	1	1	2	2	2
B-19	1	1	1	1	1	1	1	1	1	2	2	2
B-20	1	1	1	1	1	1	1	1	1	2	2	2
DVTA	3	3	1	2*	2	1	2	3	3	3	3	3

Notes: 1. Grey = Activity Not Allowed. Public Safety concern. Closed to Public Access. 2. Yellow = Activity Allowable. Limited Public Access. 3. Green = No Restrictions. Open to Public Access. ROWs = Rights of Way
^ Mgmt = Management
* Geothermal mining only
+ Only bighorn sheep hunting would be allowed
The Navy would work with land managers that need access to ensure that their access is coordinated and compatible with military training activities on all ranges and in the DVTA.

2.3.5.2.2 Hunting Activities

Under Alternative 2, the Navy proposes to allow a bighorn sheep hunting program on designated portions of B-17. The Navy does not currently allow hunting on the B-16, B-19, or B-20 ranges for safety and security reasons and is not proposing to allow it in the proposed expansion areas for the B-16 and B-20 ranges under Alternative 2.

Hunting seasons on B-17 would operate on a not-to-interfere basis with operational training requirements. The Navy proposes to allow bighorn sheep hunting in the B-17 range to the maximum extent practicable, aiming to accommodate 15 consecutive days during the bighorn sheep hunting season, occurring from November to January. Safety considerations include unexploded ordnance sweeps, road blocks, signage for avoidance areas, and range operations control. The Navy and NDOW would manage the hunting program through a Memorandum of Agreement (see Appendix D, Memoranda, Agreements, and Plans, for a draft of such an agreement). Access and safety would be handled by the Navy, while all other hunting program-related management (e.g., number of tags, hunt seasons) would remain under NDOW control.

The Navy anticipates that proposed program requirements for hunting activities on B-17 would likely include the following policies (which would be reviewed annually), but with the goal of being flexible enough to allow maximum access possible for hunting on the FRTC while ensuring the Navy can meet mission requirements:

- Hunting program for bighorn sheep managed jointly by the Navy and NDOW in accordance with NDOW policies and reviewed annually. Annual review would provide for ongoing evaluation of compatible hunting opportunities and adaptive management of the hunting program; additional hunts and feasibility for opportunistic hunt access would be evaluated for compatibility with mission training requirements.
- Hunting activities remain compatible with mission training activities and operate on a not-to-interfere basis.
- Range access managed by a Controlled Access Program, with stipulations.
    - Hunters must complete ground safety training and sign an MOU for the hunting program.
    - Hunters must sign a waiver agreement releasing the Navy from any liability for injury to or death of hunters or hunting party members, or for damage to vehicles or equipment or other property of such persons.
    - Hunting party is limited to five persons, including the tag holder, on FRTC at any one time, with no member of the hunting party under 18 years of age.
    - Bombing range access procedures would be in accordance with Navy range policies.
    - A face-to-face Hunter Safety ground access brief would be required.
    - Prior scheduling would be required. Check-in and Check-out with Range Control would be mandatory for any access to the Bravo 17 range.
    - Hunters must remain clear of B-17 designated avoidance areas, as marked on maps to be provided to hunters during annual safety training. These areas would be determined annually based on range conditions and reviewed and updated by range operations and safety department. In general, avoidance areas would include targets and areas of known unexploded ordnance.
    - No pets, to include hunting dogs, would be allowed on B-17.

The Navy would also continue to allow all hunting opportunities at the DVTA. The stipulations listed above for hunting on B-17 would not apply to hunting activities within the DVTA. The Navy would defer to the NDOW annual hunting regulations and policies to identify hunting seasons within the DVTA. The Navy would apply existing program requirements for hunting activities to the proposed withdrawn lands at the DVTA under Alternative 2. As described for Alternative 1, the existing program requirements that would be applied to proposed DVTA lands include:

- Hunting within the DVTA managed by NDOW.
- Seasonal hunting activities and hunting dates established by NDOW.
- Continuous availability of Dixie Valley land access for authorized hunting.

2.3.5.2.3 Mining Activities

The Navy would not allow mining activities on existing or proposed expanded bombing ranges (B-16, B-17, B-19, or B-20) for safety reasons. Under Alternative 2, the Navy would not allow locatable or most leasable mining activities at the DVTA. Locatable minerals are those which, when found in valuable deposits, can be acquired under the General Mining Law of 1872, as amended. Examples of locatable minerals occurring on public lands within existing and requested withdrawal areas include, but are not limited to, those minerals containing gold, silver, tungsten, fluorite, copper, lead, and zinc. Leasable minerals include, but are not limited to, oil, gas, coal, oil shale, and geothermal resources (43 CFR 3000, and 3500). Salable minerals (mineral materials, 43 CFR 3600) are common varieties of sand, stone, gravel, pumice, pumicite, cinders, and clay.

Under Alternative 2, the Navy would allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures, allow geothermal development west of State Route 121 in the DVTA. The Navy is currently proposing the following required design features for geothermal development:

- Allow the expansion of two ROWs adjacent to the current transmission corridor as close to current Terra-Gen line as possible.
- Recommended maximum width of permanent ROW is 90 feet each.
- Recommended maximum width of temporary ROW is 300 feet.
- Construct underground transmission line connection from the facility to existing transmission line ROW along State Route 121.
- Use compatible lighting with downward facing shades, lighting with frequency that doesn't "wash out" night-vision devices, and motion sensors to minimize light as appropriate
- Coordinate with Navy on frequency spectrum.
- Use cooling towers and other structures no higher than 40 feet.
- Avoid steam field piping blocking current access roads to/from State Route 121 and canyon area.
- Require a glint and glare analysis for photovoltaic solar/geothermal hybrid design, approved by the Navy, prior to construction.
- Coordinate all exploratory 's and construction activities with NAS Fallon.
- Coordinate with NAS Fallon for all temporary vertical obstruction safety lighting.
- Coordinate with NAS Fallon on the use of unmanned aerial vehicles used in the DVTA.

2.3.5.2.4 Solar and Wind Developments

Similar to Alternative 1, solar and wind development would not be allowed on the proposed bombing ranges (either existing ranges or proposed expansion areas) or in the DVTA, for safety reasons. The main conflicts between wind energy development hazards and low-flying aircraft include cultural lighting (i.e., manmade lighting), frequency spectrum interference, and the fact that such developments would inhibit radar operation. Wind turbines have extremely tall towers with large rotating blades that pose a hazard to flight safety and result in false radar returns and a cluttered radar environment. The main concern with solar development are hazards to low flying aircraft, glint and glare hazards, and interference with infrared and heat sensors.

2.3.5.2.5 Utilities and Rights of Way

Due to safety reasons, under Alternative 2, the Navy would allow only one utility corridor and ROW on the existing and proposed bombing ranges. The existing utility corridors in the DVTA would be allowed to remain, and the Navy would allow new transmission utilities within the existing north/south corridor or allow transmission utilities within a 90-foot buffer adjacent to the existing north/south corridor. For example, a new corridor could be installed next to or within the existing corridor with slightly infrastructure than existing utility infrastructure. Any new geothermal facilities would need to develop underground transmission methods in order to reach the current Dixie Valley utility corridor. Any new utility would require underground transmission routing to connect to the existing corridor.

Under Alternative 2, the Navy proposes to allow development of water resources activities to continue on certain withdrawn areas as long as the actions are consistent with training activities and approved by

the Navy. The Navy is currently proposing the following required design features for water development:

- A permanent right-of-way immediately adjacent to the existing Terra-Gen ROW to accommodate the main transmission power line
  - Recommended maximum width of permanent ROW is 90 feet each.
  - Recommended maximum width of temporary ROW is 300 feet.
- Infrastructure outside the ROW to be located west of State Route 121 to the greatest extent possible.
- Place all transmission lines located outside of the main ROW corridor underground.
  - A 90-foot wide permanent ROW for all lateral transmission lines from the main transmission power line ROW to the well locations, 300 feet for construction.
  - Trenching for water and electrical lines will be constructed to recommended engineering standards, assuming separate trenches will be necessary.
- Provide 1.5-acre ROWs for well houses. Provide a 2-acre temporary construction ROW for all proposed well locations for well siting and construction.
- Communication tower locations minimized and the use of fiber communication maximized.
- Communication towers would be limited to 20 feet and appropriately lighted for safety.
- Major facilities (permanent structures) within Dixie Valley would be collocated and have no structures over 40 feet in height.
- Coordinate with Navy on frequency spectrum.
- Use compatible lighting with downward facing shades, lighting with frequency that doesn't "wash out" night-vision devices, and motion sensors to minimize light as appropriate.
- Coordinate all exploratory and construction activities in the DVTA with NAS Fallon.
- Coordinate with NAS Fallon for all temporary vertical obstruction safety lighting.
- Coordinate with NAS Fallon on the use of unmanned aerial vehicles used in the DVTA.
- Minimize impacts on current access roads from electrical and water utilities in ROWs.

2.3.5.2.6 Off-Highway Vehicle Activities

Similar to Alternative 1, the Navy would allow OHV activities under Alternative 2 on the proposed withdrawn or acquired lands within the DVTA. Users would be required to follow BLM OHV regulations (e.g., remaining on current roads and trails, and using vehicles equipped with spark arrestors during fire season). For public safety reasons associated with ordnance use, the Navy would not allow OHV activity within any of the Navy bombing ranges (B-16, B-17, B-19, or B-20).

2.3.5.2.7 Camping and Hiking Activities

Similar to Alternative 1, the Navy would continue to allow recreational activities, such as camping and hiking, within the proposed Navy withdrawn lands in the DVTA. For public safety reasons, the Navy would not allow camping, hiking, or similar recreational activities (apart from hunting [see above]) within any of the Navy bombing ranges (B-16, B-17, B-19, or B-20).

2.3.5.2.8 Site Visit and Management Activities

Similar to Alternative 1 and when feasible, the Navy would allow ceremonial or cultural site visits, research/academic activities, and regulatory or management activities (such as BLM, Bureau of Reclamation, or NDOW activities) on all proposed Navy lands. Access to the Dixie Valley lands would be available daily with no additional access restrictions. For site visits on any of the Navy bombing ranges (B-16, B-17, B-19, or B-20), current procedures exist and would continue to apply to any proposed withdrawn or acquired lands under this alternative:

- The NAS Fallon Community Planning and Liaison Officer in conjunction with the NAS Fallon Environmental Division would manage the site visit program.
- Site visits must be compatible with mission training activities and operate on a not-to-interfere basis.
- Bombing range scheduling and access procedures remain as per Navy range management policy.
- For safety purposes, Navy range personnel, including the NAS Fallon Cultural Resource Manager, escort site visit personnel.

2.3.5.2.9 Large Event Race Activities

The Navy supports BLM and State of Nevada-sponsored off-road races and would allow their current use to continue to the maximum extent practical. This support would include access to B-16, B-17, and B-20 to the extent compatible with mission requirements.

Race protocol for the DVTA would include the following:

- BLM to contact the Navy to coordinate potential opportunities for access with training activity schedule.
- Races managed by BLM and the State of Nevada as appropriate.

Race protocols for bombing ranges within bombing ranges (B-16, B-17, B-19, and B-20) would include the following:

- Races permitted and managed by BLM or the State of Nevada in accordance with MOU between the NAS Fallon Land Management Activity and the Navy Range Office.
- Race scheduling and training de-confliction to the extent consistent with mission requirements performed between the BLM, the State of Nevada, the NAS Fallon Land Management Activity, and the Navy Range Office.
- Portions of races that occur on BLM-managed lands would be managed by BLM, and portions of races occurring on bombing ranges would be managed by Navy.

2.3.5.3 Construction

The construction activities proposed for each range under Alternative 2 would be similar to those listed under Alternative 1:

- B-16
  - Construct a Combat Village (using conex boxes) to support Tactical Ground Mobility Training.
  - Install perimeter fencing and five access gates.
- B-17
  - Construct one vehicle, target, and equipment maintenance building.
  - Install two communications towers.

- Create new target areas and convoy routes.
- Install perimeter fencing with access gates.
- Relocate State Route 839 (subject to follow-on, site-specific NEPA analysis).
- Relocate Paiute Pipeline (subject to follow-on, site-specific NEPA analysis).

- B-20
  - Construct one vehicle, target, and equipment maintenance building.
  - Install perimeter fencing with access gates.
- DVTA
  - Develop three Electronic Warfare sites.

Details for each construction or improvement activity can be found in Sections 2.3.4.3.3 (B-16), 2.3.4.4.3 (B-17), 2.3.4.5.3 (B-20), and 2.3.4.6.3 (Dixie Valley Training Area).

2.3.5.4 Special Use Airspace Modifications

Similar to Alternative 1, except for a slight expansion beyond the current northern boundary of the FRTC (see Table 2-4 and Figure 2-7), the requested airspace modifications would be within the existing boundary of the FRTC airspace and consist of reorganizing airspace blocks and redefining airspace ceilings and floors. The objective of these changes is to use airspace more efficiently during Large Force Exercises while providing civilian aviators the maximum access possible and maintaining priority for emergency flights through the airspace. SUA would be reconfigured horizontally and would also increase vertical tactical airspace by 22 percent. Table 2-4 shows the existing airspace configurations and the proposed changes.

2.3.6 Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternatives 1 and 2 in terms of its requested land withdrawals and proposed acquisitions, except with respect to the orientation, size, and location of B-16, B-17, B-20, and the DVTA, and similar to Alternative 2 in terms of managed access, as shown in Figure 2-12. With respect to B-16, unlike Alternative 1 and Alternative 2, the lands south of Simpson Road (and Simpson Road itself) would not be withdrawn. Additionally, currently withdrawn lands south of Simpson Road would be relinquished by the Navy back to the BLM. Alternative 3 would move B-17 farther to the southeast and rotate it slightly counter-clockwise, as shown in Figure 2-15. Under Alternative 3, the Navy would not withdraw East County Road or the land east of East County Road for B-20 (Figure 2-16).

Similar to Alternative 2, Alternative 3 would allow for certain public activities on certain areas of B-16, B-17, and B-20 at designated times when the ranges would not be operational (i.e., typically weekends, holidays, and when closed for scheduled maintenance) (Table 2-6).

Under Alternative 3, the land requested for withdrawal for the DVTA north of U.S. Route 50 would remain the same as in Alternative 1. Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes designation of this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy. The area does include an existing right-of-way for a current Navy communication site. Otherwise, these two areas would remain open to public access and would be available for all appropriative uses, including mining for locatable and leasable mineral resources. However, prior to issuing any decisions on projects, permits, leases,

studies, and other land uses within the two special use zones, BLM would be required to consult with NAS Fallon.

Between the public Draft EIS and Final EIS, the Navy received public comments requesting that the size of the withdrawal and acquisition be reduced as much as possible. The Navy has reduced the size of the withdrawal from the proposal in the Draft EIS. This change in area is shown in Figure 2-13 and Figure 2-14, and in Table 2-7. Table 2-8 shows the percentage of each county requested for withdrawal or proposed for acquisition by land category (open or closed to the public) and has been updated to reflect the new numbers proposed in the Final EIS for Alternative 3. The Navy would continue to evaluate range usage in order to determine if further reductions in acreage could be realized.

Section 2.3.5.2 (Public Accessibility) details program requirements for allowable uses under Alternative 2, which are the same under this alternative. Allowing certain uses would make the Navy mission more challenging and complex. For example, the Navy would need to spend more effort and money concerning the management of access and coordination with the public to ensure their safety. However, Alternative 3 would still meet the Navy requirement to ensure that the FRTC possesses the present and future capabilities necessary to train and assess deploying forces for combat readiness, as reflected in the purpose of and need for the Proposed Action. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 (Similar to Alternative 2, Alternative 3 would allow for certain public activities on certain areas of B-16, B-17, and B-20 at designated times when the ranges would not be operational (i.e., typically weekends, holidays, and when closed for scheduled maintenance) (Table 2-6).

Table 2-6: Alternative 3 Allowable Activities Within Range Boundaries

Area	Activity											
	Grazing	Hunting	Mining			Solar /Wind	Utilities /ROWs	OHV	Camping /Hiking	Site Visits (Ceremonial Cultural, or Research)	Mgmt^ Access	Events (Races)
			Locatable	Leasable	Salable							
B-16	1	1	1	1	1	1	1	1	1	2	2	2
B-17	1	2+	1	1	1	1	1	1	1	2	2	2
B-19	1	1	1	1	1	1	1	1	1	2	2	2
B-20	1	1	1	1	1	1	1	1	1	2	2	2
DVTA	3	3	1	2*	2	1	2	3	3	3	3	3

Notes: 1. Grey = Activity Not Allowed. Public Safety concern. Closed to Public Access. 2. Yellow = Activity Allowable. Limited Public Access. 3. Green = No Restrictions. Open to Public Access. ROW = Rights of Way

^ Mgmt = Management

* Geothermal mining only

+ Only bighorn sheep hunting is proposed

The Navy would work with land managers to ensure that their access is coordinated and compatible with military training activities on all ranges and in the DVTA.

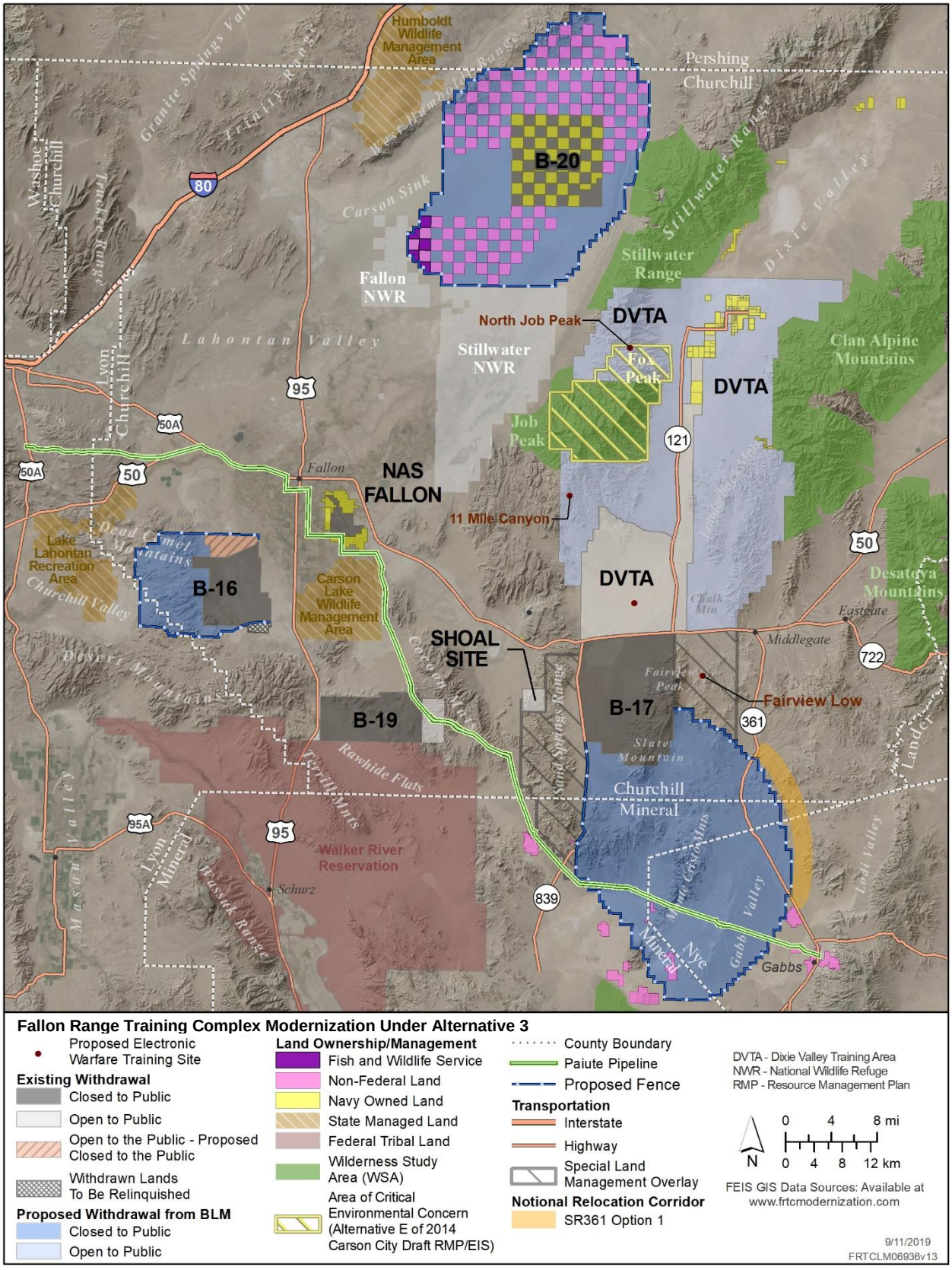


Figure 2-12: Fallon Range Training Complex Modernization Under Alternative 3

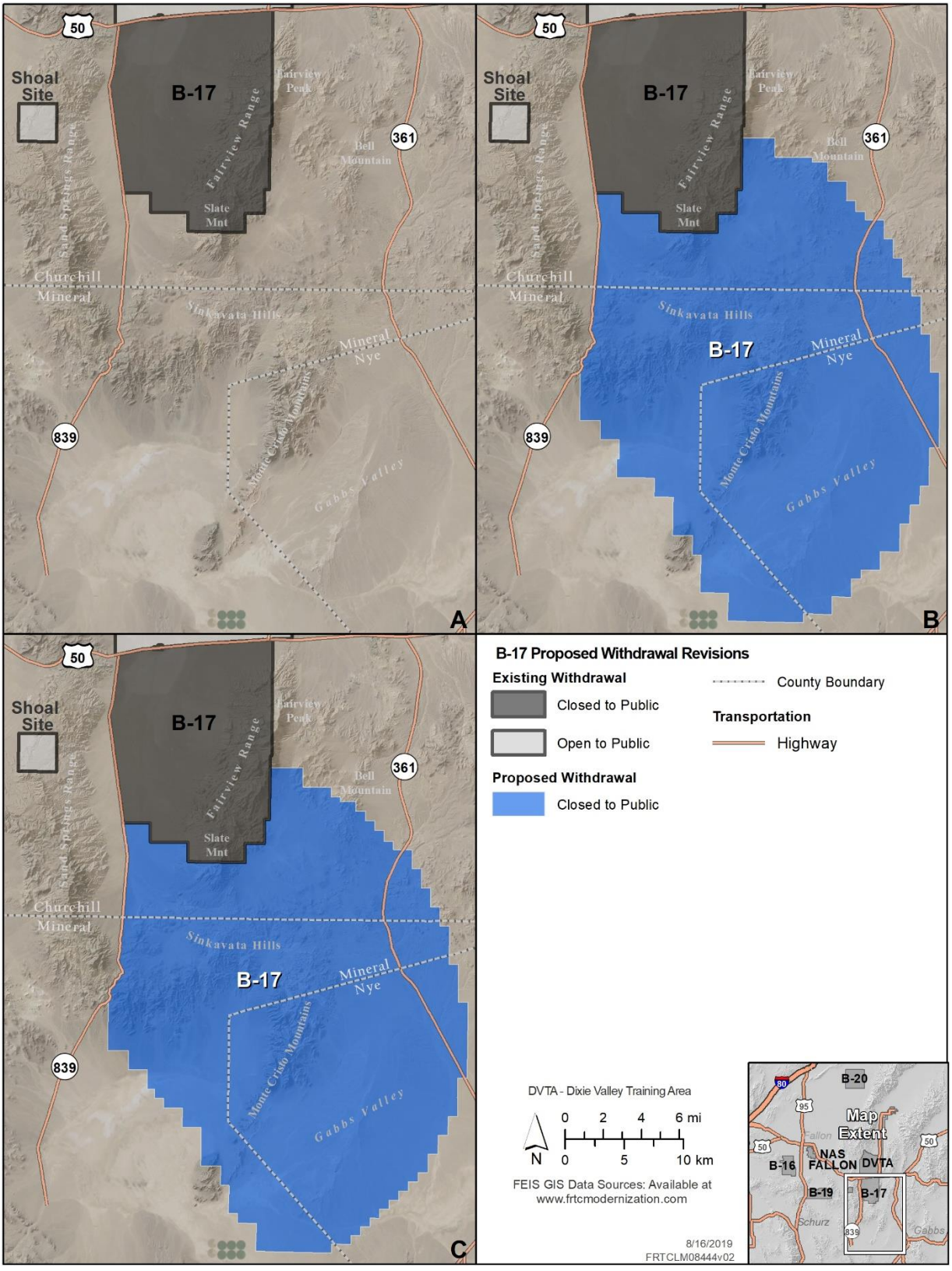


Figure 2-13: Fallon Range Training Complex B-17 Modernization Comparison of (A) Existing Range, (B) Draft EIS Alternative 3, and (C) Final EIS Alternative 3

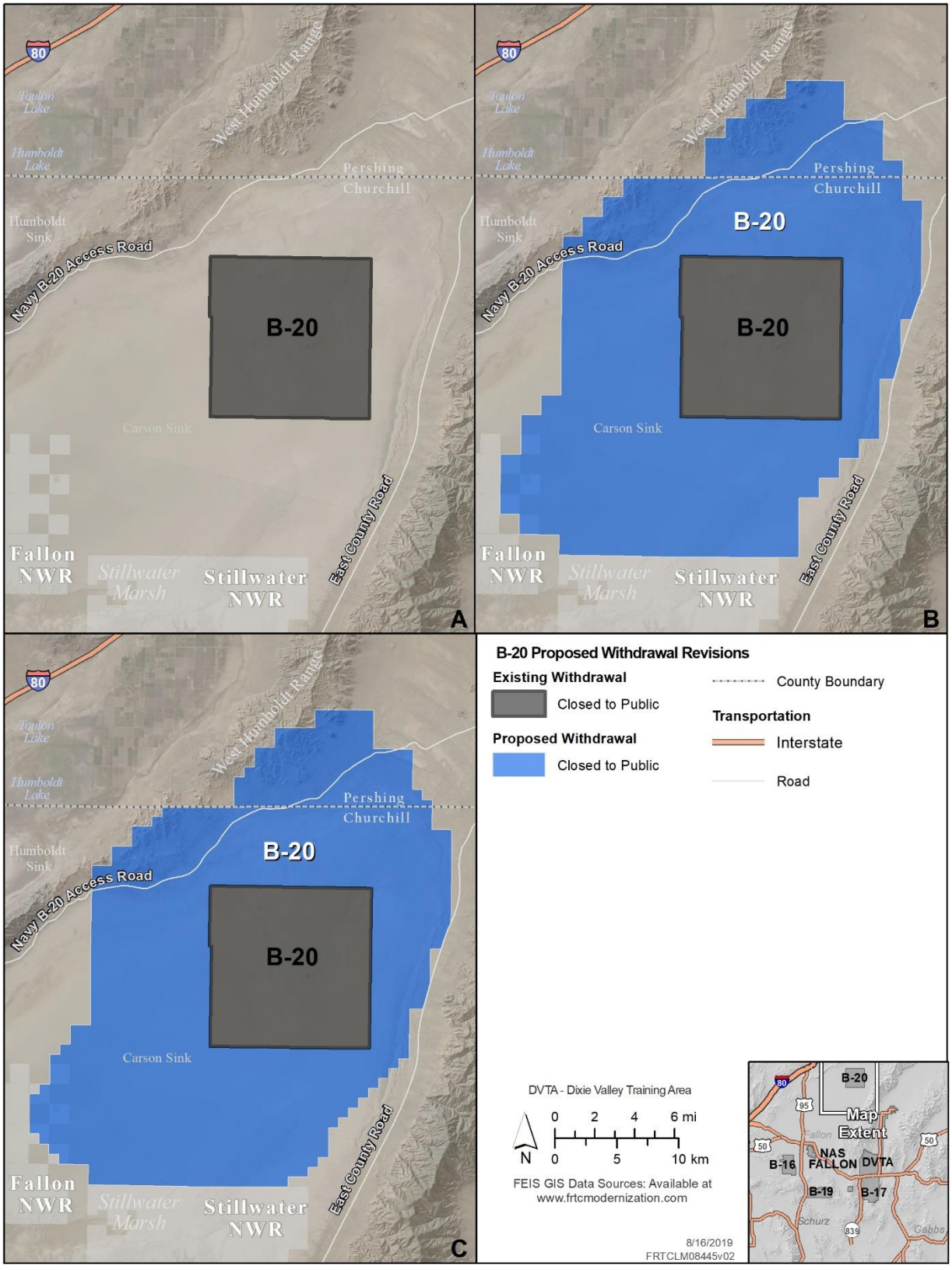


Figure 2-14: Fallon Range Training Complex B-20 Modernization Comparison of (A) Existing Range, (B) Draft EIS Alternative 3, and (C) Final EIS Alternative 3

Table 2-7: Alternative 3 Requested Withdrawal and Proposed for Acquisition by Range

Area	Existing Acreage			Requested Additional Withdrawal and Proposed Acquisition					Draft EIS Grand Total	Final EIS Grand Total**
	Withdrawn[1] (acres)	Non-Federal (acres)	Navy Fee Owned (acres)	Draft EIS Withdrawn[1] (acres)	Final EIS Withdrawn (acres)	Draft EIS Non-Federal (acres)	Final EIS Non-Federal (acres)	Final EIS Existing Withdrawn Not to be Renewed (acres)		
B-16	27,359	0	0	31,836	31,875	0	0	-1,079	59,195	58,155
B-17	53,546[2]	1,215	25	211,424	209,564	1,237	1,237	0	267,448	265,588
B-19	29,012	0	0	0	0	0	0	0	29,012	29,012
B-20	21,576	0	19,429	118,204	115,349	61,765	61,765	0	220,974	218,119
DVTA	68,809	0	8,751	245,200	245,428	2,518*	2,334*	0	325,277	325,322
Shoal	2,561	0	0	0	0	0	0	0	2,561	2,561
Totals+	202,864	1,215	28,205	606,664	602,216	65,520	65,336	-1,079	904,468	898,758

[1]Withdrawn lands are lands withheld from the operation of public land laws for the use or benefit of an agency by reservation, withdrawal, or other restrictions for a special government purpose. The existing withdrawn acreage represents the area that is presented in the Navy's withdrawal request segregation package and are lands that Navy is requesting for renewal. This number does not match the acreage values as described in PL 106-65 as a result of numerous land surveys by the BLM since 1999.

[2]The Navy is currently performing a land parcel survey to allow the potential relinquishment of 12 acres of land on the existing B-17 adjacent to State Route 839 to allow continued use of the area for local livestock and wildlife watering efforts.

+Due to rounding of acreage values at the category level, some total columns may not match calculated totals.

*Six of these acres are state lands.

**These columns show the updated acres for the Final EIS proposed for withdrawal or requested for acquisition under Alternative 3.

Notes: B = Bravo, DVTA = Dixie Valley Training Area, Navy = United States Department of the Navy

Similar to Alternative 2, Alternative 3 would allow for certain public activities on certain areas of B-16, B-17, and B-20 at designated times when the ranges would not be operational (i.e., typically weekends, holidays, and when closed for scheduled maintenance) (Table 2-6). Table 2-8 shows the percentage of each county requested for withdrawal or proposed for acquisition by land category (open or closed to the public).

Table 2-8: Lands Requested for Withdrawal and Proposed for Acquisition by Percentage of County Under Alternative 3

Area	Land Category	County				
		Churchill	Nye	Pershing	Mineral	Lyon
B-16	Open	0	0	0	0	0
	Closed	0.87%	0	0	0	0.31%
B-17	Open	0	0	0	0	0
	Closed	1.54%	0.72%	0	3.11%	0
B-20	Open	0	0	0	0	0
	Closed	4.88%	0	0.55%	0	0
DVTA	Open	7.72%	0	0	0.25%	0
	Closed	0	0	0	0	0
Total Percentage of County	**Open**	**7.72%**	**0.00%**	**0.00%**	**0.25%**	**0.00%**
	Closed	**7.29%**	**0.72%**	**0.55%**	**3.11%**	**0.31%**

Acreage values are derived from the GIS layers of the proposed withdrawal and expansion and may not equal values developed from the real estate cadastre. Also, acreage values do not include Navy-Fee Owned lands in calculation.

2.3.6.1 Bravo-16

2.3.6.1.1 Land Withdrawal and Acquisition

Under Alternative 3, the B-16 range would expand to the west by approximately 31,875 acres (Figure 2-15), increasing the total area to approximately 59,234 acres. Unlike Alternative 1 and Alternative 2, the lands south of Simpson Road (and Simpson Road itself) would not be withdrawn. Additionally, currently withdrawn lands south of Simpson Road would be relinquished by the Navy back to the BLM or Bureau of Reclamation.

2.3.6.1.2 Public Accessibility

Under Alternative 3, public access would be the same as described for Alternative 2. The entire range would be closed and restricted from public use except for Navy-authorized activities such as ceremonial or cultural site visits, or regulatory or management activities, such as BLM or Bureau of Reclamation, or NDOW activities (Table 2-6). The Navy would close Sand Canyon Road to the public. However, Simpson Road along the southern boundary of B-16 and the relinquished withdrawn land south of Simpson Road would remain open to public use.

2.3.6.1.3 Construction

Under Alternative 3, construction activities would be the same as described for Alternatives 1 and 2. The Navy would construct a Combat Village to support Tactical Ground Mobility Training and would install perimeter fencing around the withdrawn lands. Section 2.3.4.3.3 (Construction) details these activities.

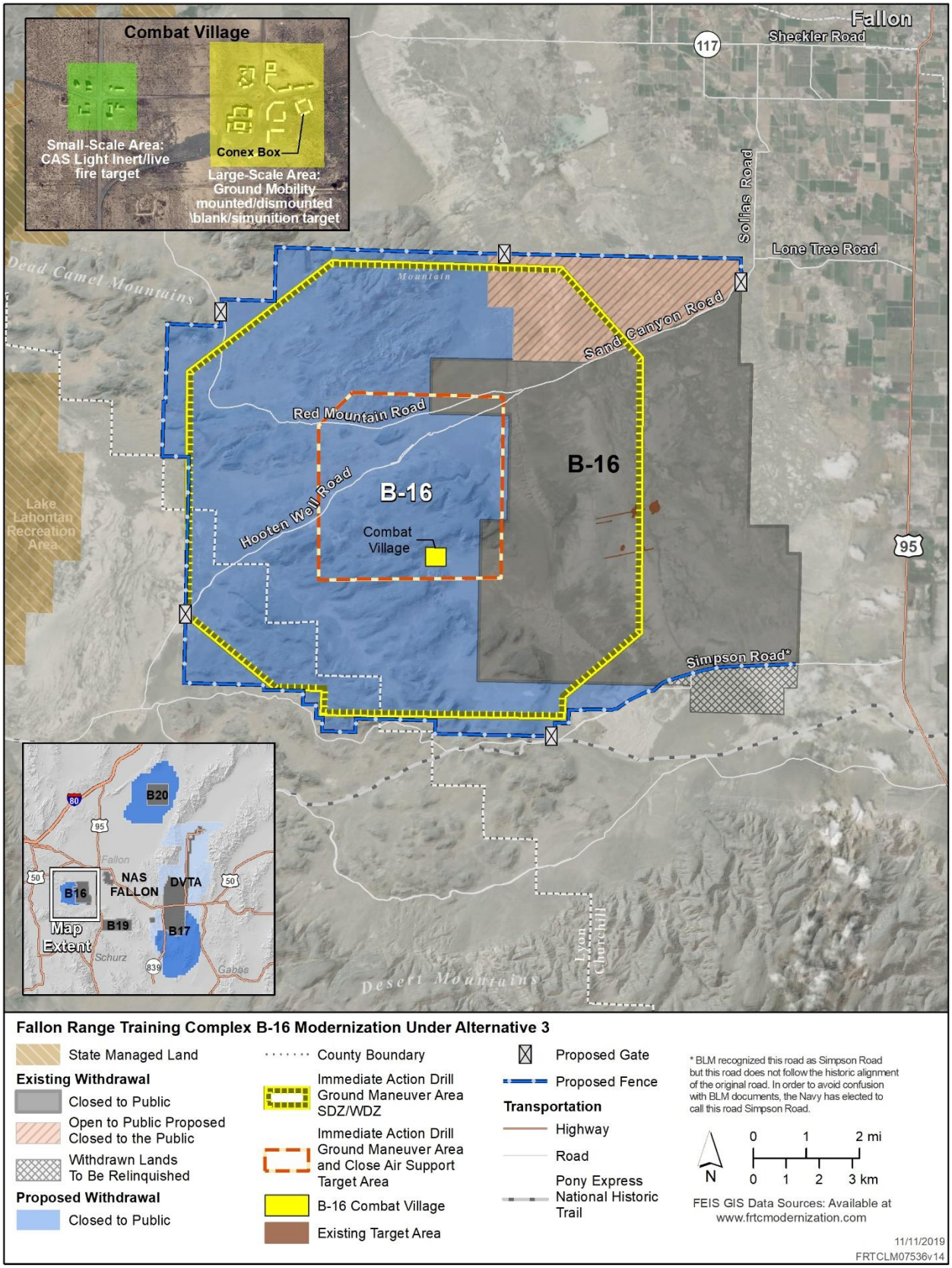


Figure 2-15: Fallon Range Training Complex B-16 Modernization Under Alternative 3

2.3.6.2 Bravo-17

2.3.6.2.1 Land Withdrawal and Acquisition

Under Alternative 3, B-17 would expand to the southeast by approximately 212,016 acres, and the withdrawal footprint would be rotated counterclockwise (Figure 2-16). The requested withdrawal would eliminate the overlap of State Route 839 (which would occur under Alternatives 1 and 2). Approximately 4,000 acres would support convoy routes, military vehicle training routes, or ground target areas (Figure 2-16), but in different locations than those described for Alternatives 1 and 2. Under Alternative 3, in addition to new targets and target areas, the Navy would continue to use existing targets and target areas.

2.3.6.2.2 Public Accessibility

Under Alternative 3, public access would be the same as described under Alternative 2. Alternative 3 would allow certain public uses within specified areas of B-17 at designated times when the ranges would not be operational (e.g., typically weekends, holidays, and when closed for scheduled maintenance), similar to Alternative 2. The entire B-17 range would be closed and restricted from the majority of public uses. Only Navy-authorized activities such as ceremonial and cultural site visits, regulatory or management activities, such as BLM or NDOW activities, as well as bighorn sheep hunting would be allowed (Table 2-6). The Navy and NDOW would manage the hunting program through a Memorandum of Agreement (see Appendix D, Memoranda, Agreements, and Plans, for a draft of the agreement). Section 2.3.5.2 (Public Accessibility) provides detailed program requirements for allowable uses.

Additionally, with the shifting of the B-17 range under Alternative 3, the Navy would also shift the B-17 hunter avoidance areas (avoidance areas would be reviewed and updated annually by the range operations and safety department). The WDZ proposed for training activities at B-17 would extend over a portion of State Route 361 (see Section 2.3.6.2.4, Road and Infrastructure Improvements to Support Alternative 3). For public safety purposes, the Navy is proposing to potentially reroute the portion of State Route 361 that would overlap with the proposed expansion area.

2.3.6.2.3 Construction

Under Alternative 3, the Navy would construct two vehicle, target, and equipment maintenance buildings and install two communications towers similar to Alternatives 1 and 2. Section 2.3.4.4.3 (Construction) details these activities.

Under Alternative 3, the Navy would fence proposed expansion lands using approximately 78 miles (instead of 75 miles as defined in Alternatives 1 and 2) of wildlife friendly configured four-wire fencing with seven 20-foot double swinging gates for access into the range (Figure 2-16) and signage placed at regular intervals. Spacing of wires would be configured appropriately for the wildlife in the area.

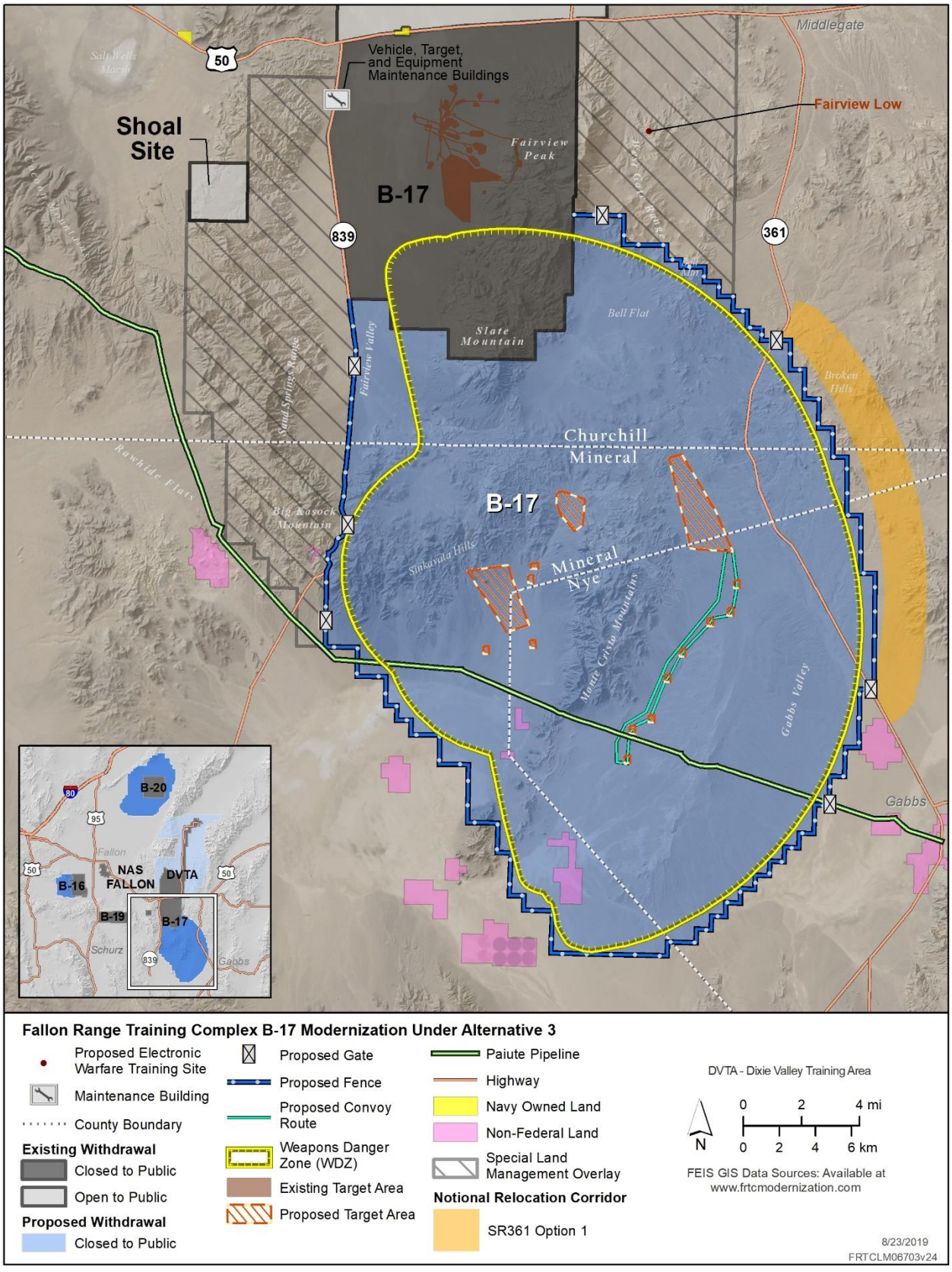


Figure 2-16: Fallon Range Training Complex B-17 Modernization Under Alternative 3

2.3.6.2.4 Road and Infrastructure Improvements to Support Alternative 3

Relocate State Route 361. With the reorientation and relocation of B-17, approximately 12 miles of State Route 361 that currently traverses BLM-administered lands would no longer be available for public use. The Navy is proposing to fund the potential construction of a new road (one of two potential options) within a notional corridor with similar specifications to State Route 361 outside of the requested withdrawal area, which would be analyzed in follow-on NEPA documentation (Figure 2-16). This corridor would cross public lands managed by BLM and could potentially improve vehicle access to these areas. Before constructing this supporting road, NDOT would need to submit an application to BLM, or other land managers, for the ROWs for any proposed new road section. The Navy would seek funding from Congress to pay for relocation of the road. Funds received would be used by the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, to plan, design, and construct the replacement road segment. NEPA documentation would be completed by the Federal Highway Administration prior to any road construction.

The Navy would coordinate with NDOT during each of these phases. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 361 unless and until any such new route has been completed and made available to the public.

Relocate Paiute Pipeline. Under Alternative 3, the Navy would purchase the approximately 18 miles of the existing Paiute Pipeline south of the proposed B-17. The Paiute Pipeline relocation segment would include the same specifications as the existing pipeline. The Navy would purchase and fund relocation of that portion of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur. Using funds provided by the Navy, the pipeline owner would have responsibility for planning, designing, permitting, and constructing any realignment of the pipeline. The Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such rerouting of the pipeline has been completed and made available to the pipeline owner. BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

2.3.6.3 Bravo-20

2.3.6.3.1 Land Withdrawal and Acquisition

Land withdrawal and acquisition for B-20 under Alternative 3 would be the same as Alternative 1 as described in Section 2.3.2 (Alternative 1 – Modernization of the Fallon Range Training Complex) with one exception. East County Road and land parcels immediately east of East County Road would not be withdrawn or closed. The B-20 range would expand in all directions by approximately 177,114 acres (Figure 2-17). This expansion would include approximately 2,720 acres of land currently withdrawn by the USFWS for the Fallon National Wildlife Refuge. Due to the safety concerns associated with being within a WDZ, those portions of the refuge lands would be closed to the public. The Navy anticipates entering into an agreement with the USFWS, which would allow continued management of the land as a Wildlife Refuge.

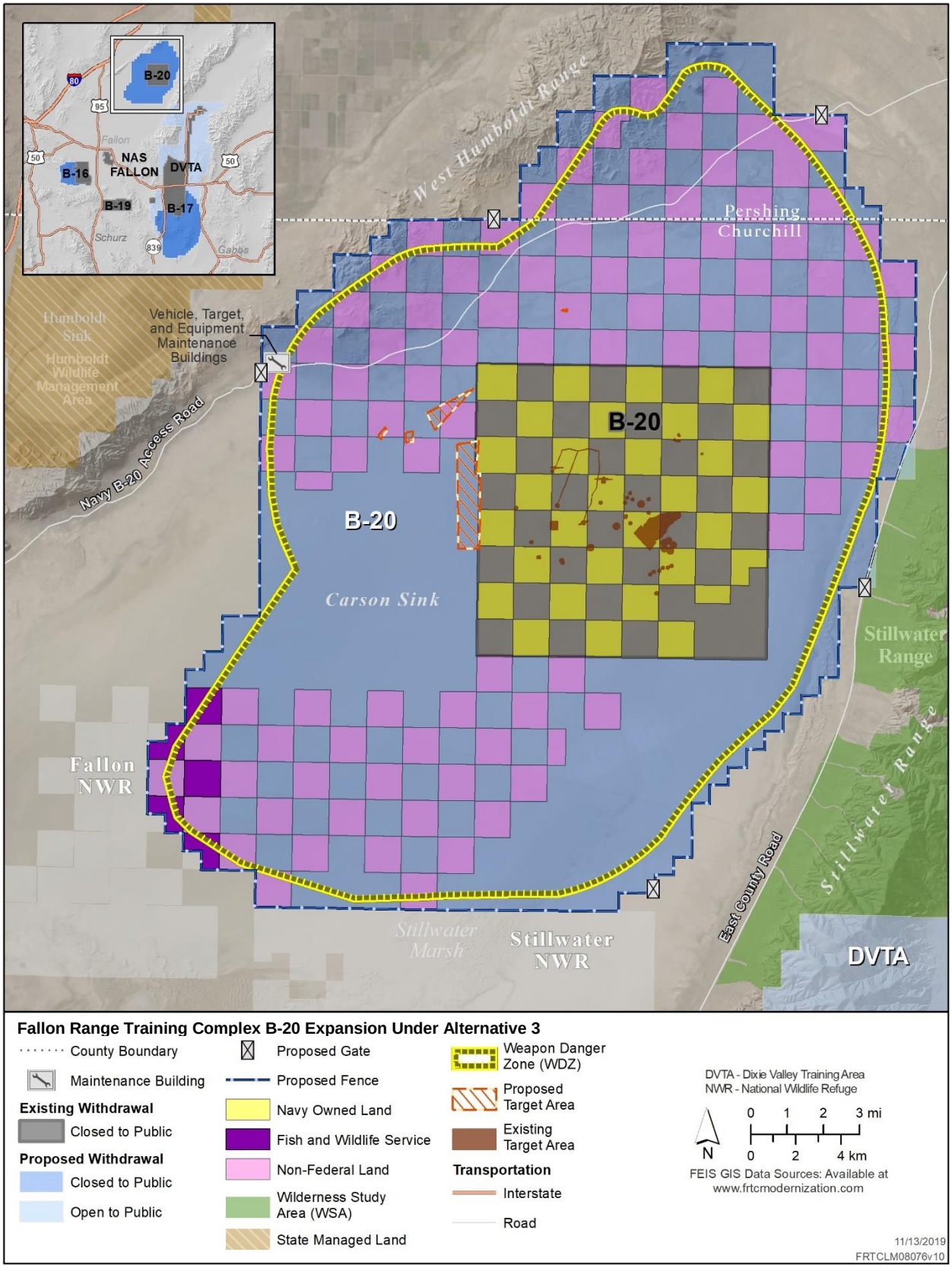


Figure 2-17: Fallon Range Training Complex B-20 Expansion Under Alternative 3

2.3.6.3.2 Public Accessibility

Public access at B-20 under Alternative 3 would be the same as under Alternative 2, as described in Section 2.3.2 (Alternative 1 – Modernization of the Fallon Range Training Complex). The majority of B-20 would be closed and restricted from public use except for Navy-authorized activities such as ceremonial or cultural site visits, special event races, or regulatory or management activities (e.g., BLM, Bureau of Reclamation, or USFWS activities) (Table 2-6).

East County Road and approximately 300 acres of land proposed for withdrawal in Alternatives 1 and 2 that is not proposed for withdrawal as part of the preferred alternative would remain open to the public to allow for transit. However, the B-20 Navy Access Road (known locally as Pole Line Road) would be closed to public access. The Navy would work with USFWS to ensure the USFWS manages the 2,720 acres of the Fallon National Wildlife Refuge requested for withdrawal as part of the refuge but closed to public access to preserve human health and safety.

2.3.6.3.3 Construction

Under Alternative 3 at B-20, the same construction activities as described for Alternative 1 would occur:

- Construct one vehicle, target, and equipment maintenance building.
- Install perimeter fencing with access gates.

Section 2.3.4.5.3 (Construction) details the implementation of these activities.

2.3.6.4 Dixie Valley Training Area

2.3.6.4.1 Land Acquisition and Withdrawal

Under Alternative 3, the land requested for withdrawal for the DVTA north of U.S. Route 50 would remain the same as in Alternative 1. However, under Alternative 3, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes designation of this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy. The area does include an existing right-of-way for a current Navy communication site. Otherwise, these two areas would remain open to public access and would be available for all appropriative uses, including mining for locatable and leasable mineral resources. However, prior to issuing any decisions on projects, permits, leases, studies, and other land uses within the two special use zones, BLM would be required to consult with NAS Fallon.

This consultation would inform the Navy of proposed projects, permits, leases, studies, and other land uses and afford the Navy an opportunity to collaborate with BLM to preserve the training environment. Further, prior to issuing any approval for installation or use of mobile or stationary equipment used to transmit and receive electromagnetic signals in the two special use zones as part of any federal action, BLM would be required to obtain permission from the Navy for use of this equipment. This requirement to obtain Navy permission for the use of this equipment would afford the Navy an opportunity to ensure military and civilian uses of the electromagnetic spectrum do not interfere with each other. BLM and the Navy would also enter into a MOU to administer the details of the consultation and approval process.

The proposed expansion (requested withdrawal and proposed acquisition) would total approximately 247,762 acres (Figure 2-16) and would increase the total range size to 325,322 acres.

2.3.6.4.2 Public Accessibility

Ground training by the Navy would continue to take place on existing roads and trails, with lands remaining open for certain public uses. Allowable public uses would include hunting, camping, hiking, fishing, OHV use, site visits, and grazing. The Navy would allow the same uses under Alternative 3 as defined under Alternative 2, including limited geothermal development west of State Route 121 and utility corridors (Table 2-6).

2.3.6.4.3 Construction

As in Alternative 1, Alternative 3 would create three Electronic Warfare sites: North Job Peak, 11-Mile Canyon, and Fairview Low (Figure 2-5). Section 2.3.4.6.3 (Construction) discusses these Electronic Warfare sites in greater detail.

2.3.6.5 Special Use Airspace Modifications

Under Alternative 3, airspace changes would be implemented in largely the same way as Alternative 1 (see Table 2-4). However, under Alternative 3, the Navy would create a new restricted area (R-4805) south of the existing R-4804 A/B and R-4812 to overlay the relocated withdrawal of B-17 lands (Figure 2-18). Alternative 3 would implement all other Restricted Areas, MOA, and ATCAA changes in the same manner as Alternatives 1 and 2.

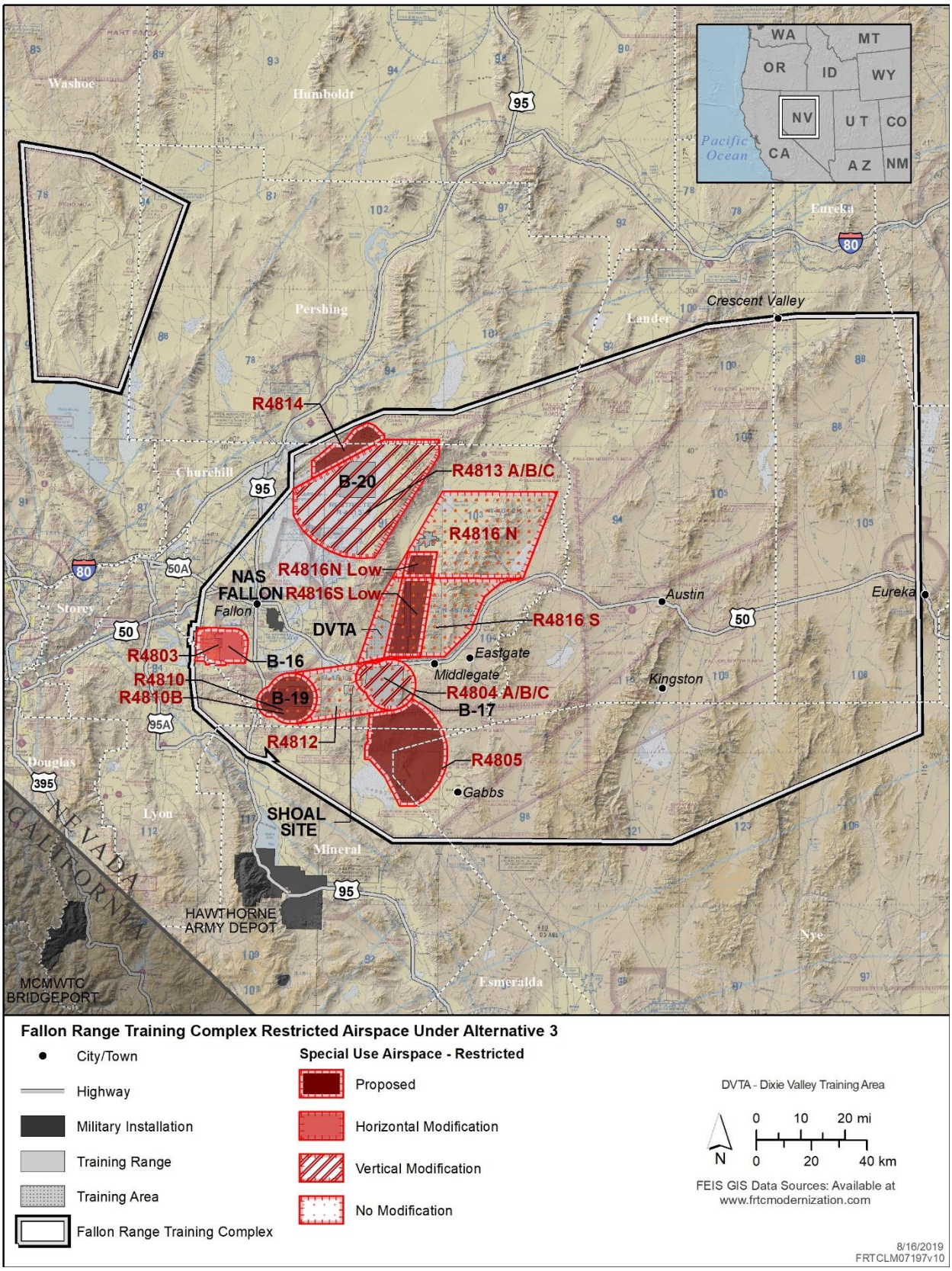


Figure 2-18: Fallon Range Training Complex Restricted Airspace Under Alternative 3

2.4 Environmental Baseline (Current Training Activities)

The Navy used the screening and sub-factors as described in Section 2.2 (Screening Factors) to evaluate whether potential alternatives met the purpose of and need for the Proposed Action. In addition to the No Action Alternative, the Navy identified three action alternatives for detailed analysis in this EIS. An "environmental baseline" was needed to compare the potential impacts of all alternatives to existing conditions. Therefore, the environmental baseline for this EIS is based on aviation and ground training activities as established under Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015a).

The Range Activity Summary Table (Table 2-9) contains data for training activities at the FRTC as presented in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015a), including representative platforms (e.g., aircraft) used, annual number of training activities, and associated training locations.

Appendix D of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015a) provides summary descriptions of current training activities conducted within the primary mission areas at the FRTC. The appendix also provides additional information, including estimated annual munitions use by range area and aircraft overflights in the FRTC airspace. Munitions use and overflight values are based on documented historical use, existing requirements, and anticipated future continuing requirements. These values are representative of current annual training levels and are part of the environmental baseline for analytical purposes.

Table 2-9: Annual Level of Training Activities at the Fallon Training Range Complex – Environmental Baseline

Range Activity	Representative Platform	Annual Number of Training Activities	Location[1]
Air Warfare			
Air Combat Maneuvers	FA-18, EA-18G, F-16, F-22, F-35, AV-8, EA-6B, F-15, F-16, F-5, F-21	2,153	NAWDC 1, NAWDC 2
Air Combat Maneuvers	FA-18	688	Reno MOA
Strike Warfare			
Bombing Exercise (Air-to-Ground)	AV-8, EA-18G, FA-18, F-15, F-16	1,422	B-16, B-17, B-19, B-20
Close Air Support	EA-18G, EA-6B, FA-18, F-15, F-16, H-60, T-34, UAS, F-35, A-10, AV-8, AH-1	416	B-17, B-19
Urban Close Air Support	FA-18	101	Over the city of Fallon, Nevada

Table 2-9: Annual Level of Training Activities at the Fallon Range Training Complex – Environmental Baseline (continued)

Range Activity	Representative Platform	Annual Number of Training Activities	Location[1]
Combat Search and Rescue	E-2, EA-6B, EA-18G, FA-18, F-5, F-16, F-35, H-60S	127	NAWDC 1, NAWDC 2
Gunnery Exercise (Air-to-Ground)	FA-18, CH-46, H-60, H-47, H-53, F-35, F-15, F-16, V-22, A-10, AH-1, AH-64	44	B-16, B-17, B-19, B-20
HARMEX (Suppression of Enemy Air Defense [simulation only])	FA-18, EA-18G, F-35 Integrated activities may add F-22, F-15, F-16, E-2, E-3, EP-3, RC-135	22	Electronic Warfare Range
Missile Exercise (Air-to-Ground)	F-18, AV-8, F-15E, H-60S, F-35	123	B-17, B-19, B-20
Naval Special Warfare			
Convoy Operations	Aircraft: FA-18, CH-47, H-60, CH-46 Vehicles: HMMWV	35	Dixie Valley Training Area
Insertion/Extraction	CH-47, H-60, C-130, MV-22, CH-46	34	NAWDC 1, NAWDC 2
Tactical Ground Mobility	HMMWV, SUV, RG-31/33, MATV, ATV, LTATV Joint light tactical vehicle, UAS CAT1	13	B-16, Dixie Valley Training Area
Ground Maneuver Tactics	Ground Personnel	4	Dixie Valley Training Area
Large Force Exercises			
Carrier Air Wing Large Force Exercise	E-2, E-3, E-8, EA-6B, EA-18G, F-15, F-16, F-21, F-22, F-5, FA-18, H-60, SH-60, C-130, KC-10, KC-130, KC-135, P-3C, P-8, F-35, RC-135, UAS	420	NAWDC 1, NAWDC 2
Desert Rescue Large Force Exercise	AH-1, AH-1Z, A-10, C-130, E-2C, EA-6B, EA-18G, FA-18, F-16, F-5, F-35, MV-22, H-60, MI-17, MI-24, UAS	77	NAWDC 1, NAWDC 2
Large Force Exercises			
Long Range Strike for JTFEX and COMPTUEX	E-2C, E-3, EA-6B, EA-18G, F-5, F-15, F-16, FA-18, F-22, F-35, KC-10, KC-135, B-52	4	NAWDC 1, NAWDC 2

Table 2-9: Annual Level of Training Activities at the Fallon Range Training Complex – Environmental Baseline (continued)

Range Activity	Representative Platform	Annual Number of Training Activities	Location[1]
Electronic Warfare			
Electronic Warfare Operations	EA-6B, EA-18G, EP-3, E-2, E-3, C-130, FA-18, F-16, F-35, P-3, P-8, H-60, RC-135, UAS, MC-12, V-22, H-47, AH-1, CH-53 Opposition Forces aircraft: F-15, F-16, F-21, FA-18, F-5	4,428	NAWDC 1, NAWDC 2
Expeditionary Warfare			
Land Demolitions, EOD	EOD Personnel, FBI	86	B-16, B-17, B-19, B-20
Other			
Dismounted Fire and Maneuver	Ground Personnel (.50 cal, 5.56 mm, 7.62 mm caliber weapons)	4	B-17
Ground Manuever Training	HMMWV, MRAP, MATV, and future (JLTV, Stryker, and LAV)	416	Dixie Valley Training Area, B-16, B-17, B-19, Shoal Site
Mission Area Training – Marksmanship	National Guardsmen, Sailors and Reservists, Law Enforcement (5.56 mm, 7.62 mm, 9 mm, 40 mm, 50 mm, 12-gauge caliber weapons, 105 mm howitzer)	231	B-19

[1] NAWDC 1 and NAWDC 2 are working areas within the FRTC airspace used to schedule different areas of the airspace. Aircraft can be shifted into these working areas to allow for deconflicting uses between different training activities. There are nine working areas within the FRTC airspace (4 in NAWDC 1 and 5 in NAWDC 2). Portions of NAWDC 1 overlay B-20 and northern DVTA and portions of NAWDC 2 overlies B-17 and the remainder of the DVTA. The Electronic Warfare Range underlies both NAWDC 1 and NAWDC 2.
Notes: ATV = All-Terrain Vehicle, B = Bravo, COMPTUEX = Composite Training Unit Exercise, EOD = Explosive Ordnance Disposal, FBI = Federal Bureau of Investigation, HARMEX = High-speed Anti-radiation Missile Exercise, HMMWV = High Mobility Multipurpose Wheeled Vehicle, JLTV = Joint Light Tactical Vehicle, JTFEX = Joint Task Force Exercise, LASER = Light Amplification by Stimulated Emission of Radiation, LAV = Light Armored Vehicle, LTATV = Lightweight Tactical All-Terrain Vehicle, MATV = Military All-Terrain Vehicle, mm = millimeter(s), MOA = Military Operations Area, MRAP = Mine Resistant Ambush Protected (vehicle), NAWDC = Naval Aviation Warfighting Development Center, SUV = Sport Utility Vehicle, UAS = Unmanned Aircraft System

2.5 Alternatives Considered but Not Carried Forward for Detailed Analysis

The Navy identified and considered a number of potential alternatives, in addition to those described earlier in this chapter, as the action alternatives. In addition, in the Notice of Intent to prepare an EIS and during the subsequent scoping period, the Navy requested suggestions for potential alternatives to the Proposed Action. The Navy examined each proposed alternative scenario (whether generated internally or proposed by members of the public or other commenting parties) to determine if it was

feasible, and if it met the purpose of and need for the project to provide required land for military training and the screening factors presented in Section 2.2 (Screening Factors). Input from the public was considered and helped the Navy develop the alternatives carried forward for detailed analysis in this EIS. The alternatives that were considered but not carried forward for detailed analysis in the EIS, and the reasons they were not carried forward, are described in this section. The alternatives that were not carried forward did not meet the purpose of or need for the project, were determined not to be practical and/or feasible from a technical and economic standpoint, or would not satisfy the alternative screening factors presented in Section 2.2 (Screening Factors).

2.5.1 Continue Training at the Fallon Range Training Complex in the Current Configuration

This alternative, also known as the "status quo" alternative, would renew the existing FRTC land withdrawals as currently configured. The Navy would not withdraw or acquire any additional land, and there would be no changes to existing restricted airspace at the FRTC. In their comments during the scoping period, Churchill County, Eureka County, Nevada Association of Counties, and other members of the public recommended that the Navy consider this alternative in this EIS.

As discussed in Section 1.5 (Training Needs and the Capabilities Evaluation Process), the FRTC as currently configured does not meet current or future requirement tactically acceptable combat training. Despite continued changes in warfare technology, the existing FRTC bombing ranges have not changed substantially in size or configuration since the 1990s. As such, the FRTC does not currently have enough land and airspace to accommodate realistic modern weapons delivery profiles and tactical ground mobility training.

Non-weapons training occurs within the DVTA, but nearby infrastructure, mining and geothermal development are encroaching on those activities. This encroachment places unrealistic limitations on non-weapons training and compromises aircrew safety, particularly in low-altitude, dark, and low-light conditions. As such, aircrew and Special Forces personnel are unable to safely train or train to tactically acceptable parameters within the DVTA.

The Navy considered this alternative but did not carry it forward for detailed analysis in the EIS. It would not meet the purpose of and need for the project, nor would it satisfy the realistic training environment and safety screening factors.

2.5.2 Modernize Fallon Range Training Complex to Fully Meet the Tactics, Techniques, and Procedures in *90 Days to Combat*

This alternative would increase FRTC airspace and training ranges to fully meet the TTP as set forth in *Ninety Days to Combat* (see Section 1.5, Training Needs and the Capabilities Evaluation Process). Under this alternative, the Navy would reach full TTP compliance and would allow air and ground forces to train in a realistic 360-degree combat scenario for all training scenarios. As Navy policy does not allow public use of any kind to occur within active WDZs or SDZs (OPNAVINST 3550.1A) for safety reasons, implementing this alternative would require almost double the land as that required for the Proposed Action (approximately 1.3 million acres), as well as extensive revisions to special use and civilian airspace. The Navy considered the withdrawal and acquisition of over 1.3 million acres but did not carry it forward for detailed analysis in the EIS, as the Navy considered this proposal not feasible because of severe and disruptive impacts on the local area, which would include the re-route of multiple major U.S. Highways (U.S. Routes 50 and 95, and U.S. Interstate 80), and in light of the greatly increased amount of public lands that would need to be closed to the public for weapons safety considerations.

2.5.3 Alternate Training Locations

The Navy considered numerous alternatives to move training activities in whole or in part to other areas within the Continental United States. As proposed by Eureka County and other stakeholders, these alternatives would involve either sharing existing military land or airspace with other services or moving the FRTC training activities to a new location.

Moving activities to other ranges could potentially meet the training requirements articulated in the purpose and need for the Proposed Action. However, no other existing training range (land or sea) or combination of ranges would be able to accommodate the Navy's mission and tempo at FRTC, particularly for advanced integrated strike warfare training. Given their own missions and full schedules, other existing training ranges would not be able to provide the adequate level of support staff, available land, available airspace, schedule compatibility (i.e., tempo), and infrastructure. Modernizing these ranges to meet tactically acceptable parameters would not be technically feasible at this time, for the reasons set forth below.

The following sections discuss the evaluation of other locations the Navy considered when identifying reasonable alternatives to meet the purpose of and need for the Proposed Action.

2.5.3.1 Naval Air Weapons Station China Lake

NAWS China Lake, in the Mojave Desert near Ridgecrest, California, is the Navy's largest single land range. NAWS China Lake is not presently equipped or configured to support the kind of realistic and integrated training conducted at the FRTC, as its mission is to support Naval Air Systems Command programs by performing research, development, test, and evaluation; logistics; and in-service support for guided missiles, free-fall weapons, targets, support equipment, crew systems, and electronic warfare. These research, development, testing, and evaluation activities use the majority of available training time; the time available to use the land and airspace for other uses is very limited. NAWS China Lake would not be able to accommodate FRTC training along with its current activities. Converting this range to accommodate such training at this time would not be technically or economically feasible, in light of the extensive difficulties that would be entailed in such a conversion and the tremendous expense that would be involved. The proposed expansion of the FRTC does not require such an extensive conversion, as the majority of the lands proposed for expansion are for safety purposes. The change in infrastructure on the FRTC is minimal in comparison to the infrastructure already in place and which would continue to be used.

Moreover, even if the Navy were to undertake such a conversion, doing so would not eliminate the scheduling conflicts that would severely impact tempo requirements, and would cause existing training at NAWS China Lake to be displaced elsewhere or perhaps ultimately cancelled, despite being itself of critical importance to national security.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment and tempo screening factors.

2.5.3.2 Nevada Test and Training Range

The Nellis Air Force Base Range Complex includes the Nevada Test and Training Range, which is the largest contiguous air and ground space in the United States. Similar to NAWS China Lake, the Nevada Test and Training Range is primarily a testing range and lacks many of the Navy-specific training system capabilities necessary for realistic integrated Navy training, including special warfare training.

While developing training systems is possible at the Nevada Test and Training Range, the U.S. Air Force and U.S. Air Force-sponsored training use up nearly all of the complex's available training time. Without terminating the Air Force's existing testing and training activities, the range as currently configured would not be able to support the tempo and level of Navy training, or the scheduling priorities required by the Optimized Fleet Response Plan. Converting this range to accommodate Navy training would be technically feasible but not economically feasible. Even if the Navy were hypothetically able to undertake such a conversion, doing so would not eliminate the scheduling conflicts.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment and tempo screening factors.

2.5.3.3 Utah Test and Training Range

The Utah Test and Training Range, which is approximately 80 miles west of Salt Lake City, Utah, is a Major Test Range and Installation. The Department of Defense primarily uses the Utah Testing and Training Range for testing and evaluating weapon systems that require a very large safety footprint. The Utah Test and Training Range is not a suitable candidate for advanced, integrated Navy training because the Utah Testing and Training Range has its own associated missions to accomplish related to U.S. Air Force platform and weapons system testing. The Utah Testing and Training Range is similarly constrained by the surrounding National Airspace System commercial routes and lacks the required land and airspace, and Navy-specific training systems infrastructure required to support Navy mission areas. The operational tempo of the Fallon ranges is too high for the Utah Testing and Training Range and it also does not have the available range space or infrastructure required to meet the mission requirements of both service's needs. The proposed expansion of the FRTC does not require such an extensive conversion, as the majority of the lands proposed for expansion are for safety purposes. The change in infrastructure on the FRTC is minimal in comparison to the infrastructure already in place and which would continue to be used. The Utah Test and Training Range would require an entirely new set of infrastructure to be able to support the training that occurs at the FRTC.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment or tempo screening factors.

2.5.3.4 Hawthorne Army Depot

This alternative would relocate all or portions of training to Hawthorne Army Depot. The Hawthorne Army Depot is a U.S. Army ammunition storage depot located near the town of Hawthorne in western Nevada. Although the depot has some training areas, it lacks any airspace, live-fire training areas, bombing ranges, infrastructure, or capabilities to support Naval Carrier Air Wing training, particularly integrated strike warfare training. It would take in excess of 1.5 billion dollars to replicate the required infrastructure of facilities and training systems that are specific to naval aviation and Naval Special Warfare requirements at NAS Fallon and FRTC. The proposed expansion of the FRTC does not require such an extensive conversion, as the majority of the lands proposed for expansion are for safety purposes. The change in infrastructure on the FRTC is minimal in comparison to the infrastructure already in place at the FRTC and which would continue to be used. The Hawthorne Army Depot would require an entirely new set of infrastructure to be able to support the training that occurs at the FRTC. Additionally, land surrounding the Hawthorne Army Depot would need to be withdrawn or acquired in order to provide the necessary training space similar to the FRTC.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment or tempo screening factors. In addition,

modernizing this range to support the integrated training that occurs at FRTC would not be technically or economically feasible.

2.5.3.5 R-2508 Complex

The R-2508 Complex includes all of the airspace and associated land presently used and managed by the three principal military activities in the Upper Mojave Desert region of California:

- NAWS China Lake
- National Training Center, Fort Irwin
- U.S. Air Force Test Center, Edwards Air Force Base

The R-2508 Complex provides the largest single area of overland SUA within the United States and is composed of internal restricted areas, MOAs, Air Traffic Control Assigned Airspace areas, and other SUA. Uses of these areas include bombing ranges, supersonic corridors, low-altitude high-speed maneuvers, radar intercept areas, and refueling areas. This Complex could accommodate some unit-level Navy training. However, advanced, integrated training conducted by carrier air wings at FRTC would routinely conflict with high-priority R-2508 activities. In addition, the Navy and U.S. Air Force use the R-2508 Complex to evaluate the total integrated systems and subsystems of prototype and experimental aerospace vehicles, including subsonic and supersonic flight-test mission operations. The joint testing primacy of the R-2508 Complex schedule cannot support the tempo and level of Navy training, or the scheduling priorities required by the Optimized Fleet Response Plan. Thus, it would not be technically feasible for R-2508 to accommodate such integrated training.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment or tempo screening factors.

2.5.3.6 Southern California Range Complex or Virginia Capes Range Complex

The Southern California Range Complex and the Virginia Capes Range Complex are the Navy's two other primary training locations. These complexes offer the levels of training complexity currently carried out at the FRTC. However, unlike the FRTC, which focuses on advanced integrated aviation training and special warfare, these complexes support warfare training for every component of the Navy and U.S. Marine Corps. Ships, submarines, amphibious forces, expeditionary forces, and unit-level through advanced aviation conduct virtually all of their required training in support of the Optimized Fleet Response Plan at these two complexes. The Navy and Marine Corps currently use virtually all of the available training range time at these complexes. Moreover, even if the Navy were to take over the range complexes for Carrier Air Wing training, doing so would not eliminate the scheduling conflicts that would severely impact tempo requirements, nor would it be technically or economically feasible. Furthermore, it would cause existing training at Southern California Range Complex and the Virginia Capes Range Complex to be displaced elsewhere or perhaps ultimately cancelled.

The Navy considered these alternatives but did not carry them forward for detailed analysis in this EIS. These alternatives would not meet the tempo screening factor.

2.5.3.7 Barry M. Goldwater Range Complex

This alternative would relocate all or most of the training that occurs at FRTC to the Barry M. Goldwater Complex, a 1.7 million-acre bombing range in Arizona. The U.S. Air Force, U.S. Marine Corps, and allied forces use this complex intensely, and it lacks the infrastructure or the availability to support Naval Carrier Air Wing training, particularly integrated strike warfare training. It would take in excess of

1.5 billion dollars to replicate the required infrastructure of facilities and training systems that are specific to naval aviation and Naval Special Warfare requirements at NAS Fallon and FRTC at the Barry M. Goldwater Range complex.

Additionally, without terminating the existing training activities, the range as currently configured would not be able to support the tempo and level of Navy training, or the scheduling priorities required by the Optimized Fleet Response Plan. Moreover, even if the Navy were to undertake the required conversion, doing so would not eliminate the scheduling conflicts that would severely impact tempo requirements, nor would it be technically or economically feasible. Furthermore, it would cause existing training at Barry M. Goldwater to be displaced elsewhere or perhaps ultimately cancelled, and would not be technically or economically feasible.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment or tempo screening factors. In addition, modernizing this complex to support the integrated training that occurs at FRTC would not be technically or economically feasible.

2.5.3.8 White Sands Missile Range

This alternative would relocate all or most training to the White Sands Missile Range in New Mexico. The White Sand Missile Range and the McGregor Range Complex at Fort Bliss are a contiguous military weapons testing range. This range and complex lack the training areas, bombing ranges, or infrastructure to support Naval Carrier Air Wing training, particularly integrated strike warfare training. It would take in excess of 1.5 billion dollars to replicate the required infrastructure of facilities and training systems that are specific to naval aviation and Naval Special Warfare requirements at NAS Fallon and FRTC at the White Sands Missile Range.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment or tempo screening factors. Also, modernizing this range to support the integrated training that occurs at FRTC would not be technically or economically feasible.

2.5.3.9 Create a New Training Range Complex

This alternative would create a completely new training range complex that would fully support the mission of Naval Aviation Warfighting Development Center, which is to provide advanced/integrated strike warfare training to deploying naval aviation and Naval Special Warfare units. The Navy specifically established Naval Aviation Warfighting Development Center at NAS Fallon and selected the FRTC for this training because of its year-round clear weather; relatively low population density; and relatively minor effects on the public's commercial, private, and recreational use of the FRTC and adjacent land, as well as on general civil aviation activities. Training performed at the FRTC currently uses approximately 223,562 acres of land, over 12,256 square nautical miles of airspace, and a vast infrastructure of facilities and training systems that are specific to naval aviation and Naval Special Warfare requirements. In addition, NAS Fallon and FRTC represent over 1.5 billion dollars in infrastructure development that the Navy cannot replicate easily or affordably at any other known location in the continental United States or abroad. The modernization required to sustain realistic and relevant training would add another approximately 684,000 acres of land, which would need to be a contiguous part of any new training complex.

The Navy considered this alternative but did not carry it forward for detailed analysis in this EIS. Although this alternative would meet the purpose of and need for the Proposed Action, recreating and modernizing these capabilities anywhere else would be highly difficult in light of the uncertainties associated with trying to find another location offering the requisite amount of land, types of terrain, suitably consistent weather, and low population density. Ultimately, attempting to create an entirely new complex would likely not be technically or economically feasible generally, nor would it be feasible under current real estate, land use, environmental, and airspace laws and regulations.

2.5.4 Reconfigure Components of the Fallon Range Training Complex Withdrawal

2.5.4.1 Resize Weapon Danger Zones

The U.S. Environmental Protection Agency, NDOW, and members of the public requested that the Navy consider an alternative that would decrease the size of the WDZs to reduce the land needed for withdrawal or acquisition. NDOW also requested that the Navy explore alternatives below a 99.99 percent certainty of containment for live air-to-surface munitions. Department of Defense policy requires a 99.99 percent containment policy for air-to-ground munitions for safety purposes. Decreasing the containment probability might decrease the size of the WDZ for some weapons but would increase the level of risk to the public. With a smaller WDZ, while more land would remain open to the public, the trade-off would be that open public lands would be closer to the target areas that are the focus of Navy air-to-ground munitions training, and these lands would not be under Navy control. Accordingly, the public would be at appreciably greater risk of suffering a direct injury or death as a result of munitions.

Reducing the shape and size of these WDZs would also require that firing ranges or firing azimuths drop to levels below tactically acceptable weapons release parameters (please see Section 1.5.1, Weapons Release Training and Need for Expanded Range Area). For example, the alternative would not meet the requirement for a 180° attack azimuth for Joint Direct Attack Munitions because the WDZ in the suggested configuration would be significantly less than 180°. Additionally, reducing the width of the WDZ would also decrease the range that the Navy could employ Joint Direct Attack Munitions, further reducing training realism.

The Navy considered an alternative with a reduced WDZ size but is not carrying it forward for detailed analysis in this EIS as it would not meet the purpose of or need for the Proposed Action. This alternative would not meet the realistic training environment or safety screening factor.

2.5.4.2 Reconfigure Bravo-16

Churchill County recommended that the Navy consider an alternative that would avoid closing Sand Canyon Road and Simpson Road. This alternative would include either moving the proposed expansion of B-16 2 miles south of Bombing Range Road and adjusting the proposed northern boundary of B-16 to Sand Canyon Road, or adjusting the southern boundary of B-16 to avoid Simpson Road and adjusting the northern boundary to avoid Sand Canyon Road.

While all action alternatives accommodate public access of Simpson Road, adjusting the boundary to avoid Sand Canyon Road would require the reconfiguration of this alternative such that a smaller area would be withdrawn for B-16. Reducing the proposed range size would lead to a corresponding loss of SDZ size. If SDZ reductions occurred, B-16 would not meet the realistic training environment criterion, as the capacity for a 360° field of fire at multiple firing positions for small arms would be lost. These reductions would also compromise the area available for multiple training areas with multiple complex threat and targets to accommodate Immediate Action Drill training. Additionally, removing proposed

withdrawn lands would minimize the use of a variety of terrains available for training, which reduces the Navy's ability to train in a realistic environment.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS, as it would not meet the realistic training environment screening factor.

2.5.4.3 Reconfigure Bravo-17 to the South

The Navy received several suggestions for reconfiguring B-17 to the south. For example, the Theodore Roosevelt Conservation Partnership requested that the Navy withdraw an additional 75,000 (approximate) acres directly south of the existing B-17 range with State Route 839 as the western boundary and approximately in line with the north/south boundary of the current B-17. The new B-17 area, in total, would be approximately 8 miles wide (east to west) and 26 miles long (north to south). The intent of this suggested reconfiguration appears to be that by shifting the impact zone, Navy aircraft would have over 40 degrees of approach from both the north and the south.

However, because B-17 is, and is proposed to continue to be, primarily an air-to-ground munitions delivery range, this alternative would not meet realistic training requirements for air-to-ground tactically acceptable weapons release parameters. Specifically, this alternative with a 40° attack azimuth from the north and south (a total of 80° of attack azimuth) would not meet the requirement for a 180° attack azimuth for Joint Direct Attack Munitions, as the WDZ in the suggested configuration would be significantly less than 180°. The reduced width of the WDZ would also decrease the range at which the Navy could employ Joint Direct Attack Munitions, further reducing the training realism.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment screening factor.

2.5.4.4 Reconfigure Bravo-17 to the East and West

Scoping comments requested that the Navy consider an alternative that would adjust the western boundary of B-17 to avoid State Route 839 and the eastern boundary to avoid Earthquake Fault Road. This alternative would also exclude an area from the BLM withdrawal that is 6 miles wide extending southward from U.S. Route 50 to the Churchill–Mineral County line and next to the existing eastern boundary of the B-17 range.

Implementing this alternative would change the shape of the area available for a WDZ within B-17, which would decrease the firing ranges and firing azimuths for munitions and would not meet realistic training environment requirements for air-to-ground tactically acceptable weapons release parameters. Specifically, this alternative would not meet the requirement for a 180° attack azimuth for Joint Direct Attack Munitions, as the WDZ in the suggested configuration would be far less than 180°. The reduced width of the WDZ would also decrease the range at which the Navy could employ the Joint Direct Attack Munitions, further reducing the training realism.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative would not meet the purpose of or need for the Proposed Action, nor would it meet the realistic training environment screening factor.

2.5.4.5 Reconfigure B-17 Firing Azimuth to Avoid State Route 839

This alternative would flip the firing azimuth at B-17 so that the firing direction would be from the northwest to the south (180° to 350°) instead of the proposed northeast to the south (10° to 180°) firing direction. Implementing this alternative would also flip the Joint Direct Attack Munitions WDZ and avoid

State Route 839. However, the current boundaries for the Restricted Area and MOAs are just west of the B-17 range to avoid the airspace surrounding the NAS Fallon airfield used for takeoffs and landings. Flipping the firing azimuth would require extending the Restricted Area west to allow for employing the Joint Direct Attack Munitions. Further, aircraft approaching targets at B-17 from the north and west would impinge flights arriving or departing NAS Fallon, presenting a hazard to aviation safety. To alleviate this hazard and implement this alternative, the Navy would need to reduce the target azimuth at B-17 over 60^{o}, which would not meet realistic training environment requirements for air-to-ground tactically acceptable weapons release parameters.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative would not meet the purpose of or need for the Proposed Action, as it would not create a sustainable airspace nor meet the realistic training environment or safety screening factors. Additionally, the Navy is pursuing an alternative in this EIS (Alternative 3) which avoids relocation of State Route 839.

2.5.4.6 Shift or Reduce Bravo-20 to Avoid the Fallon National Wildlife Refuge

The Navy was asked to develop an alternative to avoid overlapping the Fallon National Wildlife Refuge. One manner in which this could be achieved would be to shift B-20 to the east. However, shifting B-20 to the east would cause the WDZ to extend well over East County Road and the Stillwater Mountain Range. Although potentially providing sufficient land to meet training requirements, this alternative would require the closure of East County Road.

A second option would be to shift B-20 to the north. Such a shift would lead to an overlap between a restricted airspace and local airspace routes. Local FAA routes immediately outside of the current FRTC airspace are not compatible with closures for a restricted airspace. Pilots heavily use the local FAA routes, currently routed between numerous military ranges and airspace (Mountain Home Air Force Base and Oregon National Guard Airspace to the north, Hill Air Force base to the east, and Nellis Air Force Base to the south). Standard routes for aircraft in the national airspace system surround the FRTC airspace; in the specific instance of B-20, airspace route V-6 is immediately north of the current B-20 MOA. Moving B-20 and its associated airspace north would impinge on flights arriving or departing the Reno International Airport and present a hazard to aviation safety.

The Navy also considered reducing the dimensions of the proposed B-20 withdrawal to avoid overlapping the Fallon NWR. As a consequence, the area available to accommodate a WDZ would also be reduced. This area could not accommodate a WDZ that meets the screening factor for air-to-ground tactically acceptable weapons release parameters. Specifically, this alternative would not meet the requirement for the 180° attack azimuth for Joint Direct Attack Munitions, as the WDZ in the suggested configuration would be significantly less than 180°. The reduced width of the WDZ would also decrease the range at which the Navy could employ Joint Direct Attack Munitions, further reducing the training realism. Additionally, reducing the Joint Direct Attack Munitions WDZs means the Navy would need to conduct any training that used the full firing distances for training realism at the already heavily utilized B-17. An increase in training events at B-17 would strain the Navy's ability to complete each of the increased number of individual training events it would be forced to undertake at B-17 under this scenario, which would negatively impact the overall tempo for Advanced Integrated Strike Warfare.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment, tempo screening factors, or safety screening factors, and would not minimize impacts on civilian infrastructure or environmental impacts.

2.5.4.7 Reconfigure Bravo-20 to Avoid Closing Navy's B-20 Access Road

The Navy was asked to develop an alternative to avoid closing the Navy's B-20 Access Road (known locally as Pole Line Road). This Navy road is accommodated by an ROW issued by the BLM to the Navy for the purpose of maintaining B-20 and is currently open to public access. This alternative would necessitate changing the proposed boundaries of B-20, which would also change the shape of the area available for a WDZ. The Navy considered reducing the shape of the WDZ; however, doing so would mean that the firing ranges and firing azimuths drop to levels below those listed in the screening factor for air-to-ground tactically acceptable weapons release parameters. Specifically, this alternative would not meet the requirement for the 180° attack azimuth for Joint Direct Attack Munitions, as the WDZ in the suggested configuration would be significantly less than 180°. The reduced width of the WDZ would also decrease the range at which the Navy could employ Joint Direct Attack Munitions, further reducing the training realism. Additionally, reducing the Joint Direct Attack Munitions WDZs means the Navy would need to conduct any training that used the full firing distances for training realism at the already heavily utilized B-17. An increase in training events at B-20 strain the Navy's ability to complete each of the increased number of individual training events it would be forced to undertake at B-12 under this scenario, which would negatively impact the overall tempo for Advanced Integrated Strike Warfare.

The Navy also considered shifting B-20 to the south and west. This would result in target arrays being located at the bottom of Carson Sink, which frequently is flooded with standing water up to 10 feet deep. The frequency of flooding prohibits the Navy from developing realistic targets. Also, shifting B-20 would require acquisition of additional restricted use airspace, which would affect approaches into Reno International Airport. The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment or tempo screening factor.

2.5.5 Reallocate Training Activities within the Fallon Range Training Complex

2.5.5.1 Reallocate Training Activities from Bravo-16 to Bravo-19

This alternative would reallocate activities from B-16 to B-19. The intent would be to leave open the area west of B-16 for public use. The Navy has historically used B-19 as an air-to-ground range, so it contains unexploded ordnance and weapons debris that are a safety hazard to ground mobility training. The activities that currently occur and are proposed to continue to occur at B-16 are ground based and thus require the training area to be free from explosive hazards, such as unexploded ordnance. Moreover, these activities require a 360-degree firing azimuth, which B-19 cannot accommodate. The Navy must conduct military activities in a manner to ensure the safety of uniformed military personnel and civilian employees within and next to the training range. Because of the differing historical uses of the ranges, B-19 would not be safe for ground-based training activities and would not meet the safety screening factor requirements.

The Navy currently uses B-19 at a high operational level. Due to its heavy usage, reallocating any activities to B-19 would increase the amount of time required to complete training, and the timeline outlined by the Optimized Fleet Response Plan timeline would not be achievable. Further, reallocating B-16 training to B-19 (or the converse) would only end up displacing existing training activities, and at some point would likely require the cancellation of other necessary training as available space and scheduling and training capacity are used up. Implementing this alternative would not meet the tempo screening factor requirements.

Finally, accommodating ground-based training activities at B-19 would not be feasible. B-19 is bounded to the south by Walker River Paiute Reservation, historical sites to the North (hot springs), and to the west by U.S. Route 95, restricting the potential for expansion at B-19. Also, the soil and terrain immediately north and east of B-19 in the Blow Sand Mountains are not suitable for ground-based training activities, as the sand dunes makes ground mobility at B-19 very difficult. Although B-19 would still be available under this alternative, it would remain in its current configuration and thus would not meet the tactically acceptable requirements going forward.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS because it would not meet the purpose of or need for the Proposed Action or the safety and tempo screening factors.

2.5.5.2 Reallocate Training Activities from Bravo-17 to Bravo-19

This alternative would reallocate training activities from B-17 to B-19, with the aim of avoiding or minimizing recreation and public access impacts that would result from the Proposed Action.

B-19 is approximately half the size of the existing B-17 range. At this size, safely containing the proposed WDZs at B-17 within the boundaries of B-19 would be impossible. Reducing the size of the WDZ means that the firing ranges and firing azimuths drop to levels below those listed in the screening factor for air-to-ground tactically acceptable weapons release parameters. Specifically, this alternative would not meet the requirement for the 180° attack azimuth for Joint Direct Attack Munitions, as the WDZ in the suggested configuration would be significantly less than 180°. The reduced width of the WDZ would also decrease the range at which the Navy could employ the Joint Direct Attack Munitions, further reducing the training realism.

Implementing this alternative would not be feasible because the Navy currently uses B-19 at a high operational level. Due to B-19's heavy usage, reallocating activities to B-19 from B-17 would increase the amount of time required to complete training, and the timeline outlined by the Optimized Fleet Response Plan timeline would not be achievable. Conversely, moving training activities from B-19 to B-17 would only end up displacing existing training activities, and at some point would likely require the cancellation of other necessary training as available space and scheduling and training capacity are used up. Implementing this alternative would not meet the tempo screening factor requirements.

B-19 would have to increase in size to fully contain the current Joint Direct Attack Munitions WDZ, let alone the tactically acceptable Joint Direct Attack Munitions WDZ associated with the proposed expansion of B-17. As listed above, B-19 would be difficult to expand to the south because of potential impacts on the Walker River Paiute Reservation, and it cannot expand to the west without relocating U.S. Route 95 or to the north without potentially relocating U.S. Route 50. In addition, B-19 cannot safely expand north because of SUA restrictions.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS because it would not meet the realistic training environment or tempo screening factors.

2.5.5.3 Reallocate Training Activities from Bravo-17 to Bravo-20 (or the inverse)

The Navy received several comments suggesting that training activities at B-17 move to B-20 and that B-17 be released back to the public. Other comments suggested the inverse, moving B-20 activities to B-17 and releasing B-20 lands back to the public. Having both of these ranges allows the Navy to design realistic training scenarios in which aviators can "attack" one set of targets while defending themselves from a separate set of anti-aircraft measures. The Navy cannot conduct this exercise with only one of

these ranges; therefore, this potential alternative would not meet the realistic training environment screening factor.

Also, having multiple ranges allows for multiple bombing scenarios to run simultaneously on the different ranges. Currently, training activities require the capability for dual/concurrent Large Force Exercises. This requirement means that to maintain training capacity, there must be two separate areas where Large Force Exercises activities can occur at the same time. Having only one Large Force Exercise range would mean a 40-percent loss in training capacity, which would be a critical shortfall. FRTC is already scheduled over capacity and turning away training units; losing existing training areas would result in the FRTC not meeting the tempo screening factor.

Having both B-17 and B-20 available for training would allow the Navy to conduct different training scenarios and classes at the same time without interference or an increase in aviation hazards due to an overcrowded airspace. Implementing this alternative would not meet the safety screening factor for safe operation of multiple aircraft.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative would not meet the realistic training environment, safety, or tempo screening factors.

2.5.5.4 Reallocate Dixie Valley Training Area Training Activities to Bravo-20

A configuration alternative considered by the Navy was to make B-20 the primary training area for nighttime training and reduce activities in the DVTA. Churchill County proposed this alternative to eliminate the potential conflict between such training and future geothermal activities, recreation activities, and transmission lines in Dixie Valley. Currently, B-20 is near capacity with existing training activities and moving the large number of DVTA activities would not be possible with the remaining training time available at that range. Reallocating any activities to B-20 from the DVTA would increase the amount of time required to complete training, and the timeline outlined by the Optimized Fleet Response Plan would not be achievable. Additionally, B-20 and the DVTA have different terrains. B-20 is largely a flat playa with a soft substrate unsuitable for vehicle use, while the DVTA is mountainous and reflects the terrain types required for realistic training. Lastly, B-20 contains unexploded ordnance, which makes the terrain unsuitable for the types of non-hazardous training activities that are accomplished within the DVTA.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS. This alternative it would not meet the realistic training environment and tempo screening factors.

2.5.5.5 Relocate Bravo-16 Northeast of Cocoon Mountains

Another suggestion was to relocate B-16 completely to the north and east of the Cocoon Mountains, north of B-19. As the Navy uses B-16 for ground-based training activities, any range relocation must occur on lands that provide adequate area for a 360° area of fire for small arms and are available year-round to meet the tempo criterion for Naval Special Warfare.

A preliminary analysis of the proposed relocation site for B-16 revealed that lands north and east of the existing B-16 range lack the terrain variety of B-16. Further, a large portion of the terrain on the proposed relocation site is not suitable for safe operation during ground-based training, because the soils would not support the weight of vehicles used during training. Any loss of available training lands in the area would reduce the realism of training (the main reason the Navy is proposing B-16 for expansion). Additionally, seasonal flooding frequently impacts the area proposed for relocation. Losing

available training lands due to flooding would reduce the Navy's ability to meet the required training tempo.

The Navy considered this alternative but is not carrying it forward for detailed analysis in this EIS because it would not meet the realistic training environment and tempo screening factors.

2.5.6 Access Alternatives

The concept of an access alternative was developed through the process of working with Cooperating Agencies and Tribal Participants. The Navy looked at each individual type of access and analyzed it separately, as described below.

2.5.6.1 Livestock Grazing on Live-Fire (Bravo) Ranges

The Navy considered an access alternative to establish a grazing program on lands within the proposed Bravo ranges, to the extent compatible with the Navy's mission at the FRTC (Section 3.4, Livestock Grazing, contains a detailed analysis of the potential loss of grazing opportunities). Currently, NAS Fallon and BLM jointly manage grazing within the DVTA through an MOU for managing natural resources. BLM does not support a similar collaborative effort for managing grazing on the Bravo ranges due to concerns for the safety of staff working on an active bombing range.

As noted elsewhere in this EIS, the military training activities that occur within the FRTC's bombing ranges are inherently dangerous and pose a risk to public safety without strict compliance to proper security measures. The areas of the bombing ranges that pose the most significant potential risk to public safety are within the WDZs and SDZs (hereafter referred to as danger zones). A Navy grazing program for the Bravo ranges (including the requested expansion withdrawal areas) would need to consider management of public activities within danger zones to minimize risks to public safety to the extent possible. Minimizing risk would require that any person entering a danger zone fully understand the risks associated with entering these zones.

Some specific requirements that could be imposed on potential grazing lessees would be to hold mandatory annual training for employees expected to work in danger zones and conduct and maintain security clearances for any person entering any restricted access areas of NAS Fallon. The Navy has identified times (2:00 a.m.–6:00 a.m. Monday–Saturday, Sundays, and holidays) where the Bravo ranges would likely not be active, thereby minimizing safety risks to persons entering the danger zones.

However, these access restrictions could, in turn, create a potential livestock safety issue given the need to water cattle regularly. The times available for access would be in in the middle of the night, making water hauling in and around the danger areas difficult. In addition to water hauling, grazing lessees would also have to check engineered water sources, such as wells and tanks, every 32 hours to ensure there are no malfunctions in the systems and the water needs of the cattle are met. Lessees or their employees entering danger zones to tend livestock during times that the Bravo ranges are active (i.e., outside of approved access times) would be at a significant personal safety risk.

Another obstacle to the Navy establishing a grazing management program on bombing ranges is that the authority provided to the Navy under Title 10 (10 U.S.C. section 2667) to award outleases differs significantly from the permitting authorities afforded by BLM under the Taylor Grazing Act (43 U.S.C. sections 315–316). The Navy is required to award agricultural and grazing leases through a competitive bid process that obtains fair market value of the leased area. Per Secretary of the Navy Instruction 11011.47D (U.S. Department of the Navy, 2013), the term for agricultural and grazing leases shall not exceed 10 years. As a result, the Navy outgrant leasing authority has two significant

restrictions/limitations absent from the BLM permitting process: (1) it restricts the available time that a lessee has to recuperate costs associated with infrastructure improvements to a maximum of 10 years, and (2) it eliminates the lessee's option to influence who may receive subsequent leases. Also, the Navy's limited ability to work with existing BLM permittees for access to water and forage resources on adjacent BLM allotments would compromise the potential success of a Navy grazing program. Given the public safety risks and leasing challenges previously discussed, and the incompatibilities with mission requirements, the Navy is not carrying this alternative forward because it would not meet the purpose of or need for the Proposed Action, nor the realistic training environment and safety screening factors.

2.5.6.2 Mining on Live-Fire (Bravo) Ranges

Navy policy does not allow mining or utilities to occur within active WDZs (OPNAVINST 3550.1A) for public safety reasons. By its very nature, the use of ordnance is an inherently dangerous activity that must be mitigated by ensuring personnel and infrastructure unrelated to training activities are not present in areas where ordnance may be fired. Also, these activities would require infrastructure and lighting to operate as well as regular access to the area. The safety screening factors indicate that airspace above Navy-controlled land must be clear of infrastructure presenting a hazard to aviation safety (e.g., towers, cables, or wires). This process includes maintaining an environment free from cultural lighting effects (e.g., human-made lighting such as lights from a city, buildings, streets, and infrastructure) incompatible with the use of Night Vision Devices. Because mining and utilities inherently utilize this type of infrastructure, the Navy considered this concept but is not carrying it forward because it would not meet the purpose of or need for the Proposed Action as well as the realistic training environment and safety screening factors.

2.5.6.3 Renewable Energy Development (Wind and Solar) within Bravo Ranges and Dixie Valley Training Area

Navy policy does not allow utilities to be constructed or situated within active WDZs (OPNAVINST 3550.1A). The Navy considered allowing solar or wind power development to continue within the DVTA. The main conflicts with wind energy development hazards and low flying aircraft include cultural lighting, frequency spectrum interference, and the fact that wind energy development would inhibit radar operation. Wind turbines produce extremely tall towers with large rotating blades that pose a hazard to flight safety and result in false radar returns and a cluttered radar environment. The main concerns with solar development are hazards to low flying aircraft, glint and glare hazards, and interference with infrared and heat sensors. Photovoltaic arrays produce large areas that are an obstacle to ground mobility training, create problems with heat signatures, and pose a flight safety hazard in the form of bright glint and glare to low flying aircraft, both jet and helicopter. Concentrated solar arrays pose a hazard to flight, ground obstacles, and problems with heat signatures. The Navy considered this concept but is not carrying it forward because it would not meet the purpose of or need for the Proposed Action, nor the realistic training environment and safety screening factors.

2.5.6.4 Off-Highway Vehicles within Live-Fire (Bravo) Ranges

An access alternative considered by the Navy was to allow unstructured OHV use within the Bravo ranges that would be compatible with the Navy's mission at the FRTC. As noted elsewhere in this EIS, the military training activities that occur within the FRTC's bombing ranges are inherently dangerous and pose a risk to public safety without strict compliance to proper security measures. The areas of the bombing ranges that pose the most significant potential risk to public safety are within the danger

zones. Allowing OHV use on the Bravo ranges (including the requested withdrawal areas) would create appreciable public risk.

The Navy is concerned that a member of the public could be within the range boundaries. To minimize the potential for impacts on the public from training, the Navy would need to drive or fly over the entire range to ensure that no members of the public remain on the range before engaging in training activities. Clearing the ranges every Monday or the day following a holiday would require a large time investment and would negatively impact the amount of training time available throughout the year. Implementing this alternative would not meet the tempo screening factor requirements as required by the Optimized Fleet Response Plan.

The Navy considered this concept but is not carrying it forward. This concept would not meet the safety or tempo screening factors.

The Navy would allow OHV use to continue on the DVTA under Alternatives 1, 2, and 3. The Navy would also allow structured OHV use (e.g., when used as part of special events and formally scheduled races) on all of the Bravo ranges under Alternatives 2 and 3.

2.5.6.5 Camping and Hiking within Live-Fire (Bravo) Ranges

An access alternative considered by the Navy was to allowing camping and hiking activities within the Bravo ranges that would be compatible with the Navy's mission at the FRTC. As described for OHV activities above, the Navy would need to perform an unknown amount of cleanup and unexploded ordnance clearance to create a safe area for uncontrolled hiking or camping. However, that is not technically or economically feasible for the Navy, and the safety risk to the public would remain. Allowing hiking and camping within the Bravo ranges would conflict with the safety screening factor.

Additionally, the Navy is concerned that a member of the public could be within the range boundaries during times that are outside of approved access times. To minimize the potential for impacts on the public from training, the Navy would need to sweep the entire range for members of the public before engaging in training activities. Clearing the ranges every Monday or the day following a holiday would require a large time investment, which would negatively impact the amount of training time available throughout the year. Implementing this alternative would not meet the tempo screening factor requirements as required by the Optimized Fleet Response Plan.

The Navy considered this concept but it is not carrying it forward. This concept would not meet the safety or tempo screening factors.

The Navy would allow camping and hiking to continue on the DVTA under Alternatives 1, 2, and 3.

2.5.6.6 Open Access to Northeast Portion of Bravo-16

This alternative proposes to leave open the currently withdrawn northern area of B-16. The suggestions for reconfiguring B-16 would result in smaller areas of withdrawal. Reducing the proposed range size would result in a corresponding loss of SDZ size. Reducing the SDZs would not meet the realistic training environment criterion, as the capacity for a 360° field of fire at multiple firing positions for small arms would be lost. Additionally, this action would compromise the area available for training areas with multiple complex threats and targets to accommodate Immediate Action Drill training. Removing proposed withdrawn lands would reduce the variety of terrains available for training, which reduces the Navy's ability to train in a realistic environment. Under any of the alternatives, an SDZ would overlap this area. Navy policy does not allow public land use of any kind to occur within active SDZs (OPNAVINST

3550.1A) for safety reasons. Implementing this alternative would conflict with the safety screening factor.

The Navy considered this concept but is not carrying it forward. This concept would not meet the realistic training environment or safety screening factors.

2.5.7 Governor's Alternative ("Nevada Alternative")

The Nevada Office of the Governor proposed an alternative to realign B-17 by relocating it to the southeast (see Section 2.3.6.2, B-17). The Governor's alternative also proposes minor boundary adjustments to the configurations of B-16 and B-20 with no changes to the boundaries of B-19. The Navy determined that it could incorporate many aspects of the Governor's alternative without detrimental effects on the Navy's ability to train in the FRTC. Accordingly, the Navy developed Alternative 3 to include much of the Nevada Alternative. The discussion below would address both those aspects of the Nevada Alternative that the Navy could not accommodate because they are inconsistent with providing sufficient land for military training while maintaining range safety (see Section 1.4, Purpose of and Need for the Proposed Action), as well as those aspects of the proposal that the Navy has been able to incorporate into one or more of its alternatives.

B-16: The Nevada Alternative identifies the potential loss of public access to Simpson Road, which lies within the existing boundaries of B-16, as a concern, and proposes that the Navy make minor adjustments to the boundary of B-16 to allow public use of portions of Simpson Road. Under the alternatives proposed by the Navy in this EIS, Simpson Road would be closed to public access under Alternative 1. However, under Alternative 2, Simpson Road and the lands south of the road would remain open even though the Navy would include this area within its requested public land withdrawal. Under Alternative 3, the Navy would not withdraw Simpson Road or lands south of Simpson Road, and would also relinquish previously withdrawn lands south of Simpson Road.

While Alternative 1 would restrict the entire B-16 proposed land withdrawal from public access, under Alternatives 2 and 3, the Navy would implement a managed access program, which would allow cultural site visits, wildlife management access, and special events/races at B-16, in addition to Simpson Road remaining open. Under Alternative 3, the currently withdrawn land south of Simpson Road would not be extended and this land would be relinquished back to BLM for reincorporation into the public domain. This aspect of the Nevada Alternative has been incorporated into the Navy's preferred alternative.

B-17: As identified earlier in this discussion, the Nevada Alternative proposes a relocation of the proposed expansion of B-17 that would exclude Nevada State Route 839 and the Fairview Peak area from the proposed public land withdrawal. A portion of Nevada State Route 361 would be realigned outside of the proposed B-17 withdrawal. Additionally, the Nevada Alternative would allow NDOW and special permit hunters to have limited access to the proposed B-17 expansion area for wildlife management and hunting activities. The Governor also requested unrestricted access to the Rawhide Mine and the Don A. Campbell Geothermal Plant. The Navy's Alternative 3 proposes a relocation of B-17 that is largely comparable to the Governor's proposal, in addition to working with NDOW to provide limited access for specified hunting seasons at B-17 (also under Alternative 2) and allowing for access to the Rawhide Mine and Don A. Campbell Geothermal Plant (under all of the Navy's proposed EIS alternatives).

B-20: The Nevada Alternative proposes minor boundary modifications to the proposed configuration of B-20 to exclude East County Road from the public land withdrawal request, to ensure that there would

be no access restrictions in the future associated with the conduct of Navy training activities. All of the Navy's EIS alternatives would allow continued unrestricted public access to East County Road. Under Alternative 3, land east of East County Road is not proposed for withdrawal. Accordingly, this aspect of the Nevada Alternative has been incorporated into the Navy's preferred alternative.

DVTA: The Nevada Alternative proposes to modify the Navy's DVTA public land withdrawal request to ensure continued access by the public for recreation and grazing and by NDOW for wildlife management activities in the Stillwater Mountains, Louderback Mountains, the south end of the Clan Alpine Mountains, and the Sand Springs Range. Currently, the Navy allows public access to DVTA lands and such public access would continue for all lands requested for withdrawal and proposed for acquisition as part of the proposed expansion of the DVTA.

In addition, the Nevada Alternative proposes that the Navy include a 300-foot buffer on either side of the existing Terra-Gen transmission line along State Route 121 to allow for future construction of transmission lines associated with future geothermal development projects. The Navy's proposed alternatives could accommodate 90-foot ROWs immediately west of the current transmission line corridor as well as concurrent use of the existing corridor.

Finally, the Governor requested that the Navy allow public access to and development of high potential geothermal resource areas and active mining claims within the DVTA requested withdrawal area. If this request cannot be accommodated, the Governor requested the Navy work with the State and stakeholders to define those aspects of geothermal exploration and development, as well as mineral exploration and mining activities that could potentially be considered compatible with the Navy's training mission.

Under Alternatives 2 and 3 of this EIS, the Navy is proposing to allow geothermal and salable (e.g., gravel) mineral developments at the DVTA, consistent with restrictions to be defined during the development of site-specific leases, but is not proposing to allow exploitation of locatable minerals. The Navy would be able to accommodate geothermal development in the DVTA because the laws governing this type of development would afford the Navy an opportunity to work with a developer (and with BLM) to ensure that any geothermal development would be conducted in a manner that would not adversely affect military training. However, the Navy is unable to accommodate exploitation of locatable minerals (e.g., gold) because the laws governing these mining activities would not afford the Navy an ability to impose requirements on how any such exploitation activities would be conducted. Accordingly, Alternative 3 would accommodate development of geothermal and salable mineral resources within the withdrawn area comprising the DVTA.

Under Alternative 3, the Navy proposes the creation of special spectrum management areas. These areas would be open to public access and to all forms of appropriative use. BLM would be required, though, to consult with NAS Fallon prior to issuing any permit and would be required to obtain NAS Fallon approval for any federal action that involved the use of electromagnetic spectrum use from stationary or mobile equipment. The creation of these areas is consistent with the Nevada Alternative goals of ensuring these areas are open for public use and economic development.

As discussed above, not all of the Governor's proposed alternative has been adopted by the Navy since not all aspects of that proposal would meet the Navy's purpose of and need for the FRTC Modernization. However, the Navy has worked to incorporate the Governor's proposed alternative to the extent practicable in Alternative 3.

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3.1 Geological Resources

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.1 Geological Resources

This discussion of geological resources includes topography, geology, and soils of the given area. Topography is typically described with respect to the elevation, slope, and surface features found within a given area. Geology is the study of the physical features of the earth and includes discussion of rock type, geologic structure (e.g., faults, folds, and tilting of rocks), mineral deposits, and fossil remains. A key purpose of this section is to lay the foundation for understanding why mineralization, geothermal potential, mining, and the potential for mineral resources such as gold and silver are located in specific parts of the region of influence (Mining and Mineral Resources are discussed in Section 3.3). The principal geological factors influencing the stability of structures are soil stability and seismic properties. Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soils are typically described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use. This analysis addresses impacts on geological resources (e.g., topography, geology, and soil) within the areas proposed for the Fallon Range Training Complex (FRTC) expansion.

3.1.1 Methodology

The Navy performed a desktop/literature review of relevant and available published and unpublished reports, journal articles, and historical archives pertaining to topography, geology, and soils. No field work was performed during this effort. Information regarding geological resources within the region of influence were obtained by reviewing available literature and online databases. Geology information was primarily obtained from the Nevada Bureau of Mines and Geology Map Services and Datasets Open Data Page (Nevada Bureau of Mines and Geology, 2018) and U.S. Geological Survey's (USGS) online spatial database for the State of Nevada (U.S. Geological Survey, 2016). Soil data was obtained from the National Resource Conservation Service's (NRCS) Web Soil Survey in October 2017, which is the single authoritative source of soil information in the United States (Natural Resources Conservation Service, 2017a). The Web Soil Survey uses the NRCS Soil Survey Geographic data, which superseded the State Soil Geographic data set published in 1994. Faults were identified using USGS's Quaternary Fault and Fold Database of the United States, which is the basis for the National Seismic Hazards Maps (U.S. Geological Survey, 2017a). This section identifies areas using the USGS's Public Land Survey System.

3.1.1.1 Region of Influence

The region of influence for geological resources includes the topography, rocks, geologic structure, and soil within the proposed withdrawal areas as well as any mining claims or portions of historical mining districts/revised mineral resource areas that may be affected by the alternatives carried forward for analysis. Because the region of influence is defined as the land boundary of the "withdrawal areas," these terms are used interchangeably.

3.1.1.2 Regulatory Framework

The following federal regulations and policies are relevant to the analysis of geological resources:

- Farmland Protection Policy Act of 1981 (7 United States Code [U.S.C.] section 4201 et seq.)
- Earthquake Hazards Reduction Act of 1977 (42 U.S.C. section 7701 et seq.)
- Federal Cave Resources Protection Act of 1988 (16 U.S.C. section 4301 et seq.)
- Paleontological Resources Preservation Act of 2009 (16 U.S.C. section 470aaa et seq.)

- Unified Facilities Criteria (UFC) (e.g., section UFC 3-220-01 [Geotechnical Engineering], section UFC 3-310-04 [Seismic Design of Buildings], and section UFC 3-220-10N [Soil Mechanics])

The UFC provide planning, design, construction, sustainment, restoration, and modernization criteria for applicable projects. Construction plans would be reviewed for conformance with UFC and the provisions of state and local building codes once completed. Section 3.3 (Mining and Mineral Resources) identifies rules and regulations regarding the management of mineral resources.

3.1.1.3 Public Concerns

During public scoping, members of the public expressed concerns regarding the potential for the Proposed Action to contaminate soil, which is addressed in Section 3.14 (Public Health and Safety and Protection of Children). The public was also concerned about the impact the Proposed Action would have on mining and mineral resources (including geothermal resources), which is discussed in Section 3.3 (Mining and Mineral Resources). For more information on concerns expressed by the public during the scoping process and during the comment period for the Draft Environmental Impact Statement (EIS), refer to Section 1.9.1 (Public Scoping), Section 1.10 (Draft Environmental Impact Statement Public Participation: Comment Themes), and Appendix F (Public Comments and Responses).

3.1.2 Affected Environment

This section describes the geological resources within the region of influence. In doing so, this section first gives a general overview of the physiography, geologic units, caves and karsts, soils, farmland, seismicity and seismic hazards, and paleontological resources within this region. Then, it provides a more in-depth discussion on the geology, soils, and farmland within Bravo (B)-16, B-17, B-20, and the Dixie Valley Training Area (DVTA).

3.1.2.1 Overview

3.1.2.1.1 Physiography

Nevada is located in the heart of the Basin and Range (Great Basin) Physiographic Province, which encompasses much of the inland western United States and northwestern Mexico (U.S. Geological Survey, 2017b). The province is characterized by elongated northeast-southwest trending mountain ranges alternating with low-lying valleys or basins. This structure is the result of a series of tilted normal fault-blocks, most of which are tilted either to the southeast or northwest. The high ends of fault blocks form the characteristic northeast-southwest trending mountain ranges, and the lowered ends of the fault blocks form the down-dropped basins. The mountains can extend up to high alpine glaciated ridges and peaks with runoff and snowmelt traveling down to relatively low elevation enclosed basin bottoms with no outlet to the ocean. Often, playas occur in the lowest part of the basins, and exhibit shallow lakes characterized by high chemical concentrations of various elements and minerals. Figure 3.1-1 is a shaded relief map that shows the characteristic basin and range landforms in Nevada, and Figure 3.1-2 is a shaded relief map of the FRTC withdrawal area.

The genesis of the basin and range terrane is due to broad regional crustal extension where major low angle and associated high angle normal faults caused fault blocks to form, rotate with time, and accommodate the extensional strain through dropping one side of the fault down relative to the other. The result of the crustal extension is the province has thinner crust than surrounding areas. Because the earth's crust is thinner, the surface is closer to the earth's mantle, resulting in the well-documented high

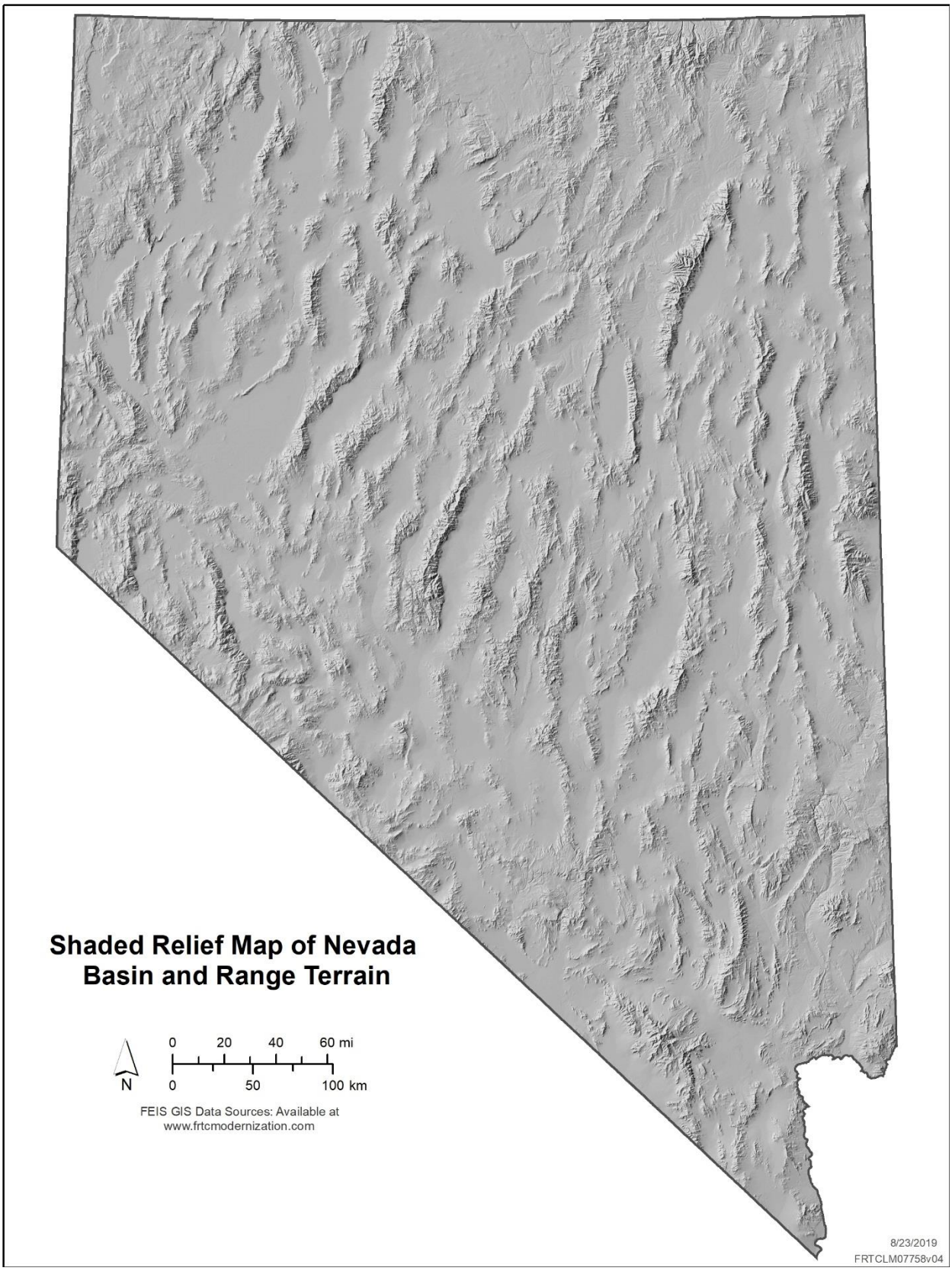


Figure 3.1-1: Shaded Relief Map of Nevada Basin and Range Terrain

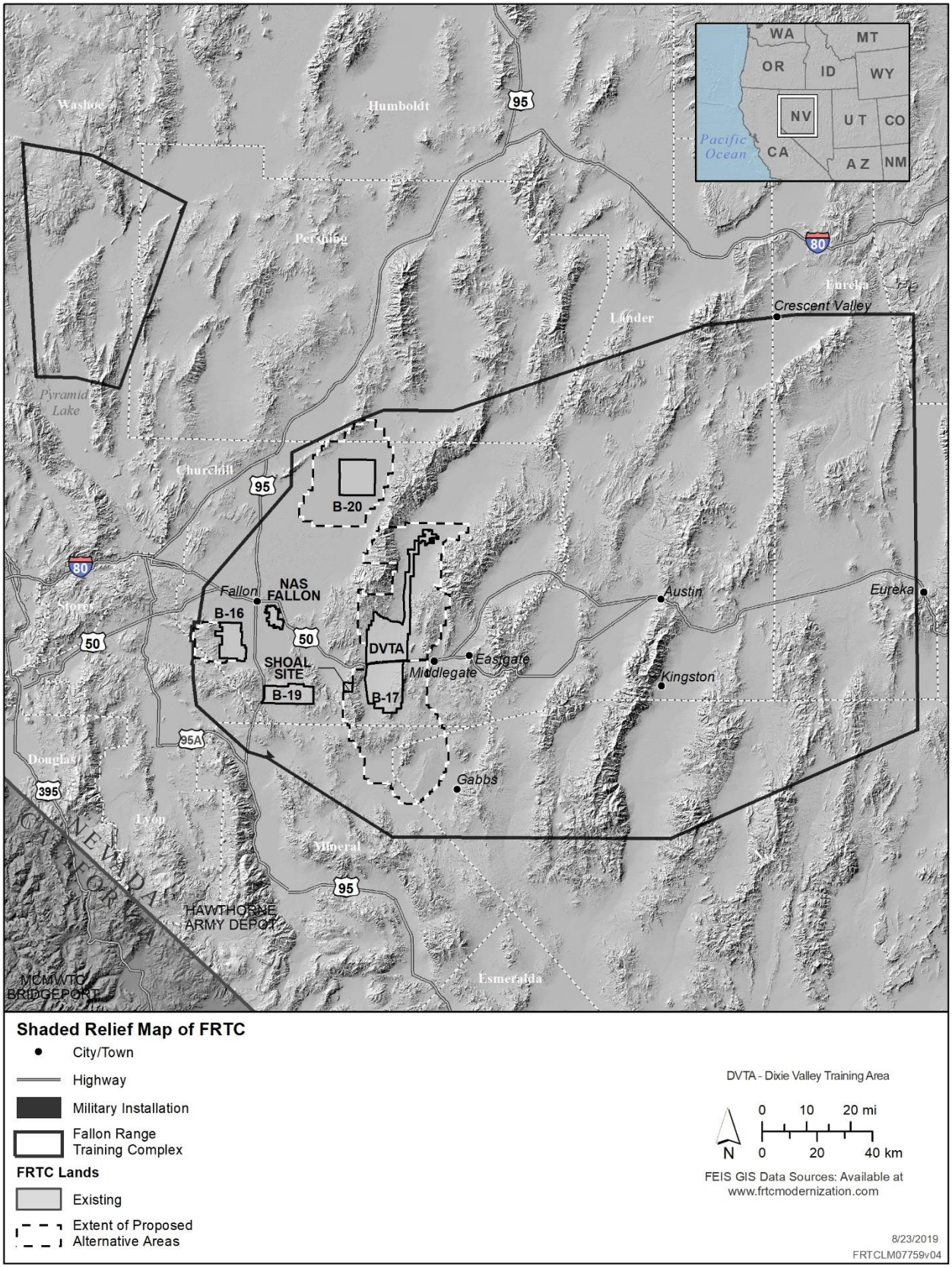


Figure 3.1-2: Shaded Relief Map of FRTC

heat flow of the region. The high heat flow is conducive to mineral enrichment by introducing hot mineral-rich fluids to the already fractured rock. The hot fluids (groundwater) also provide an outstanding source for geothermal energy development. As discussed in Sections 3.1.2.2 (Bravo-16) through 3.1.2.5 (Dixie Valley Training Area), there is a distinct relationship between the thin crust, abundant faults, migrating superheated fluids (often along fault planes), high concentration of ore bodies, and geothermal energy potential; all of these processes allow for mineral resources to be accessed at or near the surface of the earth.

3.1.2.1.2 Geologic Setting

The rocks of the Basin and Range Province are well known for documenting volcanic and intrusive igneous activity intermittently and repeatedly from earth's earliest geologic history up to a few thousand years ago. Older igneous or metamorphic "core complex" rocks are mostly associated with the uplifted mountains. These core complex rocks are often highly deformed, tilted, and altered in places due to movement and transport along the many major faults. Figure 3.1-3 is a cross-section showing the thinned crust, typical fault geometries, core complex, peaks of the mountains, and low areas that represent the basin sedimentary fill. Most of the ore deposits in Nevada are associated with hard igneous rocks associated with the mountain ranges. The source of the metallic and non-metallic minerals could have been from the magma itself (e.g., gold can sometimes form with quartz veins) or associated with magmatic heat causing circulation of hot water altering the rocks and depositing minerals in veins or nearby fractured sedimentary rock. In the Basin and Range, often individual faults or fault systems provide a preferential pathway for mineralizing fluids or hot groundwater used for geothermal energy production. These fault-controlled processes are ongoing and continuing today.

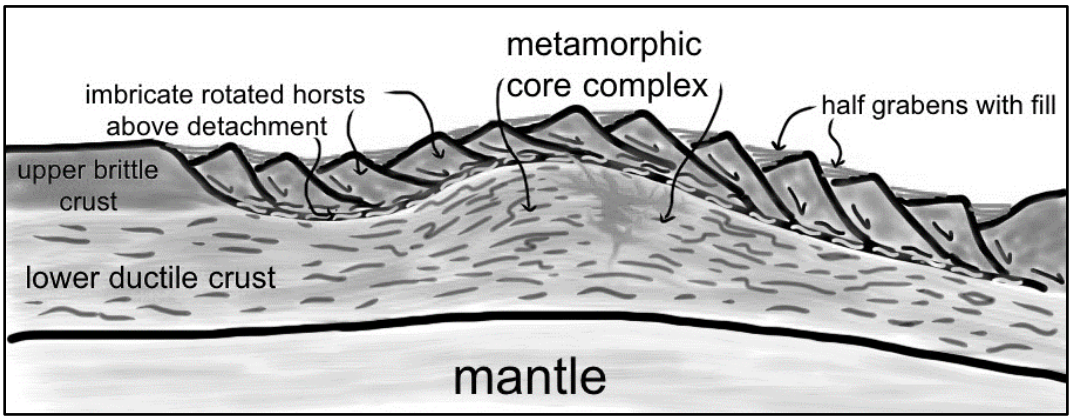


Figure 3.1-3: Generic Cross-section Showing Geologic Structure and Fault Geometries Typical of the Basin and Range Province

Sedimentary rocks are typically associated with wind, rain, and snow-caused erosion from the mountains, followed by deposition in the valley bottoms of the enclosed basins. Sedimentary rocks are wide ranging in the great basin from alluvial fans with boulders, cobbles, gravel, sand, and silt to dry lake bottoms consisting of the finest clays and non-carbon salts. Pleistocene lakes (2.6 million years ago to 11,700 years ago), including Ancient Lake Lahontan, inundated the basins during times of abundant rain and snow and deposited thick clay beds. Lake Lahontan is notable because it extended across much of northwestern Nevada and left behind several existing watersheds within or near the region of influence, including the Carson Sink. The sediments that form the basin bottoms can be tens of thousands of feet thick.

Often overlying or mixed with the igneous hard rocks of the mountains and softer sedimentary rocks of the valleys are extrusive hard volcanic rocks like basalt, andesite, and ash-flow tuff. Often, these rocks are relatively young (a few thousand years old) similarly associated with relatively shallow magma bodies that intruded into or covered the overlying faulted and deformed crustal basement rocks. Table 3.1-1 highlights the geologic setting of the region by showing some major events in Nevada history in a scale of geologic time (Nevada Bureau of Mines and Geology, 2018). Figure 3.1-4 is a generalized geologic map, and Table 3.1-2 summarizes the geologic units in the region of influence; this information is based on data compiled by USGS in cooperation with the Nevada Bureau of Mines and Geology (Stewart & Carlson, 1978).

Table 3.1-1: Geologic Time Scale with Major Events in Nevada History

Million Years Before Present	Description
CENOZOIC	
1.6	Quaternary: Modern earthquakes, mountain building, volcanism, and geothermal activity are expressions of Basin and Range extension that began in the Tertiary Period. The crust is being pulled apart in Nevada, causing valleys to drop relative to mountains. Prior to 10,000 years ago, ice ages caused glaciers to form in the higher mountains and large lakes to develop, in places connecting today's valleys.
65	Tertiary: Tertiary Basin and Range extension began about 30–40 million years ago. Igneous activity during the Tertiary Period was caused not only by extension but also by subduction (descent of oceanic crust into the Earth's mantle) of oceanic plates beneath the North American Plate and, in northern Nevada, by motion of the crust over the Yellowstone hot spot in the mantle. Numerous Nevada ore deposits, including most major gold and silver deposits and the copper ores near Battle Mountain, formed during this time. Gypsum deposits formed from evaporating lakes in southern Nevada.
MESOZOIC	
144	Cretaceous: The Cretaceous Period and Mesozoic Era ended abruptly with the extinction of dinosaurs and many marine species; chemical, mineralogical, and other geological evidence suggests that these extinctions were caused by a large meteorite striking the Earth. Numerous granitic igneous intrusions, scattered throughout Nevada, originated from subduction along the west coast of North America. Much of the granite in the Sierra Nevada formed at this time. The igneous activity caused many metallic mineral deposits to form, including the copper-gold-silver-lead-zinc ores at Ruth, near Ely in White Pine County; copper-molybdenum ores north of Tonopah in Nye County; and tungsten ores in several mining districts. In southern and eastern Nevada, sheets of rocks were folded and thrust from the west to the east during the Sevier Orogeny (mountain building), which began in Middle Jurassic time and ended at or beyond the end of the Cretaceous Period.
208	Jurassic: A subduction zone to the west caused igneous intrusions, volcanism, and associated ore deposits, including copper deposits near Yerington. Sandstones, including those in the Valley of Fire, were deposited in southeastern Nevada, and sedimentary gypsum deposits formed in northwestern Nevada.
251	Triassic: The general geography of Nevada during the Triassic Period was similar to that during the Jurassic Period—igneous activity in the west and deposition of sedimentary rocks in continental to shallow marine environments to the east. Explosive volcanism produced thick ash-flow tuffs in west-central Nevada. Economically important limestone, gypsum, and silica-sand deposits formed in southern Nevada. The Sonoma Orogeny, which began during Late Permian time and ended in Early Triassic time, moved rocks from the west to the east along the Golconda Thrust in central Nevada. The large marine reptiles at Berlin-Ichthyosaur State Park lived during the Triassic Period.

Table 3.1-1: Geologic Time Scale with Major Events in Nevada History (continued)

Million Years Before Present	Description
PALEOZOIC	
290	Permian: Volcanism to the west and deposition of thick limestones to the east were characteristics of much of the Paleozoic Era in the Great Basin. Some marine gypsum deposits formed in southern Nevada
320	Pennsylvanian: The Antler highland, formed earlier, was eroded and shed sediments into the basins to the east. Carbonate rocks were deposited in eastern and southern Nevada.
360	Mississippian: During the Antler Orogeny, from Late Devonian to Early Mississippian time, rocks were folded and thrust from the west to the east. The Roberts Mountains Thrust, below which many of the gold deposits in north-central Nevada occur, formed at this time. Conglomerate, sandstone, siltstone, and shale were deposited in the thick basin of sediments derived from the Antler highland, and carbonate rocks were deposited further east
418	Devonian: Limestone was deposited in eastern Nevada, and shale, chert, and economically important barite were deposited in northeastern and central parts of the state. No record of middle to lower Paleozoic rocks exists in the western part of the state. The quiet, shallow-marine tectonic setting that persisted earlier in the Paleozoic Era began to change, as small land masses from the Pacific Ocean collided with western North America.
438	Silurian: Carbonate rocks (dolomite and limestone) in the eastern part of the state and silica-rich rocks (shale, sandstone, and chert) in the central part of the state record similar deposition to that during the rest of the middle-to-early Paleozoic Era.
490	Ordovician: Marine deposition during the Ordovician Period was similar to that during the rest of the early Paleozoic Era, with the exception of basalts (metamorphosed to greenstones) locally interbedded with sedimentary rocks found today in the central part of the state. Some sedimentary barite deposits and copper-zinc-silver ores formed in sea-floor sediments during this time.
543	Cambrian: Middle and Upper Cambrian deposition resembled that during much of the Paleozoic Era, with carbonate rocks to the east and shale plus sandstone to the west. Lower Cambrian and uppermost Precambrian rocks are characterized by quartzite and metamorphosed siltstone throughout much of Nevada.
PRECAMBRIAN	
600	The oldest rocks in Nevada (at least 2,500 million years old in the East Humboldt Range in northeastern Nevada and at least 1,700 million years old in southern Nevada) are metamorphic rocks (including gneiss, schist, marble, metamorphosed granite, pyroxenite, hornblendite, and pegmatite). Precambrian rocks also include granites (about 1,450 million years old) and younger sedimentary rocks. Beginning approximately 750 million years ago, Antarctica and Australia may have drifted away from western North America, setting the stage for the development of a western continental margin that is similar to the Atlantic coast of today. A shallow marine, tectonically quiet setting persisted in eastern Nevada for the next 700 million years

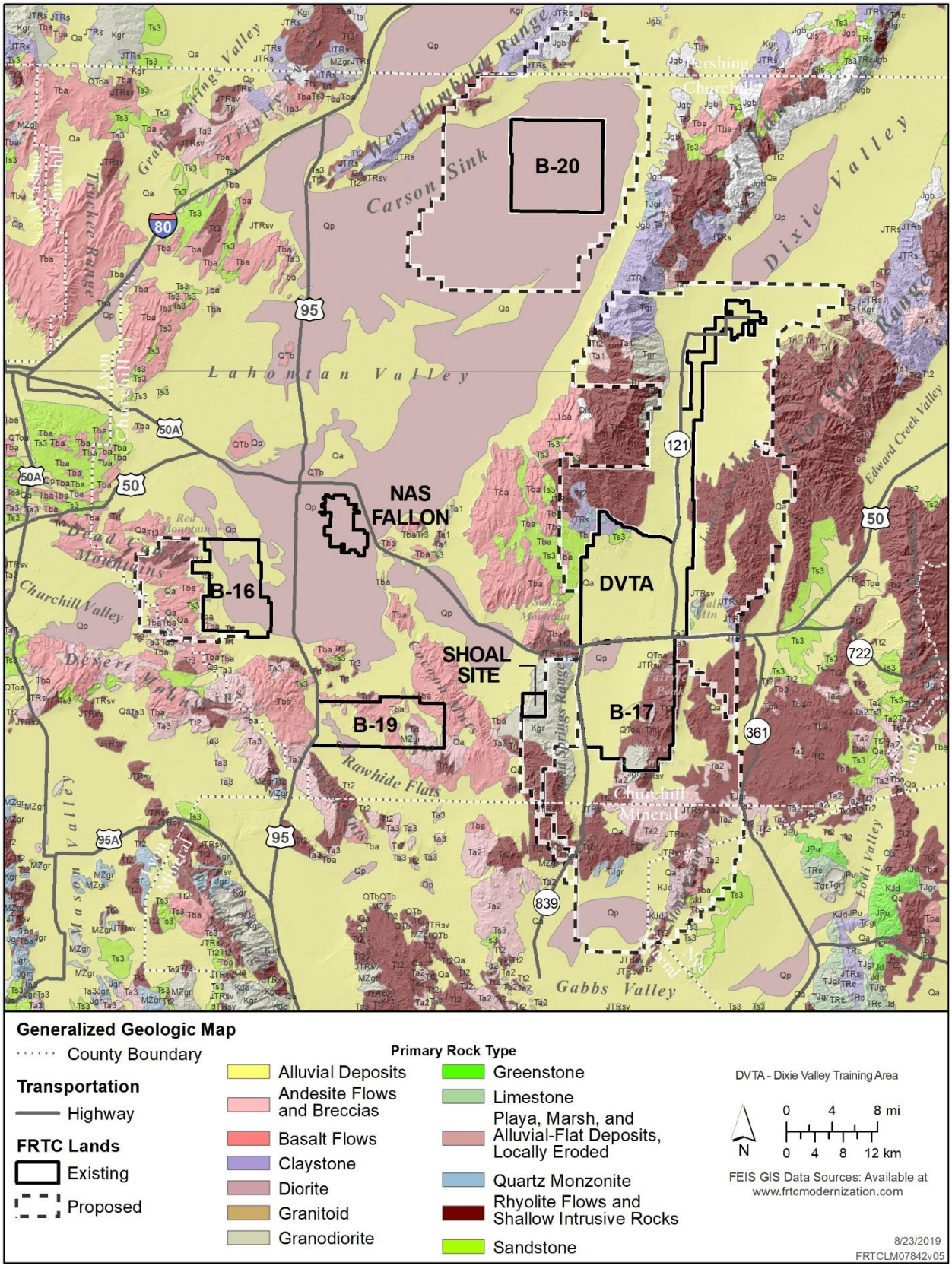


Figure 3.1-4: Generalized Geologic Map

Table 3.1-2: Geologic Units Within the Region of Influence

Unit	Geologic Age	Name	Description	Affected Environment
Qa	Quaternary	ALLUVIAL DEPOSITS	Unconsolidated sand, silt, talus and other surficial deposits; locally includes beach and sand dune deposits	B-16, B-17, B-20, DVTA
Qp	Quaternary	PLAYA, MARSH, AND ALLUVIAL-FLAT DEPOSITS, LOCALLY ERODED	Playa, marsh, and alluvial-flat deposits, locally eroded	B-16, B-17, B-20, DVTA
Qtoa	Miocene to Quaternary	OLDER ALLUVIAL DEPOSITS	Unit consists mostly of older alluvium and alluvial fans. It also includes various stream deposits, gravel, fanglomerates, and older gravels.	B-17
QTb	Miocene to Quaternary	BASALT FLOWS-LOCALLY INCLUDES MAAR DEPOSITS	Olivine basalt and basaltic and andesitic rocks	B-20
Tri	Eocene to Miocene	RHYOLITIC INTRUSIVE ROCKS	Rhyolitic intrusive rocks with aphanitic groundmass; includes many rocks mapped as rhyolite or rhyolite porphyry, rhyolite intrusive rocks, rhyolite plugs or flows, microgranite dikes, and many other undifferentiated intrusive rocks	DVTA
Tmi	Eocene to Miocene	INTRUSIVE ROCKS OF MAFIC TO INTERMEDIATE COMPOSITION	Mafic phaneritic intrusive rocks; includes rocks mapped as dacite and rhyodacite, diorite, quartz latite, and numerous undivided intrusive rocks	B-17
Tt3	Middle Miocene to Late Miocene	WELDED AND NON-WELDED SILICIC ASH-FLOW TUFFS	Younger silicic ash flow tuffs. Locally it includes tuffaceous sedimentary rocks interstratified with tuffs.	B-16
Trt	Middle Miocene to Late Miocene	ASH-FLOW TUFFS, RHYOLITIC FLOWS, AND SHALLOW INTRUSIVE ROCKS	Ash-flow tuffs, rhyolitic flows, and shallow intrusive rocks	B-16, B-17
Ta3	Late Miocene to Middle Miocene	ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION	Younger andesite and intermediate flows and breccias	B-16, B-17, DVTA
Tba	Early Miocene to Early Pliocene	ANDESITE AND BASALT FLOWS	Poorly dated unnamed basaltic and andesitic rocks. Mostly in about 17 to about 6 million year (m.y.) age range. In Humboldt County, locally includes rocks as old as 21 m.y. May include rocks younger than 6 m.y. in places	B-16, B-17, B-20, DVTA
Tb	Late Miocene to Middle Miocene	BASALT FLOWS	Basalt flows and flow breccias. Dark gray to black, aphyric to sparsely porphyritic rocks.	DVTA

Table 3.1-2: Geologic Units Within the Region of Influence (continued)

Unit	Geologic Age	Name	Description	Affected Environment
Ts3	Late Eocene to Late Miocene	TUFFACEOUS SEDIMENTARY ROCKS	Tuffaceous and other young Tertiary sedimentary rocks. Most of these rocks are sedimentary with a strong volcanic component; a few are tuffaceous with a strong sedimentary component.	B-16, B-17, DVTA
Tt2	Early Oligocene to Early Miocene	WELDED AND NONWELDED SILICIC ASH-FLOW TUFFS	Intermediate silicic ash flow tuff; locally includes thin units of air-fall tuff and sedimentary rock	B-17, B-20, DVTA
Tr2	Early Oligocene to Early Miocene	RHYOLITIC FLOWS AND SHALLOW INTRUSIVE ROCKS	Intermediate rhyolitic flows and shallow intrusive rocks	DVTA
Ta2	Early Oligocene to Early Miocene	ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION	Andesite flows and breccias and other related rocks of intermediate composition such as dacite, rhyodacite, quartz latite, and biotite-hornblende porphyries	B-17
Ta1	Late Eocene to Middle Eocene	ANDESITE AND RELATED ROCKS OF INTERMEDIATE COMPOSITION	Older andesite and intermediate flows and breccias; includes andesite or dacite flows, flow breccias, and hypabyssal rocks in Lander County; andesitic to latitic flows, pyroclastic rocks, and phenoandesitic and phenolatitic flows in Elko County; and other undifferentiated volcanic rocks in other counties.	DVTA
TJgr	Jurassic to Miocene	GRANITIC ROCKS, CENTRAL AND EASTERN NEVADA	Mostly quartz monzonite and granodiorite. Inconclusively dated or not dated radiometrically.	B-17, DVTA
Tgr	Paleocene to Late Miocene	GRANITIC ROCKS	Mostly quartz monzonite and granodiorite	DVTA
Kgr	Cretaceous	GRANITIC ROCKS	Mostly quartz monzonite and granodiorite	B-17
KJd	Jurassic to Cretaceous	DIORITE	Mostly diorite and quartz diorite	B-17

Table 3.1-2: Geologic Units Within the Region of Influence (continued)

Unit	Geologic Age	Name	Description	Affected Environment
Jgr	Jurassic	GRANITIC ROCKS	Mostly quartz monzonite and granodiorite	B-17
JTRsv	Late Triassic to Early Cretaceous	SHALE, SANDSTONE, VOLCANOGENIC CLASTIC ROCKS, ANDESITE, RHYOLITE, AND LOCALLY THICK CARBONATE UNITS	Undivided sequence locally containing recognizable equivalents of the Luning and Dunlap Formations	B-17, DVTA
Jd	Early Jurassic to Middle Jurassic	DUNLAP FORMATION	(Lower and Middle Jurassic)–Conglomerate, sandstone, greenstone, felsite, and tuff. Locally contemporaneous with folding and thrusting. Mineral County and adjacent parts of Esmeralda and Nye Counties	B-17
Jgb	Early Jurassic to Middle Jurassic	GABB region of influence C COMPLEX	A large complex of gabbroic rocks forms a series of related intrusions in the northern parts of the Stillwater Range and Clan Alpine Mountains of Churchill County. The complex contains highly differentiated facies near the periphery of the body and more homogeneous gabbro in the interior. Layered rocks near the margins include olivine gabbro, hornblende gabbro, and anorthosite. The homogeneous rocks consist largely of feldspathic hornblende gabbro and analcite gabbro. The complex is interpreted to be part of a continental Jurassic volcanic arc that is the northern continuation of a Jurassic continental margin arc that extended from the Sonora Desert region in the south to northern California in the north (Crafford, 2007). Biotites from several places in the gabbro have been dated by K/Ar and range from 140 to 170 Ma. Includes gabbro, basalt, and synorogenic quartz sandstone (Boyer Ranch Formation). Churchill and Pershing Counties	B-20

Table 3.1-2: Geologic Units Within the Region of Influence (continued)

Unit	Geologic Age	Name	Description	Affected Environment
JTRs	Late Triassic to Early Jurassic	HUMBOLDT ASSEMBLAGE – SHALE, SILTSTONE, SANDSTONE, AND MINOR CARBONATE	Rocks of the Grass Valley, Osobb, and Dun Glen Formations, and their unnamed overlying rocks elsewhere known as the Winnemucca Formation, exposed in Pershing, Churchill, Lander, and Humboldt Counties, characterize this unit. These rocks are depositional on top of the Star Peak Group carbonate and detrital rocks (TRc). Crossbedding, lode casts, and other depositional features indicate uniform northwest-trending current directions. The lithology and depositional characteristics of these rocks suggest shallow marine conditions on and around a westerly prograding delta (Crafford, 2007). Fossils from these rocks range in age from Late Triassic (Norian) to Early Jurassic (Toarcian) (Crafford, 2007).	B-17, B-20, DVTA
TRc	Triassic	HUMBOLDT ASSEMBLAGE – LIMESTONE, DOLOMITE, SHALE, SANDSTONE, AND CONGLOMERATE	Limestone, minor amounts of dolomite, shale, and sandstone; locally thick conglomerate units Includes Tobin, Dixie Valley, Favret, Augusta Mountain, and Cane Spring Formations and Star Peak Group in central Nevada and Grantsville and Luning Formations in west-central Nevada Unit consists of the Star Peak Group which lies depositionally on the volcanic and volcaniclastic rocks of the Koipato Group (TRkv). Map unit includes rocks mapped as Cane Spring, Natchez Pass, Prida, Augusta Mountain, Congress Canyon, Fossil Hill, Favret, Dixie Valley, and Tobin Formations, including Smelser Pass, Panther Canyon, and Home Station Members of the Augusta Mountain Formation. Basaltic flows and volcanic breccias (TRvm) are present in the Humboldt and northern Stillwater Ranges within the Smelser Pass Member of the Augusta Mountain Formation. The Star Peak Group includes carbonate platform deposits and grades westward into slope and basin paleogeographic environments.	DVTA

Table 3.1-2: Geologic Units Within the Region of Influence (continued)

Unit	Geologic Age	Name	Description	Affected Environment
TRc (cont.)	Triassic	HUMBOLDT ASSEMBLAGE – LIMESTONE, DOLOMITE, SHALE, SANDSTONE, AND CONGLOMERATE	Complex stratigraphic patterns of carbonate and terrigenous rocks in the lower part of the group result from localized relative uplift. Widespread diagenetic secondary dolomitization of calcareous rocks complicates the stratigraphic patterns (Crafford, 2007). There is a major unconformity within the Star Peak Group underneath the Panther Canyon Member, which is late Ladinian (late Middle Triassic) in age. The Panther Canyon Member rests in places directly on the carbonated rocks of either the Koipato Group (TRkv) or the Golconda terrane (GC), and elsewhere on varying thicknesses of secondary dolomite that replaces Star Peak Group carbonate rocks. The Star Peak Group crops out in Churchill, Humboldt, Lander, and mostly Pershing Counties. Abundant fossil data from the Star Peak Group indicates this unit is latest Early (Spathian) to middle Late (Carnian) Triassic in age (Crafford, 2007).	DVTA
Jpu	Permian to Jurassic (?)	VOLCANOGENIC SEDIMENTARY ROCKS, TUFF, ANDESITIC AND FELSITIC FLOWS, AND CARBONATE ROCKS	Age uncertain. Mineral, Esmeralda, and Northwest Nye Counties	B-17

Sources: (Stewart & Carlson, 1978; U.S. Geological Survey, 2016)

3.1.2.1.3 Caves and Karst

During the terminal Pleistocene, c. 16,000 years before present, the Carson desert was submerged beneath pluvial Lake Lahontan. The water level of Lake Lahontan rose to an elevation of ca. 1,330–1,335 m by about 13,500–13,000 before present, and lake margins spread as far north as the Nevada/Idaho border and south to Walker Lake (U.S. Department of the Navy, 2007). Shortly after, the lake started to desiccate. By the late Holocene/Pre-Archaic period 6900 before present, the Carson Desert was still covered by water to some unknown extent and depth. Sometime during this series of filling and draining events, caves and overhangs were developed in the landforms at the west end of the Stillwater Range. With the Federal Cave Resources Protection Act, Section 3(1) of 1988, Congress declared that significant caves on federal lands are an invaluable and irreplaceable part of the Nation's natural heritage and recognized that significant caves may be threatened due to improper use, recreational demand, urban spread, and lack of protection. The Act defines a cave as any naturally occurring void, cavity, recess, or system of interconnected passages occurring beneath the surface of the Earth or within a cliff or ledge that is large enough to permit an individual to enter, whether or not the entrance is naturally formed or manmade. A karst is an area of irregular limestone or carbonate in which erosion has produced fissures, sinkholes, underground streams, and caverns.

The geologic setting of the planning area consists of granitic and metamorphic rocks that are overlain by volcanic and sedimentary rocks, so there is little opportunity for the formation of large or extensive cave systems. The majority of the caves in the planning area consist of undercut rock shelters and shallow cavities in basalt or rhyolite rock that were formed by wave action from ancient Lake Lahontan (U.S. Department of the Navy, 2007). The wave action at various lake levels provided a mechanism to carve shoreline terraces and caves into the surrounding topography. No significant karst features have been identified in the planning area due to the lack of significant deposits of limestone that are required for the formation of karst-type caves or fissures (Bureau of Land Management, 2014).

There are several named and unnamed caves in the proposed FRTC withdrawal areas. Caves with cultural significance exist but have not been identified or mapped in a single database, or the caves are proprietary in nature and the locations are documented only in cultural files as a means to protect the resource. The Salt Cave site, located in the proposed B-16 withdrawal area, provides recreational caving opportunities, such as exploration or spelunking. There are actually two large caves at the site, located about 25 m apart. Pictographs or rock art are painted on tufa rock in both caves, and the roof above areas large enough for sleeping has been blackened by smoke, indicating both historic and recent use (Desert Explorer, 2009). There are no other known or identified caves that provide recreational opportunities in the proposed withdrawal areas. In observance of the Federal Cave Resources Protection Act, federal lands are managed in a manner which, to the extent practical, protects and maintains significant caves and cave resources (43 Code of Federal Regulations Part 37.2). The type and degree of protection will be determined through the resource management planning process with full public participation (Bureau of Land Management, 2014).

3.1.2.1.4 Soils

Soil is a natural material at the surface of the earth composed of solids, liquids, and gases layered in distinct horizons that are a direct result of weathering of underlying rock. Traditionally, soils were classified with respect to the characteristics that affect plant growth (moisture retention capacity, drainage, depth, and organic matter content). Since soils are located at the earth's surface, their

engineering characteristics, such as stability on slopes, compaction, and shrink/swell potential, are also important.

In general, due to limited precipitation and organic matter in desert areas such as the region of influence, soil development is weak compared to areas with more precipitation and humidity. Soils within the region of influence (Natural Resources Conservation Service, 2017a) are further summarized in Sections 3.1.2.2 (Bravo-16) through 3.1.2.5 (Dixie Valley Training Area).

Soil erosion occurs when material is removed from surface soil. Soil erosion potential varies within the region of influence. Water and wind erosion can occur very slowly or very quickly depending on a variety of factors. Factors that affect water erosion include the force of the water, the ability of the soil to hold together, the surface cover, the slope length, and the slope gradient. Meanwhile, factors that affect wind erosion include the soil texture, the content of organic matter, the surface cover, the soil moisture, as well as wind velocity and direction among other factors (Natural Resources Conservation Service, 2004). While erosion is a natural process, human activities can increase erosion processes. An erosion hazard is the probability that damage may occur from site preparation and the aftermath of activities like cutting, fires, and overgrazing.

3.1.2.1.5 Farmland

The soils in the region of influence typically have high salinity and sodicity, which restrict plant growth and are not conducive to agriculture. Soils are considered sodic if their sodium adsorption ratio is greater than 10 and their pH is (generally) greater than 9.0 or 9.5 (Natural Resources Conservation Service, 2017a; U.S. Department of the Navy, 2015).

Salinity: The amount of soluble salts in soil.

Sodicity: The amount of sodium relative to other salts on the soil exchange complex.

Sodium Adsorption Ratio: The amount of sodium relative to calcium and magnesium in saturated soil paste.

None of the soils found within the region of influence are associated with prime or unique farmland. The southwest portion of the affected environment for B-16 and the southeast portion of the affected environment for B-17 include areas that the NRCS has identified as being farmland of statewide importance (Natural Resources Conservation Service, 2017a). Farmland of statewide importance is land other than prime farmland that would meet specific criteria based on climate and the physical and chemical compositions of soil for high yields of crop as defined by the state in which the land is situated. Nevada defines farmland of statewide importance as all farmland with full or partial irrigation water supply that is used for the production of food, feed, fiber, forage, and oilseed crops (Natural Resources Conservation Service, 2017a). Sections 3.1.2.2 (Bravo-16) through 3.1.2.5 (Dixie Valley Training Area) further describe these lands within the region of influence.

3.1.2.1.6 Seismicity and Seismic Hazards

In most of Nevada, mountain ranges (commonly about 10 miles wide and rarely longer than 80 miles), are separated by valleys. Generally, this pattern repeats over and over from east to west across the state. The geologic structure that controls this topography is dominated by faults. Nearly every mountain range is bounded on at least one side by a fault that has been active, with large earthquakes, during the last 1.6 million years. As discussed above, for the last several million years, these faults have been the mechanism for the basins to have been down-dropped relative to the mountains (Price, 2003). Faults in and near the region of influence are summarized in Supporting Study: Faults and Fault Zones In the Withdrawal Area (available at https://frtcmodernization.com).

As a result of the ongoing crustal extension in the Basin and Range Province, Nevada is a seismically active area; this seismic activity contributes to the location of mineral enrichment zones as well as to compartmentalization for geothermal potential. Favorable structural settings for geothermal systems generally correspond to fault interaction areas, which are critically stressed regions characterized by numerous small-to-moderate earthquakes (Faulds et al., 2017).

Thousands of microearthquakes occur in Nevada every year, and occasionally larger mountain-building earthquakes occur (Shake Out, 2018). Richter magnitude 3 and 4 earthquakes are fairly common in the region but rarely cause major damage. In a six-month period in 1954, a total six earthquakes occurred in the Fallon area, all of which were above a Richter magnitude of 6.1 (Shake Out, 2018). Some of these events caused considerable damage to structures and infrastructure in the town of Fallon. Notably, two earthquakes of Richter magnitude 6.6 and 7.1 occurred four minutes apart in the Dixie Valley-Fairview Peak area in 1954. The first event ruptured the ground for 40 miles. The second event ruptured the ground for an additional 29 miles on the western side of the Dixie Valley. Because the area was sparsely settled, damage to structures was mostly limited to cracked chimneys. Water lines were broken in the communities of Lovelock, Mina, and Gabbs.

3.1.2.1.7 Paleontological Resources

Fossils are the remains, traces, or imprints of ancient organisms preserved in or on the earth's crust that provide information about the history of life on earth. Paleontological resources do not include any materials associated with archeological resources, which consist of material remains of past human life or activities that are over 100 years old, as defined in Section 3(1) of the Archeological Resources Protection Act of 1979, as amended (16 U.S.C. 470bb[1]).

Paleontological resources are known to occur near the proposed FRTC Withdrawal Area near B-17. A near resource is the Stewart Valley area of critical environmental concern, which was officially designated in the Bureau of Land Management (BLM) Walker Resource Management Plan (Bureau of Land Management, 2001). The plan included 1,420 acres of mineral entry withdrawal (expired in 2010) for the most sensitive portion of the 16,000-acre ACEC (Bureau of Land Management, 2014). The Stewart Valley Area is to the southwest of the proposed FRTC withdrawal area.

Resources farther from urban or developed areas are relatively stabilized and are not, in large measure, adversely affected by human activity. However, all areas of fossil-bearing sediments are trending toward increased recreational use, and protection of paleontological resources is subject to the limits to the availability of resource staff and law enforcement monitoring (Bureau of Land Management, 2014).

Based on current management practices, improved access to BLM-administered lands, and increased urbanization, there is the potential for paleontological resources to be illegally removed or damaged in the future due to increases in recreational and commercial usage, and limited law enforcement presence (Bureau of Land Management, 2014).

3.1.2.2 Bravo-16

Bravo-16 is located approximately 7 miles southwest of Fallon, Nevada, along the eastern margin of the northwest trending Dead Camel Mountains, west of U.S. Route 95. Figure 3.1-5 and Figure 3.1-6 show the topography and geology within the affected environment.

The Dead Camel Mountains make up much of the proposed B-16 expansion area. Elevations within this area range from approximately 3,900 feet above Mean Sea Level (MSL) to approximately 5,000 feet above MSL at Red Mountain in the north (Figure 3.1-5).

These mountains are primarily underlain by Miocene volcanic rocks (e.g., andesite, basalt, and ash-flow tuff) (Figure 3.1-6). Mostly playa and alluvial sedimentary rock occurs in the lower lying areas. Salt Cave is located in the proposed B-16 withdrawal area and provides recreational caving opportunities, such as exploration or spelunking. No other significant cave and karst resources are known to exist in the B-16 withdrawal area.

Playa: Undrained basin underlain by stratified clay, silt, or sand as well as soluble salts.

Alluvium: A general term for clay, silt, sand, gravel, or similar unconsolidated detrital material that was deposited in recent geologic time (e.g., Quaternary).

Soils on the summits of hills and plateaus, and the adjoining areas are typically thin rocky soils derived from volcanic rocks. These soils consist primarily of extremely stony to very cobbly, very fine to fine sandy loams. Local areas are devoid of soil accumulations due to areas of badland topography and exposures of hard bedrock. The soils near the base of the slopes consist of reworked alluvium, lakebed, and dune sand deposits (Natural Resources Conservation Service, 2017a; U.S. Department of the Navy, 2015).

The western slope of the Dead Camel Mountains is largely composed of sand, including stratified coarse and fine sand, and cobbly sandy loams. Potential runoff for these areas tends to be very high, and salinity is very slightly saline to slightly saline with high sodicity. This area gently slopes into Churchill Valley. Characteristic of basins within the region, playa and alluvial deposits underlie this valley. Soils have formed lake terraces (Biddleman associations) and hills, ridges, dunes, and drainage ways (Theon very gravelly sandy loam, 8–30 percent) adjacent to the valley (Figure 3.1-6). These areas are largely well drained with moderate to very high runoff potential.

Soil is permeable when air and water can move easily through it.

Soil acidity is measured by pH on a scale between 1 (acidic) and 14 (alkaline) with 7 being neutral.

Shrink-swell potential is the extent that the soil will expand when wet, which is often influenced by the amount of certain clay materials.

There is no prime or unique farmland within the proposed B-16 withdrawal. The NRCS's Web Soil Survey identified land within the southwestern portion of the proposed boundary as farmland of statewide importance (Natural Resources Conservation Service, 2017a). Although human activity is evident within this area (numerous dirt roads and a powerline), the land is managed by the BLM, and satellite imagery did not display any indication that this area is currently being cultivated as cropland, but there are active grazing allotments on this land (refer to Section 3.4, Livestock Grazing). Water resources on the land are managed by the Bureau of Reclamation in coordination with the BLM.

There are two fault zones in the B-16 region of influence: an unnamed fault zone west of Carson Lake and an unnamed fault zone in Dead Camel Mountains (U.S. Geological Survey, 1999). The unnamed fault zone west of Carson lake is a group of short, discontinuous faults in southwestern Lahontan Valley. This fault zone is located within the B-16 region of influence. For additional information on the faults described below, see Supporting Study: Faults and Fault Zones In the Withdrawal Area (available at https://frtcmodernization.com).

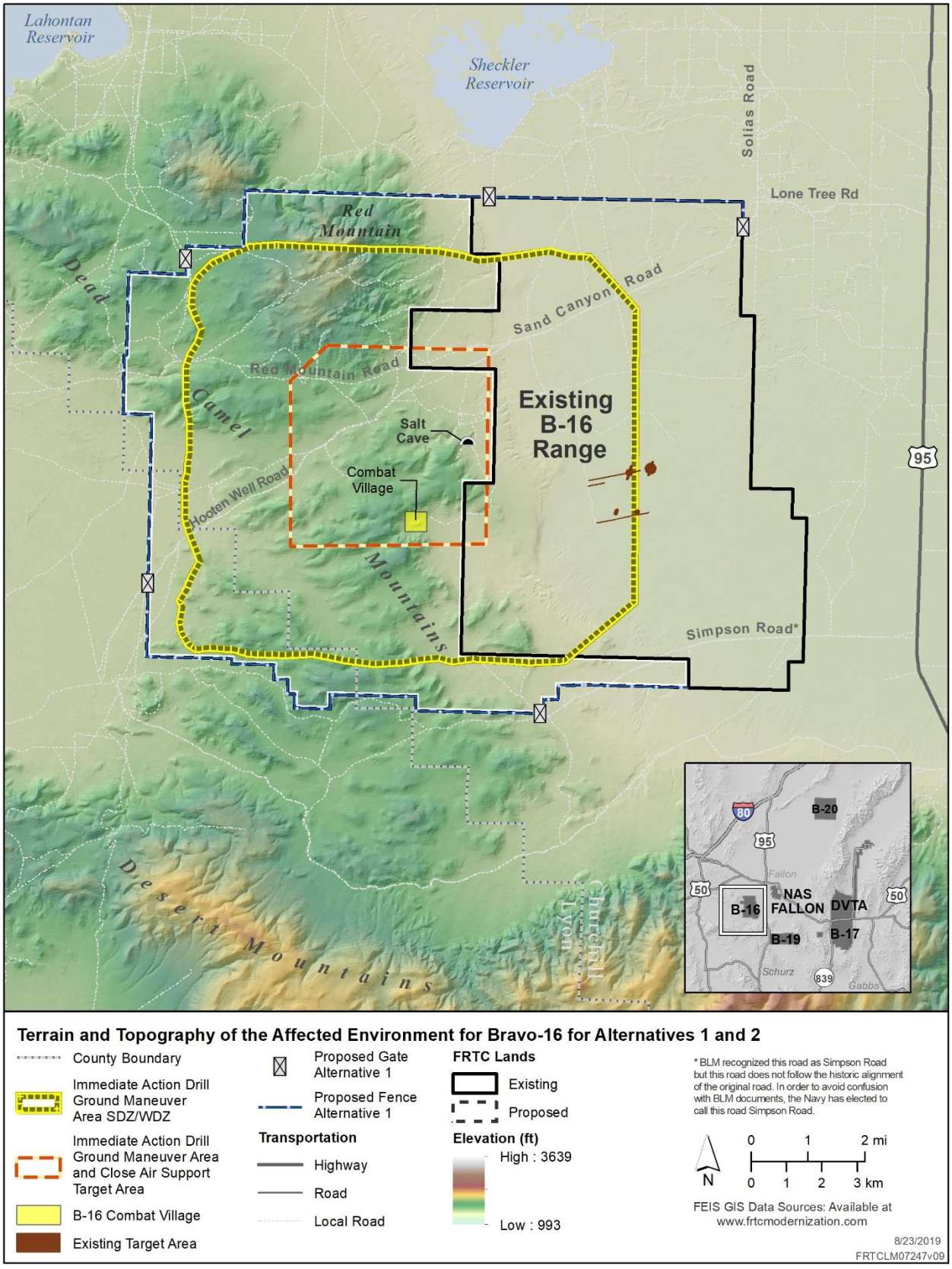


Figure 3.1-5: Terrain and Topography of the Affected Environment for Bravo-16 for Alternatives 1 and 2

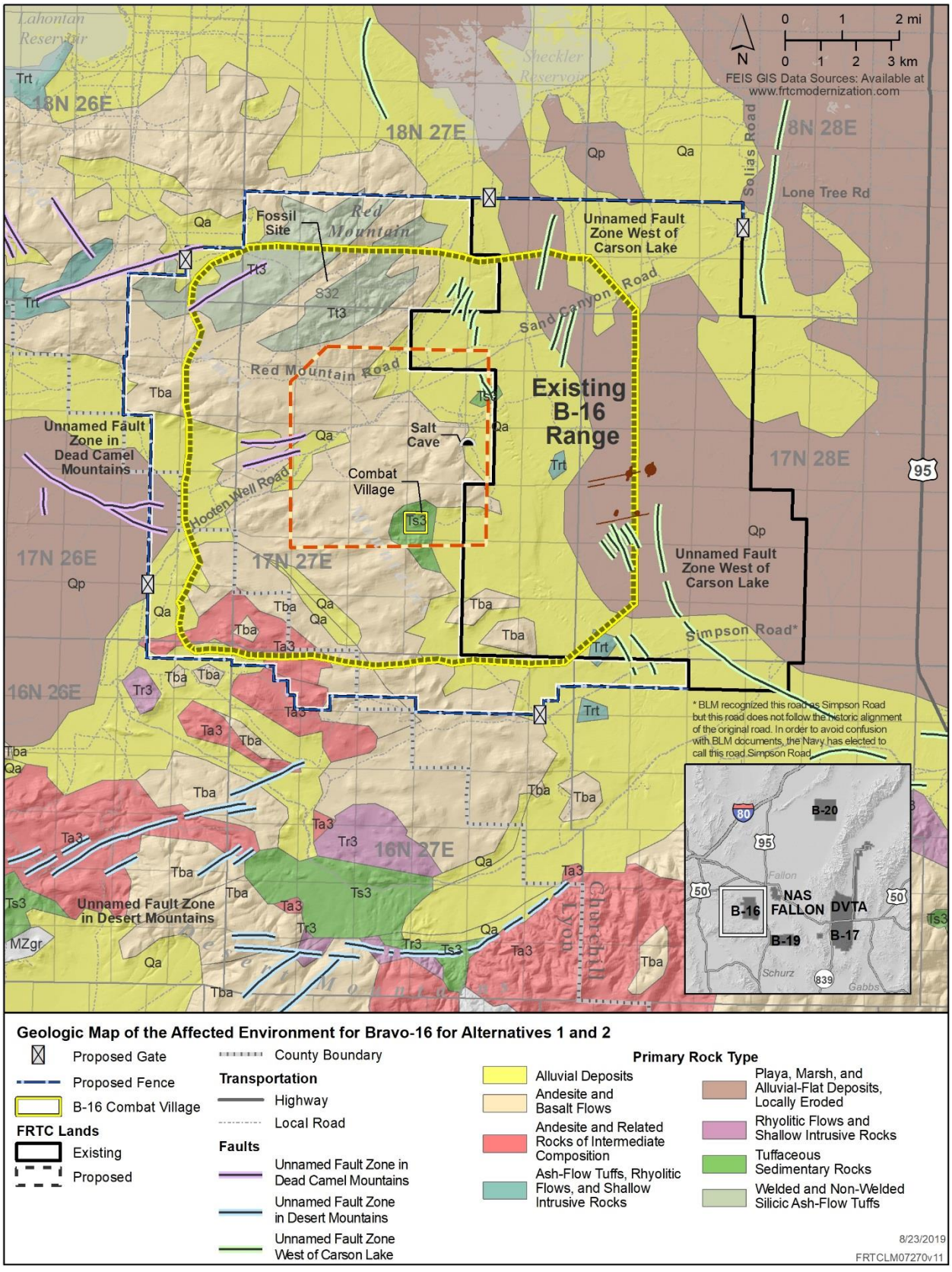


Figure 3.1-6: Geologic Map of the Affected Environment for Bravo-16 for Alternatives 1 and 2

There are no historical earthquakes associated with this fault zone. As seen on both Figures 3.1-6 and 3.3-6 (geothermal potential), there may be spatial correlation between the unnamed fault zone west of Carson Lake along the western range front and geothermal favorability (Faulds et al., 2017). This correlation may indicate a preferential pathway for super-heated water, which could be used for geothermal energy production.

The unnamed fault zone in the Dead Camel Mountains is a short, distributed zone in the western Dead Camel Mountains. This fault zone is located in the western B-16 region of influence. There are no historical earthquakes associated with this fault zone.

A fossil site is located in the northwestern portion of the proposed expansion area in the Dead Camel Mountains (T18N, R27E, Section 32; see Figure 3.1-6) that contain plant leaf, seed, and cone impressions (Firby et al., 1981).

3.1.2.3 Bravo-17

The B-17 Withdrawal is located southeast of Fallon, Nevada. The affected environment for B-17 is bounded to the north by U.S. Route 50, and extends east beyond State Route 361 and west beyond State Route 839. Figure 3.1-7 and Figure 3.1-8 show the topography and geology within the affected environment.

At over 8,000 feet above MSL, Fairview Peak is the tallest peak in the area (northeast corner of the withdrawal). Other mountainous or hilly areas include the Monte Cristo Mountains (roughly 6,500 feet above MSL) located in the central portion, the Sinkavatas Hills west of the Monte Cristo, and the Sand Springs Range (roughly 7,000 feet above MSL) in the northwest corner. As seen on the geologic map, the mountainous areas are relatively complex with many rock types. These areas are largely underlain by hard intrusive igneous rocks such as older (Jurassic to Cretaceous) granite and younger (Eocene to Miocene) mafic (dark) to intermediate color intrusive rocks. The mountainous areas also contain hard extrusive volcanic rocks such Oligocene to Miocene andesite, basalt, and ash flow tuffs. The lower elevation areas are mostly composed of soft unconsolidated alluvium and playa rocks. Occasional outcrops of shale, mudstone, siltstone, sandstone, and carbonate rocks (Triassic to Jurassic) also occur in the withdrawal area.

Significant cave and karst resources are not known to exist in the B-17 withdrawal area.

Soils in mountainous and adjoining areas (including the Monte Cristo and Sand Springs Mountains) are typically thin, poorly developed rocky soils derived from the igneous rocks (Figure 3.1-8) (e.g., Downeyville-Stewval-Blacktop and Budihol-Chill-Rock Outcrop associations). These soils consist primarily of sandy loams with gravel or cobbles. The eastern slope of Fairview Peak is primarily composed of alluvium with gravelly and sandy loam with very high runoff and very low capacity to transmit water (Pineval-Rebel association). Local areas are devoid of soil accumulation due to exposures of hard bedrock. The soils near the base of the slopes consist of reworked alluvium, lakebed, and dune sand deposits (e.g., Genegraf-Rednik-Trocken association). These soils have low salinity and low to moderate sodicity, are moderately to strongly alkaline, have a low to moderate shrink-swell potential, and have a slight erosion hazard. Soils in the middle of the basins often are composed of alluvial, stratified lacustrine, and lake terrace deposits (e.g., Appian-Juva-Bango association). These soils are slightly saline and sodic, moderately to very strongly alkaline, very deep, and well-drained. There are also playa deposits in the northwest and southwest corners of the region of influence. The playa soils are fine-grained, poorly drained, saline deposits that do not support vegetation (Natural Resources Conservation Service, 2017a; U.S. Department of the Navy, 2015).

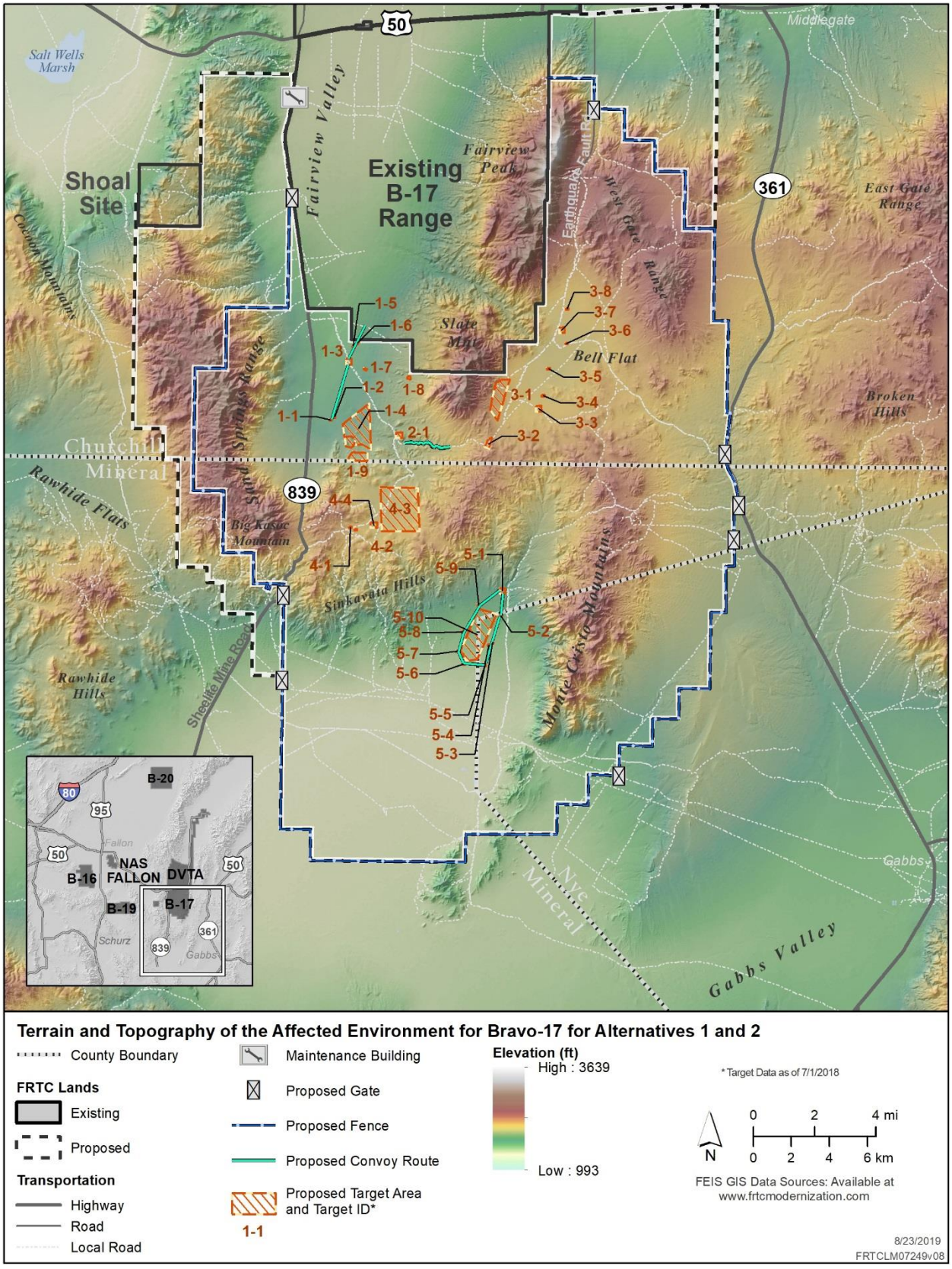


Figure 3.1-7: Terrain and Topography of the Affected Environment for Bravo-17 for Alternatives 1 and 2

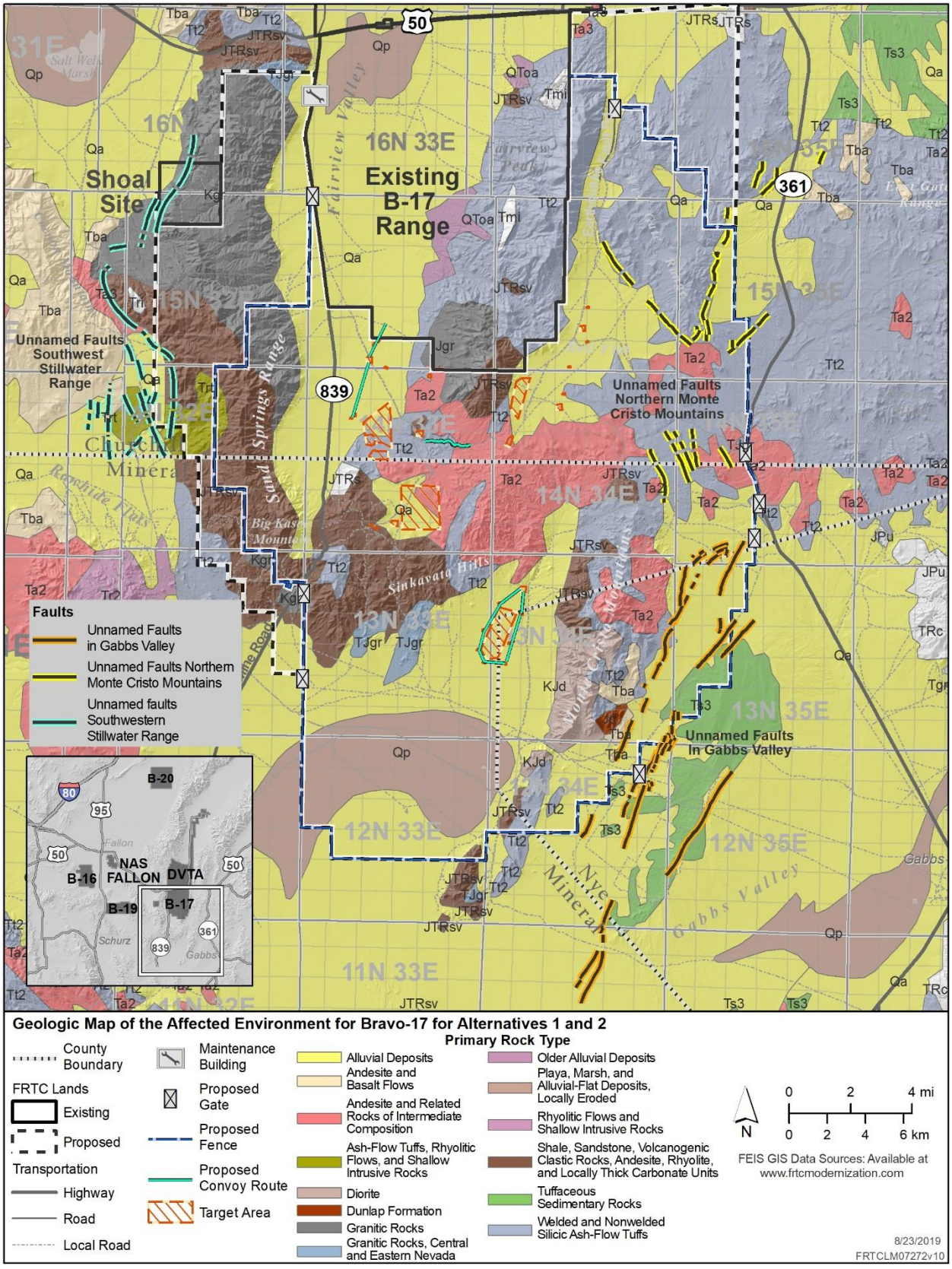


Figure 3.1-8: Geologic Map of the Affected Environment for Bravo-17 for Alternatives 1 and 2

There is no prime or unique farmland within the affected environment for B-17. The NRCS Web Soil Survey identified land within Gabbs Valley as farmlands of statewide importance (Eastgate gravelly sandy loam, 0–4 percent slopes; Eastgate-Cirac Association) (Natural Resources Conservation Service, 2017a). This includes land at the foot of the southern slope of Cobble Cuesta, which follows Gabbs Wash (Eastgate gravelly sandy loam, 0–4 percent slopes); however, there does not appear to be any active cropland on this land. Satellite imagery does show central pivot irrigation near the Finger Rock Wash (Eastgate-Cirac association), evidencing cultivation efforts on this farmland.

There are six faults or fault zones in the B-17 region of influence: Western Fairview Peak fault, Sand Springs Range fault, Hot Springs fault zone, Fairview fault zone, unnamed faults in northern Monte Cristo Mountains, and unnamed faults in Gabbs Valley (U.S. Geological Survey, 2018). All of these faults and fault zones appear to correlate (spatially) at least to some extent with geothermal favorability and mineral enrichment (see Figure 3.1-7 and Figure 3.1-8). For additional information on the faults described below, see Supporting Study: Faults and Fault Zones In the Withdrawal Area (available at https://frtcmodernization.com).

The Western Fairview Peak fault is part of a discontinuous zone that primarily has faults in eastern Fairview Valley, southern Dixie Valley, and the southern Fairview Peak range. The Western Fairview Peak Fault Zone runs primarily through the center of the northern half of the B-17 region of influence. This fault may be related to the Louderback Mountains fault and Dixie Valley fault, but unlike these faults, did not rupture in 1954. There are no historic earthquakes associated with the Western Fairview Peak fault.

The Sand Springs Range fault is a nearly continuous, moderately long zone primarily along the east of the Sand Springs Range. A portion of this fault is found within the western B-17 region of influence. There are no historic earthquakes associated with this fault.

The Hot Springs fault zone is a moderately short and nearly continuous zone bounding the entire west front of the Monte Cristo Mountains and east front of Black Hills. This fault zone is found within the southern B-17 region of influence. The Hot Springs fault zone was part of the historic Fairview Peak earthquake of 1954, which ruptured most of the short faults north of the border between Mineral and Nye counties.

The Fairview fault zone is a well-defined, historical, and normal-right oblique fault zone along the east side of Fairview Peak range and Slate Mountain, east and west sides of Chalk Mountain, and in Stingaree Valley and Bell Flat. This fault zone is found within the center of the B-17 region of influence. The Fairview fault zone was part of the historic Fairview Peak earthquake of 1954, which produced a complex pattern of surface ruptures along the entire length of the fault. Virtually all faults in the zone are clearly marked by 1954 scarps, and many have distinct free faces that represent as much as approximately 2.9 meters of right-lateral and 3.8 meters of vertical separation. Several paleoseismic studies have been conducted on the Fairview fault zone.

The unnamed faults north of Monte Cristo Mountains are anastomosing with the left-stepping down-to-the-west faults along the southwest base of the Cedar Mountains. These faults are found within the northeastern B-17 region of influence. There are no historic earthquakes associated with these faults; however, the faults have minor short surface ruptures from the 1932 Cedar Mountain earthquake.

The unnamed faults in Gabbs Valley are a group of generally short and discontinuous faults along the northwest sides of the Pilot Mountains and on the West side of Table Mountain. A portion of these

faults are within the southern half of the B-17 region of influence. There are no historic earthquakes associated with these faults.

3.1.2.4 Bravo-20

The B-20 withdrawal is located within the Carson Sink, between the Stillwater and the West Humboldt mountain ranges. The Carson Sink is one of the major basins associated with the former widespread Pleistocene Lake Lahontan. In more recent times, the Carson Sink was the location of the terminus for the Carson River and the Humboldt River. Currently, canals from the Truckee-Carson Irrigation District drain into the basin; during heavy snow/rain years (on average every five years), temporary flooding and partial filling occurs (refer to Section 3.9, Water Resources). Figure 3.1-9 and Figure 3.1-10 show the topography and geology within the affected environment.

With an elevation of approximately 3,876 feet, the Carson Sink basin is primarily flat with the exception of Lone Rock, which is a 140-foot-tall basalt outcrop in the center of B-20 (U.S. Department of the Navy, 2008). Geologic units within the basin inside of the withdrawal footprint are largely composed of Quaternary playa/marsh deposits. These deposits typically consist of very poorly drained clay, silt, and fine-to-coarse grained sand that generally do not support developed soil profiles. Quaternary alluvial deposits consisting of beach and sand dunes are found at the basin margins. Extrusive volcanic rocks including Oligocene to Miocene ash-flow tuff, and Miocene to Pliocene andesite and basalt flows are located in the extreme northwest corner of the withdrawal area at the base of the West Humboldt Mountain Range. Also located in this vicinity are Triassic-to-Jurassic shale, mudstone, siltstone, sandstone, and carbonate rock.

The majority of the soils in the B-20 region of influence consists of playas. As mentioned above, soils on the playa are very poorly developed to nonexistent. Soils in the vicinity of Lone Rock are primarily derived from alluvial and dune deposits. Alluvial-derived soils consist primarily of fine sand and silty clay (Isolde-Parran-Appian Association). These soils are deep and well drained, and available water capacity is moderate. These soils have low to high salinity and sodicity, are strongly to very strongly alkaline, have moderately slow to moderately rapid permeability, and have very slow surface runoff. Potential for sheet and rill erosion is also slight (Natural Resources Conservation Service, 2017a).

In addition to the silty clay playa deposits, the Western Humboldt range borders the northwestern B-20 region of influence. Soils along the base of slopes are very deep, well drained, very strongly alkaline soils that formed in alluvium from mixed rocks (Trocken-Ragtown association). Soils on the summits are very shallow and shallow, well drained, moderately alkaline soils that formed in residuum and colluvium derived from volcanic rocks (Theon-Singatse-Rock outcrop association) (Natural Resources Conservation Service, 2017a).

There is no prime or unique farmland or farmland of statewide or local importance in the proposed B-20 boundary (Natural Resources Conservation Service, 2017a). No significant cave or karst resources are known to exist in the B-20 withdrawal area.

There are two fault zones in the B-20 region of influence: the Rainbow Mountain fault zone and the Eastern Carson Sink fault zone. Both of these fault zones may correlate (spatially) with both geothermal favorability and mineral enrichment (Figure 3.1-9 and Figure 3.1-10). For additional information on the faults described below, see Supporting Study: Faults and Fault Zones In the Withdrawal Area (available at https://frtcmodernization.com).

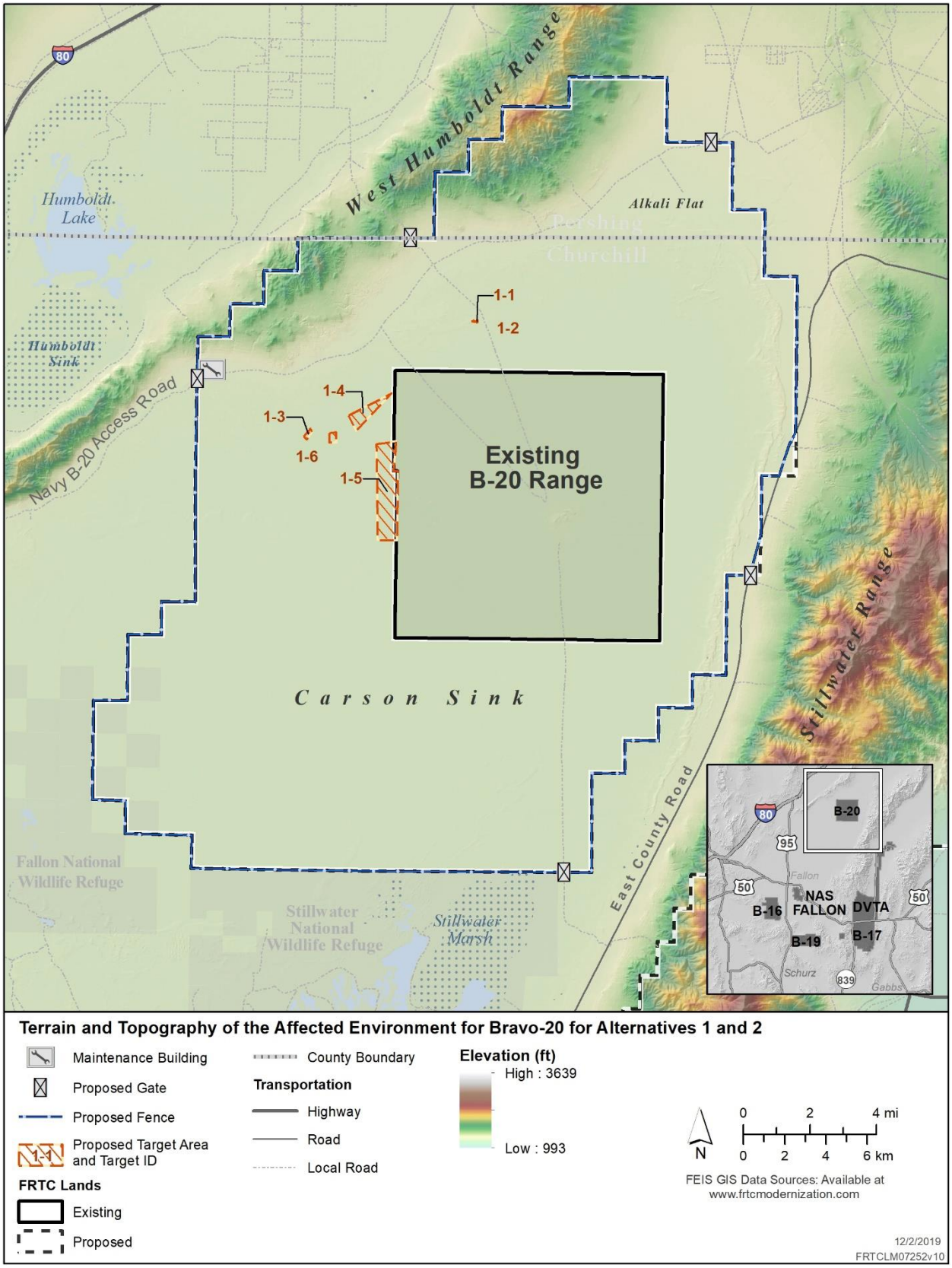


Figure 3.1-9: Terrain and Topography of the Affected Environment for Bravo-20 for Alternatives 1 and 2

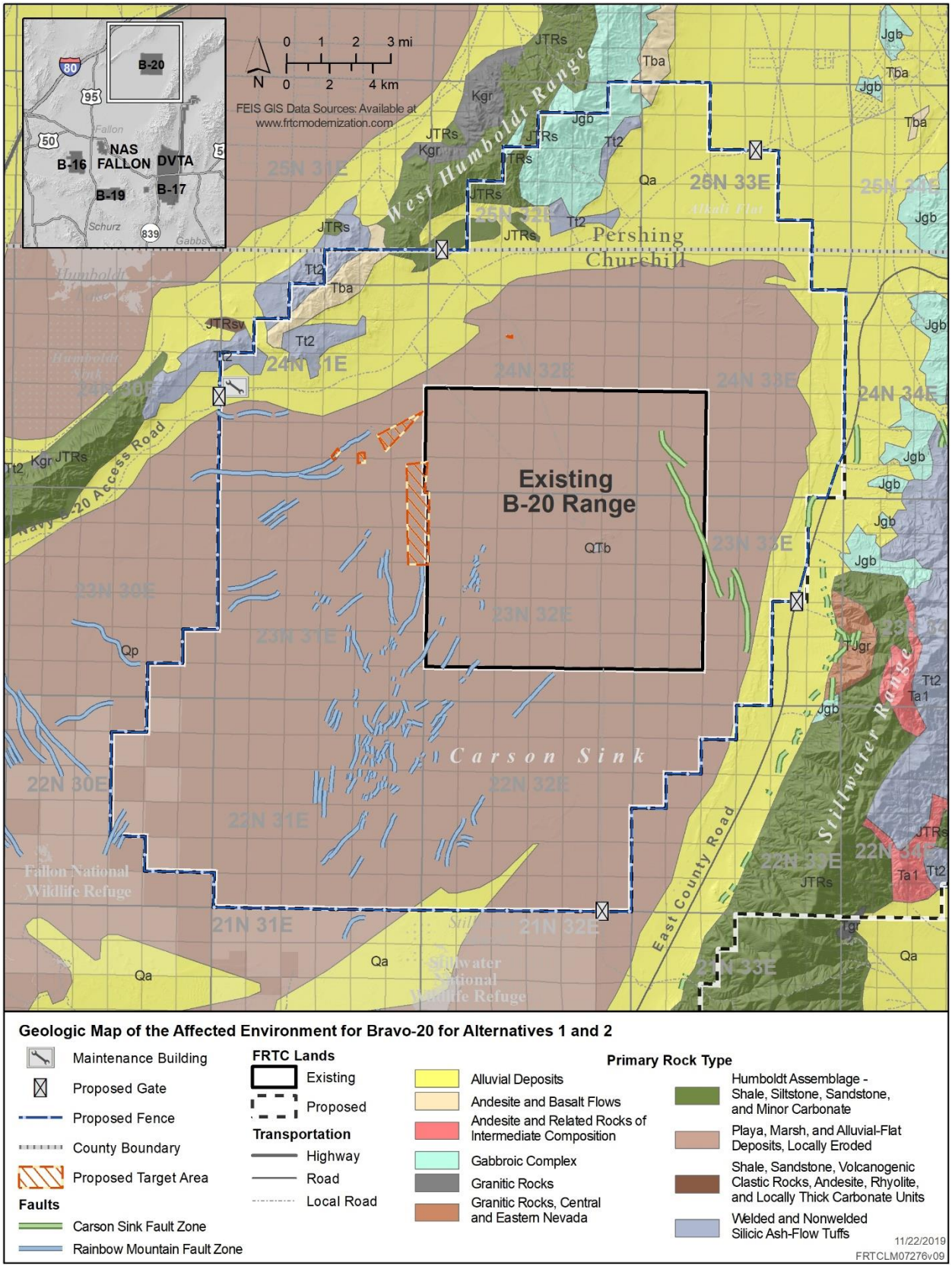


Figure 3.1-10: Geologic Map of the Affected Environment for Bravo-20 for Alternatives 1 and 2

The Rainbow Mountain fault zone is long and widely distributed; has numerous faults that occur throughout much of the Carson Sink, along the eastern margin of the Salt Wells Basin; and bounds both sides of Stillwater Point. A portion of this fault zone is found within the southern and western B-20 region of influence. The Rainbow Mountain fault zone was part of the historic Rainbow Mountain earthquake of 1954 and the Stillwater earthquake of 1954, which caused many breaks and scarps to the floor of this zone.

The Eastern Carson Sink fault zone generally separates the extremely broad and deep Carson Sink from the prominent west front of the Stillwater Range and consists of short faults. A portion of this fault zone is found within the eastern B-20 region of influence. There are no historic earthquakes associated with this fault zone.

3.1.2.5 Dixie Valley Training Area

The DVTA is within the Dixie Valley, which is north of U.S. Route 50 and B-17. Figure 3.1-11 and Figure 3.1-12 show the topography and geology within the affected environment. The DVTA is proposed to extend east into the Louderback and Clan Alpine Mountains, west into the Stillwater Mountains and south into the Sand Springs Mountains (west of the Dixie Valley) and near Fairview Peak (east of the valley).

The elevation of the Dixie Valley floor ranges from about 3,400 feet above MSL near the north end of the proposed withdrawal area to about 4,200 feet above MSL near the southern end of the proposed withdrawal area. The Dixie Valley is a typical basin feature surrounded on both sides by mountain ranges. The Valley is underlain by Quaternary alluvium, consisting of unconsolidated sand and silt, with coarser-grained alluvial fan, colluvium, and talus deposits found on slopes nearer the mountain ranges that define the valley. Playa deposits are present near the northern end of the region of influence. The Louderback (roughly 4,800 feet above MSL) and the westernmost Clan Alpine Mountains (roughly 7,000 feet above MSL) are located on the east side of the Dixie Valley. These mountain ranges are primarily underlain by Oligocene to Miocene extrusive volcanic welded and nonwelded ash-flow tuffs. Other similarly aged extrusive and intrusive volcanic rocks such as andesite and rhyolite are located on the eastern flank of the Dixie Valley. In addition, Triassic limestone, dolomite, shale, and sandstone are found in isolated instances. The Stillwater Range is located on the west side of the valley and is a very steep and rugged mountain range that separates the Dixie Valley from the Carson Sink. The portion of the Stillwater Range that is within the region of influence is largely composed of Oligocene to Miocene volcanic ash-flow tuffs, Eocene to Miocene tuffaceous sedimentary rock, and Cretaceous granite. The mountains also include areas with Jurassic shale, mudstone, siltstone, sandstone, and carbonate rock with sparse volcanic rock. Chalk Mountain is in the southeastern portion of the Dixie Valley. This mountain is composed of granitic rocks and limestone with minor amounts of dolomite, shale, and sandstone, and locally thick conglomerate units.

Soils at the lower elevations of Dixie Valley exhibit typical characteristics found in internally drained valleys of the Basin and Range Province. These soils have a high pH and are high in soluble salts because runoff is slow on the broad, nearly level valley floor. Soils at the base of a mountain also are alluvial in origin. These soils, which are generally gravelly, occupy the fan remnant and inset fan landforms. Predominant soil associations include Hawsley loamy sand, Rednik-Trocken-Bluewing Association, and the Genegraf-Rednik-Trocken Association. Soils in the northern portion of the existing DVTA consist primarily of sodic sands, deep sodic fans, and playa deposits. Soils in this northern area of the Dixie Valley are composed of sandy loams and fine sands (Bango-Playas-Chuckle Association) and silty loam, loamy sand, sandy loam, and silty clay loam (Slaw-Juva-Wholan Association).

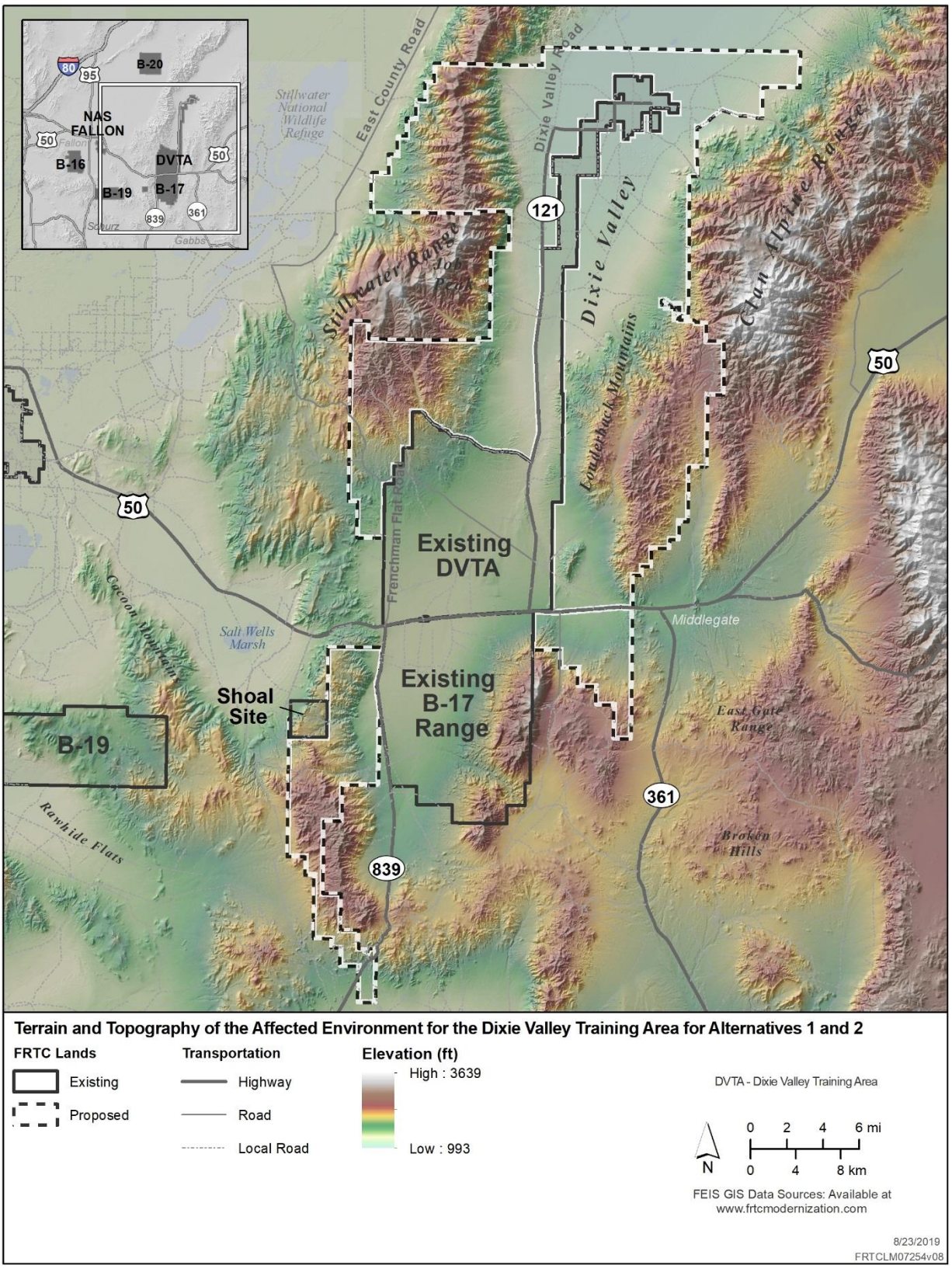


Figure 3.1-11: Terrain and Topography of the Affected Environment for the Dixie Valley Training Area for Alternatives 1 and 2

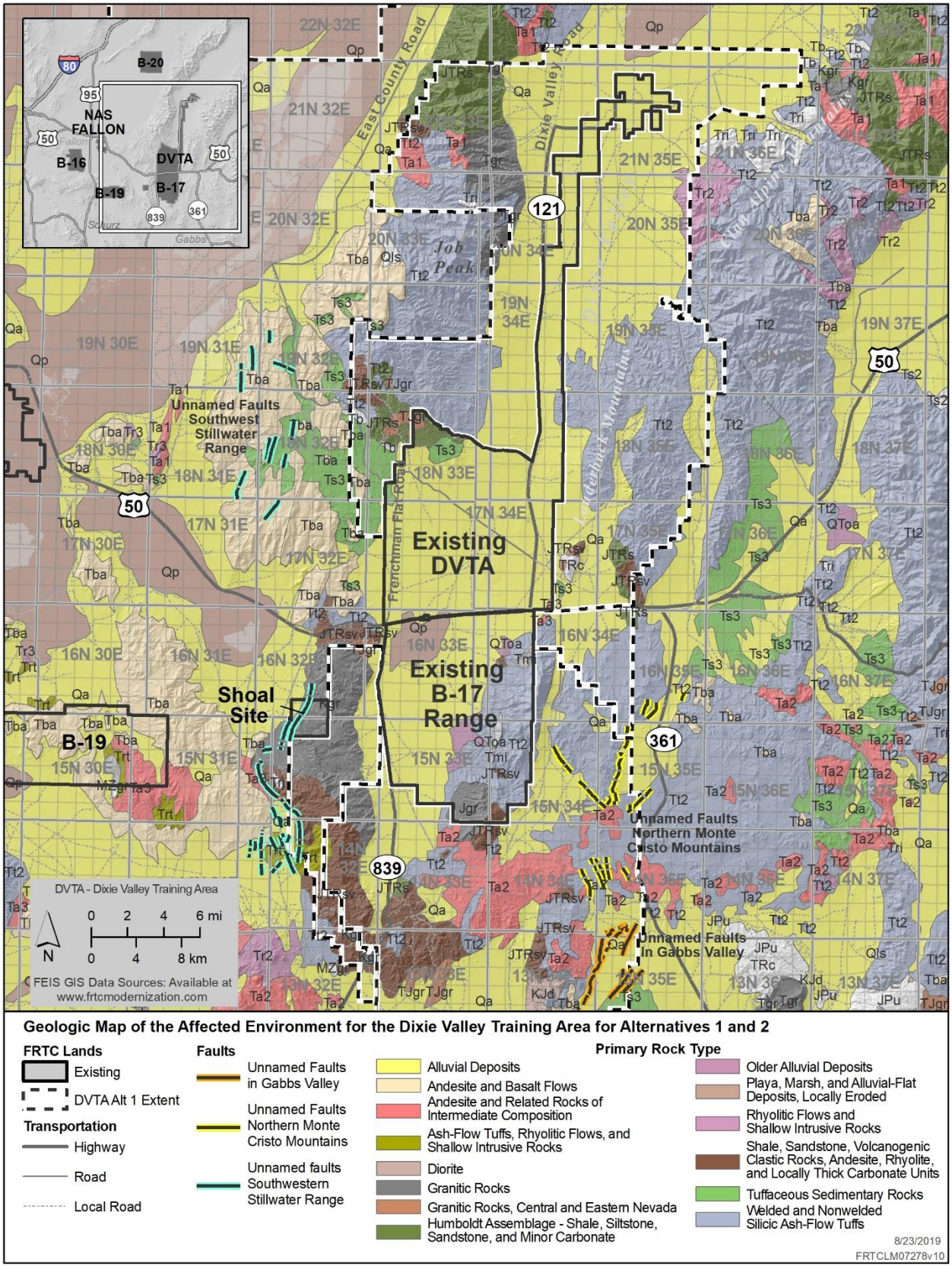


Figure 3.1-12: Geologic Map of the Affected Environment for Dixie Valley Training Area for Alternatives 1 and 2

The western slope of the Louderback and Clan Alpine Mountain ranges are primarily composed of gravelly colluvium or residuum weathered by volcanic rocks and ridges (Theon-Singatse-Rock Outcrop Association), which has a very high runoff potential, very low permeability, and a relatively shallow depth to bedrock. The southern portion of Chalk Mountain soil is primarily very stony and very cobbly loam with very high runoff (Theriot-Findout-Rock outcrop association). Soils in the Stillwater Range typically have very low to low permeability, a very high runoff rate, and severe erosion hazards (e.g., Old Camp-Bombadil-Loomer association) (Natural Resources Conservation Service, 2017a).

There is no prime or unique farmland or farmland of statewide or local importance in the proposed DVTA boundary (Natural Resources Conservation Service, 2017). The south-central portion of the Dixie Valley was an irrigated agriculture settlement area prior to the Navy's ownership of the land. During the 1980s, the Navy purchased these irrigators' lands and acquired the associated water rights. The Navy maintains the water rights on 29 wells in this area. The water is used by wildlife and to maintain wildlife habitat. Livestock on the BLM- and Bureau of Reclamation-administered grazing allotments also use the water from some of the wells.

There are 13 faults or fault zones in the DVTA region of influence: Sand Springs Range fault, Western Fairview Peak fault, unnamed faults northern Monte Cristo Mountains, Fairview fault zone, Eastern Carson Sink fault zone, Dixie Valley fault zone, Eastern Dixie Valley fault zone, unnamed fault in eastern Dixie Valley, Middlegate fault zone, West Gate fault, Gold King fault, Louderback Mountains fault, and Western Sand Springs Range fault. The Sand Springs Range fault, Western Fairview Peak fault, unnamed faults northern Monte Cristo Mountains, and Fairview fault zone are also within the B-17 region of influence. The Eastern Carson Sink fault zone is also within the B-20 region of influence. All of these faults and fault zones appear to show, at least to some extent, spatial correlation with geothermal favorability and mineral enrichment (refer to Section 3.3.2.2, Mineral and Energy Resource Potential Per Range). For additional information on the faults described below, see Supporting Study: Faults and Fault Zones In the Withdrawal Area (available at https://frtcmodernization.com).

The Dixie Valley fault zone is a long, continuous, and well-defined to spectacularly expressed fault zone that bounds the east side of the Stillwater Range. A portion of this fault zone runs through the center of the DVTA region of influence. The Dixie Valley fault zone was part of the Dixie Valley earthquake of 1954, which produced spectacular surface ruptures up to 2.8 meters high along the southern part of the fault zone. Several paleoseismic studies have been conducted on the Fairview fault zone.

The Eastern Dixie Valley fault zone consists of two groups of faults along the western flanks of the Augusta and Clan Alpine Mountains. A small portion of this fault is within the northeast corner of the DVTA region of influence. There are no historic earthquakes associated with this fault zone.

The unnamed fault in eastern Dixie Valley is a distributed group of short faults bounding the east of Clan Alpine Mountains and north end of Louderback Mountains. This fault is located within the eastern DVTA region of influence. This fault was part of the historic Fairview Peak earthquake of 1954 and the Dixie Valley earthquake of 1954, which caused the southwestern piedmont fault to have as much as 0.2 meters of vertical displacement.

The Middlegate fault zone is a relatively narrow and continuous fault along the Clan Alpine Mountains. A portion of this fault is found within the eastern edge of the DVTA region of influence. There are no historic earthquakes associated with this fault zone.

The West Gate fault is a range-front fault that is nearly continuous along the west side of the Clan Alpine Mountains. This fault is found within the eastern DVTA region of influence. The West Gate fault was part

of the Fairview Peak earthquake of 1954, which produced scarps that represent as much as 1.1 meters and 0.5 meters of vertical separation along the southern and northern rupture zones.

The Gold King fault is a short, continuous fault within the Louderback Mountains. This fault is located within the center of the DVTA region of influence. The Gold King fault was part of the historic Wonder earthquake of 1903, Fairview Peak earthquake of 1954, and the Dixie Valley earthquake of 1954, which produced several ruptures. This is one of only a few examples of a fault that has ruptured more than once during the historical period on a worldwide basis.

The Louderback Mountains fault is a short, continuous zone along the southeast side of southern Dixie Valley and locally along the southwest sides of the Louderback Mountains. This fault is located within the center of the DVTA region of influence. The Louderback Mountains fault was part of the historic Fairview Peak earthquake of 1954 and the Dixie Valley earthquake of 1954, which produced well-defined scarps; the ruptures extended the entire length of the fault.

The Western Sand Springs Range fault is a relatively short zone with range-front faults discontinuously bounding the west of Sand Springs Range and on the north side of Black Eagle hill. This fault is found on the western edge of the DVTA region of influence. There are no historic earthquakes associated with this fault.

3.1.3 Environmental Consequences

Geological resources are analyzed in terms of drainage, erosion, prime farmland, land subsidence, and seismic activity. The analysis of topography and soils focuses on the area of soils that would be disturbed, the potential for erosion of soils from construction areas, and the potential for eroded soils to become pollutants in downstream surface water during storm events. The analysis also examines potential impacts related to seismic events. Best Management Practices are identified to minimize soil impacts and prevent or control pollutant releases into storm water.

Factors considered in determining whether an impact would be significant include the potential for substantial changes in the rocks and soil that would preclude established land uses or would adversely affect sensitive environmental resources. Normal military and nonmilitary activities do not increase exposure to seismic hazards or to other geologic hazards (including landslides, subsidence, settlement, or volcanic eruption), so this section does not further address those topics. In addition, because range flight events would be conducted in airspace above FRTC and would not affect geology or soils outside the proposed boundaries of the bombing ranges and training areas, these operations are not addressed further in this section.

A total combined score on Form AD-1006, *Farmland Conversion Impact Rating*, of between 200 and 260 points out of 260 points would be considered a significant conversion of farmland (Federal Aviation Administration, 2015). Factors used to determine this score include, but are not limited to, the total acres to be irreversibly converted (directly and indirectly), whether the land is prime or unique farmland or farmland of statewide or local importance, whether the land is nonurban, the distance to urban areas, the percent of the land being farmed, and whether there have been other on-farm investments.

The BLM considers vertebrate fossils, as a group, to be scientifically significant. Meanwhile, invertebrate and plant fossils may be determined to be significant on a case-by-case basis. The destruction of such a resource or paleontological site would be considered a factor for significance for the EIS.

3.1.3.1 No Action Alternative

For geologic resources, future land uses that could occur if the FRTC is not renewed under the No Action Alternative may include range closure activities or restricted land use of areas previously disturbed by military operations and recreational use; utility corridor construction; livestock grazing, or mining, geothermal, solar, or wind energy resource development. Cessation of military surface uses would eliminate future soil disturbance at weapons impact areas, reducing the susceptibility of disturbed soils to further erosion, and potentially allowing soils to recover to their natural state unless disturbed by recreation or other public activities. Release of the FRTC lands to another Department of Defense agency, the BLM, or others would likely open unrestricted lands to public use or mineral resource development.

In general, due to limited precipitation in high desert areas such as the region of influence, weathering rates are slow, causing soil development to be weak and have unique (to arid environments) horizons as compared to areas with more precipitation and humidity. Recovery of desert soils can take decades or perhaps a century or more to return to the undisturbed state. Depending on the activity, recovery of desert soil may be less likely in areas that would experience repeated disturbance. Limited recovery of soil stability and ground or vegetative cover may be all that could be expected once surface disturbance occurs; however, physical and chemical weathering, which are two primary causes of soil development, never stops. Nevertheless, in many areas, the native soils and soil stability were weak to begin with.

In the immediate target areas, military ordnance landing on soft ground disturbs the surface. Disturbance is greater where high explosives are authorized and less where only practice munitions can be used. In areas where soil is poorly developed and bedrock is shallow, the disturbance is often less than softer areas. The area of disturbance is predictably very consistent from target area to target area. The disturbance pattern has the shape of an ellipse with the long axis always in line with the run-in line (run-in lines are nearly always fixed). This is because pilot accuracy is typically much better from perpendicular to the run-in line than short of or past the target (in line with the run-in line). In accordance with Navy policy, the target areas are actively managed in the Range Sustainment Program by regularly removing used ordnance and maintaining the landscape to ensure long-term sustainability.

Following closure of the range, cleanup activities may temporarily increase soil erosion to a very limited extent during ordnance clearance, however, range closure activities would be conducted in compliance with all applicable laws and regulations, and would involve implementation of best management practices control measures to eliminate or minimize soil erosion.

Depending on the future land uses allowed if the FRTC is not renewed, impacts on geologic resources could be significant. While future allowable uses are undefined at this time, a few examples of potential activities can help to understand the potential effects. Recreational use, particularly off-road activities, would likely increase the overall susceptibility of soils to erosion or runoff. Off-road travel would also locally increase naturally occurring wind and water erosion by altering soil structure and destroying physical or biological soil crusts, desert pavement, or vegetated surfaces, potentially resulting in increased fugitive dust and sediment loads or sedimentation in the ephemeral drainages. Off-road travel would compact soils along frequently used roads or trails and increase storm water runoff during precipitation events. Off-road travel, along with the loss of native vegetative cover in disturbed soil areas, would increase the chance of invasive, non-native plant species introduction, colonization, and naturalization. However, any future uses would be subject to all applicable Federal, state, and local laws, regulations, and ordinances, which may permanently or temporarily minimize impacts on soils.

Geologic resources in the region of influence would likely be significantly impacted by mineral and geothermal energy exploration and development. Development would have a larger impact on geological resources, such as soil, than exploration because of the following construction and building projects: surface or underground workings, heap leach pads, geothermal power plant facilities, wells and brine ponds, solar panel fields, wind turbines, paved roads, rail spurs, or electrical transmission lines. This construction would also likely increase the area of soils susceptible to wind and water erosion. However, erosion and runoff control measures would likely be implemented during mining to reduce sediment transport and minimize water quality effects. Open-pit mining also would have the potential to generate waste rock or tailing volumes, which would be stored on adjacent land and may potentially oxidize to produce acid rock drainage. Withdrawal and injection of geothermal fluids into the subsurface create the possibility of locally increasing seismic activity (Kim et al., 2018). Therefore, in light of such uncertainties, implementation of the No Action Alternative could impact geological resources within the region of influence.

3.1.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy proposes renewal by Congress of the current public land withdrawal at the FRTC. Under Alternative 1, the Navy would also request additional lands for withdrawal and propose to acquire additional non-federal land to be reserved for military use.

The Weapons Danger Zones (WDZs) for all ranges would be within the range boundaries and the probability of munitions landing beyond the range boundaries would be very low (i.e., 99.99 percent containment). Therefore, potential impacts associated with inadvertent off-range release of munitions are not addressed in further detail in this section. Policies and procedures would continue to remain in place on the FRTC that prevent off-range release of munitions or ordnance and respond in the unlikely event of a future off-range release of munitions or ordnance.

Based on current management practices, improved access to land, and increased urbanization, there is the potential for paleontological resources to be illegally removed or damaged in the future due to increases in recreational and commercial usage, and limited law enforcement presence (Bureau of Land Management, 2014). This would be improved with any resources that are on proposed withdrawn lands, as they would be fenced and protected.

As the public becomes more aware of cave locations, the incidents of vandalism from graffiti and target shooting can increase. Visitation can negatively impact the biological and cultural importance of a cave from the introduction and spread of invasive weeds and organisms, soil compaction, the disturbance of artifacts, and the spread of certain diseases (Bureau of Land Management, 2014). Cave resources are typically impacted by the public until management decisions are developed to adequately protect the resources. However, any caves or karsts that are located on the open withdrawn ranges would be fenced and protected, while any located on the bombing portions of the withdrawal would also have limited access because they would be located in fenced and restricted areas with limited access.

3.1.3.2.1 Bravo-16

Land Acquisition and Withdrawal

Alternative 1 would expand B-16 to approximately 59,560 acres, which would be an increase of approximately 32,201 acres from existing conditions (Table 2-1).

Training Activities

Unit-level training would not increase but would expand to include the entire proposed B-16 range. Unit-level training includes Air-to-Surface Ordnance Delivery, Combat Search and Rescue training, and Naval Special Warfare training. Expansion would allow concurrent training operations with Naval Special Warfare tactical ground mobility training activities in the proposed western expansion area and air operations (helicopter and fixed wing) in the eastern portion of the existing B-16 range using existing targets. Approximately 21,600 acres of B-16 would be set aside for an Immediate Action Drill Ground Maneuver Area and Close Air Support Target Area (approximately 36 percent of B-16) (Figure 3.1-5 and Table 3.1-3).

Disturbances of previously intact desert soils from vehicle and foot traffic would lead to the disruption of desert crust, pavement, or varnish that may be present (all of which assist in the stabilization of the soil). As a result, there would be an increased potential for soil erosion, compaction, and displacement, which would be considered a permanent disruption due to the long recovery time required for desert soils.

Training would involve vehicle use on the existing road network, which primarily consists of primitive dirt roads and gravel roads. During the tactical ground mobility training, off-road use of vehicles would occur in the expanded B-16. Continued vehicle uses on dirt roads would result in soil disturbance and compaction in previously disturbed areas. Similarly, the presence of personnel for training activities, including insertion/extraction, tactical ground mobility, and ground maneuver tactics, could compact soils and expose them to erosion. If areas are used frequently, damage to plants could become permanent as plants are repeatedly trampled and soils become compacted, preventing recovery of plants, potentially making soils more susceptible to future erosion.

Alternative 1 would not relocate existing target or strafe areas. There would continue to be limited physical disturbance to soils within target areas from military munition strikes, and targets would be moved around within target areas. The existing B-16 target areas are on alkali flats. Only practice/inert ordnance with spotting charge is allowed on this range. Range scrap would be removed at regular intervals based on the *Fallon Operational Range Clearance Plan* (U.S. Department of the Navy, 2013), which would be updated following the implementation of any selected alternative to include the additional withdraw areas.

Public Accessibility

Under Alternative 1, the Navy would not allow the public to access the expanded B-16 for any purpose other than for ceremonial or cultural site visits and management activities, which are currently occurring within the proposed withdrawal area. Areas that were previously used for livestock grazing, mineral exploration and development, or recreation (e.g., off-highway vehicle racing) would no longer be used for these purposes. This could reduce the amount of soil erosion, compaction, and displacement that is currently occurring on these lands; however, any beneficial impact on geological resources would be largely offset by the proposed construction and ground-training activities proposed on B-16.

The Salt Cave site, located in the proposed B-16 withdrawal area, would no longer be accessible for general recreational purposes. Restricting access to the Salt Cave site would impact those who are interested in visiting the caves and viewing the pictographs. However, restricting access would potentially have some beneficial impact on the pictographs located on several of the cave walls, which are unprotected and susceptible to unintended damage by visitors to the caves. Limiting unsupervised access by recreational visitors would reduce the potential for damage to the pictographs. However, it is

unclear if the pictographs have been damaged by visitors to the caves in the past. Additional information on pictographs at the Salt Cave site and a discussion of Tribal access to the site is found in Section 3.11 (Cultural Resources). Even though the Salt Cave site would be within the B-16 area, the Navy's first priority is to avoid areas of cultural and historical significance. Data on the location of significant sites based on recent surveys has been incorporated into the Naval Air Station Fallon Integrated Comprehensive Range Complex Management Plan so that those sites can be managed appropriately and avoided when target sites are officially located in the proposed B-16 withdrawal area.

Table 3.1-3: Alternatives 1 and 2: Soils Within New Target Areas on Bravo-16

Target Name	Acreage	Geologic Unit	Soil Association	Erosion Hazard
B16 Target Area 1	7,378.8	Qa Tba Ts3 Tt3	Bango-Hawsley association	Slight
			Biddleman association	Moderate
			Biddleman-Mazuma-Weena association	Moderate
			Hawsley-Gamgee association	Moderate
			Isolde-Pirouette-Hawsley association	Moderate
				Severe
				Slight
			Pirouette-Osobb-Celeton association	Slight
			Pirouette-Osobb-Rock outcrop association	Moderate
			Pirouette-Singatse-Hawsley association	Severe
			Singatse-Rock outcrop association	Moderate
B16 Target Area 2	2,296.1	Qa Tba Ts3 Tt3	Biddleman association	Moderate
			Biddleman-Mazuma-Weena association	Moderate
			Hawsley-Gamgee association	Moderate
			Isolde-Pirouette-Hawsley association	Moderate
			Pirouette-Osobb-Celeton association	Slight
			Pirouette-Osobb-Rock outcrop association	Moderate
B16 Target Area 3	11,924.9	Qa Tba Ts3	Appian loamy sand	Slight
			Badland-Mazuma complex, 2–30 percent slopes	Unknown
				Very Severe
			Bango-Hawsley association	Slight
			Bango-Hawsley association	Unknown
			Biddleman association	Moderate
				Slight
			Biddleman-Mazuma-Weena association	Moderate
				Unknown
			Hawsley-Gamgee association	Moderate
			Hawsley-Piroutte-Isolde association	Unknown
			Isolde-Pirouette-Hawsley association	Moderate
				Slight
			Malpais complex	Moderate
			Pirouette-Osobb-Celeton association	Slight
			Pirouette-Singatse-Hawsley association	Severe
			Pirouette-Theon-Weena association	Unknown
			Theon very gravelly sandy loam, 8–30 percent slopes	Slight
			Trocken very gravelly sandy loam, 2–15 percent slopes	Moderate

Sources: (Natural Resources Conservation Service, 2017a, 2017b; U.S. Geological Survey, 2016)
See Table 3.1-2 for geologic unit information

The fossil site located in the northwestern portion of the proposed expansion area (T18N, R27E, Section 32; see Figure 3.1-6) is known to contain plant leaf, seed, and cone impressions (Firby et al., 1981), and has not been determined to be scientifically significant.

Construction

It is anticipated that construction activities within the proposed B-16 boundary would directly disturb an estimated 161 acres during construction (i.e., less than 1 percent of the range; Table 3.1-4). Proposed construction activities would directly disturb geological resources on B-16 by excavating, grading, grubbing, compacting, and clearing soil and vegetation in construction areas during the construction phase. Geotechnical and topographic surveys would be prepared for all construction areas prior to any potential activity implementing Alternative 1.

Table 3.1-4: All Action Alternatives: Estimated Construction Impact Acreages for Bravo-16

Modernization	Construction Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)
Combat Village	85	85	0
Perimeter Fence/Gates	77	8	69
TOTAL[1]	161	92	69

[1] Acres may not add up due to rounding

The full recovery of desert soils, like those found on B-16, is very slow, and recovery would be slower in areas that would experience repeated disturbance. Recovery of soil stability and ground or vegetative cover would start to occur once surface disturbance stops.

Although there are several ephemeral washes, no perennial streams or waterbodies are in the proposed boundary of B-16. During wet years, water may pond seasonally in low areas within the range. Unmitigated construction activities could disturb soils, increasing the potential for wind and water erosion and sedimentation to enter these washes. The vegetation and terrain of the area influence erosion. If vegetation, soil crusts, or desert pavement are damaged or destroyed by surface use and not provided adequate recovery periods, wind and water erosion would cause the bare ground to expand, impacting vegetation and soil productivity beyond the initial disturbance area.

A stormwater pollution prevention plan (SWPPP) would be prepared for proposed construction activities on B-16 when such activities would disturb one or more acres or be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015). In accordance with Nevada's Stormwater Construction General Permit, all project-related SWPPP(s) would include erosion and sediment control measures (e.g., wattles, silt fences) and best management practices that would minimize or avoid direct and indirect impacts on soil, vegetation, and surface waters (Nevada Division of Environmental Protection, 2015). SWPPP(s) would remain in effect until the construction sites have stabilized.

Personnel would stay within established corridors in order to minimize disturbance areas to the maximum extent practicable during construction activities. All personnel would follow posted speed limits. The maximum speed limit on FRTC bombing ranges is 35 miles per hour unless otherwise posted. This requirement minimizes fugitive dust, decreases the spread of invasive plant species, and reduces the potential to disturb or compact soil off road or outside target areas during construction activities.

As described in Section 3.1.2 (Affected Environment), the FRTC is located near numerous young faults. According to the USGS Fault and Fold Database (U.S. Geological Survey, 1999), the Combat Village would be located over tuffaceous sedimentary rock within an unnamed fault zone west of Carson Lake. To reduce the potential for seismic effects on proposed facilities, the Navy would perform geotechnical surveys and construct all buildings and towers in accordance with standard seismic design measures as identified in the Uniform Building Code.

Farmland Protection Policy Act

The NRCS's Web Soil Survey identified approximately 1,630 acres within the southwestern portion of the proposed B-16 boundary as farmland of statewide importance (see Perazzo gravelly loam, 2–8 percent slopes; Patna sand, 0–4 percent slopes; Pizene-Orizaba complex; Yerington gravelly sandy loam, 2–4 percent slopes; and Yerington loamy fine sand, 2–4 percent slopes on Figure 3.1-6) (Natural Resources Conservation Service, 2017a). Based on satellite imagery, it does not appear that these areas are currently being cultivated as cropland. The BLM's records show that these lands are occasionally used for livestock grazing (refer to Section 3.4, Livestock Grazing). Alternative 1 would include ground mobility exercises on these lands but would not involve any major construction or other irreversible conversion (directly or indirectly) of this land to non-agricultural use. In addition, target areas would not overlap these lands and there would not be an area of concentrated ammunition on B-16. Therefore, the Navy has determined that expanding B-16 under Alternative 1 would not irreversibly convert prime or unique farmland or farmland of statewide or local importance.

3.1.3.2.2 Bravo-17

Land Acquisition and Withdrawal

Alternative 1 would expand B-17 to approximately 232,799 acres, which would be an increase of approximately 178,013 acres from existing conditions (Table 2-1).

Training Activities

B-17 would continue to be the most heavily used bombing range at the FRTC. Alternative 1 would not increase the use of B-17, and training activities would be uniformly or proportionately redistributed over the range. Live and inert munitions would continue to be used at this range.

Alternative 1 includes the creation of 39 new target areas within the proposed B-17 boundary (Figure 3.1-7).

Table 3.1-5 provides additional information regarding the type of target area and the soils within these target areas. It is estimated that Alternative 1 would set aside approximately 2,939 acres for new target areas within the proposed B-17 expansion area.

Most nonexplosive practice and explosive munitions would impact the ground and thus physically disturb surficial soils in designated target areas. High velocity explosives would be capable of shattering rock and displacing soil to a limited extent. The long-term effect from military munitions strikes would result in an increased potential for soil erosion and displacement within and in the immediate vicinity of the target areas. Compared to baseline conditions, without management there would be an increased potential for sediments or contaminants to migrate from the new target areas, specifically in areas with higher runoff rates. It is Navy policy to actively manage the landscape at target areas to ensure sustainable use.

Table 3.1-5: Alternatives 1 and 2: Soils Within New Target Areas on Bravo-17

Target Name	Acreage	Geologic Unit	Soil Association	Erosion Hazard
1-1	2.4	Qa	Defler-Trocken association	Moderate
1-2	2.2	Qa	Defler-Trocken association	Moderate
1-3	20.7	Qa	Rednik-Trocken-Genegraf association	Slight
1-4	582.9	Qa Tt2	Bluewing-Hawsley association	Slight
			Defler-Trocken association	Moderate
			Downeyville-Blacktop-Rock outcrop association	Moderate
			Downeyville-Gabbvally association	Severe
			Rednik-Trocken-Genegraf association	Severe
				Slight
			Terlco-Annaw-Izo association	Moderate
			Unsel-Annnaw-Izo association	Severe
1-5	2.1	Qa	Rednik-Trocken-Genegraf association	Slight
1-6	2.2	Qa	Rednik-Trocken-Genegraf association	Slight
1-7	2.6	Qa	Rednik-Trocken-Genegraf association	Slight
1-8	6.21	Ta2 Tt2	Bimmer-Chill association	Moderate
			Downeyville-Blacktop-Rock outcrop association	Moderate
1-9	97.6	Ta2 Tt2	Downeyville-Gabbvally association	Severe
			Unsel-Annnaw-Izo association	Moderate
2-1	23.1	JTRsv Tt2	Downeyville-Blacktop-Rock outcrop association	Moderate
			Trocken-Bluewing association	Severe
3-1	277.2	Qa	Defler-Pineval association	Severe
			Old Camp-Theon-Rock outcrop association	Severe
			Unsel-Pineval-Defler association	Slight
3-2	27.6	Qa Ta2	Downeyville-Blacktop-Rock outcrop association	Moderate
			Downeyville-Gabbvally association	Severe
3-3	21.5	Qa	Unsel-Pineval-Defler association	Slight
3-4	3.0	Qa Tt2	Rebel-Wholan-Pineval association	Severe
			Unsel-Pineval-Defler association	Slight
3-5	2.4	Qa	Rebel-Wholan-Pineval association	Severe
3-6	2	Qa	Rebel-Wholan-Pineval association	Severe
3-7	20.3	Qa	Rebel-Wholan-Pineval association	Severe
3-8	2.4	Qa	Defler-Pineval association	Severe
			Rebel-Wholan-Pineval association	Severe
4-1	2.3	JTRsv	Downeyville, moist-Downeyville-Gabbvally association	Moderate
			Rednik-Trocken-Bluewing association	Moderate
4-2	2.2	JTRsv	Rednik-Trocken-Bluewing association	Moderate

Table 3.1-5: Alternatives 1 and 2: Soils Within New Target Areas on Bravo-17 (continued)

Target Name	Acreage	Geologic Unit	Soil Association	Erosion Hazard
4-3	1,114.4	Qa Ta2	Downeyville, moist-Downeyville-Gabbvally association	Moderate
			Rednik-Trocken-Bluewing association	Moderate
			Terlco-Annaw-Izo association	Moderate
4-4	24.1	Qa	Rednik-Trocken-Bluewing association	Moderate
5-1	20.9	Qa	Isolde-Hawsley association	Moderate
			Luning-Hawsley-Bluewing association	Moderate
5-2	2.6	Qa	Isolde-Hawsley association	Moderate
5-3	2.6	Qa	Isolde-Hawsley association	Moderate
			Luning-Hawsley-Bluewing association	Moderate
5-4	2.9	Qa	Isolde-Hawsley association	Moderate
5-5	2.8	Qa	Luning-Hawsley-Bluewing association	Moderate
5-6	2.4	Qa	Oricto-Gynelle-Izo association	Severe
5-7	2.2	Qa	Oricto-Gynelle-Izo association	Severe
5-8	2.7	Qa	Oricto-Gynelle-Izo association	Severe
5-9	2.9	Qa	Luning-Hawsley-Bluewing association	Moderate
			Oricto-Gynelle-Izo association	Severe
5-10	655.1	Qa	Isolde-Hawsley association	Moderate
			Luning-Hawsley-Bluewing association	Moderate
			Oricto-Gynelle-Izo association	Severe

Sources: (Natural Resources Conservation Service, 2017a, 2017b; U.S. Geological Survey, 2016)
See Table 3.1-2 for geologic unit information

Public Accessibility

Under Alternative 1, the Navy would not allow the public to access the expanded B-17 range for any purpose other than for ceremonial or cultural site visits and management, which are currently occurring within the requested withdrawal and proposed acquisition area. Areas previously used for livestock grazing, mineral exploration and development, or recreation would no longer be used for these purposes. This could reduce the amount of soil erosion, compaction, and displacement that is currently occurring within this area; however, any potential beneficial impact on geological resources within the proposed boundary of B-17 would be largely offset by the proposed construction and training activities on B-17.

Construction

Construction within the proposed B-17 boundary would directly disturb an estimated 217 acres (i.e., less than 1 percent of the range; Table 3.1-6). Construction would directly disturb geological resources by excavating, grading, grubbing, compacting, and clearing soil and vegetation during the construction phase. Geotechnical and topographic surveys would be prepared for construction areas prior to any potential activity implementing Alternative 1.

The proposed B-17 is largely composed of alkaline desert soils. There are numerous ephemeral washes within the proposed B-17 boundary. Water drains from these washes and pools in the northern (LaBou Flat) and southern portions of the proposed B-17 boundary (Gabbs Valley). A SWPPP would be prepared for proposed construction activities on B-17 when such activities would disturb 1 or more acres or be part of a common plan that disturbs 1 or more acres (Nevada Division of Environmental Protection, 2015).

Table 3.1-6: Alternatives 1 and 2: Estimated Construction Impact Acreages for Bravo-17

Modernization	Construction Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)
Administrative Building	10	3	8
Towers	10	10	0
Electronic Warfare Site	5	5	0
Perimeter Fence/Gates	181	19	163
TOTAL[1]	206	36	182

[1] Acres may not add up due to rounding

In addition, as with B-16, construction personnel would be required to remain within established corridors and follow posted speed limits when traveling to or from construction sites.

There are several named and unnamed Quaternary fault zones within the proposed boundary of B-17, including the Fairview Fault Zone, the Sand Springs Fault Zone, and the Hot Springs Fault Zone. The proposed administrative building and well site would be located on a previously disturbed area on the existing B-17 range, along State Route 839 (16N 33E Section 31 and 32). Quaternary alluvial deposits underlie this area. The Sand Springs Fault Zone is east of the construction area.

The Navy would construct two communication/sensor towers on B-17. The location of these towers is not currently known and would be placed following the implementation of any selected alternative. To reduce the potential for seismic effects on proposed facilities, the Navy would prepare geotechnical investigations for these structures and all buildings and towers would be constructed in accordance with standard seismic design measures as identified in the Uniform Building Code.

Road and Infrastructure Improvements to Support Alternative 1

State Route 839

Alternative 1 includes three notional options for potentially relocating State Route 839. All three of these options include closing portions of the existing State Route 839 to public travel and improving existing roads from dirt roads to paved roads. The Navy is working with the Nevada Department of Transportation, the BLM, Churchill County, and other stakeholders to identify a suitable location outside of B-17's WDZ for relocating State Route 839.

Table 3.1-7 compares the anticipated impact on geological resources from each notional option for relocating State Route 839. It is assumed that staging and laydown areas would be located within the potential construction area for State Route 839. A follow-on, site-specific National Environmental Policy Act (NEPA) document would be required to analyze the impacts of any feasible relocation of State Route 839, which would include analyzing potential impacts on geological resources. Best Management Practices would be implemented in accordance with SWPPPs to prevent any soil loss or indirect impacts during construction activities (Nevada Department of Transportation, 2006).

Paiute Pipeline

Alternative 1 includes the potential relocation of the Paiute Pipeline outside the B-17 WDZ. Constructing a new pipeline and removing the existing pipeline would result in impacts on geological resources, including direct physical disturbance (e.g., excavating, grading, grubbing, and soil compaction) and could lead to soil contamination resulting from accidental spills of petroleum, oil, or lubricants. It is assumed that staging and laydown areas would be located within the potential construction area for the pipeline.

It is estimated that relocating the pipeline could disturb up to 219 acres. A follow-on, site-specific NEPA analysis would be required to analyze the impacts of any feasible relocation of the Paiute Pipeline, which would include analyzing potential impacts on geological resources. These activities, including the separate NEPA analysis, would be completed by the appropriate local, state, or federal agencies.

Table 3.1-7: Alternatives 1 and 2: Estimated Potential Construction Impact Acreages for Three Notional Relocation Options for State Route 839

Modernization	Potential Construction Area (acres)	Potential Permanent Impact Area (acres)	Potential Temporary Impact Area (acres)
Notional Relocation Corridor Option 1	137	137	0
Notional Relocation Corridor Option 2	117	117	0
Notional Relocation Corridor Option 3	179	179	0

Farmland Protection Policy Act

There are no known prime or unique farmland or farmland of statewide or local importance within the proposed B-17 boundary for this alternative (Natural Resources Conservation Service, 2017a). Although this land is being used as grazing land, it does not appear that the land is currently being cultivated as farmland, and this land would not be considered prime or unique farmland or farmland of statewide or local importance.

Relocating the Paiute Pipeline could include affecting farmland of statewide importance south of B-17 (i.e., Slaw silt loam, 0–2 percent slopes), which is actively cultivated. However, design plans could avoid this area. As described above, the location of the pipeline and State Route 839 have not been defined and subsequent environmental analyses would be required to consider impacts on prime or unique farmland or farmland of statewide or local importance. For this analysis, it is assumed that the pipeline route would avoid prime or unique farmland or farmland of statewide or local importance.

3.1.3.2.3 Bravo-20

Land Withdrawal and Acquisition

Alternative 1 would expand B-20 to approximately 221,334 acres, which would be an increase of approximately 180,329 acres from existing conditions (Table 2-1).

Training Activities

B-20 would continue to be used for air-to-ground delivery of high-explosive munitions. Alternative 1 would not increase the use of B-20, and training activities would be uniformly or proportionately redistributed over this range. Alternative 1 would create six new target areas (Figure 3.1-9). These target areas and their underlying geology are described in Table 3.1-8. Approximately 1,408 acres would be used as target areas for B-20 (less than 1 percent of B-20).

High explosives would be capable of shattering rock and displacing soil on B-20. However, these target areas are on flat playa marsh lands (dry lake) with quaternary alluvial flat deposits. Playas have a low depth to water table and flood frequently. Erosion would also be limited within target areas. Some off-highway vehicle use would be anticipated, particularly near the target areas, which could physically disturb soils and lead to the spread of invasive plant species within the proposed boundary of the range.

Public Accessibility

Under Alternative 1, the Navy would not allow the public to access the expanded B-20 for any purpose other than for ceremonial or cultural site visits and management, which are currently occurring within the requested withdrawal and proposed acquisition area. Land previously used for livestock grazing, mineral exploration and development, or recreation would no longer be used for these purposes. This could reduce the amount of soil erosion, compaction, and displacement that is currently occurring; however, any beneficial impact on geological resources would be largely offset by the proposed construction and training activities on B-20.

Construction

Construction within the proposed boundary of B-20 would directly disturb an estimated 227 acres (i.e., less than 1 percent of the range; Table 3.1-9). These activities would directly disturb geological resources by excavating, grading, grubbing, compacting, and clearing soil and vegetation during the construction phase. Geotechnical and topographic surveys would be prepared for construction areas prior to any potential activity implementing Alternative 1.

Construction within the proposed B-20 boundary would largely be located in the Carson Sink, which is underlain by Quaternary alluvial playas. These alkali flats are composed of silty clay and are strongly saline with poor drainage (Natural Resources Conservation Service, 2017a). A SWPPP would be prepared for proposed construction on B-20 when such activities would disturb one or more acres or be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015).

The Rainbow Mountain, Eastern Carson Sink, and Western Humboldt Range fault zones are within the proposed B-20 boundary. To reduce the potential for seismic effects on proposed facilities, the proposed target maintenance buildings would be constructed in accordance with applicable standard seismic design measures as identified in the Uniform Building Code.

Table 3.1-8: All Action Alternatives: Geologic Units and Soils Within New Target Areas on Bravo-20

Target Name	Acreage	Geologic Unit	Soil Association	Erosion Hazard
1-1	1.3	Qp	Playas	Very Severe
1-2	1.3	Qp	Playas	Very Severe
1-3	21.5	Qp	Playas	Very Severe
1-4	239.6	Qp	Playas	Very Severe
1-5	1106.8	Qp	Playas	Very Severe
1-6	37.7	Qp	Playas	Very Severe

Sources: (Natural Resources Conservation Service, 2017a, 2017b; U.S. Geological Survey, 2016)
See Table 3.1-2 for geologic unit information

Table 3.1-9: All Action Alternatives: Estimated Construction Impact Acreages for Bravo-20

Modernization	Construction Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)
Target Maintenance Building	10	3	8
Perimeter Fence/Gates	217	22	195
TOTAL[1]	227	24	203

[1] Acres may not add up due to rounding

Farmland Protection Policy Act

B-20 would not overlap any prime or unique farmland or farmland of statewide or local importance under Alternative 1.

3.1.3.2.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Alternative 1 would expand the DVTA to approximately 370,903 acres, which would be an increase of approximately 293,343 acres from existing conditions (Table 2-1).

Training Activities

Convoy Training and Combat Search and Rescue Training would occur within the proposed DVTA boundaries. Ground-disturbing activities would have long-term impacts on soils, which would consist of increased potential for soil erosion, compaction, and displacement during training events. Personnel and visitors would be encouraged to stay on established trails and within existing, previously disturbed areas when practicable. Although training would have the potential to impact soil, training activities on the DVTA would not include using explosives, ordnance, or live-fire ammunition.

Public Accessibility

Unlike the Bravo ranges, the public would largely be allowed to continue accessing and using the proposed DVTA. Impacts on geological resources would be comparable to existing conditions. However, Under Alternative 1, the public would no longer be allowed to explore and develop minerals resources within the DVTA (including geothermal exploration and development), which could potentially reduce soil and ground disturbance, resulting in a beneficial impact on geological resources.

Construction

Construction within the proposed boundary of the DVTA would directly disturb an estimated 15 acres for the construction of three electronic warfare sites (i.e., far less than 1 percent of the DVTA; Table 3.1-10; also refer to figures in Chapter 2, Description of Proposed Action and Alternatives). All staging and laydown areas for these sites would be located within the proposed construction area. These activities would directly disturb geological resources by excavating, grading, grubbing, compacting, and clearing soil and vegetation during the construction phase. Geotechnical and topographic surveys would be prepared for construction areas prior to any potential activity implementing Alternative 1. A SWPPP would be prepared for proposed construction activities when such activities would disturb one or more acres or be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015).

Farmland Protection Policy Act

The proposed DVTA would not overlap any prime or unique farmland or farmland of state or local importance under Alternative 1.

Table 3.1-10: All Action Alternatives: Construction Impact Acreages for the Dixie Valley Training Area

Modernization	Construction Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)
Electronic Warfare Site	5	5	0
Electronic Warfare Site	5	5	0
Electronic Warfare Site	5	5	0
TOTAL[1]	15	15	0

[1] Acres may not add up due to rounding

3.1.3.2.5 Fallon Range Training Complex Special Use Airspace

Changes to the FRTC special use airspace would not impact geological resources.

3.1.3.2.6 Summary of Effects and Conclusions

Implementation of Alternative 1 would not significantly impact geological resources.

Approximately 4,241 acres would be used as new target areas on B-17 and B-20. It is estimated that proposed construction activities would directly disturb approximately 700 acres. SWPPP(s) would be prepared to minimize and avoid indirectly impacting soils, vegetation, and surface waters when construction activities would disturb one or more acres or would be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015). The NRCS identified farmland of statewide importance within the proposed boundary of B-16. Only limited construction (i.e., perimeter fence construction) would occur on these lands. This alternative would not irreversibly convert any prime or unique farmland or farmland of statewide or local importance to non-agricultural use. Therefore, implementation of this alternative would not result in significant impacts on geological resources.

3.1.3.3 Alternative 2: Modernization of the Fallon Range Training Complex and Managed Access

Alternative 2 is similar to Alternative 1. The differences between Alternative 1 and Alternative 2 are the allowable public activities on B-16, B-17, B-20, and the DVTA (Table 2-5). The requested withdrawal and proposed acquisition areas, construction areas, target areas, and special use airspace would be the same as Alternative 1. Approximately 4,241 acres would be used as new target areas within the FRTC. In addition, proposed construction activities would directly disturb approximately 700 acres.

Opening the bombing ranges to special events (races) could potentially lead to impacts on geological resources because these activities directly disturb soil, increase erosion, and may lead to the spread of invasive vegetation species. Hunters could also potentially create trails and spread invasive vegetation species within B-17. However, these activities are largely currently occurring in these areas. In addition, as described in Section 3.1.3.1 (No Action Alternative), allowing for the exploration and development of leasable and salable minerals within the DVTA could substantially impact surface and subsurface geological resources. De-designating wilderness study areas and opening these areas to leasable and salable exploration could result in substantial impacts on geological resources (refer to Section 3.3, Mining and Mineral Resources). Special events and mineral resource development would be subject to site-specific review and approvals following implementation of this alternative.

The Navy would create a program to oversee the approval process of land use activities within the FRTC, which would review the environmental impacts of any proposed public use of FRTC lands. When combined with military activities, it is more likely that this alternative would have a greater impact on soil, particularly when the length of time necessary for the desert soils to recover or stabilize is considered, than Alternative 1.

Implementation of this alternative would not convert any prime or unique farmland. There is no prime or unique farmland or farmland of statewide or local importance within the proposed B-17, B-20, or DVTA expansion areas. The NRCS Web Soil Survey identified farmland of statewide importance within the proposed boundary of B-16 (Natural Resources Conservation Service, 2017a). Only limited construction (i.e., perimeter fence construction) would occur in these areas. In addition, it is assumed that the potential relocation of the Paiute Pipeline and State Route 839 would be placed to avoid prime or unique farmland of statewide or local importance. Therefore, although impacts on geological resources would be greater under this alternative compared to Alternative 1, implementation of this alternative would not result in significant impacts on geological resources.

3.1.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternative 2. The main difference between Alternative 2 and Alternative 3 is that under Alternative 3, B-17 would be located farther to the south and east and rotated slightly counter-clockwise, and would also be somewhat larger. Unlike Alternative 1 or 2, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy. Alternative 3 would implement the same managed access program as Alternative 2. The major construction differences between Alternative 3 and Alternative 1 are that Alternative 3 would not involve the potential relocation of State Route 839 but would potentially relocate State Route 361. Alternative 3 would also have a different laydown for new target areas on B-17 than Alternatives 1 and 2.

3.1.3.4.1 Bravo-16

Under Alternative 3, the B-16 range would expand to the west by approximately 31,875 acres (see Figure 2-15), increasing the total area to approximately 59,234 acres. Unlike Alternative 1 and Alternative 2, the lands south of Simpson Road (and Simpson Road itself) would not be withdrawn. Additionally, currently withdrawn lands south of Simpson Road would be relinquished by the Navy back to the BLM or Bureau of Reclamation. In addition, access restrictions, construction activities, and training activities on B-16 would be the same as Alternative 2. Therefore, implementation of Alternative 3 would result in the similar impacts on geological resources as Alternative 2 within B-16.

3.1.3.4.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 3 would expand B-17 to approximately 265,588acres, which would be an increase of approximately 212,016 acres from existing conditions (Table 2-7).

Training Activities

B-17 would continue to be the most heavily used bombing range of the FRTC under Alternative 3. Alternative 3 would not increase the use of B-17; training activities would be uniformly or proportionately redistributed over the range. Live and inert munitions would continue to be used on B-17 under this alternative (Figure 3.1-13).

Unlike Alternatives 1 and 2, Alternative 3 would create three larger target areas (small targets would be placed within the target areas) on either side of the Monte Cristo Mountains. Table 3.1-11 provides additional information regarding the type of target area and the location and soils within these target areas. Under this alternative, approximately 4,440 acres would be set aside for new target areas within the proposed B-17 expansion area.

Since existing target areas would be used less than currently utilized because of the additional new targets, any geological impact from using these target areas would continue to be localized and would not be anticipated to alter the ecological function of the area as described in U.S. Department of the Navy (2015). High velocity explosives would be capable of shattering rock and displacing soil.

The long-term effect from military munitions strikes would result in an increased potential for soil erosion and displacement within and in the immediate vicinity of the target areas. Compared to baseline conditions, if unmanaged, there would be an increased potential for sediments or contaminants to migrate from the new target areas, specifically in areas with high runoff rates. Loose soil and sediment could then be carried downhill and settle in basins, valleys, and other topographic depressions during rain events; however, this would not represent a substantial threat to an off-range area that poses unacceptable risk to human health or the environment.

Areas with the potential for erosion would be actively managed by the Navy's range sustainment program to prevent runoff or changes to the natural landscape.

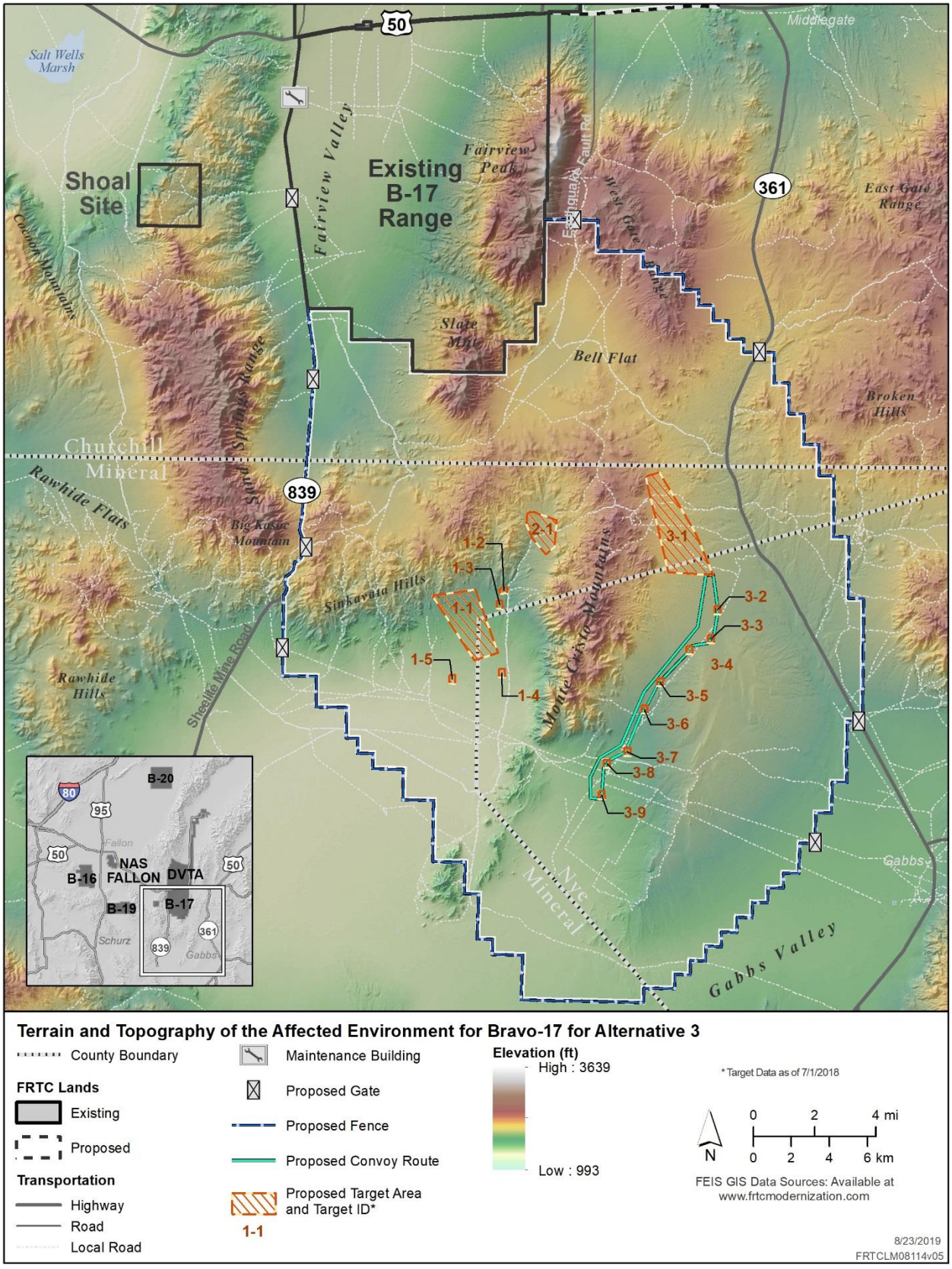


Figure 3.1-13: Terrain and Topography of the Affected Environment for Bravo-17 for Alternative 3

Table 3.1-11: Alternative 3: Geologic Units and Soils Within New Target Areas on Bravo-17

Target Name	Acreage	Geologic Unit	Soil Association	Erosion Hazard
1-1	1,100.9		Downeyville, moist-Downeyville-Gabbvally association	Moderate
			Isolde-Hawsley association	Moderate
			Luning-Hawsley-Bluewing association	Moderate
			Oricto-Gynelle-Izo association	Severe
1-2	29.9		Isolde-Hawsley association	Moderate
			Luning-Hawsley-Bluewing association	Moderate
			Unsel-Annnaw-Izo association	Severe
1-3	32.6		Isolde-Hawsley association	Moderate
			Luning-Hawsley-Bluewing association	Moderate
1-4	34.0		Luning-Hawsley-Bluewing association	Moderate
1-5	33.8		Oricto-Gynelle-Izo association	Severe
2-1	582.3		Downeyville, moist-Downeyville-Gabbvally association	Moderate
			Downeyville-Blacktop association	Moderate
			Isolde-Hawsley association	Moderate
			Unsel-Annnaw-Izo association	Severe
3-1	2,151.9		Downeyville-Blacktop association	Severe
			Downeyville-Stewval-Blacktop association	Severe
			Goldyke-Blacktop-Koyen association	Severe
			Unsel-Annaw association	Moderate
			Unsel-Annaw association MLRA 29	Severe
			Unsel-Annnaw-Izo association	Severe
3-2	33.3		Unsel-Annnaw-Izo association	Severe
3-3	338		Unsel-Annnaw-Izo association	Severe
3-4	1.1		Luning-Izo association	Moderate
			Unsel-Annnaw-Izo association	Severe
3-5	0.7		Luning-Izo association	Moderate
			Unsel-Annnaw-Izo association	Severe
3-6	0.2		Luning-Izo association	Moderate
			Stumble loamy sand, 0–8 percent slopes	Moderate
3-7	33.9		Stumble loamy sand, 0–8 percent slopes	Moderate
3-8	34.2		Stumble loamy sand, 0–8 percent slopes	Moderate
3-9	32.6		Ricert-Luning association	Moderate

Sources: (Natural Resources Conservation Service, 2017a, 2017b; U.S. Geological Survey, 2016)
See Table 3.1-2 for geologic unit information

Public Accessibility

As with Alternative 2, under Alternative 3, the Navy would allow the public to access B-17 for special events (races) and hunting. Allowing special events (races) on B-17 could potentially lead to impacts on geological resources because these activities directly disturb soil, increase erosion, and may lead to the spread of invasive vegetation species. Hunters could also impact geological resources by potentially creating trails and spreading invasive vegetation. The Navy would create a program to oversee the approval process of these activities, which would review the environmental impacts of any proposed public use of B-17. Refer to Section 3.12 (Recreation) for a discussion on potential impacts due to special events (races) and hunting. Although the specific locations and details of these activities are uncertain, it

is assumed for purposes of analysis that these activities would be comparable to existing baseline conditions.

When combined with military activities, it is more likely that this alternative would have a greater impact on geological resources within B-17, particularly when the length of time necessary for desert soils to recover or stabilize is considered, than Alternative 1. Individual targets would be moved around within these target areas.

Construction

Under Alternative 3, construction related to expanding B-17 would include constructing an administrative building, communication towers, and electronic warfare sites; improving approximately 12 miles of road; installing approximately 18 miles of pipeline; and installing approximately 78 miles of perimeter fencing. It is anticipated that construction activities within the proposed B-17 boundary would directly disturb an estimated 215 acres (i.e., far less than 1 percent of the range; Table 3.1-12). These activities would directly disturb geological resources by excavating, grading, grubbing, compacting, and clearing soil and vegetation during the construction phase. Geotechnical and topographic surveys would be prepared for all construction sites prior to any potential activity implementing Alternative 3. These activities, including separate NEPA analyses, would be completed by the appropriate local, state, or federal agencies.

Table 3.1-12: Alternative 3: Estimated Construction Impact Acreages for Bravo-17

Modernization	Construction Area (acres)	Permanent Impact Area (acres)	Temporary Impact Area (acres)
Administrative Building	10	3	8
Towers	10	10	0
Electronic Warfare Site	5	5	0
Perimeter Fence/Gates	190	19	171
TOTAL[1]	215	37	179

[1] Acres may not add up due to rounding

A SWPPP would be prepared for proposed construction activities when such activities would disturb one or more acres or be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015).

B-17 is largely composed of alkaline desert soils. There are several washes within the proposed boundary of B-17 and water pools in the northern (LaBeau Flat) and southern portions of the range (Gabbs Valley). A SWPPP would be prepared for proposed construction activities on B-17 when such activities would disturb one or more acres or be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015). In addition, construction personnel would be required to remain within established corridors and follow posted speed limits when traveling to or from a construction site.

There are several named and unnamed Quaternary fault zones within the proposed boundary of B-17, including the Fairview Fault Zone in the east, the Sand Springs Fault Zone in the west, and the Hot Springs Fault Zone in the south. The proposed administrative building and well site would be located on

a previously disturbed area on the existing B-17 Range along State Route 839 (16N, 33E, Sections 31 and 32). Quaternary alluvial deposits underlie this area. Although the USGS Fault and Fold Database did not identify any active faults within this construction area, the Sand Springs Fault Zone is east of the construction area.

The Navy would construct two communication/sensor towers on B-17. The location of these towers is not currently known and would be placed following the implementation of any selected alternative. To reduce the potential for seismic effects on proposed facilities, the Navy would prepare geotechnical investigations for these structures and all buildings and towers would be constructed in accordance with standard seismic design measures as identified in the Uniform Building Code.

Road and Infrastructure Improvements to Support Alternative 3

State Route 361

Alternative 3 includes the potential relocation of approximately 12 miles of State Route 361. Unlike Alternative 1, which would improve existing dirt roads and paths to a two-lane paved road, this would include constructing a new paved road, which would potentially increase impervious surface and could potentially increase storm water runoff. The Navy would work with the Nevada Department of Transportation, the Bureau of Land Management, Churchill County, and other stakeholders to identify a suitable location outside B-17's WDZ for relocating State Route 361.

Paiute Pipeline

Alternative 1 includes the potential relocation of the Paiute Pipeline outside the B-17 WDZ. Constructing a new pipeline and removing the existing pipeline would result in impacts on geological resources, including direct physical disturbance (e.g., excavating, grading, grubbing, and soil compaction) and could lead to soil contamination resulting from accidental spills of petroleum, oil, or lubricants. It is assumed that staging and laydown areas would be located within the potential construction area for the pipeline. It is estimated that relocating the pipeline could disturb up to 219 acres. A follow-on, site-specific NEPA analysis would be required to analyze the impacts of any feasible relocation of the Paiute Pipeline, which would include analyzing potential impacts on geological resources. These activities, including the separate NEPA analysis, would be completed by the appropriate local, state, or federal agencies.

Table 3.1-7 and Table 3.1-13 show the anticipated potential impact on geological resources from one notional relocation corridor option (two routes are being considered within the notional relocation corridor). It is assumed that staging and laydown areas would be located within the potential construction areas for State Route 361. A follow-on, site-specific NEPA document would be required to analyze the impacts of any feasible relocation of State Route 361, which would include analyzing potential impacts on geological resources. Best Management Practices would be implemented in accordance with SWPPPs to prevent any soil loss or indirect impacts during construction activities (Nevada Department of Transportation, 2006).

Table 3.1-13: Alternative 3: Estimated Potential Construction Impact Acreages for State Route 361

Modernization	Potential Construction Area (acres)	Potential Permanent Impact Area (acres)	Potential Temporary Impact Area (acres)
Option 1	73	73	0

Paiute Pipeline

Alternative 3 includes the potential relocation of the Paiute Pipeline outside the B-17 WDZ. As described in Section 3.1.3.2.2 (Bravo-17), constructing a new pipeline and removing existing pipeline could result in impacts on geological resources, including direct physical disturbance (e.g., excavating, grading, grubbing, and soil compaction) as well as soil contamination resulting from accidental spills of petroleum, oil, or lubricants. It is assumed that staging and laydown areas would be located within the potential construction areas for the pipeline. It is estimated this could potentially disturb up to 146 acres. A follow-on, site-specific NEPA document would be required to analyze the impacts of any feasible relocation of the Paiute Pipeline, which would include analyzing potential impacts on geological resources. For this analysis, it is assumed that the pipeline route would avoid prime or unique farmland or farmland of statewide or local importance. These activities, including the separate NEPA analysis, would be completed by the appropriate local, state, or federal agencies.

Farmland Protection Policy Act

The NRCS Web Soil Survey did not identify any prime or unique farmland within the proposed boundary of B-17. The NRCS did identify an area within the southeastern portion of B-17 as farmland of statewide importance (Eastgate gravelly sandy loam, 0–4 percent slopes, and Stumble-Eastgate association) (Natural Resources Conservation Service, 2017a). This area is requested to be withdrawn as part of the WDZ. There are no target areas on these farmlands. The Navy would continue to clear the range in accordance with the FRTC's Operational Range Clearing Plan (U.S. Department of the Navy, 2004). Therefore, the Navy has determined that this alternative would not irreversibly convert this land to non-agricultural use.

The notional relocation of the Paiute Pipeline could include segments that are within farmland of statewide importance; however, these areas could be avoided. Follow-on, site-specific NEPA documents would analyze whether relocating State Route 361 and the Paiute Pipeline would convert prime or unique farmland or farmland of statewide or local importance. For purposes of this EIS, it is assumed that these farmlands would be avoided during the potential relocation of State Route 361 and the Paiute Pipeline. These activities, including the separate NEPA analysis, would be completed by the appropriate local, state, or federal agencies.

3.1.3.4.3 Bravo-20

The requested withdrawal and proposed acquisition area for B-20 would be the same as Alternatives 1 and 2. In addition, access restrictions, construction activities, and training activities within B-20 would be the same as Alternative 2. Therefore, implementation of Alternative 3 would result in the same impacts on geological resources as Alternative 2 within B-20.

3.1.3.4.4 Dixie Valley Training Area

The requested withdrawal and proposed acquisition area for the DVTA would differ slightly from Alternatives 1 and 2. The southeastern portion of the DVTA would be realigned to conform to the adjusted B-17 withdrawal area. The result would be a minor increase in acreage of the DVTA compared to Alternatives 1 and 2; however, this area is the same area that would be withdrawn under Alternatives 1 and 2 as B-17. Ground-disturbing activities that would occur on the DVTA from public and operational activities could impact a slightly larger area; however, these activities are anticipated to be commensurate with current baseline activities. Therefore, implementation of Alternative 3 would result in similar impacts on geological resources as Alternative 2.

3.1.3.4.5 Fallon Range Training Complex Special Use Airspace

Changes to the FRTC special use airspace would not impact geological resources.

3.1.3.4.6 Summary of Effects and Conclusions

Implementation of Alternative 3 would not significantly impact geological resources. Approximately 27,374 acres would be used as new target areas on B-17 and B-20. There is a greater concern that displaced soil and sediment from high explosive ordnance use on B-17 could be transported off range under this alternative compared to Alternatives 1 and 2 and baseline conditions. However, this would not represent a substantial threat to an off-range area that poses unacceptable risk to human health or the environment. It is estimated that proposed construction activities would directly disturb up to 956 acres. SWPPP(s) would be prepared to minimize and avoid indirectly impacting soils, vegetation, and surface waters when construction activities would disturb one or more acres or would be part of a common plan that disturbs one or more acres (Nevada Division of Environmental Protection, 2015). The NRCS identified farmland of statewide importance within the proposed boundaries of B-16 and B-17. Only limited construction (i.e., perimeter fence construction) would occur in these areas. This alternative would not irreversibly convert any prime or unique farmland or farmland of statewide importance to non-agricultural use. Therefore, although Alternative 3 would result in greater impacts on geological resources than Alternatives 1 or 2, implementation of this alternative would not result in significant impacts on geological resources.

3.1.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.1.3.5.1 Proposed Management Practices

The following management practices are proposed for implementation on the FRTC to avoid and minimize potential impacts on geological resources under Alternatives 1, 2, and 3:

- Construction personnel would stay within established corridors.
- Construction personnel would follow posted speed limits. The maximum speed limit on FRTC bombing ranges is 35 miles per hour unless otherwise posted.
- The potential relocation of the Paiute Pipeline and State Route 839 (Alternatives 1 and 2) or of the Paiute Pipeline and State Route 361 (Alternative 3) would be placed to avoid prime or unique farmland or farmland of statewide or local importance to the maximum extent practicable.
- Pedestrian field surveys would be conducted by a qualified and BLM-permitted paleontologist prior to any surface grading or excavation in areas of high (Class 4), very high (Class 5), or unknown (Class U) fossil yield potential. A partial survey may be conducted by a BLM-permitted paleontologist in areas with moderate potential (Class 3) or in other areas potentially sensitive to fossil resources.
- If there were an unanticipated discovery of a potential paleontological resources, surface-disturbing activities would cease in the immediate area of the discovery until the significance of the discovery can be analyzed, notification to proceed is received, and the appropriate BLM office has been notified. The presence of any found paleontological resources are be managed according to the BLM Instruction Manual. Once the extent and potential significance of the paleontological resources on the site has been determined, appropriate mitigation measures for further site development may be developed.

3.1.3.5.2 Proposed Monitoring

The measures outlined in Navy, *Military Readiness Activities Fallon Range Training Complex Environmental Impact Statement* (U.S. Department of the Navy, 2015), such as range condition assessment five-year reviews would continue to be implemented.

3.1.3.5.3 Proposed Mitigation

The Navy does not have any new proposed mitigation measures for the reduction or minimization of impacts on geological resources as a result of the Proposed Action that are not already in place. However, under the Proposed Action, the Navy would acquire any valid existing mining claims within the proposed withdrawal at fair market value. Under all action alternatives the Navy would reduce impacts on geologic resources by following standard operating procedures.

3.1.3.6 Summary of Effects and Conclusions

Table 3.1-14 summarizes the effects of the alternatives on geological resources.

Table 3.1-14: Summary of Effects for Geological Resources

Stressor	Summary of Effects and National Environmental Policy Act Determinations
No Action Alternative	
Summary	• Existing land uses at FRTC would be returned to accessible public lands managed by the BLM for multiple uses following range closure activities, potentially making the land available for uses that could have significant impacts on geological resources (e.g., agricultural uses). • Areas that cannot be rendered safe for public access would remain unavailable for public access. • Any future uses would be subject to all applicable federal, state, and local laws, regulations, and ordinances that could have the effect of permanently or temporarily minimizing impacts on soils.
Impact Conclusion	The No Action Alternative could result in significant impacts on geological resources.
Alternative 1	
Summary	• New air-to-ground targets would be placed within an approximately 4,241-acre area at B-17 and B-20. • Construction activities would permanently impact up to an estimated 347 acres and temporarily impact approximately 700 acres. • Would not result in the conversion of prime or unique farmland or farmland of statewide or local importance.
Impact Conclusion	No significant impact on geological resources
Alternative 2	
Summary	• New air-to-ground targets would be placed within an approximately 4,241-acre area at B-17 and B-20. • Construction activities would permanently impact up to an estimated 347 acres and temporarily impact approximately 700 acres. • Would not result in the conversion of prime or unique farmland or farmland of statewide or local importance.
Impact Conclusion	No significant impact on geological resources
Alternative 3	
Summary	• New air-to-ground targets would be placed within an approximately 27,374-acre area at B-17 and B-20 • Construction activities would permanently impact up to an estimated 241 acres and temporarily impact approximately 715 acres • Would not result in the conversion of prime or unique farmland or farmland of statewide or local importance.
Impact Conclusion	No significant impact on geological resources

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3.2 Land Use

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.2 Land Use

This discussion of land use includes current and planned uses and the regulations, policies, or zoning that may control the proposed land use. The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, labels, and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

3.2.1 Methodology

The methodology for analyzing potential impacts considers the region of influence, regulatory framework, and approach to analysis. Land use is regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable and protect specifically designated areas and environmentally sensitive resources. For visual resources, areas known as being visually sensitive include federal, state, and county parks; preserves; and other recreation areas and natural resources. Management plans governing land use in the regions of influence include:

- Carson City Bureau of Land Management (BLM) Resource Management Plan (Bureau of Land Management, 2014a)
- Stillwater National Wildlife Refuge Comprehensive Conservation Management Plan (U.S. Department of the Interior Fish and Wildlife Service, 2002)
- Newlands Project Resource Management Plan (U.S. Department of the Interior Bureau of Reclamation, 2014)
- Churchill County 2015 Master Plan (Churchill County, 2015)
- Elko County Public Land Policy Plan (Elko County Board of Commissioners, 2008)
- Eureka County Master Plan (Eureka County Board of Commissioners, 2010)
- Lander County Master Plan (Lander County Board of County Commissioners, 2010)
- Lyon County Master Plan (Lyon County, 2010)
- Mineral County Code (Mineral County Code 17.06.010)
- Nye County Comprehensive Plan (Nye County Board of County Commissioners, 2011)
- Pershing County Master Plan (Pershing County, 2012)
- Washoe County Master Plan (Washoe County Board of Commissioners, 2011)

3.2.1.1 Region of Influence

The region of influence for land use management includes the lands on and within approximately 5 miles of the proposed expansion area of the Fallon Range Training Complex (FRTC) land, as depicted in Figure 3.2-1. The region of influence was determined to be approximately 5 miles beyond the proposed FRTC expansion area boundary, based on the consideration of impacts outside of the boundaries of the FRTC, and includes the physical area that bounds the environmental, sociological, economic, and cultural features of interest for the purpose of analysis. The region of influence also includes the Special Use

Airspace (SUA) because of the proposed changes to airspace; however, there are no United States (U.S.) Department of the Navy (Navy) proposed land use changes on lands outside of the proposed withdrawal area underlying the SUA region of influence. The region of influence is within western and central Nevada and includes all or portions of the following counties: Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe (Figure 3.2-1 and Figure 3.2-2).

This region is predominantly rural and is composed of non-federal and federal land as well as Indian Tribal reservations. Federal land within the region of influence includes land managed by the BLM, Bureau of Reclamation, U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), Department of Energy, and the Department of Defense (DoD), including the Navy. As such, it is comprised of a wide variety of land uses, including agricultural (cropland and livestock grazing), residential, commercial, industrial, renewable energy development, mining and mineral exploration and development, conservation, military, and recreational, as well as utilities, roads, and other infrastructure.

3.2.1.2 Regulatory Framework

In many cases, land use descriptions are codified in installation master planning and local zoning laws. The Navy manages land use activities within the FRTC ranges according to the environmental review process at Naval Air Station (NAS) Fallon. The main framework plans for land use activities on the FRTC ranges include the training complex's Comprehensive Land Use Management Plan, Integrated Natural Resources Management Plan, and Integrated Cultural Resources Management Plan.

State and local ordinances and zoning regulations govern land uses on non-federal lands. Federal land is not governed by state or local zoning. However, non-federal land uses on federal land may be subject to certain state and local requirements as well as federal requirements. Nevada law requires that zoning ordinances be consistent with a county's Master Plan. These plans also must, if applicable, "address the coordination and compatibility of land uses with any military installation in the city, county or region, taking into account the location, purpose and stated mission of the military installation" (Nevada Revised Statute section 278.160). State and local land use planning documents regarding land use in the region of influence include: Churchill County 2015 Master Plan (Churchill County, 2015), Elko County Public Land Policy Plan (Elko County Board of Commissioners, 2008), Eureka County Master Plan (Eureka County Board of Commissioners, 2010), Lander County Master Plan (Lander County Board of County Commissioners, 2010), Lyon County Master Plan (Lyon County, 2010), Mineral County Master Plan (2010), Mineral County Code (Mineral County Code 17.06.010), Nye County Comprehensive Plan (Nye County Board of County Commissioners, 2011), Pershing County Master Plan (Pershing County, 2012), and Washoe County Master Plan (Washoe County Board of Commissioners, 2011).

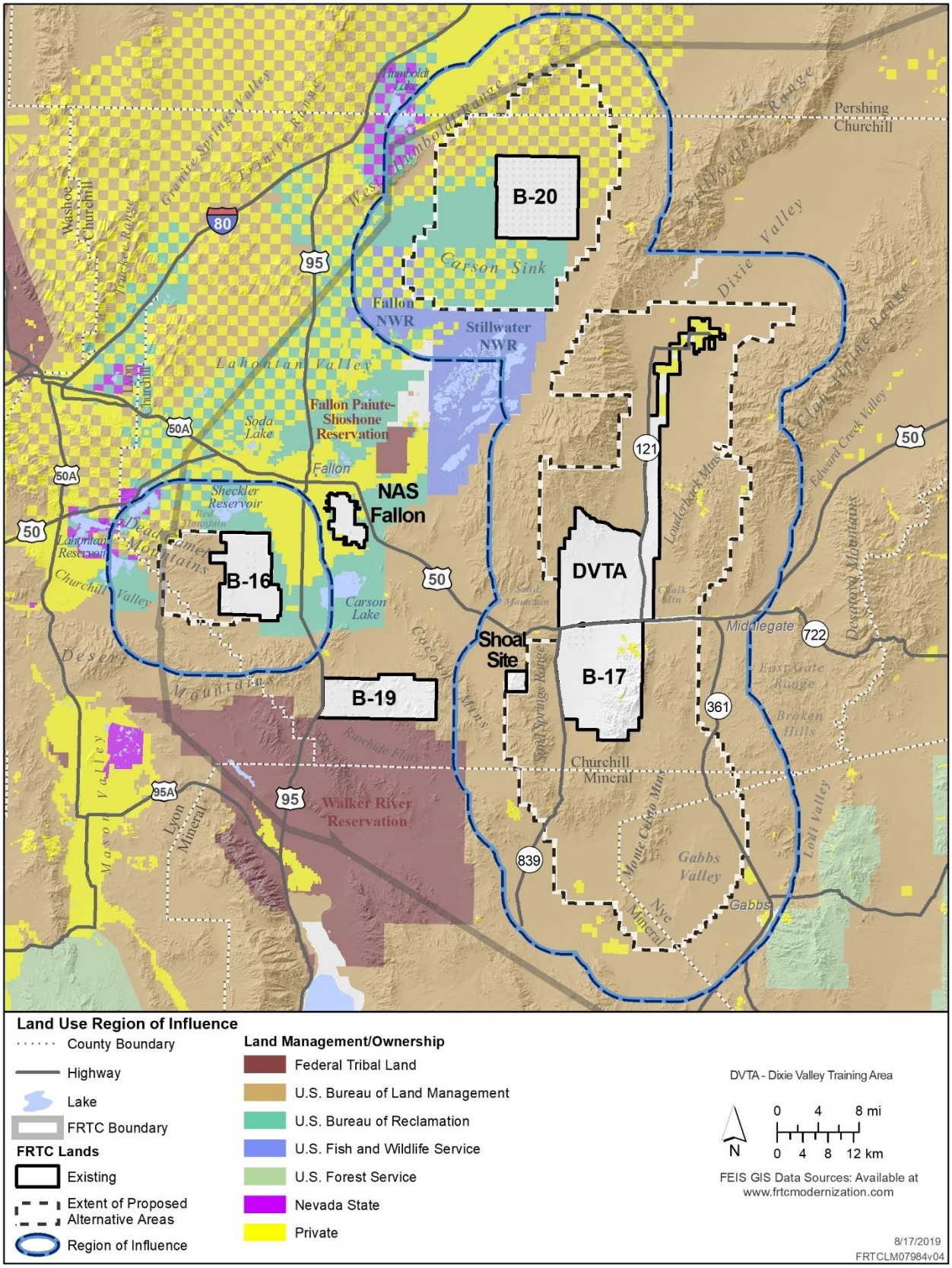


Figure 3.2-1: Land Use Region of Influence

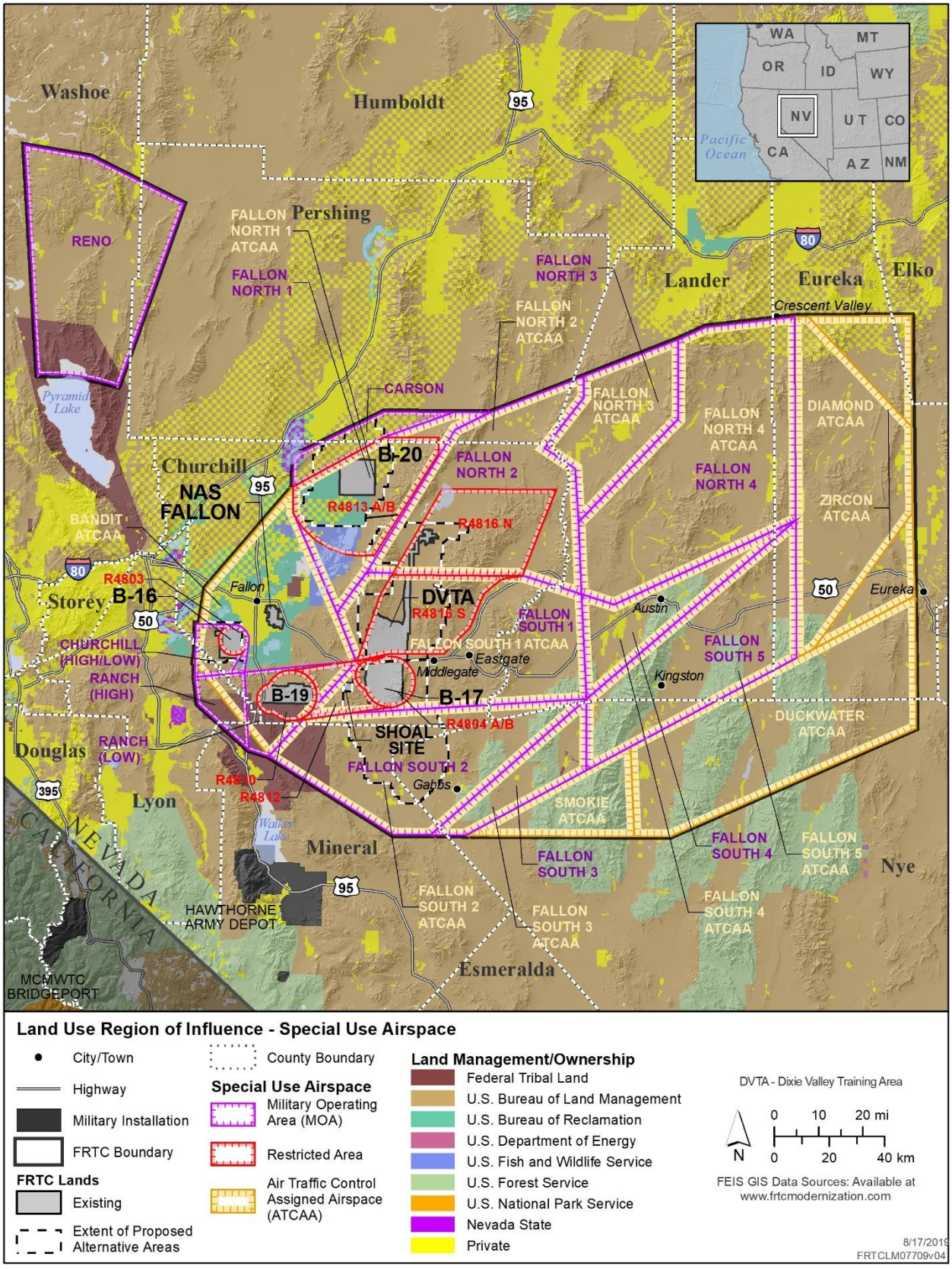


Figure 3.2-2: Land Use Region of Influence – Special Use Airspace

Land management agencies oversee land uses on federal lands in accordance with rules and regulations as applicable. Federal land planning documents such as Resource Management Plans and Comprehensive Conservation Plans provide direction to land management agencies for federal lands. Applicable laws, regulations, and policies include those listed below. While the list below is not intended to be exhaustive, it reflects the key requirements with respect to relevant management plans and applicable laws, regulations, and policies but are not limited to those listed below. There are many plans, regulations, and other formal policies that influence land use, including the following:

- Federal Land Policy Management Act
- National Wildlife Refuge System Administrative Act
- National Wildlife Refuge System Improvement Act
- Wilderness Act
- Wild Free-Roaming Horses and Burros Act
- Land and Water Conservation Fund Act
- Farmland Protection Policy Act
- Taylor Grazing Act
- DoD Instruction 2000.16, DoD Antiterrorism Standards
- Chief of Naval Operations Instruction (OPNAVINST) 3770.2

3.2.1.3 Approach to Analysis

Land uses were identified by reviewing available literature and online information, including state and local zoning and planning documents as well as land use regulations and ordinances. This section analyzes changes in land ownership, management and status, consistency with plans and policies, and existing utility rights-of-way. Given the complexity of land use resources in the region of influence, Mining and Mineral Resources (Section 3.3), Livestock Grazing (Section 3.4), Recreation (Section 3.12), Airspace (Section 3.6), and rights-of-way as they relate to transportation (Section 3.5) are addressed in more detail in separate sections. In addition, the Farmland Protection Policy Act is not analyzed further because the Navy is not proposing to convert any farmland. The extent of potential impacts on land use is dependent on the types of land use designations that exist within the region of influence and whether those land uses are compatible with the Proposed Action. For this section, land use impacts are evaluated for the potential for compatibility with onsite and adjacent land uses:

- inconsistency with the enforceable provisions of applicable land use plans, policies, and controls, including plans and policies for federally managed lands, state lands, and local jurisdictions
- changes in land use patterns valued by the communities
- restrictions on public access to land
- changes or restrictions to rights-of-way associated with utilities and access to land use areas
- land changes applicable to airspace

The approach to analysis for land use took into consideration potential impacts on visual resources. Visual resources are both natural and manufactured features that make up the aesthetic qualities of an area. Visual features include landforms, water surfaces, vegetation, and manufactured features (i.e., buildings and roads). An activity that has an effect on the visual resources of an area may be defined as

any activity that has the potential to substantially alter the quality of the environment or to alter any distinguishing characteristics of that environment (e.g., visual features). Whether or not such a change is significant may depend in part on social considerations such as the value of the visual setting, as well as community or tribal concerns for visual resources. Areas known as being visually sensitive include federal and state parks, tribal lands, as well as other recreation areas, wilderness areas, and culturally important areas. If an impact results in substantial change to a sensitive visual resource, the impact could be considered significant. For purposes of land use, in context, the Proposed Action would not alter the quality or distinguishing characteristics of the visual setting because changes to the visual environment associated with minor construction would be short term and temporary and construction activities would not occur in visually sensitive areas. Therefore, visual resources are not discussed further in this section; however, due to visual sensitivities associated with tribal lands and resources related to aircraft overflights, visual impacts are analyzed further in Section 3.11 (Cultural Resources).

3.2.1.4 Public Concerns

The public raised several land use concerns during scoping and the public comment period for this Environmental Impact Statement (EIS), including impacts on livestock grazing, mining claims, and geothermal leases; access to cultural and sacred areas; as well as potential limitations on public access to the proposed withdrawal areas. The public was also concerned with the Proposed Action's compatibility with current land use plans and management practices. For example, Churchill County expressed concern about how the Proposed Action would affect access to and multiple use of federal lands. These concerns include, but are not limited to, elimination of public access to Bravo ranges, loss of public access to areas surrounding Bravo ranges, loss of valid existing rights (e.g., water rights and current or future rights-of-way for roads and utilities), and impacts on its municipal water rights. Churchill County was also concerned about inconsistencies with its Master Plan, BLM multiple use management, and the Carson City District BLM Resources Management Plan. The Office of the Governor of Nevada was also concerned about access to federal lands as well as impacts on mineral resources and recreation areas. Great Basin Resource Watch expressed concerns associated with development impacts on the Stillwater National Wildlife Refuge. For further information regarding comments received during the public scoping process and the public comment period on the Draft EIS, please refer to Appendix E (Public Participation) and Appendix F (Public Comments and Responses).

3.2.2 Affected Environment

This section focuses on the land uses within and adjacent to the region of influence. Attributes of land use include general land use and ownership, management plans, and special use areas. Given the complexity of land use resources in the region of influence, Mining and Mineral Resources (Section 3.3), Livestock Grazing (Section 3.4), Recreation (Section 3.12), Airspace (Section 3.6), and rights-of-way as they relate to transportation (Section 3.5) are addressed in more detail in separate sections.

In addition, there are several managing agencies with jurisdiction over federal land. These agencies include BLM, USFWS, Bureau of Reclamation, USFS, Nevada Department of Transportation (NDOT), Nevada Department of Wildlife (NDOW), Nevada Division of Environmental Protection, and the Navy. A variety of management plans, policies, and ordinances and regulations regulate the use of these lands and determine the types of activities allowed. They also protect specially designated or environmentally sensitive land, for example, National Wildlife Refuges, National Forests, and Wilderness Study Areas (WSAs). Land use, land management, and special use areas are shown on Figure 3.2-3.

3.2.2.1 State of Nevada

Nevada is one of the most sparsely populated states. The federal government manages and administers more than 85 percent of land in Nevada (including 1.64 percent identified as tribal land) (Nevada Legislative Counsel Bureau Research Division, 2016). A recent study by the Congressional Research Service estimated that five federal land agencies administer 79.6 percent of Nevada land (55,928,507 acres of 70,246,320 acres) (Vincent et al., 2017). According to this study, the BLM administers approximately 46,977,225 acres; USFS administers 5,760,343 acres; USFWS administers 2,344,972 acres; National Park Service administers 797,603 acres; and DoD administers 48,364 acres within Nevada (Vincent et al., 2017). The DoD utilizes a total of 3,515,416 acres of federal land in the state of Nevada (U.S. Department of Defense, 2015). This is inclusive of the FRTC (201,933 acres), Hawthorne Army Depot (147,236 acres), Nellis Air Force Range (3,092,317 acres), and other DoD sites.

Nearly all of Nevada's counties have more than 50 percent of land under federal or tribal control, and 5 of Nevada's 17 counties have more than 90 percent of land under federal or tribal control. In total, it is estimated that approximately 61 million acres of Nevada land are under federal or tribal control (Nevada Legislative Counsel Bureau Research Division, 2016). Given the large amount of federal land, federal government policies and regulations play an important role in land use and development in Nevada (Nevada Legislative Counsel Bureau Research Division, 2016). In addition, the large amount of federal land has contributed to the predominance of urbanized pockets of developments around cities.

3.2.2.1.1 Churchill County

Churchill County is approximately 3,213,464 acres, of which 84 percent is federal land (Figure 3.2-1). NAS Fallon and FRTC land ranges are all within Churchill County. In addition, the following FRTC SUA is over Churchill County: Churchill Low Military Operations Area (MOA), Fallon North 1 MOA, Fallon North 2 MOA, Fallon South 1 MOA, Fallon South 2 MOA, Bandit Air Traffic Control Assigned Airspace (ATCAA), R-4803, R-4804 A/B, R-4810, R-4812, R-4813 A/B, R-4816 North, R-4816 South, and Visual Flight Rules Corridor.

Churchill County is largely zoned Rural Resource District (RR-20) (Churchill County Code section 1608.220), which requires a density of less than one unit per acre and a 20-acre minimum lot size (Figure 3.2-3). The main metropolitan area is the city of Fallon, which is located in western Churchill County. The city of Fallon, which is the county seat of Churchill County, is composed of agricultural, residential, and some commercial land uses. U.S. Route 50 and U.S. Route 95 are the two main highways within Churchill County. These highways intersect in the city of Fallon (Denney, 2012).

NAS Fallon, Bravo (B)-16, and B-20 are within or adjacent to the Lahontan Valley. The Lahontan Valley has served as Churchill County's center for population growth and economic development since the late 19th century because of the natural fertility of this area, its ready access to other northern Nevada population centers, and the availability of water from the Carson River (U.S. Department of the Navy, 2011). Today, agriculture continues to be the second-most predominant economic driver within Churchill County—the area known as the "Oasis of Nevada." Alfalfa hay, other dry hay, and wheat are the main crops in the county. Farmers and ranchers also raise beef cattle, sheep, hogs, horses, and dairy cows. Additional features of the valley include the Fallon Paiute-Shoshone Reservation and Colony, Fallon National Wildlife Refuge, and Stillwater National Wildlife Refuge.

Churchill County's Board of Commissioners adopted the *Churchill County 2015 Master Plan* on December 16, 2015. This plan provides Churchill County with a framework for future growth and development for the next 20 years (Churchill County, 2015).

The *Churchill County 2015 Master Plan* includes the following goal and objectives relevant to military operations and training at NAS Fallon and on FRTC (Churchill County, 2015):

GOAL: Churchill County is supportive of economic development and creating a diverse base of commercial, industrial, agricultural and military growth in our community. Sustainment and expansion of military operations and training at the NAS Fallon, surrounding ranges and airspace are desired to bring additional economic benefits to the county.

OBJECTIVES: Churchill County supports and it intends to continue to support:

- The protection of NAS Fallon operations through the use of conservation and restrictive use easements requiring compatible development within the NAS Fallon Buffer Zone. This buffer zone is established through the use of noise contours generated by flight operations from NAS Fallon. The noise contours will be updated as aircraft types and usage change at the air station.
- The protection of the airspace used by manned and unmanned aerial vehicles.
- The protection of bombing ranges and electronic warfare ranges against encroachment from incompatible land development and frequency spectrum interference.
- The growth of the Navy mission and expansion of its ranges for new weapons, tactics, and ground forces. Churchill County realizes the desired growth of the Navy's mission may necessitate the potential increase in withdrawing more land. Many of those areas currently allow public access. The County supports the permitted use of federal lands for training, greater than casual use, without the need to withdraw from public access. If land is withdrawn, the Navy should compensate and mitigate for improvements and infrastructure impacted by withdrawal.
- The Navy's exploration and development of renewable energy for the use of NAS Fallon without fees or taxes.
- Navy management of resources on Navy lands and training areas, maximizing their sustainment, minimizing detrimental impacts, and access to the public as much as possible without interfering with the Navy's training mission.

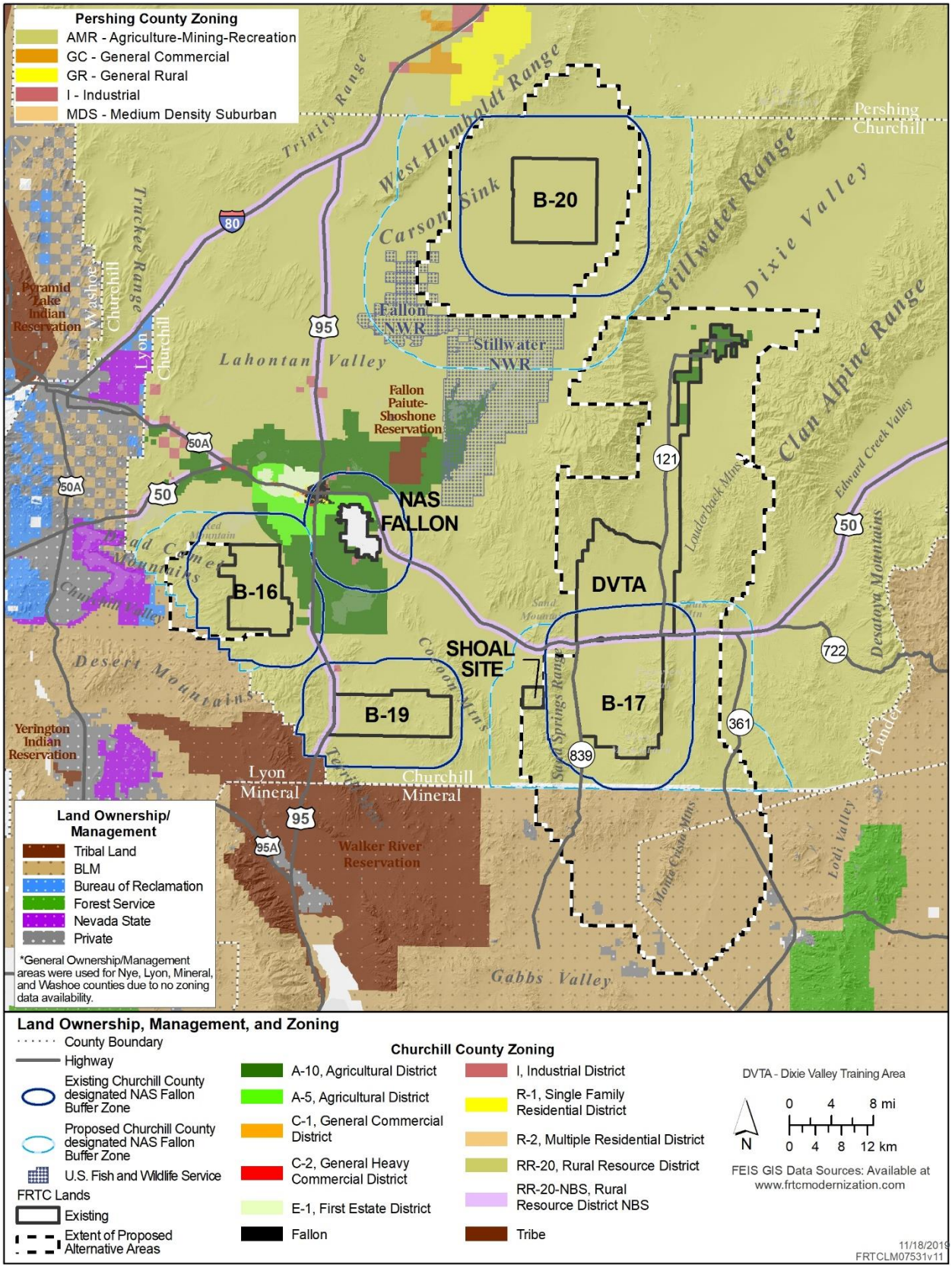


Figure 3.2-3: Land Ownership, Management, and Zoning

The *Churchill County 2015 Master Plan* has a goal to "support Naval Air Station Fallon (NAS Fallon) plans and projects that coordinate with the County's plans," with the following policies (Churchill County, 2015):

- Policy OS 8.1: Coordinate land use planning in the buffer zone area around NAS Fallon to maintain low housing density in flyover areas.
- Policy OS 8.2: Support Navy projects to maintain open space in buffer areas around NAS Fallon.
- Policy OS 8.3: Support Navy projects to create bike trails, wildlife viewing areas, etc. in buffer areas.
- Policy OS 8.4: Aid the Navy in applying for funding for cooperative open space projects.

The *Churchill County 2015 Master Plan* also sets a goal to "protect operations on NAS Fallon" with the following policies (Churchill County, 2015):

- Policy ED 6.1: Prohibit high-density development within the buffer zones or near target/training areas and encourage recordation of Conservation Easements thus perpetuating land uses compatible with NAS Fallon operations.
- Policy ED 6.2: Establish a working group of representatives of local businesses, agencies and groups to devise methods and programs to accommodate the needs of expanded military operations.
- Policy ED 6.3: Initiate discussions with NAS Fallon and tenant commands to establish an annual forum to discuss current DoD proposals in order to communicate with defense contractors and suppliers for potential business opportunities in Churchill County.

The Navy works with the surrounding communities to develop buffer zones around its property to prevent encroachment and encourage compatible land use. The Churchill County-designated buffer zones around NAS Fallon (main station), B-16, B-17, B-19, and B-20 resulted from an inter-local agreement between NAS Fallon and Churchill County originally executed in 2004 and updated in 2006. These buffer zones encourage agricultural or open space uses and discourage residential development and incompatible commercial enterprises within the buffer zones (U.S. Department of the Navy, 2011).

The Churchill County-designated buffer zones are currently 3 miles wide around B-16, B-17, and B-19, and 5 miles wide around B-20 (Denney, 2012) (Figure 3.2-3). Churchill County Code 16.08.240 further defines which uses the Churchill County-designated NAS Fallon Buffer Zone may permit. The code prohibits uses that may directly conflict with activities at NAS Fallon and associated ranges, such as airports and shooting ranges. This includes residential uses that are high density or that may not include sufficient soundproofing, such as multi-family dwellings or planned unit developments, as well as uses that may substantially escalate potential damage in the event of an accident, such as chemical manufacturing or power plants.

The Churchill County 2010 Master Plan includes the following land use policy (Churchill County, 2015):

- Policy LU 3.2: Minimize development and encroachment within the buffer zone around NAS Fallon and its bombing ranges.

The *Churchill County 2015 Master Plan* supports the community of Churchill County in its efforts to actively manage its growth and respond to changing circumstances to meet the needs of residents and retain the quality of life they enjoy (Churchill County, 2015). The *Churchill County 2015 Master Plan* includes goals and policies relevant to supporting the Churchill County community and land adjacent to B-16, B-17, B-20 and the Dixie Valley Training Area (DVTA) within the region of influence (Churchill County, 2015). Policy and goals include retaining the rural character of the county, promoting sustainability, and working together with federal land management agencies within Churchill County to provide public access opportunities for both residents and visitors to the County. Within the *Churchill County 2015 Master Plan,* Churchill County recognizes the importance of access to support the multiple recreation uses which occur in the county, along with the multiple use concept associated with federally administered land areas.

In Nevada, an easement for conservation is defined as "a nonpossessory interest of a holder in real property, which imposes limitations or affirmative obligations and:

1. Retains or protects natural, scenic or open-space values of real property;
2. Assures the availability of real property for agricultural, forest, recreational or open-space use;
3. Protects natural resources;
4. Maintains or enhances the quality of air or water; or
5. Preserves the historical, architectural, archeological, paleontological or cultural aspects of real property."

Conservation easements are unlimited in duration unless the instrument creating it or court order say otherwise.

(Nevada Revised Statute 111.410-420)

3.2.2.1.2 Elko County

Elko County is approximately 10,959,010 acres, of which 73.9 percent is federal land. No FRTC ranges or training areas are within the boundaries of Elko County. A portion of the Diamond ATCAA is over the southwest corner of Elko County. There are currently no MOAs over Elko County.

The Elko County Board of Commissioners adopted the Elko County General Land Use plan in June 1971. The *Elko County Public Land Policy Plan* was completed in 2008. This plan included the following policy regarding military operations and withdrawals (Elko County Board of Commissioners, 2008):

- Policy 6-4: Military Withdrawals of Land and Air Space: Support full evaluation of criteria listed in the Public Land Use Policy Plan in regard to any federal land and airspace withdrawals for military use including those with potential for transportation, storage, and disposal of all hazardous, toxic, or nuclear materials. Careful considerations should be given to approval of any additional airspace designations due to substantial MOA inventories and impacts associated with the MOAs.
- Policy 21-1: Elko County supports a collaborative dialogue with the Department of Defense on all future testing and training. Elko County supports military training on federal lands and existing military-withdrawn lands because of the increased military preparedness.
- Policy 21-2: Elko County opposes any further military land and airspace withdrawals.

3.2.2.1.3 Eureka County

The county is approximately 2,674,061 acres, of which 78.9 percent is federal land. No FRTC ranges or training areas are within the boundaries of Eureka County. However, Eureka County is within the region of influence because it is underneath the existing and proposed FRTC SUA. Portions of the Fallon North 4 MOA, Diamond ATCAA, Duckwater ATCAA, and the Visual Flight Rules Corridor are also over Eureka County. In addition, the entire Zircon ATCAA is over Eureka County. As such, FRTC airspace is over most of Eureka County.

Interstate 80, U.S. Route 50, State Route 278, State Route 306 and the mainline Union Pacific/Southern Pacific rail line are transportation routes that pass through Eureka County. Population nodes are concentrated around the unincorporated town of Eureka in the southeastern corner and in Crescent Valley and Beowawe in the north. The Eureka County Master Plan was revised and adopted in 2010 (Eureka County Board of Commissioners, 2010).

The plan stated, as of 2010, that there were no known conflicts between military training flights and either of Eureka's two airports (Eureka County Board of Commissioners, 2010).

3.2.2.1.4 Lander County

Lander County is approximately 3,525,761 acres, of which 84.7 percent is federal land. No FRTC ranges or training areas are within the boundaries of Lander County. However, Lander County is in the region of influence because it is beneath the existing and proposed FRTC airspace. Portions of Fallon North 2 MOA, Fallon North 3 MOA, Fallon North 4 MOA, Fallon South 1 MOA, Fallon South 2 MOA, Fallon South 3 MOA, Duckwater ATCAA, and the Visual Flight Rules Corridor are over Lander County.

Lander County comprises land spread across two of Nevada's 14 major watersheds. Interstate 80 traverses the county in an east-west fashion on the northern end, as does U.S. Route 50 on the southern end. State Route 305, which runs north/south, bisects Lander County, linking the cities of Battle Mountain and Austin. The Town of Kingston is in the southern part of Lander County on State Route 376. Development is concentrated in the north along Interstate 80 and in the south along U.S. Route 50. Lander County's Master Plan was adopted in 2010. This plan has a 10-year planning horizon (Lander County Board of County Commissioners, 2010).

3.2.2.1.5 Lyon County

Lyon County is approximately 1,295,358 acres, of which 72.2 percent is federal land. No existing FRTC ranges or training areas are within the boundaries of Lyon County. However, the proposed B-16 range expansion would extend into Lyon County. Lyon County is also within the region of influence because it is beneath the existing and proposed FRTC airspace. Portions of the Bandit ATCAA, Ranch High MOA, Ranch Low MOA, and Churchill (High/Low) MOA are over the eastern portion of Lyon County.

The majority of the non-federal lands with Lyon County are located within the agricultural Smith and Mason Valleys, including the metropolitan areas of Fernley, Dayton, and Silver Springs. The zoning for over 90 percent of the county is Rural Residential (1 unit per 20 acres). Dominant land uses include agricultural (10.4 percent), residential development (3.2 percent), and commercial or industrial (1.7 percent). However, most of Lyon County is vacant non-federal (10 percent) and federal (66 percent) land. For Lyon County, federal land includes Parks, Open Space, Public/Quasi-Public, Tribal Lands, and Specific Plan. Lyon County completed its Master Plan in 2010 and is in the process of drafting community plans (Lyon County, 2010).

3.2.2.1.6 Mineral County

Mineral County is approximately 2,440,233 acres, of which 94.4 percent is federal land. No existing FRTC ranges or training areas are within the boundaries of Mineral County; however, the proposed B-17 range expansion would extend into Mineral County. Mineral County is also within the region of influence because portions of the Ranch High MOA, Ranch Low MOA, Fallon South 2 MOA, and Bandit ATCAA are over the northern portion of Mineral County.

The Hawthorne Army Depot, a 147,000-acre ammunition storage site near Walker Lake State Recreation Area, is located in Mineral County, as is the Walker River Reservation. Mineral County drafted a Master Plan in 2010. The master plan is a living policy document that guides Mineral County officials in their efforts to make Mineral County a better place to live and work (Mineral County Regional Planning Commission, 2010). The Mineral County code divides the county into agricultural, residential, and commercial districts (Mineral County Code 17.06.010).

3.2.2.1.7 Nye County

Nye County is approximately 11,640,101 acres, of which 97.7 percent is federal land. There are no existing FRTC ranges or training areas within the boundaries of Nye County; however, the proposed B-17 range expansion would extend into Nye County. Nye County is also within the region of influence because portions of the Fallon South 2 MOA, Fallon South 3 MOA, Fallon South 5 MOA, Duckwater ATCAA, and Smokie ATCAA are over the northern portion of Nye County adjoining Lander and Churchill counties. Nye County also includes portions of the Humboldt-Toiyabe National Forest and the U.S. Department of Air Force's Nevada Test and Training Range and Tonopah Test Range, and the Department of Energy's Nevada National Security Site.

Nye County updated its 1994 Comprehensive Plan in 2011. The plan's intent is to provide effective planning, communication, and coordination between Nye County and federal and state land management agencies. This plan includes an objective to "[s]upport the United States military and their activities in the provision of well-train[ed] and prepared armed forces," with the following policies (Nye County Board of County Commissioners, 2011):

- Policy A: Nye County supports a collaborative dialogue with the DoD on planned training or other exercises taking place within the county.
- Policy B: Nye County will work closely with the BLM to ensure that development on properties released for disposal do not interfere with military aircraft flight patterns (see Figure 4 – DoD Airspace Consultation Areas in Nye County Board of Commissioners [2011]).

Approximately 23 percent of Nye County is federal lands that have restricted access for classified activities. Land areas within Nye County that the public is restricted from accessing include Nevada Test and Training Range, Tonopah Test Range, and the Nevada National Security Site as well as the Central Nevada Test Area. Due to their acreage, these facilities shape transportation and economic development within Nye County.

3.2.2.1.8 Pershing County

Pershing County is approximately 3,880,754 acres, of which 75.7 percent is federal land. Pershing County does not include any existing FRTC land. However, the proposed B-20 range expansion would extend into Pershing County. Pershing County is also within the region of influence because it is beneath the existing and proposed FRTC airspace. However, portions of the Carson MOA, Fallon North 1 MOA, Fallon North 2 MOA, and R-4813 A/B are over the southern portion of Pershing County adjoining Lander

and Churchill counties. In addition, a portion of the Reno MOA is over a western portion of Pershing County.

The county is largely zoned "Agricultural-Mining-Recreation" with suburban and commercial zoning along Interstate 80 (Pershing County, 2012). The Agriculture-Mining-Recreation zone typically has a density of one unit per 160 acres, but it allows for additional single-family housing to support agriculture, mining, and recreation uses. These are open areas with limited or no access to roads, water, sewer, and emergency services as well as environmentally sensitive areas (Pershing County, 2012). The plan requires that adjacent land uses be compatible with these uses.

3.2.2.1.9 Washoe County

Washoe County is approximately 4,188,232 acres, of which 78.8 percent is federal land. There are no FRTC ranges or training areas within the boundaries of Washoe County. However, Washoe County is in the region of influence because the majority of the Reno MOA is over the county. Pyramid Lake Reservation and the Reno-Sparks Indian Colonies are located within Washoe County. Washoe County's planning and decision-making is coordinated through a series of plans and policies. Washoe County's master plan, completed in 2011, is largely concerned with growth management for the next 20 years. The Reno MOA is above Washoe County's High Desert Planning Area (Washoe County Board of Commissioners, 2011).

3.2.2.2 Tribal Lands

The following Indian Tribal reservations are either fully or partially below the existing and proposed FRTC SUA and within the region of influence: Fallon Paiute-Shoshone Reservation and Colony (Bandit ATCAA), Pyramid Lake Reservation (Reno MOA), Walker River Paiute Reservation (Churchill MOA, Ranch (High) MOA, Ranch (Low) MOA, Fallon South 2 MOA, R-4810, R-4812), and Yomba Reservation (Fallon South 2 MOA, Fallon South 3 MOA, and Duckwater ATCAA). The Bureau of Indian Affairs administers these reservations.

The southern boundary of B-19 shares a 9-mile border with the 339,181-acre Walker River Paiute Reservation. The majority of the reservation is within Mineral County with portions in Churchill and Lyon Counties. Schurz, Nevada, is the main community on the reservation and is located approximately 15 miles southwest of B-19, off U.S. Route 95.

The Fallon Paiute-Shoshone Reservation and Colony is located northeast of NAS Fallon, within Churchill County. The Fallon Paiute-Shoshone Reservation and Colony, which is a federally recognized tribe of Northern Paiute and Western Shoshone, governs this reservation. The Pyramid Lake Reservation is located northwest of Reno, in Washoe, Story, and Lyon Counties. The Pyramid Lake Band Paiute Tribe governs this reservation. The Yomba Reservation is located in Nye County along the Reese River. The Yomba Shoshone Tribe of the Yomba Reservation, which is a federally recognized tribe of Western Shoshone, governs this reservation.

3.2.2.3 Federal Land

3.2.2.3.1 Bureau of Land Management

As described in Chapter 2 (Description of Proposed Action and Alternatives), the FRTC ranges are located on or adjacent to BLM land. The region of influence is within BLM's Nevada Region. This region includes the following BLM districts: Carson City, Battle Mountain, Elko and Winnemucca. The Navy's current landholdings are all within the Carson City District. The BLM, as designated by the Federal Land Policy

and Management Act, is responsible for the stewardship of federal lands. Management strategies are based on the principles of multiple use and sustained yield, environmental responsibility, and scientific technology. The Federal Land Policy Management Act directs the BLM to develop management plans that provide for appropriate uses of BLM land. Like a county master plan, a resource management plan is a land use plan that describes broad multiple-use guidance for the BLM. These plans guide future land management activities on BLM lands, including grazing and mineral development, as well as public recreation and conservation.

The BLM Carson City Field Office completed a Consolidated Resource Management Plan for the Carson City District in 2001. This office is preparing an update to the Final Resource Management Plan, which was released for public comment with a Draft EIS in 2013 (Bureau of Land Management, 2013a). The Winnemucca Field Office completed its Resource Management Plan in 2013 (Bureau of Land Management, 2013b). The Battle Mountain District is working on a Resource Management Plan to replace the Shoshone-Eureka Resource Management Plan (U.S. Department of the Interior, 1987) and Tonopah Resource Management Plan (U.S. Department of the Interior, 1994).

3.2.2.3.2 U.S. Fish and Wildlife Service

The USFWS manages the Stillwater National Wildlife Refuge Complex as part of the National Wildlife Refuge Complex. The Stillwater National Wildlife Refuge Complex includes the Stillwater National Wildlife Refuge, the Fallon National Wildlife Refuge, and the Anaho Island National Wildlife Refuge. B-20 is north of the Stillwater National Wildlife Refuge and the Fallon National Wildlife Refuge. The USFWS's mission for refuges is to ensure that fish, wildlife, and plant resources endure and that their needs are prioritized first within the refuges. The Stillwater National Wildlife Refuge Complex, as described in Public Law 101-618 section 206(b)(2), maintains and restores natural biological diversity within the refuge; provides for the conservation and management of fish and wildlife and their habitats within the refuge; fulfills the international treaty obligations of the United States with respect to fish and wildlife; and provides opportunities for scientific research, environmental education, and fish- and wildlife-oriented recreation (U.S. Fish and Wildlife Service, 2002a).

The Fallon National Wildlife Refuge is southwest of B-20, within the Carson Sink. It is the most remote and has the lowest elevation of any of the refuges within the Stillwater National Wildlife Refuge Complex. The only access to the refuge is from a primitive road south of the refuge. The USFWS' mission for the Fallon National Wildlife Refuge is to provide high-quality springtime habitat for waterfowl and other wetland birds and a year-round sanctuary wetlands habitat. A secondary mission is to provide opportunities for wildlife-dependent recreation during the springtime season. Opportunities for waterfowl hunting are provided on Fallon National Wildlife Refuge when sufficient wetland habitat is available during the hunting season; other uses, including outdoor education and interpretation, wildlife observation, and wildlife photography would be facilitated (U.S. Fish and Wildlife Service, 2002b).

The Stillwater National Wildlife Refuge is south and southeast of B-20, in the Lahontan Valley near the community of Fallon. The Stillwater National Wildlife Refuge covers approximately 80,000 acres of wetland. The refuge is referred to as "Oasis in the Desert" and has been designated a site of international importance by the Western Hemispheric Shorebird Network because of the large number of migratory birds that migrate through this area. The Stillwater National Wildlife Refuge has received funding from the Land and Water Conservation Fund (National Park Service, 2017).

The Anaho Island Wildlife Refuge is within Pyramid Lake, northeast of Reno, Nevada. It was designated as a preserve for native birds. The refuge is part of the Pyramid Lake Paiute Reservation; however, it is

managed by the USFWS as a wildlife refuge. The island is closed to the public and provides undisturbed breeding habitat for local and migratory birds. Although the Reno MOA is along the northern shore of Pyramid Lake, FRTC SUA does not overlap Anaho Island.

3.2.2.3.3 Bureau of Reclamation

Bureau of Reclamation land partially surrounds B-16 and B-20. The Bureau of Reclamation's mission is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public" (Bureau of Reclamation, 2003). The Bureau of Reclamation has jurisdiction over approximately 360,000 acres in Churchill and Pershing counties. The Bureau of Reclamation Lahontan Basin Area Office has jurisdiction over a large portion of land in Nevada, including approximately 246,711 acres adjacent to training ranges B-16 and B-20. Projects currently managed by the Lahontan Basin Area Office include the Newlands Project, Washoe Project, Truckee Storage Project, and Humboldt Project. The Newlands Project was authorized by the passage of the 1902 Reclamation Act and has been instrumental in the development of Churchill County. As described in Section 3.4 (Livestock Grazing), the Bureau of Reclamation is in the process of relinquishing land adjacent to B-16 over to the BLM; however, only a portion of the land is grazing land.

The Newlands Project provides irrigation water from the Truckee and Carson Rivers for about 57,000 acres of land near Fallon and Fernley. In addition, water from the project is provided to the Lahontan Valley Wetlands near Fallon (Stillwater NWR, Stillwater WMA, Fallon NWR, Carson Lake and Pasture, and Fallon Paiute-Shoshone Tribe wetlands). Overall, the project has 68.5 miles of main canals, more than 300 miles of laterals, and almost 350 miles of drains. These project facilities are operated and maintained by the Bureau of Reclamation's contractor, the Truckee-Carson Irrigation District. Management by the Truckee-Carson Irrigation District and Bureau of Reclamation is guided by the 1997 Adjusted Operating Criteria and Procedures for the Newlands Project.

3.2.2.3.4 U.S. Forest Service

FRTC SUA is over a portion of the Humboldt-Toiyabe National Forest, the largest national forest outside of Alaska. The USFS Austin and Tonopah Ranger Districts of the Humboldt-Toiyabe National Forest manage the area of the forest that is under FRTC SUA. USFS completed a Land and Resource Management Plan for the Toiyabe National Forest in 1986 (U.S. Forest Service, 1986), which has since been amended several times. The USFS was working on a new Forest Plan for the Toiyabe National Forest but suspended the effort in 2009.

The Toiyabe National Forest includes the Arc Dome, Alta-Toquima, and Table Mountain Wilderness Areas. Wilderness management, as outlined in Chapter 2320 of the Forest Service Manual (U.S. Department of Agriculture, 2006), prohibits new mining, timber harvest, and commercial uses. No roads are maintained in wilderness areas and, excluding administrative and emergency use, motorized transport is prohibited. Additionally, low-level flight within 2,000 feet of the ground surface is discouraged except in emergencies or for essential military missions.

3.2.2.3.5 Department of the Navy

NAS Fallon is in the high desert in northern Nevada, approximately 65 miles east of the City of Reno. FRTC SUA overlies approximately 10.4 million acres of land, including large parts of Churchill, Lander, and Eureka Counties as well as small portions of Pershing and Washoe Counties in the north, Nye County in the south, Mineral County in the southwest, and Lyon County in the west. The city of Fallon is 6 miles northwest of NAS Fallon, and the communities of Austin, Crescent Valley, and Gabbs are beneath the

FRTC SUA. U.S. Route 50 bisects the FRTC and is the main east-west transportation route through the complex. Approximately 94 percent of the lands beneath FRTC SUA are federally managed lands.

The Navy currently manages approximately 240,079 acres of FRTC land beneath FRTC SUA. All FRTC land assets are in Churchill County, Nevada, and comprise training ranges B-16, B-17, B-19, and B-20; the DVTA; and the Shoal Site. Management of the FRTC land assets occurs under several agency authorities, depending on whether the asset is acquired (by the Navy), withdrawn, or a combination of acquired and withdrawn. Withdrawn land assets may be open or closed to public by various federal agencies, including the BLM, Bureau of Reclamation, DoD, and Department of Energy (Table 1-1).

All of the ranges and surrounding areas have existing rights of way (ROW) for access roads, including county and state roads, utilities, and land ownership. Section 3.5 (Transportation) discusses ROWs for public access roads within each range as applicable. ROWs for utilities and land ownership are included under each range discussion as applicable.

The Navy does not propose to expand B-19 and the Shoal Site.

Bravo-16

B-16 is located southwest of Fallon, Nevada, as shown in Figure 3.2-4. B-16 is located entirely within Churchill County. The proposed B-16 expansion area extends into Lyon County (Figure 3.2-4). B-16 and the surrounding areas are composed of lands managed by the Navy, BLM, and the Bureau of Reclamation. The B-16 expansion area does not include non-federal land; however, there are non-federal lands to the north, east, and west. Land development in the area predominantly occurs along the state highways and surrounding the City of Fallon (U.S. Department of the Navy, 2014).

Churchill County has zoned the existing B-16 as RR-20 (Figure 3.2-3). Land uses within B-16 include training infrastructure and open training areas. The Sheckler district (neighborhood) is the closest residential area and is located 0.2 mile from B-16's northeast boundary. The area around B-16 is largely zoned RR-20 Rural Resource District (density less than one unit per acre). This district limits, controls, and prohibits land uses for the purpose of protecting and enhancing natural resources (Churchill County Code 16.08.220). East and northeast of B-16 is zoned for agricultural (A) use (A-10 [one unit per 10 acres] and A-5 [one unit per 5 acres]) to limit development of rural land to development that is compatible with agricultural lands. Churchill County has also designated a 3-mile buffer around B-16, which overlaps these agricultural areas (Figure 3.2-3). According to Churchill County's policy, development is limited, controlled, or prohibited within these buffers (Denney, 2012).

B-16 is closed to the public. Access to B-16 is primarily off U.S. Route 95 to the east. The Sand Canyon Road and the Dead Camel Mountains Road traverse the area.

There are no wilderness areas, WSAs, lands with wilderness characteristics, or Areas of Critical Environmental Concern (ACECs) in the existing or proposed B-16 area (Bureau of Land Management, 2014b). ACECs are areas where special management is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values, fish, or wildlife resources, or other natural systems or processes. There are also no wild horse or burro herd management areas within B-16 or the proposed expansion area. The Horse Mountain Herd Area is located south of the existing and proposed B-16 area. This Herd Area currently has no wild horses.

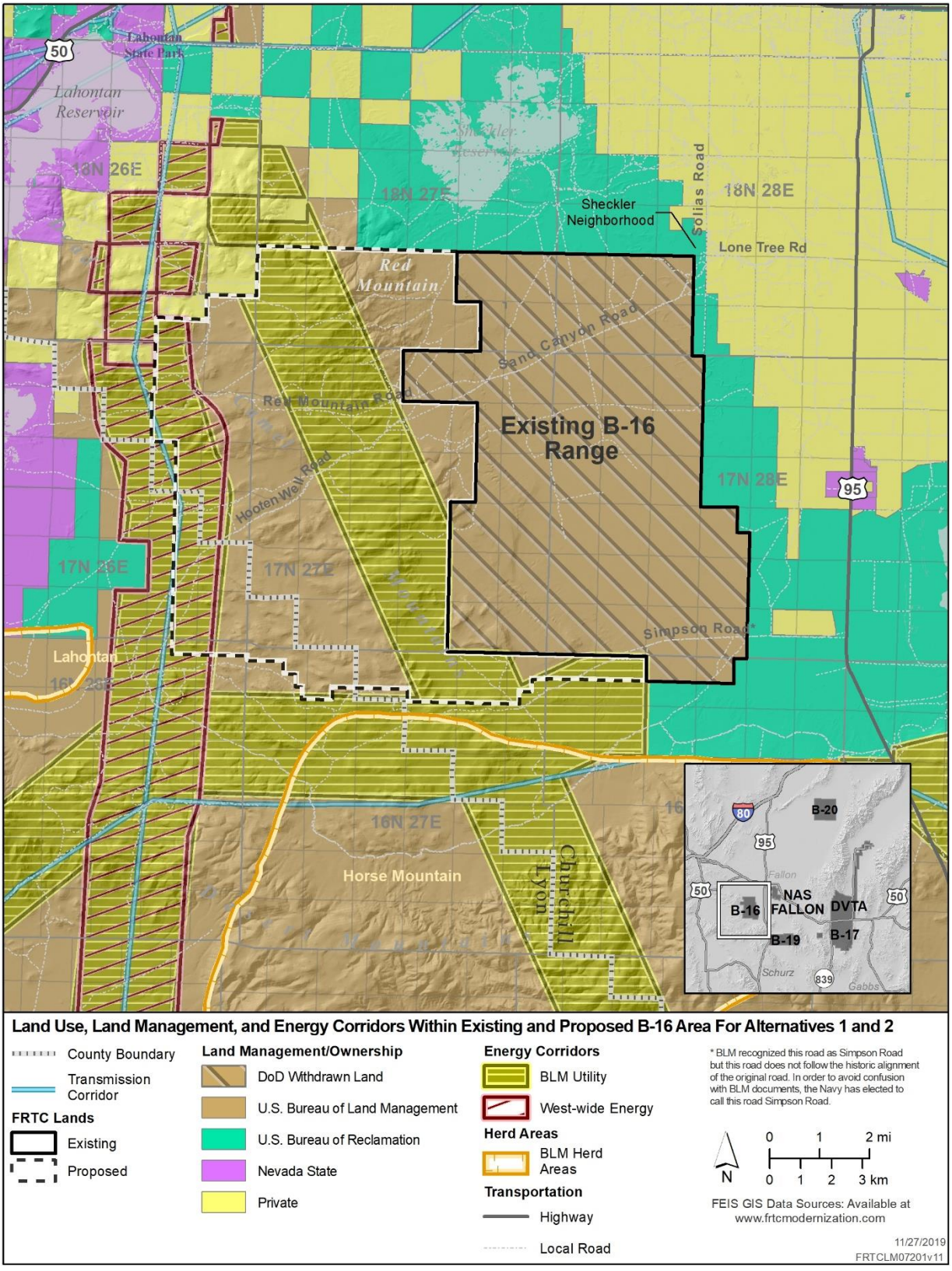


Figure 3.2-4: Land Use, Land Management, and Energy Corridors Within Existing and Proposed B-16 Area for Alternatives 1 and 2

Transmission corridors run parallel to U.S. Route 95, west of B-16, and south of B-16 (less than 55 kilovolts). A portion of the West-wide Energy Corridor (planning corridor) is west of B-16. In addition, as shown in Figure 3.2-4, the BLM has designated energy corridors for planning purposes within and adjacent to B-16 (Bureau of Land Management, 2014d). Table 3.2-1 summarizes the three non-Navy ROWs for utilities or associated land use access points within the B-16 proposed expansion area.

Table 3.2-1: Rights of Way Located Within the Proposed Bravo-16

Holder	Facility Type	Status
Los Angeles Department of Water & Power	Power transmission line and road	Authorized
Sierra Pacific Power Company	Power transmission line	Authorized
Western Area Power Administration	Power transmission line irrigation project (not constructed)	Authorized

Bravo-17

B-17 is south and southeast of Fallon, Nevada, south of U.S. Route 50, within the Fairview Valley. The existing B-17 is located entirely within Churchill County. The proposed expansion area under all alternatives extends into northern Mineral County, and northwestern Nye County. The existing and proposed B-17 area is comprised of federally managed land (Navy and BLM) and non-federal land used for mineral prospecting (Figure 3.2-5).

Churchill County has zoned the existing B-17 as RR-20 (Figure 3.2-3). Zoning around B-17 in Churchill County is RR-20 Rural Resource District with a 3-mile buffer around B-17 (Churchill County 2012). There are no agricultural or residential districts within existing or proposed B-17 area. There are no designated zoning maps for Mineral County or Nye County; however, the land is considered rural and is managed by BLM (Figure 3.2-5).

BLM land surrounds the B-17 range with unconnected non-federal parcels located south and west of the range as well as north of Fairview Peak. The area around B-17 is zoned RR-20 Rural Resource District (density less than one unit per acre). There are a few non-federal parcels in this area. The surrounding land is primarily used for livestock grazing, recreation (e.g., hunting and off-highway vehicle [OHV] racing), and mining and geothermal development. As described above, Churchill County has zoned a 3-mile buffer around B-17. This buffer area extends over U.S. Route 50 (onto Navy-controlled land and other federal land), Fairview Valley, and Fairview Peak, and includes portions of the Sand Springs Mountains in the west. The only non-federal land within this buffer is an area between Fairview Peak and U.S. Route 50 located in Section 16 of T16N, R34E.

There are several small communities near the existing and proposed B-17 area. The community of Middlegate is located east of B-17, along U.S. Route 50 in Churchill County. The community of Gabbs is located southeast of B-17 in Gabbs Valley. In addition, the portion of the Walker River Paiute Reservation located in Mineral County is southwest of B-17 and adjacent to the southern perimeter of B-19. The tribal community of Schurz is located within the Walker River Paiute Reservation off U.S. Route 95 (Schurz Highway) around the Walker River.

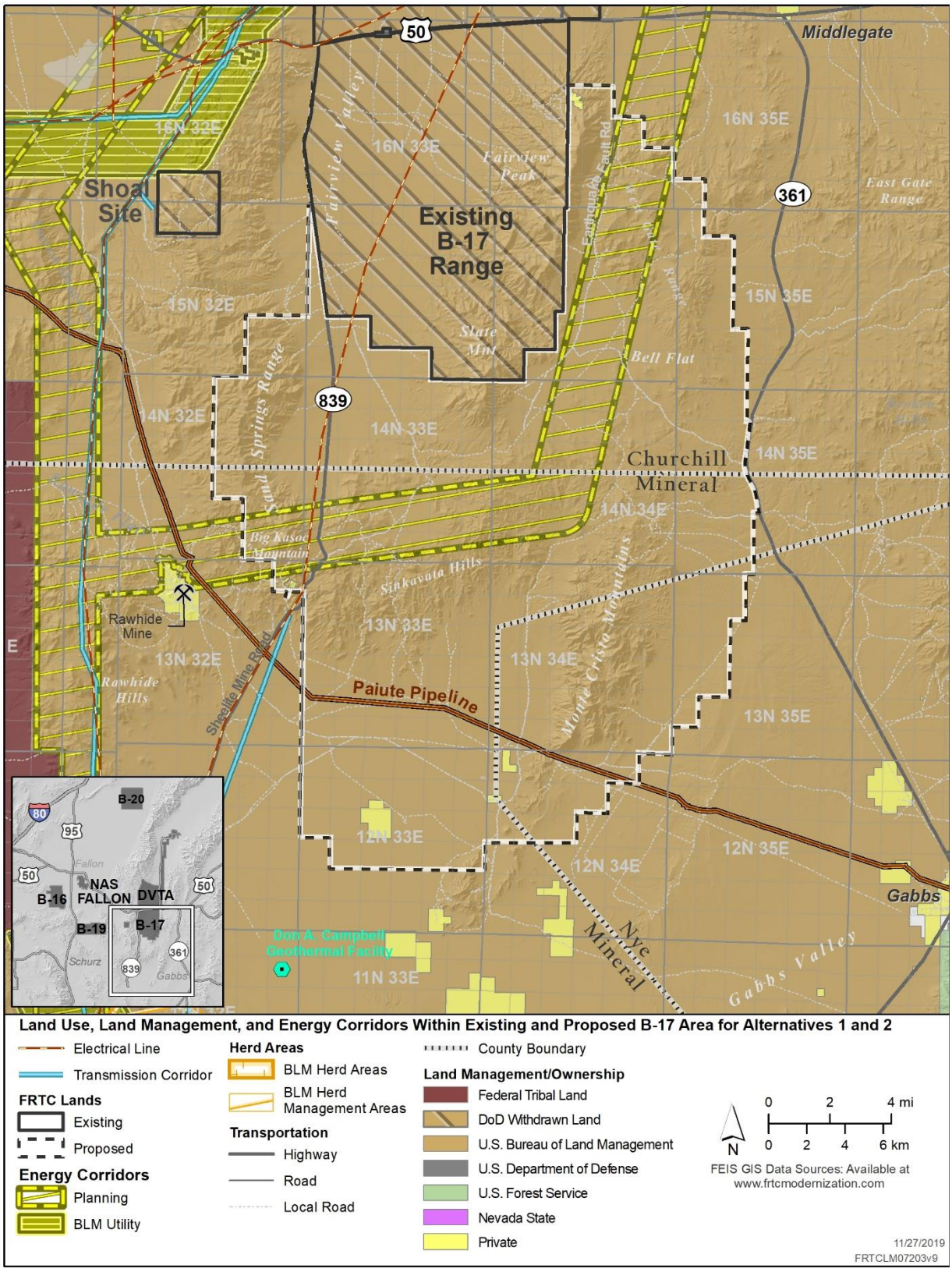


Figure 3.2-5: Land Management and Energy Corridors Within Existing and Proposed B-17 Area for Alternatives 1 and 2

B-17 is closed to the public. Access to the existing B-17 range is primarily off State Route 839, which is a paved road that connects to U.S. Route 50. The Navy is the primary user of this road; however, hunters, other outdoor enthusiast, individuals, and businesses accessing the Rawhide Mine and Don A. Campbell Geothermal Facility (Ormat Nevada Inc.) use the road as well (Figure 3.2-5).

There are no wilderness areas, WSAs, lands with wilderness characteristics, or ACECs within the existing or proposed B-17 area (Bureau of Land Management, 2014b) (Figure 3.2-5)**.** The Pilot Mountain Herd Area and Herd Management Area are located south of the existing B-17 range.

There are no solar energy zones within the existing or proposed B-17 area (Bureau of Land Management & Department of Energy, 2012). The BLM has designated much of the land outside of the existing and proposed B-17 area as a solar variance area, which refers to an area that can be used for utility-scale (greater than 20 megawatt) solar development outside of a solar zone (Bureau of Land Management, 2014d). Hybrid renewable energy development (i.e., geothermal and solar in the same area) has begun in Churchill County, and additional development is possible within this area.

Overhead transmission lines run west of B-17 in the Sand Springs Mountain Range and north of B-19 (Figure 3.2-5). The BLM also has energy corridors that runs east of B-17 near Earthquake Fault Road and west through the Sinkavata Hills, which are south of the existing B-17 range but within the proposed B-17 expansion area (Figure 3.2-5).

A portion of the Paiute Pipeline is located within sand dunes and foothills south of B-17. The Paiute Pipeline is an underground natural gas pipeline with aboveground appurtenances. This pipeline brings natural gas from Idaho across the Nevada border to end users within Nevada and along the California/Nevada state line. The Paiute Pipeline Company, which is a subsidiary of Southwest Gas Corporation, currently operates this pipeline. The portion of the pipeline within the region of influence runs from the city of Fallon east of B-17 to the community of Gabbs, in Nye County (southwest of B-17) (Maples, 2017).

Table 3.2-2 summarizes the 25 non-Navy ROWs for utilities or associated land use access points within the B-17 proposed expansion area.

Table 3.2-2: Rights of Way Located Within the Proposed Bravo-17

Holder	Facility Type	Status
Bureau of Land Management	Oil and Gas Lease	Pending
Private	Geothermal Geophysical Exploration	Authorized
NV Bureau of Mines and Geology	Geothermal Geophysical Exploration	Pending
NV Bureau of Mines and Geology	Geothermal Geophysical Exploration	Authorized
University of NV Reno	FLPMA	Authorized
NV Bell/AT&T	ROW	Authorized
Ormat Nevada Inc.	Road to Don A. Campbell Geothermal Facility	Authorized
NV Division of State Lands	Communication site, FLPMA	Authorized
University of NV Reno	Seismological Lab, FLPMA	Authorized

Table 3.2-2: Rights of Way Located within the Proposed Bravo 17 (continued)

Holder	Facility Type	Status
NV Bell/AT&T	Telephone and Telegraph, FLPMA	Pending
GLOBEX	Surface Mining	Pending
Pilot Gold (USA) Inc.	Surface Mining	Pending
Cortez Exploration LLC	Oil and Gas Lease	Authorized
Sierra Pacific Power Co.	Power Facilities	Authorized
Piscus	Water Plants	Authorized
University of NV Reno	FLPMA	Authorized
Bell Mountain Exploration Corporation	Water Facility	Authorized
Kennecott Rawhide Mining Company	Road to Rawhide Mine	Authorized
Plate Boundary Observatory, Unavco Inc.	FLPMA	Authorized
Private	Power Transmission, FLPMA	Authorized
Arizona Nevada Tower Corp.	Communication site, FLPMA	Authorized
Sierra Pacific Power Co.	Communication site, FLPMA	Authorized
CC Communications	Communication site, FLPMA	Authorized
Commnet of Nevada, LLC	Power Transmission, FLPMA	Pending
Paiute Pipeline Co.	Oil and Gas Pipeline	Authorized

Notes: FLPMA = Federal Land Policy Management Act, NV = Nevada, ROW = Rights of Way

Bravo-20

B-20 is located northeast of Fallon, Nevada. This existing B-20 range is a mixture of Navy land withdrawn from BLM and Navy fee-owned lands (Figure 3.2-6). B-20 is located entirely within Churchill County; however, the B-20 proposed expansion area would extend into the southern portion of Pershing County. Much of the area surrounding B-20 is a checkerboard management and ownership pattern of federal and non-federal lands (Figure 3.2-6). Non-federal lands include agricultural, mineral prospecting, and vacant land/open space to the northwest and northeast. Federal lands include lands managed or controlled by the Navy (B-20), BLM (to the north and east), Bureau of Reclamation (to the west and

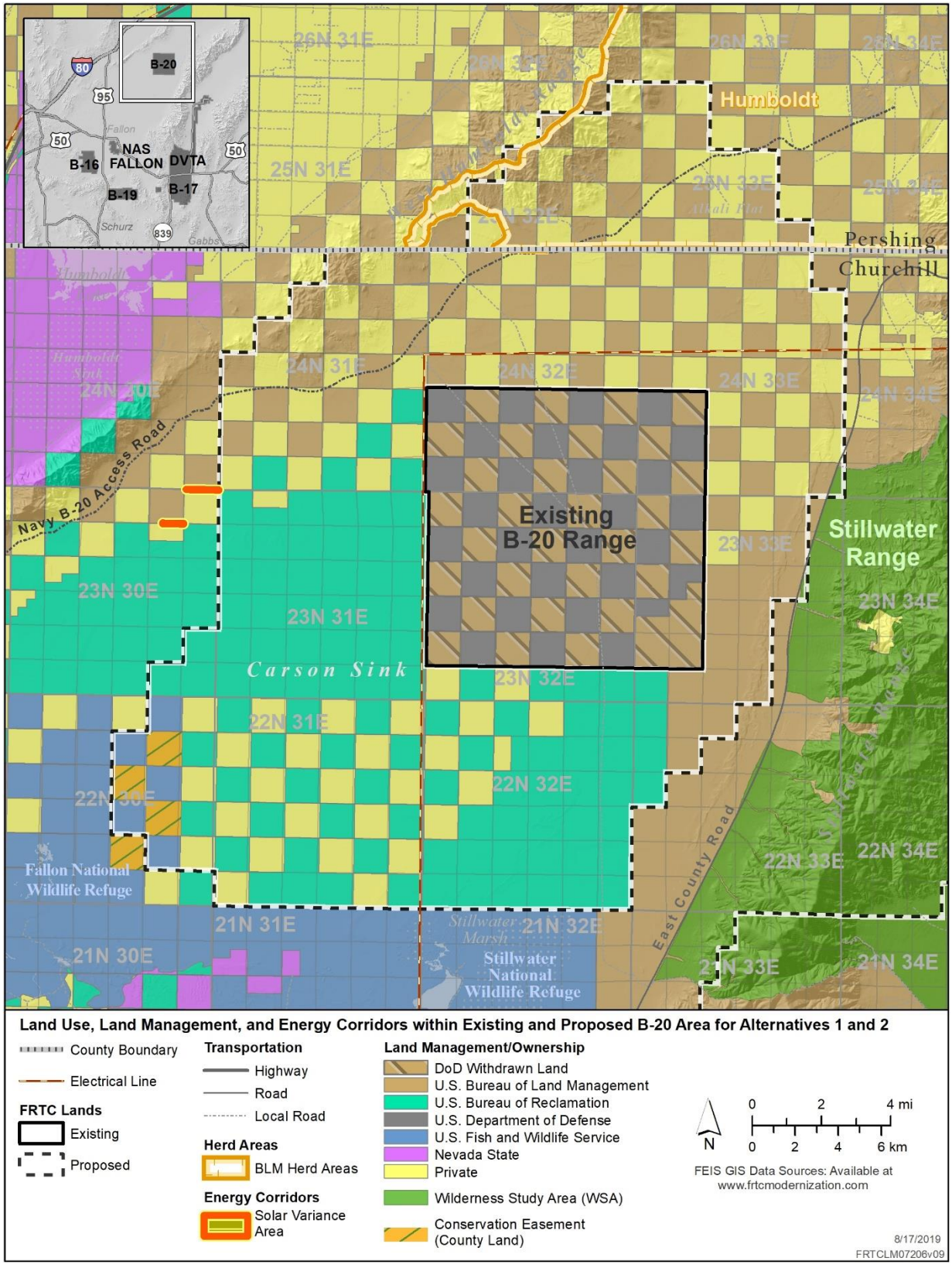


Figure 3.2-6: Land Use, Land Management, and Energy Corridors Within Existing and Proposed B-20 Area for Alternatives 1 and 2

south), USFWS (i.e., Stillwater Wildlife Refuge Complex), and Churchill County. The Bureau of Reclamation land is part of the Newlands Project. Newlands Project facilities drain project water into this area and are operated and maintained by Reclamation's contractor (Truckee-Carson Irrigation District). The Fallon National Wildlife Refuge and the Stillwater National Wildlife Refuge are south of B-20.

Churchill County has zoned the existing B-20 and area around B-20 for RR-20 Rural Resource District with a 5-mile buffer around B-20 (Denney, 2012) (Figure 3.2-6). This area is largely unpopulated undeveloped land and open space, but the buffer does extend over portions of the East County Road and the Navy's B-20 Access Road. Pershing County has zoned the area north of B-20 for "Agriculture-Mining-Recreation" and the area west of the Humboldt Mountains as General Rural. These areas allow a variety of uses, including single-family homes, aggregate facilities, animal production, and crop production (see Division Three of the Pershing County Development Code for more information).

B-20 is closed to the public. The Navy's access road to B-20 (#N-82709) is locally known as "Pole Line Road." The Navy is the only current authorized user of this road (Sievers, 2017). However, "Pole Line Road" is utilized by hunters and recreationist to access the West Humboldt Range. East County Road, a public road maintained by Churchill County that is east of B-20 near the foothills of the Stillwater Mountains, provides access to B-20 from the east.

There are no existing or proposed wilderness areas or ACECs within the existing or proposed B-20 expansion area. The BLM also does not currently identify any land within this area as a land with wilderness characteristics (Bureau of Land Management, 2014b). The Stillwater Range WSA (NV-030-104) is located to the east, and a very small portion is within the proposed B-20 expansion area. In an evaluation of the Stillwater Range WSA, the BLM determined that the Stillwater Range WSA no longer contains wilderness characteristics. Any change to the WSA designation would presumably be accomplished through Congressional withdrawal legislation.

The Humboldt Herd Area is located to the north of the existing B-20, and a portion of it is within the proposed expansion area. Although wild horses may occur within this area, the BLM did not designate this area as a Herd Management Area because of its checkerboard land pattern.

There are no solar energy zones within the existing or proposed B-20 area (Bureau of Land Management & Department of Energy, 2012). The BLM has designated two land areas west of B-20 as a solar variance area, which refers to an area that can be used for utility-scale (greater than 20 megawatt) solar development outside of solar zone (Bureau of Land Management, 2014d). These two areas are outside of the proposed B-20 expansion area (see Figure 3.2-6).

Table 3.2-3 summarizes the one non-Navy utility and land use access ROW within the B-20 proposed expansion area.

Table 3.2-3: Rights of Way Located Within the Proposed Bravo-20

Holder	Facility Type	Status
Alta Rock Energy	Geothermal Geophysical Exploration	Authorized

Dixie Valley Training Area

The DVTA is located north and south of U.S. Route 50, east of Fallon, Nevada. The DVTA is entirely within Churchill County; however, the DVTA proposed expansion area under Alternatives 1 and 2 extends into the northern portion of Mineral County. The DVTA comprises Navy fee owned and withdrawn land. The

BLM manages the majority of the land within the existing and proposed DVTA area; however, this area also includes Navy-managed land (i.e., the DVTA) as well as a few non-federal parcels (Figure 3.2-7).

Churchill County has zoned the majority of the DVTA and the surrounding areas as RR-20 Rural Resource District (Figure 3.2-3). Several non-contiguous parcels in the northern portion of the DVTA are zoned for Agriculture (A-10) (Churchill County, 2012). Churchill County does not have a buffer around the DVTA.

The DVTA is open to the public. U.S. Route 50 is south of the DVTA. State Route 121 is the main access road to the DVTA, which is a public road that intersects U.S. Route 50 and runs north to south through Dixie Valley (Figure 3.2-7). State Route 121 also connects to Dixie Valley Road. The DVTA is also accessible by Frenchman Flat Road.

The DVTA and the proposed expansion areas include the Clan Alpine and the South Stillwater Herd Management Areas (Figure 3.2-7). In the early 2000s, the majority of the Clan Alpine herd was removed to allow vegetation communities to reestablish after recent fires. The herds have since rebounded. BLM estimated the number of horses within the herd management area at 995 in April 2017 (Sievers, 2017)(Sievers, 2017). The South Stillwater Herd Management Area has limited accessibility. The BLM is proposing to re-designate this herd management area as a herd area, meaning that the area would no longer be managed for those horses (Bureau of Land Management, 2014d).

There are no wilderness areas or WSAs within the existing DVTA. The Clan Alpine Mountains, Job Peak, and Stillwater Range WSAs are adjacent to the existing DVTA. The Clan Alpine Mountains WSA is BLM land located east of the DVTA. The WSA does not include non-federal inholdings. The BLM considers the WSA highly scenic with broad vistas. The Sierra Nevada Mountains may be visible from the Clan Alpine Crest. The Clan Alpine Mountains WSA possesses scenic canyons, ridges, riparian areas, mountains, and other geologic formations and structures. This includes features like Deep Canyon, which is renowned for its rock hoodoos and spires, as well as Mount Augusta (Bureau of Land Management, n.d.-b).

The BLM currently recommends approximately 68,458 acres of the Clan Alpine Mountains WSA as suitable for wilderness because of its extreme ruggedness, lack of major intrusions, and absence of non-federal inholdings or known mineral reserves. The BLM does not find the northern half of the WSA and the area around the periphery of the WSA suitable for wilderness because of the moderate-to-low wilderness values, mineral and woodland product resource values, and manageability problems (e.g., control of OHV use); this area is largely outside the DVTA area. According to the BLM, Churchill County voiced a general opposition to any wilderness designations within the county and cited the mineral potential of the area and impacts on solitude from low flying aircraft from NAS Fallon as reasons not to designate the Clan Alpine Mountains WSA as wilderness (Bureau of Land Management, n.d.-b).

The Job Peak WSA is located west of the DVTA. The Job Peak WSA includes Fox Peak, which is the highest peak in the Stillwater Range. The Job Peak WSA is BLM land and there are no inholdings of non-federal land. The Job Peak WSA's most interesting features are its canyons, which include the Coyote and Little Box Canyons. However, the BLM considers the scenic quality of these canyons as good to excellent. The BLM has determined that the Job Peak WSA does not contain wilderness characteristics. Churchill County also voiced a general opposition to designating this WSA as wilderness, citing mineral potential, lack of wilderness, and the impacts on solitude from Navy operations. The Governor of Nevada has also concurred with the BLM's recommendation to not designate the Job Peak WSA as wilderness (Bureau of Land Management, n.d.-a).

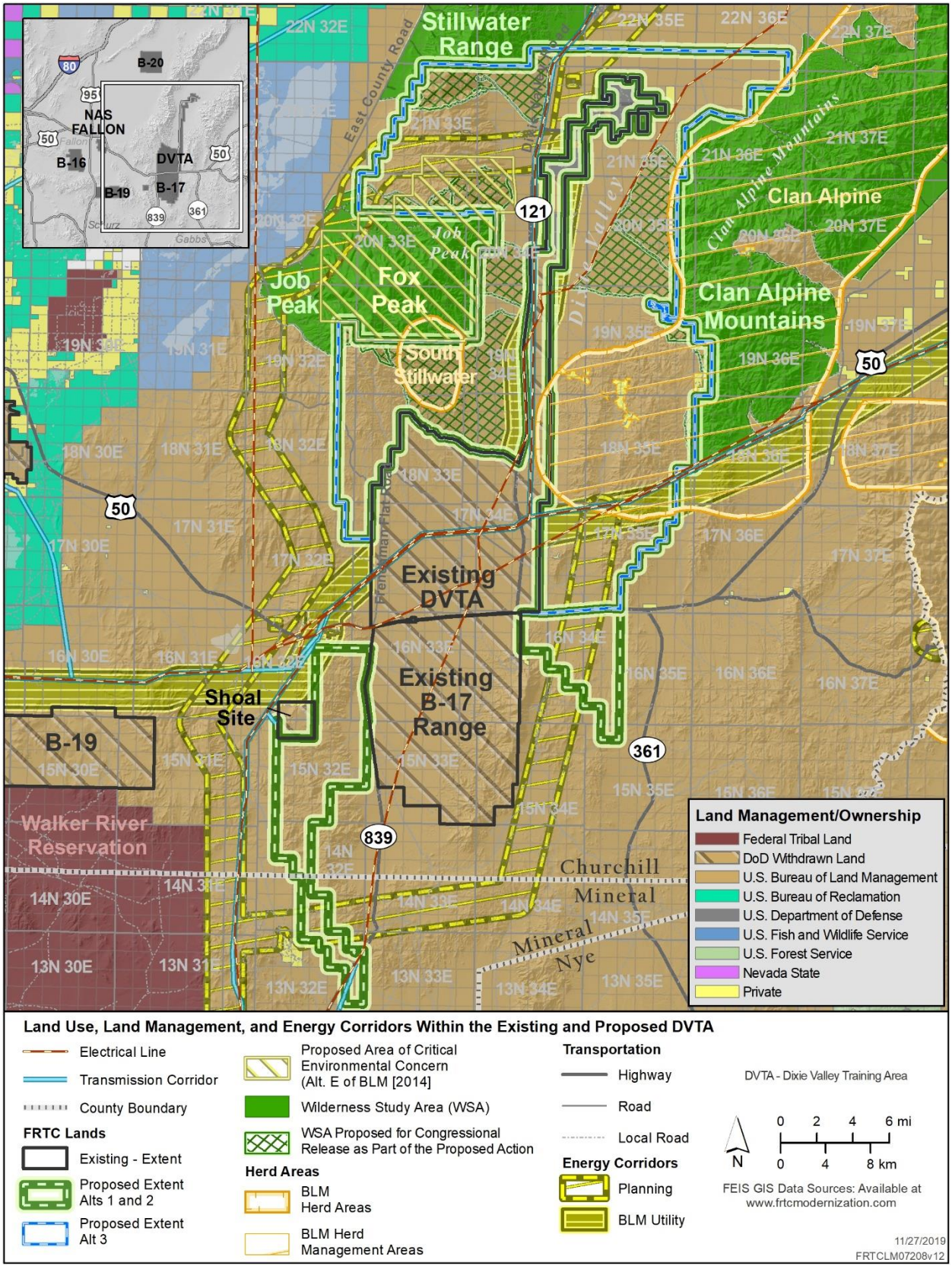


Figure 3.2-7: Land Use, Land Management, and Energy Corridors Within the Existing and Proposed DVTA

Although there are no lands with wilderness characteristics within the DVTA, a recent inventory of BLM land identified four units with wilderness characteristics. They include the Stillwater Range Subunit, Mountain Well, Diamond Canyon, and Job Peak (subunit B and G). All of these units are in the Stillwater Range west of the existing DVTA and outside of the proposed expansion area (Bureau of Land Management, 2014c).

There are no existing ACECs within the existing and proposed DVTA area. The BLM is currently proposing to designate the area around Fox Peak and its surrounding areas as the Fox Peak Cultural ACEC because of its cultural relevance (Figure 3.2-7) (Bureau of Land Management, 2014a). The Fallon Paiute-Shoshone Tribe initially proposed an ACEC for the majority of the Stillwater Range; however, the BLM has determined that only the area around Fox Peak meets the qualifications for an ACEC (Bureau of Land Management, 2014d). Portions of the BLM's proposed Fox Peak ACEC are currently exposed to aircraft noise of approximately 65 A-weighted decibels Day Night Level (U.S. Department of the Navy, 2015).

Utility transmission lines (greater than 55 kilovolt) run parallel to portions of State Route 121 and traverse the lower portion of the DVTA (Figure 3.2-7). One powerline originates from the Dixie Valley Geothermal Plant. The BLM also has a planning corridor southeast of the DVTA and north and west of the DVTA (Figure 3.2-7).

There are no solar energy zones in the existing and proposed DVTA area (Bureau of Land Management & Department of Energy, 2012). Energy corridors surround the existing DVTA and overlap with the proposed DVTA expansion area (Figure 3.2-7).

Table 3.2-4 summarizes the 36 non-Navy utility and land use access ROWs within the DVTA proposed expansion area.

Table 3.2-4: Rights of Way Located Within the Proposed Dixie Valley Training Area

Holder	Facility Type	Status
Kennecott Rawhide Mining Company	FLPMA	Authorized
Churchill County	Recreation and Public Purposes	Authorized
U.S. Department of Energy	WDL-NRC	Authorized
University of NV Reno	Geothermal Geophysical Exploration	Authorized
Private	Desert Land Act	Authorized
Sierra Pacific Power Co.	Telephone and Telegraph, FLPMA	Authorized
NV Division of State Lands	Communication Site, FLPMA	Authorized
NV Bell/AT&T	Telephone and Telegraph, FLPMA	Pending
Rawhide Mining LLC	Surface Mining	Authorized
GLOBEX	Surface Mining	Pending
Pilot Gold (USA) Inc.	Surface Mining	Pending
TGC Holdings LTD	Surface Management Mining	Authorized
Private	Mineral Management	Authorized
American Innovative Minerals LLC	Surface Management Mining	Authorized
American Innovative Minerals LLC	Surface Management Mining	Authorized
Sierra Pacific Power Co.	Power Facilities	Authorized
Piscus	Water Plants	Authorized
Sierra Pacific Power Co.	Power Transmission Line	Authorized

Table 3.2-4: Rights of Way Located Within the Proposed Dixie Valley Training Area (continued)

Holder	Facility Type	Status
Sierra Pacific Power Co.	Power Transmission Line	Authorized
Terra-Gen Dixie Valley LLC	Power Transmission, FLPMA	Authorized
University of NV Reno	FLPMA	Authorized
University of NV Reno	FLPMA	Authorized
Bell Mountain Exploration Corp.	Water Facility	Authorized
Kennecott Rawhide Mining Company	Road to Rawhide Mine	Authorized
CC Communications	Communication Site, FLPMA	Authorized
AT&T	Telephone and Telegraph, FLPMA	Authorized
Plate Boundary Observatory, Unavco Inc.	FLPMA	Authorized
Private	Power Transmission, FLPMA	Authorized
Churchill County	FLPMA	Authorized
Sierra Pacific Power Co.	Power Transmission Line	Authorized
Arizona Nevada Tower Corp.	Communication Site, FLPMA	Pending
Bulletproof Tactical LLC	Permits	Authorized
Sierra Pacific Power Co.	Communication Site, FLPMA	Authorized
CC Communications	Communication site, FLPMA	Authorized
Commnet of Nevada, LLC	Power Transmission, FLPMA	Pending
U.S. Department of Energy	Water Facility	Pending

Notes: FLPMA = Federal Land Policy Management Act, NV = Nevada, ROW = Rights of Way, U.S. = United States, NRC = Nuclear Regulatory Commission, WDL = Liquid Waste Disposal System

3.2.2.4 Special Use Airspace

FRTC SUA overlies approximately 10.4 million acres of land, including large portions of Churchill, Lander, and Eureka Counties as well as portions of Pershing, Nye, Mineral, Lyon, Elko, and Washoe Counties (see Figure 3.2-2). Metropolitan areas under this airspace include the city of Fallon and the communities of Austin, Crescent Valley, Gabbs, and urbanized areas in western Diamond Valley among others. FRTC SUA also overlaps portions of the reservations of the following federally recognized Indian Tribes: Walker River Paiute, Fallon Paiute-Shoshone, Pyramid Lake Paiute, and Yomba Shoshone. Approximately 94 percent of the lands beneath the FRTC SUA are federally managed lands, including BLM land, Bureau of Reclamation land, USFWS refuges (e.g., Stillwater Wildlife Refuge Complex), and USFS land (e.g., the Humboldt-Toiyabe National Forest). The Humboldt-Toiyabe National Forest includes 23 wilderness areas. Within FRTC SUA, this includes portions of the Arc Dome Wilderness Area (120,556 acres), which is Nevada's largest Wilderness Area; the Alta Toquima Wilderness Area (35,860 acres), which includes Mount Jefferson, the tallest peak in Nevada; and the Table Mountain Wilderness Area (92,485 acres). Several WSAs are beneath the FRTC SUA: Stillwater Range WSA, Augusta Mountains WSA, Roberts Mountains WSA, Simpson Park WSA, Clan Alpine Mountains WSA, Desatoya Mountains WSA, Job Peak WSA, Gabbs Valley Range WSA, and the Antelope Range WSA.

3.2.3 Environmental Consequences

The location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. Factors affecting a proposed action in terms of land use include its compatibility with on-site and adjacent land uses; restrictions on public access to land; or change in an

existing land use that is valued by the community and important to customs, culture, and economy as described in respective Master Plan and policy documents. While a discussion regarding consistency with state or local plans is required, an inconsistency by itself does not automatically result in a significant impact (Federal Aviation Administration, 2015).

It is important to note that maps depicting proposed property withdrawal and acquisition boundaries in this Draft EIS show the maximum extent; if any portion of a Weapons Danger Zone (WDZ) or Surface Danger Zone, or non-live fire training area passes through a known property parcel, the entire parcel is shown for potential withdrawal and acquisition and is included in acreage calculations. However, in the event any action alternative is chosen for implementation, the Navy would strive to minimize the actual withdrawal and acquisition acreage requirement by taking into consideration terrain features and individual parcel characteristics.

Given the complexity of land use resources in the region of influence, Mining and Mineral Resources (Section 3.3), Livestock Grazing (Section 3.4), Recreation (Section 3.12), Airspace (Section 3.6), and rights-of-way as they relate to transportation (Section 3.5) are addressed in more detail in separate sections.

The following provides an analysis of environmental effects of the No Action Alternative and Alternatives 1, 2, and 3 against the environmental baseline as described in Section 2.4 (Environmental Baseline [Current Training Activities]). A summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (Section 3.2.3.6, Summary of Effects and Conclusions).

3.2.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. All training activities within the FRTC that require aviation, or occur on a ground range and use ordnance would likely cease following the expiration of the land withdrawal in November 2021. Some range activities that only require MOAs, which are independent of the land withdrawal (e.g., non-firing air combat maneuvers, search and rescue, close air support), could still be performed. The Navy would have to reevaluate the mission of NAS Fallon if this alternative were implemented.

Under the No Action Alternative, approximately 202,864 acres of land that has been withdrawn for military use would not be renewed when the withdrawal expires on November 5, 2021. Upon the expiration of this withdrawal, the Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to the BLM for reincorporation into the public domain. The Navy would work with stakeholders to prioritize and address any environmental remediation needed on these lands, in anticipation of relinquishment to the BLM or other potential disposal options.

Prior to transfer or disposal, bombing ranges would be identified for post-range planning and clean up. Those areas where live, high-explosive ammunitions were used may be contaminated to the point where certain land activities would not be possible (i.e., primarily at existing high explosive target areas), in which case such areas could be closed indefinitely from public use. Assuming other areas could be rendered safe, these areas could potentially be converted to similar uses as the surrounding areas, which are predominantly rural and agricultural land. As such, release of the FRTC lands to another DoD agency, the BLM, or others would likely open lands to public use or mineral resource development. It is anticipated that implementation of the No Action Alternative would increase resource-dependent uses,

such as mining, livestock grazing, and recreation. The No Action Alternative could also provide additional land for utilities and renewable resource development (solar, wind, or geothermal). Future third-party activities and development would likely have to be analyzed for consistency with state or local land use plans when proposed. The No Action Alternative could also lead to the removal of Churchill County land use restrictions around FRTC land areas. For example, this could include reducing or removing Churchill County's 3- and 5-mile buffer zones around existing Bravo ranges. In addition, implementation of the No Action Alternative could lead to BLM needing to revise its proposed DoD Coordination Area, which proposes limits to mineral development around the DVTA. Therefore, there could be long-term beneficial impacts on land use with implementation of the No Action Alternative.

3.2.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would obtain a renewal of its current federal land withdrawal (202,864 acres) and an increase in land available for military use through the withdrawal of additional federal land and acquisition of State of Nevada and other non-federal lands. As a result, the FRTC would encompass a total of approximately 916,168 acres for military use (Table 2-1). The Navy would also expand associated SUA and reconfigure existing airspace to conform to the expanded bombing ranges.

3.2.3.2.1 Bravo-16

Land Withdrawal and Acquisition

Alternative 1 would expand B-16 to approximately 59,560 acres, an increase of approximately 32,201 acres of land for military use (Table 2-1). Figure 3.2-4 shows the land uses, land management, and energy corridors that exist within the B-16 proposed and existing withdrawal areas. The Navy and Churchill County would update the inter-local agreement between NAS Fallon and Churchill County to establish a Churchill County-defined 3-mile-wide buffer around the proposed B-16 expansion area to prevent encroachment and encourage compatible land use. The expansion of the Churchill County-defined 3-mile-wide buffer would not change the management of the land because the land within the new 3-mile-wide buffer is all federal land, which is not subjected to county land use restrictions (as discuss in Section 3.2.1.2, Regulatory Framework).

B-16 would expand to include a larger portion of Churchill County as well as a portion of eastern Lyon County. The proposed expansion of B-16 would withdraw approximately 32,201 acres of federal land (i.e., BLM) that is zoned RR-20; withdrawn land would remain zoned as RR-20. It would not require the acquisition of any non-federal land. Withdrawn land would be removed from BLM management and would no longer be managed for the purpose of multiple use by the public. The Navy would manage the withdrawn land to support military uses. The expansion of B-16 would result in military uses occurring closer to private land and Lahontan State Park. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of B-16, because land outside of the proposed B-16 expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. Following a decision by Congress, counties and federal agencies affected by the land withdrawal may need to update and revise their respective land use planning documents.

There are no wilderness areas, WSAs, lands with wilderness characteristics, or ACECs within the proposed boundary of B-16. There are also no wild horses or burros herd areas or herd management areas within the proposed B-16 withdrawal, and no wild horses or burros are known to occur within this area. The Horse Mountain Herd Area is located south of B-16, but all of the wild horses were removed from this area in 2000. BLM would be notified if any wild horses are discovered within B-16, and these horses would be removed in accordance with the Wild Free-Roaming Horses and Burros Act.

BLM has designated utility corridors within the proposed B-16 expansion areas. In addition, the West-wide Energy Corridor (17-48) overlaps the proposed western boundary of B-16. Alternative 1 would not allow utilities within B-16 (Table 2-2). The BLM would assess whether these corridors would need to be relocated around B-16 following implementation of this alternative. Relocating these corridors could restrict land uses on adjacent lands; however, this area is largely undeveloped federal land.

Training Activities

All training activities would be conducted within the proposed boundary of B-16. The public may observe and hear aircraft, munitions, and support vehicles during training activities from adjacent areas. However, these activities are currently occurring within B-16 and Alternative 1 would not increase the frequency of these activities. The Navy previously determined that training activities at B-16 are compatible with the surrounding land use (U.S. Department of the Navy, 2015).

The Immediate Action Drill Ground Maneuver Area Surface Danger Zone/WDZ would be fully contained within the B-16 expansion area (see Figure 2-2) and B-16 would be closed from public use. There are no residential, commercial, or industrial facilities within the zone. The West-wide Energy Corridor, a BLM utility corridor, and transmission corridor (containing less than 55 kilovolt powerlines) are within the B-16 expansion area. The utility corridors within the B-16 expansion area are for planning purposes and do not currently contain any utility infrastructure. The transmission corridor with less than 55 kilovolt powerlines would remain in place. Under Alternative 1, no further development of these corridors would occur within the B-16 range. The BLM would need to assess their designated utility planning corridor for possible relocation. The West-wide Energy Corridor partially overlaps the proposed B-16 expansion area; however, the overlap would not preclude future utility development within the corridor outside the proposed B-16 expansion area.

Public Accessibility

The B-16 range would be fenced closed and restricted from public use. Navy-authorized activities (e.g., ceremonial site visits; research/academic pursuits; flood management; or regulatory or management activities by organizations such as BLM, Bureau of Reclamation, local government, or NDOW) would be allowed access in coordination with the Navy. Under Alternative 1, the three non-Navy ROWs presented in Table 3.2-1 would be acquired by the Navy and closed, and thus would no longer be available for use by the current ROW holder. Alternative 1 includes installing approximately 31 miles of BLM-approved four-strand fencing around the proposed closed area of B-16, which would be installed to prevent the public from accessing the proposed closed areas of B-16. The fence would include warning signs that would further deter the public from entering the range.

Alternative 1 would close approximately 3,781 acres of existing Navy withdrawn land north of Sand Canyon Road as well as approximately 32,201 acres of existing BLM land west of the existing B-16 range for public safety.

Construction

Under Alternative 1, construction at B-16 would include one vehicle, target, and equipment maintenance building. The Navy would install BLM-approved perimeter fencing around the withdrawn lands with access gates. Existing fencing around B-16 would be removed. Section 2.3.5.3 (Construction) details these construction activities. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made.

3.2.3.2.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 1 would expand B-17 to approximately 232,799 acres, an increase of approximately 178,013 acres of land for military use (Table 2-1). Figure 3.2-5 shows the land uses, land management, and energy corridors that exist within the B-17 proposed and existing withdrawal areas. The Navy and Churchill County would update the inter-local agreement between NAS Fallon and Churchill County to establish a 3-mile-wide buffer around the proposed B-17 expansion area to prevent encroachment and encourage compatible land use.

The expansion of the 3-mile-wide buffer within Churchill County would change how non-federal land within the buffer area is managed. Non-federal land within the buffer area would be required to comply with the Churchill County defined "NAS Fallon Buffer Zone" permitted uses, at the discretion of Churchill County, with the Planning Commission and Board of County Commission concurrence (Section 3.2.2.1.1, Churchill County). The management of federal land within the buffer would not change as it is not subjected to county land use restrictions (as discussed in Section 3.2.1.2, Regulatory Framework).

B-17 would expand to include a larger portion of Churchill County as well as portions of Mineral County and Nye County. The proposed expansion of B-17 would include withdrawing 176,977 acres of federal land (i.e., BLM) and acquiring 1,036 acres of non-federal land (Table 2-1). These non-federal parcels have historically been used for livestock grazing, mining, and recreation. Withdrawn land would be removed from BLM management and would no longer be managed for the purpose of multiple uses by the public. The Navy would manage the withdrawn land to support military uses. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of B-17, because land outside of the proposed B-17 expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. Following a decision by Congress, counties and federal agencies affected by the land withdrawal may need to update and revise their respective land use planning documents.

There are no wilderness areas, WSAs, lands with wilderness characteristics, or ACECs within the proposed boundary of B-17. No wild horses or burros herd areas or herd management areas are within this area, and no wild horses or burros are known to occur within or adjacent to this area. However, the Pilot Mountain Herd Area and Herd Management Area is located south of the proposed B-17 range. The BLM would be notified if any wild horses are discovered within B-17, and these horses would be removed in accordance with the Wild Free-Roaming Horses and Burros Act.

The Paiute Pipeline is located within the proposed B-17 boundary. The BLM also has a utility planning corridor within the eastern and southern portions of the proposed B-17 boundary. Alternative 1 would not allow utilities within B-17 (Table 2-2), because Navy policy does not allow public use of any kind to occur on land within active WDZs for safety reasons. Relocating these corridors could restrict land uses on adjacent lands; however, the surrounding area is largely undeveloped federal land.

Training Activities

All training activities would be conducted within the proposed boundary of B-17, and the public would not have access to B-17 during training activities. The public may observe and hear aircraft, munitions, and support vehicles during training activities from adjacent areas. However, these activities are currently occurring with B-17, and Alternative 1 would not increase the frequency of these activities.

The Navy previously determined that training activities at B-17 are compatible with the surrounding land use (U.S. Department of the Navy, 2015).

The WDZ would be fully contained within the B-17 expansion area (see Figure 2-3) and would be closed from public use. There are no residential, commercial, or industrial facilities within the B-17 expansion area. A portion of State Highway 839 is located in the proposed training area of B-17 and would not be compatible with training activities; therefore, it would need to be relocated under Alternative 1. Section 3.5 (Transportation) of this Final EIS discusses potential impacts associated with the relocation of 24 miles of State Route 839. Communication tower operators would still be able to access Fairview Peak with Navy permission when B-17 is not active and with Navy permission. An existing BLM planning utility corridor is located within the B-17 expansion area. Under Alternative 1, development of these corridors would not occur within the B-17 range.

Public Accessibility

Under Alternative 1, the entire B-17 range would be closed and restricted from public use except for Navy-authorized activities (e.g., ceremonial site visits; research/academic pursuits; flood management; or regulatory or management activities by organizations such as BLM, Bureau of Reclamation, local government, or NDOW). Under Alternative 1, 20 of the non-Navy ROWs presented in Table 3.2-2 would be acquired by the Navy and closed, and thus would no longer be available for use by the current ROW holder. B-17 would be fenced and closed for public safety. The proposed B-17 expansion would accommodate a larger WDZ than current conditions (see Figure 2-3). Navy policy prohibits anyone from being within a WDZ when a range is in active use. In addition, no member of the public is allowed in a non-operational WDZ without prior clearance/coordination. Posted warning signs would further deter the public from entering B-17.

Under Alternative 1, the Navy is proposing to reroute approximately 24 miles of State Route 839, closing public access to land areas accessed from the roadway segment. The Navy uses State Route 839 to access a portion of B-17. Recreationalists, hunters, and the public also use State Route 839 to access interests south and southwest of the proposed expansion area. The proposed rerouting of a portion of State Route 839 would eliminate the ability of the public to access and use land for recreational or hunting activities south and southwest of the road closure. The proposed rerouting of State Route 839 would reduce or eliminate points of access to locations south and southwest of the proposed expansion area, which may no longer be accessible, depending on the reroute path selected. Individuals accessing the Rawhide Mine and Don A. Campbell Geothermal Facility (Ormat Nevada Inc.) (Figure 3.2-5) would also be affected by the proposed reroute of State Route 839 because access to the sites would change; however, the rerouting of State Route 839 would not prevent the continued use of either the Rawhide Mine or Don A. Campbell Geothermal Facility (Ormat Nevada Inc.). The Navy would not utilize any portion of the expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public. Section 3.5 (Transportation) of this Final EIS further discusses the potential impacts associated with the closure of 24 miles of State Route 839.

Construction

Under Alternative 1, construction at B-17 would include constructing an administrative building, communication towers, and electronic warfare sites, as well as installing 75 miles of BLM-approved perimeter fence around withdrawn lands, including an access gate. Existing fencing around B-17 would be removed. Section 2.3.5.3 (Construction) details these construction activities. Construction of facilities associated with the range would have no impact on adjacent land uses. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made.

Road and Infrastructure Improvements to Support Alternative 1

State Route 839

Alternative 1 includes the potential relocation of State Route 839. State Route 839 has an average count of 40 vehicles per day as of 2015. The Navy is the primary user of State Route 839. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the NDOT, would be responsible for planning, designing, permitting and constructing any realignment of State Route 839. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public.

Paiute Pipeline

Alternative 1 includes the potential relocation of a segment of the Paiute Pipeline outside the B-17 WDZ. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

3.2.3.2.3 Bravo-20

Land Withdrawal and Acquisition

Alternative 1 would expand B-20 to approximately 221,334 acres, an increase of approximately 180,329 acres of land for military use (Table 2-1). Figure 3.2-6 shows the land uses, land management, and energy corridors that exist within the B-20 existing and proposed withdrawal areas. The Navy and Churchill County would update the inter-local agreement between NAS Fallon and Churchill County to establish a Churchill County-defined 5-mile-wide buffer around B-20 expansion area to prevent encroachment and encourage compatible land use. The expansion of the Churchill County-defined 5-mile-wide buffer within Churchill County would change the management of non-federal land within

the new 5-mile-wide buffer area. Non-federal land within the buffer area would be required to comply with the NAS Fallon Buffer Zone permitted uses (Section 3.2.2.1.1, Churchill County). The management of federal land within the buffer would not change as it is not subjected to county land use restrictions (as discussed in Section 3.2.1.2, Regulatory Framework).

B-20 would expand to include a larger portion of Churchill County as well as a portion of Pershing County. This alternative includes the withdrawal of federal land (118,564 acres) and the acquisition of non-federal land (61,765 acres) within the proposed boundaries of B-20. These non-federal parcels have historically been used for livestock grazing, conservation, and mining. Withdrawn land would be removed from BLM management and would no longer be managed for the purpose of multiple use by the public. The Navy would manage the withdrawn land to support military use. The acquisition of private land in the B-20 range expansion area would change the land use management in this immediate area, as the land would increase the total percentage of federal land in Churchill County. The zoning of the land would remain zoned RR-20 as defined by Churchill County. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of B-20, because land outside of the proposed B-20 expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. Following a decision by Congress, counties and federal agencies affected by the land withdrawal may need to update and revise their respective land use planning documents.

Private landowners would receive just compensation for loss of any privately owned land acquired by the United States due to the proposed expansion of B-20. Just compensation would be determined by calculating the fair market value of parcels in accordance with federal appraisal rules codified in the Uniform Appraisal Standards for Federal Land Acquisitions.

The B-20 boundary would expand south to the northern perimeter of the Stillwater National Wildlife Refuge, and it would include 3,200 acres of the Fallon National Wildlife Refuge (18 percent) as well as adjoining Churchill County Conservation Easement land (1,920 acres). The expanded B-20 boundary overlaying the Stillwater National Wildlife Refuge and Churchill County Conservation Easement land would support the expanded WDZ associated with training activities contained in the existing B-20 boundary.

The Navy proposes to enter into an agreement (Memorandum of Understanding [MOU]) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge. In addition, the USFWS would need to undertake any public planning required in order to revise the Stillwater National Wildlife Refuge Complex Comprehensive Conservation Plan and associated compatibility determinations, consistent with the National Wildlife Refuge System Administrative Act, as amended (16 United States Code 668dd–668ee). The County Easement land (1,920 acres) would be acquired and managed by the Navy in accordance with the Sikes Act.

There are no wilderness areas, lands with wilderness characteristics, or ACECs within the proposed boundary of B-20. The Stillwater WSA and Humboldt Herd Area overlaps portions of B-20. BLM would be notified if any wild horses were discovered within B-20 prior to construction, and these horses would be removed in accordance with the Wild Free-Roaming Horses and Burros Act.

The proposed B-20 expansion would extend into an existing energy corridor within the southeastern portion of B-20 (Figure 3.2-6). However, Alternative 1 would not allow any future improvement or development of the energy corridor within B-20 (Table 2-2).

Training Activities

All training activities would be conducted within the proposed boundary of B-20, and the public would not have access to B-20 during training activities. The public may observe and hear aircraft, munitions, and support vehicles during training activities from adjacent areas. However, these activities are currently occurring within B-20, and Alternative 1 would not increase the frequency of these activities.

The WDZ would be fully contained within the B-20 expansion area (see Figure 2-4) and would be closed from public use. There are no residential, commercial, or industrial facilities within the expansion area. Parts of the Fallon National Wildlife Refuge are within the WDZ. According to land use compatibility guidelines, recreational uses would be incompatible with training activities that would occur on the range; thus, the area would be fenced and recreation activities would not be allowed within the area of the Fallon National Wildlife Refuge incorporated into the B-20 range footprint.

Public Accessibility

Under Alternative 1, the majority of B-20 would be closed and restricted from public use except for Navy-authorized activities such as ceremonial site visits, or regulatory or management activities (e.g., BLM, NDOW, or USFWS activities). Under Alternative 1, the one non-Navy ROW presented in Table 3.2-3 would be acquired by the Navy and closed, and thus would no longer be available for use by the current ROW holder. The closed areas of B-20 would be fenced and closed for public safety. Navy policy prohibits anyone from being within a WDZ when a range is in active use. In addition, no member of the public is allowed in a non-operational WDZ without prior clearance/coordination. Posted warning signs would further deter the public from entering B-20.

Implementing Alternative 1 would prevent the public from accessing the northeast portion of the Fallon National Wildlife Refuge, which would be fenced off for purposes of public safety. The public would no longer be able to access approximately 3,200 acres of refuge land and 1,920 acres of adjacent Churchill County Conservation Easements. The Navy proposes to enter into an agreement (MOU) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge. As such, Alternative 1 would have a direct, long-term impact on land use within the Fallon National Wildlife Refuge.

East County Road overlaps portions of the proposed eastern boundary of B-20. The public uses East County Road to access the Stillwater National Wildlife Refuge and the Stillwater Range. Under Alternative 1, East County Road and the area east of East County Road would remain open. The road would not be gated, and B-20's perimeter fence would be along the western perimeter of East County Road. Therefore, the proposed withdrawal would not affect the public's ability to access the Stillwater National Wildlife Refuge or the western slope of the Stillwater Mountains from East County Road.

Construction

Under Alternative 1, construction at B-20 would include a target maintenance building and installing approximately 90 miles of perimeter fencing and gates. Construction would be intermittent, temporary, and phased to minimize impacts on the public. BLM-approved four-wire perimeter fencing installation would include the land area between the expanded B-20 range and the Stillwater National Wildlife Refuge and Fallon National Wildlife Refuge. Construction methods would avoid bulldozer clearing or other major soil-disturbing methods. Any area requiring clearance for fence installation would use the most practicable and unobtrusive methods to minimize soil and vegetation disturbance. Therefore, construction would not be anticipated to have a long-term effect on any land use adjoining B-20. Any

proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made.

3.2.3.2.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Alternative 1 would expand the DVTA to approximately 370,903 acres, an increase of approximately 302,094 acres of land for military use (Table 2-1). Figure 3.2-7 shows the land uses, land management, and energy corridors that exist within the existing and proposed DVTA withdrawal areas.

The DVTA would expand north, east, and west to include a larger portion of Churchill County and a portion of Mineral County. The proposed expansion of the DVTA would include withdrawal of 290,985 acres of federal land (i.e., BLM) and the acquisition of 2,358 acres of non-federal land (Table 2-1). These non-federal parcels have historically been used for livestock grazing, mining, and recreation. Withdrawn land would remain under BLM management. As noted in Section 2.3.5.2 (Public Accessibility), allowable public uses of the lands would not change from current conditions, including hunting, camping, hiking, fishing, OHV use, site visits, and grazing. Current utilities and associated ROWs would be allowed to remain; however, there would be limited public access (Table 2-2). Details associated with public access are discussed in Sections 3.3 (Mining and Mineral Resources), 3.5 (Transportation), and 3.9 (Water Resources). Geothermal development, mining, new or expanded utility corridors or new utilities, or other renewable energy (solar/wind projects) would not be allowed under Alternative 1. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of the DVTA, because land outside of the proposed DVTA expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. Following a decision by Congress, counties and federal agencies affected by the land withdrawal may need to update and revise their respective land use planning documents.

Private landowners would receive just compensation for loss of any privately owned land acquired by the United States due to the proposed DVTA expansion. Just compensation would be determined by calculating the fair market value of parcels in accordance with federal appraisal rules codified in the Uniform Appraisal Standards for Federal Land Acquisitions.

There are no wilderness areas within the proposed DVTA. Under Alternative 1, portions of the following WSAs would be included in Congressional withdrawal legislation, removing the WSA designation: Stillwater Range WSA (approximately 10,951 acres; 12 percent of the WSA), Jobs Peak WSA (approximately 41,680 acres; 47 percent of the WSA), and Clan Alpine Mountains WSA (approximately 22,324 acres; 11 percent of the WSA) (Figure 3.2-8). The de-designation of portions of the WSAs would not reduce a disproportionate share of relevant wilderness characteristics in such a way that it would eliminate the potential for these areas to be designated as wilderness in the future. Management of the remaining WSAs (outside the proposed expansion lands) would continue according to policy and regulations related to the WSAs. The BLM has stated ongoing Navy operations in the SUA over these WSAs diminish solitude opportunities and could adversely impact wilderness designation. Similarly, although the South Stillwater and Clan Alpine Herd Area/Herd Management Areas overlap the DVTA, there would be no change to the current land use or land management of these areas.

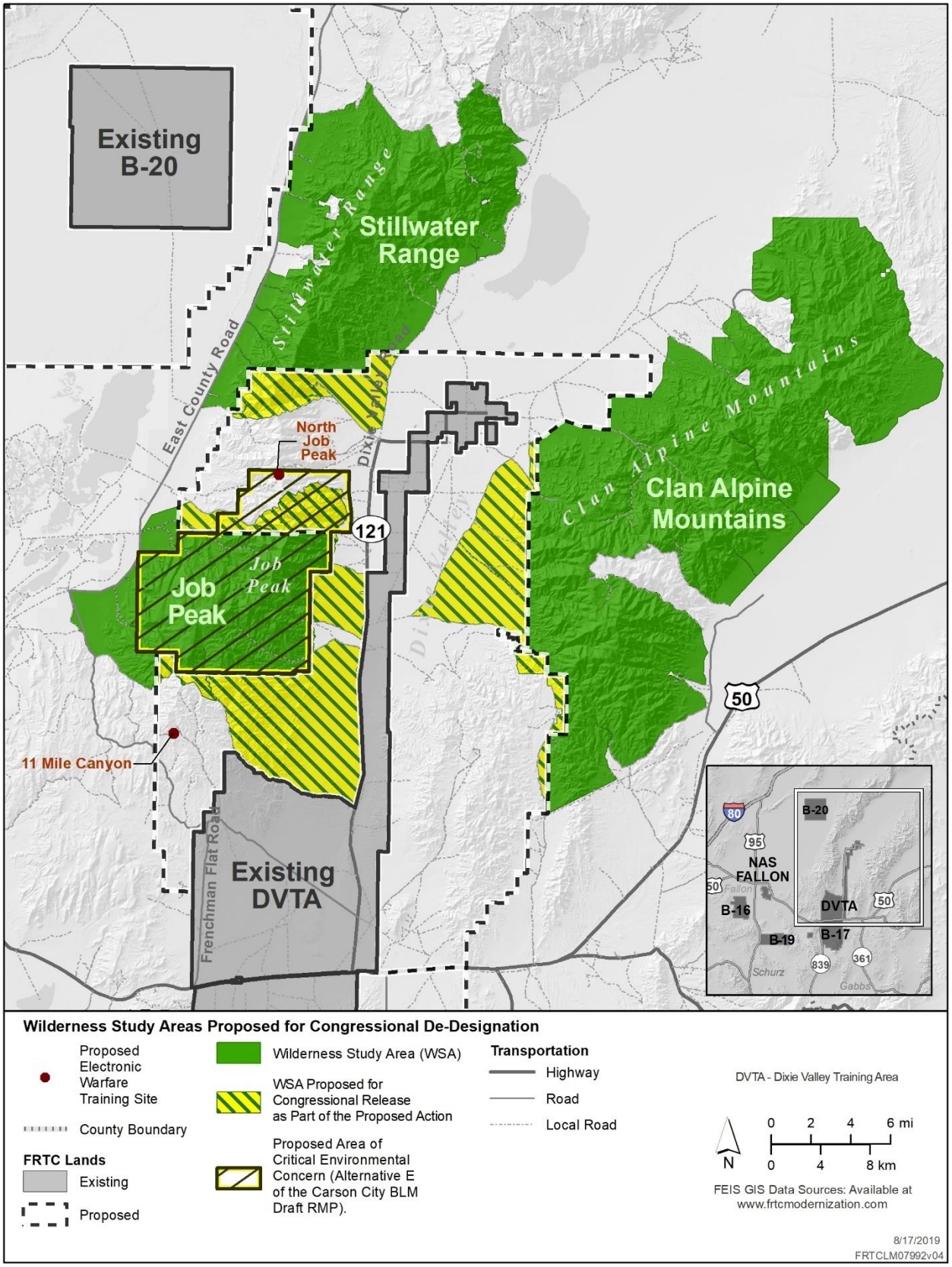


Figure 3.2-8: Wilderness Study Areas Proposed for Congressional De-Designation

The proposed DVTA expansion would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC (24 percent); therefore, the BLM would need to change the boundaries of the proposed Fox Peak ACEC DVTA. The changes in management practices in the DVTA expansion area are preliminarily assumed to consist of authorizing previously prohibited activities, including ground disturbance, vehicle use, and a few site-specific construction activities. These activities would be determined following the completion of the land withdrawal process. A revised Integrated Natural Resources Management Plan would be developed, considering new management objectives based on Congress's decision. The establishment of new management objectives would be in cooperation with partner agencies such as USFWS, BLM, and NDOW.

Alternative 1 would not change the management or designated land use within the revised ACEC boundary. The construction of the proposed Job Peak Electronic Warfare Site would be north of the proposed Fox Peak ACEC.

There are transmission corridors as well as BLM planning and utility corridors within the boundary of the DVTA. Alternative 1 would not affect the current configuration of utilities within the proposed DVTA boundary. However, it would limit the ability to improve existing and proposed transmission lines within the DVTA.

Training Activities

Military training activities on the DVTA would continue to occur, and the area would remain open to the public. Therefore, the military training activities would continue to be compatible with the various public activities as they are today.

Public Accessibility

The DVTA would be open to the public under this alternative, including acquired and withdrawn lands. As noted in Section 2.3.5.2 (Public Accessibility), allowable public uses of the lands would not change from current conditions, including hunting, camping, hiking, fishing, OHV use, site visits, and grazing. Current utilities and associated ROWs would be allowed to remain; however, there would be limited public access (Table 2-2). Details associated with public access are discussed in Sections 3.3 (Mining and Mineral Resources), 3.5 (Transportation), and 3.9 (Water Resources). Geothermal development, mining, new or expanded utility corridors or new utilities, or other renewable energy (solar/wind projects) would not be allowed under Alternative 1. In the event that Congress should approve the proposed land withdrawal, the Navy would determine which ROWs presented in Table 3.2-4 would be compatible with the expanded range and any ROWs that would be acquired by the Navy. The public would not be allowed to access the three proposed electronic warfare sites, and fencing would be installed around these sites (up to 15 acres total). Expanding the DVTA would not affect the current management or accessibility of any public road within the proposed DVTA boundary.

Construction

Under Alternative 1, construction at the DVTA would include three electronic warfare sites and installing fiber optic cable to those sites. Construction within the DVTA would also be intermittent, temporary, and phased to minimize impacts on the public. Therefore, construction would not be anticipated to have a long-term effect on any land use adjoining the DVTA.

3.2.3.2.5 Fallon Range Training Complex Special Use Airspace

The following analysis addresses lands underlying airspace associated with Alternative 1. The Navy proposes to expand SUA and reconfigure existing airspace to address current training constraints (see

Table 2-4). The Navy has been performing aircraft maneuvers in this region for more than 70 years. Alternative 1 would not increase military operations within the region. Overflights would not increase within the existing and proposed airspace; however, in some areas, aircraft could operate at lower altitudes than currently allowed in specified areas (see Table 2-4). Some of the airspace would remain unchanged. The Navy would continue to retain a 5-nautical-mile buffer around the city of Fallon. This buffer prohibits flying below 3,000 feet over much of the eastern portion of R-4803 that is zoned for agriculture (A-10).

Changes in the SUA (as detailed in Table 2-4) are associated with the expansion of B-16, B-17, B-20, and the DVTA. Changes in the SUA beyond the land included in the B-16, B-17, B-20, and DVTA expansion areas would not change ownership, use, management, or recreational opportunities. The Stillwater National Refuge, Fallon National Wildlife Refuge, Humboldt-Toiyabe National Forest, and community of Crescent Valley would be exposed to aircraft overflights; however, they are currently exposed to aircraft activities and associated noise without precipitating changes in management, ownership, or use.

The number of Navy aircraft activities throughout the SUA would not increase from what was proposed in 2015. Changes in airspace would not result in low-altitude overflights, specifically in areas underlying the Diamond, Ruby, and ZIRCON MOAs (refer to Figure 2-7). Visual inspections of aerial maps of the areas where the Day Night Level is above 65 A-weighted decibels reveal no sensitive receptors (e.g., residences, lodging, or medical facilities) or inconsistency with current land use. However, because of the extension of these MOAs in the eastern portion of the FRTC SUA, the Navy would establish a 5-nautical-mile and 3,000-feet-above-ground-level (AGL) buffer around the towns of Crescent Valley and Eureka. Therefore, Alternative 1 would not result in significant impacts on land use or land use patterns underneath the SUA. Additional discussion regarding impacts associated with the SUA are discussed in Section 3.6 (Airspace).

3.2.3.2.6 Summary of Effects and Conclusions

Alternative 1 would expand B-16, B-17, B-20, and the DVTA within Churchill County and into Lyon, Mineral, Nye, and Pershing Counties. The majority of the land that would be withdrawn or acquired is open, undeveloped federal land with some non-federal parcels (see Table 2-1). Implementing this alternative would change the management of land within the range expansion areas. Withdrawn land would be removed from BLM and USFWS management. and would no longer be managed for the purpose of multiple uses. The Navy would manage the withdrawn land to support military uses; however, it would remain open to the public for certain uses and management activities. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of B-16, B-17, B-20, and the DVTA, because land outside of the proposed expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. The acquisition of private land in the B-20 range expansion area would change the land use management in this immediate area, as the land would increase the total percentage of federal land in Churchill County. Land use ownership and management of land that is within the SUA would not change. Table 3.2-5 summarizes the federal land within each county under Alternative 1.

Table 3.2-5: Proposed Increase in Federal Land by County Under Alternative 1

County	*Existing Percentage of Federal Land by County*	*Alternative 1 Proposed Increase in Federal Land by County*
Churchill	84.0%	1.7%
Elko*	73.9%	0%
Eureka*	78.9%	0%
Lander*	84.7%	0%
Lyon	72.2%	Less than 1%
Mineral	94.4%	Less than 1%
Nye	97.7%	Less than 1%
Pershing	75.7%	Less than 1%
Washoe*	78.8%	0%

Under Alternative 1, Congressional withdrawal legislation would remove the WSA designation from portions of the Clan Alpine Mountains (approximately 22,324 acres [11 percent]), Job Peak (approximately 41,680 acres [47 percent]), and Stillwater Range (approximately 10,951 acres [12 percent]) WSAs. The de-designation of portions of the WSAs would not reduce a disproportionate share of relevant wilderness characteristics in such a way as to eliminate the potential for these areas to be designated as wilderness in the future. Alternative 1 would also close public access to approximately 3,200 acres of the Fallon National Wildlife Refuge (approximately 18 percent) and 1,920 acres of adjacent Churchill County Conservation Easements. The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC and require BLM to revise the boundaries of the ACEC.

Alternative 1 would be inconsistent with applicable land use plans, policies, and controls, including plans and policies for federally managed land. Following the withdrawal and revision of boundaries, BLM, USFWS, and Churchill, Mineral, Nye, and Pershing Counties would need to revise and amend their respective land use planning documents (BLM Resource Management Plan and USFWS Stillwater National Wildlife Refuge Complex Comprehensive Conservation Plan, and County Master Plans).

Alternative 1 would not allow low-altitude overflights of three designated wilderness areas and several communities. Low-level flights are discouraged under Chapter 2320 of the Forest Service Manual, except in emergencies or for essential military missions (U.S. Department of Agriculture, 2006). Due to the extension of the MOAs in the eastern portion of the FRTC SUA, the Navy would establish a 5-nautical-mile and 3,000-feet-AGL buffer around the towns of Crescent Valley and Eureka.

Under Alternative 1, the BLM utility corridor and a portion of the West-wide Energy Corridor would be incompatible with Navy policy. However, the West-wide Energy Corridor would remain, and the portion of the corridor outside of the B-16 expansion area would be available for future utility development. BLM would need to assess the relocation of the utility corridor.

Therefore, for the reasons set forth above, under Alternative 1, land use impacts within the region of influence would be considered less than significant. This EIS includes an analysis of the changes to the uses that occur on federal land. This analysis is located in the following sections: Section 3.3 (Mining and Mineral Resources), Section 3.4 (Livestock Grazing), Section 3.5 (Transportation), and Section 3.12 (Recreation).

3.2.3.3 Alternative 2: Managed Access

Alternative 2 is similar to Alternative 1. Under Alternative 2, the FRTC would have the same land and airspace configuration and would conduct the same training activities as that of Alternative 1. Compared to Alternative 1, Alternative 2 would allow the bighorn sheep hunting program in B-17, special events (races) in all of the Bravo ranges, and geothermal development where compatible west of State Route 121 in the DVTA, with Navy-proposed design features, and managed under the Geothermal Steam Act of 1970.

As with Alternative 1, Alternative 2 would expand B-16, B-17, B-20, and the DVTA within Churchill County and into Lyon, Mineral, Nye, and Pershing Counties. The majority of the land that would be withdrawn or acquired is open, undeveloped federal land with some non-federal parcels. Withdrawn land, with the exception of the DVTA, would be removed from BLM, Bureau of Reclamation, and USFWS management and would no longer be managed for the purpose of multiple uses. The Navy would manage the withdrawn land to support military uses; however, DVTA would remain open to the public, and the Navy would allow approved uses with prior coordination on the Bravo ranges. Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. BLM would be provided management access in DVTA for domestic livestock grazing activities. The Navy proposes to enter into an agreement (MOU) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge. The MOU would allow USFWS continued management access of the Fallon National Wildlife Refuge within B-20 to facilitate consistency with the goals and objectives of the refuge. The Bureau of Reclamation would be allowed continued management access on withdrawn land for the purpose of flood management. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of B-16, B-17, B-20, and the DVTA, because land outside of the proposed expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. The acquisition of private land in the B-20 range expansion area would change the land use management in this immediate area, as the land would increase the total percentage of federal land in Churchill County (Table 3.2-6). The zoning of the land within B-20 would remain zoned RR-20 as defined by Churchill County. Land use ownership and management of land that is within the SUA would not change.

Table 3.2-6: Proposed Increase in Federal Land by County Under Alternative 2

County	*Existing Percentage of Federal Land by County*	*Alternative 2 Proposed Increase in Federal Land by County*
Churchill	84.0%	1.7%
Elko*	73.9%	0%
Eureka*	78.9%	0%
Lander*	84.7%	0%
Lyon	72.2%	Less than 1%
Mineral	94.4%	Less than 1%
Nye	97.7%	Less than 1%
Pershing	75.7%	Less than 1%
Washoe*	78.8%	0%

Private landowners would receive just compensation for loss of any privately owned land acquired by the United States due to the proposed expansion of the Bravo ranges and DVTA. Just compensation would be determined by calculating the fair market value of parcels in accordance with federal appraisal rules codified in the Uniform Appraisal Standards for Federal Land Acquisitions.

Under Alternative 2, Congressional withdrawal legislation would remove the WSA designation from portions of the Clan Alpine Mountains (approximately 22,324 acres [11 percent]), Job Peak (approximately 41,680 acres [47 percent]), and Stillwater Range (approximately 10,951 acres [12 percent]) WSAs. The de-designation of portions of the WSAs would not reduce a disproportionate share of relevant wilderness characteristics in such a way as to eliminate the potential for these WSAs to be designated as wilderness in the future. Under Alternative 2, the Navy proposes to close public access to approximately 3,200 acres of the Fallon National Wildlife Refuge (approximately 18 percent) and 1,920 acres of adjacent Churchill County Conservation Easements. The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC.

Alternative 2 would be inconsistent with applicable land use plans, policies, and controls, including plans and policies for federally managed land. Following the withdrawal and revision of boundaries, BLM, USFWS, and Churchill, Mineral, Nye, and Pershing Counties would need to revise and amend their respective land use planning documents (BLM Resource Management Plan, USFWS Stillwater National Wildlife Refuge Complex Comprehensive Conservation Plan, and County Master Plans). Although the expansion of B-16 would overlap farmland of statewide importance, the Navy has determined that the proposed expansion would not irreversibly convert this land to non-agricultural use.

Alternative 2 would not allow low-altitude overflights of three designated wilderness areas and several communities. Due to the extension of the MOAs in the eastern portion of the FRTC SUA, the Navy would establish a 5-nautical-mile and 3,000-feet-AGL buffer around the towns of Crescent Valley and Eureka.

As with Alternative 1, under Alternative 2 the West-wide Energy Corridor, a BLM utility corridor, and transmission corridor (containing less than 55 kilovolt powerlines) are within the B-16 expansion area. The utility corridors within the B-16 expansion area are for planning purposes and do not currently contain any utility infrastructure. The transmission corridor with less than 55 kilovolt powerlines would remain in place. Under Alternative 2, no further development of these corridors would occur within the B-16 range. The BLM would need to assess their designated utility planning corridor for possible relocation. The West-wide Energy Corridor partially overlaps the proposed B-16 expansion area; however, the overlap would not preclude future utility development within the corridor outside the proposed B-16 expansion area.

Under Alternative 2, salable mining activities would be allowed within the DVTA and subject to conditions established in conjunction with BLM leasing procedures. Geothermal development west of State Route 121, would need to comply with Navy-proposed design features for geothermal development specified in Section 2.3.5.2.3 (Mining Activities).

Therefore, for the reasons set forth above, under Alternative 2, land use impacts within the region of influence would be considered less than significant. This EIS includes an analysis of the changes to the uses that occur on federal land. This analysis is located in the following sections: Section 3.3 (Mining and Mineral Resources), Section 3.4 (Livestock Grazing), Section 3.5 (Transportation), and Section 3.12 (Recreation).

3.2.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Under Alternative 3, the Navy would renew its current federal land withdrawal at the FRTC. The Navy would also withdraw and acquire additional land to be reserved for military use. Alternative 3 would close public access to 421,005 acres for expanding the Bravo ranges but would allow approved uses with prior coordination, when the ranges are not in operation.

Under Alternative 3, the land requested for withdrawal for the DVTA north of U.S. Route 50 would remain the same as in Alternative 1. Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as the DVTA. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. The Navy would implement the same managed access program as Alternative 2. Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Section 3.2.3.4.4 (Dixie Valley Training Area) presents additional detail of the Special Land Management Overlay below.

3.2.3.4.1 Bravo-16

Under Alternative 3, proposed land expansion, training activities, and construction for B-16 would be similar as that described for Alternatives 1 and 2. However, Alternative 3 does not include the proposed withdrawal of land south of Simpson Road; thus, the land expansion would be approximately 31,875 acres (a decrease in approximately 326 acres when compared to Alternatives 1 and 2). Additionally, currently withdrawn lands south of Simpson Road would be relinquished by the Navy back to the BLM or Bureau of Reclamation. Alternative 3 would use the same managed access program as Alternative 2. Therefore, expanding B-16 under Alternative 3 would have the same impacts on land use as identified under Alternative 2. Visits requiring access to the B-16 range would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Figure 3.2-9 shows the land uses, land management, and energy corridors that exist within the B-16 existing and proposed withdrawal areas.

3.2.3.4.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 3 would expand B-17 to approximately 265,588 acres, an increase from approximately 54,786 acres of land for military use (Table 2-7).

As with Alternatives 1 and 2, B-17 would expand to include a larger portion of Churchill County as well as portions of Mineral County and Nye County (Figure 3.2-10).

Compared to Alternatives 1 and 2, B-17 would overlap a larger portion of Nye County and less of Churchill and Mineral Counties. The proposed expansion of B-17 would include withdrawing approximately 209,564 acres of federal land (i.e., BLM) and acquiring 2,452 acres of non-federal land (Table 2-7). These non-federal parcels have historically been used for livestock grazing, mining, and recreation.

Withdrawn land would be removed from BLM management and would no longer be managed for the purpose of multiple uses by the public. The Navy would manage the withdrawn land to support military uses. The withdrawal of federal land under Alternative 3 would not otherwise change land use patterns in the vicinity of B-17, because land outside of the proposed B-17 expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. Following a decision by Congress, BLM may need to update and revise their respective land use planning documents.

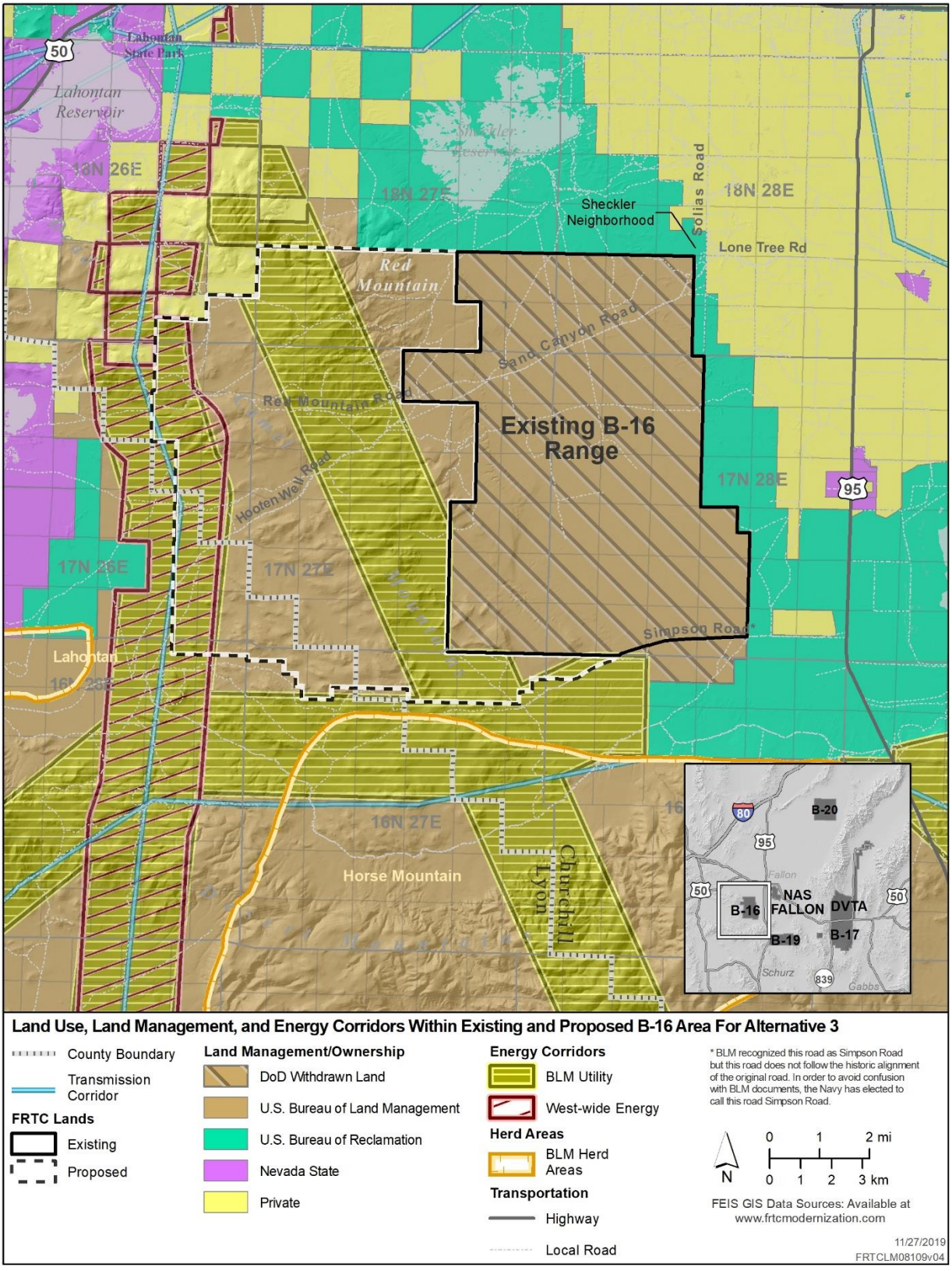


Figure 3.2-9: Land Use, Land Management, and Energy Corridors Within Existing and Proposed B-16 Area for Alternative 3

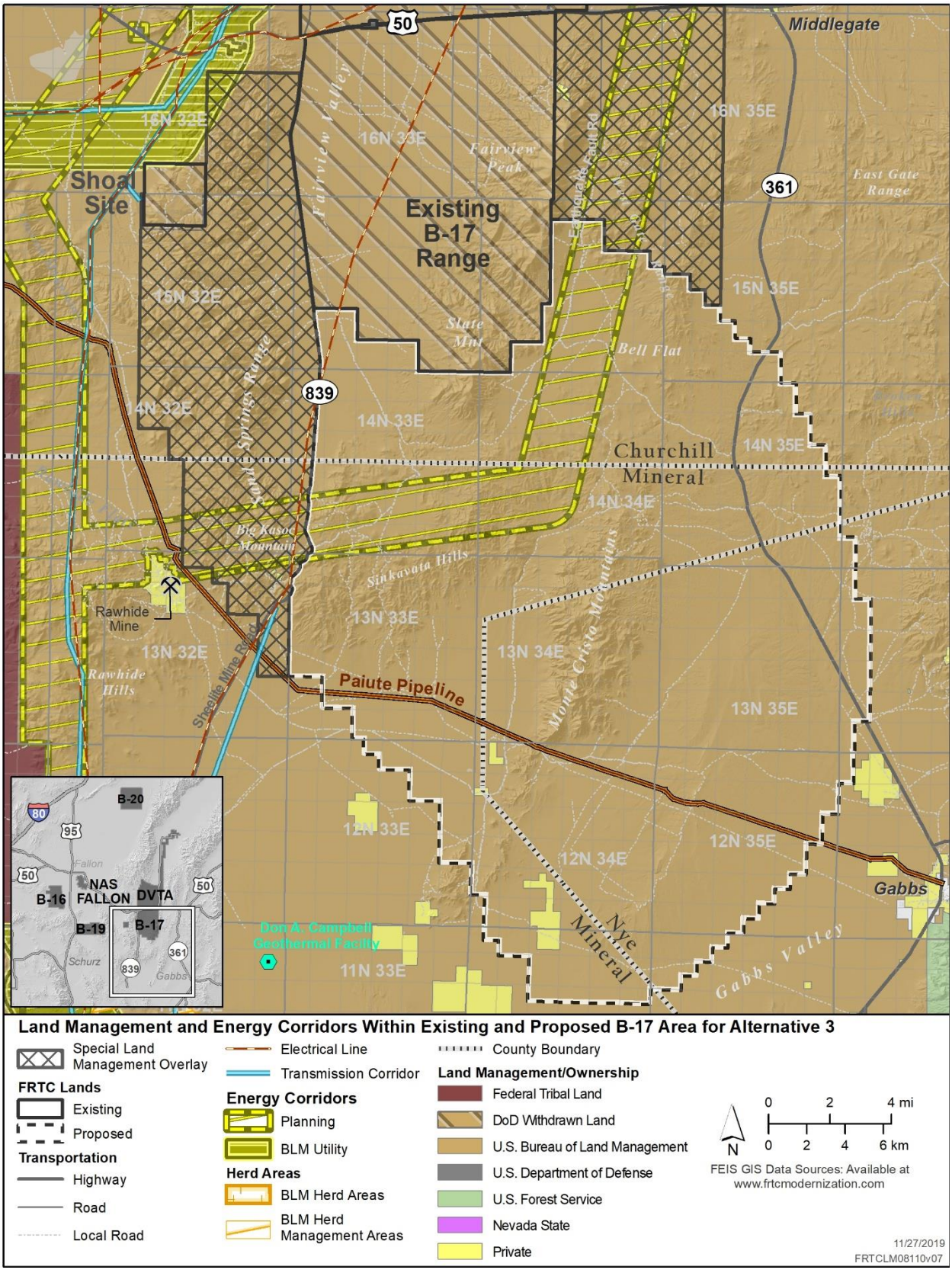


Figure 3.2-10: Land Management and Energy Corridors Within Existing and Proposed B-17 Area for Alternative 3

There are no wilderness areas, WSAs, lands with wilderness characteristics, or ACECs within the proposed boundary of B-17. There are also no wild horses or burros herd areas or herd management areas within this area, and no wild horses or burros are known to occur within or adjacent to this area. The BLM would be notified if any wild horses are discovered within B-17, and these horses would be removed in accordance with the Wild Free-Roaming Horses and Burros Act.

The Paiute Pipeline is located in the proposed B-17 boundary. The BLM also has an energy corridor within the eastern and southern portions of the proposed B-17 boundary. Alternative 3 would not allow utilities within B-17 (Table 2-6). The Navy would potentially relocate a segment of the Paiute Pipeline outside the B-17 WDZ. Follow-on, site-specific NEPA analysis of the anticipated impacts associated with any potential relocation of the pipeline would be conducted before any decision could be made concerning such potential relocation. The potential relocation analysis would include analyzing potential impacts on adjoining lands. Using funds provided by the Navy, the pipeline owner would have responsibility for planning, design, permitting, and constructing any realignment of the pipeline. The BLM would assess the relocation of the utility corridor around B-17 following implementation of this alternative. Relocating these corridors could restrict land uses on adjacent lands; however, the surrounding area is largely vacant federal land.

Training Activities

The training activities within B-17 would be the same as those described for Alternative 1. All training activities would be located within the proposed boundary of B-17 and the public would not have access to B-17 during training activities. The public may observe and hear aircraft, munitions, and support vehicles during training activities from adjacent areas. However, these activities are currently occurring within B-17, and Alternative 3 would not increase the frequency of these activities.

The WDZ would be fully contained within the B-17 expansion area (see Figure 2-3) and would be closed from public use. There are no residential, commercial, or industrial facilities within the WDZ. An existing BLM utility planning corridor is within the B-17 expansion area. Under this alternative, the BLM would not be able to develop utilities within this corridor and would need to reassess the location of the utility planning corridor.

Public Accessibility

Alternative 3 would allow certain restricted uses within specified areas of B-17, with prior coordination and when the ranges are not operational, similar to Alternative 2. The entire B-17 range would be closed and restricted from public use except for Navy-authorized activities such as ceremonial site visits, or regulatory or management activities, such as BLM or NDOW activities (e.g., hunting for bighorn sheep) (Table 2-6). Twelve of the non-Navy ROWs presented in Table 3.2-2 would be acquired by the Navy and closed, and thus would no longer be available for use by the current ROW holder. B-17 would be fenced and closed for public safety. B-17 would accommodate a larger WDZ than current conditions. Navy policy prohibits anyone from being within a WDZ when a range is actively being used. In addition, no member of the public is allowed in a non-operational WDZ without prior clearance/coordination. Posted warning signs would further discourage the public from entering B-17.

Unlike Alternative 1, Alternative 3 does not have the potential to close and relocate State Route 839. Instead, under Alternative 3 there is the potential for relocating approximately 12 miles of State Route 361 between the communities of Middlegate and Gabbs. The Navy would not utilize any portion of the B-17 expansion area (if implemented) that would overlap with the existing State Route 361 unless and until any relocated portion of the route has been completed and made available to the public. Section

3.5 (Transportation) discusses the potential impacts associated with potentially rerouting 12 miles of State Route 361. Relocating the portion of State Route 361 would allow continued public access to lands east of the proposed B-17 expansion area and continued connectivity between the communities of Middlegate and Gabbs. Alternative 3 would also close less of Earthquake Fault Road within B-17 than Alternatives 1 or 2. Recreationalists and the operators of the communication tower on Fairview Peak would be able to access Fairview Peak without asking for Navy permission or waiting until B-17 is not active under this alternative.

Construction

Under Alternative 3, construction activities would be the same as described for Alternative 1. The Navy would construct communication towers and electronic warfare sites, as well as improving approximately 12 miles of road, installing approximately 18 miles of pipeline, and installing approximately 78 miles of perimeter fencing. Construction would be intermittent, temporary, and phased to minimize impacts on the public. Section 2.3.5.3 (Construction) details these activities. Therefore, the proposed relocation of this portion of construction would not be anticipated to have a long-term effect on any adjoining land. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made.

Road and Infrastructure Improvements to Support Alternative 3

State Route 361

Alternative 3 includes the potential relocation of 12 miles of State Route 361. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the NDOT, would be responsible for planning, design, permitting and constructing any realignment of State Route 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 361 unless and until any such new route has been completed and made available to the public.

Paiute Pipeline

Alternative 3 includes the potential relocation of a segment of the Paiute Pipeline outside the B-17 WDZ. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

3.2.3.4.3 Bravo-20

Under Alternative 3, proposed land expansion, training activities, and construction for B-20 would be similar to that described for Alternatives 1 and 2. However, Alternative 3 does not include the proposed withdrawal of land east of East County Road (Figure 3.2-11); thus, the land expansion would be approximately 218,119 acres (a decrease of approximately 3,215 acres when compared to Alternatives 1 and 2). Alternative 3 would use the same managed access program as Alternative 2. Visits requiring access to the B-20 range would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Therefore, expanding B-20 under Alternative 3 would have the same impacts on land use as expanding B-20 under Alternative 2.

3.2.3.4.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Under Alternative 3, the proposed expansion of the DVTA is less than Alternative 1 and 2. Figure 3.2-12 shows the land uses, land management, and energy corridors that exist within the DVTA existing and proposed withdrawal areas. The DVTA is proposed to expand to approximately 325,322 acres, an increase from approximately 77,560 acres (Table 2-7). Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as the DVTA. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy, and would not directly be used for land-based military training or managed by the Navy. The area does include an existing right-of-way for a current Navy communication site. Otherwise, these two areas would remain open to public access and would be available for all appropriative uses, including mining for locatable and leasable mineral resources. However, prior to issuing any decisions on projects, permits, leases, studies, and other land uses within the Special Land Management Overlay, BLM would be required to consult with NAS Fallon. This consultation would inform the Navy of proposed projects, permits, leases, studies, and other land uses and afford the Navy an opportunity to collaborate with BLM to preserve the training environment. Further, prior to issuing approval for installation or use of mobile or stationary equipment used to transmit and receive electromagnetic radio signals in the Special Land Management Overlay, BLM would be required to obtain permission from NAS Fallon for use of this equipment. This requirement to obtain Navy permission for the use of this equipment would afford the Navy an opportunity to ensure military and civilian use of the electromagnetic spectrum do not interfere with each other. The BLM and the Navy would also enter into a Memorandum of Understanding to administer the details of the consultation and approval process.

There are no wilderness areas within the proposed DVTA. Alternative 3 would de-designate the same WSAs as Alternatives 1 and 2 to avoid overlapping the DVTA: Stillwater Range WSA (approximately 10,951 acres; 12 percent of the WSA), Jobs Peak WSA (approximately 41,680 acres; 47 percent of the WSA), and Clan Alpine Mountains WSA (approximately 22,324 acres; 11 percent of the WSA).

The de-designation of portions of the WSAs would not reduce a disproportionate share of relevant wilderness characteristics in such a way as to eliminate the potential for these WSAs to be designated as wilderness in the future. The remaining WSAs (i.e., those portions outside the proposed DVTA boundary) would continue to be managed according to the policy and regulations related to the WSAs.

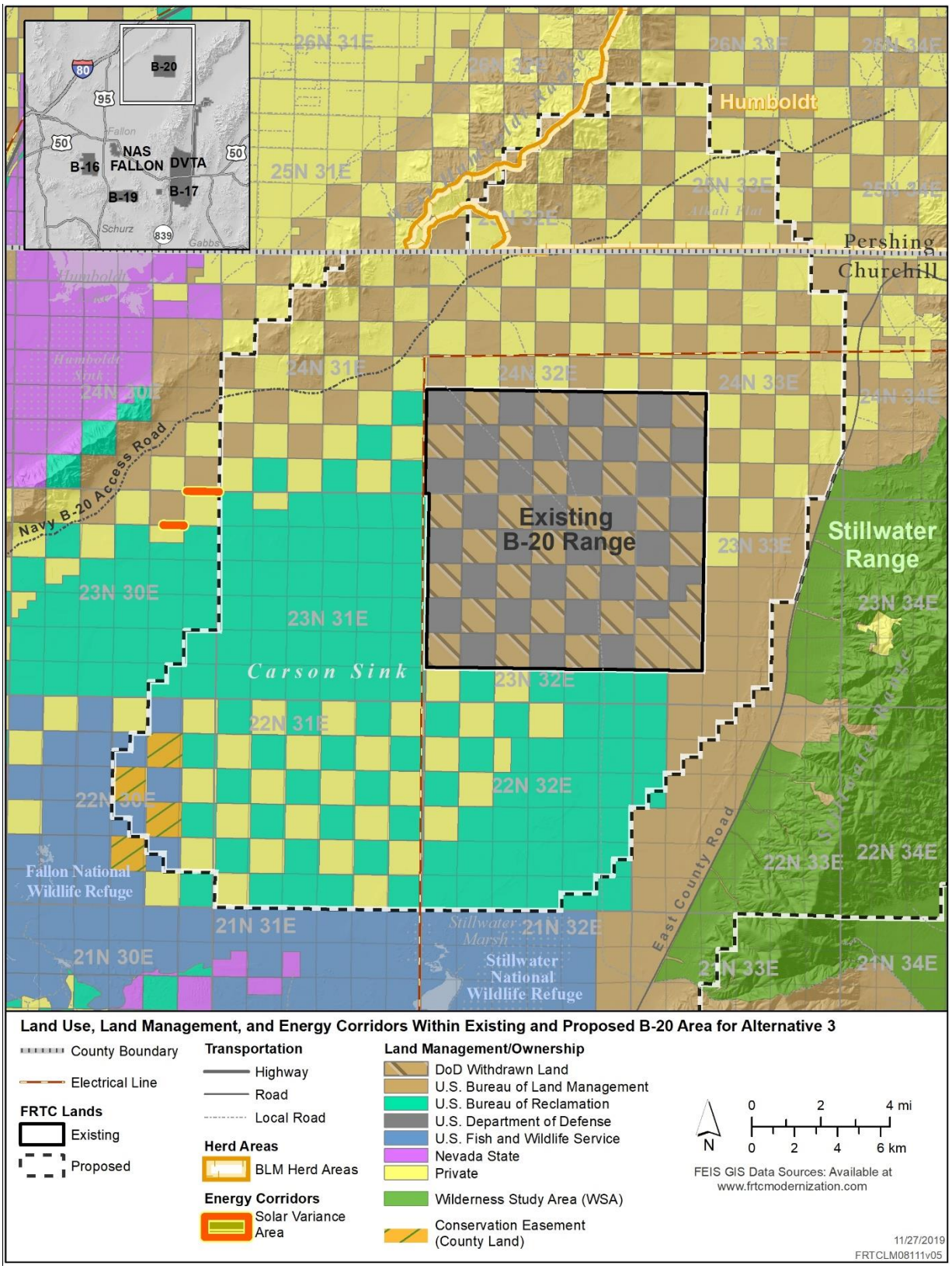


Figure 3.2-11: Land Use, Land Management and Energy Corridors Within Existing and Proposed B-20 Area for Alternative 3

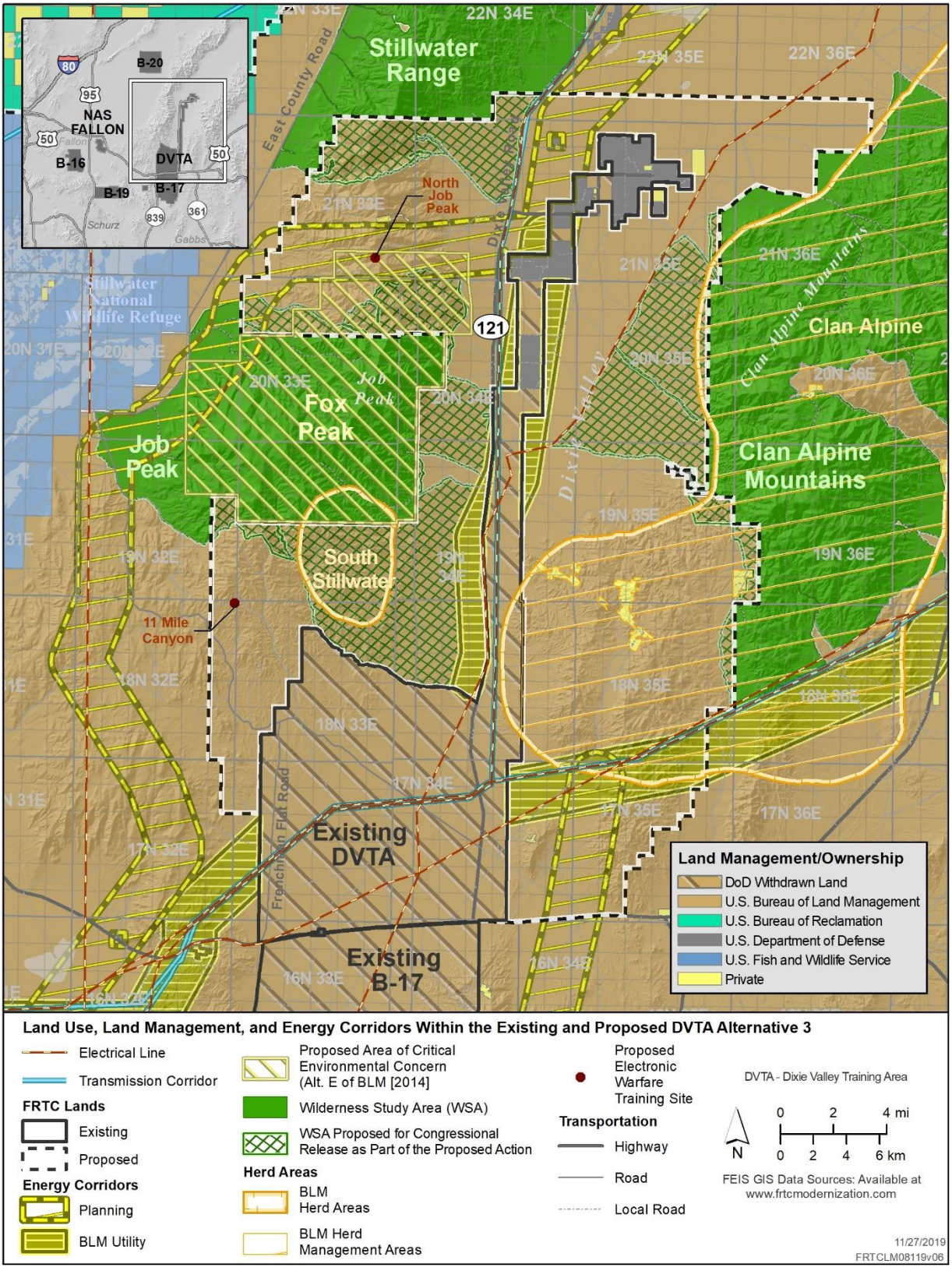


Figure 3.2-12: Land Use, Land Management, and Energy Corridors Within the Existing and Proposed DVTA Alternative 3

As with Alternatives 1 and 2, Congressional withdrawal legislation would remove the WSA designation from portions of the Clan Alpine Mountains (approximately 22,466 acres [11 percent]), Job Peak (approximately 41,684 acres [47 percent]), and Stillwater Range (approximately 10,954 acres [12 percent]) WSAs. The de-designation of portions of the WSAs would not reduce a disproportionate share of relevant wilderness characteristics in such a way as to eliminate the potential for these areas to be designated as wilderness in the future. The BLM would continue to manage the remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs. Similarly, although the South Stillwater and Clan Alpine Herd Area/Herd Management Areas overlap the DVTA, there would be no change to the current management of these areas. The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC (24 percent). The BLM would change the boundaries of the Fox Peak ACEC to remove those areas within the expanded DVTA.

There are existing transmission lines as well as BLM energy corridors within the boundary of the DVTA. Alternative 3 would not affect the current configuration of utilities within the proposed DVTA boundary. However, like Alternatives 1 and 2, Alternative 3 would limit the ability to improve existing and proposed transmission lines within the DVTA.

Training Activities

Under Alternative 3, training activities would be the same as that of Alternatives 1 and 2. Therefore, impacts would be the same as those described under Alternative 1.

Public Accessibility

The DVTA would be open to the public under this alternative, including acquired and withdrawn lands. Multiple uses would be allowed within the DVTA except for mining of locatable minerals and solar and wind development (Table 2-6). The BLM would continue to permit and manage domestic livestock grazing activities within the proposed DVTA range under Alternative 3. Utilities and associated ROWs would be allowed to remain; however, there would be limited public uses (Table 2-6). Details associated with public access are discussed in Sections 3.3 (Mining and Mineral Resources), 3.5 (Transportation), and 3.9 (Water Resources). Limited geothermal development would be allowed west of SR 121/Dixie Valley Road and managed under the Geothermal Steam Act of 1970. Following any Congressional decision potentially implementing the land withdrawal, the Navy would determine which ROWs presented in Table 3.2-4 would be compatible with the expanded range and the ROWs that would be acquired by the Navy. The three proposed electronic warfare sites (up to 15 acres total) would be fenced around the perimeter, and the public would not be allowed to access these areas. Land uses on the DVTA would continue to be managed by the BLM. Alternative 3 would change land use patterns within the DVTA because mining and geothermal development would no longer be allowed. Alternative 3 would not change public accessibility within the proposed DVTA boundary.

Construction

Expanding the DVTA under Alternative 3 would have the same construction impacts as that of Alternatives 1 and 2. Therefore, construction is not anticipated to have a long-term effect on any land use adjoining the DVTA.

3.2.3.4.5 Fallon Range Training Complex Special Use Airspace

The modification and reconfiguration of SUA under Alternative 3 would be similar to that described for Alternative 1. See Section 3.2.3.2.5 (Fallon Range Training Complex Special Use Airspace) for potential

impacts that could result from this modification and reconfiguration. The only difference from the other alternatives is the shift of R-4805 to cover the B-17 range.

3.2.3.4.6 Summary of Effects and Conclusions

Like Alternatives 1 and 2, Alternative 3 would expand B-16, B-17, B-20, and the DVTA within Churchill County and into Lyon, Mineral, Nye, and Pershing Counties. The majority of the land proposed to be withdrawn or acquired is open, undeveloped federal land with some non-federal parcels (see Table 2-7). The Navy worked with federal and state agencies, and local governments, between the Draft and Final EIS to further develop the approach to managed access. Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. The BLM and the Navy would also enter into a Memorandum of Understanding to administer the details of the consultation and approval process to support the managed access of the Special Land Management Overlay. Implementing this alternative would change the management of land within the range expansion areas. Withdrawn land, with the exception of the DVTA, would be removed from BLM, Bureau of Reclamation, and USFWS management and would no longer be managed for the purpose of multiple uses. The Navy would manage the withdrawn land to support military uses; however, it would remain open to the public for certain uses and management activities. BLM would be provided management access in DVTA for domestic livestock grazing activities, and the Navy proposes to enter into an agreement (MOU) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge. The Bureau of Reclamation would be allowed continued management access on withdrawn land for the purpose of flood management. The Navy would manage the withdrawn land to support military uses. The withdrawal of federal land would not otherwise change land use patterns in the vicinity of B-16, B-17, B-20, and the DVTA, because land outside of the proposed expansion area would continue to be managed in accordance with current applicable federal and non-federal management plans. The acquisition of private land in the B-20 range expansion area would change the land use management in this immediate area, as the land would increase the total percentage of federal land in Churchill County (Table 3.2-7). Land use ownership and management of land that is within the SUA would not change.

Table 3.2-7: Proposed Increase in Federal Land by County Under Alternative 3

County	*Existing Percentage Federal Land*	*Alternative 3 Percentage Increase in Federal Land*
Churchill	84.0%	1.7%
Elko	73.9%	0%
Eureka	78.9%	0%
Lander	84.7%	0%
Lyon	72.2%	Less than 1%
Mineral	94.4%	Less than 1%
Nye	97.7%	Less than 1%
Pershing	75.7%	Less than 1%
Washoe	78.8%	0%

Private landowners would receive just compensation for loss of any privately owned land acquired by the United States due to the proposed expansion of the Bravo ranges and DVTA. Just compensation would be determined by calculating the fair market value of parcels in accordance with federal appraisal rules codified in the Uniform Appraisal Standards for Federal Land Acquisitions.

Under Alternative 3, Congressional withdrawal legislation would remove the WSA designation from portions of the Clan Alpine Mountains (approximately 22,466 acres [11 percent]), Job Peak (approximately 41,684 acres [47 percent]), and Stillwater Range (approximately 10,954 acres [12 percent]) WSAs. The de-designation of portions of the WSAs would not reduce a disproportionate share of relevant wilderness characteristics in such a way as to eliminate the potential for these areas to be designated as wilderness in the future. Alternative 3 would also close public access to approximately 2,720 acres of the Fallon National Wildlife Refuge (approximately 18 percent) and 1,920 acres of adjacent Churchill County Conservation Easements. The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC and require BLM to revise the boundaries of the ACEC.

Alternative 3 would be inconsistent with applicable land use plans, policies, and controls, including plans and policies for federally managed land. Following the withdrawal and revision of boundaries, BLM, USFWS, and Churchill, Mineral, Nye, and Pershing Counties would need to revise and amend their respective land use planning documents (BLM Resource Management Plan, USFWS Stillwater National Wildlife Refuge Complex Comprehensive Conservation Plan, and County Master Plans).

Alternative 3 would not allow low-altitude overflights of three designated wilderness areas and several communities. Low-level flights are discouraged under Chapter 2320 of the Forest Service Manual, except in emergencies or for essential military missions (U.S. Department of Agriculture, 2006). Due to the extension of the MOAs in the eastern portion of the FRTC SUA, the Navy would propose to establish a 5-nautical-mile buffer around the towns of Crescent Valley and Eureka.

Under Alternative 3, the BLM utility corridor and a portion of the West-wide Energy Corridor would be incompatible with military operations under Navy policy. However, the West-wide Energy Corridor would remain, and the portion of the corridor outside of the B-16 expansion area would be available for future utility development. The BLM would need to assess the relocation of the utility corridor.

Therefore, for the reasons set forth above, under Alternative 3, land use impacts within the region of influence would be considered less than significant. This EIS includes an analysis of the changes to the uses that occur on federal land. This analysis is located in the following sections: Section 3.3 (Mining and Mineral Resources), Section 3.4 (Livestock Grazing), Section 3.5 (Transportation), and Section 3.12 (Recreation).

3.2.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.2.3.5.1 Proposed Management Practices

Policies and procedures, such as coordinating with other federal agencies or counties, would continue to be implemented to avoid or minimize land use conflicts. No additional management practices are warranted for land use based on the analysis presented in Section 3.2.3 (Environmental Consequences).

3.2.3.5.2 Proposed Monitoring

No monitoring measures would be warranted for land use based on the analysis presented in Section 3.2.3 (Environmental Consequences).

3.2.3.5.3 Proposed Mitigation

Mitigation measures would be warranted for land use. Based on the analysis presented in Section 3.2.3 (Environmental Consequences) and input from public comments, the Navy will incorporate the following mitigation measure to minimize impacts on Land Use:

- Due to the extension of the MOAs in the eastern portion of the FRTC SUA, the Navy proposes to implement the 5-nautical-mile and 3,000-feet-AGL buffer around the towns of Crescent Valley and Eureka.

3.2.3.6 Summary of Effects and Conclusions

Table 3.2-8 summarizes the effects of the alternatives on land use.

Table 3.2-8: Summary of Effects for Land Use

Summary of Effects and National Environmental Policy Act Determinations	
No Action Alternative	
Summary	• The Navy would retain administrative control of the land withdrawn under Public Law 106-65 until any required environmental remediation was completed and health and safety concerns were sufficiently addressed to allow the return of the land to the BLM for reincorporation into the public domain. • Additional land for utilities and renewable resource development (solar, wind, or geothermal) could be available. • Land use restrictions around FRTC land areas could be removed. • Long-term beneficial impacts on land use could occur with implementation of the No Action Alternative.
Impact Conclusion	The No Action Alternative could result in beneficial impacts on land use.

Table 3.2-8: Summary of Effects for Land Use (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 1	
Summary	• The open nature of the surrounding area would not change. • Congressional withdrawal legislation would de-designate portions of the Clan Alpine Mountains (approximately 11 percent), Job Peak (approximately 47 percent), and Stillwater Range (approximately 12 percent) WSAs. Land use and land management for portions of land remaining as designated WSAs would not change. • The B-20 boundary would expand to meet the perimeter of the Stillwater National Wildlife Refuge and include 3,200 acres of the Fallon National Wildlife Refuge as well as adjoining County Conservation Easements (1,920 acres). The Navy proposes to enter into an agreement (Memorandum of Understanding [MOU]) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge • The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC, and the BLM would change the boundaries of the ACEC; the 11,600 acres of withdrawn land would be managed by the Navy. Management of the remaining proposed Fox Peak ACEC would remain with BLM. • Withdrawn federal land would no longer be managed for the purpose of multiple public use. • The percentage of federal land within Churchill County would increase approximately 1.7 percent. Federal land would increase less than 1 percent in Mineral, Nye, Pershing and Washoe Counties. • Access to previously open land would be closed and restricted from public use except for Navy-authorized activities (e.g., ceremonial site visits; research/academic pursuits; or regulatory or management activities, by organizations such as BLM, Bureau of Reclamation, USFWS, local government, or NDOW). • There would be no conversion of prime or unique farmland or farmland of statewide importance. • Utility planning corridors within the range expansion areas would be incompatible with military operations under Navy policy.
Impact Conclusion	Alternative 1 would result in less than significant impacts on land use.

Table 3.2-8: Summary of Effects for Land Use (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 2	
Summary	• The open nature of the surrounding area would not change. • Congressional withdrawal legislation would remove WSA designation from the Clan Alpine Mountains (approximately 11 percent), Job Peak (approximately 47 percent), and Stillwater Range (approximately 12 percent) WSAs; however, land use and land management for portions of land remaining as designated WSAs would not change. • The B-20 boundary would expand to meet the perimeter of the Stillwater National Wildlife Refuge and include 3,200 acres of the Fallon National Wildlife Refuge as well as adjoining County Conservation Easements (1,920 acres). The Navy proposes to enter into an agreement (MOU) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge • The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC, and the BLM would change the boundaries of the ACEC; the 11,600 acres of withdrawn land would be managed by the Navy. Management of the remaining proposed Fox Peak ACEC would remain with BLM. • Withdrawn federal land would no longer be managed for the purpose of multiple public use. • The percentage of federal land within Churchill County would increase approximately 1.7 percent. Federal land would increase less than 1 percent in Mineral, Nye, Pershing and Washoe Counties. • Access to previously open land would be closed and restricted from public use except for Navy-authorized activities (e.g., ceremonial site visits; research/academic pursuits; or regulatory or management activities, by organizations such as BLM, Bureau of Reclamation, USFWS, local government, or NDOW). • Managed access to conduct bighorn sheep hunting program in B-17, special events (races) in all of the Bravo ranges, and geothermal development where compatible west of State Route 121 in the DVTA. • There would be no conversion of prime or unique farmland or farmland of statewide importance. • Utility planning corridors within the range expansion areas would be incompatible with military operations under Navy policy.
Impact Conclusion	Alternative 2 would result in less than significant impacts on land use.

Table 3.2-8: Summary of Effects for Land Use (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 3	
Summary	• The open nature of the surrounding area would not change. • Congressional withdrawal legislation would remove WSA designation from the Clan Alpine Mountains (approximately 11 percent), Job Peak (approximately 47 percent), and Stillwater Range (approximately 12 percent) WSAs; however, land use and land management for portions of land remaining as designated WSAs would not change. • The B-20 boundary would expand to meet the perimeter of the Stillwater National Wildlife Refuge and include 2,720 acres of the Fallon National Wildlife Refuge as well as adjoining County Conservation Easements (1,920 acres). The Navy proposes to enter into an agreement (MOU) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge • The DVTA would overlap 11,600 acres of the BLM's proposed Fox Peak ACEC, and the BLM would change the boundaries of the ACEC; the 11,600 acres of withdrawn land would be managed by the Navy. Management of the remaining proposed Fox Peak ACEC would remain with BLM. • The proposed creation of a Special Land Management Overlay would require BLM to coordinate with the Navy regarding the management of uses in this area to ensure military and civilian use of the electromagnetic spectrum does not interfere with their respective activities. • Withdrawn federal land would no longer be managed for the purpose of multiple public use. • The percentage of federal land within Churchill County would increase approximately 1.7 percent. Federal land would increase less than 1 percent in Mineral, Nye, Pershing and Washoe Counties. • Access to previously open land would be closed and restricted from public use except for Navy-authorized activities (e.g., ceremonial site visits; research/academic pursuits; or regulatory or management activities, by organizations such as BLM, Bureau of Reclamation, USFWS, local government, or NDOW activities). • There would be managed access to conduct bighorn sheep hunting program in B-17, special events (races) in all of the Bravo ranges, and geothermal development where compatible west of State Route 121 in the DVTA. • There would be no conversion of prime or unique farmland or farmland of statewide importance. • Utility planning corridors within the range expansion areas would be incompatible with military operations under Navy policy.
Impact Conclusion	Alternative 3 would result in less than significant impacts on land use.

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3.3 Mining and Mineral Resources

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.3 Mining and Mineral Resources

This discussion of mining and mineral resources summarizes existing conditions and analyzes impacts on planning, exploration, development, and production of mineral resources in the proposed Fallon Range Training Complex (FRTC) land boundaries (withdrawal areas). A mineral resource is defined as a concentration of naturally occurring solid, liquid, or gaseous materials in or on the Earth's crust in such form that economic extraction of a commodity is currently or potentially feasible (U.S. Geological Survey, 2001). The term "economic" implies that profitable extraction or production under defined investment assumptions has been established, analytically demonstrated, or assumed with reasonable certainty (U.S. Geological Survey, 2001). Further discussion has been provided in the Final Environmental Impact Statement (EIS) concerning the process by which the United States (U.S.) Department of the Navy (Navy) would make payments to holders of mining claims (Section 3.3.4.5, Proposed Management Practices, Monitoring, and Mitigation).

Locatable minerals: Includes metallic minerals (e.g., gold, copper, silver, molybdenum, tungsten, iron, and uranium) and industrial minerals (e.g., diatomaceous earth, fluorspar, gypsum, and barite) (General Mining Law of 1872).

Leasable minerals: Includes solid minerals (e.g., phosphate, coal, oil shale) and fluid minerals (e.g., oil, gas, and geothermal resources) (Mineral Leasing Act of 1920, Geothermal Steam Act of 1970).

Salable minerals: Minerals that are used mainly for construction materials and building roads (e.g., sand, stone, gravel, pumice, pumicite, cinders, and petrified wood) (Materials Act of 1947).

3.3.1 Methodology

The Navy performed a review of relevant mineral resource inventories and evaluations in and near the region of influence to address potential impacts on planning, exploration, development, and production of mineral resources. The mineral resource review was performed on the Study Area, the maximum area of land considered for withdrawal and acquisition (including lands proposed to be acquired from non-federal parties) under all alternatives, as defined in the Mineral Potential Report (see Supporting Study: Mineral Potential Report, available at https://www.frtcmodernization.com), which also documents the mineral resource review.

The Mineral Potential Report utilizes multiple lines of evidence (e.g., geology, geophysics, geochemistry, seismology, hydrogeology) derived from many different applicable scientific sources to assess impacts. The Mineral Potential Report was developed in accordance with requirements for land withdrawals as defined in Bureau of Land Management (BLM) Manuals 3031 (Bureau of Land Management, 1985) and 3060 (Bureau of Land Management, 1994). The BLM requirements also apply to lands under the jurisdiction of the United States Fish and Wildlife Service (USFWS).

Given the volume of geologic and mineral resource information that has been acquired in the region of influence since the mid-1800s, direct field work was not considered necessary for the analysis and was not performed. All historical information and literature was carefully reviewed to assess data quality and accuracy and to ensure the data/info used is appropriate. Unless otherwise noted, the primary underlying assumption in the analysis is that the data in previously published sources is valid and does not need to be repeated.

The Mineral Potential Classification System used in the Mineral Potential Report and carried forward in the EIS is as defined in BLM Manual 3031 (Bureau of Land Management, 1985), and as presented as a

schematic in Table 3.3-1. The Mineral Potential Classification System addresses the potential for the presence or occurrence of a mineral concentration, and the level of data available for consideration. The classification system does not require an estimate of the economic significance or the commercial viability of the concentration. It should be noted that the BLM uses the shortened term "mineral potential" to include both mineral and energy resource potential.

Table 3.3-1: Mineral Potential Classification System

Increasing Potential ----------> > >	**Increasing Certainty ----------> > >**					
	ND Unknown Potential	H/A High Potential	H/B High Potential	H/C High Potential	H/D High Potential	O/D No Potential[1]
		M/A Medium Potential	M/B Medium Potential	M/C Medium Potential	M/D Medium Potential	
		L/A Low Potential	L/B Low Potential	L/C Low Potential	L/D Low Potential	

[1]Not commonly used and only in special circumstances

Source: Based on BLM Manual 3031 (Bureau of Land Management, 1985), Illustration 3

3.3.1.1 Level of Potential

- O = No Potential: The geologic environment, the inferred geologic processes, and the lack of mineral occurrences do not indicate potential for accumulation of mineral or energy resources.
- L = Low potential: The geologic environment and inferred geologic processes indicate a low potential for accumulation of mineral resources.
- M = Moderate potential: The geologic environment, the inferred geologic processes, and the reported mineral or energy occurrences or valid geochemical/geophysical anomaly indicate moderate potential for the accumulation of mineral resources.
- H = High potential: The geologic environment, inferred geologic processes, the reported mineral or energy occurrences and/or valid geochemical/geophysical anomaly, and the known mines or deposits indicate high potential for the accumulation of mineral or energy resources.
- ND = Potential not determined: Mineral and energy resource potential not determined due to a lack of useful data. This notation does not require a level-of-certainty qualifier.

3.3.1.2 Level of Certainty

- A = The available data are insufficient and/or cannot be considered as direct or indirect evidence to support or refute the possible existence of mineral or energy resources within the respective area.
- B = The available data provide indirect evidence to support or refute the possible existence of mineral or energy resources.
- C = The available data provide direct evidence but are quantitatively minimal to support or refute the possible existence of mineral or energy resources.
- D = The available data provide abundant direct and indirect evidence to support or refute the possible existence of mineral and energy resources.

The impacts analysis summarizes several different geographic focused scenarios pertaining to locatable, leasable, and salable minerals. For purposes of this EIS, a significant impact on mineral resources is considered to be the withdrawal of those classified as either moderate or high potential. The resource potential classification takes into account the resource occurrences, geologic relationship, and historic production for each mineral resource.

To assess the extent of impacts for locatable minerals, the following questions were addressed:

- Does the withdrawal boundary overlie a mineral district partially or entirely?
- Does the extent of moderate or high mineral potential include all or a portion of the mineral district?
- What percentage of high or moderate mineral potential is included inside the withdrawal boundary?

To assess the extent of impacts for leasable and salable minerals, the percentage of high or moderate mineral potential inside the withdrawal boundary was evaluated.

3.3.1.3 Region of Influence

The region of influence for mining and mineral resources includes the lands and known or potential mineral resources within the proposed withdrawal areas (to include non-federal lands proposed to be acquired that are encompassed therein), as well as any mining claims or portions of historical mining districts that may be affected by the alternatives carried forward for analysis. Because the region of influence is defined as the land boundary of the "withdrawal areas," these terms are used interchangeably. For further detail on the definition of the region of influence, see the Mineral Potential Report (Supporting Study: Mineral Potential Report, available at https://www.frtcmodernization.com).

3.3.1.4 Regulatory Framework

In addition to state and local laws and regulations key Federal statutes, regulations, or executive direction that address mining and mineral resource exploration and development include the following:

- General Mining Law of 1872 (30 United States Code [U.S.C.] section 22 et seq.)
- Mineral Leasing Act of 1920 (30 U.S.C. section 181 et seq.)
- Geothermal Steam Act of 1970 (30 U.S.C. section 1001 et seq.)
- Materials Act of 1947 ("Common Varieties Act") (30 U.S.C. sections 601–604)
- Mining and Mineral Policy Act of 1970 (30 U.S.C. section 21 et seq.)
- Amendment to the Stock Raising Homestead Act of 1916 (Public Law 103-23)
- Federal Land Policy Management Act of 1976 (43 U.S.C section 1701 et seq.)
- Defense Withdrawal ("Engle") Act of 1958 (43 U.S.C. sections 155–158)
- Common Varieties Act (30 U.S.C. section 611)
- Material Site Right-of-Way (23 U.S.C. section 317)
- Regulations governing contracts and permits for mineral materials contained in 43 Code of Federal Regulations (CFR) subparts 3610 and 3620
- Executive Order 13817, A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals
- National Materials and Minerals Policy, Research and Development Act of 1980 (Public Law 96-479)
- Strategic and Critical Materials Stock Piling Act (50 U.S.C. section 98)

- Military Lands Withdrawal Act of 1999, which was section 3011 of the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106-65)

3.3.1.5 Public Concerns

During scoping meetings, held October 3–7, 2016, and during the public comment period on the Draft EIS, the public raised several concerns. A primary concern was potential impacts on existing and future mining activities. The public was largely focused on how the Proposed Action would affect active mines like the Denton-Rawhide Mine near B-17 and other mining claims in the immediate area. Churchill County and the Governor of Nevada expressed concern with respect to how the Proposed Action would affect geothermal energy development throughout the withdrawal areas, with particular focus on the Dixie Valley area. For further information regarding comments received during the public scoping process and the public comment period on the Draft EIS, please refer to Appendix E (Public Participation) and Appendix F (Public Comments and Responses).

3.3.2 Affected Environment

This section provides a summary of the existing mineral resources, which may be affected by the Proposed Action or alternatives.

3.3.2.1 Assessment of Mineral Resource Potential

The following text summarizes a mineral resource overview and the categories of minerals (as defined in the General Mining Law of 1872).

3.3.2.1.1 Mineral Resource Overview

Central Nevada has a long history of mining that began with indigenous cultures accessing various deposits of rock and minerals such as obsidian, opalite, chalcedony, agate, jasper, and quartz to fashion jewelry, arrowheads, spear points, and various cutting and scraping tools. As time passed, primitive hand dug mines for commodities such as turquoise and salt gave way to a more modern era of mining. More recent mining in Nevada dates back to 1849 with the discovery of placer gold in a tributary to the Carson River (Tingley et al., 1993). Copper was Nevada's premier commodity from 1940 until the late 1970s. As copper production fell, gold exploration increased. Gold and silver were Nevada's premier commodities throughout the 1980s (Tingley et al., 1993) and Nevada is currently in the midst of another productive period as a result of the discovery of large supplies of Carlin-type gold deposits, which occur where grains are too small to be visible by the naked eye (Nevada Bureau of Mines and Geology, 2017).

Nevada led the United States in the production of overall non-fuel (excluding oil, gas, coal, uranium, and geothermal) mineral production in 2016 (Nevada Bureau of Mines and Geology, 2017). Nevada was the largest producer of gold and barite in the United States in 2016 (Nevada Bureau of Mines and Geology, 2017). The United States was the fourth leading producer of gold in the world, and Nevada accounted for 81 percent of the U.S. gold production (Nevada Bureau of Mines and Geology, 2017). Nevada alone produced approximately 5.5 percent of the world's total gold production in 2016. Nevada was also the only state to produce lithium, magnesite, and the specialty clays (sepiolite and saponite) in 2016 (Nevada Bureau of Mines and Geology, 2017).

In addition to the hard rock minerals discussed above, Nevada's unique location within the Great Basin of the American West provides a favorable potential for geothermal energy development. Nevada is the second-largest geothermal power producing state in the United States, after California, with existing production capacity of approximately 600 megawatts (see Supporting Study: Mineral Potential Report,

available at https://www.frtcmodernization.com). Some of the same characteristics that allow favorable conditions for geothermal energy development also allow favorable conditions for emergent critical mineral resources, such as lithium, in the form of brine and enriched clay.

3.3.2.1.2 Locatable Minerals

Locatable minerals are those for which the right to explore, develop, and extract on federal land open to mineral entry is established by the location (or staking) of lode or placer mining claims (General Mining Law of 1872, as amended). Locatable minerals are divided into metallic minerals and industrial minerals.

3.3.2.1.3 Strategic and Critical Minerals

In addition to the locatable mineral resources above, this analysis looked at critical minerals. The United States is heavily reliant on certain mineral commodities for the Nation's security and economic prosperity. Executive Order 13817, *A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals*, defined a critical mineral as:

> "(i) a non-fuel mineral or mineral material essential to the economic and national security of the United States,
> (ii) the supply chain of which is vulnerable to disruption, and
> (iii) that serves an essential function in the manufacturing of a product, the absence of which would have significant consequences for our economy or our national security."

In accordance with Executive Order 13817, the Secretary of Interior provided a draft list of the following 35 critical minerals or mineral material groups in February 2018: aluminum (bauxite), antimony, arsenic, barite, beryllium, bismuth, cesium, chromium, cobalt, fluorspar, gallium, germanium, graphite (natural), hafnium, helium, indium, lithium, magnesium, manganese, niobium, platinum group metals, potash, rare earth elements group, rhenium, rubidium, scandium, strontium, tantalum, tellurium, tin, titanium, tungsten, uranium, vanadium, and zirconium (82 Federal Register 60835). The Defense Logistics Agency also maintains a list of strategic and critical minerals in accordance with the Strategic and Critical Materials Stock Piling Act (50 U.S.C. section 98) (Office of the Under Secretary of Defense for Acquisition, 2017).[1]

3.3.2.1.4 Leasable Minerals

Leasable minerals defined by the Mineral Leasing Act (February 1920; and 43 CFR 3000-3599, 1990) include the subsets leasable solid and leasable fluid minerals. Since 1920, the Federal government has leased fuels and certain other minerals, charging a royalty on the value of the mined and sold material. Today, solid minerals subject to lease include coal, oil shale, native asphalt, phosphate, diatomite, sodium, potash, and potassium. Leasable fluid minerals include oil, gas, coal bed natural gas and geothermal. The BLM has developed rigorous guidelines to be used in development of a Resource Management Plan for Fluid Minerals that are described in BLM Handbook H-1624-1, Planning for Fluid Mineral Resources (Bureau of Land Management, 1990). This handbook is supplemented by Information Memorandum No. 2004-089 (Bureau of Land Management, 2004) that presents the BLM's Policy for Reasonably Foreseeable Development.

[1] Sulfur is only subject to leasing in Louisiana and New Mexico (44 Stat. 301); it is locatable everywhere else.

3.3.2.1.5 Salable Minerals

Salable Minerals are administered by the BLM under the Materials Act of July 31, 1947, the Wilderness 1015 Act, the Wilderness Study Act, Mineral Materials Disposal (43 CFR 3600 regulations for aggregate, sand, gravel, petrified wood, common variety materials). In addition, Material Site Rights-of-Way are granted to State Departments' of Transportation under Title 23, Section 317 of the U.S. Code. Regulations governing contracts and permits for mineral materials are contained in 43 CFR, Subparts 3610 and 3620, respectively. The BLM conducts inspection and production verification to assure compliance with contract or permit terms and conditions and prevent and abate unauthorized use.

3.3.2.2 Mineral and Energy Resource Potential Per Range

This section briefly summarizes the key elements of locatable, critical, leasable, and salable mineral potential for the proposed FRTC Modernization for the B-16, B-17. B-20 and the Dixie Valley Training Area (DVTA) proposed withdrawal area as described in detail in the Navy Mineral Potential Report (see Supporting Study: Mineral Potential Report, available at https://www.frtcmodernization.com). Historical mining districts are shown in Figure 3.3-1 and Figure 3.3-2. These figures also include the number of claim listings within a particular section, represented by a small box with a number in it, as was done in the Mineral Potential Report.

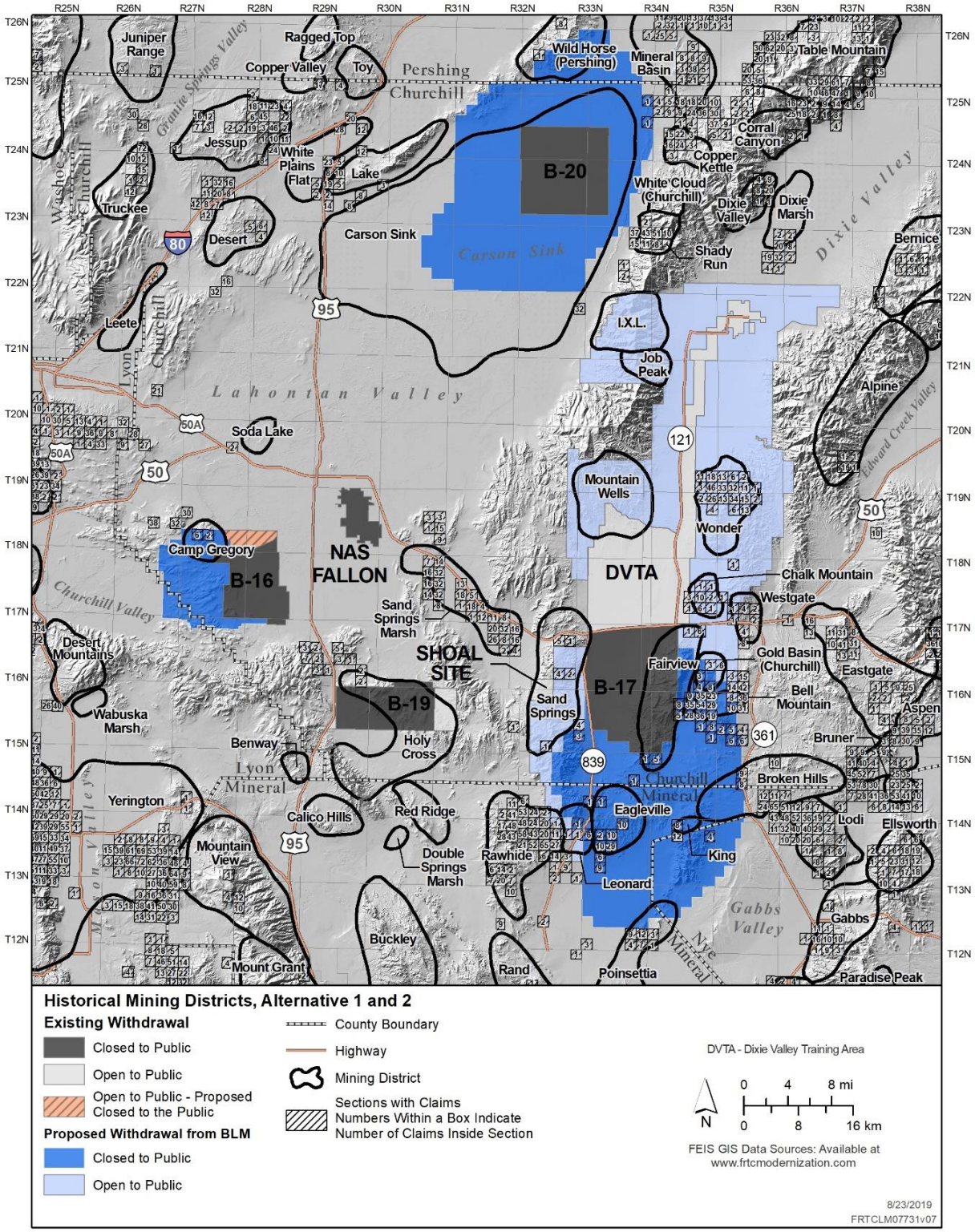


Figure 3.3-1: Historical Mining Districts, Alternative 1 and 2

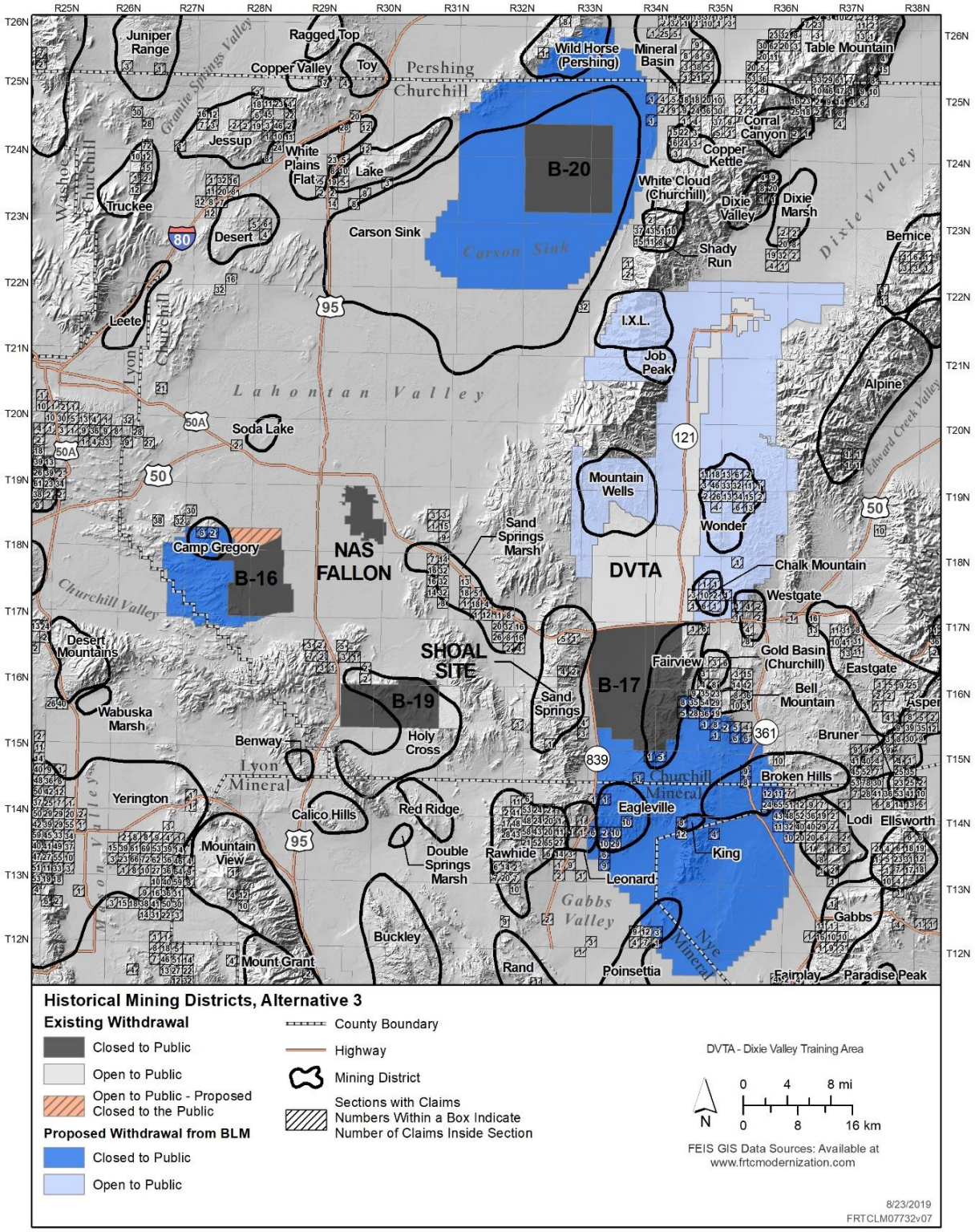


Figure 3.3-2: Historical Mining Districts, Alternative 3

3.3.2.3 Bravo-16

B-16 is located southwest of Naval Air Station (NAS) Fallon and west of U.S. Route 95. The proposed withdrawal (both renewal and expansion) consists of BLM and Bureau of Reclamation land (see Figure 3.2-1). Mining is not allowed within the existing B-16 under the Military Lands Withdrawal Act of 1999.

3.3.2.3.1 Metallic Locatable Minerals

The mining districts may include mineral potentials of high, moderate, or low. For this analysis, metallic locatable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of mineral resources.

The historical Camp Gregory District, Churchill County, is located on the northeast slope of the Dead Camel Mountains and is the only mining district that overlies the proposed withdrawal area (Table 3.3-2). Mining-related activity in this district is confined to just two small areas, neither of which have a record of metal production.

The majority of the Camp Gregory District lies within the proposed B-16 withdrawal area.

- Gold is classified as having a moderate potential with a certainty level of B (Figure 3.3-3)
- Silver is classified as having a moderate potential with a certainty level of B (Figure 3.3-4).

No other significant metallic locatable mineral resources are located within or near B-16.

Table 3.3-2: Summary of Metallic Locatable Resources

Withdrawal Area	Location	Mineral Resource	Recorded Production*	Resource Potential	Certainty Level
B-16	Camp Gregory District	Au, Ag	N/A	Moderate	B
B-17	Leonard District	W	4,995,900 lbs.	High	D
		Au, Ag	N/A	High	C
		Cu	N/A	High	C
	Eagleville District	Au	$28,000 USD	High	D
		Ag	N/A	Moderate	B
		Cu, Pb	N/A	High	C
	King District	Au	N/A	High	C
		Cu, Mo	N/A	Moderate	C
	Broken Hills District	Ag, Pb	$250,000 USD	High	D
		Cu, Mo, Zn	N/A	High	C
	Poinsettia District	Au, Hg, Sb, Cu	N/A	Moderate	B
	Monte Cristo Prospect	Cu	N/A	Moderate	C
B-17/DVTA	Rawhide District	Au	17,927 oz. in	High	D
		Ag	105,413 oz. in	High	D
	Westgate District	Pb, Ag, Au	N/A	High	C
		Cu	N/A	Moderate	C
	Sand Springs District	Au	20,895 oz.	High	D
		Ag	1,262,655 oz.	High	D
		W	42,029 lbs.	High	D
		Cu	N/A	Moderate	B
	South Sand Springs Prospect	Au, Ag	N/A	Moderate	B
B-17/DVTA	Fairview District	Au	48,000 oz.	High	D

Table 3.3-2: Summary of Metallic Locatable Resources (continued)

Withdrawal Area	Location	Mineral Resource	Recorded Production*	Resource Potential	Certainty Level
B-17/DVTA (continued)	Fairview District	Ag	4,700,000 oz.	High	D
		Cu, Mo, Pb, Zn	N/A	High	C
	Slate Mountains Prospect	Au, Ag	N/A	Moderate	B
	Gold Basin District	Au	N/A	High	C
	Bell Mountain District	Au	19.5 oz.	High	D
		Ag	639.6 oz.	High	D
B-20	Wild Horse (Pershing) District	W	200 tons of ore	High	D
		Sb	46 tons	High	D
		Cu, Mo	N/A	Moderate	C
		Pb, Zn	N/A	Moderate	C
DVTA	I.X.L Canyon District	Ag	$20,000 USD	High	D
		Au	N/A	Moderate	B
		Pb, Zn, Cu	N/A	High	C
		W	N/A	Moderate	C
	Job Peak District	Cu, Mo	N/A	Moderate	C
	Mountain Wells (La Plata) District	Mo, W, Cu	N/A	High	C
		Ag	N/A	High	C
		Au	N/A	Moderate	B
		Zn	N/A	Moderate	C
	Wonder District	Au	69,000 oz.	High	D
		Ag	6,400,000 oz.	High	D
		Pb	N/A	High	C
		Cu	N/A	High	C
	Chalk Mountain District	Pb	861,355 lbs.	High	D
		Ag	59,651 oz.	High	D
		Au	99 oz.	High	D
		Cu	N/A	High	C
		Zn	N/A	Moderate	C

*The numbers represent the reported annual production amounts for 2016.
Notes: Au = Gold, Ag = Silver, Cu = Copper, Mo = Molybdenum, Pb = Lead, Zn = Zinc, W = Tungsten, Sb = Antimony, Hg = Mercury

3.3.2.3.2 Industrial Locatable Minerals

The mining districts may include mineral potentials of high, moderate, or low. For this analysis, industrial locatable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the occurrences of industrial mineral resources. Tingley (1998) reports diatomite is present in the Dead Camel Mountains near the Camp Gregory mining district (Table 3.3-3), however, in 2016 there was no reported exploration and/or production of diatomite within the Study Area (Muntean et al., 2017). Although not located within the B-16 area, diatomite deposits occur in dry lakebed sediments several miles south of the district. This resource is classified as having a high potential with a certainty level of C. Lithium potential is not known to occur in B-16 (Figure 3.3-5). Sulfur is classified as having low potential, with a certainty level of D. No other significant industrial locatable mineral resources are located within or near B-16.

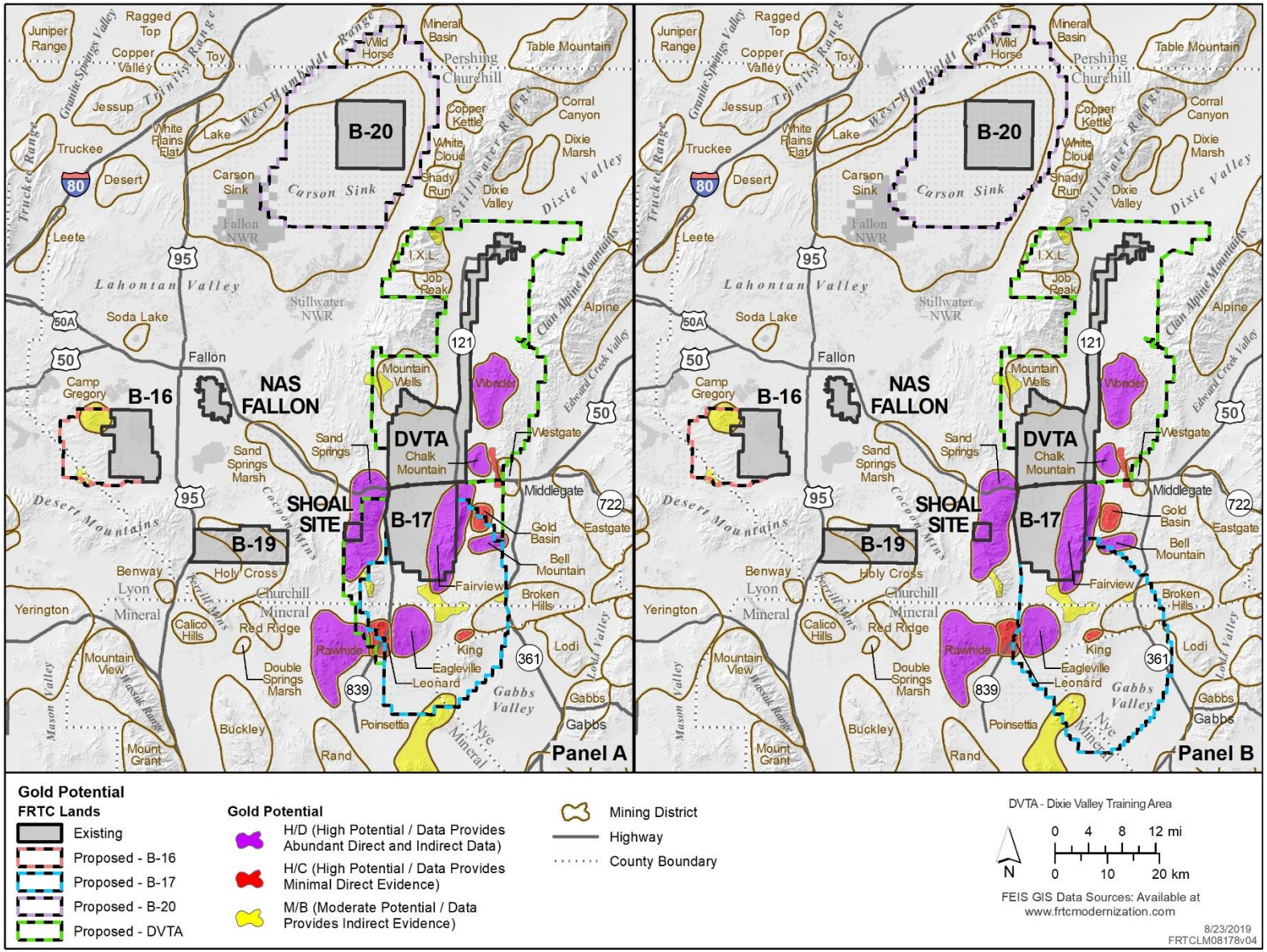


Figure 3.3-3: Gold Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

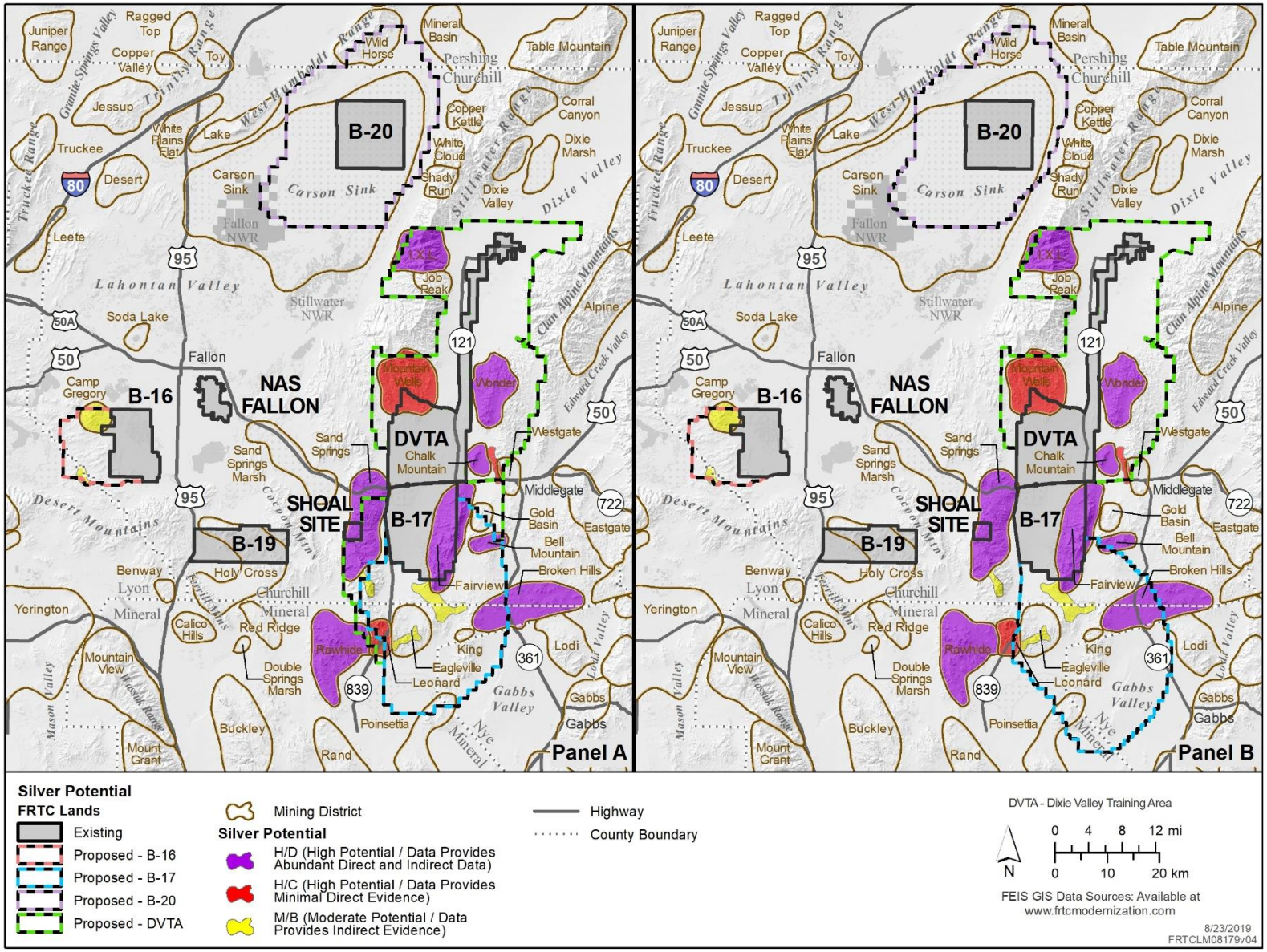


Figure 3.3-4: Silver Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

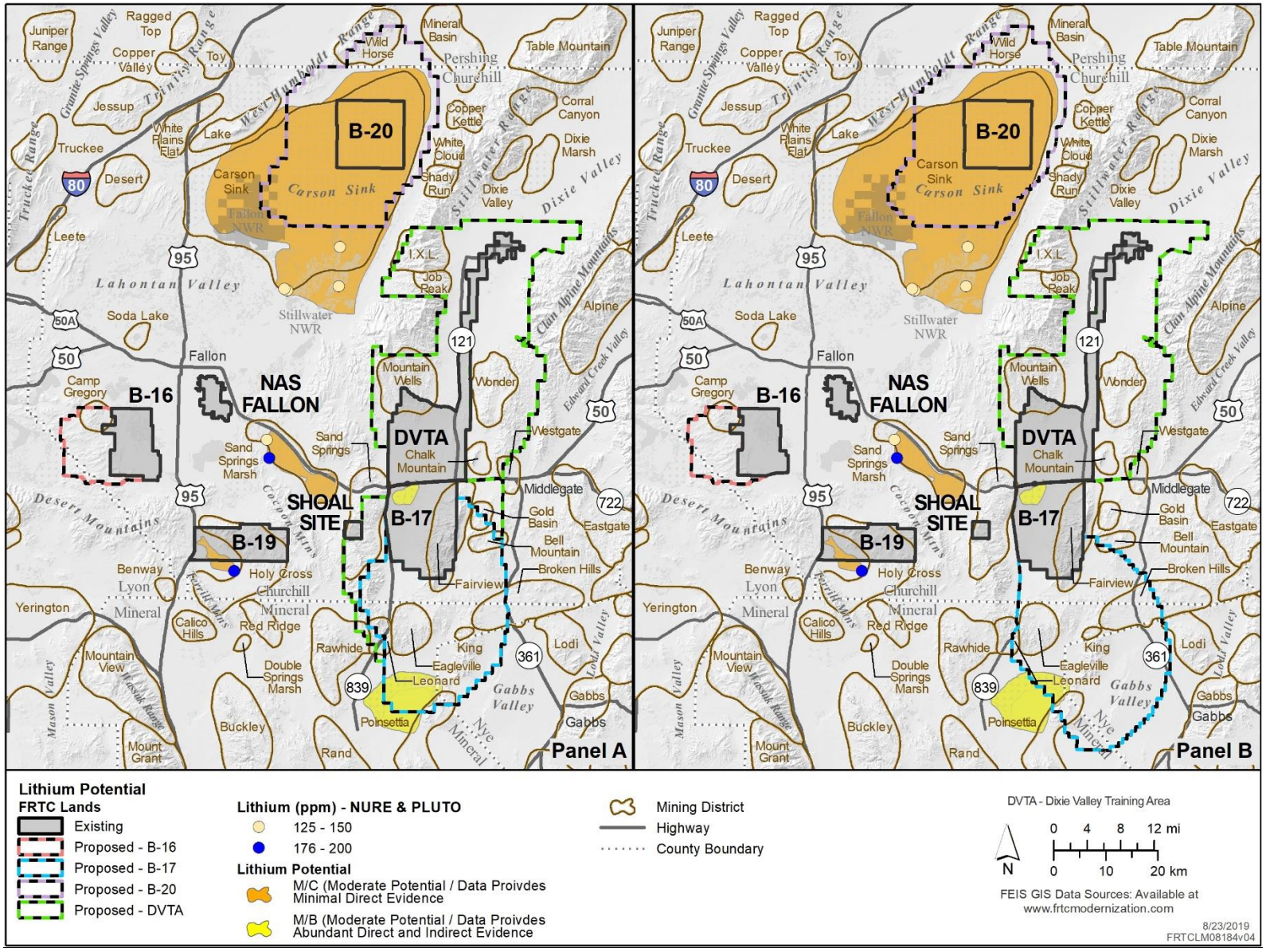


Figure 3.3-5: Lithium Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

Table 3.3-3: Summary of Industrial Locatable Resources

Area	Location	Mineral Resource	Recorded Production	Resource Potential	Certainty Level
B-16	Near Camp Gregory District	Diatomite	N/A	High	C
	–	Sulfur	Low	D	–
B-17	Broken Hills District	Fluorite	6,000,000	High	D
	Broken Hills District	Andorite, Boulangerite, Cerussite, Jamesonite, and Owyheeite	N/A	High	C
	Eagleville District	Barite	2,000 tons	High	D
	N/A	Petrified Wood	N/A	High	C
	N/A	Lithium	N/A	Moderate	B
	King District	Fire Opal	N/A	High	C
	–	Sulfur	Low	D	
B-20	Wild Horse District	Barite	N/A	High	C
	N/A	Lithium	N/A	Moderate	C
	–	Sulfur	Low	D	
DVTA	I.X.L Canyon District	Fluorite	1,900 tons	High	D
	Mountain Wells (La Plata) District	Fluorite	500 tons	High	D
	Rawhide District	Alunite and Barite	N/A	High	C
	Chalk Mountain District	Descloizite, McGuinnessite, Mimetite and Vanadinite	N/A	High	C
	Westgate District	Zeolites	N/A	High	C
	–	Sulfur	Low	D	

3.3.2.3.3 Strategic and Critical Minerals

The proposed B-16 withdrawal is not known to include areas with high or moderate potential for critical minerals (see Table 3.3-4).

Table 3.3-4: Summary of Strategic and Critical Minerals

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Aluminum (bauxite)	Low/B	Primary ore of aluminum, commonly found in lateritic bauxite deposits, used in almost all sectors of the economy	Used in almost all sectors of the economy	There are no observations of laterite deposits within the area of interest and other potential sources for Aluminum as secondary or by-products appear to be negligible.
Antimony	Moderate/B	Occurs in carbonate replacement deposits, skarns, epithermal and porphyry deposits, often as secondary or gangue minerals	Used in batteries and flame retardants	Historic records indicate some secondary antimony production in the Poinsettia and Wild Horse districts. Antimony is present in many deposits in the area but often treated as a deleterious mineral and removed and disposed of during the recovery of precious minerals.
Arsenic	Moderate/B	Commonly found in minor concentrations and recovered as by-product in processing of copper, gold and lead ores or by direct processing of arsenopyrite and other arsenic-bearing minerals	Used in lumber preservatives, pesticides and semi-conductors	Arsenic is present in many deposits in the area but often treated as a deleterious mineral and removed and disposed of during the recovery of precious minerals.
Barite (Ba)	High/D & Moderate/B	Commonly found in bedded-sedimentary, bedded-volcanic, vein, and replacement deposits	Used in cement and petroleum industries	Barite has been historically produced from two mines in the Eagleville District; not actively being explored for in the Study Area.
Beryllium	Moderate/B	Occur in uncommon geological settings and specific deposit types such as intrusion of fluorine and beryllium rich magmas into carbonate rocks as well as in Beryl-bearing pegmatites	Used as an alloying agent in aerospace and defense industries	Beryllium present in many deposits in the area but often treated as a deleterious mineral and removed and disposed of during the recovery of precious minerals.

Table 3.3-4: Summary of Strategic and Critical Minerals (continued)

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Bismuth	Low/B	Commonly found in minor concentrations and recovered as by-product in processing of lead and tungsten ores	Used in medical and atomic research	No indications of bismuth occurring in the Study Area; however, there are a number of zinc and Tungsten occurrences where Bismuth may be present.
Cesium	Unknown Potential	Occur in uncommon geological settings and specific deposit types such as in pollucite-bearing pegmatites and recovered as by-product in nuclear fission	Used in research and development	No indications of cesium occurring in the Study Area.
Chromium	Low/B	Occur in uncommon geological settings and specific deposit types such as chromite-bearing stratiform and podiform ultramafic intrusive deposits	Used primarily in stainless steel and other alloys	There are no observations of these special geological settings or deposits occurring within the Study Area.
Cobalt	Moderate/B	Commonly found in minor concentrations and recovered as by-product in processing of copper and nickel ore from sediment hosted stratiform copper deposits, magmatic nickel sulphide deposits and nickel laterite deposits	Used in rechargeable batteries and superalloys	There are no observations of these special geological settings or deposits occurring within the Study Area; however, there is potential for secondary cobalt associated with some of the other base metals deposits.
Fluorspar	High/D & Moderate/B	Commonly found in carbonate replacement deposits and in minor concentrations and recovered as by-product in processing of limestone and uranium ores	Used in the manufacture of aluminum, gasoline and uranium fuel	Fluorspar historically mined in the IXL Canyon, the Mountain Wells and Broken Hills districts

Table 3.3-4: Summary of Strategic and Critical Minerals (continued)

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Gallium	Low/B	Commonly found in minor concentrations and recovered as by-product in processing of aluminum from bauxite deposits as well as from processing zinc ores	Used for integrated circuits and optical devices like LEDs	No indications of gallium occurring in the Study Area; however, there is known zinc mineralization in the Study Area that may have potential associated gallium mineralization.
Germanium	Low/B	Commonly found in minor concentrations and recovered as by-product in processing of zinc and other ores	Used for fiber optics and night vision applications	No indications of germanium occurring in the Study Area; however, there is known zinc mineralization in the Study Area that may have potential associated germanium mineralization.
Graphite C (t)	Unknown Potential	Commonly found as veins and or layers in metamorphosed marble, schist and gneiss	Used for lubricants, batteries, and fuel cells	No indications of graphite occurring in the Study Area.
Hafnium	Low/A	Occurs in association with Zirconium in uncommon geological settings and specific rock types such as heavy mineral sands deposits	Used for nuclear control rods, alloys, and high-temperature ceramics	No indications of hafnium occurring in the Study Area and no known mineral sands deposits in the Study Area.
Helium	Low/B	Commonly extracted as a by-product during natural gas processing	Used for MRIs, lifting agent and research	There are isolated natural gas seeps in the Study Area that may have the potential to include helium.
Indium	Low/B	Commonly found in minor concentrations and recovered as by-product in processing of zinc and other ores	Mostly used in LCD screens	No indications of indium in the Study Area; however, there are occurrences of Zinc that may have associated indium.

Table 3.3-4: Summary of Strategic and Critical Minerals (continued)

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Lithium	Moderate/C & Moderate/B	Occur in uncommon geological settings and specific deposit types such as closed-basin brines, pegmatites and related granites, lithium-enriched clays, oilfield brines, geothermal brines and lithium-enriched zeolite deposits.	Used primarily for batteries	There are known isolated occurrences of lithium enrichment associated with playas in the Study Area; however, there have been no significant lithium resources identified to date in the Study Area.
Magnesium	Moderate/B	Commonly found in magnesium-bearing brines and also recovered as a by-product in processing of other ores.	Used in furnace linings for manufacturing steel and ceramics	No indications of magnesium in the Study Area; however, there is the potential for magnesium-enriched brines associated with the playas and geothermal activity in the Study Area.
Manganese	Moderate/B	Commonly found in manganese oxide deposits, primarily as pyrolusite (Manganese dioxide); also common as gangue associated with gold mineralization.	Used in steelmaking	Manganese-oxides are known to occur in the study area; however, they are in the form of oxide staining gauge mineralization in association with gold mineralization and are not considered to be present in economic concentrations.
Niobium	Unknown Potential	Occurs in association with Tantalum in uncommon geological settings and specific rock types such as silica-deficient alkaline igneous rocks, granite-syenite and carbonatite complexes.	Used mostly in steel alloys	No indications of niobium occurring in the Study Area.

Table 3.3-4: Summary of Strategic and Critical Minerals (continued)

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Platinum Group Elements (PGE)	Unknown Potential	Occur in uncommon geological settings and specific deposit types such as magmatic Ni-Cu-PGE deposits, or placer deposits formed by the erosion of PGE bearing magmatic deposits.	Used for catalytic agents	No indications of PGE mineralization occurring in the Study Area.
Potash (K)	Moderate/B & Low/D	Primary ore of potassium commonly found in evaporite and brine deposits.	Primarily used as a fertilizer	There are no known deposits of potash or known potash-enriched brines in the study area; however, the potential exists for both near surface and deeper brine hosted Potash mineralization especially in the playas.
Rare Earth Element (REE) Group	Unknown Potential	Occur in uncommon geological settings and specific rock types such as carbonatites, silica-deficient alkaline igneous rocks, and specialized clays.	Primarily used in batteries and electronics	No indications of REE mineralization occurring in the Study Area.
Rhenium	Low/B	Commonly found in minor concentrations and recovered as by-product in processing of copper, molybdenum ores from porphyry deposits.	Used for lead-free gasoline and superalloys	No indications of rhenium in the Study Area; however, there are occurrences of copper and molybdenum mineralization in the Study Area that may have associated Rhenium.
Rubidium	Low/B	Commonly found in minor concentrations and recovered as by-product in processing cesium, lithium, and strontium ores from evaporate and brine deposits.	Used for research and development in electronics	No indications of rubidium in the Study Area; however, there are occurrences of lithium mineralization in the Study Area that may have associated rubidium.

Table 3.3-4: Summary of Strategic and Critical Minerals (continued)

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Scandium	Unknown Potential	Commonly found in minor concentrations and recovered as by-product in processing uranium ore and nickel and aluminum ores from bauxite deposits.	Used for alloys and fuel cells	No indications of scandium in the Study Area.
Strontium	Unknown Potential	Occur in uncommon geological settings and specific deposit types such as celestite-bearing clays and sedimentary deposits.	Used for pyrotechnics and ceramic magnets	No indications of strontium in the Study Area.
Tantalum	Unknown Potential	Occurs in association with Niobium in uncommon geological settings and specific rock types such as silica-deficient alkaline igneous rocks, granite-syenite, and carbonatite complexes.	Used in electronic components	No indications of tantalum in the Study Area.
Tin	Low/B	Occur in uncommon geological settings and specific deposit types such as cassiterite-bearing pegmatites and granitic intrusions and placer deposits formed by the erosion of cassiterite-bearing felsic intrusive rocks.	Used as protective coatings and alloys for steel	The USGS MILS/MRDS datasets indicate occurrences of tin in Wonder and Chalk Mtn districts. There may be tin associated with other base and precious mineralization or associated with weathering of cassiterite-bearing volcanic rocks.

Table 3.3-4: Summary of Strategic and Critical Minerals (continued)

Critical Mineral	Potential & Certainty Assessment	Geological Description/Comments	Use	Potential & Certainty Comments
Titanium	Unknown Potential	Occur in uncommon geological settings and specific deposit types such as heavy mineral sands deposits and ilmenite-bearing mafic intrusion-related deposits.	Overwhelmingly used as a white pigment or metal alloys	No indications of titanium in the Study Area.
Tungsten	High/D	Occurs, often in association with molybdenum, tin, and other metals, in uncommon geological settings and specific deposit types such as pegmatites and hydrothermal deposits.	Primarily used to make wear-resistant metals	Tungsten mineralization occurs in the Study Area in association with skarn and porphyry base and precious minerals deposits. It is potentially present in the Leonard District at a certainty level of High/D.
Uranium	Low/B	Occur in uncommon geological settings and specific deposit types associated with weathering and transport or fluid transport and deposition associated with uranium-rich source rocks.	Primarily used for nuclear fuel	USGS MILS/MRDS datasets indicate uranium occurrences in Poinsettia, Mountain Wells, and Eagleville districts. There may be uranium mineralization associated with felsic plutons in the Study Area.
Vanadium	Unknown Potential	Commonly recovered by secondary processing of by-products from magnetite- and titanium-bearing ores.	Primarily used for titanium alloys	USGS MILS/MRDS datasets indicate vanadium occurrences in the Chalk Mtn and Sand Springs districts within the Study Area.
Zirconium	Low/A	Occurs in association with Hafnium in uncommon geological settings and specific rock types such as heavy mineral sands deposits.	Used in the high-temperature ceramics industries	No indications of zirconium in the Study Area and no known mineral sands deposits in the Study Area.

3.3.2.3.4 Leasable Minerals

The proposed withdrawal areas may include mineral potentials of high, moderate, or low. The following analysis describes the districts and occurrences of potential leasable mineral resources.

The proposed B-16 withdrawal includes areas that have been evaluated as having high potential for geothermal resources (Figure 3.3-6). Geothermal potential is classified as shown below:

- High with certainty level of B in the northeast section of the proposed withdrawal area.
- The remaining area is classified as having a low potential with a certainty level of B.

There are no other leasable resources classified as having a high or moderate potential (Table 3.3-5). Other leasable mineral resources are classified as having a low potential (Table 3.3-5). These include

- oil and gas with a certainty level of C (Figure 3.3-7),
- oil shale with a certainty level of D,
- asphalt with a certainty level of C,
- coal with a certainty level of D,
- phosphate with a certainty level of B,
- potash with a certainty level of B (Figure 3.3-8), and
- sodium minerals with a certainty level of D (Figure 3.3-9).

Table 3.3-5: Summary of Leasable Resources

Area	Location	Mineral Resource	Resource Potential	Certainty Level
B-16	–	O&G	Low	C
	–	Oil Shale	Low	D
	–	Asphalt	Low	C
	–	Coal	Low	D
	–	Phosphate	Low	B
	Non-Playa	Potash	Low	B
	Non-Playa	Sodium Minerals	Low	D
	–	Geothermal	Low	B
B-17	Gabbs Valley	O&G	Low	C
	–	Oil Shale	Low	D
	–	Asphalt	Low	C
	–	Coal	Low	D
	–	Phosphate	Low	B
	Non-Playa	Potash	Low	B
	Non-Playa	Sodium Minerals	Low	D
	–	Geothermal	High	B (north) D (south)

Table 3.3-5: Summary of Leasable Resources (continued)

Area	Location	Mineral Resource	Resource Potential	Certainty Level
B-20	Carson Sink	O&G	Low	C
	–	Oil Shale	Low	D
	–	Asphalt	Low	C
	–	Coal	Low	D
	–	Phosphate	Low	B
	Carson Sink	Potash	Moderate	B
	Non-Playa	Potash	Low	B
	Carson Sink	Sodium Minerals	Moderate	D
	Non-Playa	Sodium Minerals	Low	D
	–	Geothermal	Moderate to High	B to C
DVTA	–	O&G	Low	C
	–	Oil Shale	Low	D
	–	Asphalt	Low	C
	–	Coal	Low	D
	–	Phosphate	Low	B
	Non-Playa	Potash	Low	B
	Non-Playa	Sodium Minerals	Low	D
	–	Geothermal	High	C

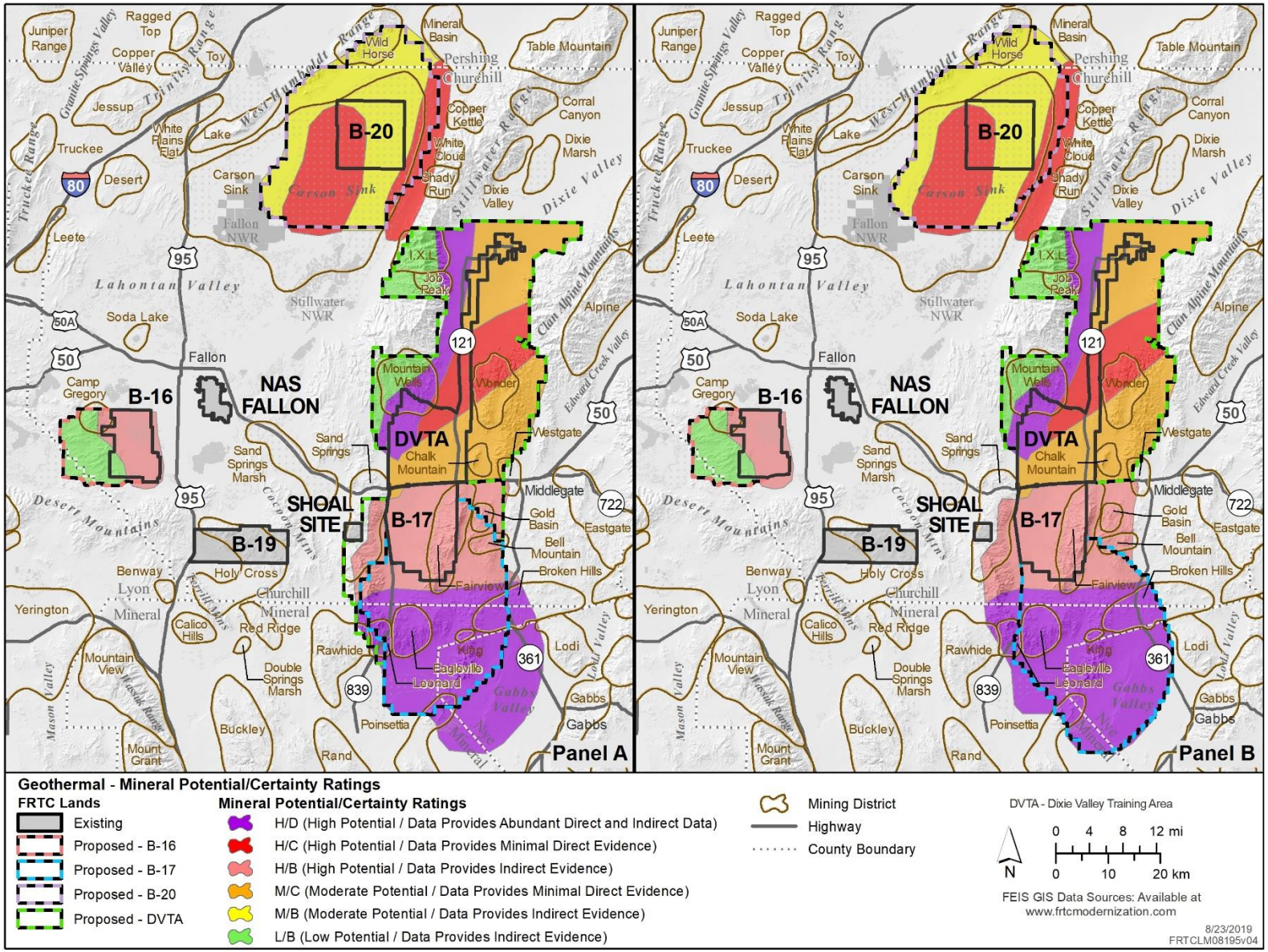


Figure 3.3-6: Geothermal - Mineral Potential/Certainty Ratings Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

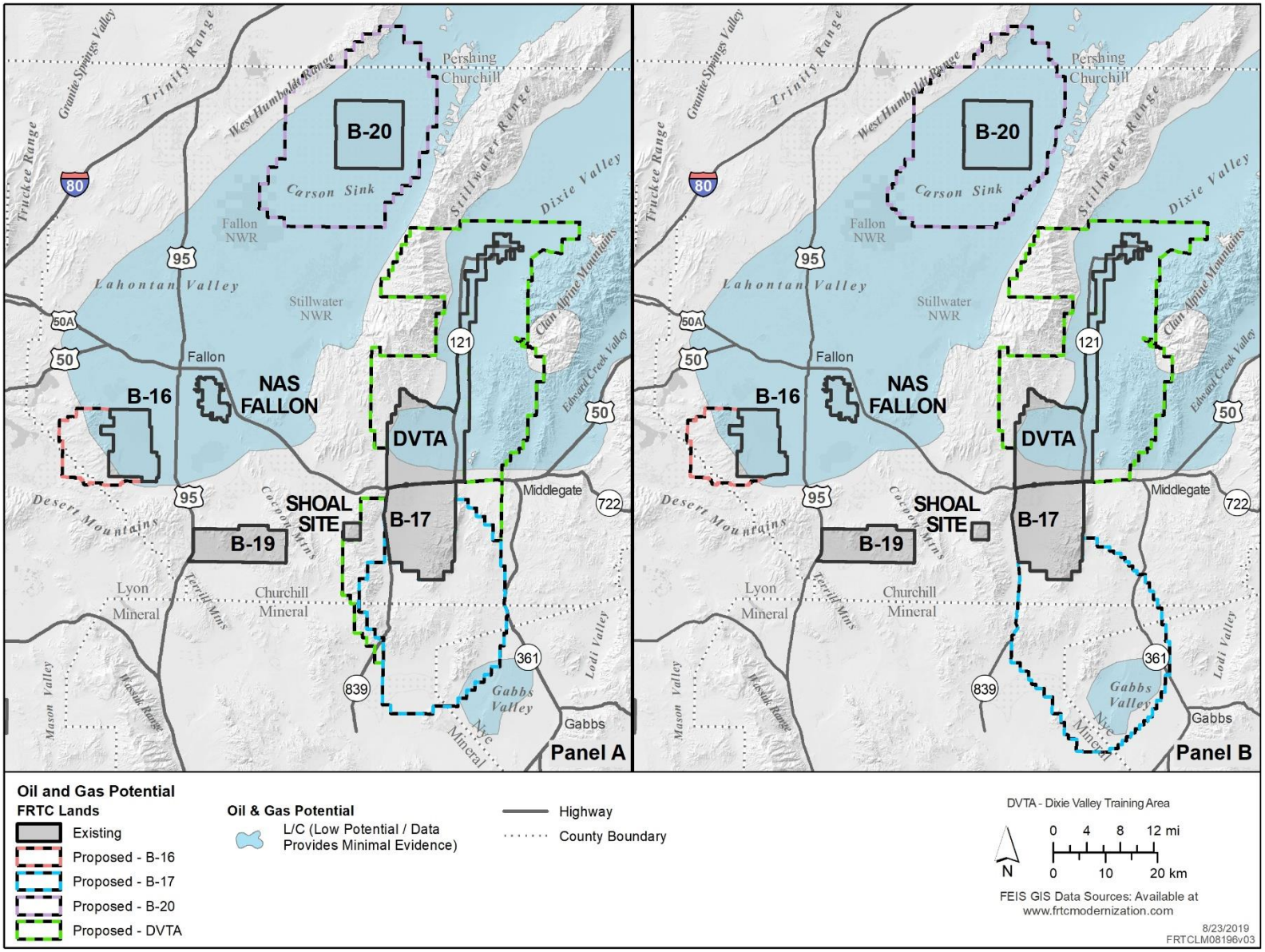


Figure 3.3-7: Oil and Gas Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

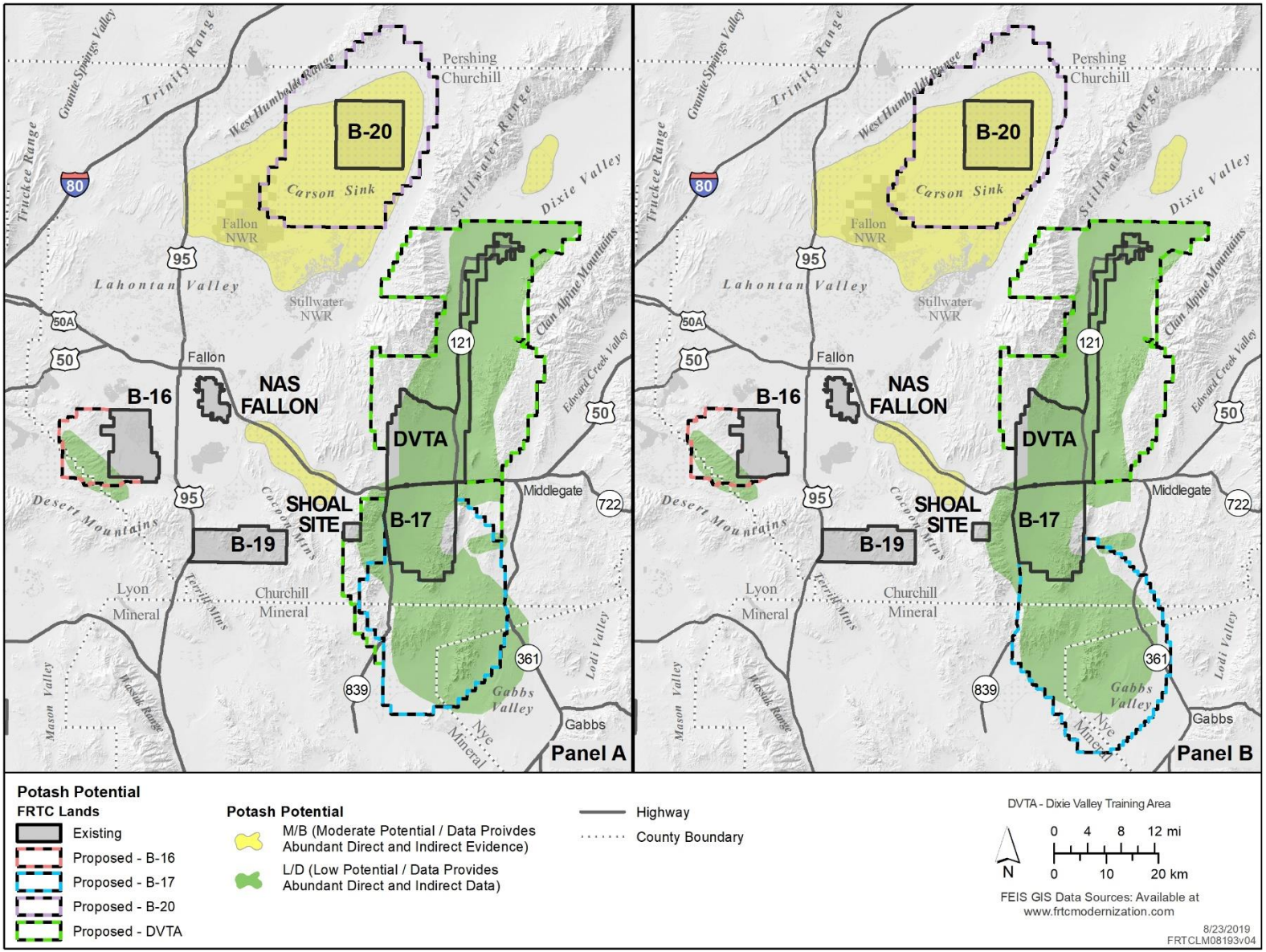


Figure 3.3-8: Potash Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

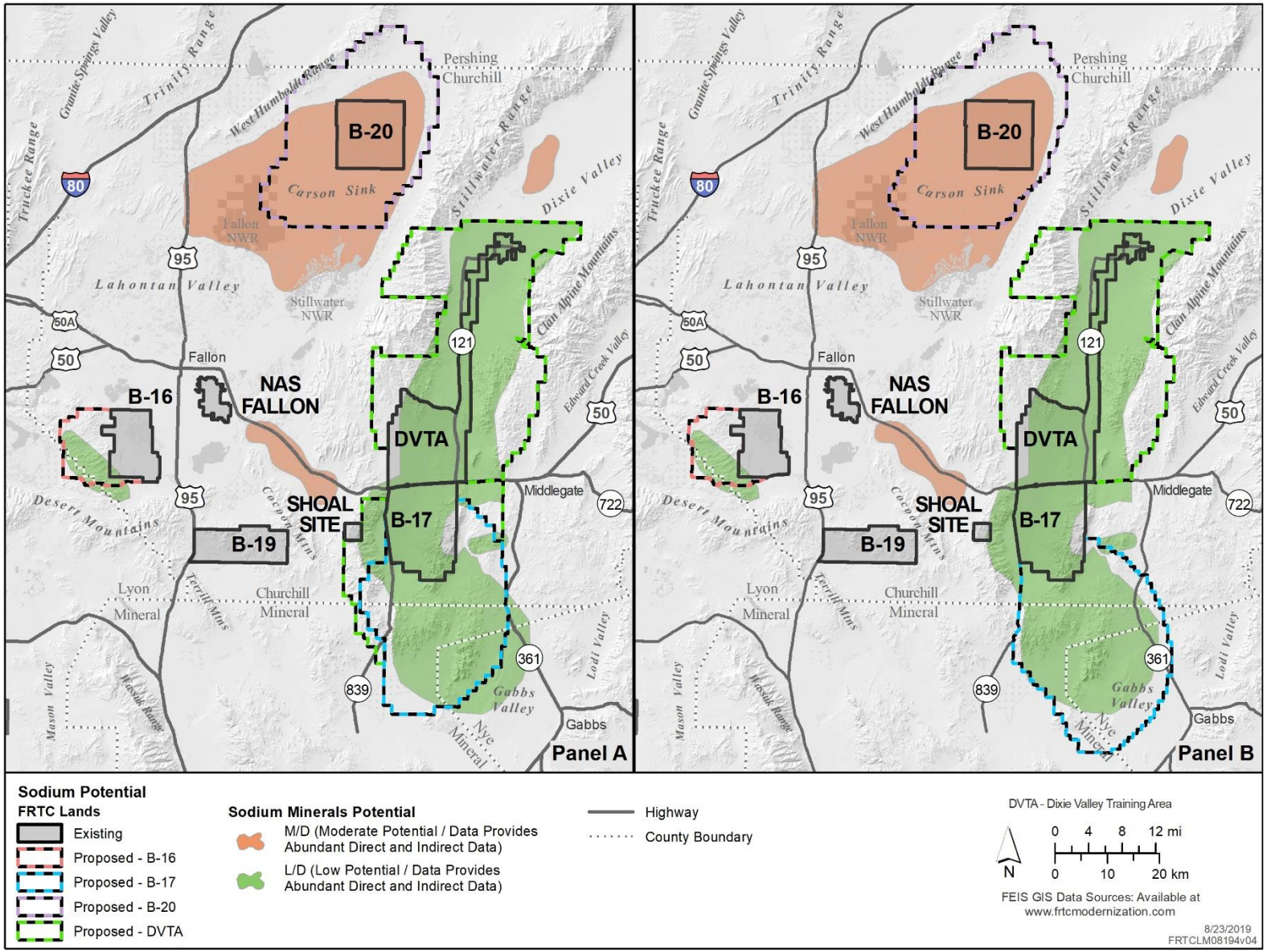


Figure 3.3-9: Sodium Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

3.3.2.3.5 Salable Minerals

Salable resources are listed in Table 3.3-6. The proposed withdrawal areas may include salable mineral potentials of high, moderate, or low. The following analysis describes the districts and occurrences of potential salable mineral resources, which are shown on Figure 3.3-10.

Based on the Mineral Resource Potential Report, salable resources within the B-16 withdrawal area classified as having high resource potential include

- aggregate, sand & gravel, with a certainty level D.

Moderate potential minerals consist of:

- clay, with a certainty level D.

Low potential minerals include:

- pumice and cinder, with a certainty level C;
- petrified wood, with a certainty level C; and
- building, ornamental and specialty stone with a certainty level B.

Table 3.3-6: Summary of Salable Resources

Area	Mineral Resource	Resource Potential	Certainty Level	Comments
B-16	Aggregate, Sand & Gravel	High	D	Geologically favorable conditions
	Clay	Moderate	D	Defined by historic production
	Pumice & Cinder	Low	C	Defined by (Papke & Castor, 2003)
	Building, Ornamental, & Specialty Stone	Low	B	Geologically favorable conditions (bedrock only)
	Petrified Wood	Low	C	Geologically favorable conditions
B-17	Aggregate, Sand & Gravel	High	D	Geologically favorable conditions
	Clay	Moderate	D	Geologically favorable conditions
	Pumice & Cinder	Low	C	Defined by (Papke & Castor, 2003)
	Building, Ornamental, & Specialty Stone	High	B	Defined by historic production
	Petrified Wood	Moderate	C	Defined by Mustoe (2015)
B-20	Aggregate, Sand & Gravel	High	D	Geologically favorable conditions
	Clay	Moderate	D	Geologically favorable conditions
	Pumice & Cinder	Low	C	Defined by (Papke & Castor, 2003)
	Building, Ornamental, & Specialty Stone	Low	B	Geologically favorable conditions (bedrock only)
	Petrified Wood	Low	C	Geologically favorable conditions
DVTA	Aggregate, Sand & Gravel	High	D	Geologically favorable conditions
	Clay	Moderate	D	Geologically favorable conditions
	Pumice & Cinder	Low	C	Defined by (Papke & Castor, 2003)
	Building, Ornamental, & Specialty Stone	Low	B	Geologically favorable conditions (bedrock only)
	Petrified Wood	Low	C	Geologically favorable conditions

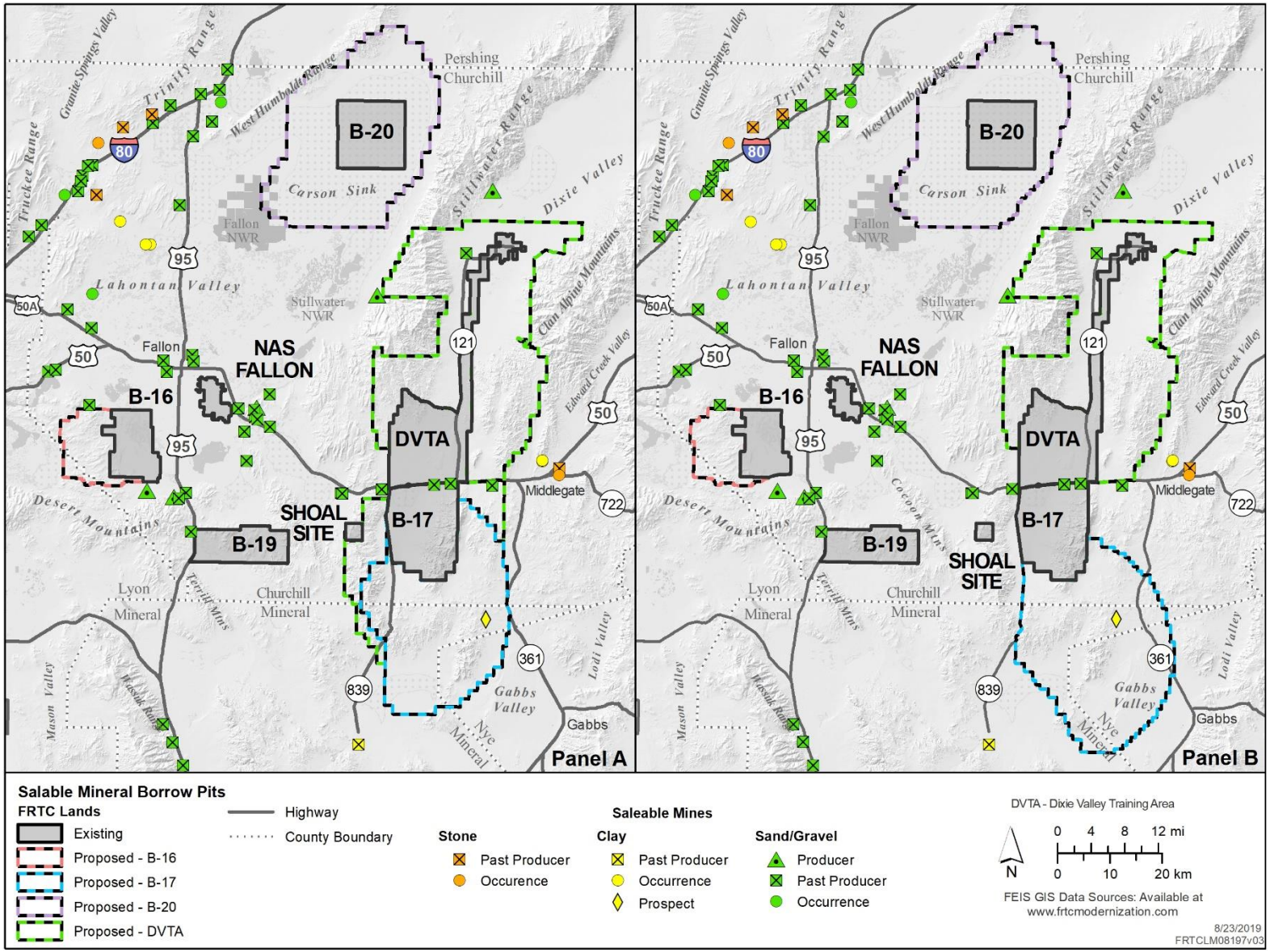


Figure 3.3-10: Salable Mineral Borrow Pits Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

3.3.2.4 Bravo-17

B-17 is located southeast of NAS Fallon and south of U.S. Route 50. The proposed B-17 expansion areas (under the various action alternatives) are composed primarily of BLM-administered land and a few private parcels (referred to as "inholdings"). See Section 3.2 (Land Use) for landownership in and around B-17. Mining is not allowed within the existing B-17 range under the Military Lands Withdrawal Act of 1999.

This section evaluates the locatable, critical, leasable, and salable minerals for the proposed B-17 withdrawal area.

3.3.2.4.1 Metallic Locatable Minerals

Historical Mining Districts located south of U.S. Route 50 include Sand Springs, Gold Basin (Churchill), Bell Mountain Fairview, Rawhide, Leonard, Eagleville, King, Broken Hill and Poinsettia Districts (Table 3.3-2). Under the various action alternatives, the historical mining district boundaries overlie the proposed withdrawal areas either entirely or in part (Figure 3.3-1 and Figure 3.3-2). The mining districts may include mineral potentials of high, moderate, or low. For this analysis, metallic locatable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of potential mineral resources.

The Fairview District, Churchill County, encompasses the Fairview range, a roughly north-south trending mountain range which forms the eastern boundary of Fairview Valley.

The minerals showing high potential are shown below:

- Gold potential is classified as high with a certainty level of D (Figure 3.3-3).
- Silver potential is classified as high with a certainty level of D (Figure 3.3-4).
- Copper potential is classified as high with a certainty level of C (Figure 3.3-11).
- Molybdenum potential is classified as high with a certainty level of C (Figure 3.3-12).
- Lead potential is classified as high with a certainty level of C (Figure 3.3-13).
- Zinc potential is classified as high with a certainty level of C (Figure 3.3-14).

The mineral showing moderate potential is shown below:

- Tungsten potential is classified as moderate with a certainty level of B (Figure 3.3-15).

Bell Mountain, Churchill County, is located immediately east of the Fairview District, and south of the Gold Basin District. There is an active locatables mine within this district, which overlaps all of the land withdrawal proposals.

The minerals showing high potentials are shown below:

- Gold potential is classified as high with a certainty level of D.

Gold Basin District, Churchill County, is located immediately east of the Fairview District. The minerals showing high potential are shown below:

- Gold potential is classified as high with a certainty level of C.
- Lead potential is classified as high with a certainty level of C.

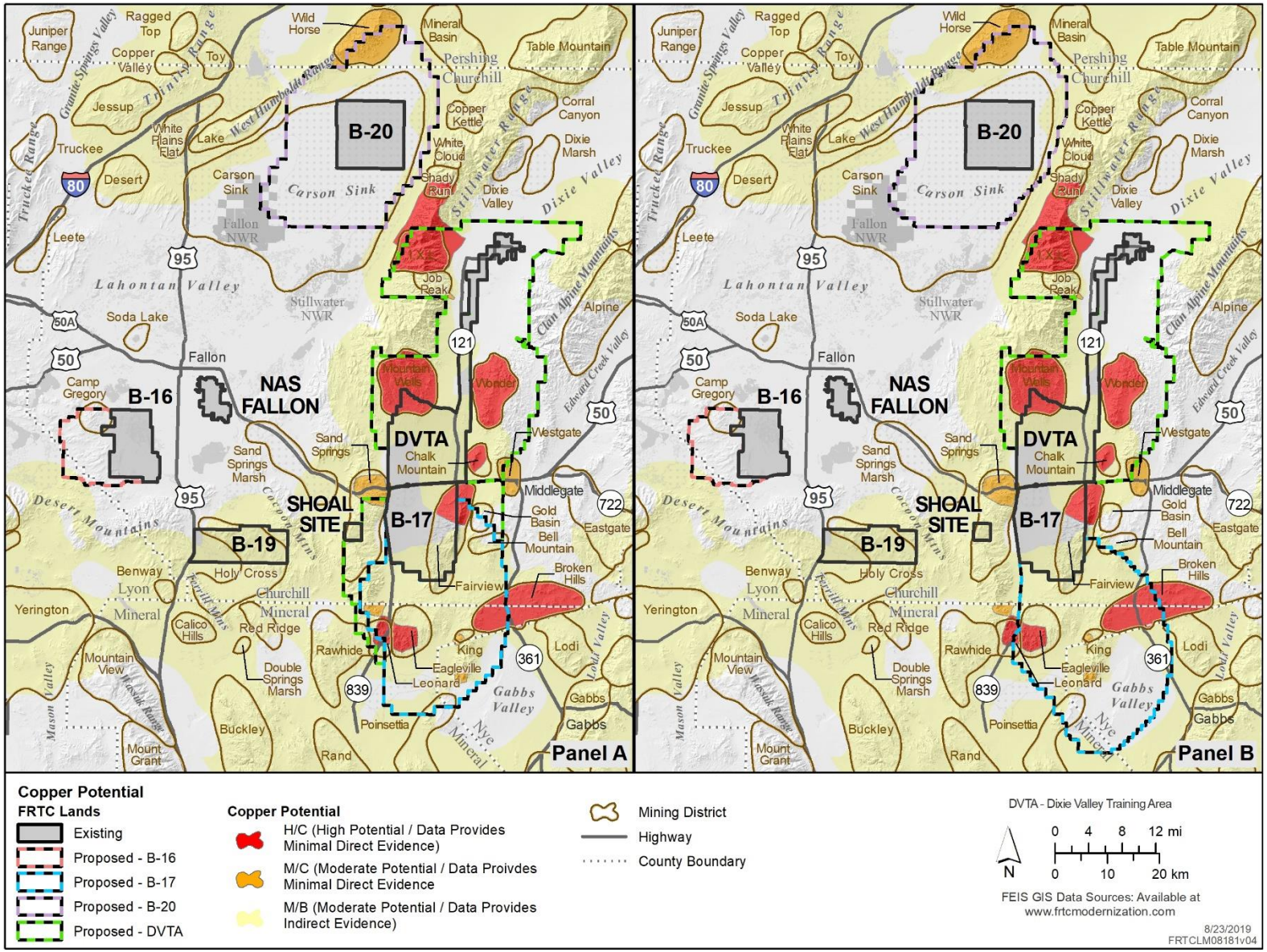


Figure 3.3-11: Copper Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

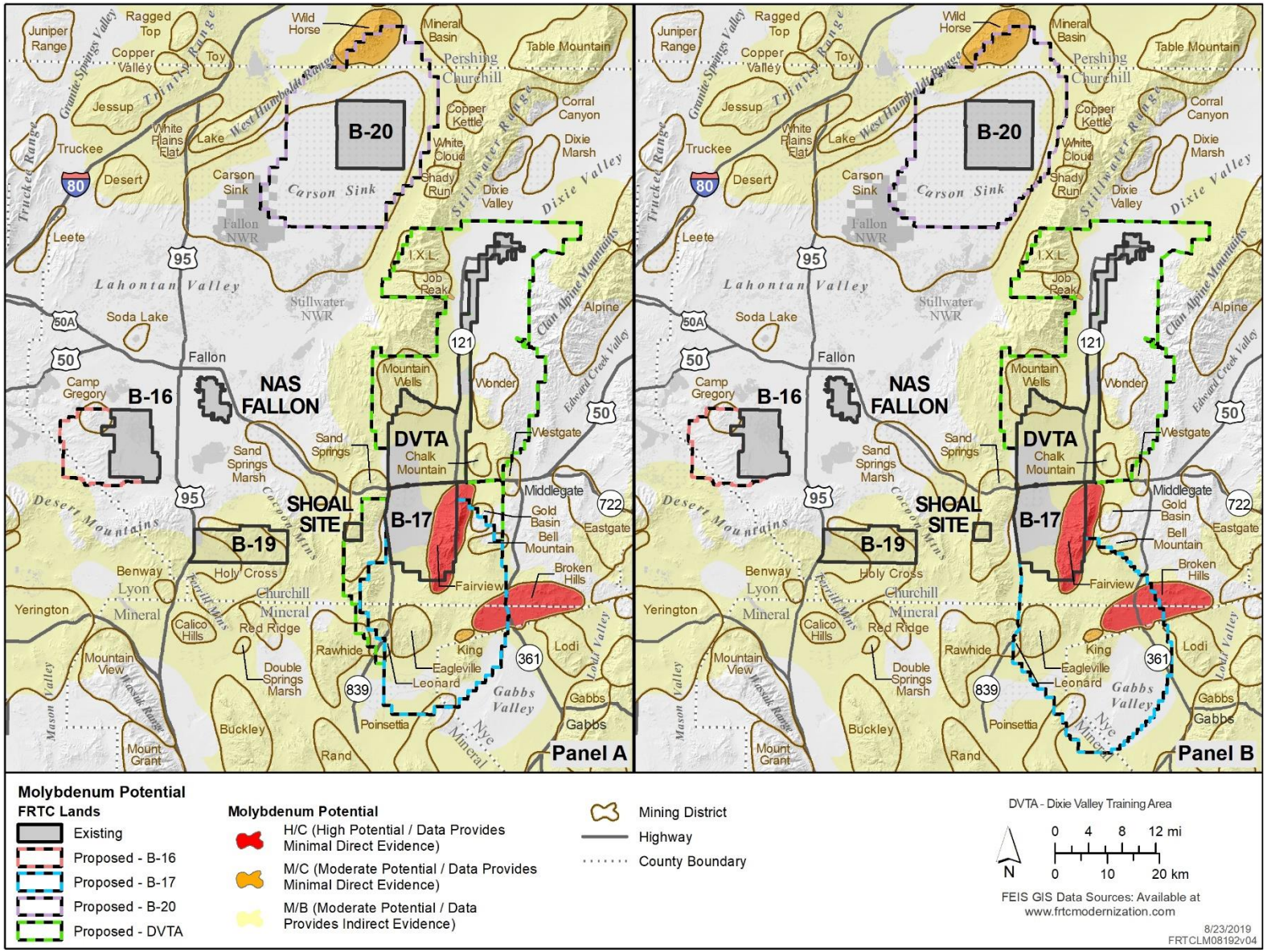


Figure 3.3-12: Molybdenum Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

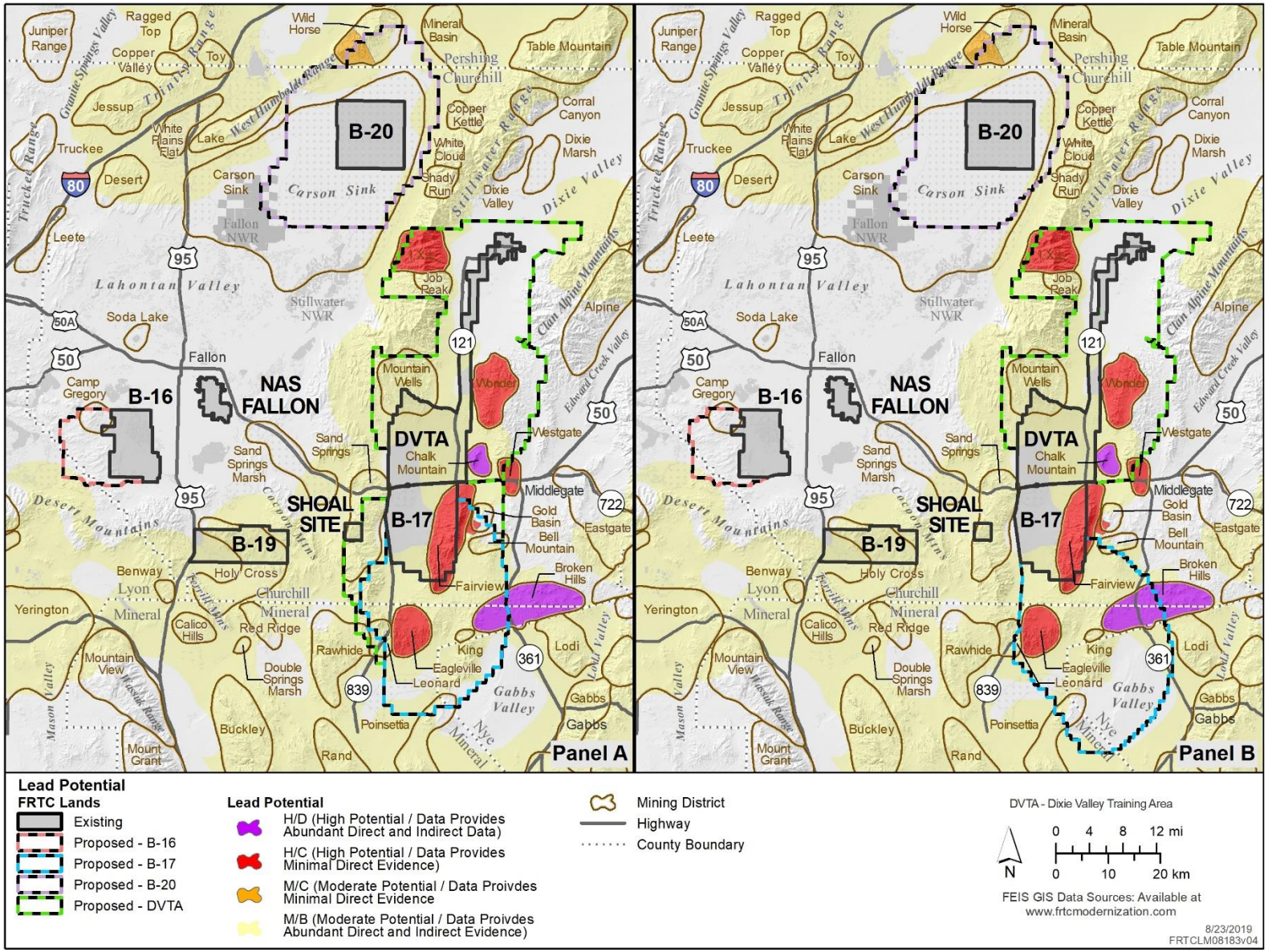


Figure 3.3-13: Lead Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

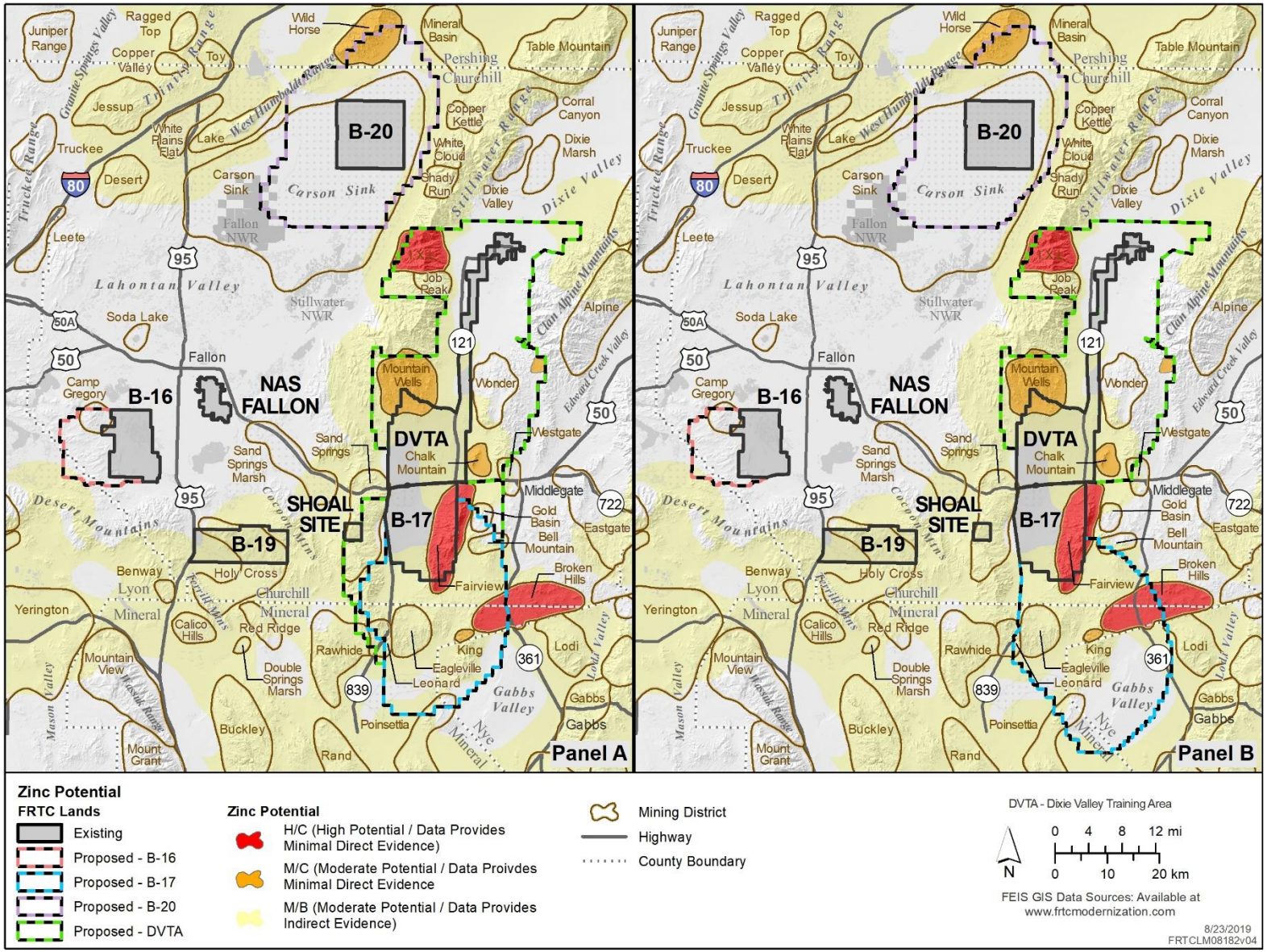


Figure 3.3-14: Zinc Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

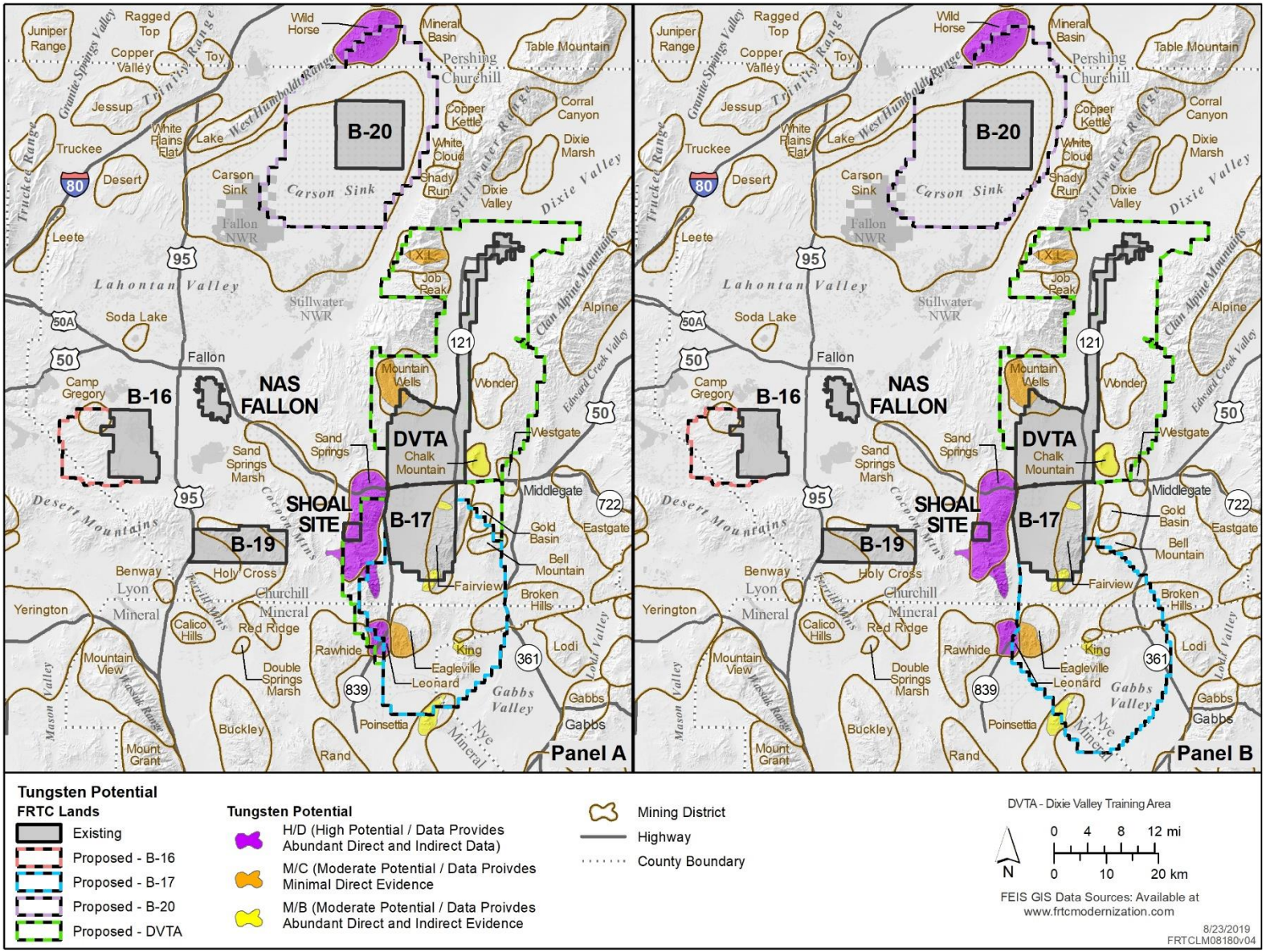


Figure 3.3-15: Tungsten Potential Under Alternative 1 and 2 (Panel A) and Alternative 3 (Panel B)

Broken Hills District, Mineral County, includes the southern Broken Hills, a low range that defines the north end of Gabbs Valley, as well as small area on the east slope of the northern Monte Cristo Mountains.

The minerals showing high potentials are shown below:

- Silver potential is classified as high with a certainty level of D
- Copper potential is classified as high with a certainty level of C
- Molybdenum potential is classified as high with a certainty level of C
- Lead potential is classified as high with a certainty level of D
- Zinc potential is classified as high with a certainty level of C

The minerals showing moderate potentials are shown below:

- Gold potential is classified as moderate with a certainty level of B in a small area located in the north of the district

King District, Mineral County, is located on the western side of the Monte Cristo Mountains above Alkali Flats. The district is located between the Broken Hills District to the east and the Eagleville District to the west.

The minerals showing high potentials are shown below:

- Gold potential is classified as high with a certainty level of C

The minerals showing moderate potentials are shown below:

- Copper (the western third of the district) potential is classified as moderate with a certainty level of C
- Molybdenum potential is classified as moderate with a certainty level of C
- Zinc potential is classified as moderate with a certainty level of C
- Tungsten potential is classified as moderate with a certainty level of B

The Poinsettia District, Mineral and Nye Counties, occupies a northeast trending ridge, Fissure Ridge, within the proposed withdrawal area. The district is positioned between Gabbs Valley to the east and Alkali Flat to the west.

The minerals showing moderate potentials are shown below:

- Gold potential is classified as moderate with a certainty level of B
- Copper potential is classified as moderate with a certainty level of B
- Molybdenum potential is classified as moderate with a certainty level of B
- Lead potential is classified as moderate with a certainty level of B
- Zinc potential is classified as moderate with a certainty level of B
- Tungsten potential is classified as moderate with a certainty level of B

The Eagleville District, Mineral County, is located due east of the Leonard District in rugged east-west trending hills. To the south is Alkali Flat, to the north is Fairview Valley.

The minerals showing high potentials are shown below:

- Gold potential is classified as high with a certainty level of D
- Copper potential is classified as high with a certainty level of C

- Lead potential is classified as high with a certainty level of C

The minerals showing moderate potentials are shown below:

- Molybdenum potential is classified as moderate with a certainty level of B
- Zinc potential is classified as moderate with a certainty level of B
- Tungsten potential is classified as moderate with a certainty level of C
- Silver potential is classified as moderate with a certainty level of B (only located in small portion of the district)

The Leonard District, Mineral County, includes a small area south of Big Kasock Mountain in the southern Sand Springs Range. The Eagleville district is east of Leonard, and the Rawhide gold-silver district is west of Leonard. Important mines in the district are the Nevada Scheelite mine and other adjacent tungsten mines, and gold-silver prospects near the old camp of Sunnyside, about 1 mile southeast of Nevada Scheelite camp.

The minerals showing high potentials are shown below:

- Gold has a high potential with a certainty level of C
- Silver has a high potential with a certainty level of C
- Copper has a high potential with a certainty level of C
- Tungsten potential is classified as high with a certainty level of D

The minerals showing moderate potentials are shown below:

- Molybdenum potential is classified as moderate with a certainty level of B
- Lead potential is classified as moderate with a certainty level of B
- Zinc potential is classified as moderate with a certainty level of B

The Rawhide District, Mineral County, occupies a low range between Alkali Flat to the southeast and the terminus of Rawhide Flats to the Northwest, and slightly overlaps the proposed B-17 withdrawal area. However, the most important mineral-producing areas are located just outside of the boundary, where there is an active locatables mine.

3.3.2.4.2 Industrial Locatable Minerals

The mining districts may include mineral potentials of high, moderate, or low. For this analysis, industrial locatable minerals with moderate and low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of locatable mineral resources. The text below and Table 3.3-3 summarize industrial locatable resources within the proposed withdrawal area.

Broken Hills District:

- Fluorite potential is classified as high with a certainty level of D
- Gemstone potential is classified as high with a certainty level of C

Eagleville District:

- Barite potential is classified as high with a certainty level of D

King District:

- Fire Opal potential is classified as high with a certainty level of C

Although lithium has a moderate potential (certainty level of B) in some parts of the B-17 withdrawal area, it is not necessarily associated with any particular mining district (Figure 3.3-10).

3.3.2.4.3 Strategic and Critical Minerals

The proposed B-17 withdrawal includes areas that have been evaluated as having high potential for the critical minerals barite, fluorspar, and tungsten. These potential resources occur in the Eagleville (barite), Broken Hills (fluorspar), Leonard (tungsten) and Sand Springs (tungsten) mining districts (see Table 3.3-4).

Although lithium has a moderate potential, with a certainty level of B, in some parts of the B-17 withdrawal area, it is not necessarily associated with any particular mining district.

3.3.2.4.4 Leasable Minerals

The proposed withdrawal areas may include mineral potentials of high, moderate, or low. The following analysis describes the districts and occurrences of potential leasable mineral resources.

The proposed B-17 withdrawal includes areas that have been evaluated as having high potential for geothermal resources.

Geothermal potential is classified as shown below:

- High with a certainty level of B in the northern section of the proposed withdrawal area.
- High with a certainty level of D in the southern section of the proposed withdrawal area.

There are no leasable resources classified as having a moderate potential.

Other leasable mineral resources are classified as having a low potential (Table 3.3-5). These include:

- oil and gas with a certainty level of C,
- oil shale with a certainty level of D,
- asphalt with a certainty level of C,
- coal with a certainty level of D,
- phosphate with a certainty level of B, and
- potash with a certainty level of B.

3.3.2.4.5 Salable Minerals

The proposed withdrawal areas may include salable mineral potentials of high, moderate, or low. The following analysis describes the districts and occurrences of potential salable mineral resources, which are listed in Table 3.3-6.

Salable resources within the B-17 withdrawal area classified as having high potential include:

- aggregate, Sand & Gravel with certainty level D; and
- building, ornamental and specialty stone, with certainty level B.

Moderate potential salable resources consist of:

- clay, with certainty level D; and
- petrified wood, with certainty level C.

Low potential salable resources include:

- pumice and cinder with certainty level C.

3.3.2.5 Bravo-20

B-20 is north of NAS Fallon in the Carson Sink. The surrounding area is a checkerboard of non-federal and federal land with wildlife refuges to the south. Mining is not allowed within the existing B-20 range under the Military Lands Withdrawal Act of 1999.

This section evaluates locatable, critical, leasable, and salable minerals for the proposed B-20 withdrawal area.

3.3.2.5.1 Metallic Locatable Minerals

The mining districts may include mineral potentials of high, moderate, or low (Table 3.3-2). For this analysis, metallic locatable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the mining districts and occurrences of potential locatable mineral resources.

The historical Wild Horse (Pershing) District overlies a small portion of the proposed withdrawal area. No evidence of claims, active mines, recent exploration, or production is known to exist.

The minerals showing high potentials are shown below:

- Tungsten potential is classified as high with a certainty level of D

The minerals showing moderate potentials are shown below:

- Copper has a moderate potential with a certainty level of C
- Molybdenum has a moderate potential with a certainty level of C
- Lead has a moderate potential with a certainty level of C
- Zinc has a moderate potential with a certainty level of C

No other significant locatable metallic mineral potentials are known to exist in the Carson Sink district.

3.3.2.5.2 Industrial Locatable Minerals

The mining districts may include mineral potentials of high, moderate, or low. For this analysis, industrial locatable minerals with moderate and low potential are not discussed because they are not considered to be significant. The following analysis describes the occurrences of mineral resources.

Barite with a high resource potential and certainty level C was reported to exist in small amounts within the Wild Horse district; however, no recent barite exploration and/or production activities are known (Muntean et al., 2017).

Lithium-enhanced brines in the Carson Sink have a moderate potential with a certainty level of C; however, no lithium production is known to have occurred in this area.

Sulfur is classified as having low potential, with a certainty level of D.

No other viable quantities of industrial locatable minerals are known to exist in the Carson Sink district.

3.3.2.5.3 Strategic and Critical Minerals

The proposed withdrawal areas may include mineral potentials of high, moderate, or low (see Table 3.3-4). For this analysis, strategic minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of potential strategic and critical mineral resources.

The proposed B-20 withdrawal has been evaluated as having high potential for the critical mineral tungsten. This potential occurs in the Wild Horse mining district at the northern edge of the proposed withdrawal area.

The Carson Sink area, including most of B-20, has been evaluated as having moderate potential for lithium brines. Although lithium has a moderate potential, with a certainty level of C, in some parts of the B-20 withdrawal area, it is not necessarily associated with any particular mining district.

3.3.2.5.4 Leasable Minerals

The proposed withdrawal areas may include mineral potentials of high, moderate, or low (Table 3.3-5). For this analysis, leasable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of potential leasable mineral resources.

The B-20 potential for leasable minerals include:

- Geothermal potentials classified as both as high with certainty level C, and moderate with certainty level of B. These areas cover the entire proposed withdrawal acreage.

Other leasable mineral resources in B-20 are classified as having a low potential. These include:

- oil and gas with a certainty level of C,
- oil shale with a certainty level of D,
- asphalt with a certainty level of C,
- coal with a certainty level of D,
- phosphate with a certainty level of B,
- potash (non-playa) with a certainty level of B, and
- sodium minerals (playa) with certainty level of D.

Leasable mineral resources in B-20 classified as having a moderate potential include:

- potash (playa) with a certainty level of D, and
- sodium (non-playa) with a certainty level of B.

3.3.2.5.5 Salable Minerals

The proposed withdrawal areas may include salable mineral potentials of high, moderate, or low. For this analysis, salable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of potential salable mineral resources, which are listed in Table 3.3-6.

Based on the Mineral Potential Report, salable resources within the B-20 withdrawal area classified as having high resource potential include:

- aggregate, Sand & Gravel, with a certainty level D.

Salable resources with moderate potential consist of:

- clay, with a certainty level D.

Salable resources with low potential include:

- pumice and cinder, with certainty level C;
- petrified wood, with certainty level C; and

- building, ornamental and specialty stone, with certainty level B.

3.3.2.6 Dixie Valley Training Area

The DVTA is located east of NAS Fallon and mainly north of U.S. Route 50 (Alternatives 1 and 2 include sections south of U.S. Route 50). The proposed DVTA expansion areas (under the various alternatives) are composed primarily of BLM-administered land and a few private parcels. See Figure 3.2-7 in Section 3.2 (Land Use) for landownership in and around the DVTA. This section evaluates the locatable, critical, leasable, and salable minerals for the proposed DVTA withdrawal area.

3.3.2.6.1 Metallic Locatable Minerals

Historical Mining Districts in the DVTA study area include I.X.L, Job Peak, Mountain Wells, Wonder, Chalk Mountain, Sand Springs, Fairview, Gold Basin, Bell Mountain, Westgate, Leonard, and Rawhide (Table 3.3-2). The district boundaries overlie the proposed withdrawal area entirely or in part. The mining districts may include mineral potentials of high, moderate, or low. For this analysis, metallic locatable minerals with low potential are not discussed because they are not considered to be significant. The following analysis describes the districts and occurrences of potential locatable mineral resources.

The Rawhide District, Mineral County, occupies a low range between Alkali Flat to the southeast, and the terminus of Rawhide Flats to the Northwest overlaps slightly the proposed B-17 withdrawal area. However, the most important mineral producing areas are located just outside of the boundary.

The minerals showing high potentials are shown below:

- Gold potential is classified as high with a certainty level of D
- Silver potential is classified as high with a certainty level of D

The minerals showing moderate potentials are shown below:

- Copper potential is classified as moderate with a certainty level of B
- Molybdenum potential is classified as moderate with a certainty level of B
- Lead potential is classified as moderate with a certainty level of B
- Zinc potential is classified as moderate with a certainty level of B

The I.X.L District is located in Churchill County, in the central Stillwater Range, and encompasses drainages on both the east and west sides of the mountain range. The mines and prospects in the I.X.L. District are concentrated into two canyons: I.X.L Canyon and Cox Canyon.

The minerals with high potential are shown below:

- Silver has a high potential with a certainty level of D
- Lead potential is classified as high with a certainty level of C
- Zinc potential is classified as high with a certainty level of C
- Copper has a high potential with a certainty level of C
- Tungsten is indicated in a small area with a high potential, with a certainty level of C

The minerals with moderate potential are shown below:

- Gold (a small portion of the district in the north) has a moderate potential with a certainty level of B
- Molybdenum potential is classified as moderate with a certainty level of B

The Job Peak District is located directly south of the I.X.L. district in the Stillwater Range in Churchill County.

There are no minerals evaluated as having high potential in the Job Peak district.

The minerals with moderate potential are shown below:

- Copper has a moderate potential with a certainty level of C
- Molybdenum potential is classified as moderate with a certainty level of B for the majority of the district, and moderate potential with a certainty level of C in a small area
- Lead has a moderate potential with a certainty level of B
- Zinc has a moderate potential with a certainty level of B

The Mountain Wells District is located in the southern part of the Stillwater Range in Churchill County. It is further south of the I.X.L. and Job Peak districts.

The minerals with high potential are shown below:

- Silver has a high potential with a certainty level of C
- Copper has a high potential with a certainty level of C

The minerals with moderate potential are shown below:

- Gold (in a small portion in the west part of the district) has a moderate potential with a certainty level of B
- Molybdenum has a moderate potential with a certainty level of B
- Lead has a moderate potential with a certainty level of B
- Zinc has a moderate potential with a certainty level of C
- Tungsten is indicated in a small area in the west part of the district, with a potential classification as moderate, with a certainty level of C

The Wonder District is located in the Louderback Mountains, north of U.S. Route 50, in Churchill County.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of D
- Silver has a high potential with a certainty level of D
- Copper has a high potential with a certainty level of C
- Lead has a high potential with a certainty level of C

The minerals with moderate potential are shown below:

- Molybdenum in the south and southwest areas has a moderate potential with a certainty level of B
- Zinc (in the south and southwest part of the district) potential is classified as moderate with a certainty level of B

The Chalk Mountain District is centered on Chalk Mountain just north of U.S. Route 50, on the east side of Dixie Valley, in Churchill County.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of D
- Silver has a high potential with a certainty level of D

- Copper has a high potential with a certainty level of C in the western half of the district
- Lead has a high potential with a certainty level of C

The minerals with moderate potential are shown below:

- Copper has a moderate potential with a certainty level of B in the eastern half of the district
- Molybdenum has a moderate potential with a certainty level of B
- Zinc has a moderate potential with a certainty level of C
- Tungsten has a moderate potential with a certainty level of B

The Westgate District is located at the southern end of the Clan Alpine Mountains, in the low hills north and south of U.S. Route 50, in Churchill County.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of C
- Silver has a high potential with a certainty level of C
- Lead has a high potential with a certainty level of C

The minerals with moderate potential are shown below:

- Copper has a moderate potential with a certainty level of C
- Molybdenum has a moderate potential with a certainty level of B
- Zinc has a moderate potential with a certainty level of B

The Sand Springs District is located in the Sand Springs Range in the vicinity of Sand Springs Pass on U.S. Route 50, in Churchill County. The district extends north of the pass a short distance, but extends south for over 12 miles and includes most of the Sand Springs Range.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of D
- Silver has a high potential with a certainty level of D
- Tungsten has a high potential with a certainty level of D

The minerals with moderate potential are shown below:

- Copper has a moderate potential with a certainty level of C in a portion of the north and south parts of the district; and a potential of moderate with a certainty level of B in the remaining areas
- Molybdenum has a moderate potential with a certainty level of B
- Lead has a moderate potential with a certainty level of B
- Zinc has a moderate potential with a certainty level of B

The Fairview District is located in Churchill County; it encompasses an area on both sides of Fairview Peak extending from U.S. Route 50 on the north to Crown (Bell) Canyon on the south. The main Fairview district is located on the west slope of Fairview Peak, while the South Fairview area is in the vicinity of Slate Mountain, south of Fairview Peak.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of D
- Silver has a high potential with a certainty level of D

- Copper has a high potential with a certainty level of C in the northern third of the district
- Molybdenum has a high potential with a certainty level of C
- Lead has a high potential with a certainty level of C
- Zinc has a high potential with a certainty level of C

The minerals with moderate potential are shown below:

- Copper has a moderate potential with a certainty level of B in the southern half of the district
- Tungsten has a moderate potential with certainty level of B in small areas located in the north and south parts of the district

The Gold Basin District is located in low hills east of Fairview Peak, and is sometimes included in the adjacent Fairview district, in Churchill County.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of C
- Lead has a high potential with a certainty level of C in the western half of the district

The minerals with moderate potential are shown below:

- Molybdenum has a moderate potential with a certainty level of B

The Bell Mountain District surrounds Bell Mountain, southeast of Fairview Peak, in Churchill County; it has sometimes been included in the adjacent Fairview district.

The minerals with high potential are shown below:

- Gold has a high potential with a certainty level of D
- Silver has a high potential with a certainty level of D

The minerals with moderate potential are shown below:

- Copper has a moderate potential with a certainty level of B
- Molybdenum has a moderate potential with a certainty level of B
- Lead has a moderate potential with a certainty level of B
- Zinc has a moderate potential with a certainty level of B

The Leonard District, Mineral County, includes a small area south of Big Kasock Mountain in the southern Sand Springs Range. The Eagleville district is east of Leonard, and the Rawhide gold-silver district is west of Leonard. Important mines in the district are the Nevada Scheelite mine and other adjacent tungsten mines, and gold-silver prospects near the old camp of Sunnyside, about 1 mile southeast of Nevada Scheelite camp.

The minerals showing high potentials are shown below:

- Gold has a high potential with a certainty level of C
- Silver has a high potential with a certainty level of C
- Copper has a high potential with a certainty level of C
- Tungsten potential is classified as high with a certainty level of D

The minerals showing moderate potentials are shown below:

- Molybdenum potential is classified as moderate with a certainty level of B

- Lead potential is classified as moderate with a certainty level of B
- Zinc potential is classified as moderate with a certainty level of B

3.3.2.6.2 Industrial Locatable Minerals

A summary of industrial locatable resources within the proposed withdrawal area are shown below and in Table 3.3-3. The mining districts may include mineral potentials of high, moderate, or low. Industrial locatable minerals with low and moderate potential are not discussed, as they are not considered to be significant for this analysis. The following paragraphs describe the mining districts and occurrences of potential industrial locatable mineral resources.

Rawhide District. Alunite and Barite potential is classified as high with a certainty level of C

I.X.L Canyon District. Fluorite potential is classified as high with a certainty level of D. Historical fluorite production is reported at 1,900 tons.

Mountain Wells (La Plata) District. Fluorite potential is classified as high with a certainty level of D. Historical fluorite production is reported at 500 tons.

Based on the Mineral Potential Report, the other mining districts do not have high potential for industrial minerals.

3.3.2.6.3 Strategic and Critical Minerals

Part of the proposed DVTA withdrawal area has been evaluated as having high potential for the critical mineral tungsten (see Table 3.3-4). This potential occurs in the Sand Springs mining district on the west edge of the DVTA south of U.S. Route 50. This district is affected by Alternatives 1 and 2, but not by Alternative 3.

3.3.2.6.4 Leasable Minerals

The proposed withdrawal areas may include mineral potentials of high, moderate, or low (Table 3.3-5). The following analysis describes the districts and occurrences of potential leasable mineral resources. The DVTA potential for leasable minerals include

- geothermal potentials:
  - classified as high with certainty ranging from B to D on the east side of Dixie Valley and in the center of the range
  - classified as moderate with certainty C in the northeast and southeast sections of the range
  - classified as low with certainty level of B in the western mountainous sections of the range

Other leasable mineral resources in the DVTA are classified as having a low potential. These include:

- oil and gas with a certainty level of C,
- oil shale with a certainty level of D,
- asphalt with a certainty level of C,
- coal with a certainty level of D,
- phosphate with a certainty level of B,
- potash (non-playa) with a certainty level of B, and
- sodium minerals (non-playa) with a certainty level of D.

3.3.2.6.5 Salable Minerals

The proposed withdrawal areas may include mineral potentials of high, moderate, or low (Table 3.3-6). The following analysis describes the districts and occurrences of potential salable mineral resources.

Salable resources within the DVTA withdrawal area classified as having high resource potential include:

- aggregate, Sand & Gravel, with certainty level D.

Salable resources with moderate potential consist of:

- clay, with certainty level D.

Salable resources with low potential include:

- pumice and cinder, with certainty level C;
- petrified wood, with certainty level C; and
- building, ornamental and specialty stone, with certainty level B.

3.3.3 Reasonably Foreseeable Development

A rough order of magnitude projection of the possible commodities associated with hard rock mines, hard rock exploration projects, geothermal sources, and borrow pits for the Proposed Action is provided below. Given historical interest, geology, logistics, the economy, and other applicable variables, predicting the type and location of potential future mines, exploration projects, geothermal energy sites, or borrow pits is extremely difficult.

While the Navy attempts to estimate and portray the likely nature and scope of potential future mining operations, the values cited for mining claims, mines, geothermal plants, or borrow pits are considered estimates and not absolute values. These estimates and analysis were derived using multiple lines of evidence and are intended only to help Congress and the Navy in their decision-making process with respect to the Proposed Action and Alternatives.

3.3.3.1 Metallic Locatable Minerals

The occurrence of metallic locatable mineral resources has been assessed within the Study Area and classified as having either a high, moderate, or low potential. For this analysis, minerals with low potential are not discussed because they are not considered to be significant. The resource potential classification takes into account the resource occurrences, geologic relationship, and historic production for each mineral resource.

Historically, locatable metallic mineral resources were produced in 11 of the 19 mining districts in the Study Area (Table 3.3-2). The precious metals silver and gold were the most common metals produced. Silver production occurred at eight mining districts and gold production occurred at seven of the mining districts. However, neither gold or silver are being mined within the withdrawal areas at present. As a general matter, most occurrences of precious metals are associated with vein-hosted epithermal mineralization.

Other metals historically produced include tungsten at three mining districts, lead at two mining districts, and antimony at one of the districts. However, none of these minerals are being mined within the withdrawal areas at present. With exception of the B-16 area, all the withdrawal areas have a history of metallic mineral resource production. Either copper, molybdenum or zinc minerals were identified, but not produced, at 15 of the mining districts.

Typically, the development of a mine goes through five stages, with each stage using progressively more sophisticated (and more expensive) techniques over a successively smaller area to identify, develop, and produce an economic mineral deposit. The full sequence of developing a mineral project involves reconnaissance, prospecting, exploration, economic evaluation, and development.

Mine development and permitting is a multiple-year process. Although actual mine site construction can normally be completed in two to three years for most surface mining locations, the permitting process can typically take two to four years. Further, investments in power lines, securing water sources, and building roads or rail for transportation may require an investment larger than the mine and milling facilities, per the Supporting Study: Mineral Potential Report (https://www.frtcmodernization.com). Depending on the market for gold, multiple exploration projects for gold deposits could be expected within the area over the next 20 years. Exploration activity could potentially result in the discovery of one or more open-pit deposits, each of which could employ between 100 and 300 people. During construction the number of employees on site could typically be two to three times larger than the long-term staff for mine and milling operations. Any such potential deposit could be located in or adjacent to areas of known potential for gold/silver. Of critical importance to the economic viability of a new deposit is the long-term commodity prices used for the metals that will be produced from the discovery in the economic and financial modeling. A typical Nevada open-pit metal mine is expected to contain between 5 to 90 million tons of ore, with a probable size of 15 million tons, averaging 0.06 troy ounces of gold per ton. Outside of a potential metal mine for gold/silver, exploration activity is not expected to result in the discovery of an economically mineable deposit.

3.3.3.2 Industrial Locatable Minerals

The resource potential classification takes into account the resource occurrences, geologic relationship, and historic production for each mineral resource. Based on historic mineral exploration activity and known occurrences in the planning area, a moderate amount of exploration for industrial minerals, mainly lithium, could occur during the life of this plan. Depending on market conditions, several exploration projects could be expected for lithium and other industrial minerals.

Lithium is of special interest due to the development and use of lithium-ion batteries; it is also one of the 35 strategic and critical minerals listed by the U.S. government. At present Nevada is host to the only active lithium producer in the U.S.; lithium is produced from locatable lithium-enriched brine in the Clayton Valley. The Clayton Valley is not located within the Study Area. Elevated concentrations of lithium have been detected in playa sediments in and adjacent to the proposed withdrawal areas, and a moderate potential exists for lithium-enriched brines within playa areas, as well as lithium mineralization in other areas in the form of lithium-bearing clay, carbonate, or evaporite rocks. A comparison of playas in the Study Area to playas in Clayton Valley, located in central Nevada and well outside of the Study Area, and where lithium is being recovered from brine, suggests that the conditions responsible for economic lithium concentrations at Clayton Valley do not exist in the Study Area; in other words, the Study Area would not be a location in which lithium would be recovered from brine in the same fashion as it is in the Clayton Valley playas. Although no economically viable lithium deposits have been identified in the study area to date, it is possible that one or more lithium brine operations would be developed in the study area. Typical lithium carbonate operations produce 30,000–35,000 tons per year of finished product.

3.3.3.3 Strategic and Critical Minerals

The resource potential classification takes into account the resource occurrences, geologic relationship, and historic production for each mineral resource.

The critical minerals that have some areas of high potential in the Study Area are barite, fluorspar, and tungsten. Barite, fluorspar, and tungsten were historically produced from mines in the Study Area but there is no current production or exploration activity for these minerals in the proposed withdrawal areas. Exploration activity is not expected to result in the discovery of an economically mineable deposit of these minerals. Lithium has some areas of moderate potential in the study area. However, no economically viable lithium deposits have been identified in the study area to date.

3.3.3.4 Leasable Minerals

The Study Area is in an area of the Great Basin province with a high concentration of producing geothermal power plants, other geothermal occurrences (e.g., hot springs, hot wells, hot gradient holes), and active geothermal exploration activity. The region is characterized by high geothermal gradients resulting from crustal and lithospheric thinning caused by the tectonic extension of the Great Basin. The geothermal gradient in the Study Area is high relative to most other areas of the Great Basin. The Late Quaternary seismicity and high crustal strain rate, which characterize the Study Area, are factors associated with geothermal potential. Range-front faults along the margins of the mountain ranges are favorable structural settings as these structures provide highly permeable conduits for deep circulating groundwater.

Until actual geothermal exploration and development begins, it is difficult to quantify the resource potential and possible future intensified production measures necessary to develop the resources. In order to assess environmental impacts resulting from an action as general as geothermal exploration, development, and production, it is necessary to assume levels of intensities of such development.

Per the Supporting Study: Mineral Potential Report (available at https://www.frtcmodernization.com), over the next 20 years, it is reasonably foreseeable that exploration drilling could occur on all existing geothermal leases, some of which might lead to more detailed exploration drilling and a few of which might lead to the discovery of geothermal resources capable of developing one 15-megawatt (MW) geothermal power plant. It is reasonably foreseeable over the next 20 years that additional leases could be sought within the study area, including in the proposed DVTA, and that exploration drilling could occur, some of which might lead to a more detailed exploration and a few of which might lead to discovery of geothermal resources capable of developing one 15 MW geothermal plant. The 15 MW power plant is used as a typical size to estimate the amount of disturbance that could be involved for the Reasonably Foreseeable Development. These calculations are meant to be used as an indicator of the impacts involved, not as a cap or limit on the size of any geothermal power plant development

Since development could occur in about 5 MW increments over a period of several years, the degree of surface disturbance at any given time is less than the total impact of surface disturbance from construction of a geothermal power facility.

The potential for oil and gas, oil shale, native asphalt and coal resources in the Study Area is low. Outside of development of a geothermal resource, exploration activity is not expected to result in the discovery of an economically developable leasable mineral deposit within the proposed withdrawal areas.

3.3.3.5 Salable Minerals

The resource potential classification for salable minerals takes into account the resource occurrences, geologic relationship, and historic production for each mineral resource.

The possible development of saleable minerals in the study area includes sand/gravel and rock aggregates. The major use of saleable minerals (primarily sand and gravel and crushed/broken rock) would continue to be for road construction and maintenance. Much of this activity would be routine seasonal maintenance on county roads, which would result in a moderate increase in demand for these materials. Because the population of the area is expected to increase over the life of this plan, it is likely that public demand for saleable minerals would increase slightly over current levels. In addition to sand and gravel, and rock aggregate, a small amount of demand for decorative stone may also develop.

Over the next 20 years, it is possible that one or more new sand and gravel deposit with good-quality material could be developed in easily accessible areas (such as within a few miles of major roads). It is also possible that one new rock aggregate deposit of good-quality material could be developed in easily accessible areas (such as within a few miles of major roads). It is possible that one or more new decorative stone-collecting site could be designated to meet the increase in demand.

Any such site could be located throughout the planning area and would generally be reached by existing roads. Site-specific National Environmental Policy Act assessments and inventories for cultural resources and threatened and endangered species would be required once a legislative decision is made. Depending on the scope of the specific action, the Navy would support, fund, and participate in any such National Environmental Policy Act analysis.

3.3.4 Environmental Consequences

This section assesses the potential impacts from the Proposed Action and alternatives on access to and availability of mineral resource exploration and development. Since the mid-1850s, private citizens, as well as entities such as public and private companies, and various local, State, and Federal agencies have performed exploration and developed the land for mineral resource extraction. These efforts have contributed to identifying areas of high, moderate, and low locatable, leasable, and salable mineral resource potential in the proposed withdrawal areas. The analysis assesses the reasonably foreseeable impacts in terms of context (affects to individuals and/or industry at the local regional and national level) and intensity (severity of impact).

The results of the impacts analysis presented in Section 3.3.1 (Methodology) are summarized in Table 3.3-7 and Table 3.3-8 and are expressed as approximate percentages of individual mineral districts and mineral potential in a given area that are inside the proposed withdrawal boundaries. All mineral districts affected by the withdrawal are shown in the tables.

3.3.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. The Navy would not renew its current withdrawal, which would expire on November 5, 2021. Mining exploration and development would presumably continue within the proposed withdrawal areas, consistent with present levels of activity. Existing mining claims and leases would not be affected and would be operated (or could potentially be further developed) under any stipulations currently in effect. Surface disturbance and other disruptive activities could continue at authorized mining sites. Those areas of the existing withdrawal that could be rendered safe for public access would potentially be usable for future mineral

exploration and development, potentially opening up to 202,864 acres for mineral development (where resources, geology, and topography permit).

Implementation of the No Action Alternative could potentially result in some beneficial impacts if the market for specific commodities supported potential profitable extraction. Except for areas with high geothermal potential, the Navy's current withdrawn lands do not extensively overlap known economically viable volumes of mineral commodities. In addition, the DVTA is currently open for geothermal exploration. Therefore, implementation of the No Action Alternative would have a minimal yet favorable impact on mineral resource exploration and development.

Table 3.3-7: Summary of Locatable Mineral Potential Impacts

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
B-16	Camp Gregory* (6,976 acres)	85% (5,925 acres)	80% (5,668 acres)	Gold	0%	85%	0%	80%
				Silver	0%	85%	0%	80%
				Copper	0%	0%	0%	0%
				Molybdenum	0%	0%	0%	0%
				Lead	0%	0%	0%	0%
				Zinc	0%	0%	0%	0%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%
B-17	Bell Mountain (5,596 acres)	80% (4,390 acres)	15% (897 acres)	Gold	80%	0%	15%	0%
				Silver	80%	0%	15%	0%
				Copper	0%	60%	0%	15%
				Molybdenum	0%	80%	0%	15%
				Lead	0%	80%	0%	15%
				Zinc	0%	80%	0%	15%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%
B-17	Broken Hills (32,512 acres)	30% (9,252 acres)	55% (17,785 acres)	Gold	0%	100%	0%	100%
				Silver	30%	0%	55%	0%
				Copper	30%	0%	55%	0%
				Molybdenum	30%	0%	55%	0%
				Lead	30%	0%	55%	0%
				Zinc	30%	0%	55%	0%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
B-17	Eagleville (15,379 acres)	100% (15,379 acres)	100% (15,379 acres)	Gold	100%	0%	100%	0%
				Silver	0%	100%	0%	100%
				Copper	100%	100%	100%	100%
				Molybdenum	0%	100%	0%	100%
				Lead	100%	0%	100%	0%
				Zinc	0%	100%	0%	100%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%
B-17	Fairview* (29,603 acres)	25% (7,667 acres)	10% (3,602 acres)	Gold	25%	0%	10%	0%
				Silver	25%	0%	10%	0%
				Copper	30%	30%	0%	30%
				Molybdenum	30%	0%	10%	0%
				Lead	25%	0%	10%	0%
				Zinc	25%	0%	10%	0%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%
B-17	Gold Basin (4,697 acres)	50% (2,434 acres)	0% (0 acres)	Gold	50%	0%	0%	0%
				Silver	0%	0%	0%	0%
				Copper	0%	0%	0%	0%
				Molybdenum	0%	20%	0%	0%
				Lead	10%	10%	0%	0%
				Zinc	0%	10%	0%	0%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
B-17	King (1,557 acres)	100% (1,557 acres)	100% (1,557 acres)	Gold	100%	0%	100%	0%
				Silver	0%	0%	0%	0%
				Copper	100%	100%	100%	100%
				Molybdenum	0%	100%	0%	100%
				Lead	0%	100%	0%	100%
				Zinc	0%	100%	0%	100%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%
B-17	Leonard (7,154 acres)	60% (4,149 acres)	20% (1,473 acres)	Gold	60%	0%	20%	0%
				Silver	60%	0%	20%	0%
				Copper	25%	25%	10%	10%
				Molybdenum	0%	60%	0%	20%
				Lead	0%	60%	0%	20%
				Zinc	0%	60%	0%	20%
				Tungsten	60%	0%	20%	0%
				Lithium	0%	0%	0%	0%
B-17	Lodi (20,294 acres)	0% (0 acres)	1% (181 acres)	Gold	0%	0%	0%	0%
				Silver	0%	0%	0%	0%
				Copper	0%	0%	0%	1%
				Molybdenum	0%	0%	0%	1%
				Lead	0%	0%	0%	1%
				Zinc	0%	0%	0%	1%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
B-17	Poinsettia (25,340 acres)	15% (3,263 acres)	25% (5,963 acres)	Gold	0%	15%	0%	25%
				Silver	0%	0%	0%	0%
				Copper	0%	15%	0%	15%
				Molybdenum	0%	12%	0%	15%
				Lead	0%	15%	0%	15%
				Zinc	0%	12%	0%	15%
				Tungsten	0%	30%	0%	50%
				Lithium	0%	50%	0%	50%
B-17	Sand Springs (32,936 acres)	Less than (>) 1% (79 acres)	0% (0 acres)	Gold	>1%	0%	0%	0%
				Silver	>1%	0%	0%	0%
				Copper	0%	>1%	0%	0%
				Molybdenum	0%	>1%	0%	0%
				Lead	0%	>1%	0%	0%
				Zinc	0%	>1%	0%	0%
				Tungsten	>1%	0%	0%	0%
				Lithium	0%	0%	0%	0%
B-20	Wild Horse (Pershing) District (23,869 acres)	50% (11,794 acres)	50% (11,634 acres)	Gold	0%	0%	0%	0%
				Silver	0%	0%	0%	0%
				Copper	0%	50%	0%	50%
				Molybdenum	0%	50%	0%	50%
				Lead	0%	50%	0%	50%
				Zinc	0%	50%	0%	50%
				Tungsten	50%	0%	50%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
B-20	Carson Sink* (288,319 acres)	60% (163,116 acres)	40% (120,021 acres)	Gold	0%	0%	0%	0%
				Silver	0%	0%	0%	0%
				Copper	0%	20%	0%	20%
				Molybdenum	0%	20%	0%	20%
				Lead	0%	20%	0%	20%
				Zinc	0%	20%	0%	20%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	100%	0%	100%
DVTA	I.X.L. District (19,341 acres)	90% (17,037 acres)	90% (17,037 acres)	Gold	0%	100%	0%	100%
				Silver	90%	0%	90%	0%
				Copper	90%	0%	90%	0%
				Molybdenum	0%	90%	0%	90%
				Lead	90%	0%	90%	0%
				Zinc	90%	0%	90%	0%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%
DVTA	Fairview* (29,603 acres)	10% (2,850 acres)	0% (0 acres)	Gold	10%	0%	0%	0%
				Silver	10%	0%	0%	0%
				Copper	10%	0%	0%	0%
				Molybdenum	10%	0%	0%	0%
				Lead	10%	0%	0%	0%
				Zinc	10%	0%	0%	0%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
DVTA	Leonard (7,154 acres)	35% (2,427 acres)	0% (0 acres)	Gold	35%	0%	0%	0%
				Silver	35%	0%	0%	0%
				Copper	10%	15%	0%	0%
				Molybdenum	0%	35%	0%	0%
				Lead	0%	35%	0%	0%
				Zinc	0%	35%	0%	0%
				Tungsten	35%	0%	0%	0%
				Lithium	0%	0%	0%	0%
DVTA	Gold Basin (4,697 acres)	50% (2,263 acres)	0% (0 acres)	Gold	50%	0%	0%	0%
				Silver	0%	0%	0%	0%
				Copper	0%	75%	0%	0%
				Molybdenum	80%	0%	0%	0%
				Lead	0%	50%	0%	0%
				Zinc	0%	25%	0%	0%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%
DVTA	Job Peak (7,037 acres)	100% (6,864 acres)	100% (6,864 acres)	Gold	0%	0%	0%	0%
				Silver	0%	0%	0%	0%
				Copper	0%	100%	0%	100%
				Molybdenum	0%	100%	0%	100%
				Lead	0%	100%	0%	100%
				Zinc	0%	100%	0%	100%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
DVTA	Mountain Wells* (29,414 acres)	80% (23,410 acres)	80% (23,410 acres)	Gold	0%	100%	0%	100%
				Silver	80%	0%	80%	0%
				Copper	80%	0%	80%	0%
				Molybdenum	0%	80%	0%	80%
				Lead	0%	80%	0%	80%
				Zinc	0%	80%	0%	80%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%
DVTA	Rawhide (32,164 acres)	5% (1,496 acres)	0% (0 acres)	Gold	5%	0%	0%	0%
				Silver	5%	0%	0%	0%
				Copper	0%	5%	0%	0%
				Molybdenum	0%	5%	0%	0%
				Lead	0%	5%	0%	0%
				Zinc	0%	5%	0%	0%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%
DVTA	Sand Springs (32,936 acres)	55% (18,182 acres)	0% (0 acres)	Gold	55%	0%	0%	0%
				Silver	55%	0%	0%	0%
				Copper	10%	80%	0%	0%
				Molybdenum	0%	55%	0%	0%
				Lead	0%	55%	0%	0%
				Zinc	0%	55%	0%	0%
				Tungsten	55%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
DVTA	Chalk Mountain (5,661 acres)	100% (5,658 acres)	100% (5,658 acres)	Gold	100%	0%	100%	0%
				Silver	100%	0%	100%	0%
				Copper	100%	100%	100%	100%
				Molybdenum	0%	100%	0%	100%
				Lead	100%	0%	100%	0%
				Zinc	0%	100%	0%	100%
				Tungsten	0%	100%	0%	100%
				Lithium	0%	0%	0%	0%
DVTA	Westgate (6,431 acres)	25% (1,508 acres)	20% (1,403 acres)	Gold	100%	0%	100%	0%
				Silver	100%	0%	100%	0%
				Copper	0%	25%	0%	20%
				Molybdenum	0%	100%	0%	100%
				Lead	25%	0%	20%	0%
				Zinc	0%	25%	0%	20%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%
DVTA	Bell Mountain (5,596 acres)	10% (613 acres)	0% (0 acres)	Gold	10%	0%	0%	0%
				Silver	10%	0%	0%	0%
				Copper	0%	0%	0%	0%
				Molybdenum	0%	0%	0%	0%
				Lead	0%	0%	0%	0%
				Zinc	0%	0%	0%	0%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Table 3.3-7: Summary of Locatable Mineral Potential Impacts (continued)

Area	Mining District (Acres)	Percent of District in Withdrawal (acres)[1]		Commodity	Percent Withdrawn in District Under Alternative 1 and 2[2]		Percent Withdrawn in District Under Alternative 3[2]	
		Alt 1 & 2	Alt 3		High Potential	Moderate Potential	High Potential	Moderate Potential
DVTA	Wonder (21,201 acres)	100% (21,188 acres)	100% (21,188 acres)	Gold	100%	0%	100%	0%
				Silver	100%	0%	100%	0%
				Copper	100%	0%	100%	0%
				Molybdenum	0%	100%	0%	100%
				Lead	100%	0%	100%	0%
				Zinc	0%	100%	0%	100%
				Tungsten	0%	0%	0%	0%
				Lithium	0%	0%	0%	0%

Please note that all acreages are approximations and do not represent exact numbers; therefore, exact numbers may not add up to the total in the mining district columns when estimating percentages of districts within each withdrawal area.

[1]The amount of overlap of a mining district with withdrawal areas is presented as a percentage for each alternative.

[2]Percentages listed represent the area of overlap between the area of mineral potential and the withdrawal area, over the total available area in the mining district. There may be areas outside of the defined mining districts that contain high or moderate mineral potential; however, the analysis is restricted to the defined mining districts established by the Nevada Division of Minerals and Geology.

*Portions of these mining districts are currently withdrawn and closed to mining activities under baseline existing conditions.

Notes: Alt = Alternative; DVTA = Dixie Valley Training Area.

Table 3.3-8: Summary of Leasable Mineral Potential Impacts

Area	Commodity	High Potential	Moderate Potential	Low Potential	Zero Potential
B-16	Geothermal	50%	0%	50%	0%
	Oil & Gas	0%	0%	60%	40%
	Oil Shale	0%	0%	60%	40%
	Potash	0%	0%	30%	70%
	Sodium	0%	0%	30%	70%
B-17	Geothermal	100%	0%	0%	0%
	Oil & Gas	0%	0%	5%/20%*	95%/80%*
	Oil Shale	0%	0%	5%/20%*	95%/80%*
	Potash	0%	0%	75%	25%
	Sodium	0%	0%	75%	25%
B-20	Geothermal	40%	60%	0%	0%
	Oil & Gas	0%	0%	90%	10%
	Oil Shale	0%	0%	90%	10%
	Potash	0%	80%	0%	20%
	Sodium	0%	80%	0%	20%
DVTA	Geothermal	40%	40%	20%	0%
	Oil & Gas	0%	0%	75%	25%
	Oil Shale	0%	0%	75%	25%
	Potash	0%	0%	60%	40%
	Sodium	0%	0%	60%	40%

Please note that these percentages are based on the area of the ranges or training area individually, and depict the approximate percentage of the range or training area that is covered by high, moderate, low, or zero potential for a commodity.
*Denotes percentages under Alternative 3 if different from Alternative 1 and 2.

3.3.4.2 Alternative 1: Modernization of the Fallon Range Training Complex (Proposed Action)

Under Alternative 1, the Navy proposes renewal by Congress of the current public land withdrawal for the FRTC. Additional public lands would be requested for withdrawal (approximately 618,727 acres), and non-federal lands are proposed for acquisition (approximately 65,159 acres). Subject to valid existing rights, all proposed FRTC lands, which would otherwise remain subject to the operation of the public land laws, would be withdrawn from all forms of appropriation under the public land laws, including the mining laws and the mineral leasing and geothermal leasing laws. For there to be a valid existing mining right, the mining claim holder must demonstrate that the mining claim contains a discovery of a valuable mineral deposit. Having a valid existing mining claim would exclude any such mining claim from any moratorium imposed by the requested withdrawal legislation for development of the mining claim. Therefore, under the Proposed Action, the Navy would acquire any valid existing mining claims within the proposed withdrawal areas at fair market value.

With regard to existing patented mining claims, the federal government has passed the title of these lands to the claimant, making these lands private lands. The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary. The existence of a patented mining claim does not in itself indicate whether there has been any discovery of a valuable mineral deposit associated with lands in question.

Holders of unpatented mining claims on public lands may conduct a validity exam, which is a formal process that determines whether the mining claim holder has a valid existing right. The Secretary of the Interior determines the validity of a mining claim based on this validity examination. However, holders of unpatented mining claims are not required to conduct a validity exam. In instances where a mining claim holder has not conducted a validity exam, any value associated with the mining claim is assumed to be nominal. Accordingly, the Navy would offer mining claim holders without a validity exam a nominal amount to "extinguish the mining claim." This would also apply to claim holders who have conducted a validity exam, but the exam has not indicated the discovery of a valuable mineral deposit.

Federal land withdrawn from mineral entry would no longer be open to new mining claims. Withdrawing the land from mineral entry would also prohibit future mineral exploration and development within the proposed boundaries of the public land withdrawal. Ultimately, withdrawing an area from mining development would remove the possibility of those mineral resources being extracted during the period of the withdrawal. In addition, operators may choose to relocate outside the proposed boundaries of the public land withdrawal, potentially affecting other public and private lands.

Alternative 1 would close access to and withdraw all or portions of 19 historical mining districts from mining locatable minerals. Alternative 1 would also withdraw public land from the mineral leasing law and the geothermal laws, subject to valid existing rights. BLM would not renew existing leases under this alternative. Surface occupancy and mineral exploration and development for leasable minerals would not be allowed within the proposed FRTC boundary. This would restrict the availability of leasable minerals for development or extraction. Operators may relocate to nearby areas outside the FRTC (factoring in resources, geology, and topography), potentially reducing the number of operations on federal land but also potentially affecting other public and private lands.

This alternative would also not allow for access to or extraction of salable minerals within the proposed FRTC boundary. This alternative could potentially eliminate or reduce state and local government's ability to use nearby materials at no cost for the benefit of public projects, like the creation or

maintenance of rural roads. This alternative could result in requiring developers to transport mineral materials from other locations, which would potentially increase their operating costs.

Closing the property may also affect mineral management by limiting the availability of mineral transport within certain areas. For example, new public roads, railroads, or other rights of way that would transport minerals could not be located within the proposed closed areas of the Bravo ranges, which would limit the availability to access and transport locatable and salable minerals. Closing the property would also limit the available means to transport mineral resources like oil/gas pipelines or geothermal energy transmission lines.

3.3.4.2.1 Bravo-16

Land Withdrawal and Acquisition

Alternative 1 would expand B-16 to approximately 59,560 acres, which would be an increase of approximately 32,201 acres from existing conditions (Table 2-1). Implementing Alternative 1 would expand the B-16 range west into Lyon County and would close these areas for future locatable hard rock mineral exploration and development, leasable geothermal exploration and development, and salable borrow pit exploration and development.

The proposed withdrawal would prohibit access to parts of the Camp Gregory Mining District for gold and silver exploration and development. Details such as the percentage of the withdrawn land in the district with significant mineral potential are summarized in Table 3.3-7 and Table 3.3-8.

Industrial locatable minerals are summarized in Table 3.3-4. For the purposes of this analysis, a significant impact on the mineral resources is considered to be the withdrawal from access of the minerals classified as either moderate or high potential. Affected locatable minerals with moderate potential include gold and silver. Details for impacts related to locatables are summarized in Table 3.3-7. Moderate or high potential leasable impacts are limited to geothermal resources, and high or moderate potential salable impacts include petrified wood, aggregate, sand, gravel, and clay. Details for leasable impacts are summarized in Table 3.3-4. Additional information for salable impacts are in Table 3.3-5.

There is potential for sand, gravel, clay or other building materials to exist in the proposed withdrawal area; however, due to an abundance of sand, gravel, and other salable material elsewhere, it is not anticipated that exploration and development for these materials would be more attractive and economically viable in the B-16 withdrawal area as compared to other areas. In the reasonably foreseeable future, this analysis supports the conclusion that there are no known comparative significant impacts at the individual or industry level in the short and long term for salable minerals.

Training Activities

Training activities would be located within the proposed boundary of B-16, and the public would not be able to access B-16 under this alternative. In accordance with Navy policy, mining is not compatible within a surface danger zone of an operational range. The Navy would continue to follow existing operating procedures that prohibit the collection of materials from any mining area and prohibit entry to mine shafts and mines. Navy training activities would not impact mining activities outside of the proposed withdrawal boundaries.

Public Accessibility

Under Alternative 1, the mining of locatable, leasable, and salable minerals would not be allowed within the proposed boundary of B-16, the perimeter of which would be fenced and closed. Lands south of

Simpson Road would be withdrawn and closed to public access. Simpson Road itself is closed to public access. There would be no significant impacts on mineral resource development.

Construction

Other than potentially requiring the use of raw materials (e.g., sand, clay, copper) and temporarily increasing traffic, construction activities would not be anticipated to affect mining activities on adjoining lands. Any potential consumption of raw materials (e.g., sand, clay, copper) would be minimal.

3.3.4.2.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 1 would expand B-17 to approximately 232,799 acres, which would be an increase of approximately 178,013 acres from existing conditions (Table 2-1). Implementing Alternative 1 would expand the B-17 range south into Mineral and Nye Counties and would close these areas for future locatable hard rock mineral exploration and development, leasable geothermal exploration and development, and salable borrow pit exploration and development.

Although there are 10 Historical Mining Districts located south of U.S. Route 50 (see Figure 3.3-1), this analysis focuses on mineral resource areas with either moderate or high potential, because these are the areas that could be attractive for future exploration or development.

The proposed withdrawal would prohibit access to parts of the Bell Mountain, Broken Hills, Fairview, Gold Basin, Leonard, Poinsettia, and Sand Springs mining districts. In addition, the proposed withdrawal would prohibit all access to the King and Eagleville Districts. For the purposes of this analysis, a significant impact on the mineral resources is considered to be the withdrawal from access of those minerals classified as either moderate or high potential. Affected commodities with high or moderate potential include gold, silver, copper, molybdenum, lead, zinc, lithium and tungsten. Details such as the percentage of the withdrawn land in the district with significant mineral potential are summarized in Table 3.3-7 and 3.3-8. The moderate or high potential leasable impact is limited to geothermal resources, and high or moderate potential salable impacts include aggregate-sand, gravel, and clay (these commodities are not directly tied to the mineral districts). Details for leasable impacts are summarized in Table 3.3-4. Additional information for salable impacts are in Table 3.3-5.

Training Activities

Training activities would be located within the proposed boundary of B-17, and the public would not be able to access B-17 under this alternative. In accordance with Navy policy, mining is not compatible within a WDZ of an operational range. The Navy would continue to follow existing operating procedures that prohibit the collection of materials from any mining area and prohibit entry to mine shafts and sites. Navy training activities would not impact mining activities outside of the proposed withdrawal boundaries.

Public Accessibility

Under Alternative 1, mining and development of locatable, leasable, and salable minerals would not be allowed within the proposed boundary of B-17. There would be no significant impacts on mineral resource development outside of the proposed withdrawal boundary.

Construction

Other than potentially requiring the use of raw materials (e.g., sand, clay, copper) and temporarily increasing traffic, construction activities would not be anticipated to affect mining activities on adjoining lands. Any potential consumption of raw materials would be minimal.

3.3.4.2.3 Bravo-20

Land Withdrawal and Acquisition

Alternative 1 would expand B-20 to approximately 221,334 acres, which would be an increase of approximately 180,329 acres from existing conditions (Table 2-1). Implementing Alternative 1 would expand the B-20 range north into Pershing County. This alternative would close these lands from future locatable mineral exploration and development, geothermal development, and mining for salable minerals.

The proposed withdrawal would prohibit access to parts of Wild Horse (Pershing) and Carson Sink mining districts. For the purposes of this analysis, a significant impact on the mineral resources is considered to be the withdrawal of access to minerals classified as either moderate or high potential. Affected commodities with high or moderate potential include copper, molybdenum, lead, zinc, lithium, and tungsten. Details such as the percentage of the withdrawn land in the district with significant mineral potential are summarized in Table 3.3-7 and Table 3.3-8. The moderate or high potential leasable mineral impact is limited to geothermal resources, and high or moderate potential salable mineral impacts include aggregate-sand, gravel, and clay. Details for leasable impacts are summarized in Table 3.3-4. Additional information for salable impacts are in Table 3.3-5.

Training Activities

Training activities would be located within the proposed boundary of B-20 and the public would not be able to access B-20 under this alternative. In accordance with Navy policy, mining is not compatible within a WDZ of an operational range. The Navy would continue to follow existing operating procedures that prohibit the collection of materials from any mining area and prohibit entry to mine shafts and sites. Navy training activities would not impact mineral resource development outside of the proposed withdrawal boundaries.

Public Accessibility

Under Alternative 1, the mining of locatable, leasable, and salable minerals would not be allowed within the proposed boundary of B-20. With the exception of East County Road and a small portion of the range east of East County Road, the perimeter of B-20 would be fenced and closed for public safety. There would be no significant impacts on mineral resource development outside of the proposed withdrawal boundary.

Construction

Other than potentially requiring the use of raw materials (e.g., sand, clay, copper) and temporarily increasing traffic, construction activities would not be anticipated to affect mining activities on adjoining lands. Any potential consumption of raw materials would be minimal.

3.3.4.2.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Alternative 1 would expand the DVTA to approximately 370,903 acres, which would be an increased withdrawal of approximately 293,343 acres from existing conditions, and would withdraw 68,809 acres in the DVTA that previously were not withdrawn from the mineral leasing laws (Table 2-1). Implementing Alternative 1 would expand the DVTA south into Mineral County and would close these areas for future locatable hard rock mineral exploration and development, leasable geothermal exploration and development, and salable borrow pit exploration and development.

The proposed withdrawal would prohibit access for mineral and geothermal development to parts of the I.X.L, Job Peak, Leonard, Mountain Wells, Sand Springs, Rawhide, Fairview, Gold Basin, Bell Mountain, and Westgate mining districts for purposes of mineral and geothermal development. In addition, the proposed withdrawal would prohibit all access to the Wonder and Chalk Mountain districts. For purposes of this analysis, a significant impact on mineral resources is considered to be the withdrawal of access to the minerals classified as either moderate or high potential. Affected commodities with high or moderate potential include gold, silver, copper, molybdenum, lead, zinc, and tungsten. Details such as the percentage of the withdrawn land in the district with significant mineral potential are summarized in Table 3.3-7 and Table 3.3-8. The moderate or high potential leasable mineral impact is limited to geothermal resources, and high or moderate potential salable mineral impacts include aggregate-sand, gravel, and clay. Details for leasable impacts are summarized in Table 3.3-4. Additional information for salable impacts are in Table 3.3-5.

Training Activities

Training activities would be located within the proposed boundary of the DVTA and the public would not be able to access the DVTA under this alternative for mining or mineral resource exploration or development.

The public may observe and hear aircraft, and support vehicles from adjacent or nearby areas during training activities; however, Navy training activities would not impact mineral resource development outside of the proposed withdrawal boundaries. Under this alternative, the Navy would apply its existing operating procedures that prohibit the collection of materials from any mining area and prohibit entry to mine shafts and sites in the expanded DVTA.

Public Accessibility

Under Alternative 1, mining and development of locatable and salable minerals would not be allowed within the proposed boundary of the DVTA and the public would not be allowed to enter the DVTA for these purposes. There would be no significant impacts on mineral resource development outside of the proposed withdrawal boundary.

Construction

Other than potentially requiring the use of raw materials (e.g., sand, clay, copper) and temporarily increasing traffic, construction activities would not be anticipated to impact mineral resource development mining activities on adjoining lands. Any potential consumption of raw materials would be minimal.

3.3.4.2.5 Fallon Range Training Complex Special Use Airspace

Changes to special use airspace would not impact mining or mineral resources. In accordance with the National Environmental Policy Act process, the Navy would prepare a formal Range Air Installations Compatible Use Zones update to formalize the recommendation for new safety zones and confirm existing safety zones. The Navy would continue to work with the local counties and municipalities as well as federal property land managers to plan for compatible land use development.

3.3.4.2.6 Summary of Effects and Conclusions

Alternative 1 would close, subject to valid existing rights, approximately 916,168 acres from all forms of appropriation, including the mining laws, the mineral leasing laws, and the geothermal leasing laws. This would include lands with variable potential for locatable, leasable, and salable minerals.

Alternative 1 would prohibit future exploration and production of locatable mineral resources, potentially impacting this industry, especially if future market conditions were to prove favorable for exploration leading to development. Therefore, under this alternative, with regard to existing patented mining claims, the federal government has passed the title of these lands to the claimant, making these lands private lands. The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary. This alternative would not allow the exploration and development of leasable resources within the proposed boundary. Also, with respect to unpatented and unvalidated claims, the Navy would offer nominal payments (as discussed above at Section 3.3.4.2, Alternative 1: Modernization of the Fallon Range Training Complex [Proposed Action]). This alternative would eliminate the opportunity for expansion of this geothermal resource in areas of known high favorability for viable energy production. There are several very small-scale salable materials borrow sites within the proposed withdrawal area but due to the abundance of these materials in many areas of the state, impacts on these commodities would not be significant. However, Alternative 1 would have potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.

3.3.4.3 Alternative 2: Modernization of Fallon Range Training Complex and Managed Access

Alternative 2 is essentially identical to Alternative 1 but attempts to minimize impacts on geothermal development and the mining of salable minerals within the DVTA by allowing managed access in portions of the DVTA**.** As with Alternative 1, lands south of Simpson Road would be withdrawn, but under Alternative 2, Simpson Road would remain open to public use.

The Navy would allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures, allow geothermal development west of State Route 121. The Navy is proposing the following required design features for geothermal development:

- Allow the expansion of two Rights of Way (ROWs) adjacent to the current transmission corridor as close to current Terra-Gen line as possible.
- Maximum width of permanent ROW is 90 feet each
- Maximum width of temporary ROW is 300 feet
- Construct underground transmission line connection from the facility to existing transmission line ROW along State Route 121
- Use compatible lighting with downward facing shades, lighting with frequency that doesn't "wash out" night-vision devices, and motion sensors to minimize light as appropriate
- Coordinate with Navy on frequency spectrum

- Use cooling towers and other structures no higher than 40 feet
- Avoid steam field piping blocking current access roads to/from State Route 121 and canyon areas
- Require a glint and glare analysis for photovoltaic solar/geothermal hybrid design, approved by the Navy, prior to construction.
- Coordinate all exploratory and construction activities with NAS Fallon
- Coordinate with NAS Fallon for all temporary vertical obstruction safety lighting
- Coordinate with NAS Fallon on the use of unmanned aerial vehicles used in the DVTA

Portions of the Clan Alpine Wilderness Study Area (WSA), Job Peak WSA, and Stillwater WSA have high potential for geothermal resources. Removing the WSA designation from portions of WSAs would open these areas to geothermal and salable mineral development, potentially offsetting impacts on geothermal development in other areas**.** The BLM would continue to manage any remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs. Any development on any such de-designated lands would still need to meet the proposed required design features before any activities could occur. The Navy would coordinate with BLM with respect to any potential exploration activities as they would be temporary but would need to be compatible with training schedules in the DVTA.

3.3.4.3.1 Training Activities

Training activities would be located within the proposed boundary of the DVTA. The public may observe and hear aircraft, small arms fire, various explosive munitions, and support vehicles from adjacent or nearby areas during training activities; however, Navy training activities would not impact mineral resources development outside of the proposed withdrawal boundaries. In any portions of the current WSAs that would be de-designated and become part of the proposed expansion of the DVTA, the Navy would train as it currently does in the existing DVTA, including with respect to the use of Off-Highway Vehicles.

3.3.4.3.2 Public Accessibility

Under Alternative 2, mining and development of locatable minerals would not be allowed within the proposed boundary of the DVTA. However, the Navy would allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures, allow geothermal development west of State Route 121, to the extent compatible with mission requirements and so long as the above-listed required design features are met. There would be no significant impacts on mineral resources development outside of the proposed withdrawal boundary.

3.3.4.3.3 Construction

Other than potentially requiring the use of raw materials (e.g., sand, clay, copper) and temporarily increasing traffic, construction activities would not be anticipated to affect mining activities on adjoining lands. Any potential consumption of raw materials would be minimal.

3.3.4.3.4 Summary of Effects and Conclusions

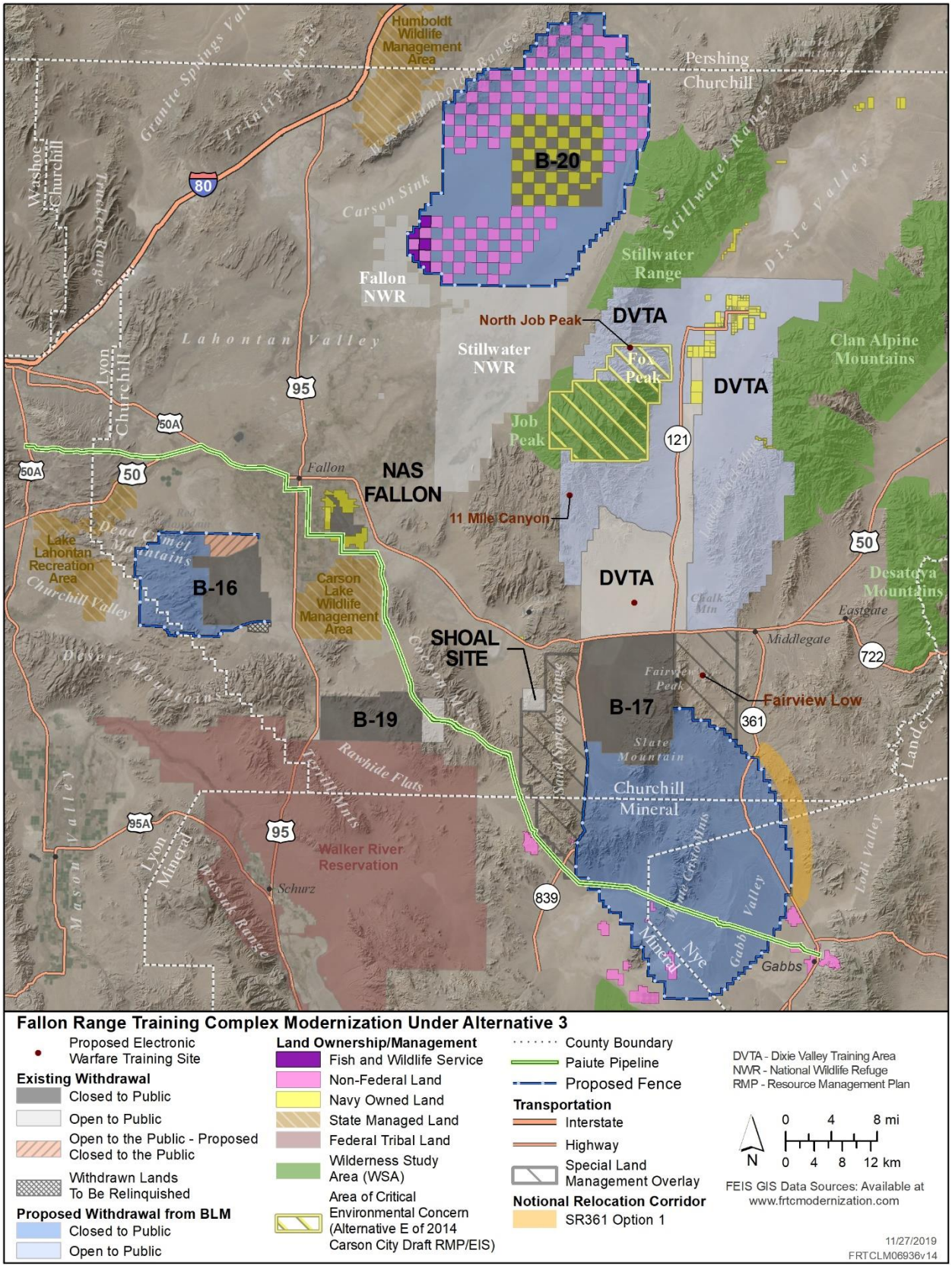
Alternative 2 would prohibit future exploration and production of locatable mineral resources, potentially impacting this industry, especially if future market conditions were to prove favorable for exploration leading to development. Therefore, under this alternative, the Navy would acquire any valid existing mining claims within the proposed withdrawal. With regard to patented mining claims, the federal government passed the title of these lands to the claimant, making these lands private lands.

The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary. This alternative would not allow the exploration and development of leasable resources within the proposed boundary. Also, with respect to unpatented and unvalidated claims, the Navy would offer nominal payments (as discussed above at Section 3.3.4.3, Alternative 2: Modernization of Fallon Range Training Complex and Managed Access). This alternative would not allow the exploration and development of leasable geothermal resources within the proposed boundaries of the FRTC bombing ranges and would therefore eliminate the potential expansion of this important resource in areas of known high favorability for viable energy production. However, there are areas of high geothermal potential and certainty in the proposed DVTA areas west of State Route 121. With implementation of required design features, limited geothermal development could be allowed in the DVTA. There are several very small-scale salable materials borrow sites within the proposed bombing ranges but due to the abundance of these materials in many areas of the state, impacts on these commodities would not be significant. The DVTA has high potential for sand and gravel, and moderate potential for clay. Alternative 2 would allow exploration for and development of these salable resources, reducing the impact on this resource in comparison to Alternative 1.

Alternative 2 includes changes meant to reduce impacts on mineral resources in the DVTA. This alternative would withdraw lands with high potential for locatable, leasable, and salable minerals and may have an economic impact if market conditions were favorable for more mineral resource development. With implementation of required design features, the impacts on geothermal exploration and development, as well as salable exploration and development, would be reduced in comparison to Alternative 1. However, Alternative 2 would have potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.

3.3.4.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Under Alternative 3, the land requested for withdrawal for the DVTA north of U.S. Route 50 would remain the same as in Alternative 1. However, the Navy would not withdraw land south of U.S. Route 50 as part of the expansion of the DVTA (Figure 3.3-16). Rather, the Navy proposes that Congress categorize this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the proposed B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be included in the withdrawal proposal and would not be used for land-based military training or managed by the Navy. The area does include an existing right-of-way for a current Navy communication site. Otherwise, these two areas would remain open to public access and would be available for all appropriative uses, including mining for locatable and leasable mineral resources. However, prior to issuing any decisions on projects, permits, leases, studies, and other land uses within the two special use zones, BLM would be required to consult with NAS Fallon. This consultation would inform the Navy of proposed projects, permits, leases, studies, and other land uses and afford the Navy an opportunity to collaborate with BLM to preserve the training environment near B-17. BLM would have to obtain the approval of NAS Fallon for the use of mobile or stationary transmitters or receivers of electromagnetic radio signals should any such equipment be used as part of a BLM permit, lease, study, or other land use. This approval requirement would allow the Navy and user of this equipment to develop procedures to ensure compatibility of military and civilian use of radio spectrum. BLM and the Navy may enter into a Memorandum of Understanding (MOU) to govern the process for consultation concerning (and, if appropriate, approval of) any such potential land uses within the Special Land Management Overlay.



Fallon Range Training Complex Modernization Under Alternative 3

- Proposed Electronic Warfare Training Site

Existing Withdrawal
- Closed to Public
- Open to Public
- Open to the Public - Proposed Closed to the Public
- Withdrawn Lands To Be Relinquished

Proposed Withdrawal from BLM
- Closed to Public
- Open to Public

Land Ownership/Management
- Fish and Wildlife Service
- Non-Federal Land
- Navy Owned Land
- State Managed Land
- Federal Tribal Land
- Wilderness Study Area (WSA)
- Area of Critical Environmental Concern (Alternative E of 2014 Carson City Draft RMP/EIS)

- County Boundary
- Paiute Pipeline
- Proposed Fence

Transportation
- Interstate
- Highway
- Special Land Management Overlay

Notional Relocation Corridor
- SR361 Option 1

DVTA - Dixie Valley Training Area
NWR - National Wildlife Refuge
RMP - Resource Management Plan

N 0 4 8 mi
0 4 8 12 km

FEIS GIS Data Sources: Available at www.frtcmodernization.com

11/27/2019
FRTCLM06936v14

Figure 3.3-16: Fallon Range Training Complex Modernization Under Alternative 3

This alternative is similar to Alternative 1 for B-16 and B-20 with regard to land withdrawal and acquisition and similar to Alternative 2 with regard to access and design features for salable and limited leasable mining activities in the DVTA. The primary difference under this alternative with respect to the requested land withdrawal and proposed acquisition of non-federal lands is that the expansion areas proposed for B-17 would be located farther to the south and east and rotated slightly counter-clockwise (see Figure 3.3-16). The expansion to the southeast and counterclockwise rotation allows public access to areas with higher mineral resource potential on the west side of the proposed B-17 withdrawal. With the implementation of the Special Land Management Overlay, active mine workings west of State Route 839 (Rawhide and Leonard Mining Districts) would not overlap the proposed B-17 withdrawal area. Unlike Alternative 1 and Alternative 2, Alternative 3 would allow exploration and development of a large area of high geothermal favorability, also located on the west side of the existing B-17; and would allow public access to mining in portions of the Fairview, Bell Mountain, and Gold Basin Mining Districts. Further, with the shifting of the B-17 proposed withdrawal area and the creation of the Special Land Management Overlay, State Route 839 would not need to be relocated under this Alternative, and would continue to provide an access corridor for commodities from active mine sites west of State Route 839.

In B-17, the proposed withdrawal would prohibit access to parts of the Bell Mountain, Broken Hills, Leonard, Lodi, and Poinsettia Mining Districts. In addition, the proposed withdrawal would prohibit all access to the King and Eagleville districts. For purposes of this analysis, a significant impact on mineral resources is considered to be the withdrawal from access of the minerals classified as either moderate or high potential. Affected commodities with high or moderate potential include gold, silver, copper, molybdenum, lead, zinc, lithium, and tungsten. Details such as the percentage of the withdrawn land in the district with significant mineral potential are summarized in Table 3.3-7 and Table 3.3-8. The moderate or high potential leasable impact is limited to geothermal resources, and high or moderate potential salable impacts include aggregate-sand, gravel, and clay. Details for leasable impacts are summarized in Table 3.3-5. Additional information for salable impacts are in Table 3.3-6.

In the DVTA, the proposed withdrawal would prohibit locatable mining in parts of I.X.L, Job Peak, Mountain Wells, and Westgate Mining Districts that would be within the DVTA. In addition, the proposed withdrawal would prohibit all locatable mining in the Wonder and Chalk Mountain districts as they would be completely within the DVTA. Affected commodities with high or moderate potential include gold, silver, copper, molybdenum, lead, zinc, and tungsten. Details such as the percentage of the withdrawn land in the district with significant mineral potential are summarized in Table 3.3-7 and Table 3.3-8. The moderate or high potential leasable mineral impact is limited to geothermal resources, and high or moderate potential salable mineral impacts include aggregate-sand, gravel, and clay. Details for leasable impacts are summarized in Table 3.3-5. Additional information for salable impacts is in Table 3.3-6.

3.3.4.4.1 Training Activities

Training activities would be located within the proposed boundaries of the Bravo ranges and the DVTA, and the public would not be able to access the Bravo ranges for mining or mineral resource exploration or development.

3.3.4.4.2 Public Accessibility

Under Alternative 3, mining and development of locatable minerals would not be allowed within the proposed boundaries of the Brave ranges and the DVTA, and the public would not be allowed to enter

the Bravo ranges and the DVTA for these purposes. Within B-16 under Alternative 3, lands south of Simpson Road are not proposed for withdrawal. Existing withdrawal lands south of Simpson Road would be relinquished to BLM/Bureau of Reclamation. Portions of Simpson Road not withdrawn would remain available for public use.

The Navy would allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures and in accordance with the Geothermal Steam Act of 1970, would allow geothermal development west of State Route 121, as long as the required design features listed in this resource section and Chapter 5 (Management Practices, Monitoring, and Mitigation) are met.

Between the Draft EIS and Final EIS, the Navy assessed potential impacts on access to existing active mines or mining claim locations around the perimeter of the proposed land withdrawals and acquisitions at the FRTC. This assessment found that no access to mines or claims locations would be impacted around B-16. For B-17, access to up to 16 mine and claim locations would potentially be impacted. All of these sites are located around the northeast perimeter of the proposed withdrawal area. The most direct access to these sites is from non-traditional roads off of State Route 361. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, design, permitting, and constructing any realignment of either State Route 839 or State Route 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. The Nevada Department of Transportation would ensure that construction of any new route is complete before closing any portion of the existing State Route 839 or 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 or 361 unless and until any such new route has been completed and made available to the public. The above-referenced existing active mines or mining claim locations include

- San Felipe Prospect
- Calisco Shaft
- San Rafeal Mine (two sites)
- San Rafeal #2 Mine
- Quartz Mountain Metals Mine
- Old Hasbrouck Mine
- Hasbrouck Mine
- Unnamed Prospect B
- Aspen Group
- Desert Group (two sites)
- Nellie Tungsten Property
- Nellie
- Moth Group at Stanford
- Aunt Ethel Lead-Silver Prospect

Around B-20, access to a total of three claim locations would potentially be impacted (associated with the Silver Prospect group of three sites). These sites are located outside of the B-20 perimeter; however, the most direct access to these sites would be cut off due to the closure of access to a non-traditional road. Access by non-traditional roads from the south and east would also be cut off. Therefore, these

mining claim locations would only be accessible through washes accessed from the northwest via Derby Road or via other non-traditional roads.

For DVTA, Alternative 3 would allow for continued access on Dixie Valley Road. Therefore, access to claims for purpose of prospecting would not be hindered under Alternative 3.

Although current routes for access to sites around the proposed B-17 and B-20 would be disturbed under Alternative 3, these sites (outside of the lands requested for withdrawal and proposed for acquisition) would still be available for mining and accessible via alternative routes. Therefore, there would be no significant effects to mining and mineral resources outside of the proposed Bravo ranges and the DVTA boundaries.

3.3.4.4.3 Construction

Other than potentially requiring the use of raw materials (e.g., sand, clay, copper) and temporarily increasing traffic, construction activities would not be anticipated to affect mining activities on adjoining lands. Any potential consumption of raw materials would be minimal.

3.3.4.4.4 Summary of Effects and Conclusions

Alternative 3 would prohibit future exploration and production of locatable mineral resources, potentially impacting this industry, especially if future market conditions were to prove favorable for exploration leading to development; however, it would do so to a lesser extent than Alternatives 1 or 2. This alternative would not allow the exploration and development of leasable geothermal resources within the proposed boundaries of the FRTC bombing ranges and would therefore eliminate the potential expansion of this important resource in areas of known high favorability for viable energy production. However, there are areas of high geothermal potential and certainty in the proposed DVTA areas west of State Route 121. With implementation of required design features, limited geothermal development could be allowed in the DVTA. There are several very small-scale salable materials borrow sites within the proposed withdrawal areas for the Bravo ranges , but due to the abundance of these materials in many areas of the state, impacts on these commodities would not be significant. As stated with respect to Alternative 1 and 2, the Navy would acquire any valid existing mining claims within the proposed withdrawal. This alternative would not allow the exploration and development of leasable resources within the proposed boundary. Also, with respect to unpatented and unvalidated claims, the Navy would offer nominal payments (as discussed above in Section 3.3.4.4, Alternative 3: Bravo-17 Shift and Managed Access [Preferred Alternative]). The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary.

Although Alternative 3 includes changes meant to reduce impacts on mineral resources around B-17 in the Special Land Management Overlay areas and the DVTA, and thus would likely have less of a negative economic impact for mineral resource development than the other alternatives, this alternative would still withdraw lands with high potential for locatable, leasable (geothermal), and salable minerals. Therefore, Alternative 3 would have potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.

3.3.4.5 Proposed Management Practices, Monitoring, and Mitigation

3.3.4.6 Proposed Management Practices

No additional management practices would be warranted for mining and mineral resources, based on the analysis presented in Section 3.3.3 (Environmental Consequences). However, under the Proposed

Action, the Navy would make payments to holders of mining claims within the proposed withdrawal at fair market value. The evaluation process is outlined below:

- **Validating existing mining right**. For there to be a valid existing mining right, the claim holder must demonstrate that the claim contains a discovery of a valuable mineral deposit. Having a valid existing claim would exclude any such claim from any moratorium imposed by the requested withdrawal legislation for development of the claim. Therefore, under the Proposed Action, the Navy would acquire any valid existing claims within the proposed withdrawal at fair market value.
- **Existing patented mining claims.** With regard to existing patented mining claims, the federal government has passed the title of these lands to the claimant, making these lands private lands. The Navy would therefore need to acquire any such lands within the proposed FRTC land boundary.
- **Unpatented mining claims.** Holders of unpatented mining claims on public lands may conduct a validity exam, which is a formal process that determines whether the claim holder has a valid existing right. However, holders of unpatented mining claims are not required to conduct a validity exam. In instances where a claim holder has not conducted a validity exam, any value associated with the claim is assumed to be nominal. Accordingly, the Navy would offer to claim holders without a validity exam a nominal amount to extinguish the mining claim. This would also apply to claim holders who have conducted a validity exam, but the exam has not indicated the discovery of a valuable mineral deposit. A nominal value offered would minimally cover the investment that the claim holder has made in the claim over the period of time the claimant has held the claim.

3.3.4.7 Proposed Monitoring

No monitoring measures would be warranted for mining and mineral resources based on the analysis presented in Section 3.3.3 (Environmental Consequences).

3.3.4.8 Proposed Mitigation

Under Alternatives 2 and 3 (Preferred Alternative) the Navy would allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures, would allow geothermal development west of State Route 121 as managed under the Geothermal Steam Act of 1970, as long as the required design features listed in Chapter 5 (Management Practices, Monitoring, and Mitigation) are met.

Alternative 3 would likely have less of an impact on locatables mining, as creation of the proposed Special Land Management Overlay would reduce the area in which exploration and development of locatables would be prohibited. Also, under Alternative 2 and Alternative 3, the Navy would reduce impacts on mineral resource development by proposing to allow salable mining activities and, subject to conditions established in conjunction with BLM leasing procedures, to allow geothermal development west of State Route 121 in the DVTA as managed under the Geothermal Steam Act of 1970, as long as the required design features listed in Chapter 5 (Management Practices, Monitoring, and Mitigation) are met. The Navy and BLM would enter into an MOU that would define the coordination process to ensure any permit, lease, or other land use decision would be consistent with the purposes of the military withdrawal.

Alternative 2 and Alternative 3 (Preferred Alternative) incorporate mitigation by proposing to allow geothermal development and mining activities to continue on certain withdrawn areas as long as the actions are consistent with training activities and approved by the Navy.

The Navy is currently proposing the following required design features for geothermal development:

- Allow the expansion of two ROWs adjacent to the current transmission corridor as close to current Terra-Gen line as possible.
- Maximum width of permanent ROW is 90 feet each.
- Maximum width of temporary ROW is 300 feet.
- Construct underground transmission line connection from the facility to existing transmission line ROW along State Route 121.
- Use compatible lighting with downward facing shades, lighting with frequency that doesn't "wash out" night-vision devices, and motion sensors to minimize light as appropriate.
- Coordinate with Navy on frequency spectrum.
- Use cooling towers and other structures no higher than 40 feet.
- Avoid steam field piping blocking current access roads to/from State Route 121 and canyon areas.
- Require a glint and glare analysis for photovoltaic solar/geothermal hybrid design, approved by the Navy, prior to construction.
- Coordinate all exploratory and construction activities with NAS Fallon.
- Coordinate with NAS Fallon for all temporary vertical obstruction safety lighting.
- Coordinate with NAS Fallon on the use of unmanned aerial vehicles used in the DVTA.

3.3.4.9 Summary of Effects and Conclusions

Table 3.3-9 summarizes the effects of the alternatives on mining and mineral resources.

Table 3.3-9: Summary of Effects for Mining and Mineral Resources

Summary of Effects and National Environmental Policy Act Determinations	
No Action Alternative	
Summary	• Existing withdrawal areas at FRTC could potentially be used for mining and mineral resource development following clean-up • Areas that cannot be rendered safe for public access would remain off limits
Impact Conclusion	The No Action Alternative would not result in significant impacts on mining and mineral resources.
Alternative 1	
Summary	• Would prohibit future exploration and production of locatable mineral resources potentially impacting this industry to the extent future market conditions may be favorable for exploration leading to development. • Would not allow the exploration and development of geothermal resources within the proposed boundaries of the FRTC and would eliminate expansion of this important resource in areas of known high favorability for viable energy production.
Impact Conclusion	Alternative 1 would result in potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.
Alternative 2	
Summary	• Would prohibit future exploration and production of locatable mineral resources potentially impacting this industry to the extent future market conditions may be favorable for exploration leading to development. • Would allow potential geothermal development in DVTA west of State Route 121. • Removing the WSA designation from at least portions of WSAs that overlap the proposed withdrawal in DVTA would open these areas to salable mineral development and to potential geothermal development, potentially offsetting impacts on geothermal development in other areas under the Proposed Action. The BLM would continue managing the remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs. In any portions of the current WSAs that would be de-designated and become part of the proposed expansion of the DVTA, the Navy would train as it currently does in the existing DVTA, including with respect to the use of Off-Highway Vehicles.
Impact Conclusion	Alternative 2 would allow some geothermal exploration and development and salable mineral resource development in the DVTA that would not be allowed under Alternative 1. However, Alternative 2 would result in potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.

Table 3.3-9: Summary of Effects for Mining and Mineral Resources (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 3	
Summary	• Would reduce the area subject to restrictions on exploration and development of locatable mineral resources relative to Alternatives 1 and 2, by providing for establishment of the Special Land Management Overlay areas. • Would allow potential geothermal development in DVTA west of State Route 121. • Notwithstanding reduction in overall area subject to restriction, would prohibit future exploration and production of locatable mineral resources potentially impacting this industry to the extent future market conditions may be favorable for exploration leading to development. • Removing the WSA designation from at least portions of WSAs that overlap the proposed withdrawal in DVTA would open these areas to salable mineral development and to potential geothermal development, potentially offsetting impacts on geothermal development in other areas under the proposed action**.** The BLM would continue managing the remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs. In any portions of the current WSAs that would be de-designated and become part of the proposed expansion of the DVTA, the Navy would train as it currently does in the existing DVTA, including with respect to the use of Off-Highway Vehicles. • Would provide more public access to areas with higher mineral resource potential (relative to Alternatives 1 and 2) on the west side of the proposed B-17 withdrawal. • Would remove the overlap between active mine workings west of the B-17 withdrawal area (Leonard Mining District) and proposed withdrawn lands. • This Alternative would open up for exploration development a large area of high geothermal favorability located on the west side of B-17, and allow more public access to mining in Fairview, and Gold Basin Mining Districts). • The Navy and BLM would enter into an MOU governing the consultation process each would follow for potentially accommodating geothermal development in DVTA and all appropriative uses of the Special Land Management Area.
Impact Conclusion	Though anticipated to have fewer impacts than Alternative 1 and 2, Alternative 3 would result in potential significant impacts on exploration and development of all applicable locatable, leasable, and salable mineral resources.

Notes: BLM = Bureau of Land Management, FRTC = Fallon Range Training Complex, DVTA = Dixie Valley Training Area, MOU = Memorandum of Understanding, WSA = Wilderness Study Area.

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3.4 Livestock Grazing

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.4 Livestock Grazing

This discussion includes current and planned livestock grazing and outlines the policies that regulate livestock grazing on public lands. It identifies and analyzes impacts on livestock grazing allotments, pastures, and areas that would be affected by the Proposed Action. Section 3.13 (Socioeconomics) analyzes the socioeconomic impacts of restricting or removing livestock grazing on public lands. A restrictive analysis was developed to estimate the potential impacts on grazing permits on allotments that would be affected by the Proposed Action and the alternatives and is discussed in Section 3.13.1.3.1 (Determining Loss of Animal Unit Months).

3.4.1 Methodology

This analysis addresses existing grazing allotments and pastures within the areas proposed for the Fallon Range Training Complex (FRTC) modernization. An analysis of the impacts on counties as a result of the potential implementation of the Proposed Action on grazing allotments and pastures on an economic basis is discussed in Section 3.13 (Socioeconomics).

3.4.1.1 Region of Influence

The region of influence includes grazing allotments on lands within or adjacent to the lands requested for withdrawal and proposed for acquisition for the Bravo (B) ranges and the Dixie Valley Training Area (DVTA) (Table 3.4-1) and includes lands that may not be actively grazed by livestock. Should a specific grazing allotment be affected, the region of influence would extend beyond the lands requested for withdrawal and proposed for acquisition to include the entire allotment. The region of influence also includes any area that could potentially be impacted by construction noise, training noise, sonic booms, or engine noise from aircraft. This region is largely rural and is composed of public and private lands as well as Indian reservations.

There are no changes proposed for the land requested for withdrawal, training activities, public access, or construction on B-19. Therefore, B-19 is not discussed further and would be maintained as discussed in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015).

3.4.1.2 Regulatory Framework

Livestock grazing on public lands is regulated by several statutes and regulations. Those that pertain to grazing within the region of influence include the following:

- Federal Land Policy Management Act of 1976 (43 United States Code [U.S.C.] section 1701 et seq.)
- Taylor Grazing Act of 1934 (as amended) (43 U.S.C. sections 315–316o)
- Public Rangelands Improvement Act of 1978 (43 U.S.C. sections 1901–1908)
- National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. sections 668dd–668ee), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57)
- Reclamation Reform Act of 1982 (43 U.S.C. section 390aa et seq.)
- 43 Code of Federal Regulations (CFR) Part 429
- 43 CFR subpart D, Group 4100
- Nevada Revised Statute Chapter 568 (Taylor Grazing Act)

For the United States (U.S.) Department of the Navy (Navy), grazing activities on Navy installations must be compatible with the Sikes Act (16 U.S.C. section 670a et seq.). Livestock grazing is regulated on Navy lands through the out-grant lease real estate authority granted under 10 U.S.C. section 2667.

The following instructions and manuals, which provide guidance and recommendations, were used in identifying potential land use incompatibilities for this Environmental Impact Statement (EIS):

- Chief of Naval Operations Instruction 3710.7v, *Naval Air Training and Operating Procedures Standardization Program*, and Commander, Naval Air Force Manual 3710.7 (U.S. Department of the Navy, 2016)
- Bureau of Land Management (BLM) Standards and Guidelines for Nevada (Bureau of Land Management, 1997)
- Federal Aviation Administration Aeronautical Information Manual (Federal Aviation Administration, 2017)

3.4.1.3 Approach to Analysis

Information regarding the BLM grazing allotments within the region of influence was obtained from the BLM Rangeland Administration System, which provides grazing administrative support and management reports for the BLM and the public (Bureau of Land Management, 2017). Public reports that were reviewed on the public Rangeland Administration System included allotment information, allotment master reports, authorized use by allotment reports, operator information, and permit schedule information. These reports are generated from data provided by BLM Field Office staff and include information regarding grazing permit information, allotment information, and billing information.

The Navy obtained Geographical Information System (GIS) data for each potentially affected allotment from the BLM in November 2017. These data were used to calculate potential changes to allotment acreage for each alternative and represent the most up-to-date information regarding affected allotments. In addition, these data were used to analyze the potential impact on BLM or Bureau of Reclamation grazing permits that may result from the loss of acres on an allotment. These calculations were done using a restrictive analysis model and are discussed in greater detail in Section 3.13 (Socioeconomics). The BLM provided guidance to the Navy in developing a methodology for how to estimate the potential change in Animal Unit Months (AUMs) for affected allotments. A technical memo was prepared that documents the Navy's approach to determining the loss of AUMs (Supporting Study – Livestock Grazing Allotment Study, available at https://frtcmodernization.com). Since forage is not uniformly distributed across an allotment, a reduction in AUMs for a given allotment would not necessarily be proportional to a percentage decrease in the lands comprising that allotment. The Navy used the following factors to estimate a change in AUMs for each BLM allotment and Bureau of Reclamation pasture:

- Percent of allotment closed to livestock grazing
- Percent of allotment with a greater than 30 percent slope
- Percent of allotment that is greater than 4 miles from water
- Percent of allotment with an annual forage production per acre of less than 100 pounds
- Percent of allotment with an annual forage production per acre between 100 pounds and 300 pounds
- Percent of allotment with an annual forage production per acre greater than 300 pounds

These factors were chosen because they are consistent with BLM parameters and are critical factors in determining how livestock will utilize forage in an allotment (Holechek et al., 2011). It is acknowledged that these factors are influenced by the type and class of cattle, and that cattle can graze on slopes greater than 30 percent slope or will travel over 4 miles to water, but are less likely to do so under satisfactory grazing conditions.

While the restrictive analysis provides the potential change in AUMs on the associated grazing permits due to a loss of acreage on the allotment, significance determinations for purposes of analysis of Livestock Grazing per se were made based on the combination of the percentage of allotment impacted, the quality of forage on removed acres, and range improvements lost under the Proposed Action. The range improvements identified may not be a comprehensive list and have not been field verified. The AUM changes are presented by allotment in Section 3.13 (Socioeconomics) in Table 3.13-13 and Table 3.13-23.

The Navy worked closely with rangeland management specialists at the BLM Stillwater and Winnemucca Field Offices to gather additional information on the affected allotments. BLM staff provided information from the internal Rangeland Administration System and the Rangeland Improvements Projects Systems upon request. Additionally, the Navy subject matter expert performed allotment visits and conducted a physical records search of the potentially affected BLM allotments and permittee files in the summer and fall of 2017 (Bureau of Land Management, 2017–2019).

The Navy has reached out to all permittees with allotments that would potentially overlap the requested for withdrawal for additional information regarding range improvements and water sources that occur in each allotment. Information gathered was used in the development of this section. The Navy has worked with permittees and the BLM to identify all water sources (including water hauling locations) and revised the AUM restrictive analysis based on these updated water sources. Potential impacts on grazing have been updated accordingly between the Draft and Final EIS due to the addition of this data. While substantial efforts were made to include all range improvements that have been identified and located on each allotment, the Navy and BLM acknowledge that the information gathered to this point concerning potentially compensable range improvements may be incomplete. Individuals who would be affected by implementation of alternatives would be afforded an opportunity to provide additional information concerning any such range improvements subsequent to issuance of the Navy's Record of Decision. These efforts confirmed and updated publicly available information on the Rangeland Administration System. Affected allotments are identified in Table 3.4-1 and are depicted in Figure 3.4-1, Figure 3.4-3, Figure 3.4-5, and Figure 3.4-7.

The Bureau of Reclamation provided GIS data for Bureau of Reclamation grazing lands within the region of influence in October 2017. Additional information regarding Bureau of Reclamation grazing areas was obtained from the Bureau of Reclamation's *Grazing Management Plan Final Environmental Impact Statement Lahontan Basin Area Office Newlands Project, Nevada Mid-Pacific Region* (Bureau of Reclamation, 2014) and the Navy's *Final Environmental Assessment for Proposed Addition of Training Activities and Range Enhancements at Naval Air Station Fallon on Training Range Bravo-16 Churchill County, Nevada* (U.S. Department of the Navy, 2014a).

3.4.1.4 Public Concerns

The public raised several concerns regarding potential impacts on existing livestock grazing practices and management during scoping and the public comment period on the Draft EIS. The public was largely concerned with how the Proposed Action would limit or otherwise affect specific grazing allotments

within the region of influence. In particular, the public was concerned about the potential losses of AUMs, winter grazing lands, and rangeland improvements (fencing, corrals, seedings, stockwater development, wells, tanks, and pipeline) that could result from the Proposed Action.

Some counties expressed concerns about the potential loss of revenue received from grazing-related funds. Counties where federal grazing districts are located may receive a portion of certain grazing-related funds received by the U.S. Treasury under the authority of the Taylor Grazing Act (43 U.S.C. section 315[i]), with the initial distribution of such funds being made to the State and distributed thereafter to the relevant counties as determined by the State Legislature.

The Nevada Department of Agriculture and multiple counties have expressed their concerns about the potential loss of water rights associated with grazing operations as well as the impact that a loss of water rights might have on the region's customs and culture (i.e., potential loss of multi-generational family ranches). During public scoping, Churchill and Eureka Counties requested that the Navy work with the BLM and grazing permittees to identify potential impacts on livestock grazing. The Navy met with several of the potentially affected BLM permit holders and interested individuals in October 2017 to discuss potential alternatives and impacts on individual allotments. The Navy used information gathered at this meeting in the development of this section. The Navy provided the opportunity to meet individually with permittees and the BLM between February 26 and March 1, 2019.

During the public comment period, the Navy received numerous comments from permittees regarding their livestock operations. The Taylor Grazing Act of 1934 (43 U.S.C. sections 315q) provides the Navy with the authority to make payments for certain grazing-related losses. The Navy would work with grazing permittees on a case-by-case basis to try to minimize losses resulting from the cancellation of a grazing permit. The Final EIS further describes the proposed process for determining payments for losses due to cancelled or modified federal grazing permits and allotment improvements.

For further information regarding comments received during the public scoping process and the public comment period on the Draft EIS, please refer to Appendix E (Public Participation) and Appendix F (Public Comments and Responses).

3.4.2 Affected Environment

This section serves as the environmental baseline and describes current livestock grazing within the region of influence. It first gives an overview of livestock grazing in the region of influence before discussing the affected environment for B-16, B-17, B-20, and the DVTA. No grazing occurs on B-19, and FRTC modernization does not propose to expand B-19. Accordingly, no changes in grazing would be experienced with retention of B-19 as part of the FRTC modernization action. Table 3.4-1 identifies the livestock grazing allotments (BLM) and pastures (Bureau of Reclamation) within the region of influence. The BLM has identified the management status of allotments within the region of influence as belonging to one of three objective categories according to rangeland resource characteristics, potential, opportunities, and needs: maintain the current resource condition, improve the current resource condition, and custodially manage the existing resource condition (Bureau of Land Management, 1982, 1989).

Table 3.4-1: Allotments Within the Affected Environment

Allotment Name	Period Begin (MM/DD)[1]	Period End (MM/DD)[1]	Total Acres[2]	Permitted AUMs	Livestock Kind	Livestock Permitted	Management Status[3]	Affected Environment
Bell Flat	12/01	03/31	91,997	3,688	Cattle	927	Improve	B-17, DVTA
Bucky O'Neill	11/15	04/15	40,946	1,500	Cattle	300	Maintain	DVTA
Copper Kettle	03/01	02/28	108,220	2,333	Cattle	219	Improve	B-20
Cow Canyon	10/01	04/15	149,168	2,382	Cattle	366	Improve	DVTA
Dixie Valley	06/01	05/31	275,782	6,341	Cattle	528	Improve	DVTA
Eastgate	11/01	04/15	311,221	9,770	Cattle	1,503	Improve	B-17
	04/16	10/31				239		
Frenchman Flat	10/15	03/15	70,323	2,001	Cattle	403	Maintain	DVTA
Horse Mountain	11/01	03/31	63,184	3,000	Cattle	601	Maintain	B-16
Humboldt Sink	05/01	11/30	190,728	1,582	Cattle	9	Custodial	B-20
	04/01	11/30				189		
La Beau Flat	10/01	04/15	122,640	3,035	Cattle	468	Maintain	B-17, DVTA
Lahontan	11/01	03/31	77,882	1,155	Cattle	232	Maintain	B-16
Mountain Well-LaPlata	03/01	02/28	139,610	8,004	Cattle	667	Maintain	DVTA
Phillips Well	12/01	03/31	80,618	1,450	Cattle	364	Maintain	B-17, DVTA
Pilot-Table Mountain	11/01	03/31	538,322	7,900	Cattle	900	Improve	B-17
	04/01	10/31			Cattle	150		
	03/01	02/28			Horse	12		

Table 3.4-1: Allotments Within the Affected Environment (continued)

Allotment Name	Period Begin (MM/DD)[1]	Period End (MM/DD)[1]	Total Acres[2]	Permitted AUMs	Livestock Kind	Livestock Permitted	Management Status[3]	Affected Environment
Rochester[4]	01/01	10/31	255,390	3,963	Cattle	138	Maintain	B-20
	04/01	04/24			Sheep	700	Maintain	
	03/01	02/28			Sheep	537	Maintain	
	03/01	02/28			Cattle	166	Custodial	
	04/01	12/30			Cattle	44	Maintain	
Salt Wells	10/15	04/15	51,421	1,624	Cattle	270	Maintain	DVTA
Sheckler Pasture[5]	04/01	11/30	22,210	145	Cattle	-	Relinquish (2,611) Retain (19,599)	B-16
White Cloud	10/01	03/31	79,647	1,884	Cattle	115	Maintain	B-20, DVTA
	04/01	09/30				199		

[1]Period End and Period Begin are identified in the permit according to the BLM's Rangeland Administration System. This permit or lease is issued under the authority of Section 402(c)(2) of the Federal Land Policy Management Act of 1976 as amended, and typically contains the same terms and conditions as the previous permit or lease. This permit or lease may be cancelled, suspended, or modified, in whole or in part to meet the requirements of applicable laws and regulations.

[2]Acres were calculated using ArcGIS data provided by the BLM (UTMz11 NAD83 projection) and may not be consistent with acres reported in the BLM's Rangeland Administration System.

[3] "Maintain" means to maintain the current resource condition; "Improve" means to improve the current resource condition; and "Custodial" means to custodially manage the existing resource condition.

[4]This allotment has multiple names (e.g., Rochester Common, South Rochester, etc.); however, in this document the Navy is referring to it as "Rochester," and this area is an allotment with multiple permittees on it.

[5]Bureau of Reclamation managed pasture. Bureau of Reclamation (2014) proposes to relinquish portions of the Sheckler Pasture to the BLM.

Sources: (Bureau of Land Management, 2017; Bureau of Reclamation, 2014; U.S. Department of the Navy, 2014a).

Livestock grazing has had an important and historical role in the state of Nevada and continues to represent local customs and cultural traditions that influence day-to-day life for many individuals and families in the State, especially in its rural areas. Farms and ranches in Nevada are relatively large compared to the national average, and the majority (83 percent) of Nevada's agricultural operations (most of which are family owned) are primarily engaged in raising livestock (Nevada Department of Agriculture, 2017). It is common for livestock grazing by one operator to occur in more than one county. As such, changes to AUMs can sometimes affect socioeconomics throughout the region, not just in the county where the AUMs are located. Additional details regarding the socioeconomic role of livestock grazing and ranching is described in Section 3.13 (Socioeconomics).

The percent of allotments affected is discussed in Section 3.4.3 (Environmental Consequences). Grazing within the region of influence occurs throughout the year, with much of the use concentrated during winter and spring months. Summer grazing is common at higher elevations, while winter grazing areas are primarily found in lower elevations associated with an arid climate.

Nevada's climate is arid with large variations in temperature. The region of influence falls within the geographic feature known as the Great Basin, which is in the Basin and Range Province. Elongated mountain chains alternating with flat, dry basins characterize this province. The western portion of the Great Basin averages 9 inches of precipitation per year, while the Fallon area averages 5 inches per year.

Vegetation production within most of the region of influence is relatively low. Playas, which have little to no vegetation, occupy much of the lowest elevation levels in the region. At these lower elevations, where temperatures are the hottest and the soil is most saline, the dominant vegetation consists of members of the Chenopodiacea (Goosefoot family). Here, saltbush (*Atriplex*) and greasewood (*Sarcobatus*) species are common as well as winterfat (*Ceratoides lanata*), four-wing saltbush (*Atriplex canescens*), and spiny hopsage (*Grayia spinosa*). Asteraceae are also common in these areas. Winterfat is a species that has been identified as an important winter forage in the region due to its high protein content and ability to sustain cattle over the winter. At slightly higher elevations, where the soils are less saline and more moisture is available, varieties of sagebrush (*Artemisia* spp.) become the dominant vegetation. Cheatgrass (*Bromus tectorum*) is known to often form in large, dense stands in these areas, particularly after fires or major soil disturbance. The mid-to-upper range elevations support riparian habitats in canyons and washes.

Fremont cottonwood (*Populus fremontii*), willows (*Salix* spp.), and Wood's rose (*Rosa woodsia*) are species commonly encountered in these areas (Supporting Study – Plant Community Surveys and Mapping Report, available at https://frtcmodernization.com). Meanwhile, in the upper elevations, the dominant vegetation changes to pinyon-juniper (*Pinus* spp., *Juniperus* spp.) woodlands, which generally have an understory consisting of sagebrush, rabbitbrushes, and other common shrubs. These woodlands provide a valuable resource for livestock forage, but livestock carrying capacity is variable depending on the characteristics of the understory (Tueller, 1989).

With the exception of small isolated strands, grasslands are incredibly rare in Nevada (Tueller, 1989). Perennial grasses occur throughout all elevations, interspersed with shrubs and trees. Perennial grasses within the region of influence include Indian ricegrass (*Achnatherum hymenoides*), desert needlegrass (*Achnatherum speciosum*), needleandthread (*Hesperostipa comata*), galleta (*Pleuraphis jamesii*), crested needlegrass (*Achnatherum parishii var. depauperatum*), bottlebrush squirreltail (*Elymus elymoides*), Sandberg's bluegrass (*Poa secunda*), King's desertgrass (*Blepharidachne kingii*), fluffgrass (*Erioneuron*

pulchellum), threeawn (*Aristida*), sand dropseed (*Sporobolus cryptandrus*), basin wildrye (*Leymus cinereus*), and alkali sacaton (*Sporobolus airoides*) (U.S. Department of Agriculture, n.d.).

Historic overgrazing and wildland fires have contributed to the establishment of invasive plant species within the region of influence (Eiswerth & Shonkwiler, 2006). Current livestock management and regulations have diminished overgrazing throughout the region and reduced the spread of invasive species. Grazing may be used as a habitat management tool (Bates & Davies, 2014) as well as an effective tool to reduce the potential for wildfires, which could potentially lessen the spread of invasive grasses.

Portions of the grazing areas within the region of influence are grazed by livestock more extensively than others. In most grazing areas in the region, parts of the overall area are grazed more extensively as a practical matter, and other areas are used only a little or effectively not at all due to factors such as distance from water or terrain. In addition to livestock grazing, rangeland improvement projects (e.g., fencing/cattleguards, stock water development, corrals, seedings) have been implemented within the region to aid in the distribution of livestock and improve grazing management (Bureau of Land Management, 2014).

3.4.2.1 Bravo-16

B-16 is located southwest of Naval Air Station (NAS) Fallon and west of U.S. Route 95. The affected environment for B-16 includes BLM and Bureau of Reclamation land. Figure 3.4-1 and Figure 3.4-2 show BLM allotments and Bureau of Reclamation pastures within the affected environment for B-16 and range improvements that have been identified within the affected environment for B-16. The range improvements identified may not be a comprehensive list and have not been field verified.

B-16 currently overlaps portions of the Lahontan and Horse Mountain Allotments and the Bureau of Reclamation's Sheckler Pasture. The Cleaver Peak Allotment and the Southeast Sheckler #1 and #2 pastures are adjacent to the requested B-16 withdrawal area.

Livestock grazing is not allowed within the existing withdrawn and closed lands of B-16. The Bureau of Reclamation manages livestock grazing within the withdrawn but open lands of B-16 (approximately 4,563 acres) (U.S. Department of the Navy, 2014b, 2015). In 2014, the Navy decided to close areas within B-16 and construct a fence around these areas as part of its range enhancement (U.S. Department of the Navy, 2014a); however, these improvements have yet to be constructed and these lands are currently open to the public.

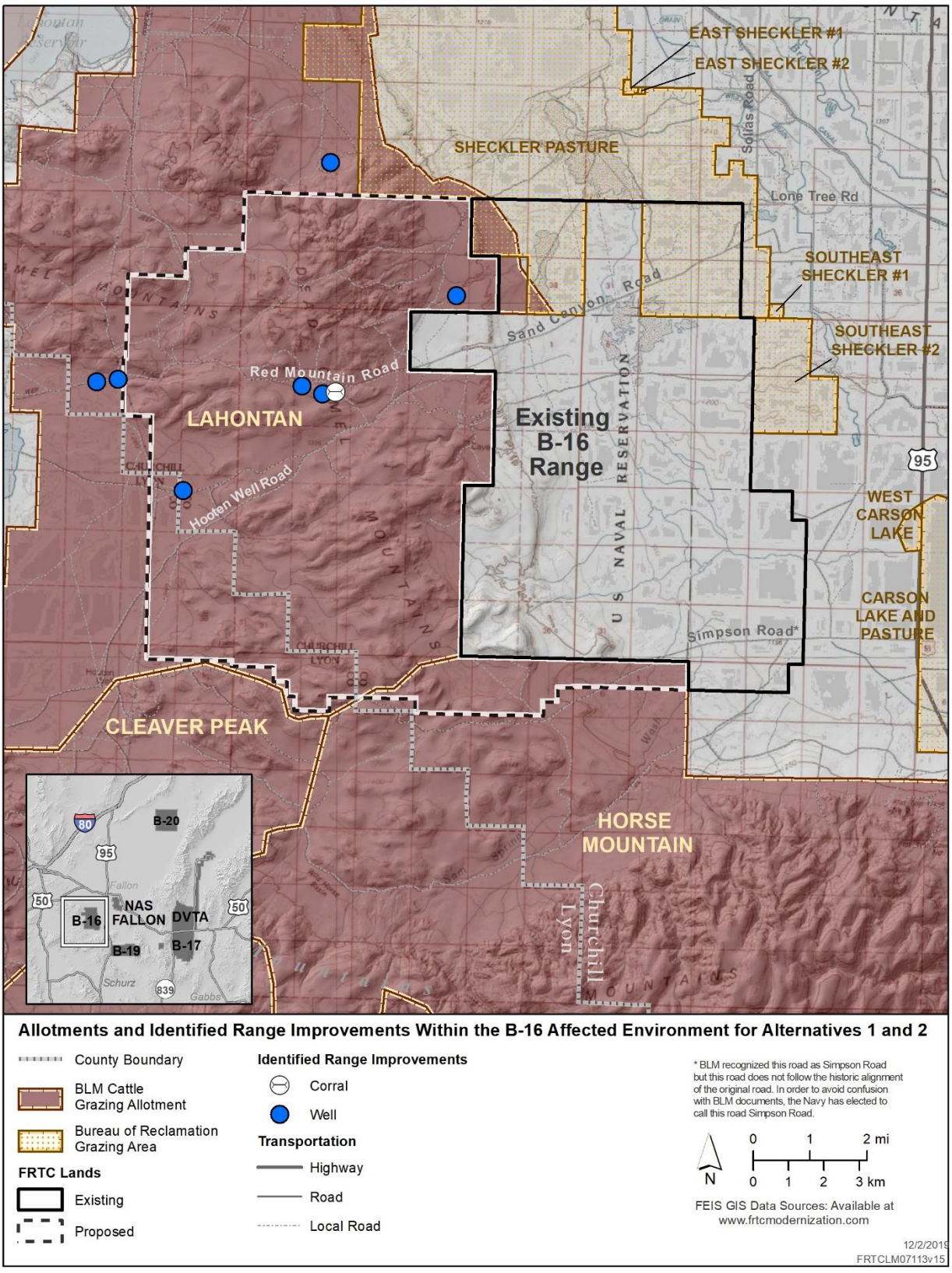


Figure 3.4-1: Allotments and Identified Range Improvements Within the B-16 Affected Environment for Alternatives 1 and 2

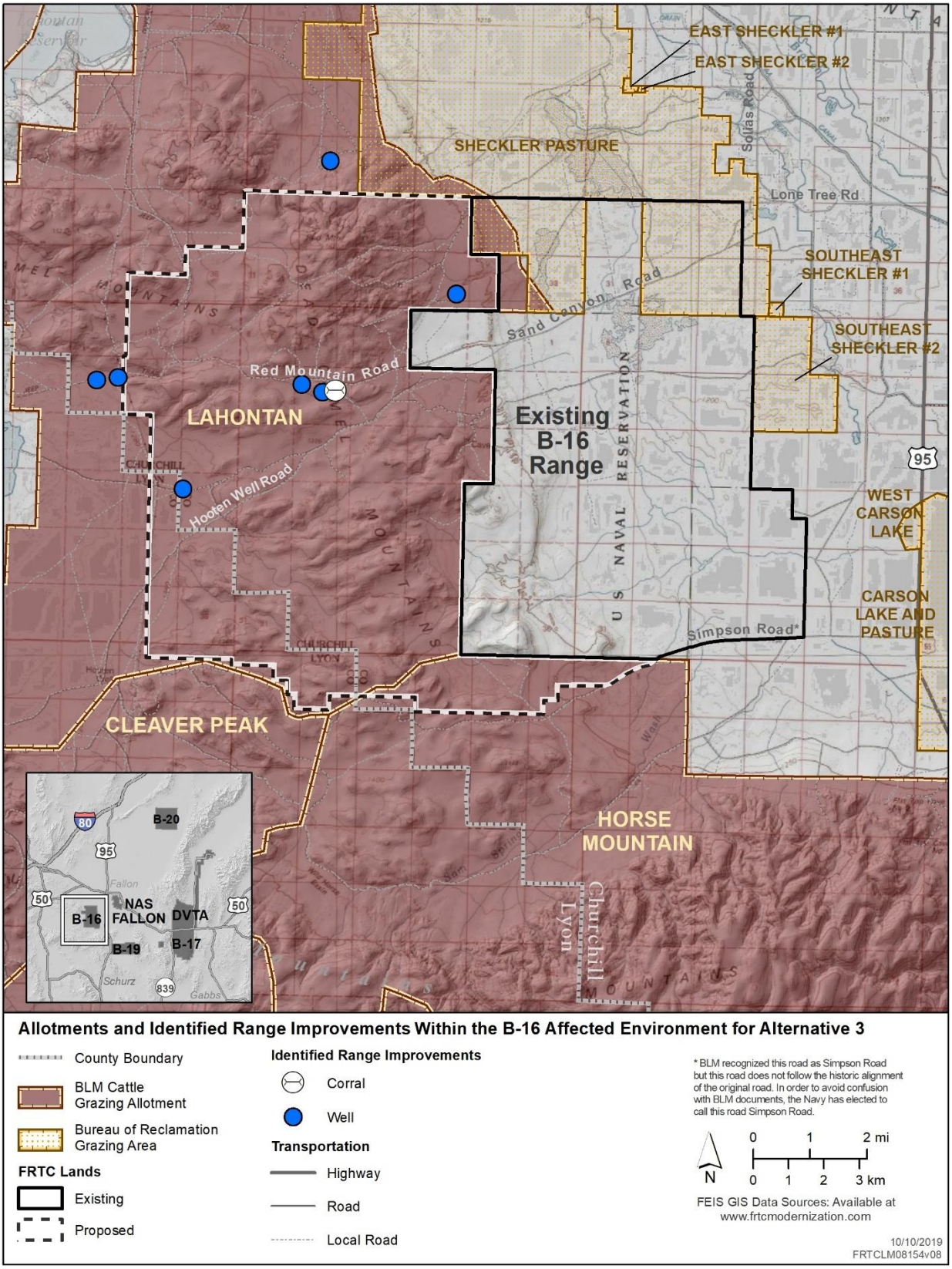


Figure 3.4-2: Allotments and Identified Range Improvements Within the B-16 Affected Environment for Alternative 3

The Bureau of Reclamation's Sheckler Pasture overlaps northern B-16. This pasture is part of the Bureau of Reclamation's Newlands Project. The Bureau of Reclamation currently issues annual livestock grazing use authorizations on the Sheckler Pasture, including the B-16 lands it overlaps, but it is anticipated that this will be revised to incorporate issuance of a multi-year lease (U.S. Department of the Navy, 2014b).

The Bureau of Reclamation is relinquishing portions of the Sheckler pasture and Southeast Sheckler #1 and Southeast Sheckler #2 pastures to the BLM. Southeast Sheckler #1 Pasture is less than 1 mile east of the existing B-16. Southeast Sheckler #2 Pasture is directly east of the existing B-16 range. To avoid any encumbrances on land to be relinquished, no long-term grazing leases are being issued on these lands (Bureau of Reclamation, 2014).

The existing B-16 is largely located within a relatively flat area known as the Lahontan Depression Valley. Within B-16, this valley is primarily underlain by soils within the appian-playas association (Natural Resources Conservation Service, 2017; Tierra Data Inc., 2008). The northwest trending Dead Camel Mountains are west of B-16, within the B-16 expansion area. These mountains are generally sandy and of varying terrain.

Surface water in the B-16 affected environment is composed of ephemeral washes. No perennial or intermittent waters have been identified within the affected environment for B-16, but water may pond seasonally in low areas (Section 3.9, Water Resources). The Bureau of Reclamation constructed a new bypass canal off the V-Line Canal in 2017 to provide flood protection for the City of Fallon. The V-Canal is located east of B-16. Bureau of Reclamation will use this bypass as needed in future high-water years. In addition, 39 wells have been identified within the proposed boundary of B-16, five of which were identified as being used for stockwater and are discussed in Section 3.9 (Water Resources).

B-16 and the surrounding areas have relatively low forage production. Vegetation within B-16 consists mainly of black greasewood plant communities (e.g., black greasewood-alkali seepweed) (Tierra Data Inc., 2008). The area west of the existing B-16 has relatively diverse vegetation with a good representation of upland vegetation alliances. This area is largely composed of cool semi-desert scrub and grassland alliances, which usually includes a high cover of cheatgrass as well as various shrubs (Supporting Study – Plant Community Surveys and Mapping Report, available at https://frtcmodernization.com).

3.4.2.2 Bravo-17

B-17 is east of NAS Fallon and south of U.S. Route 50. The surrounding area is composed primarily of BLM and Navy (i.e., B-19 and Shoal Site) land. There are approximately three private parcels within BLM-administered land and three private land inholdings within BLM-administered land. Figure 3.4-3 and Figure 3.4-4 show allotments in the affected environment for B-17 and range improvements that have been identified within the affected environment for B-17. The range improvements identified may not be a comprehensive list and have not been field verified. Livestock grazing is not allowed within the existing boundary of B-17 but is allowed at the Shoal Site, which is west of B-17 (U.S. Department of the Navy, 2014b).

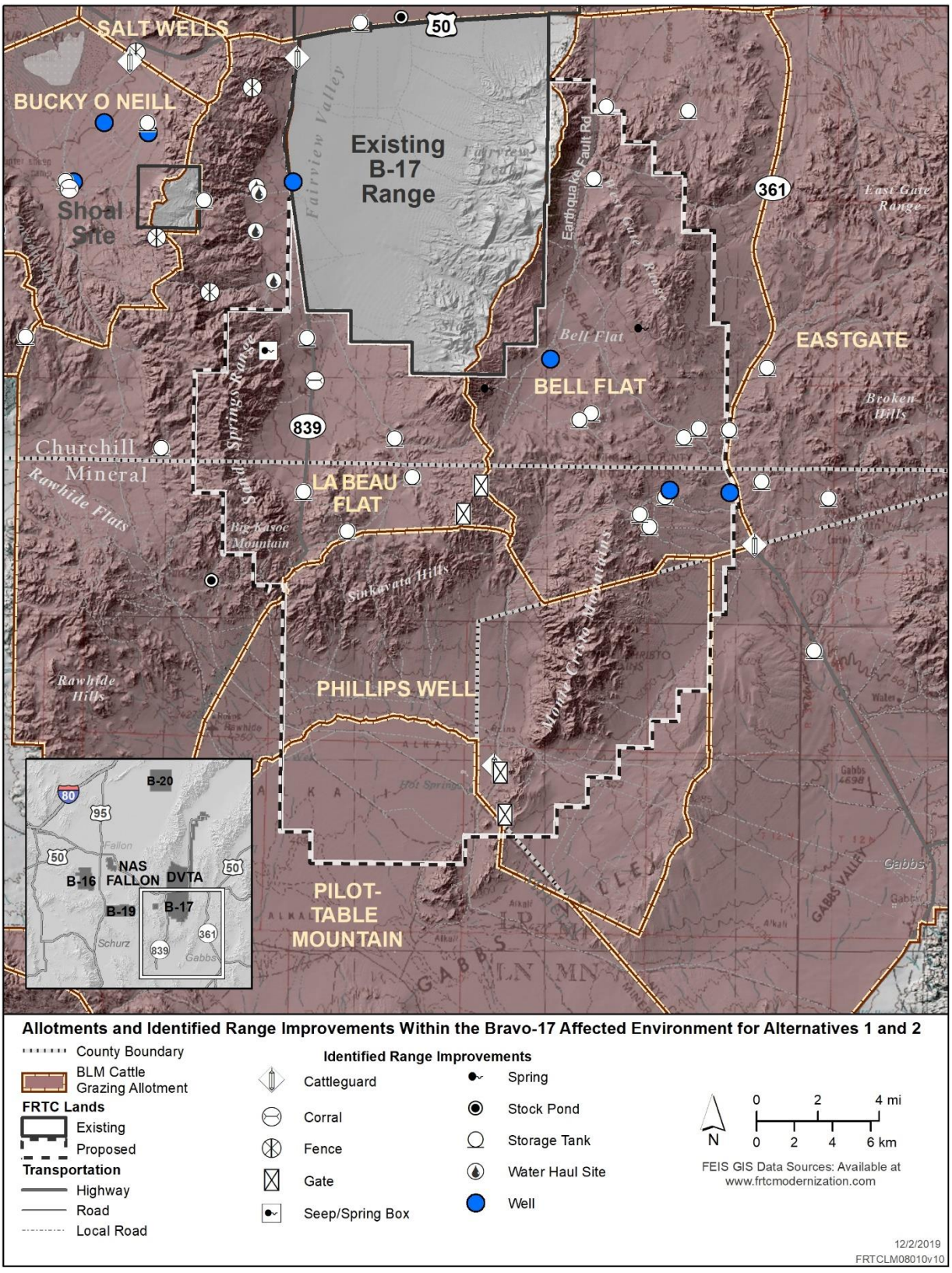


Figure 3.4-3: Allotments and Identified Range Improvements Within the Bravo-17 Affected Environment for Alternatives 1 and 2

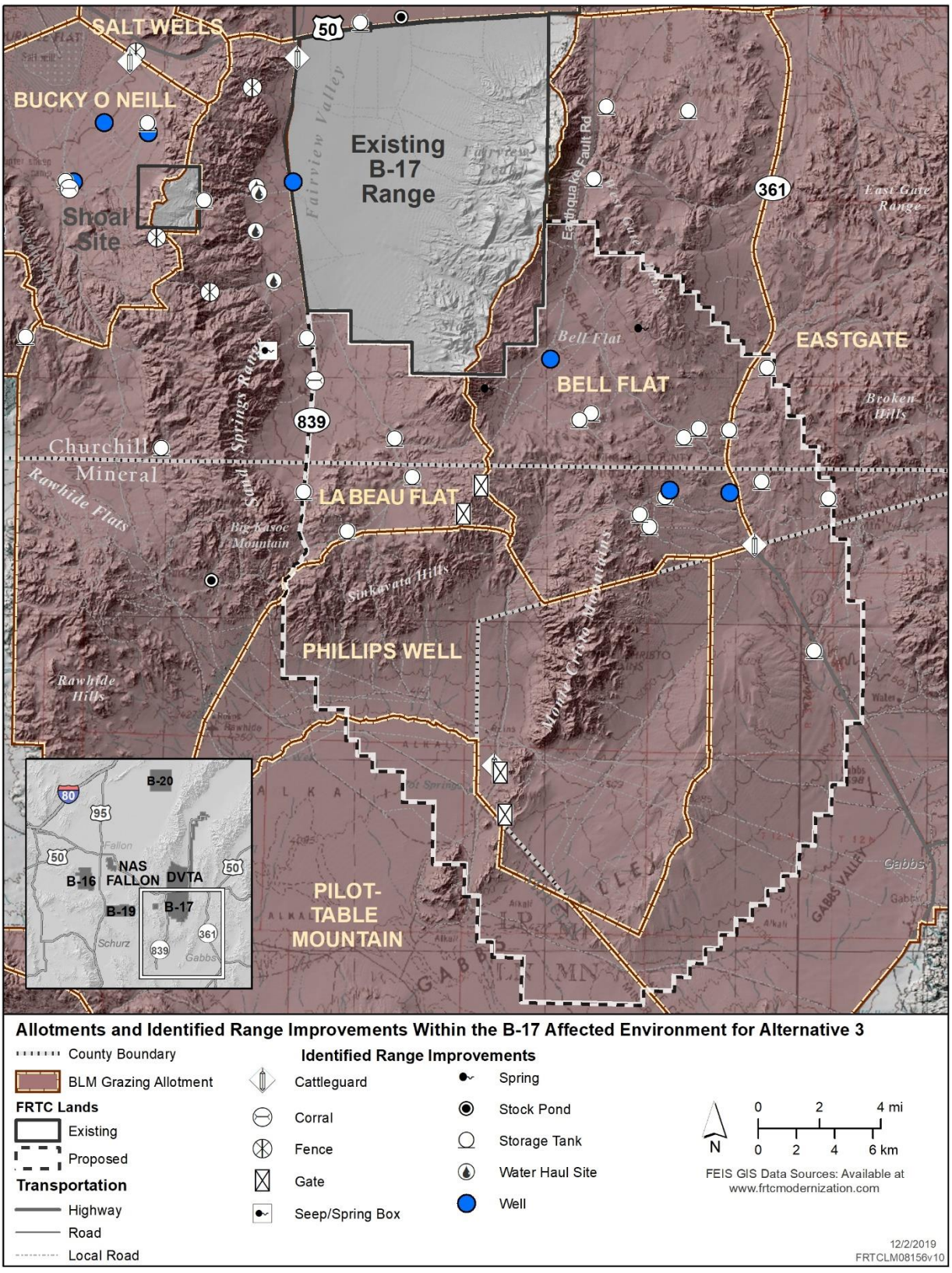


Figure 3.4-4: Allotments and Identified Range Improvements Within the Bravo-17 Affected Environment for Alternative 3

B-17 currently overlaps portions of the Bell Flat Allotment, and is adjacent to the La Beau Flat Allotment. The Eastgate, Phillips Well, and Pilot-Table Mountain allotments are also within the affected environment for B-17. The existing B-17 range is within the Fairview Valley and includes the western foothills of the Fairview Range. Fairview Valley is bounded to the west by the Sand Springs Range and by Fairview Peak and Slate Mountain to the east. The La Beau Flat, which is an alkaline flat underlain by alluvial deposits and silty clay, is within B-17. The surrounding mountains are largely gravelly and steep with some rocky outcrops. Gabbs Valley is south of B-17, within the affected environment area for B-17.

There are no perennial streams in B-17 or the proposed B-17 expansion areas. There are ephemeral washes around B-17, which tend to drain into the La Beau Flat. Floodwater also drains into an alkali flat south of B-17 into Gabbs Valley where floodwater is known to pool (Eaken, 1962). There are 10 wells identified within the B-17 expansion areas, seven of which are known to be used as stock water and are discussed in Section 3.9 (Water Resources).

Vegetation within B-17 is primarily dominated by Bailey's greasewood communities. The dominant vegetation in this area is cool semi-desert scrub and grassland with large areas of Bailey's greasewood shrubland. There is some cool temperate forest and woodlands (i.e., Utah Juniper/Shrub Understory Woodland) in the mountainous areas, particularly around Fairview Peak (Supporting Study – Plant Community Surveys and Mapping Report, available at https://frtcmodernization.com). Winterfat has been identified by the BLM as an important forage for the La Beau and Bell Flat allotments in the areas requested for withdrawal within B-17.

Although annual vegetation growth varies, the area has relatively low forage production. However, there are areas of higher forage production within Gabbs Valley in the Phillips Well and Pilot Table Mountain allotments (Natural Resources Conservation Service, 2017). Field surveys performed in 2017 found this area to be inundated and sparsely vegetated by intermountain greasewood wet shrubland, which is composed largely of cheatgrass and various shrubs (Supporting Study – Plant Community Surveys and Mapping Report, available at https://frtcmodernization.com).

3.4.2.3 Bravo-20

B-20 is north of NAS Fallon and the Stillwater National Wildlife Refuge, and east of Fallon National Wildlife Refuge. The surrounding area includes BLM, Bureau of Reclamation, and U.S. Fish and Wildlife Service (USFWS) land (e.g., the Fallon National Wildlife Refuge), as well as private land and Lyon County Conservation Easements adjacent to USFWS land. Figure 3.4-5 and Figure 3.4-6 show BLM allotments within the affected environment for B-20 and range improvements that have been identified within the affected environment for B-20. The range improvements identified may not be a comprehensive list and have not been field verified. Livestock grazing is not allowed on the existing B-20. The Copper Kettle and White Cloud allotments overlap the existing B-20. The Copper Kettle, White Cloud, Humboldt Sink, and Rochester (also known as Rochester Common or South Rochester; henceforth referred to as "Rochester") allotments overlap portions of the B-20 affected environment. Livestock grazing is also currently not allowed within the boundaries of the Fallon National Wildlife Refuge or the Stillwater National Wildlife Refuge.

B-20 is located in the Carson Sink, which is a relatively flat salt marsh between the Humboldt and Stillwater Mountain Ranges. The northwestern portion of the B-20 affected environment overlaps the Humboldt Mountains. The Humboldt and Stillwater Mountains are rocky mountains with steep slopes and canyons.

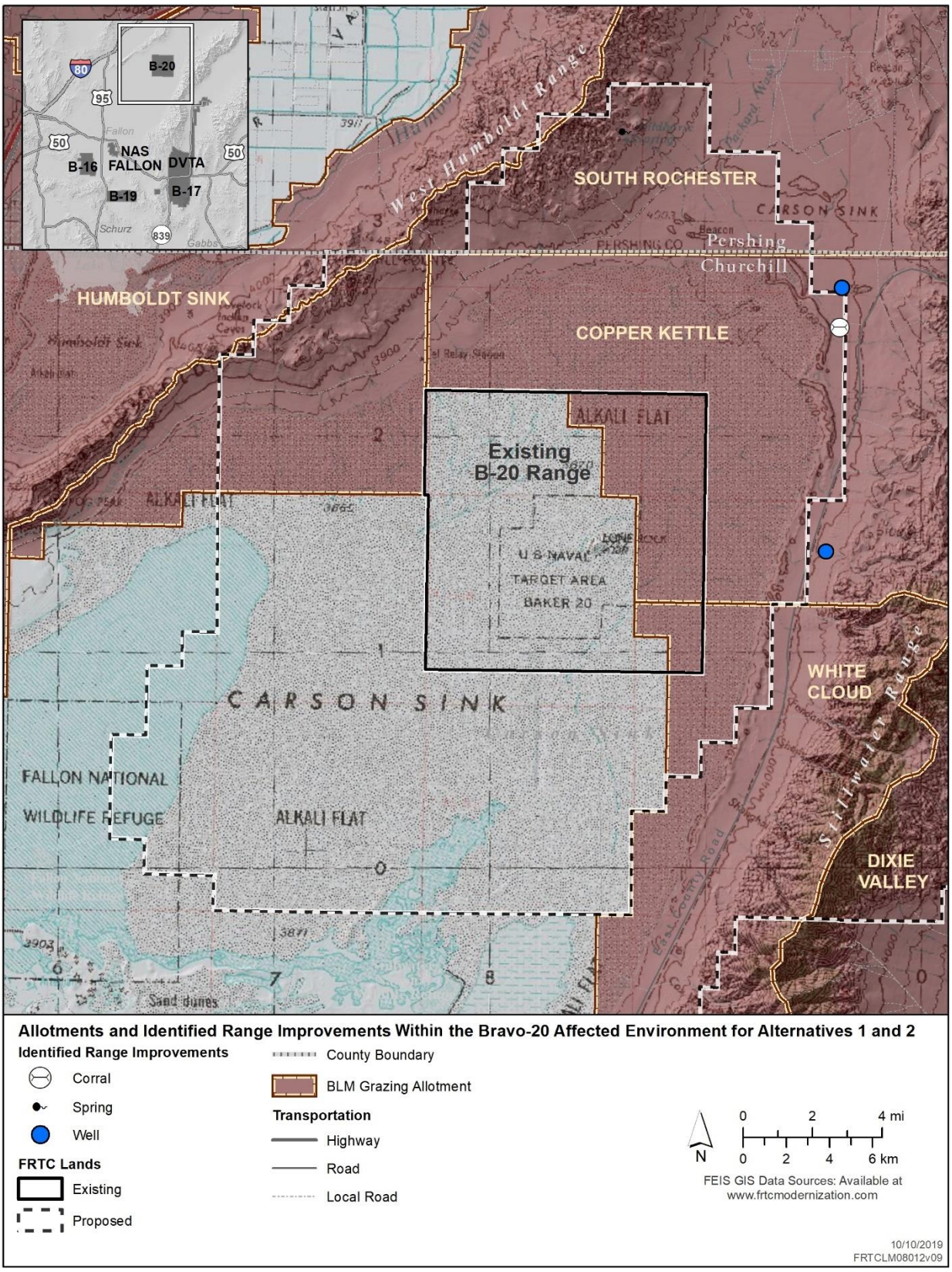


Figure 3.4-5: Allotments and Identified Range Improvements Within the Bravo-20 Affected Environment for Alternatives 1 and 2

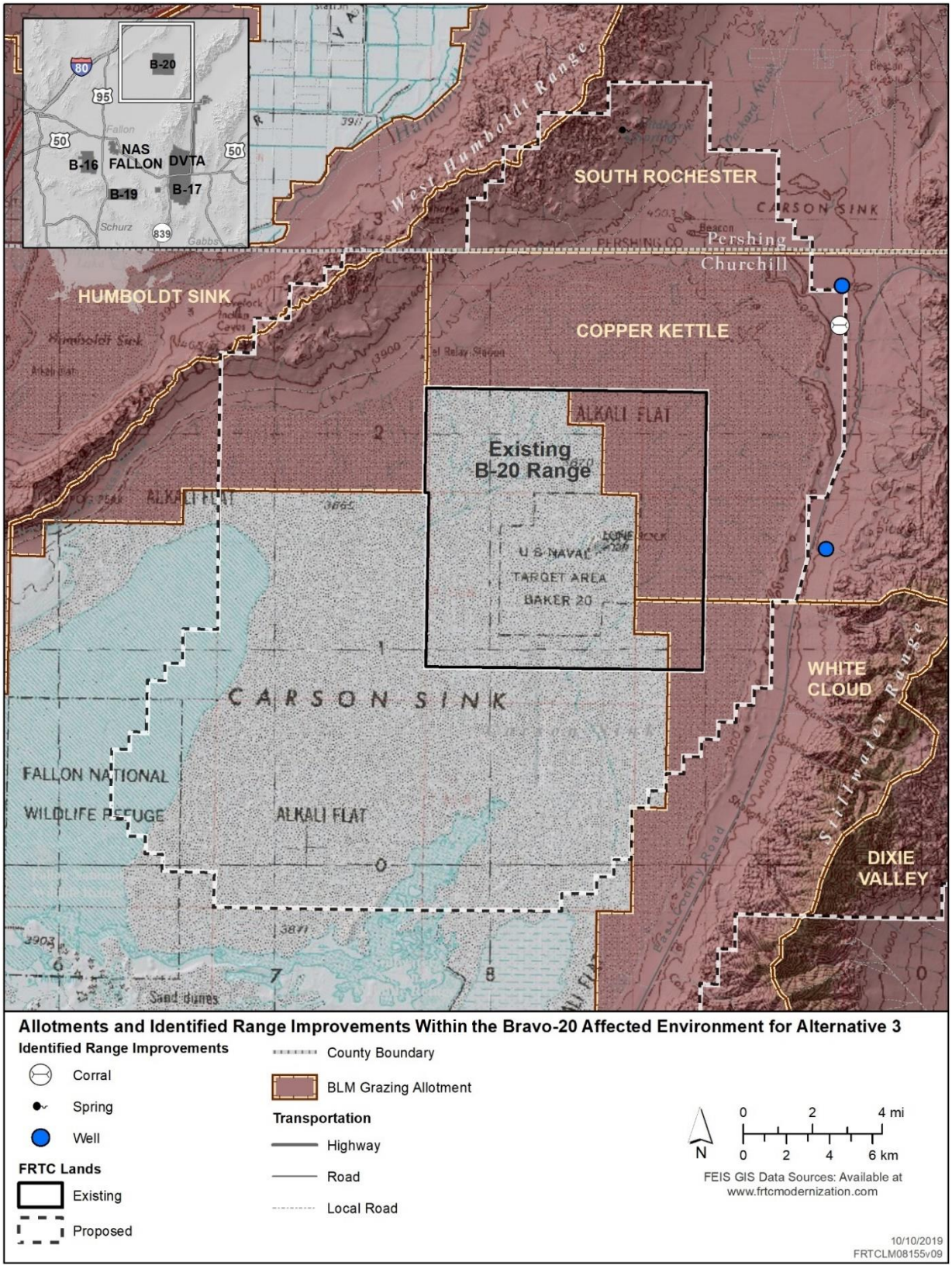


Figure 3.4-6: Allotments and Identified Range Improvements Within the Bravo-20 Affected Environment for Alternative 3

The Carson Sink is the terminus of both the Carson River and the Humboldt Rivers, and may be inundated during wet years; water is known to pond on the playas. There are ephemeral washes west and east of B-20 within Humboldt and Stillwater Mountain ranges, which also drain into the Carson Sink. Although there are no wells within the existing B-20, there are 12 wells within the proposed B-20 expansion area. These wells are largely used for industrial and mining purposes (e.g., geothermal test wells) and are discussed in Section 3.9 (Water Resources).

B-20 is described as being "very desolate, almost devoid of any vegetation, with only an island of vegetation on a rocky outcrop towards the center of the range," which is referred to as "Lone Rock" (Tierra Data Inc., 2008). Land northwest of B-20 is sparsely vegetated by cool semi-desert scrub and grassland formation, which consist largely of Bailey's greasewood shrubland (Supporting Study – Plant Community Surveys and Mapping Report, available at https://frtcmodernization.com).

3.4.2.4 Dixie Valley Training Area

The existing DVTA is east of NAS Fallon and north of U.S. Route 50. The proposed DVTA expansion would expand this range west, north, and east of existing DVTA and south of U.S. Route 50 on either side of B-17, depending on the alternative. The proposed expansion area is composed of BLM-administered land with some private parcels. Figure 3.4-7 and Figure 3.4-8 show BLM allotments in the affected environment for DVTA and range improvements that have been identified within the affected environment for DVTA. The range improvements identified may not be a comprehensive list and have not been field verified.

The DVTA currently overlaps portions of the Cow Canyon, Dixie Valley, Frenchman Flat, and Mountain Well-LaPlata allotments. In addition to including larger portions of these allotments, depending on the alternative, the proposed DVTA expansion would also include the Bell Flat, Bucky O'Neill, La Beau Flat, Phillips Well, Salt Wells, and White Cloud allotments.

Grazing occurs within the DVTA in accordance with the BLM Resource Management Plan (Bureau of Land Management, 2013) and the Navy's Integrated Natural Resources Management Plan (U.S. Department of the Navy, 2014b). NAS Fallon has identified 1,280 acres within the existing DVTA as suitable for agricultural outlease, with 742 acres of irrigable lands, and the remainder available for livestock grazing based on forage availability. This area has not been under lease since 2011.

The BLM manages cattle on the DVTA in a manner consistent with grazing practices on adjacent public lands, per amended BLM allotment management plans. The BLM consults with the Navy before constructing or removing rangeland improvements per these allotment management plans. The Navy maintains fences and gates to prohibit grazing on areas of Horse Creek and specific pond areas in Dixie Valley to protect sensitive species habitats. (U.S. Department of the Navy, 2014b). The Navy has a 2007 Memorandum of Understanding (MOU) with the BLM that describes the management responsibilities of each agency within the Dixie Valley. In addition, the Navy completed a Grazing, Vegetation, and Water Resource Management Plan for the Dixie Valley Settlement Area in 2002.

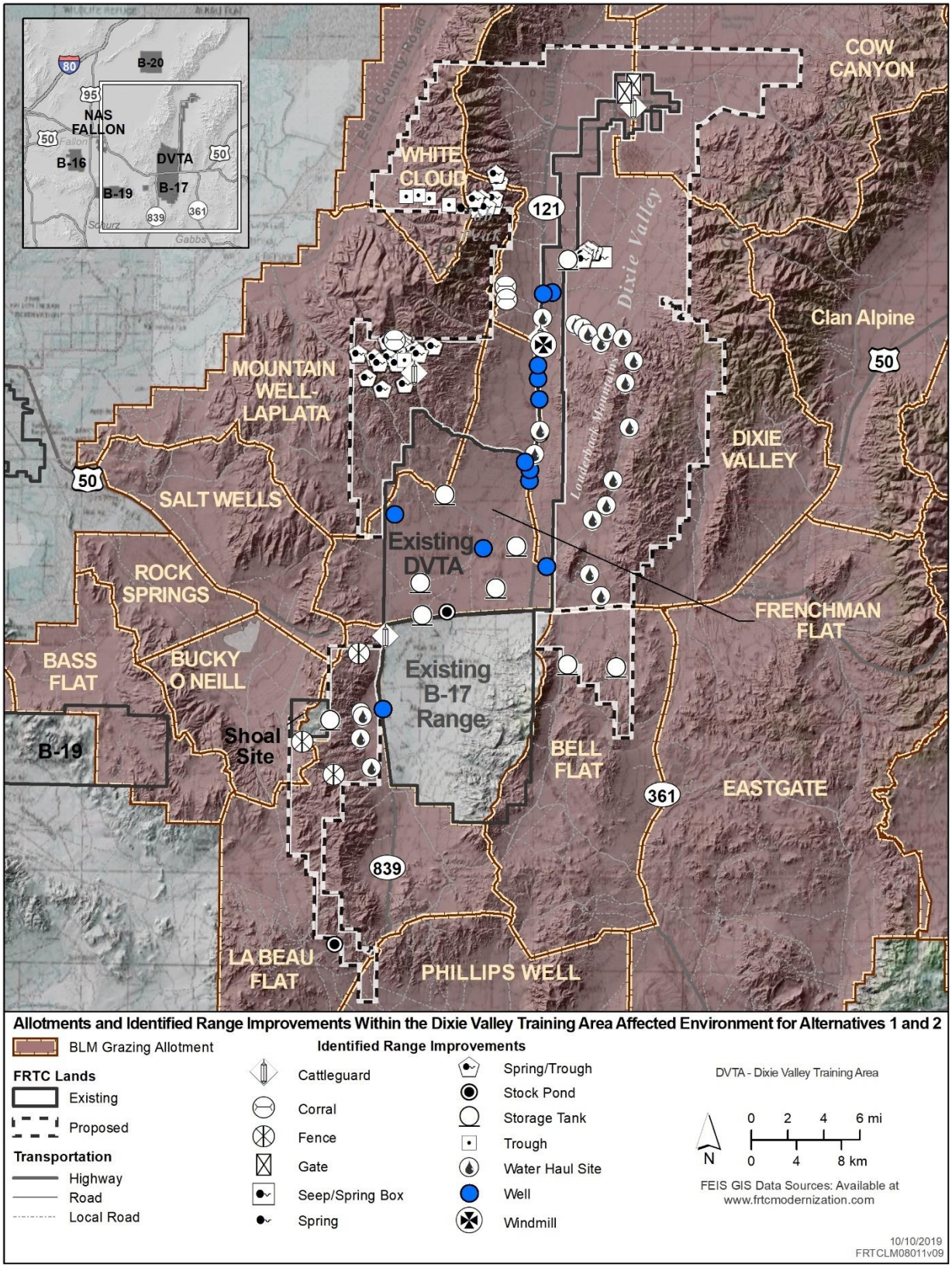


Figure 3.4-7: Allotments and Identified Range Improvements Within the Dixie Valley Training Area Affected Environment for Alternatives 1 and 2

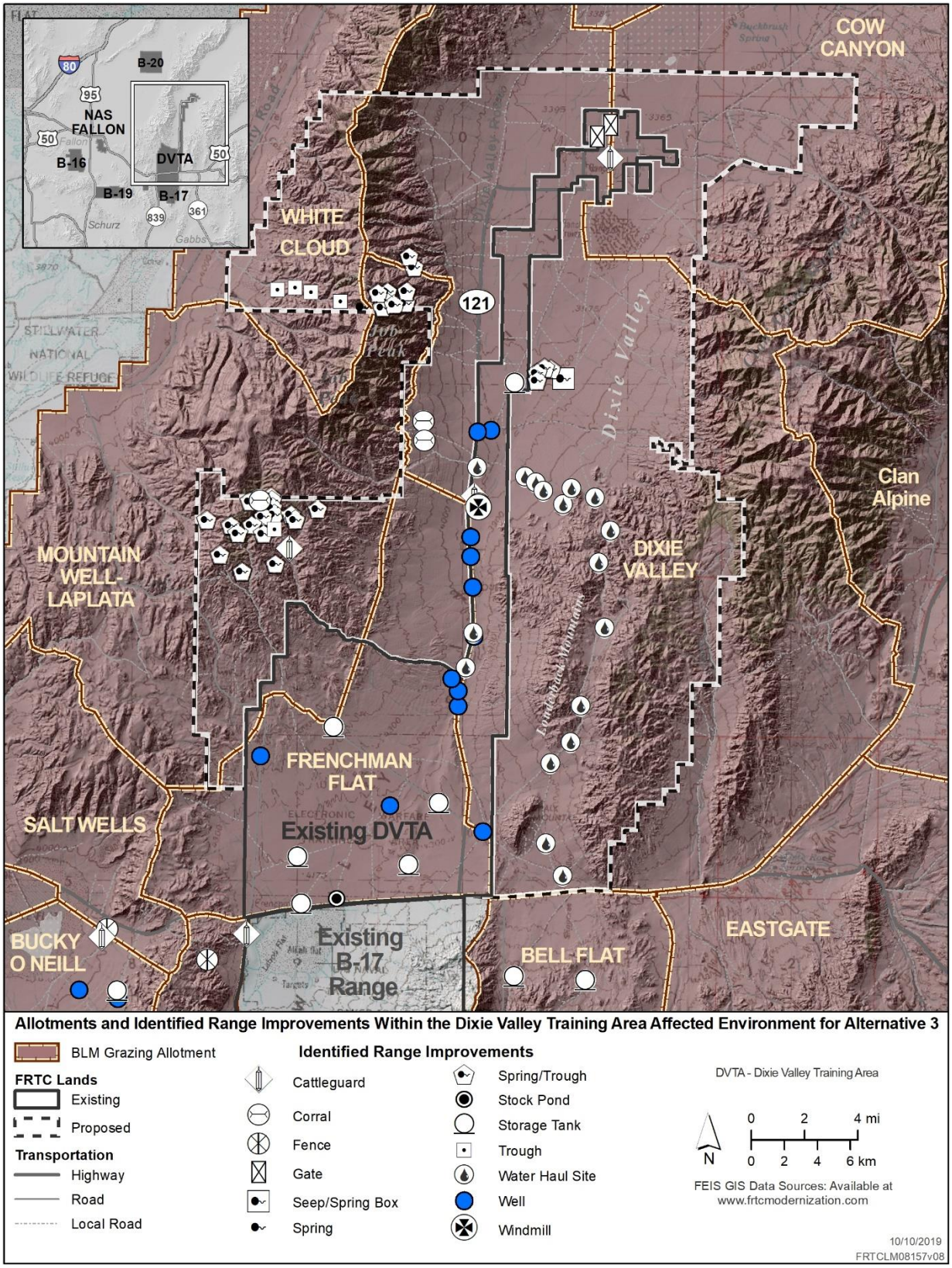


Figure 3.4-8: Allotments and Identified Range Improvements Within the Dixie Valley Training Area Affected Environment for Alternative 3

The 2007 MOU between the Navy and BLM provides the following management responsibilities of the BLM for livestock grazing on the Navy withdrawn lands:

- Notify the Navy when grazing is to occur in the Navy's designated retention areas in Dixie Valley.
- Continue allotment management programs on three grazing allotments in Dixie Valley and adjust AUMs as necessary to protect vegetation conditions.
- Continue to manage grazing in accordance with its Grazing Allotment Management Plans and in a manner that is compatible with current and future military training requirements on Navy-acquired and withdrawn lands.

The 2007 MOU also provides the following shared management responsibilities of the BLM and the Navy for livestock grazing on the Navy withdrawn lands:

- Consult with the Navy before constructing or removing rangeland improvements per amended allotment management plans.
- Manage vegetation and grazing in Dixie Valley per the 2002 Grazing, Vegetation, and Water Resource Management Plan for the Dixie Valley Settlement Area, Churchill County, Nevada. This plan shows the locations of water sources that would be maintained for livestock and the management of vegetation to be protected for wildlife habitat and Navy training purposes.
- Manage the 10 identified ponds in Dixie Valley with the goal of maintaining the existing ecological values. These areas are fenced to exclude livestock, but they may be opened for grazing for short periods if determined to benefit management.
- Continue to prohibit domestic sheep grazing on Navy lands within nine miles of desert bighorn sheep habitat. These areas would likely include B-17, Dixie Valley, and Horse Creek.
- Dempsey, Turley, and Casey Ponds are prohibited from livestock grazing and are fenced to exclude livestock from accessing the waters.

The existing DVTA is within the Dixie Valley, which is a relatively flat valley between the Stillwater and Clan Alpine Mountain Ranges. Soils in the area are generally gravelly and sandy. Both the Stillwater and the Clan Alpine Mountain Ranges include very steep and rugged mountainous terrain.

There are no perennial waters within the affected environment for the DVTA expansion area. However, there are numerous ponds within the Dixie Valley settlement area and the Navy has identified 84 wells in this affected environment using the Nevada Division of Water Resources online database, seven of which are used for stockwater and are discussed in Section 3.9 (Water Resources).

The majority of the DVTA has relatively low forage production; however, the northeastern portion of the Dixie Valley Allotment and the southern portion of the Cow Canyon Allotment have higher forage production potential (Natural Resources Conservation Service, 2017). Characteristic of the region, the DVTA includes vegetation dominated by Bailey's greasewood community. The area also includes vegetative communities dominated by annual herbaceous species. These communities include Russian thistle (*Salsola tragus*), cheatgrass (*Bromus tectorum*), and mustard (Brassicaceae) (Tierra Data Inc., 2008).

3.4.2.5 Special Use Airspace

Livestock grazing occurs on public and private lands underlying FRTC special use airspace (SUA). FRTC SUA overlies approximately 10.4 million acres of land, including large portions of Churchill, Lander, and Eureka Counties as well as portions of Pershing, Nye, Mineral, Lyon, and Washoe Counties. FRTC airspace also overlaps portions of the following Indian reservations: Walker River Paiute Indian

Reservation, Fallon Paiute-Shoshone Reservation, Pyramid Lake Reservation, Duckwater Reservation, and Yomba Indian Reservation. Approximately 94 percent of the lands beneath the FRTC SUA are federally managed public lands, including BLM-administered land (Carson City, Winnemucca, Elko, and Battle Mountain Districts), USFWS refuges (e.g., Stillwater Wildlife Refuge Complex), and U.S. National Forests (e.g., the Humboldt-Toiyabe National Forest).

3.4.3 Environmental Consequences

This section evaluates each alternatives' potential effect on livestock grazing. Closing public land that is partially or completely used for livestock grazing has the potential to directly affect opportunities for grazing. Livestock grazing can also be affected when changes in grazing management practices are needed to support objectives for other resources. For example, closing livestock grazing areas to protect sensitive species, cultural resources, or paleontological resources—as well as during vegetation treatments, fire, drought, or watershed or riparian restoration efforts—would also affect grazing. A summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (see Section 3.4.3.6, Summary of Effects and Conclusions).

Potential forage production as well as the topography, distance to water, and type or class of livestock are considered in determining whether livestock grazing would be significantly affected. For this analysis, an example indicator of a significant impact would be a long-term loss or closure of all or a substantial portion of a livestock grazing area(s) with high forage potential during critical grazing seasons (e.g., grazing) or the loss of a substantial amount of rangeland improvements. The Navy's analysis also looks at whether potential noise or safety zones would be incompatible with livestock grazing.

Alternatives may affect grazing management due to the loss of ingress or egress to allotments and watering sites or the loss of historic trailing routes. The BLM is required to notify permittees two years prior to any land withdrawal that would preclude livestock grazing, except in cases of emergency (43 CFR 4110.4-2) (Bureau of Land Management, 2013). In addition, holders of federal permits for grazing on lands under the control of the United States would be eligible for potential payments in accordance with 43 U.S.C. section 315q of the Taylor Grazing Act of 1934 (as amended) for losses suffered by such persons as a result of the withdrawal or other use of such lands for war or national defense purposes.

Any changes to livestock grazing management as well as any revisions to the boundary of any grazing allotment could potentially affect the local economy. As stated earlier in this section, livestock grazing has had an important and historical role in the state of Nevada and continues to represent local customs and cultural traditions that influence day-to-day life for many of the state's individuals and families, especially in its rural areas. As discussed in Section 3.13 (Socioeconomics), the most direct economic effects of such changes would be on livestock grazing permittees. In addition, Section 3.10 (Biological Resources) discusses the elimination of livestock grazing in the areas requested for withdrawal or proposed for acquisition and potential impacts on biological communities. Additionally, Section 3.10 (Biological Resources) addresses how the removal of livestock grazing could result in increased fuel loads, which would increase fire risk and would prevent the use of livestock grazing to minimize the spread of annual invasive species.

3.4.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur (withdrawal and acquisition), and the current withdrawal would expire on November 5, 2021. In comparison to the environmental baseline, livestock grazing would be anticipated to continue where permitted. Areas previously used by the Navy that could be rendered safe could potentially be used for livestock grazing following military range closure activities, either by expanding existing livestock grazing areas or by creating new livestock grazing areas. As such, the No Action Alternative could potentially have a limited beneficial impact on livestock grazing by opening appropriate areas for additional grazing permits. However, the DVTA is currently open for grazing, and the existing bombing ranges are primarily alkaline flats with low forage production. Therefore, any beneficial impact would be minor, and implementation of the No Action Alternative would not have a significant impact on livestock grazing.

3.4.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy proposes renewal by Congress of the current public land withdrawal at the FRTC. Additional public lands would be requested for withdrawal, and public lands would be proposed for acquisition (see Section 2.3.2, Alternative 1 – Modernization of the Fallon Range Training Complex). The Navy proposes to construct range infrastructure to support modernization, including new target areas. Additionally, the Navy proposes to expand and reconfigure existing SUA to accommodate the expanded ranges. Alternative 1 would continue current livestock grazing activities within the DVTA, but would discontinue livestock grazing within the proposed B-16, B-17, and B-20 boundaries.

Impacts on grazing permittees would occur because Alternative 1 would close grazing on currently-active grazing lands. These impacts would increase when land that is proposed to be closed represents the allotment's primary use area. Ultimately, these types of changes could cause a financial hardship to a permittee, who may have to seek grazing lands elsewhere to replace the area lost, and may necessitate purchase or rental of other lands and/or grazing permits, or construction of new rangeland improvements. It is possible that replacement lands would not be available or might become prohibitively expensive. If such costs would be prohibitive to continuing grazing, permittees could potentially go out of business. Section 3.13 (Socioeconomics) further addresses these impacts.

Livestock grazing would no longer be available to be used as a habitat management tool within areas proposed for expansion of the Bravo ranges. This may result in an increased fuel load and increased potential for large or catastrophic wildfires (Davies et al., 2015). This may also result in an increased use of herbicides and other methods (e.g., mowing and weeding) to manage vegetation within the Bravo ranges around sensitive habitat and target areas. These activities would be conducted in accordance with the Navy's Integrated Natural Resources Management Plan and applicable federal, state, and local regulations.

Table 3.4-2 identifies the allotments within the proposed FRTC boundaries and the number of acres that would be closed from livestock grazing under Alternative 1. A loss of AUMs could occur where large areas of land would be withdrawn, and livestock grazing would be precluded. Forage and rangeland improvement projects could be permanently lost as a result of the action. The process for determining payment amounts from losses resulting from permit cancellation can be found in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation). The Navy would acquire valid and existing surface water rights within B-16, B-17, and B-20 (Section 3.9, Water Resources). The Navy would evaluate whether individuals may transit these ranges to access rangeland improvements off-range on a case-by-case basis based on compatibility with

military training activities and range safety within the withdrawn lands, but outside of the weapons danger zone (WDZ).

Table 3.4-2: Alternative 1: Allotments within the Proposed FRTC Boundaries and Acres Closed

Allotment Name	Existing Total Acres	Permitted Total AUMs	Alternative 1		
			Proposed FRTC Land	Acres Closed	Percent Closed
Bell Flat	91,997	3,688	B-17, DVTA	77,743	85%
Bucky O'Neill	40,946	1,500	DVTA	0	0%
Copper Kettle	108,220	2,333	B-20	54,024	50%
Cow Canyon	149,168	2,382	DVTA	0	0%
Dixie Valley	275,782	6,341	DVTA	0	0%
Eastgate	311,221	9,770	B-17	657	<1%
Frenchman Flat	70,323	2,001	DVTA	0	0%
Horse Mountain	63,160	3,000	B-16	2,411	4%
Humboldt Sink	190,728	1,582	B-20	1,438	1%
La Beau Flat	122,640	3,035	B-17, DVTA	68,127	56%
Lahontan	77,882	1,155	B-16	30,681	39%
Mountain Well- La Plata	139,610	8,004	DVTA	0	0%
Phillips Well	80,618	1,450	B-17, DVTA	58,438	72%
Pilot Table Mountain	538,322	7,900	B-17	18,010	3%
Rochester	255,390	3,963	B-20	43,374	17%
Salt Wells	51,421	1,624	DVTA	0	0%
Sheckler Pasture	22,210	145	B-16	4,187	19%
White Cloud	79,647	1,884	B-20, DVTA	26,338	33%
TOTAL[1]	**2,669,285**	**61,757**	**FRTC**	**385,428**	**14%**

[1]Total acres do not add up because of the overlap of Sheckler Pasture and the Lahontan Allotment.
Notes: (1) Acres were calculated using ArcGIS data provided by BLM (UTMz11 NAD83 projection) and may not be consistent with acres reported in the BLM's public Rangeland Administration System. (2) FRTC = Fallon Range Training Complex, DVTA = Dixie Valley Training Area

3.4.3.2.1 Bravo-16

Land Withdrawal and Acquisition

Alternative 1 would expand B-16 to approximately 59,560 acres, which would be an increase of approximately 32,201 acres from existing conditions (Table 2-1). The proposed expansion of B-16 would withdraw public land (i.e., BLM and Bureau of Reclamation land) and would not require the acquisition of any non-federal land. Expanding B-16 under this alternative would result in a loss of between 523 and 756 permitted AUMs from two BLM allotments and a loss of between 0 and 27 AUMs from one Bureau of Reclamation pasture (as shown in Supporting Study – Livestock Grazing Allotment Study, available from https://frtcmodernization.com). A small area within the southwest portion of the proposed B-16 expansion area falls within the Lahontan Allotment and is accessible by Sand Canyon Road from the east as well as several unnamed roads from the west. This area is estimated to produce more forage than the surrounding area (Natural Resources Conservation Service, 2017). It would be closed from grazing under Alternative 1.

Training Activities

Training activities would occur within B-16 and expand into areas where they did not previously occur, but neither the public nor livestock would be able to access B-16. The B-16 surface danger zone would be contained within the fenced boundary of B-16, and livestock grazing would not be allowed within this zone. Training noise could elicit a behavioral response from livestock outside B-16. The type of behavioral response depends on many variables, but it is typically a temporary startle, freezing, or fleeing response. Noise from training activities would be consistent with current noise levels but would be dispersed over a larger area. Modeled training noise associated with Navy activities would not be experienced beyond the range at levels that would significantly affect livestock grazing.

Public Accessibility

Under Alternative 1, the public would not be able to access B-16 for any purpose other than for ceremonial or cultural site visits and land management activities, which are currently occurring within the requested withdrawal area. Areas that were previously used for livestock grazing would no longer be used for these purposes. B-16 would be fenced and closed for public safety. The public is not allowed within a surface danger zone when a range is actively being used. B-16 would also include signage warning the public to not enter this area. Expanding and fencing off B-16 would close approximately 33,092 acres of BLM allotments and 4,187 acres of Bureau of Reclamation pasture land. Implementation of this alternative would require the closure of approximately 39 percent of the Lahontan Allotment, 4 percent of the Horse Mountain Allotment, and 19 percent of the Sheckler Pasture. These portions of the allotment/pastures would be fenced, preventing permittee access. A prior environmental assessment analyzed closing 983 acres of the Sheckler Pasture within this range; since the publication of that environmental assessment, that area has been fenced as part of B-16 (U.S. Department of the Navy, 2014c).

Construction

Construction would occur within the proposed B-16 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.2.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 1 would expand B-17 to approximately 232,799 acres, which would be an increase of approximately 178,013 acres from existing conditions (Table 2-1). The proposed expansion of B-17 would include withdrawing public land (i.e., BLM-administered land) and acquiring non-federal land. These non-federal parcels are largely undeveloped land, which have historically been used for mining, livestock grazing, and other uses. Expanding B-17 under this alternative would result in a loss of between 5,665 and 6,774 permitted AUMs from five BLM allotments (as discussed in Supporting Study – Livestock Grazing Allotment Study, available from https://frtcmodernization.com).

Training Activities

Training activities would occur within B-17 and expand into areas where they did not previously occur, but neither the public nor livestock would be able to access B-17. The B-17 WDZ would be contained within the fenced boundary of B-17, and livestock grazing would not be allowed within this zone. As described in Section 3.4.3.2.1 (Bravo-16), training noise could elicit a behavioral response from livestock

outside B-17. Noise from training activities would be consistent with current noise levels but would be dispersed over a larger area. Modeled training noise associated with Navy activities would not be experienced beyond the range at levels that would significantly affect livestock grazing.

Public Accessibility

Under Alternative 1, the public would not be able to access the proposed B-17 for any purpose other than for ceremonial or cultural site visits and land management activities, which are currently occurring within the requested withdrawal area. Areas previously used for livestock grazing would no longer be used for these purposes. B-17 would be fenced and closed for public safety. No one is allowed within a WDZ when a range is actively being used. B-17 would also include signage warning the public to not enter this area.

Expanding and fencing off B-17 would close approximately 222,975 acres of BLM allotments. Alternative 1 would close 85 percent of the Bell Flat, less than 1 percent of the Eastgate, 56 percent of La Beau Flat, 72 percent of the Phillips Well, and 3 percent of the Pilot Table Mountain Allotments. In addition, fencing off B-17 would fragment the eastern and western portions of the Phillips Well Allotment, creating two non-contiguous areas, which would prevent livestock from accessing areas with higher forage production within this allotment. These actions would likely lead to an overall increase in the number of AUMs that would be lost. In addition, this alternative would close off an area of Gabbs Valley where water ponds and rangeland improvements have been installed within the proposed expansion area.

Construction

Construction would occur within the proposed B-17 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

Road and Infrastructure Improvements to Support Alternative 1

State Route 839

This alternative includes the potential relocation of State Route 839 outside the proposed expansion of B-17 WDZ, which would affect access to allotments west of State Route 839. Relocating State Route 839 could fragment existing grazing land depending on any route ultimately proposed for its relocation. This could also result in further reductions of AUMs and/or the loss or need to replace or relocate rangeland improvements. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation (NDOT), would be responsible for planning, design, permitting, and constructing any realignment of State Route 839. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public.

Paiute Pipeline

Likewise, the potential relocation of the Paiute Pipeline could temporarily (from construction) or permanently prevent access to grazing lands outside the proposed B-17 boundary. The Navy would

purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A Right of Way application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

3.4.3.2.3 Bravo-20

Land Withdrawal and Acquisition

Alternative 1 would expand B-20 to approximately 221,334 acres, which would be an increase of approximately 180,329 acres from existing conditions (Table 2-1). The proposed expansion of B-20 would include withdrawing public land (i.e., BLM, Bureau of Reclamation, and USFWS land) and acquiring non-federal land. These non-federal parcels are largely undeveloped land with some grazing land in the northern and eastern portions of the range. Expanding B-20 under this alternative would result in a loss of between 1,708 and 2,902 permitted AUMs from five BLM allotments (as discussed in Supporting Study – Livestock Grazing Allotment Study, available from https://frtcmodernization.com).

Training Activities

Training activities would occur within B-20 and expand into areas where they did not previously occur, but neither the public nor livestock would be able to access B-20. The B-20 WDZ would be contained within the fenced boundary of B-20, and livestock grazing would not be allowed within this zone. As described in Section 3.4.3.2.1 (Bravo-16), training noise could elicit a behavioral response from livestock outside B-20. Noise from training activities would be consistent with current noise levels but would be dispersed over a larger area. Modeled training noise associated with Navy activities would not be experienced beyond the range at levels that would significantly affect livestock grazing.

Public Accessibility

Under Alternative 1, the public would not be able to access B-20 for any purpose other than for ceremonial or cultural site visits and land management activities, which are currently occurring within the requested withdrawal area. Areas previously used for livestock grazing would no longer be used for these purposes. B-20 would be fenced and closed for public safety. No one is allowed within a WDZ when a range is actively being used. B-20 would also include signage warning the public to not enter this area.

Expanding and fencing off B-20 would close approximately 125,174 acres of BLM allotments. Implementation of this alternative would result in closing approximately 50 percent of the Copper Kettle Allotment, 1 percent of the Humboldt Sink Allotment, 17 percent of the Rochester Allotment, and 33 percent of the White Cloud Allotment.

East County Road and lands east of the road would remain open under this alternative. As such, this alternative would not affect the ability for permittees to access grazing lands east of the proposed boundary of B-20. Alternative 1 would close the Navy B-20 Access Road (locally known as “Pole Line

Road"), which could affect permittees' ability to access grazing areas north and west of B-20. The Department of the Navy is currently the only authorized user of this road.

Construction

Construction would occur within the proposed B-20 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.2.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Alternative 1 would expand the DVTA to approximately 370,903 acres, which would be an increase of approximately 293,343 acres from existing conditions (see Table 2-1). Expanding the DVTA would entail the withdrawal of public land (i.e., BLM-administered land) and would include the acquisition of non-federal land. These non-federal parcels are largely undeveloped land, which have historically been used for mining, livestock grazing, and other uses. Grazing on federal allotments would continue within the DVTA under this alternative. Therefore, expanding the DVTA would not result in a loss of permitted AUMs under this alternative (as discussed in Section 3.13, Socioeconomics).

Training Activities

Training activities would expand within the proposed DVTA boundary into areas where they have not previously occurred. The public and livestock may see and hear aircraft and support vehicles during training activities within this area. As described in Section 3.4.3.2.1 (Bravo-16), training noise could elicit a behavioral response from livestock. The military has no authority to ask civilians to exit or leave open land areas within the DVTA. If the public enters a training area within the DVTA while a training event is underway, the training would temporarily cease or move elsewhere while the public uses the area.

Public Accessibility

The public would be able to continue to access the DVTA for livestock grazing under this alternative. The BLM would continue managing allotments in the DVTA in accordance with the Federal Land Policy Management Act, applicable Resource Management Plans, and as outlined in the MOU between the Navy and BLM, which would be updated accordingly (see Section 3.4.2.4, Dixie Valley Training Area).

Construction

Construction on three 5-acre sites would occur within the proposed DVTA boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.2.5 Fallon Range Training Complex Special Use Airspace

Livestock grazing has been conducted beneath FRTC SUA for over 70 years. Although some studies find the data to be inconclusive, most scientific literature indicates that livestock exhibit some form of behavioral response to aircraft noise (Wyle, 2014). The type of behavioral response depends on many variables (e.g., aircraft's size, speed, altitude, distance, color, and type of engine), but it is typically a startle, freezing, or fleeing response. Some studies have reported other adverse effects to livestock, including reduced milk yields, increased heart rate, and increased respiration (Manci et al., 1988; Wyle, 2014); however, these physiological effects have proven difficult to assess, and any such effect would likely be very minor. In general, studies suggest that aircraft noise and sonic booms would not

substantially affect livestock production or reproduction (Pepper et al., 2003), and some studies have demonstrated that domestic animals may adjust to aircraft noise over time (Manci et al., 1988).

Following the EIS process, the Navy would update relevant documents to formalize any recommendation for new safety and noise zones and confirm existing safety and noise zones. The Navy would continue to work with the local counties and municipalities as well as federal property land managers to plan for compatible land use development, which would include the BLM, USFWS, U.S. Forest Service, Bureau of Reclamation, and Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe Counties.

3.4.3.2.6 Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation

The FRTC Modernization project would remove acreage available for grazing livestock from 12 federal grazing allotments administered by BLM or Bureau of Reclamation. These allotments would be affected by the expansion of three ordnance ranges (B-16, B-17, and B-20), which would require the closure of these areas to grazing because of range safety requirements. Table 3.4-3 depicts the extent that each grazing allotment would be affected.

Table 3.4-3: Impacts on Each Grazing Allotment Affected by the FRTC Modernization Under Alternative 1

Allotment Name	District	Total Acreage	Acreage Impacted	Percent Impacted	Permit Expiration
Bell Flat	BLM – Carson City	91,997	77,743	85%	3/15/27
Phillips Well	BLM – Carson City	80,618	58,438	72%	10/31/19
La Beau Flat	BLM – Carson City	122,640	68,127	56%	9/1/25
Copper Kettle	BLM – Carson City	108,220	54,024	50%	3/13/26
Lahontan	BLM – Carson City	77,882	30,681	39%	2/28/26
White Cloud	BLM – Carson City	79,647	26,338	33%	2/28/29
Sheckler Pasture	BOR – Lahontan Basin	22,210	4,187	19%	11/15/19
Rochester	BLM – Winnemucca	255,390	43,374	17%	2/27/28
Horse Mountain	BLM – Carson City	63,160	2,411	4%	9/30/29
Pilot-Table Mountain	BLM – Carson City	538,322	18,010	3%	4/14/23
Eastgate	BLM – Carson City	311,221	657	<1%	9/27/25
Humboldt Sink	BLM – Winnemucca	190,728	1,438	1%	2/28/28

Notes: BLM = Bureau of Land Management, BOR = Bureau of Reclamation

The Taylor Grazing Act of 1934 (43 U.S.C. sections 315–316o) provides the Navy with authority to make payments for certain grazing-related losses. Specifically, section 315q states:

> "Whenever use for war or national defense purposes of the public domain or other property owned by or under the control of the United States prevents its use for grazing, persons holding grazing permits or licenses and persons whose grazing permits or licenses have been or will be cancelled because of such use shall be paid out of the funds appropriated or allocated for such project such amounts as the head of the department or agency so using the lands shall determine to be fair and reasonable for the losses suffered by such persons as a result of the use of such lands for war or national defense purposes. Such payments shall be deemed payment in full for

> such losses. Nothing contained in this section shall be construed to create any liability not now existing against the United States."

To paraphrase the authority, 43 U.S.C. section 315q directs the Navy to make payments out of project funds for losses arising from permittees being denied use of their federal grazing privileges during the current permit period as a result of the grazing lands in question being used for national defense purposes.

Additionally, the Navy would be required, under the USDI-BLM Grazing Regulations (43 CFR Part 4100) Subpart 4120.3-6 – Removal and Compensation for Loss of Range Improvements, to compensate for a loss of authorized range improvements. The CFR regulation states:

> **"**(c) Whenever a grazing permit or lease is cancelled in order to devote the public lands covered by the permit or lease to another public purpose, including disposal, the permittee or lessee shall receive from the United States reasonable compensation for the adjusted value of their interest in authorized permanent improvements placed or constructed by the permittee or lessee on the public lands covered by the cancelled permit or lease. The adjusted value is to be determined by the authorized officer. Compensation shall not exceed the fair market value of the terminated portion of the permittee's or lessee's interest therein. Where a range improvement is authorized by a range improvement permit, the livestock operator may elect to salvage materials and perform rehabilitation measures rather than be compensated for the adjusted value.
>
> "(d) Permittees or lessees shall be allowed 180 days from the date of cancellation of a range improvement permit or cooperative range improvement agreement to salvage material owned by them and perform rehabilitation measures necessitated by the removal."

The Navy would use these authorities to determine payment amounts to individuals who may suffer losses resulting from the modification or cancellation of grazing permits or other disruption of their livestock grazing operations as a result of implementation of any proposed FRTC modernization action.

The following process would be used for determining payment amounts:

Payment for Losses*.* The Navy will first consider costs associated with obtaining replacement forage and otherwise restoring/maintaining a permittee's existing operational capacity. Working with BLM and the permittee, the Navy will determine the costs necessary to replace the area/capacity removed from a grazing permit. These costs may include, but are not limited to, preparing new allotment applications, complying with BLM environmental requirements, and water rights studies; procurement of private market replacement forage; shipment or transportation of forage, cattle, and/or ranch personnel and their horses and equipment; one-time relocation expenses associated with any full or partial transfer of operations to any new location(s); any reasonably anticipated lost profits arising as a result of operational downtime while restoring and/or relocating operations; and any other costs identified that would be properly payable under 43 U.S.C. section 315q.

Should a permit holder decide not to seek replacement forage in conjunction with restoring operational capacity, or when restoring such capacity is not practicable, the Navy will make a good faith estimate of the financial impact the loss of that individual's permit would be expected to have on his or her ranching operation. The Navy will ask each permit holder to provide recent business operating expenses associated with the permit, their total operating expenses, an estimate of that portion of income believed to be directly related to utilization of the permit, and total income and taxes. This information

will be used to determine a payment amount to compensate for losses resulting from permit modification or cancellation, including reasonably anticipated lost profits for what would otherwise have been the duration of the permit. If a permit holder does not wish to share this financial information, or if the information shared is incomplete, the Navy will make an estimate of the value of the losses based on existing information from other sources.

It is possible that a payment amount will be based both on replacement forage along with other operational restoration-related costs, and on the financial impact the loss of a permit would be expected to have on a ranching operation (i.e., part of the payment based on obtaining replacement forage to the extent practicable and the rest based on payment for losses to the extent obtaining replacement forage is not practicable). In those instances, the costs to restore operational capacity will first be determined, and then the remaining payment amount will be determined in accordance with the paragraph above discussing permit holders who may elect not to seek replacement forage capacity.

Payment for Allotment Improvements. Improvement, such as corrals, fencing, wells, and other appurtenances that cannot be relocated are considered real property, similar to a building. The Navy will appraise the value of all real property owned by a permit holder and will offer fair market value for the purchase of any such real property. Equipment, such as relocatable water tanks, is not considered real property, and permit holders will be afforded an opportunity to remove their equipment prior to permits being modified or cancelled.

The Navy acknowledges that the information it has gathered to this point concerning potentially compensable range improvements may be incomplete. Individuals who would be affected by implementation of the Proposed Action would be afforded an opportunity to provide additional information concerning any such range improvements subsequent to issuance of the Navy's Record of Decision, during any discussions with the Navy for the purpose of determining potential payments under 43 U.S.C. Section 315q for grazing-related losses.

Timing of Permit Modification or Cancellation. The Navy anticipates issuing its Record of Decision with respect to FRTC modernization in January 2020. However, any Congressional withdrawal of the area currently supporting grazing permits would not be expected until September 30, 2020, or later. Similarly, any Congressional appropriation for implementing the FRTC Modernization action, which would include funds for making payments to grazing permit holders, would not be expected until September 30, 2020, or later. Accordingly, the earliest the Navy would request that BLM modify or cancel any permit would be October 1, 2020.

If the Congressional withdrawal is enacted, and if Congress appropriates funds to implement the FRTC Modernization effort, the Navy would ask BLM to contact each affected permit holder. BLM would coordinate with the Navy on any action to initiate modification or cancellation of a permit. Under 43 CFR Part 4100 Subpart 4110.4-2 (Decrease in Land Acreages), BLM would be required to provide two years advance notice of any permit cancellation. Once a given notification is made, the Navy, with assistance from BLM, would begin discussions with affected permit holders to determine payment amounts in accordance with the processes described herein.

3.4.3.2.7 Summary of Effects and Conclusions

Under Alternative 1, the Navy would close public access to approximately 381,241 acres of BLM allotments and 4,187 acres of Bureau of Reclamation pastureland in western and central Nevada. The Navy estimates that Alternative 1 would result in a loss of between 7,896 and 10,432 AUMs from existing grazing permits. This results in an average loss of 14 percent of available grazing areas and

approximately 13–17 percent loss of permitted AUMs from the affected allotments. These losses represent a loss of up to approximately 7 percent of AUMs within the BLM Carson City District, less than 1 percent of AUMs within the Winnemucca District, and less than 1 percent of all AUMs in Nevada. Section 3.13 (Socioeconomics) provides detailed discussion of these impacts. Because the proposed expansion area of Alternative 1 includes the loss of areas with higher forage potential, the loss of critical winter grazing areas, and the loss of rangeland improvements, implementation of Alternative 1 would significantly impact livestock grazing.

3.4.3.3 Alternative 2: Modernization of the Fallon Range Training Complex and Managed Access

Under Alternative 2, the Navy would renew its current public land withdrawal and would also withdraw and acquire additional land to be reserved for military use similar to Alternative 1. Alternative 2 would close public access to B-16, B-17, B-19, and B-20 but would allow certain uses when the ranges are not in operation with prior coordination. Meanwhile, public access within the DVTA would be similar to existing baseline conditions (see Section 2.3.5, Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access).

Table 3.4-4 identifies the allotments within the proposed FRTC boundaries and the number of acres that would be closed from livestock grazing under Alternative 2. It is anticipated that this would result in the same percent loss of AUMs as Alternative 1 (see Section 3.4.3.2, Alternative 1: Modernization of the Fallon Range Training Complex). A loss of AUMs could occur where large areas of land would be withdrawn, and livestock grazing would be precluded. Forage and rangeland improvement projects could be permanently lost as a result of the action, which could further affect AUM estimates. The Navy would acquire valid and existing surface water rights within B-16, B-17, and B-20 (see Section 3.9, Water Resources). The Navy would evaluate whether individuals may transit these ranges to access rangeland improvements off-range on a case-by-case basis based on compatibility with military training activities and range safety within the withdrawn lands but outside of the WDZ.

The BLM would complete site-specific environmental analysis for each allotment prior to implementing any of the alternatives assessed in this EIS.

3.4.3.3.1 Bravo-16

Land Withdrawal and Acquisition

Alternative 2 would have the same land configuration as Alternative 1. The proposed expansion areas for B-16 would be the same as Alternative 1, with one exception. Simpson Road at B-16 and a small portion of land south of Simpson Road would be open to public use under Alternative 2. In addition, as with Alternative 1, the FRTC Bravo ranges would be closed from livestock grazing.

Training Activities

Under Alternative 2, the types of training activities conducted at B-16 would be the same as under Alternative 1, and neither the public nor livestock would be able to access B-16 during training events.

Public Accessibility

Under Alternative 2, B-16 would be closed to public access as described under Alternative 1, with the exception of special events (racing events). A small portion of B-16 south of Simpson Road would also remain open to the public under this alternative. Grazing would not be allowed on B-16 under Alternative 2.

Construction

The proposed construction areas for B-16 would be the same as under Alternative 1. Construction would occur within the proposed B-16 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

Table 3.4-4: Alternative 2: Allotments within the Proposed FRTC Boundaries and Acres Closed

Allotment Name	Existing Total Acres	Permitted Total AUMs	Alternative 2		
			Proposed FRTC Land	Acres Closed	Percent Closed
Bell Flat	91,997	3,688	B-17, DVTA	77,743	85%
Bucky O'Neill	40,946	1,500	DVTA	0	0%
Copper Kettle	108,220	2,333	B-20	54,024	50%
Cow Canyon	149,168	2,382	DVTA	0	0%
Dixie Valley	275,782	6,341	DVTA	0	0%
Eastgate	311,221	9,770	B-17	657	<1%
Frenchman Flat	70,323	2,001	DVTA	0	0%
Horse Mountain	63,160	3,000	B-16	2,411	4%
Humboldt Sink	190,728	1,582	B-20	1,438	1%
La Beau Flat	122,640	3,035	B-17, DVTA	68,127	56%
Lahontan	77,882	1,155	B-16	30,681	39%
Mountain Well-La Plata	139,610	8,004	DVTA	0	0%
Phillips Well	80,618	1,450	B-17, DVTA	58,438	72%
Pilot Table Mountain	538,322	7,900	B-17	18010	3%
Rochester	255,390	3,963	B-20	43,374	17%
Salt Wells	51,421	1,624	DVTA	0	0%
Sheckler Pasture	22,210	145	B-16	4,187	19%
White Cloud	79,647	1,884	B-20, DVTA	26,338	33%
TOTAL[1]	**2,669,285**	**61,757**	**FRTC**	**385,428**	**14%**

[1]Total acres do not add up because of the overlap of Sheckler Pasture and the Lahontan Allotment.
Notes: (1) Acres were calculated using ArcGIS data provided by BLM (UTMz11 NAD83 projection) and may not be consistent with acres reported in the BLM's public Rangeland Administration System. (2) AUM = Animal Unit Months, FRTC = Fallon Range Training Complex, DVTA = Dixie Valley Training Area

3.4.3.3.2 Bravo-17

Land Withdrawal and Acquisition

Under Alternative 2, B-17 would have the same land configuration as under Alternative 1. The proposed expansion areas for B-17 would be the same as Alternative 1. In addition, as with Alternative 1, the FRTC Bravo ranges would be closed from livestock grazing.

Training Activities

Under Alternative 2, the types of training activities conducted at B-17 would be the same as under Alternative 1, and neither the public nor livestock would be able to access B-17 during training events.

Public Accessibility

Under Alternative 2, B-17 would be closed to public access as described under Alternative 1, with the exception of special events (racing events), and hunting. Grazing would not be allowed on B-17 under Alternative 2.

Construction

The proposed construction areas for B-17 would be the same as Alternative 1. Construction would occur within the proposed B-17 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

Road and Infrastructure Improvements to Support Alternative 2

The proposed construction areas for B-17 would be the same as under Alternative 1. Follow-on, site-specific NEPA analysis would be required to analyze the impacts of any potential relocations of State Route 839 and the Paiute Pipeline, which would include analyzing potential impacts on livestock grazing.

3.4.3.3.3 Bravo-20

Land Withdrawal and Acquisition

Under Alternative 2, B-20 would have the same land configuration as under Alternative 1. The proposed expansion areas for B-20 would be the same as Alternative 1. In addition, as with Alternative 1, the FRTC Bravo ranges would be closed from livestock grazing.

Training Activities

Under Alternative 2, the types of training activities conducted at B-20 would be the same as under Alternative 1, and neither the public nor livestock would be able to access B-20 during training events.

Public Accessibility

Under Alternative 2, B-20 would be closed to public access as described under Alternative 1, with the exception of special events (racing events). Impacts on grazing would be the same as described under Alternative 1.

Construction

Under Alternative 2, the proposed construction areas for B-20 would be the same as under Alternative 1. Construction would occur within the proposed B-20 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.3.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Under Alternative 2, the DVTA would have the same land configuration as under Alternative 1. The proposed expansion areas for the DVTA would also be the same as under Alternative 1. In addition, there would be no change to livestock grazing activities or management within the DVTA under this alternative compared to current conditions.

Training Activities

Under Alternative 2, the types of training activities conducted at the DVTA would be the same as under Alternative 1. Training activities would expand within the proposed DVTA boundary into areas where they have not previously occurred. The military has no authority to ask civilians to exit or leave open land areas within the DVTA. If the public enters a training area within the DVTA while a training event is

underway, the training would temporarily cease or move elsewhere while the public transits the training area.

Public Accessibility

As stated under Alternative 1, the public would be able to continue to access the DVTA for livestock grazing under this alternative. The BLM would continue managing these allotments in accordance with the Federal Land Policy Management Act, applicable Resource Management Plans, and as outlined in the MOU between the Navy and BLM, which would be updated accordingly (see Section 3.4.3.4.4, Dixie Valley Training Area).

Construction

Under Alternative 2, the proposed construction areas for the DVTA would be the same as under Alternative 1. Construction would occur within the proposed DVTA boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.3.5 Fallon Range Training Complex Special Use Airspace

Under Alternative 2, FRTC would have the same airspace configuration as under Alternative 1, and would be expected to generate the same relatively minimal impacts with respect to livestock. Following the EIS process, the Navy would update relevant documents to formalize the recommendation for new safety and noise zones and confirm existing safety and noise zones. The Navy would continue to work with the local counties and municipalities as well as federal property land managers to plan for compatible land use development, which would include the BLM, USFWS, U.S. Forest Service, Bureau of Reclamation, and Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe Counties.

3.4.3.3.6 Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation

Under Alternative 2, the FRTC Modernization project would remove the same amount of acreage available for grazing livestock from 12 federal grazing allotments administered by BLM or the Bureau of Reclamation as discussed in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation), under Alternative 1. These allotments would be affected by the expansion of three ordnance ranges (B-16, B-17, and B-20), which would require the closure of these areas to grazing because of range safety requirements. See Table 3.4-3 for a depiction of the extent that each grazing allotment would be affected.

The process for determining payment amounts for losses resulting from permit modification or cancellation would be the same as discussed under Alternative 1 in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation).

3.4.3.3.7 Summary of Effects and Conclusions

Under Alternative 2, the Navy would close public access to approximately 381,241 acres of BLM allotments and 4,187 acres of Bureau of Reclamation pastureland in western and central Nevada. The Navy estimates that Alternative 1 would result in a loss of between 7,896 and 10,432 AUMs from existing grazing permits. This results in an average loss of 14 percent of available grazing areas and approximately 13–17 percent loss of permitted AUMs from the affected allotments. These losses represent a loss of up to approximately 7 percent of AUMs within the BLM Carson City District, less than 1 percent of AUMs within the Winnemucca District, and less than 1 percent of all AUMs in Nevada.

Section 3.13 (Socioeconomics) provides detailed discussion of these impacts. Because the proposed expansion area of Alternative 2 includes the loss of areas with higher forage potential, the loss of critical winter grazing areas, and the loss of rangeland improvements, implementation of Alternative 2 would significantly impact livestock grazing.

3.4.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternative 1 in terms of its land requested for withdrawal and proposed for acquisition, except with respect to the orientation, size, and location of B-16, B-20, B-17, and the DVTA; and similar to Alternative 2 in terms of managed access. Alternative 3 would move B-17 farther to the southeast and rotate it slightly counter-clockwise (see Section 2.3.6, Alternative 3 – Bravo-17 Shift and Managed Access [Preferred Alternative]). In addition, unlike Alternatives 1 and 2, Alternative 3 would not withdraw land south of U.S. Route 50 for the DVTA (see Section 2.3.6.4.1, Land Acquisition and Withdrawal). Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not be used for land-based military training or managed by the Navy. The Navy further reduced the overall size of the ranges requested for withdrawal or proposed for acquisition between the Draft and Final EIS (see Section 2.3.6, Alternative 3—Bravo-17 Shift and Managed Access [Preferred Alternative]), thus reducing impacts on grazing allotments under Alternative 3.

Table 3.4-5 identifies the allotments within the proposed FRTC boundaries, the number of acres that would be closed from livestock grazing under Alternative 3. A loss of AUMs would occur where large areas of land would be withdrawn, and livestock grazing would be precluded. As with Alternative 1 and 2, forage and rangeland improvement projects could be permanently lost as a result of the action.

The process for determining payment amounts from losses resulting from permit modification or cancellation can be found in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation). The Navy would acquire valid and existing surface water rights within B-16, B-17, and B-20 (refer to Section 3.9, Water Resources). The Navy would evaluate whether individuals may transit these ranges to access rangeland improvements off-range on a case-by-case basis, based on compatibility with military training activities and range safety within the withdrawn lands, but outside of the WDZ.

Table 3.4-5: Alternative 3: Allotments Within the Proposed FRTC Boundaries and Acres Closed

Allotment Name	Existing Total Acres	Permitted Total AUMs	Alternative 3		
			Proposed FRTC Land	Acres Closed	Percent Closed
Bell Flat	91,997	3,688	B-17	49,528	54%
Bucky O'Neill	40,946	1,500	DVTA	0	0%
Copper Kettle	108,220	2,333	B-20	43,515	40%
Cow Canyon	149,168	2,382	DVTA	0	0%
Dixie Valley	275,782	6,341	DVTA	0	0%
Eastgate	311,221	9,770	B-17	48,310	16%
Frenchman Flat	70,323	2,001	DVTA	0	0%
Horse Mountain	63,160	3,000	B-16	2,085	3%
Humboldt Sink	190,728	1,582	B-20	1,277	1%
La Beau Flat	122,640	3,035	B-17	22,628	18%
Lahontan	77,882	1,155	B-16	29,847	38%
Mountain Well-LaPlata	139,610	8,004	DVTA	0	0%
Phillips Well	80,618	1,450	B-17	71,298	88%
Pilot Table Mountain	538,322	7,900	B-17	17,823	3%
Rochester	255,390	3,963	B-20	43,054	17%
Salt Wells	51,421	1,624	DVTA	0	0%
Sheckler Pasture	22,210	145	B-16	4,187	19%
White Cloud	79,647	1,884	B-20, DVTA	23,936	30%
TOTAL[1]	**2,669,285**	**61,757**	**FRTC**	**357,488**	**13%**

[1]Total acres do not add up because of the overlap of Sheckler Pasture and the Lahontan Allotment.
Notes: (1) Acres were calculated using ArcGIS data provided by BLM (UTMz11 NAD83 projection) and may not be consistent with acres reported in the BLM's public Rangeland Administration System. (2) FRTC = Fallon Range Training Complex, DVTA = Dixie Valley Training Area.

3.4.3.4.1 Bravo-16

Land Withdrawal and Acquisition

Under Alternative 3, B-16 would have a similar land configuration as under Alternatives 1 and 2, with the exception of land south of Simpson Road. Under Alternative 3, those lands would not be withdrawn and lands previously withdrawn would be relinquished to BLM, resulting in a total closure of 31,875 BLM-administered acres compared to 32,201 BLM-administered acres under Alternative 1. The

proposed expansion areas for B-16 would be slightly less (a loss of between 488 and 737 permitted AUMs) than Alternatives 1 and 2, as shown in Figure 3.4-2 (also see Section 3.13, Socioeconomics).

Training Activities

Under Alternative 3, the types of training activities conducted at B-16 would be the same as under Alternatives 1 and 2, and neither the public nor livestock would be able to access B-16 during training events.

Public Accessibility

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Under Alternative 3, B-16 would be closed to public access as described under Alternative 2. Unlike Alternatives 1 and 2, the land south of Simpson Road would not be withdrawn under this alternative. Grazing would not be allowed on B-16 under Alternative 3.

Construction

Under Alternative 3, the proposed construction areas for B-16 would be the same as Alternatives 1 and 2. Construction would occur within the proposed B-16 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.4.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 3 would expand B-17 to approximately 265,588 acres, which would be an increase of approximately 210,801 acres from existing conditions (see Table 2-7). The proposed expansion of B-17 would include withdrawing public land (i.e., BLM-administered land) and acquiring non-federal land, as shown in Figure 3.4-4. These non-federal parcels are largely undeveloped land, which have historically been used for mining, livestock grazing, and other uses. B-17 would be closed from livestock grazing. Expanding B-17 under this alternative would result in a loss of between 4,780 and 7,569 permitted AUMs from five BLM allotments (as discussed in Supporting Study – Livestock Grazing Allotment Study, available from https://frtcmodernization.com).

Training Activities

Under Alternative 3, the types of training activities conducted at B-17 would be the same as under Alternatives 1 and 2, and neither the public nor livestock would be able to access B-17 during training events. The B-17 WDZ would be contained within the fenced boundary of B-17, and livestock grazing would not be allowed within this zone.

As described in Section 3.4.3.2.2 (Bravo-17), training noise could elicit a behavioral response from livestock outside B-17. Noise from training activities would be consistent with current noise levels but would be dispersed over a larger area. Modeled training noise associated with Navy activities would not be experienced beyond the range at levels that would significantly affect livestock grazing.

Public Accessibility

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Under Alternative 3, the public would be able to access portions of the proposed B-17 for bighorn sheep hunting, racing events, ceremonial or cultural

site visits, and land management activities. Areas previously used for livestock grazing would no longer be used for these purposes. B-17 would be fenced and closed for public safety. No one is allowed within a WDZ when a range is actively being used. B-17 would also include signage warning the public to not enter this area.

Alternative 3 would close 54 percent of the Bell Flat Allotment, 18 percent of the La Beau Flat Allotment, 88 percent of the Phillips Well Allotment, and 3 percent of the Pilot-Table Mountain Allotment. Unlike Alternatives 1 and 2, this alternative would not split the Phillips Well Allotment into two non-contiguous areas, but it would close a larger portion of the allotment (an increase of 16 percent). This alternative would close a larger portion of the Eastgate Allotment (16 percent) compared to Alternatives 1 and 2. This alternative would also close off an area of Pilot-Table Mountain Allotment (3 percent) where water ponds and rangeland improvements have been made; however, this alternative does not close as much of this land overall as Alternatives 1 and 2.

Construction

Construction would occur within the proposed B-17 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

Road and Infrastructure Improvements to Support Alternative 3

State Route 361 and the Paiute Pipeline

This alternative would include the potential relocation of 12 miles of State Route 361 outside the proposed expansion of the B-17 WDZ, likely within the Eastgate Allotment. Relocating this portion of State Route 361 could fragment the Eastgate Allotment depending on the placement of any route ultimately proposed for its relocation, which could also result in further reductions of AUMs and the loss or need to replace or relocate rangeland improvements. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the NDOT, would be responsible for planning, design, permitting, and constructing any realignment of State Route 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 361 unless and until any such new route has been completed and made available to the public.

Likewise, the potential relocation of the Paiute Pipeline could temporarily (from construction) or permanently prevent access to grazing lands outside the proposed B-17 boundary. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A Right of Way application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the

pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

3.4.3.4.3 Bravo-20

Land Withdrawal and Acquisition

Under Alternative 3, B-20 would have a similar land configuration as under Alternatives 1 and 2, as shown in Figure 3.4-6. The proposed expansion areas for B-20 would be slightly less than under Alternatives 1 and 2, as shown in Table 2-7. B-20 would be closed from livestock grazing.

Training Activities

Under Alternative 3, the types of training activities conducted at B-20 would be the same as under Alternatives 1 and 2, and neither the public nor livestock would be able to access B-20 during training events.

Public Accessibility

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Under Alternative 3, B-20 would be closed to public access as described under Alternative 2. Impacts on grazing would be the similar to that of Alternatives 1 and 2.

Construction

Under Alternative 3, the proposed construction areas for B-20 would be the same as under Alternatives 1 and 2. Construction would occur within the proposed B-20 boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.4.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Under Alternative 3, the DVTA would expand to approximately 325,322 acres, which would be an increase of approximately 247,762 acres from existing conditions (see Table 2-7). Unlike Alternatives 1 and 2, the DVTA would not extend south of U.S. Route 50, as shown in Figure 3.4-8. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy. Expanding the DVTA would entail the withdrawal of additional public land (i.e., BLM-administered land) and would include the acquisition of non-federal land. Grazing on federal allotments would continue within the DVTA under this alternative. Therefore, expanding the DVTA would not result in a loss of permitted AUMs under this alternative.

Training Activities

Under Alternative 3, the types of training activities conducted at the DVTA would be the same as under Alternatives 1 and 2. Training activities would expand within the proposed DVTA boundary into areas where they have not previously occurred. The public and livestock may see and hear aircraft and support vehicles during training activities within this area. As described in Section 3.4.3.2.4 (Dixie Valley Training Area), training noise could elicit a behavioral response from livestock. The military has no

authority to ask civilians to exit or leave open land areas within the DVTA. If the public enters a training area within the DVTA while a training event is underway, the training would temporarily cease or move elsewhere while the public uses the training area.

Public Access

The public would be able to continue to access the DVTA for livestock grazing under this alternative. The BLM would continue managing these allotments in accordance with the Federal Land Policy Management Act, applicable Resource Management Plans, and as outlined in the MOU between the Navy and BLM, which would be updated accordingly (see Section 3.4.3.4.4, Dixie Valley Training Area).

Construction

Construction would occur within the proposed DVTA boundary, which would be closed from livestock grazing. Although construction could temporarily disturb livestock on adjoining lands, these impacts would be temporary and less than significant.

3.4.3.4.5 Fallon Range Training Complex Special Use Airspace

The modification and reconfiguration of SUA under Alternative 3 would be similar to that described for Alternatives 1 and 2 and would be expected to generate the same relatively minimal impacts with respect to livestock. As described in Section 3.4.3.2.5 (Fallon Range Training Complex Special Use Airspace), livestock grazing has been conducted beneath FRTC SUA for over 70 years. Although some studies find the data to be inconclusive, most of the scientific literature indicates that livestock exhibit some form of behavioral response to aircraft noise (Wyle, 2014). The type of behavioral response depends on many variables (e.g., aircraft's size, speed, altitude, distance, color, and type of engine), but it is typically a startle, freezing, or fleeing response.

Alternative 3 proposes to change the configuration of existing SUA. Following the EIS process, the Navy would update relevant documents to formalize the recommendation for new safety and noise zones and confirm existing safety and noise zones. The Navy would continue to work with the local counties and municipalities as well as federal property land managers to plan for compatible land use development, which would include the BLM, USFWS, U.S. Forest Service, Bureau of Reclamation, and Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe Counties.

3.4.3.4.6 Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation

The FRTC Modernization project would remove acreage available for grazing livestock from 12 federal grazing allotments administered by BLM or the Bureau of Reclamation. These allotments would be affected by the expansion of three ordnance ranges (B-16, B-17, and B-20), which would require the closure of these areas to grazing because of range safety requirements. Table 3.4-6 depicts the extent that each grazing allotment would be affected under Alternative 3.

The process for determining payment amounts for losses resulting from permit modification or cancellation would be the same as discussed under Alternative 1 and 2, and laid out in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation).

Table 3.4-6: Impacts on Each Grazing Allotment Affected by the FRTC Modernization Under Alternative 3

Allotment Name	District	Total Acreage	Acreage Impacted	Percent Impacted	Permit Expiration
Phillips Well	BLM – Carson City	80,618	71,298	88%	10/31/19
Bell Flat	BLM – Carson City	91,997	49,528	54%	3/15/27
Copper Kettle	BLM – Carson City	108,220	43,515	40%	3/13/26
Lahontan	BLM – Carson City	77,882	29,847	38%	2/28/26
Sheckler Pasture	BOR – Lahontan Basin	22,210	4,187	19%	11/15/19
La Beau Flat	BLM – Carson City	122,640	22,628	18%	9/1/25
Rochester	BLM – Winnemucca	255,390	43,054	17%	2/27/28
Eastgate	BLM – Carson City	311,221	48,310	16%	9/27/25
White Cloud	BLM – Carson City	79,647	23,936	30%	2/28/29
Horse Mountain	BLM – Carson City	63,160	2,085	3%	9/30/29
Pilot-Table Mountain	BLM – Carson City	538,322	17,823	3%	4/14/23
Humboldt Sink	BLM – Winnemucca	190,728	1,277	1%	2/28/28

Notes: BLM = Bureau of Land Management, BOR = Bureau of Reclamation

3.4.3.4.7 Summary of Effects and Conclusions

Under Alternative 3, the Navy would close public access to approximately 352,601 acres of BLM allotments and 4,187 acres of Bureau of Reclamation pastureland in western and central Nevada. The Navy estimates that Alternative 3 would result in a loss of between 6,952 and 10,976 AUMs from existing grazing permits. This results in an average loss of 13 percent of available grazing areas and approximately 11–18 percent loss of permitted AUMs from the affected allotments. These losses represent a loss of up to approximately 7 percent of AUMs within the BLM Carson City District, less than 1 percent of AUMs within the BLM Winnemucca District, and less than 1 percent of all AUMs in Nevada. Section 3.13 (Socioeconomics) provides detailed discussion of these impacts. Because the proposed expansion area of Alternative 3 includes the loss of areas with higher forage potential, the loss of critical winter grazing areas, and the loss of rangeland improvements, implementation of Alternative 3 would significantly impact livestock grazing.

3.4.3.5 Proposed Management Practices, Monitoring, and Mitigation

Policies and procedures in the NAS Fallon Integrated Natural Resources Management Plan would continue to be implemented to avoid conflicts with livestock grazing (e.g., routine monitoring of the fence lines surrounding potentially hazardous areas to ensure that the fence is secure and cannot be crossed by people or animals).

3.4.3.5.1 Proposed Management Practices

The following management practices are proposed to avoid or minimize potential impacts on livestock grazing for Alternatives 1, 2, and 3:

- There are existing Standard Operating Procedures to address unauthorized livestock on the FRTC training ranges, which would be updated upon any ultimate Congressional decision on the lands requested for withdrawal and continue to be implemented.
- Livestock friendly erosion controls (e.g., aspen or synthetic wattles) should be used when performing construction activities on or adjacent to grazing land that is actively being used.

- The Navy would continue to work with the local counties and municipalities as well as federal property land managers to plan for compatible grazing beneath FRTC SUA, which would include the BLM, USFWS, U.S. Forest Service, Bureau of Reclamation, and Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe Counties.

3.4.3.5.2 Proposed Monitoring

The Navy would expand their fence line patrol and maintenance procedures to include fences that are on withdrawn lands. The Navy proposes to establish two Conservation Law Enforcement Officers at NAS Fallon. Part of the duties of these officers would include patrolling of the added fence line for trespass issues and reporting to the Navy any broken or downed fences for maintenance repair.

3.4.3.5.3 Proposed Mitigation

No mitigation measures are proposed for livestock grazing based on the analysis presented in Section 3.4.3 (Environmental Consequences). However, pursuant to 43 U.S.C. Section 315q of the Taylor Grazing Act of 1934, as amended, the Navy would make payments to federal grazing permit holders for losses suffered by the permit holders as a result of the withdrawal or other use of former federal grazing lands for war or national defense purposes if any of the action alternatives is ultimately chosen. The Navy would follow the procedures identified in Section 3.4.3.2.6 (Process for Determining Payment Amounts for Losses Resulting from Permit Modification or Cancellation) for making payment amount determinations.

3.4.3.6 Summary of Effects and Conclusions

Table 3.4-7 summarizes the effects of the alternatives on livestock grazing.

Table 3.4-7: Summary of Effects and Conclusions for Livestock Grazing

Stressor	Summary of Effects and National Environmental Policy Act Determinations
No Action Alternative	
Summary	• Livestock grazing would be anticipated to continue where permitted under the No Action Alternative. • Existing land uses at FRTC could be converted to livestock grazing following range closure activities. • Areas that cannot be rendered safe for public access would remain closed to livestock grazing.
Impact Conclusion	The No Action Alterative could result in limited beneficial impacts on livestock grazing depending on conversion success of the Bravo ranges and on habitat suitability, but would not result in significant impacts on livestock grazing.
Alternative 1	
Summary	• Alternative 1 would close approximately 381,241 acres of BLM allotments. • It would close approximately 4,187 acres of Bureau of Reclamation pastureland. • It would lead to the loss of between 7,896 and 10,432 AUMs (refer to Section 3.13, Socioeconomics).
Impact Conclusion	Alternative 1 would result in significant impacts on livestock grazing.
Alternative 2	
Summary	• Alternative 2 would close approximately 381,241 acres of BLM allotments. • It would close approximately 4,187 acres of Bureau of Reclamation pastureland. • It would lead to the loss of between 7,896 and 10,432 AUMs (refer to Section 3.13, Socioeconomics).
Impact Conclusion	Alternative 2 would result in significant impacts on livestock grazing.
Alternative 3	
Summary	• Alternative 3 would close approximately 352,601 acres of BLM allotments. • It would close approximately 4,187 acres of Bureau of Reclamation livestock grazing areas. • It would lead to the loss of between 6,952 and 10,976 AUMs (refer to Section 3.13, Socioeconomics).
Impact Conclusion	Alternative 3 would result in significant impacts on livestock grazing.

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3.5 Transportation

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.5 Transportation

This discussion of transportation is defined as the capacity of individuals to move themselves or others, as well as to move vehicles and/or various goods, over and through relevant land areas. A transportation system can consist of any or all of the following: roadways, bus routes, railways, subways, bikeways, trails, waterways, airports, and taxis, and can be evaluated on a local or regional scale. Within the Fallon Range Training Complex (FRTC), there are roadways, railways, bikeways, trails, and airspace. Section 3.6 (Airspace) of this Environmental Impact Statement (EIS) addresses Special Use Airspace and impacts on airports, airspace, and air transportation.

3.5.1 Methodology

This analysis focuses on the potential for significant impacts on transportation as a result of the Proposed Action discussed in this EIS.

3.5.1.1 Region of Influence

The region of influence includes roadways, railways, bikeways, and trails as transportation facilities that overlap or are adjacent to existing and proposed FRTC Bravo (B-) ranges and the Dixie Valley Training Area (DVTA). The region of influence does not contain bus routes, subways, waterways, or taxis. Section 3.12 (Recreation) addresses recreational characteristics of transportation facilities (i.e., off-highway vehicle [OHV] use).

3.5.1.2 Regulatory Framework

Agencies operating within the region of influence that manage transportation include the Nevada Department of Transportation (NDOT), Nevada Transportation Authority, the Regional Transportation Commission of Southern Nevada, the National Park Service, and the United States (U.S.) Department of the Interior, Bureau of Land Management (BLM). These agencies are responsible for highways, roadways, bikeways, and trails in and around the region of influence.

Applicable regulations are listed below:

- U.S. Department of Defense Reauthorization Act (10 United States Code [U.S.C.] section 113)
- U.S. Department of Transportation Act – Section 4(f) (23 U.S.C. section 138)
- Land and Water Conservation Fund Act of 1965 (54 U.S.C. Chapter 2003)
- Executive Order 13693, Planning for Federal Sustainability in the Next Decade
- The National Trails System Act (Public Law 90-543, as amended through Public Law 111-11, March 30, 2009)
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users – Section 6009

3.5.1.3 Approach to Analysis

The analysis of impacts on ground transportation considers the changes to existing traffic conditions and the capacity of area roadways from proposed road closures, rerouting, and restricted use roads. Average daily traffic and design capacity were used to measure traffic. These two measures are used to assign a roadway with a corresponding level of service (LOS), as shown in Table 3.5-1. The LOS designation is used to describe the operating conditions of a roadway segment or intersection. The LOS is measured on a scale of A to F that describes the range of operating conditions on a particular type of roadway facility.

LOS A reflects free-flowing conditions and LOS F represents heavily congested conditions. In general, LOS C is an acceptable performance standard in rural and undeveloped areas, while LOS D is commonly acceptable in more urbanized areas (Foltz et al., 2016; Transportation Research Board, 2000). LOS E and F represent highly congested conditions and are usually considered unacceptable.

Table 3.5-1: Traffic Conditions Associated with Each Level of Service Rating

LOS Rating	Description of Traffic Conditions
A	Traffic flows freely, with little or no restrictions to vehicle maneuvers within the traffic stream.
B	Reasonably free-flowing conditions, with slight restrictions to vehicle maneuvers within the traffic stream.
C	Traffic speed approaches free-flowing conditions, but freedom to maneuver within the traffic stream noticeably restricted.
D	Traffic speed begins to be reduced, and freedom to maneuver is seriously limited due to a high concentration of traffic.
E	Severe congestion occurs resulting in traffic delays and the formation of queues on critical approaches to roadway capacity.
F	Unstable traffic flow resulting in delays and the formation of queues in locations where traffic demand exceeds roadway capacity.

Note: LOS = Level of Service

NDOT uses the Present Serviceability Index (PSI) condition rating system to evaluate the condition of the pavement on state-maintained roads (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com, for more information). There are six defined pavement conditions, including very good (PSI of 4.00–5.00), good (PSI 3.50–3.99), fair (PSI 3.00–3.49), mediocre (PSI 2.50–2.99), poor (PSI 2.00–2.49), and very poor or failed (PSI < 2.00). NDOT allocates pavement maintenance expenditures based on road prioritization categories, which take into consideration the functional classification of the roadway, the existing traffic volume, and the volume and weight of heavy trucks using these roads. Road prioritization categories range from 1 to 5 (road prioritization 1 being the highest), and funds are allocated first to roadways having a higher prioritization category.

Transportation information within the region of influence was identified by reviewing available literature and working in partnership with the BLM to identify potential routes for re-alignment of roads and alternatives. The information presented in this section was gathered using the best publically available sources, including *Off Highway Vehicle Trail Survey and Mapping, Naval Air Station Fallon* (AMEC Environment & Infrastructure, 2013); the *Carson City District, Nevada Draft Resource Management Plan and Environmental Impact Statement* (Bureau of Land Management, 2014); the *Churchill County 2015 Master Plan* (Churchill County, 2015); the *Nevada State Rail Plan* (Nevada Department of Transportation, 2012); the *State Maintained Highways of Nevada: Descriptions and Maps* (Nevada Department of Transportation, 2017); and the FRTC Transportation Studies developed for this EIS (discussed below [full reports available in Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com]). NDOT's public data page for highway traffic information was used to evaluate and verify transportation considerations (Nevada

Department of Transportation, 2018). The U.S. Department of the Navy (Navy) is consulting with and would continue to consult with NDOT regarding highway conditions, usage, and potential road rerouting.

The Navy conducted the following studies to support preparation of this EIS:

- *Transportation Study*: In 2017, the Navy prepared a Transportation Study that analyzed on-road vehicle use within affected areas as part of this EIS effort (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). The Study evaluated peak hour intersection and roadway segment traffic conditions for existing, baseline, the No Action Alternative, the baseline plus State Route 839 Notional Relocation Corridor Option 1 (discussed in Section 3.5.3, Environmental Consequences), baseline plus State Route 839 Notional Relocation Corridor Option 2 (discussed in Section 3.5.3, Environmental Consequences), and baseline plus State Route 839 Notional Relocation Corridor Option 3 (discussed in Section 3.5.3, Environmental Consequences). The study sampled the LOS for intersections and roadway segments, average travel speeds, the percentage of free flow speed, and discussed differences in existing and potential travel distances. The study also conducted 24-hour segment counts at four range access gates every day over two weeks in January using geomagnetic car counting devices that determined typical traffic volumes. Naval Air Station (NAS) Fallon compiled estimates of the number and types of vehicles that typically accessed B-16, B-17, and B-20 to factor in to what is considered to be typical traffic volumes.
- The Navy completed the Transportation Study with an analysis of on-road vehicle use within the affected areas under Alternative 3 and added this discussion to the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com). The Study evaluated peak hour intersection and roadway segment traffic conditions for existing baseline, the No Action Alternative, and the baseline plus State Route 361 Notional Relocation Corridor (with two potential routes, discussed in Section 3.5.3, Environmental Consequences). The study sampled the LOS for intersections and roadway segments, average travel speeds, and the percentage of free flow speed; and discussed the differences in existing and proposed travel distances. The study also conducted 24-hour segment counts at access gates using geomagnetic car counting devices that determine typical traffic volumes, using similar methods as the previous transportation study to determine typical traffic volumes.
- *Off-Highway Vehicle Count*: The Navy conducted OHV counts on unpaved roads and trails near ranges B-16 and B-17. The counts collected OHV traffic data in 2017 across two seasons on roads and trails that are subject to closure as a result of the Proposed Action. The results are discussed in detail in Section 3.12 (Recreation). The study can be found in Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com).

The analysis of impacts on ground transportation considers the possible changes to existing traffic conditions and area roadways from proposed road closures. The analysis focuses on the following elements:

- Evaluating change in LOS

- Evaluating changes in traffic circulation and movement patterns associated with permanent and temporary road closures
- Evaluating changes in pavement rating (PSI)

The Navy utilized the Transportation Study for the FRTC (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com), specifically to support the analysis of this EIS. The following factors determine whether impacts on transportation are deemed significant:

- an increase in the need for safety-related traffic signals and signs
- increased or decreased transit times for residents and emergency responders
- loss of access via customary transit routes
- the nature and magnitude of changes to the ground traffic are more than minimal (i.e., significant impacts degrade the LOS to a level of D, E or F as a result of the Proposed Action or that the PSI rating on paved roads changes from between 5 and 3 to below 3)

These factors help to determine significance but should not be viewed as thresholds for significance. For example, inconsistency with state or local plans by itself would not automatically result in a significant impact (Federal Aviation Administration, 2015).

3.5.1.4 Public Concerns

Public issues raised during scoping and the public comment period on the Draft EIS in regard to ground transportation included concerns about road closures or public use restrictions in certain areas. These areas and road closures of concern included Nevada State Route 839 closure/rerouting, State Route 361 closure/rerouting, secondary access roads through B-20, secondary access roads through the DVTA, the U.S. Route 95/Wildes Road/Sheckler Road connection to the city of Fallon, access roads to cultural and tribal sacred sites, Nye County's Hot Springs Road, established county roads, Bombing Range Road and Wild Horse Pass, Pole Line Road, B-20 East County Road, B-16 Sand Canyon Road, Dead Camel Mountain Road, B-17 Earthquake Fault Road, and private roads that provide access to non-federal and public lands. The public is also concerned with the impact of the Proposed Action to various public races such as the Vegas to Reno, the Valley Off Road Racing Association Night Vision Fallon, the High Desert Classic Endurance Ride, and other OHV racing events; these are discussed in Section 3.12 (Recreation).

Other concerns raised during scoping and the public comment period on the Draft EIS included public concern about the Proposed Action's effects on planned transportation improvements (including railroad/railroad spur development through B-20); and the proposed Interstate 11 corridor, which is addressed further in Chapter 4 (Cumulative Impacts). For further information regarding comments received during the public scoping and commenting process, please refer to Appendix E (Public Participation) and Appendix F (Public Comments and Responses).

3.5.2 Affected Environment

3.5.2.1 Rights of Way

All of the ranges and surrounding areas have existing rights of way (ROWs) for access roads, including county and state roads, utilities, and land ownership. ROWs for public access roads are included under

each range discussion as applicable. Section 3.2 (Land Use) discusses ROWs for utilities and land ownership.

3.5.2.2 Road Network

The road network in and around the ranges includes federal highways, state and county highways, and roads (public and private). The Navy reviewed potential impacted roads regarding county-designated access roads and other potential ROWs in the lands requested for withdrawal and proposed for acquisition. The Navy acknowledges that there are or may be claimed interests in these areas but does not have sufficient data to include them fully in the analysis; therefore, they are not described further.

The following subsections describe the existing road network, major intersections, and segments. A traffic segment is any stretch of road, highway, or route between two intersections and can vary in length. The road network near the FRTC experiences a substantial amount of freight movement daily due to the crossroads of U.S. Route 50 and U.S. Route 95. U.S. Route 95 carries the majority of the truck traffic to the city of Fallon, and Interstate 80 carries the majority of truck traffic through the city of Fernley. Some of the segments carry more than 1,200 trucks daily, representing almost 27 percent of the average daily traffic on U.S. Route 95 and U.S. Route 50 to, from, and through the city of Fallon (Churchill County, 2015).

The 2017 Transportation Study (Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com) evaluated the existing traffic operating conditions for roadways and intersections within and around the FRTC. As discussed in Section 3.5.1 (Methodology), the analysis evaluated roadways and intersections in terms of LOS ratings. As discussed in Section 3.5.1 (Methodology), Table 3.5-1 summarizes general traffic conditions associated with each LOS rating, and NDOT uses the PSI condition rating system to evaluate the condition of the pavement on state-maintained roads.

3.5.2.3 Transit Network

BLM-managed federal land has over 200 miles of operational railroads in Churchill, Lyon, Mineral, Storey, and Washoe Counties. These railroads pass through public and non-federally owned lands. These rail lines do not intersect with any of the existing training ranges. Railroad ROWs held by Western Pacific, Central Pacific, and Southern Pacific Railroad companies in this area are now controlled by the Union Pacific Railroad Company (Bureau of Land Management, 2014). The Union Pacific Railroad Company operates the northern and southern east/west corridors. The two-route northern corridor connects to Salt Lake City and Denver in the east and to Sacramento and San Francisco in the west. This northern corridor serves the city of Reno and other northern Nevada communities. Interstate 80 parallels the rail lines in this northern corridor. The southern corridor single rail line connects to Salt Lake City in the northeast and to Los Angeles in the Southwest. The southern corridor line also serves Las Vegas. Interstate 15 parallels the southern corridor rail line (Nevada Department of Transportation, 2012).

The land area around the FRTC includes numerous formal and informal recreation and cultural destinations. Recreation and cultural destinations include the Fallon National Wildlife Refuge, the Stillwater National Wildlife Refuge, Grimes Point/Hidden Cave Archaeological Area, Sand Mountain Recreational Area, the Carson River, the proposed Sand Mountain Special Recreation Management Area, and the proposed Salt Wells Extensive Recreation Management Area (Bureau of Land Management, 2014). These destinations provide numerous trails and roads throughout the region (see

Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). The non-motorized transportation network includes trails for equestrian, pedestrian, and cycling activities (Bureau of Land Management, 2014). Section 3.11 (Cultural Resources) and Section 3.12 (Recreation) discuss the cultural resources and recreational activities in these areas in detail.

The *Trails Across Churchill County* plan illustrates a dedicated trail system in Churchill County (Churchill County, 2010). The *State of Nevada Bike Plan* was updated in 2015 and included additional changes and improvements to the *Trails Across Churchill County* plan. The *2015 Churchill County Master Plan* outlines the goals and policies in place for pedestrian and bike traffic (Churchill County, 2015).

3.5.2.4 Bravo-16

3.5.2.4.1 Rights of Way

There are four BLM recognized ROWs for roads on B-16 and the land requested for withdrawal. Two of the ROWs are held by the Navy, one is held by Churchill County, and the last is held by the Los Angeles Department of Water and Power, as shown in Table 3.5-2.

Table 3.5-2: Rights of Way Located Within the Existing or Proposed B-16

Serial Number	Facility Type	Holder	Status	Notes
N-1018	285002 - ROW-POWER TRANSMISSION LINE	Los Angeles Department of Water and Power	Authorized	Transmission line and road
N-47875	281001 - ROW-ROADS	Churchill County	Authorized	
N-6447	281008 - ROW-ROADS FEDERAL 44LD513	Navy	Authorized	
Nev 059264	281008 - ROW-ROADS FEDERAL 44LD513	Navy	Authorized	Sand Canyon Road

Notes: ROW = Right(s) of Way

3.5.2.4.2 Road Network

Figure 3.5-1 and Figure 3.5-2 illustrate the transportation routes near B-16, which is located southwest of NAS Fallon near two major U.S. highways. U.S. Route 95 is a north/south highway that passes east of B-16 and runs approximately 262 miles through Churchill, Nye, Lyon, and Mineral Counties (Nevada Department of Transportation, 2017). U.S. Route 95 extends from Interstate 80 in northern Churchill County to the southern Churchill-Lyon County border. U.S. Route 95 passes between B-16 and B-19. Sand Canyon Road, which turns into Red Mountain Road and Hooten Well Road to the west, is an east/west unpaved road that traverses the existing B-16 and is an access road for B-16 (Figure 3.5-1 and Figure 3.5-2). This road has a LOS rating of A, indicating free-flowing traffic, with little or no restrictions to vehicle maneuvers within the traffic stream. Segments of U.S. Route 95 are classified using the PSI condition rating system as very good and good.

U.S. Route 50 is a two-lane highway that traverses Churchill County for 106 miles in an east/west direction and passes to the north of B-16. Segments of U.S. Route 50 are classified as good and fair. U.S. Route 95 south of U.S. Route 50 has a road prioritization category of 2, U.S. Route 95 north of U.S. Route 50 and U.S. Route 50 itself have a road prioritization category of 3 (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com, for more information). Dead Camel Mountain Road and Simpson Road offer access to the Dead Camel Mountains and the Lahontan State Recreation Area from U.S. Route 95.

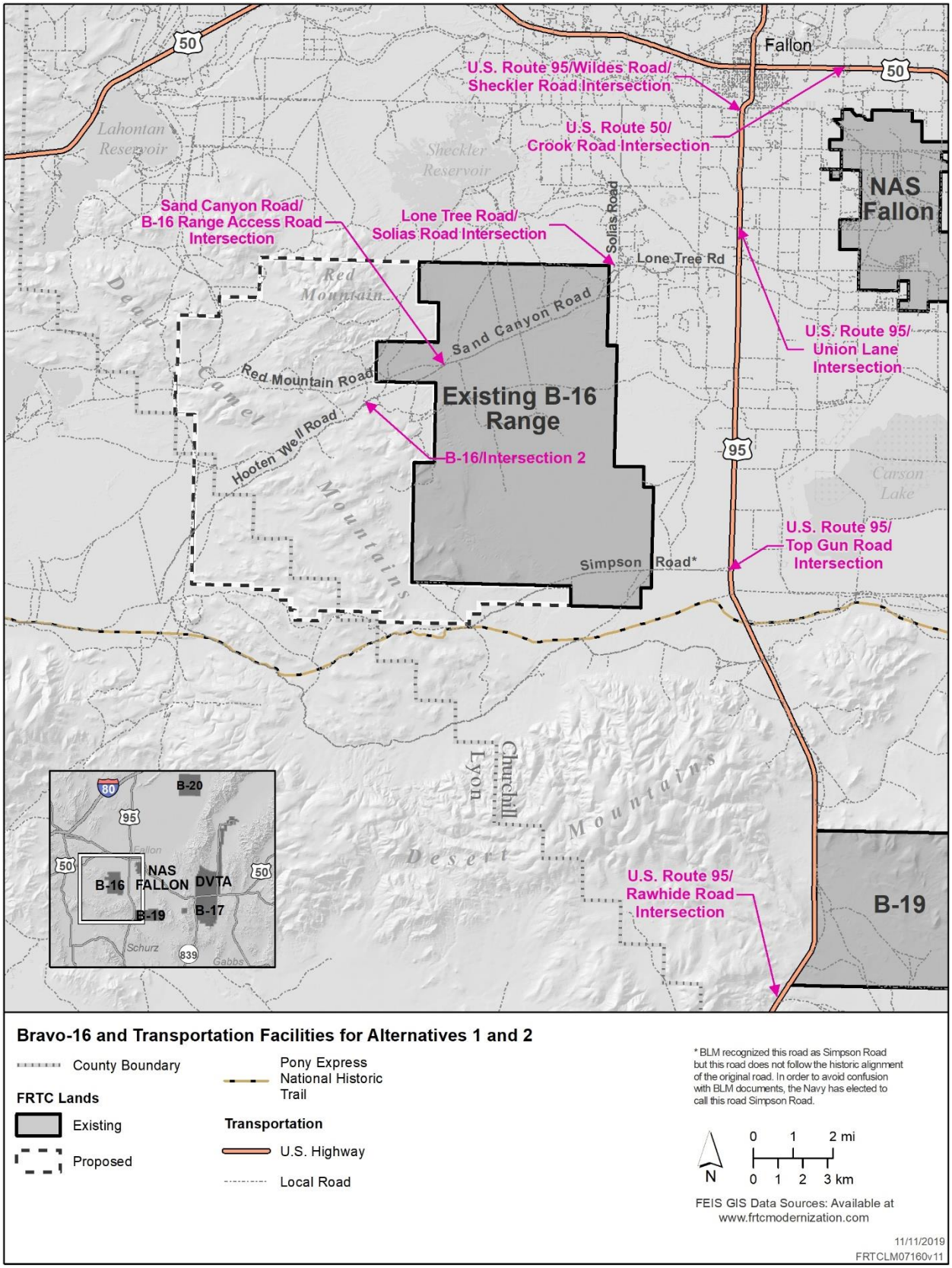


Figure 3.5-1: B-16 and Transportation Facilities for Alternatives 1 and 2

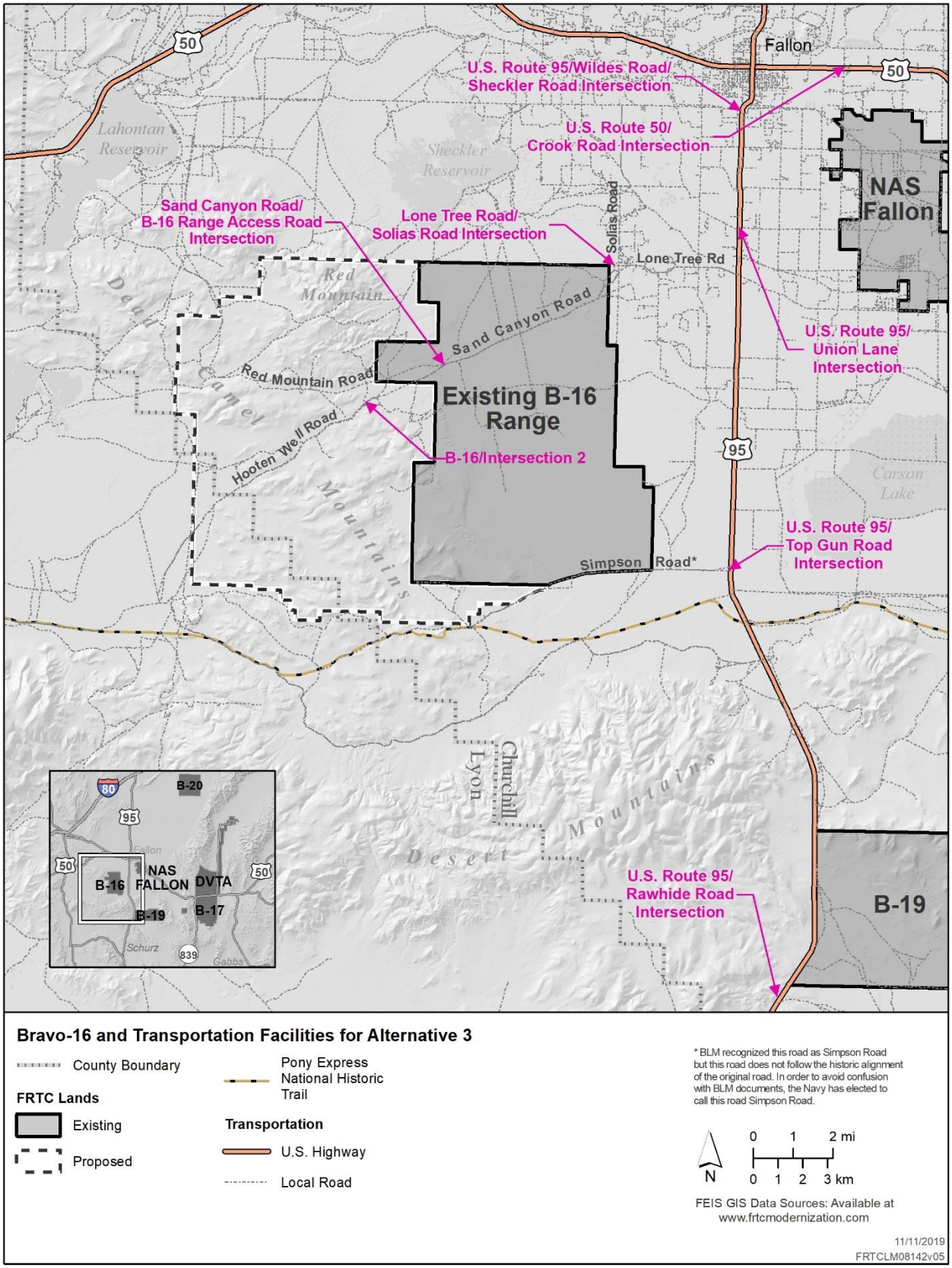


Figure 3.5-2: B-16 and Transportation Facilities for Alternative 3

Table 3.5-3 summarizes the LOS for main intersection and roadway segments near B-16. This table focuses on the existing B-16 range and vicinity roads. Additional information and detail are available in the Transportation Study in Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com).

Table 3.5-3: Existing Intersection Segment Level of Service near B-16

Intersection Segment	AM Peak Hour LOS*	PM Peak Hour LOS*
Lone Tree Road/Solias Road	A	A
Sand Canyon Road/B-16 range access road	A	A
B-16 Intersection 2	A	A
U.S. Route 95/Union Lane	B	B
U.S. Route 95/Wildes Road/Sheckler Road	C	C
U.S. Route 50/Crook Road	B	B
U.S. Route 50/Macari Lane	A	A
U.S. Route 95/Top Gun Road	A	A

Notes: B = Bravo, LOS = Level of Service, U.S. = United States

* The LOS designation is used to describe the operating conditions of a roadway segment or intersection. The LOS is measured on a scale of A to F that describes the range of operating conditions on a particular type of roadway facility. LOS A reflects free-flowing conditions, and LOS F represents heavily congested conditions. In general, LOS C is an acceptable performance standard in rural and undeveloped areas (Foltz et al., 2016; Transportation Research Board, 2000).

3.5.2.4.3 Transit Network

The Pony Express National Historic Trail runs south of B-16, parallel with U.S. Route 50 to the north as shown in Figure 3.5-1 and Figure 3.5-2. It is a congressionally designated national historic trail, and traverses eight states from Missouri to California. Some recreational activities exist along the approximately 1,800-mile long trail, including sightseeing, hiking, biking, and horseback riding. Section 3.12 (Recreation) discusses the recreational activities and use of these trails in further detail.

3.5.2.5 Bravo-17

3.5.2.5.1 Rights of Way

There are 16 ROWs for roads or highways on the existing B-17 and the land requested for withdrawal or proposed for acquisition. Six of the ROWs are held by the Navy, eight are held by NDOT, one is held by the University of Nevada, Reno, and the other is held by Ormat Nevada Inc., as shown in Table 3.5-4.

Table 3.5-4: Rights of Way Located Within the Existing or Proposed B-17

Serial Number	Facility Type	Holder	Status	Notes
CC-021314	282105 - FEDERAL AID HIGHWAY (SEC 17)	NDOT	Authorized	Gabbs Highway
N-3438	281008 - ROW-ROADS FEDERAL 44LD513	Navy	Authorized	

Table 3.5-4: Rights of Way Located Within the Existing or Proposed B-17 (continued)

Serial Number	Facility Type	Holder	Status	Notes
N-42748	289004 - ROW-MISC & SPECIAL	Navy	Authorized	EWR Site 6, Sheelite Road
N-42752	289007 - ROW-OTHER FEDERAL FACILITIES	Navy	Authorized	EWR Site 18, Sheelite Highway
N-42753	289007 - ROW-OTHER FEDERAL FACILITIES	Navy	Authorized	EWR Site 21, Gabbs Highway
N-44649	289001 - ROW-OTHER-FLPMA	University of NV Reno	Authorized	Fairview Peak seismological site and road
N-86244	281001 - ROW-ROADS	Ormat Nevada Inc.	Authorized	Geothermal pad access road
Nev 058550	282104 - MATERIAL SITES (SEC 317)	NDOT	Authorized	
Nev 058668	282104 - MATERIAL SITES (SEC 317)	NDOT	Authorized	
Nev 058670	282104 - MATERIAL SITES (SEC 317)	NDOT	Authorized	
Nev 058705	282103 - FEDERAL AID HIGHWAY (SEC 317)	NDOT	Authorized	State Route 839
Nev 061170	282104 - MATERIAL SITES (SEC 317)	NDOT	Authorized	
Nev 024607	282106 - MATERIAL SITES (SEC 17)	NDOT	Authorized	
Nev 056517	282106 - MATERIAL SITES (SEC 17)	NDOT	Authorized	
N-45141	281007 - ROW-ROADS FEDERAL FACILITIES	Navy	Authorized	

Notes: EWR = Electronic Warfare Receiver, MISC = Miscellaneous, NDOT = Nevada Department of Transportation, NV = Nevada, ROW = Rights of Way, SEC = Section

3.5.2.5.2 Road Network

Figure 3.5-3 and Figure 3.5-4 illustrate the transportation routes near B-17. As shown in Figure 3.5-3 and Figure 3.5-4, U.S. Route 50 is an east/west freeway that runs to the north of B-17. State Route 839 is a north/south highway located to the west of B-17. The U.S. Route 50/State Route 839 intersection is a "T" intersection consisting of west, south, and east roads. There is a stop sign for northbound traffic approaching the intersection via State Route 839, and eastbound and westbound traffic on U.S. Route 50 proceeds freely through the intersection (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). The U.S. Route 50/State Route 361 intersection is also a "T" intersection consisting of west, south, and east roads. There is a stop sign for northbound traffic approaching the intersection via State Route 361, while eastbound and westbound traffic on U.S. Route 50 proceed freely through the intersection.

The most significant use of State Route 839 is by vehicles traversing the B-17 bombing range. There is a primary access point to the B-17 range approximately 2 miles to the south of U.S. Route 50 and a secondary access point about 7.5 miles south of U.S. Route 50. State Route 839 is a two-lane road approximately 18 miles long with the majority of the road in Churchill County (Nevada Department of Transportation, 2017).

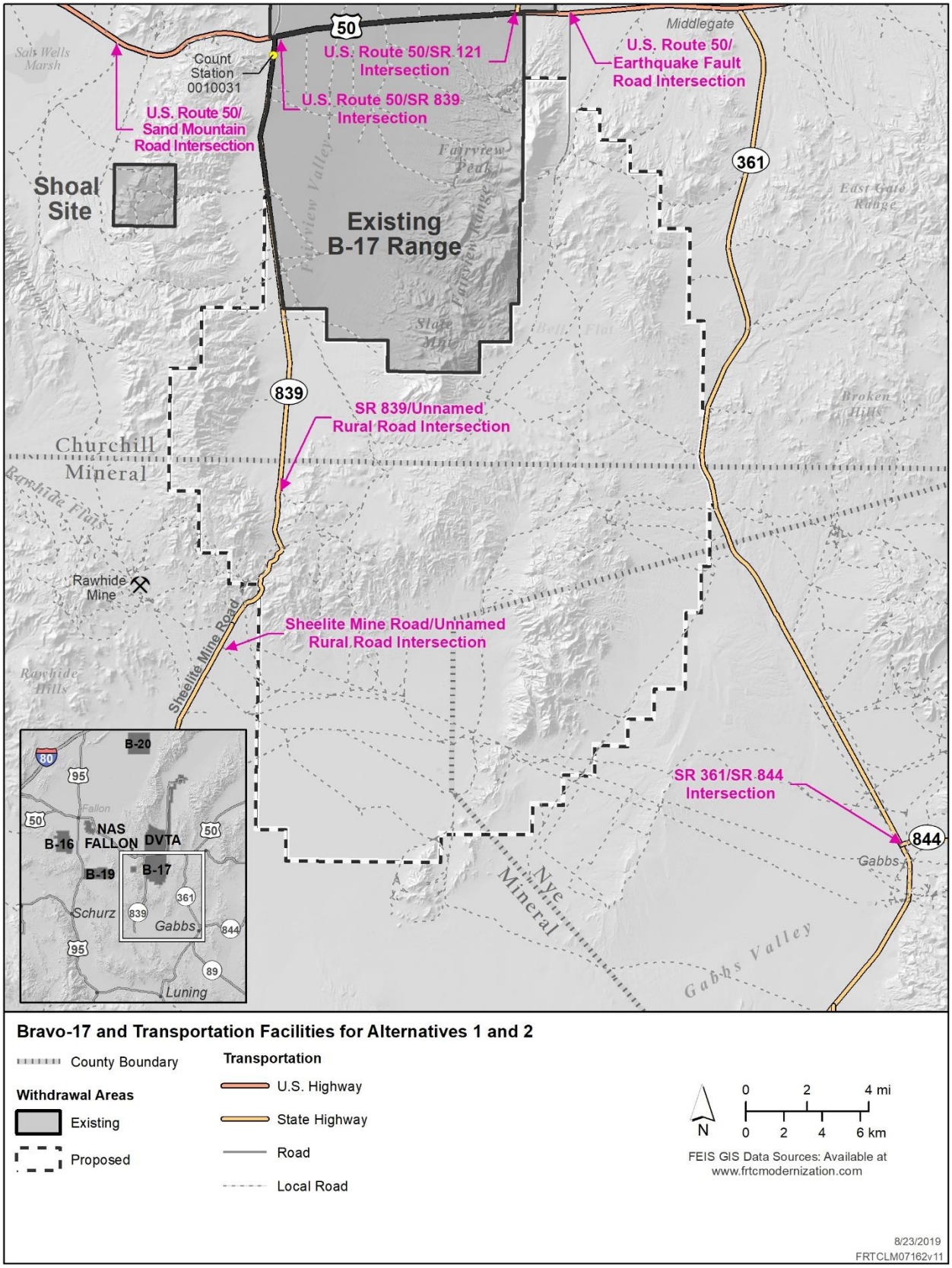


Figure 3.5-3: B-17 and Transportation Facilities for Alternatives 1 and 2

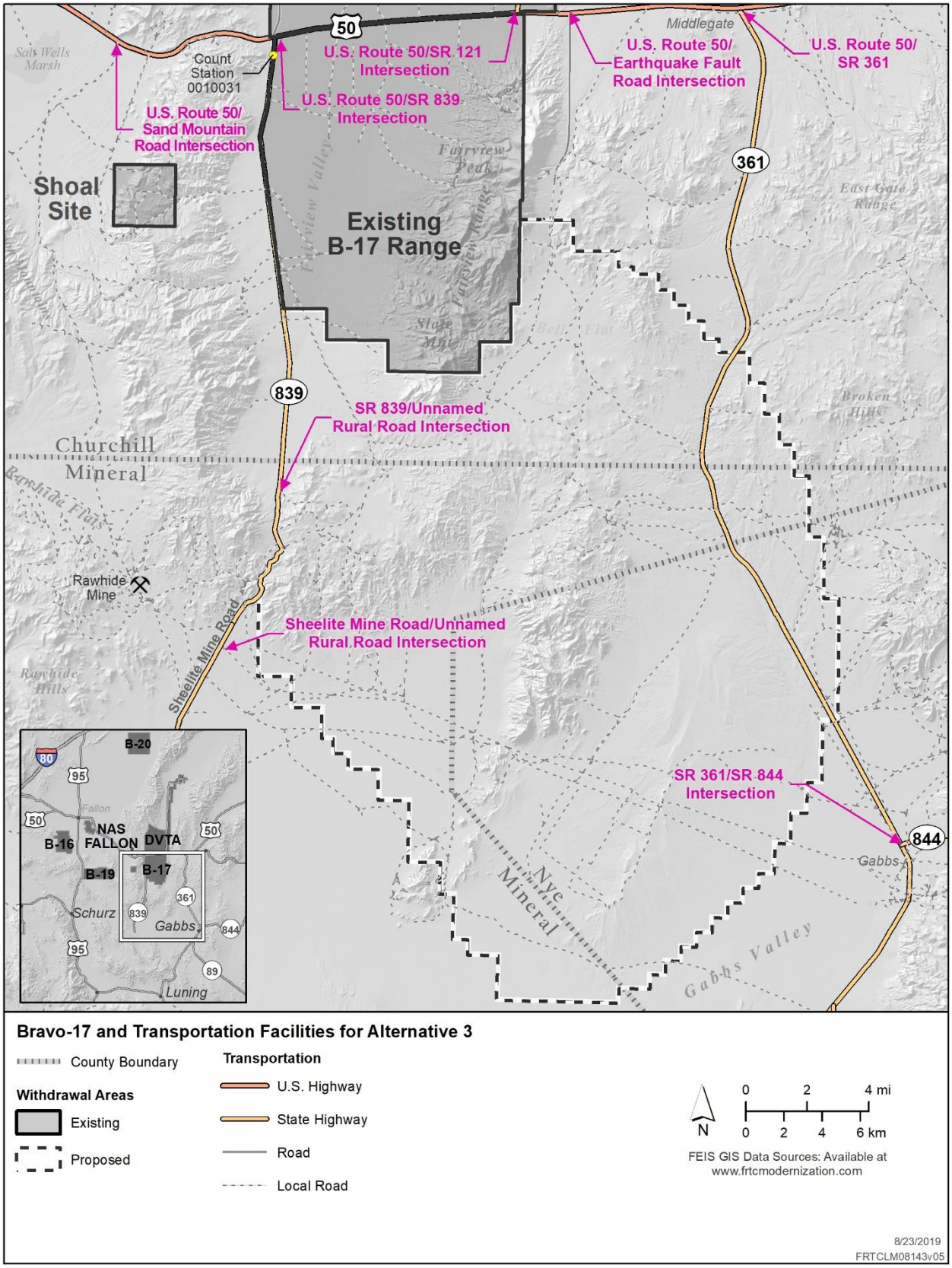


Figure 3.5-4: B-17 and Transportation Facilities for Alternative 3

State Route 839 turns into Sheelite Mine Road (or Ryan Canyon Road), which accesses the Rawhide Mine, approximately 16 miles south of U.S. Route 50. The classification of portions of State Route 839 pavement segments are mediocre or poor, but it continues to be an important route for access to the Rawhide Mine. State Route 361 is used for access to and from Gabbs, Nevada, and to and from the Humbolt-Toiyobe National Forest and other land areas to the east and west of Gabbs. Segments of State Route 361 are classified as good, fair, mediocre, and poor (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

State Route 361 is a north/south highway, similar in construction to State Route 839, and lies along the eastern limit of B-17 approximately 10 miles east. The U.S. Route 50/State Route 361 intersection is a "T" intersection consisting of west, south, and east roads. State Route 361 runs south from U.S. Route 50 to the community of Gabbs and intersects with State Route 844, an east/west highway. State Route 361 continues south from Gabbs and intersects with U.S. Route 95 near Luning. There are no direct paved roads connecting State Route 361 to B-17. The most significant use of State Route 361 is the connection between Luning, Gabbs, and Middlegate, via U.S. Route 50 to Fallon, as well as the access to recreational lands east of Gabbs along State Route 844. Earthquake Fault Road is a smaller less-traveled road east of B-17.

Table 3.5-5 summarizes the LOS for main intersections and roadway segments in B-17 and vicinity, including State Route 839. Additional information and detail are available in Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com). According to 2015 data at count station 0010031, shown on Figure 3.5-2, located on State Route 839, approximately 0.60 miles south of U.S. Route 50, State Route 839 has an average daily traffic volume of 40 vehicles per day. According to data at count station 0010035, located on State Route 361 approximately 400 feet south of U.S. Route 50, State Route 361 had an average daily traffic volume of 370 vehicles per day as of 2017. Data count station 0230040, located on State Route 361 approximately 0.2 mile north of State Route 844, had an average daily traffic volume of 270 vehicles per day as of 2017 (Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

Table 3.5-5: Existing Intersection and Roadway Segment Level of Service near B-17

Intersection Segment	AM Peak Hour LOS	PM Peak Hour LOS
State Route 839/unnamed rural road	A	A
Sheelite Mine Road/unnamed road	A	A
U.S. Route 50/State Route 361	A	A
State Route 844/State Route 361	A	A
Roadway Segment		
State Route 839, south of U.S. Route 50	A	A
State Route 361, south of U.S. Route 50	A	A

Notes: B = Bravo, LOS = Level of Service, U.S. = United States

3.5.2.5.3 Transit Network

The Pony Express National Historic Trail runs parallel to U.S. Route 50, south of the existing and proposed B-17. Some recreational activities exist along the approximately 1,800-mile trail, including

sightseeing, hiking, biking, and horseback riding, depending on the section of trail. Section 3.12 (Recreation) discusses the recreational activities and use of the trail.

3.5.2.6 Bravo-20

3.5.2.6.1 Rights of Way

Currently, B-20 and the lands requested for withdrawal and proposed for acquisition have two Navy-held ROWs, as shown in Table 3.5-6.

Table 3.5-6: Rights of Way Located Within the Existing or Proposed B-20

Serial Number	Facility Type	Holder	Status	Notes
N-44676	281007 - ROW-ROADS FEDERAL FAC	Navy	Authorized	
N-82709	281007 - ROW-ROADS FEDERAL FAC	Navy	Authorized	

Notes: FAC = Facilities, ROW = Rights of Way

3.5.2.6.2 Road Network

Interstate 80 is an east/west running highway that passes approximately 6–10 miles to the north of B-20. It extends through the northwest portion of Churchill County from Lyon County to Pershing County. In Nevada, Interstate 80 is approximately 400 miles long and traverses multiple counties. Interstate 80 intersects with U.S. Route 95 within Churchill County. Approximately 27 miles of Interstate 80 are within Churchill County (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

The B-20 Navy Access Road (also known locally as Pole Line Road exiting U.S. Route 95), shown in Figure 3.5-5 and Figure 3.5-6, is an east/west unpaved road that passes approximately 1–3 miles within B-20 in the northern part of the range. The only authorized user of this road is the Navy. It is 33.3 miles in length (Nevada Department of Transportation, 2017). East County Road is a smaller and less traveled road that runs north-to-south on the east side of B-20.

Figure 3.5-5 and Figure 3.5-6 illustrate the transportation routes near B-20. Table 3.5-7 summarizes the LOS for main intersection and roadway segments near B-20. Additional information and detail are available in the Transportation Study in Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com).

Table 3.5-7: Existing Intersection and Roadway Segment Level of Service Near B-20

Intersection Segment	AM Peak Hour LOS	PM Peak Hour LOS
B-20 range access road (known locally as Pole Line Road)	A	A
East County Road/unnamed rural road	A	A
U.S. Route 95/Navy B-20 range access road (Pole Line Road)	A	A
East County Road/Poco Canyon Road	A	A
East County Road/Poco Canyon Road	A	A
Roadway Segment		
B-20 range access road (Navy use only)	A	A

Notes: B = Bravo, LOS = Level of Service, U.S. = United States

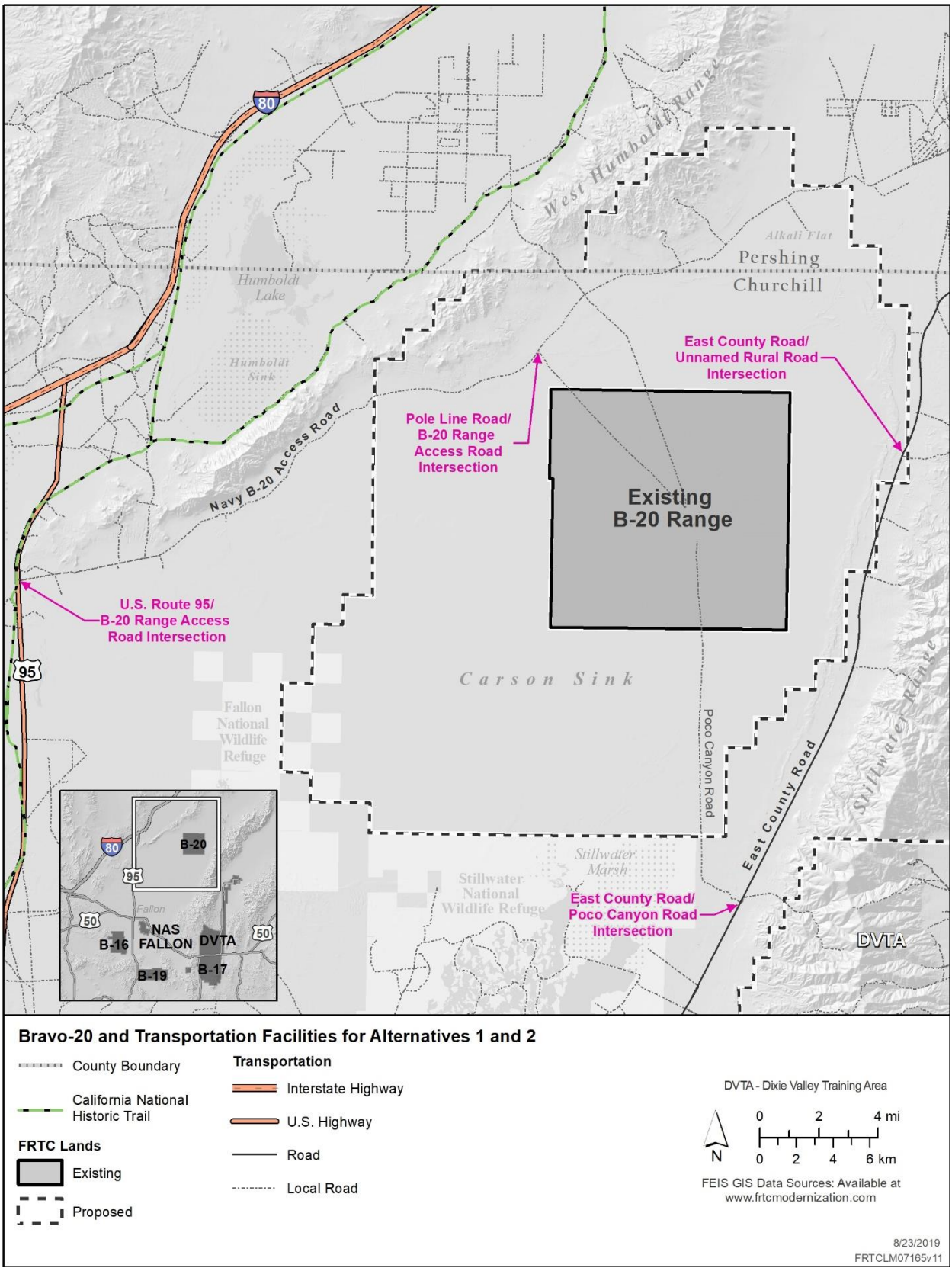


Figure 3.5-5: B-20 and Transportation Facilities for Alternatives 1 and 2

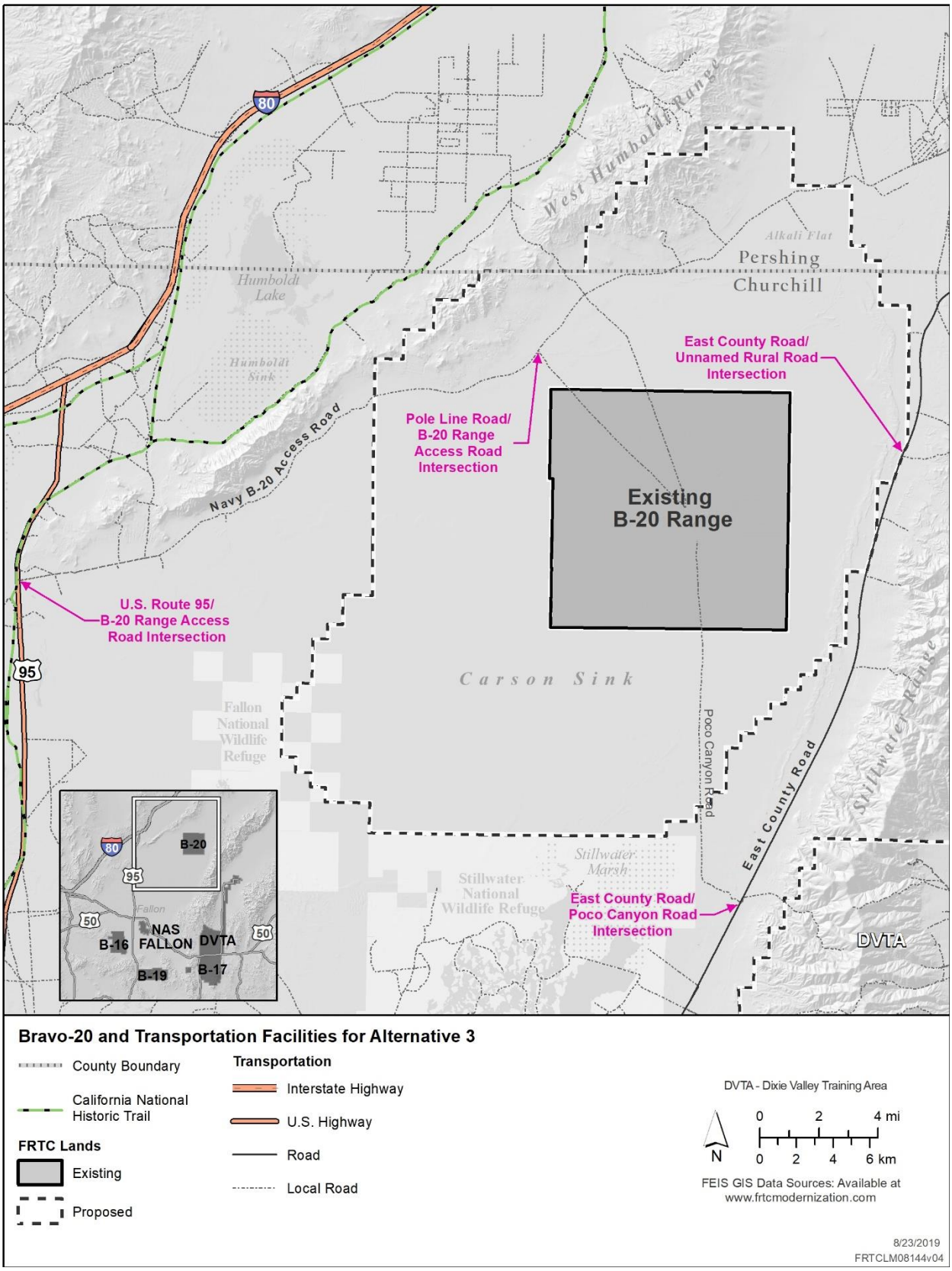


Figure 3.5-6: B-20 and Transportation Facilities for Alternative 3

3.5.2.6.3 Transit Network

The California National Historic Trail, shown on Figure 3.5-5, follows the migration of farmers, settlers, miners, and others who traveled from Missouri to California by covered wagon in the 1800s. The trail is approximately 2,000 miles long and traverses Missouri, Kansas, Nebraska, Colorado, Wyoming, Idaho, Utah, Nevada, and Oregon, to Central California. The trail traces Interstate 80 and winds south into the Ruby Mountains. In addition to formal trail systems, there are many informal trails used for OHVs near B-20. The majority of the off-highway vehicle roads and trails mapped are dirt roads between 6 and 12 feet wide. An additional substantial number of roads and trails include dirt roads greater than 12 feet wide (AMEC Environment & Infrastructure, 2013). There are no major pedestrian or bike trails located within the proposed B-20 range. Section 3.12 (Recreation) discusses the use of land near B-20 for OHVs.

3.5.2.7 Dixie Valley Training Area

3.5.2.7.1 Rights of Way

Fourteen ROWs are located within the existing or proposed DVTA. There are eight ROWs on the DVTA that are held by NDOT for federal aid highways and other uses, five are held by the Navy, and one is held by Churchill County as shown in Table 3.5-8.

Table 3.5-8: Rights of Way Located Within the Existing or Proposed DVTA

Serial Number	Facility Type	Holder	Status	Notes
CC 023694	282105 - FEDERAL AID HIGHWAY (SEC 17)	NDOT	Authorized	U.S. Route 50
N-11870	282103 - FEDERAL AID HIGHWAY (SEC 317)	NDOT	Authorized	Dixie Valley Highway
N-12143	282104 - MATERIAL SITES (SEC 317)	NDOT	Authorized	
N-12144	282104 - MATERIAL SITES (SEC 317)	NDOT	Authorized	Material site and access road
N-37238	289001 - ROW-OTHER-FLPMA	Navy	Authorized	Radar system site, road, and distribution line.
N-42567	289007 - ROW-OTHER FEDERAL FAC	Navy	Authorized	EWR site #13, Old Dixie Road
N-42568	289007 - ROW-OTHER FEDERAL FAC	Navy	Authorized	EWR site #26, Old Dixie Road
N-42569	289007 - ROW-OTHER FEDERAL FAC	Navy	Authorized	EWR site #27, Old Dixie Road
N-42570	289007 - ROW-OTHER FEDERAL FAC	Navy	Authorized	EWR site #31, Eleven Mile Canyon Road
N-49742	281001 - ROW-ROADS	Churchill County	Authorized	Dixie Valley Road
Nev 042775	282105 - FEDERAL AID HIGHWAY (SEC 17)	NDOT	Authorized	U.S. Route 50

Table 3.5-8: Rights of Way Located within the Existing or Proposed DVTA (continued)

Serial Number	Facility Type	Holder	Status	Notes
Nev 045631	282105 - FEDERAL AID HIGHWAY (SEC 17)	NDOT	Authorized	U.S. Route 50
Nev 054862	282105 - FEDERAL AID HIGHWAY (SEC 17)	NDOT	Authorized	U.S. Route 50
Nev 056515	282106 - MATERIAL SITES (SEC 17)	NDOT	Authorized	U.S. Route 50/Westgate

Notes: EWR = Electronic Warfare Receiver, FLPMA = Federal Land Policy and Management Act, NDOT = Nevada Department of Transportation, ROW = Rights of Way, SEC = Section, U.S. = United States

3.5.2.7.2 Road Network

State Route 121 passes through the DVTA. Referred to as Dixie Valley Road, State Route 121 is an important road for accessing the Dixie Meadows Geothermal site. State Route 121 is approximately 27 miles in length, runs through Churchill County, and spans from U.S. Route 50 to 0.1 mile north of Settlement Road as depicted in Figure 3.5-7 and Figure 3.5-8 (Nevada Department of Transportation, 2017).

Table 3.5-9 summarizes the LOS for main intersections and roadway segments in the DVTA. Additional information and details are available in the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com). Figure 3.5-7 and Figure 3.5-8 illustrate the transportation facilities in the DVTA.

Table 3.5-9: Existing Intersection and Roadway Segment Level of Service in the DVTA

Intersection Segment	AM Peak Hour LOS	PM Peak Hour LOS
U.S. Route 95/Sand Mountain Road	A	A
U.S. Route 50/State Route 839	A	A
U.S. Route 50/State Route 121	A	A
U.S. Route 50/Earthquake Fault Road	A	A
Roadway Segment		
U.S. Route 50, west of Macari Lane	A	A
U.S. Route 50, west of Sand Mountain Road	A	A
U.S. Route 50, west of State Route 839	A	A
U.S. Route 50, west of State Route 121	A	A

Notes: LOS = Level of Service, U.S. = United States

3.5.2.7.3 Transit Network

The DVTA contains a great number of informal trails used for OHVs. The majority of the roads and trails mapped are dirt roads between 6 and 12 feet wide. An additional substantial number of roads and trails include dirt roads greater than 12 feet wide (AMEC Environment & Infrastructure, 2013). Section 3.12 (Recreation) discusses the use of the DVTA for OHVs in detail.

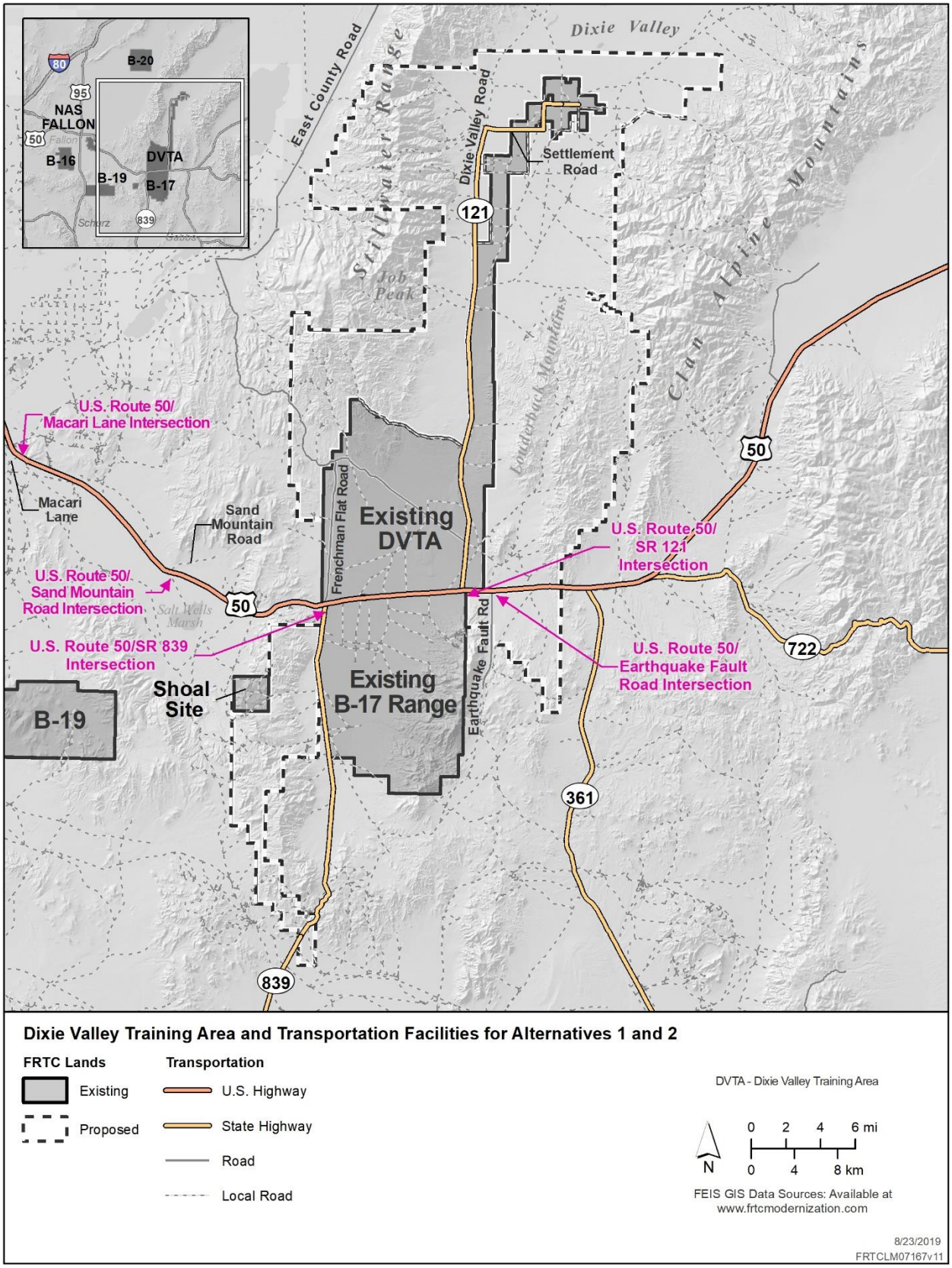


Figure 3.5-7: DVTA and Transportation Facilities for Alternatives 1 and 2

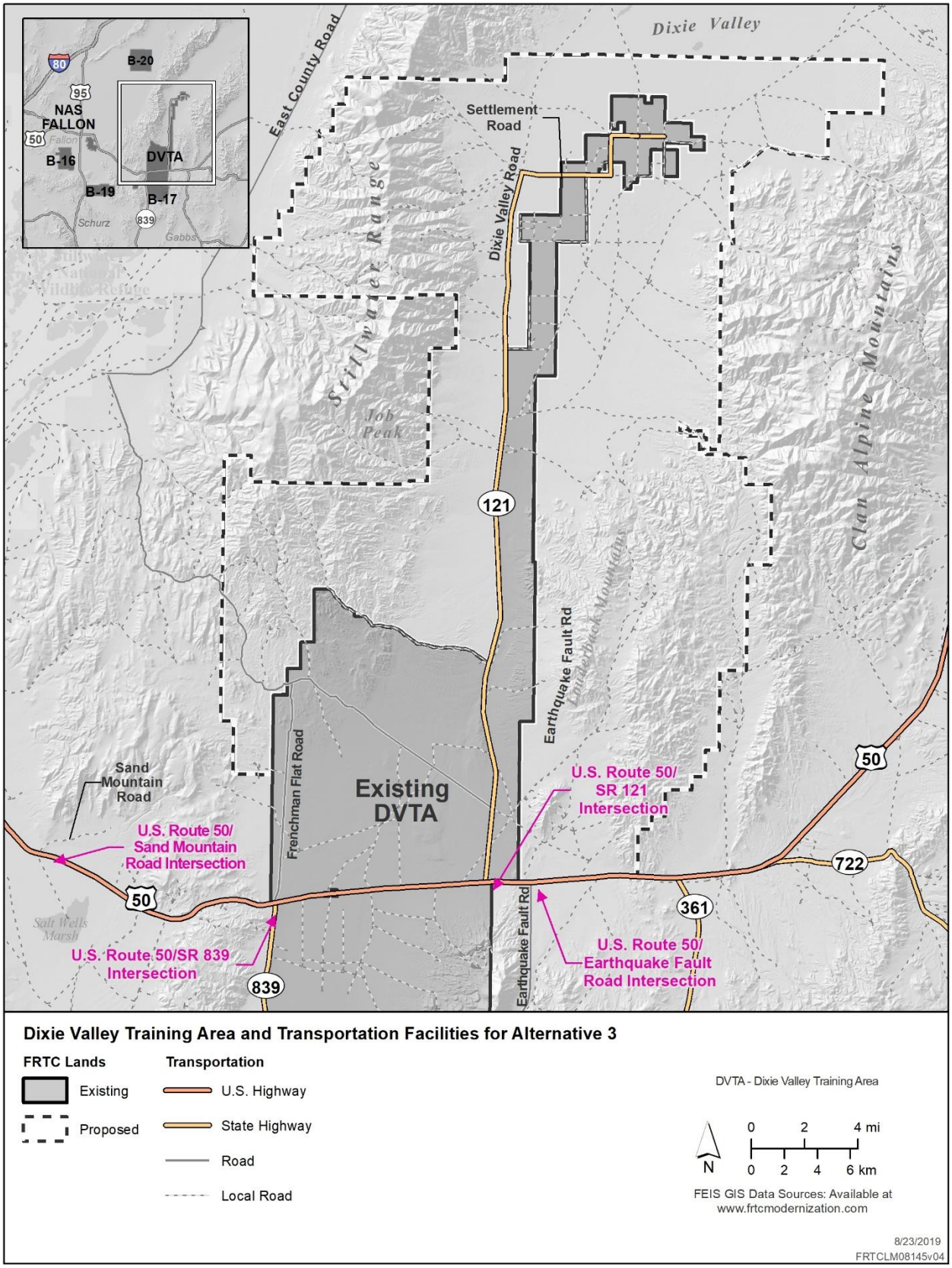


Figure 3.5-8: DVTA and Transportation Facilities for Alternative 3

3.5.3 Environmental Consequences

The following provides an analysis of environmental effects of the No Action Alternative and Alternatives 1 through 3 against the environmental baseline as described in Section 2.4 (Environmental Baseline [Current Training Activities]). A Summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (see Section 3.5.3.6, Summary of Effects and Conclusions).

3.5.3.1 No Action Alternative

The No Action Alternative is not the environmental baseline to which Alternative 1, 2, or 3 are compared in this analysis. See Section 2.4 (Environmental Baseline [Current Training Activities]) of this EIS for a detailed description of the baseline. Under the No Action Alternative, the Proposed Action would not occur, and there would be no renewal of the existing land withdrawals at the FRTC. Consequently, the Transportation study conducted for this EIS found that under the No Action Alternative, existing training activities at NAS Fallon would be reduced, resulting in military personnel relocation and subsequently the downsizing of some business and reduction of annual growth rate. That relocation and downsizing could lead to reduced traffic volumes at NAS Fallon and to some degree throughout the FRTC (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). There would be no changes to existing transportation routes but there would be a potential reduction in traffic volumes under the No Action Alternative. The potential reduction of training activities would be expected to reduce the number of military personnel, federal workers, and civilian contractors temporarily working, residing, and utilizing transportation facilities in the FRTC region of influence. Therefore, implementation of the No Action Alternative would not result in changes to transportation routes or travel patterns and would have no significant impact on transportation.

3.5.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the most notable roadway closures would include: the unpaved Sand Canyon Road that traverses B-16; portions of the unpaved B-20 Access Road (open for Navy use only) that pass to the north of B-20; and potentially the rerouting and closure of the current State Route 839 west of B-17. These roads and LOS are shown in Table 3.5-10 and in the 2017 Transportation study conducted for this EIS (Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). Based on the Transportation Study results, road segment LOS is not expected to change as a result of the implementation of Alternative 1.

Implementation of Alternative 1 would not result in any incremental increase in existing traffic generation. Instead, traffic impacts would arise from the redistribution of traffic from their current routes to other roadways due to the closure of existing public roads resulting from training range expansion and the potential closure and rerouting of State Route 839 (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). Site-specific National Environmental Policy Act (NEPA) analysis would need to occur for the re-alignment of State Route 839 and for the potential Paiute Pipeline relocation after the implementation of Alternative 1. Potential notional relocation corridor options for rerouting State Route 839 for Alternative 1 are discussed in Section 3.5.3.2.2 (Bravo-17). OHV use would not be permitted in the expanded Bravo ranges. Closure of OHV use areas as a result of implementing Alternative 1 is discussed in Section 3.12 (Recreation). Access impacts on cultural and sacred sites are discussed in Section 3.11 (Cultural Resources).

Table 3.5-10: Alternative 1: Level of Service Impacts on Intersection Segments

Intersection Segment	Existing Baseline AM Peak Hour LOS	Existing Baseline PM Peak Hour LOS	Alternative 1 AM Peak Hour LOS	Alternative 1 PM Peak Hour LOS
Lone Tree Road/Solias Road	A	A	A	A
Sand Canyon Road/B-16 range access road	A	A	A	A
B-16 Intersection 2	A	A	A	A
U.S. Route 95/Union Lane	B	B	B	B
U.S. Route 95/Wildes Road/Sheckler Road	D	C	D	Option* 1 = D Options* 2 and 3 = C
U.S. Route 50/Crook Road	B	B	B	B
U.S. Route 50/Macari Lane	A	A	A	A
U.S. Route 95/Top Gun Road	A	A	A	A
State Route 839/unnamed rural road	A	A	**	**
Sheelite Mine Road/unnamed road	A	A	A	A
U.S. Route 50/State Route 361	A	A	A	A
State Route 844/State Route 361	A	A	A	A
B-20 range access road (known locally as Pole Line Road)	A	A	A	A
East County Road/unnamed rural road	A	A	A	A
U.S. Route 95/Navy B-20 range access road (Pole Line Road)	A	A	A	A
East County Road/Poco Canyon Road	A	A	A	A
U.S. Route 95/Sand Mountain Road	A	A	A	A
U.S. Route 50/State Route 839	A	A	**	**
U.S. Route 50/State Route 121	A	A	A	A
U.S. Route 50/Earthquake Fault Road	A	A	A	A

* "Options" refer to the section titled *Road and Infrastructure Improvements to Support Alternative 1*, State Route 839 Notional Relocation Corridor Options, discussed under Section 3.5.3.2.2 (Bravo-17).

** Intersection would be removed as part of Alternative 1.

Notes: LOS = Level of Service, U.S. = United States

3.5.3.2.1 Bravo-16

Land Withdrawal and Acquisition

Under Alternative 1, the B-16 range would expand to the west by virtue of the Navy withdrawing approximately 32,201 acres of federal BLM-administered land (see Table 2-1), increasing the range's total area to approximately 59,560 acres. These new lands would be fenced in accordance with all applicable regulations and would not impact established ground transportation routes in B-16. Although Alternative 1 would result in closure of the Sand Canyon Road, it would not result in a significant impact

on transportation, because the road is used primarily for access to B-16 and closure of it would not impact LOS on surrounding roads or intersections. Therefore, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 1.

Training Activities

Training activities at B-16 would not change from Baseline Conditions see Section 2.4 (Environmental Baseline [Current Training Activities]) under Alternative 1, and therefore would have no significant impact on transportation.

Public Accessibility

Public access changes under Alternative 1 would result in a significant impact on transportation routes near B-16. Under Alternative 1, Sand Canyon Road would be closed to the public, preventing public travel on this road and causing a loss of access via customary/familiar transit routes. Access to the planned Special Recreation Management Areas, discussed in detail in Section 3.12 (Recreation) and shown in Figure 3.12-4, in the withdrawal area would be closed to OHV use and alternate routes would be utilized.

Rights of Way: Implementation of Alternative 1 would close access to one ROW held by Churchill County, and one held by the Los Angeles Department of Water and Power in B-16. The two ROWs held by the Navy would remain under Navy control. The ROWs held by Churchill County (road), and the Los Angeles Department of Water and Power (transmission line and road), would be purchased as real property. This purchase would result in a loss of access to the roads formerly held by Churchill County and the Los Angeles Department of Water and Power.

Road Network: Table 3.5-10 summarizes the projected LOS changes to intersections in the B-16 range. Implementation of Alternative 1 and closure of Sand Canyon Road would not result in a significant impact on transportation, because the road is used primarily for access to B-16 and closure of it would not impact LOS on surrounding roads or intersections, as shown in Figure 3.5-1. Users of land that is currently open for recreational OHV use would be impacted by the closure of Sand Canyon Road if it were the route used to access these areas (e.g., Dead Camel Mountains). There are other routes available off-road that can be used to access these areas (e.g., Dead Camel Mountains). These impacts are discussed further in Section 3.12 (Recreation).

Transit Network: Implementation of Alternative 1 would not result in any impact on rail corridors on B-16 because no rail corridors are located within the B-16 range. Implementation of Alternative 1 would not result in any significant impact on pedestrian and bike network trails near the B-16 range because there are no official pedestrian or bike network trails near B-16. The Pony Express National Historic Trail is located just to the south of the B-16 proposed land withdrawals; therefore, there would be no impact on the trail or its use.

Construction

Construction on the B-16 range of fencing and administrative buildings may temporarily increase traffic on existing roads due to equipment, laborers, and material movement onto and away from construction sites. However, these impacts would not result in significant changes to transit times for residents or emergency responders as they would be intermittent and temporary. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made. Therefore, there would be no significant impact on transportation as a result of construction on B-16 under Alternative 1.

3.5.3.2.2 Bravo-17

Land Withdrawal and Acquisition

Under Alternative 1, approximately 178,013 acres (176,977 acres of BLM-administered lands and 1,036 acres of non-federally owned lands) would be withdrawn or acquired to expand the B-17 range to the south (see Table 2-1), increasing its total area to approximately 232,800 acres. These new lands would be fenced in accordance with all applicable regulations, but would impact established ground transportation routes in the B-17 withdrawal lands by necessitating the potential re-routing of State Route 839 and changing associated travel distances and times for users of this route. Based on the changes in travel distance described below under each notional relocation corridor for the potential State Route 839 relocation, there would be a significant impact on transportation as a result of the withdrawal and acquisition of B-17 under Alternative 1.

Training Activities

Training activities at B-17 would not change from Baseline Conditions (see Section 2.4, Environmental Baseline [Current Training Activities]) under Alternative 1 and therefore would have no significant impact on transportation.

Public Accessibility

Public access changes under Alternative 1 would result in a significant impact on transportation routes near B-17 with the potential re-routing of State Route 839 causing changes to time and distance, as well as a loss of access via customary/familiar transit routes. Under Alternative 1, several state and local roads within the B-17 range would be closed to the public, restricting public access. However, LOS at intersection segments in the B-17 range such as State Route 839/unnamed rural road, Sheelite Mine Road/unnamed road, and State Route 839 south of U.S. Route 50 would not change from their existing baseline AM Peak Hour LOS of A.

Under Alternative 1 the potential closure and rerouting of State Route 839 associated with the expansion of B-17 would prevent access to public lands and impact traffic patterns. This state route is currently important to county residents and visitors, and a major reroute would have a direct impact on access to Rawhide Mine and cultural/recreation sites south of the B-17 range. This EIS assumes that NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839, unless and until any such new route has been completed and made available to the public (see "Road and Infrastructure Improvements to Support Alternative 1," for further details). The potential rerouting of State Route 839 and construction of the new State Route 839 could have an impact on traffic flow on U.S. Route 50 and on the freight transit that occurs over U.S. Route 50 and U.S. Route 95 as discussed further under "Road and Infrastructure Improvements to Support Alternative 1."

Rights of Way: Implementation of Alternative 1 would close access to eight NDOT-held ROWs (including Gabbs Highway and potentially State Route 839); one University of Nevada, Reno ROW (Fairview Peak seismological site and road); and one ROW held by Ormat Nevada Inc. (Geothermal pad access road) on B-17. The six ROWs held by the Navy would remain under Navy control. The ROWs held by Ormat Nevada Inc., NDOT, and the University of Nevada, Reno would be purchased as real property as applicable. Many utility ROWs are easements in gross and may not be considered real property.

Road Network: Implementation of Alternative 1 and expansion of the B-17 range would change the nature and magnitude of ground traffic. Travel distances would likely be affected; the travel distances may be unfavorable or beneficial depending on the specific route traveled and which potential re-route option is chosen. Changes in travel distance are detailed further in the potential relocation options of State Route 839 below. Depending on which option is chosen, the changes would be more than minimal, meaning that the LOS degrades to a level of D, E, or F (see Table 3.5-10) as a result of Alternative 1. The projected future traffic volumes shown and analyzed assume that redistributing traffic from State Route 839 to the new route would not warrant the insertion of traffic signal control. However, this potential reroute would cause a decrease in the LOS rating of the U.S. Route 95/Wildes Road/Sheckler Road intersection from a LOS C rating to a LOS D rating in the afternoon under peak hour conditions under Option 1 for relocation (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). None of the options for re-route would change the average speed on the road segments by more than 1 mile per hour according to the 2017 Transportation Study. The PSI rating would improve on the relocated portion of State Route 839 but would not be expected to change in other areas.

Additional information and detail is available in the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com). U.S. Route 95 is a busy road, and Sheckler Road is an uncontrolled 4-way stop. An increase in traffic on the U.S. Route 95 would decrease the LOS on the two perpendicular roads as well. This change would result in a significant impact on transportation near the B-17 range.

Transit Network: Implementation of Alternative 1 would not result in a significant impact on rail corridors since no rail corridors are located within the B-17 range. The expansion of B-17 under Alternative 1 would potentially impact the Salt Wells Extensive Recreational Management Area, proposed by the BLM under Alternative E of the *Carson City District Draft Resource Management Plan* (2014). Closure of the public land under Alternative 1 would restrict the use of the extensive BLM planned trail network in the Salt Wells Extensive Recreational Management Area. The Recreation section of this EIS (Section 3.12) discusses impacts on hiking and recreation on trails under Alternative 1.

Construction

Construction on the B-17 range of fencing and administrative buildings may temporarily increase traffic on existing roads due to equipment, laborers, and material movement onto and away from construction sites. However, these impacts would not result in significant changes to transit times for residents or emergency responders as they would be intermittent and temporary. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made.

Road and Infrastructure Improvements to Support Alternative 1

Alternative 1 would include the relocation of State Route 839 and re-routing of part of the Paiute Pipeline. State Route 839 has an average count of 40 vehicles per day as of 2015. The Navy, which uses State Route 839 to access B-17, is the primary user of this road (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). In addition to providing access to the Rawhide-Denton Mine, State Route 839 also provides access to the eastern slope of the Sand Springs Range. The Navy and stakeholders explored three notional relocation corridor options for State Route 839 in this analysis, as shown in Chapter 4 (Cumulative Impacts) (Figure 4-3). All three notional relocation corridor options

included closing up to 24 miles of the existing State Route 839 to public travel and improving existing dirt roads/trails to paved roads.

Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, designing, permitting, and constructing any realignment of State Route 839. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public.

State Route 839 Notional Relocation Corridor Option 1

Under Option 1, analyzed in the supporting study (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com), for the potential relocation of State Route 839 (as shown in Figure 4-3), the existing State Route 839 would be closed at the U.S. Route 50 intersection, and State Route 839 would be re-routed to connect to U.S. Route 95, south of the city of Fallon. This corridor would traverse BLM-managed land as well as the Walker River Paiute Indian Reservation. Under Option 1, the redistribution of existing and projected future traffic from State Route 839 would result in a drop from LOS C to LOS D during the afternoon peak hour at the U.S. Route 95/Wildes Road/Sheckler Road intersection. Diverted traffic travelling between the Option 1 intersection with U.S. Route 95 and Fallon would pass through this intersection, incrementally increasing the delay for motorists approaching the intersection via Wildes Road and Sheckler Road by approximately 2.6 seconds per vehicle. Installation of a traffic signal at this intersection would result in LOS C or better conditions during both peak hours.

Impacts on travel distance would occur with rerouting State Route 839. If notional relocation corridor Option 1 were chosen, traffic approaching the existing U.S. Route 50/State Route 839 intersection from the east and destined for Sheelite Mine Road would be forced to continue west towards Fallon. Traffic would then proceed southward on U.S. Route 95 to Rawhide Road, before backtracking eastward on the State Route 839 replacement corridor, causing substantial out-of-direction travel. The travel distance would increase from approximately 20 miles to approximately 84 miles. The affected traffic volume is comparatively low (i.e., 13 vehicles in the morning peak hour and 2 vehicles in the afternoon peak hour) (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

Eastbound motorists originating in Fallon would need to divert from U.S. Route 50 eastbound to U.S. Route 95 southbound and then drive on the State Route 839 replacement route. The travel distance for this movement would increase from approximately 53 miles to approximately 55 miles. The affected traffic volume is also comparatively low (i.e., 13 vehicles in the morning peak hour and 2 vehicles in the afternoon peak hour). For motorists approaching from the south via Sheelite Mine Road and originating in the vicinity of Schurz, the State Route 839 replacement route would substantially reduce travel distance, since vehicles would not be required to travel southbound and eastbound on U.S. Route 95 through Babbitt (where U.S. Route 95 and Sheelite Mine Road intersect south of the B-17 range) before connecting to Sheelite Mine Road northbound. As a result, the travel distance for this movement would decrease from approximately 71 miles to approximately 44 miles. Option 1 would therefore reduce

travel distance for traffic originating in the Shurz area (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

State Route 839 Notional Relocation Corridor Option 2

Under Option 2, analyzed in the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com) for the potential relocation of State Route 839 (as shown in Figure 4-3), the existing State Route 839 would be closed at the U.S. Route 50 intersection, and existing roads west of the Sand Springs Range would be improved. Option 2 would not change LOS at the U.S. Route 95/Wildes Road/Sheckler Road intersection. As with State Route 839 Notional Relocation Corridor Option 1, the road would follow pre-existing dirt roads or trails and would be developed into a paved two-lane highway (to the same levels as the road it is replacing, following the minimum design criteria as listed in NDOT's design manual).

If notional relocation corridor Option 2 were chosen, travel distance impacts would occur with rerouting State Route 839. Traffic approaching the existing U.S. Route 50/State Route 839 intersection from the east, and destined for Sheelite Mine Road, would be forced to continue west towards Fallon, but at a lesser distance than under Option 1. Motorists would only need to travel approximately 5 miles east to the new intersection of State Route 839 and U.S. Route 50 going westbound. Eastbound motorists originating in Fallon would travel approximately 5 miles less on U.S. Route 50 eastbound to the intersection with State Route 839 replacement route. For motorists approaching from the south via Sheelite Mine Road and originating near Schurz, the State Route 839 replacement route would not substantially reduce travel distance. Vehicles would still be required to travel southbound and eastbound on U.S. Route 95 through Babbitt (where U.S. Route 95 and Sheelite Mine Road intersect south of the B-17 range) before connecting to Sheelite Mine Road northbound. Option 2 would reduce travel distance for trips originated on U.S. Route 50 to the east of State Route 839 (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

State Route 839 Notional Relocation Corridor Option 3

Under Option 3, analyzed in the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com) for the potential relocation of State Route 839 (as shown in Figure 4-3), the existing State Route 839 would be closed at the U.S. Route 50 intersection, and existing roads along the existing Paiute Pipeline route would be improved. The corridor would traverse an existing bombing range and would be fenced on either side where necessary. Option 3 would not change the LOS at the U.S. Route 95/Wildes Road/Sheckler Road intersection. As with State Route 839 Options 1 and 2, the road would follow pre-existing dirt roads or trails and would be developed into a paved two-lane highway (to the same levels as the road it is replacing, following the minimum design criteria as listed in NDOT's design manual).

If notional relocation corridor Option 3 were chosen, travel distance impacts would occur with rerouting State Route 839. Traffic approaching the existing U.S. Route 50/State Route 839 intersection from the east, and destined for Sheelite Mine Road/unnamed road, would be forced to continue west towards Fallon, at a distance of approximately 12 miles east to the new intersection of State Route 839 and U.S. Route 50. Eastbound motorists originating in Fallon would travel approximately 12 miles less on U.S. Route 50 eastbound to the intersection with Option 3 State Route 839 replacement route. The State Route 839 replacement route is approximately 10 miles longer than the current State Route 839 from the intersections of State Route 839/U.S. Route 50 and State Route 839 and Sheelite Mine Road. For

motorists approaching from the south via Sheelite Mine Road and originating in the vicinity of Schurz, the State Route 839 replacement route would not substantially reduce travel distance, since vehicles would still be required to travel southbound and eastbound on U.S. Route 95 through Babbitt (where U.S. Route 95 and Sheelite Mine Road intersect south of the B-17 range) before connecting to Sheelite Mine Road northbound. Option 3 would reduce the travel distance for motorists originating in the Fallon area (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

Paiute Pipeline

Alternative 1 includes the potential relocation of a segment of the Paiute Pipeline outside the B-17 WDZ. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

3.5.3.2.3 Bravo-20

Land Withdrawal and Acquisition

B-20 would expand in all directions, growing by approximately 180,329 acres (see Table 2-1) and increasing in total size to approximately 221,334 acres. This expansion includes approximately 3,200 acres of land currently withdrawn by the U.S. Fish and Wildlife Service (USFWS) as a portion of the Fallon National Wildlife Refuge. The Navy is not proposing to develop targets in the refuge. Due to the safety concerns of being within a WDZ, the Navy proposes to enter into an agreement (Memorandum of Understanding [MOU]) with the USFWS to allow the portion of the Fallon National Wildlife Refuge within B-20 to be closed to all public access, but to continue to be managed as a wildlife refuge. Under Alternative 1, expanding B-20 would allow for an additional 1,450 acres (in addition to the existing B-20 training areas) for target areas for Naval Aviation Advanced Strike Warfare and Large Force Exercise training (see Figure 2-4).

These new lands would be fenced in accordance with all applicable regulations and would not impact established ground transportation routes in the B-20 withdrawal lands. Therefore, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 1.

Training Activities

Training activities at B-20 would not change from Baseline Conditions see Section 2.4 (Environmental Baseline [Current Training Activities]) under Alternative 1 and therefore would have no significant impact on transportation.

Public Accessibility

Public access changes under Alternative 1 would not result in a significant impact on transportation routes near B-20. Except for a small portion of East County Road (which would remain open), the

majority of B-20 would be closed and alternate routes would need to be utilized. The range would be restricted from public use except for Navy-authorized activities academic research or ceremonial or cultural site visits.

Rights of Way: Implementation of Alternative 1 would not close access to any ROWs on B-20. The two ROWs held by the Navy would remain under Navy control.

Road Network: Implementation of Alternative 1 would not result in significant impacts on transportation, travel distance, or traffic patterns along the small portion of the unpaved East County Road that overlaps with the withdrawal area. This road would remain open for public transit. No change to the LOS near B-20 would occur under Alternative 1. Intersection segments would remain at LOS A near the B-20 range area.

Implementation of Alternative 1 would close the unpaved B-20 Access Road; however, the B-20 Access Road is currently only open for authorized use by the Navy, and there are other publicly accessible routes to the large expanses of public and federal lands north of the B-20 range including the East County Road. Impacts on trips on the B-20 Access Road would be minimal because the Navy is currently the only currently authorized user of the road, and because no trips were counted during data collection for the Transportation Study (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

Transit Network: Implementation of Alternative 1 would not result in an impact on rail corridors on B-20 since there are no rail corridors located within the existing and proposed B-20 range. Implementation of Alternative 1 would not result in an impact on pedestrian or bike networks since no major pedestrian or bike trails are located within the B-20 range. Impacts on OHV operators and use are discussed in Section 3.12 (Recreation).

Construction

No new public roads would be constructed under Alternative 1 in or around the B-20 range. The Navy would construct access roads on the range in accordance with range procedures. Therefore, there would be no significant impacts on transportation as a result of construction under Alternative 1.

3.5.3.2.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Under Alternative 1, the DVTA would expand in all directions by approximately 293,343 acres (see Table 2-1), increasing its total size to approximately 370,903 acres. The proposed expansion overlaps portions of the Clan Alpine Mountain Wilderness Study Area (WSA), the Job Peak WSA, the Stillwater Range WSA, and the BLM-proposed Fox Peak ACEC (proposed under Alternative E of the Carson City District Draft Resource Management Plan). Under Alternative 1, Congressional withdrawal legislation would remove the WSA designation from those portions of the Clan Alpine WSA, Job Peak WSA, and Stillwater WSA within the DVTA. Alternative 1 would also request for withdrawal of a portion of the proposed Fox Peak ACEC within the DVTA. The BLM would change the boundaries of the proposed Fox Peak ACEC to remove those areas that would overlap with the DVTA. The BLM would continue managing the remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs. These new lands would not impact established ground transportation routes in the DVTA withdrawal lands, but they would open additional routes for public OHV use of these withdrawn areas. Therefore, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 1.

Training Activities

Training activities at the DVTA would not change from Baseline Conditions see Section 2.4 (Environmental Baseline [Current Training Activities]) under Alternative 1 and therefore would have no significant impact on transportation.

Public Accessibility

Public access changes under Alternative 1 would not change and therefore would have no significant impact on transportation.

Rights of Way: Implementation of Alternative 1 would not close any of the ROWs on the DVTA held by NDOT, the Navy, or Churchill County.

Road Network: Implementation of Alternative 1 would not result in a significant impact on transportation or travel distance in the DVTA. State Route 121 provides access to lands with recreational assets and a vast expanse of public and conservation lands. Implementation of Alternative 1 would not restrict access to these lands. There are no proposed changes to access or usability of State Route 121, which would remain open to the public. Therefore, the LOS and PSI ratings of this road would not change.

Transit Network: Implementation of Alternative 1 would not result in an impact on rail corridors since no rail corridors are located within the DVTA. Implementation of Alternative 1 would not change the existing access to pedestrian trails, including the Pony Express National Historic Trail and other associated trails, and bike facilities or access to them within the DVTA. Impacts on OHV operators and use are discussed in Section 3.12 (Recreation).

Construction

No road construction is planned in the DVTA under Alternative 1. Therefore, construction activities would have no significant impact on transportation near the DVTA. Under Alternative 1, the Navy would develop three Electronic Warfare sites with perimeter fencing surrounding each Electronic Warfare site. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made. Existing trails and roads would be used to transport construction materials to the new Electronic Warfare sites, as well as provide access for servicing. No public roads would be altered or constructed as a result of Alternative 1 in the DVTA. This construction on the DVTA may temporarily increase traffic on existing roads due to equipment, laborers, and material movement onto and away from construction sites, but these impacts would not result in significant changes to transit times for residents or emergency responders.

3.5.3.2.5 Summary of Effects and Conclusions

Implementation of Alternative 1 would result in significant impacts on transportation in the areas surrounding B-17 due to the potential closure and rerouting of State Route 839. It would also result in significant impacts on transportation access (via state/county ROWs/roads) in the areas closed to the public within the expanded FRTC ranges. Site-specific NEPA analysis would need to occur at a later date for the potential relocations of portions of State Route 839 and the Paiute Pipeline as additional infrastructure improvements after the implementation of Alternative 1. The roads near B-16 would experience a small impact on traffic patterns due to the closure of Sand Canyon Road. Alternative 1 would have no transportation or access impacts on the DVTA. B-20 would experience minor impacts due to the closure of the B-20 Access Road (which is currently only authorized for Navy use). Implementation

of Alternative 1 would also impact access to recreational areas that provide pedestrian hiking and biking trails in all ranges except the DVTA as discussed in Section 3.12 (Recreation). For any major transportation route that underlies restricted area airspace, the Nevada Department of Transportation would need to coordinate with the Navy prior to development of that corridor to ensure compatibility with military training activities. Therefore, implementation of Alternative 1 would result in significant impacts on transportation.

3.5.3.3 Alternative 2: Modernization of the Fallon Range Training Complex and Managed Access

The primary difference between Alternatives 1 and 2 is that under Alternative 2 the public would have access to specific parts of B-16, B-17, and B-20 for some or all categories of activities such as bighorn sheep hunting, site visits (ceremonial, cultural, or research), management access, and events (races), when the ranges are not in operation, with prior coordination (see Table 2-5). This section evaluates the impacts on transportation from implementation of Alternative 2 by range. OHV use would not be permitted in the expansion areas. Changes to OHV use areas as a result of implementing Alternative 2 is discussed in Section 3.12 (Recreation). Impacts from Alternative 2 on access to cultural and sacred sites are discussed in Section 3.11 (Cultural Resources).

3.5.3.3.1 Bravo-16

Land Withdrawal and Acquisition

Alternative 2 would have the same withdrawals and acquisitions as proposed in Alternative 1. Therefore, there would be no significant impact on transportation as a result of the withdrawal or acquisition under Alternative 2.

Training Activities

Training activities at B-16 would be the same under Alternative 2 as described under Alternative 1. Therefore, as discussed under Alternative 1, training activities would have no significant impact on transportation under Alternative 2.

Public Accessibility

Public access on B-16 under Alternative 2 would be the same as described under Alternative 1 with one exception. Under Alternative 2, Simpson Road and the lands south of it would be withdrawn but remain open for public use. Therefore, public access changes would not result in a significant impact on transportation routes near B-16.

Rights of Way: Implementation of Alternative 2 would close access to ROWs as described under Alternative 1. The Navy proposes to purchase the ROWs as applicable as real property.

Road Network: Under Alternative 2, Sand Canyon Road would be closed from public access, as discussed under Alternative 1. Closure of unpaved Sand Canyon Road would not result in a significant impact on transportation, because the road is used primarily for access to B-16 and closure of it would not impact LOS on surrounding roads or intersections, as shown in Figure 3.5-1 and Table 3.5-10. Users of land that is currently open for recreational OHV use would be impacted by the closure of Sand Canyon Road if it were the route they normally used to access these areas (e.g., Dead Camel Mountains). These impacts are discussed further in Section 3.12 (Recreation).

Transit Network: Under Alternative 2, the B-16 range would be open to limited access for academic research, ceremonial or cultural site visits, and events such as races. The Navy and BLM would

coordinate the permitting and scheduling of these events. Targets are not generally near race routes; however, the Navy would clear race routes of unexploded ordnance and other potential safety hazards prior to these events. This limited access would allow vehicles to travel in these areas when open to the public. Public access changes under Alternative 2 would not result in a significant impact on transportation.

Construction

No road construction is planned in B-16 under Alternative 2. Therefore, as discussed under Alternative 1, construction activities would have no significant impact on transportation near B-16 under Alternative 2.

3.5.3.3.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 2 would have the same withdrawals and acquisitions as proposed in Alternative 1, including the potential relocation of State Route 839 and portions of the Paiute Pipeline. Therefore, as discussed under Alternative 1, there would be a significant impact on transportation as a result of the withdrawal and acquisition under Alternative 2.

Training Activities

Training activities at B-17 under Alternative 2 would be the same as described under Alternative 1. Therefore, as discussed under Alternative 1, there would be no significant impact on transportation under Alternative 2.

Public Accessibility

Public access changes under Alternative 2 would result in the same impacts as described under Alternative 1. Therefore, as discussed under Alternative 1, public access changes under Alternative 2 would have a significant impact on transportation routes near B-17.

Rights of Way: Implementation of Alternative 2 would close access to ROWs as described under Alternative 1. The Navy proposes to purchase the ROWs as applicable as real property.

Road Network: Implementation of Alternative 2 and expansion of the B-17 range would have a direct impact on transportation near the B-17 range. Several state and local roads within the B-17 range would be closed to the public, and public access would be restricted, as described under Alternative 1.

Transit Network: Implementation of Alternative 2 would have similar impacts as Alternative 1, and would not result in any significant impacts on rail corridors or transit networks within B-17. Access for the bighorn sheep hunting program, as described in Section 3.12 (Recreation), would occur within B-17 in accordance with Nevada Department of Wildlife rules and regulations. The Navy would limit hunter access to certain areas of the range for safety reasons. Certain areas would also be open for academic research, ceremonial or cultural site visits, events (races), and land management pending Navy approval in advance of these visits. Fairview Peak would not be accessible by the public for any activities other than hunting. Although the Navy would prohibit general OHV use, races would continue to be allowed, including the Vegas to Reno Race, which would occur in the southern portion of the range. The Navy and BLM would coordinate the permitting and scheduling of these events. The Navy would clear race routes of unexploded ordnance and other potential safety hazards prior to these events. The Recreation section of this EIS (Section 3.12) discusses impacts on hiking and recreation on trails in the ranges.

Construction

Site-specific NEPA analysis would need to occur at a later date for the potential relocation of State Route 839 and part of the Paiute Pipeline as an additional infrastructure improvement after the implementation of Alternative 2.

Road and Infrastructure Improvements to Support Alternative 2

State Route 839 Notional Relocation Corridor Options 1, 2, and 3 (see Figure 4-3) and the potential relocation of the Paiute Pipeline would be the same under Alternative 2 as described under Alternative 1. As discussed under Alternative 1, site-specific NEPA analysis would need to occur at a later date for State Route 839 Notional Relocation Corridor Options 1, 2, or 3 and for the Paiute Pipeline relocation after the implementation of Alternative 2. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, designing, permitting, and constructing any realignment of State Route 839. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public.

3.5.3.3.3 Bravo-20

Land Withdrawal and Acquisition

Alternative 2 would have the same withdrawals and acquisitions as proposed in Alternative 1. Therefore, as discussed under Alternative 1, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 2.

Training Activities

Training activities at B-20 would be the same as described under Alternative 1 and would therefore have no significant impact on transportation under Alternative 2.

Public Accessibility

Public access changes under Alternative 2 would not result in a significant impact on transportation routes near B-20. The primary difference is that under Alternative 2, the public would have limited access for academic research, ceremonial or cultural site visits, and events such as races in areas that are clear of unexploded ordnance and other hazards.

Rights of Way: Implementation of Alternative 2 would not close access to any ROWs on B-20. The two ROWs held by the Navy would remain under Navy control.

Road Network: Implementation of Alternative 2 would not result in significant impacts on transportation or traffic patterns near B-20, as discussed under Alternative 1.

Transit Network: Implementation of Alternative 2 would not result in any impact on rail corridors or trails on B-20 since there are no rail corridors located within B-20 as discussed under Alternative 1.

Construction

No new public roads would be constructed under Alternative 2 in or around the B-20 range. Therefore, there would be no significant impacts on transportation as a result of construction under Alternative 2.

3.5.3.3.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Alternative 2 would have the same withdrawals and acquisitions as proposed in Alternative 1. Therefore, as discussed under Alternative 1, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 2.

Training Activities

Training activities in the DVTA would be the same as described under Alternative 1 and would therefore have no significant impact on transportation under Alternative 2.

Public Accessibility

Public access changes under Alternative 2 would not result in a significant impact on transportation routes near the DVTA. Under Alternative 2, the DVTA range would be open for grazing, hunting, camping, hiking, OHVs, ceremonial and cultural site visits, and events such as races; and would allow leasable (geothermal) and salable mining, utilities, and ROWs access for utilities. Geothermal development west of State Route 121 would be authorized in the DVTA, with Navy-proposed design features, and managed under the Geothermal Steam Act of 1970 by the BLM where compatible. Alternative 2 would have most of the same impacts as Alternative 1 for the DVTA range. Along with the limited geothermal development, limited salable mining activities would be permitted through the BLM, and would not impact transportation in the DVTA.

Rights of Way: Implementation of Alternative 2 would not close any of the ROWs on the DVTA held by NDOT. The Navy is currently proposing to expand the ROW only on the west side of the current transmission corridor (close to the current line as possible) to be a 90-foot permanent and 300-foot temporary ROW for development along the west side of State Route 121.

Road Network: Implementation of Alternative 2 would not result in significant impacts on transportation or traffic patterns near the DVTA as discussed under Alternative 1.

Transit Network: Implementation of Alternative 2 would not result in any impact on the transit network on the DVTA since there are no changes to the network proposed within the DVTA, as discussed under Alternative 1.

Construction

As described under Alternative 1, no road construction is planned in the DVTA under Alternative 2. Existing trails and roads would be used to transport construction materials to the new Electronic Warfare sites, as well as provide access for servicing. Therefore, construction activities would have no significant impact on transportation near or within the DVTA.

3.5.3.3.5 Summary of Effects and Conclusions

As with Alternative 1, implementation of Alternative 2 would result in significant impacts on transportation due to the potential closure and rerouting of State Route 839 and loss of access via customary/familiar transit routes. The roads near B-16 would experience an impact on traffic patterns

due to the closure of Sand Canyon Road. Alternative 2 would have minimal transportation and access impacts on B-20 due to closure of the B-20 range access road (known locally as Pole Line Road,),which is only authorized for Navy use). Implementation of Alternative 2 would have similar impacts on transportation and traffic compared to Alternative 1. However, Alternative 2 would allow for hunting on B-17 for bighorn sheep, allowing some routes to remain open for parts of the year, and would allow for salable mining, and geothermal development west of State Route 121 in the DVTA, with Navy-proposed design features, and managed under the Geothermal Steam Act of 1970 where compatible. For any major transportation route that underlies restricted area airspace, the Nevada Department of Transportation would need to coordinate with the Navy prior to development of that corridor to ensure compatibility with military training activities. Other restrictions to access and road closures would be the same under Alternative 2 as described under Alternative 1. Therefore, implementation of Alternative 2 would result in significant impacts on transportation.

3.5.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternative 1 in regard to land withdrawal and acquisition, with the exception of shifting B-17 and changing the withdrawal area of B-16, B-20, and the DVTA. The shift of B-17 would impact more of Nye County than would be impacted under Alternative 1 or 2. Alternative 3 is the same as Alternative 2 in regard to managed access. Changes to OHV use areas as a result of implementing Alternative 3 is discussed in Section 3.12 (Recreation). Access impacts on cultural and sacred sites are discussed in Section 3.11 (Cultural Resources). Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay (details on this area can be found in Section 2.3.4.6, Dixie Valley Training Area). This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Road intersections and LOS are shown in Table 3.5-11 and in the Transportation Study conducted for this EIS (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). Based on the Transportation Study results, road intersection and segment LOS is not expected to change as a result of the implementation of Alternative 3.

Table 3.5-11: Alternative 3: Level of Service Impacts on Intersection Segments

Intersection Segment	Existing Baseline AM Peak Hour LOS	Existing Baseline PM Peak Hour LOS	Alternative 3 AM Peak Hour LOS	Alternative 3 PM Peak Hour LOS
Lone Tree Road/Solias Road	A	A	A	A
Sand Canyon Road/B-16 range access road	A	A	A	A
B-16 Intersection 2	A	A	A	A
U.S. Route 95/Union Lane	B	B	B	B
U.S. Route 95/Wildes Road/Sheckler Road	C	C	C	C
U.S. Route 50/Crook Road	B	B	B	B
U.S. Route 50/Macari Lane	A	A	A	A
U.S. Route 95/Top Gun Road	A	A	A	A
State Route 839/unnamed rural road	A	A	A	A
Sheelite Mine Road/unnamed road	A	A	A	A
U.S. Route 50/State Route 361	A	A	A	A
State Route 844/State Route 361	A	A	A	A
B-20 range access road (known locally as Pole Road)	A	A	A	A
East County Road/unnamed rural road	A	A	A	A
U.S. Route 95/Navy B-20 range access road (Pole Line Road)	A	A	A	A
East County Road/Poco Canyon Road	A	A	A	A
U.S. Route 95/Sand Mountain Road	A	A	A	A
U.S. Route 50/State Route 839	A	A	A	A
U.S. Route 50/State Route 121	A	A	A	A
U.S. Route 50/Earthquake Fault Road	A	A	A	A

Notes: B = Bravo, LOS = Level of Service, U.S. = United States

3.5.3.4.1 Bravo-16

Land Withdrawal and Acquisition

Under Alternative 3, the B-16 range would expand to the west by approximately 31,875 acres (see Figure 2-12), increasing the total area to approximately 59,234 acres in the same way that the range expands under Alternative 1 and 2 over Sand Canyon Road. Unlike Alternatives 1 and 2, the lands south of Simpson Road (and Simpson Road itself) would not be withdrawn, and since they are currently withdrawn lands, they would be relinquished by the Navy back to the BLM. Although these lands south of Simpson Road represent lands that are being relinquished by the Navy to the BLM for public use, they are already open to the public, and therefore would not represent a significant change from current

conditions. Therefore, as discussed under Alternatives 1 and 2, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 3.

Training Activities

Training activities at B-16 would be the same under Alternative 3 as described under Alternatives 1 and 2. Therefore, as discussed under Alternatives 1 and 2, training activities would have no significant impact on transportation under Alternative 3.

Public Accessibility

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Public access changes under Alternative 3 would be the same as described under Alternative 2. Therefore, as discussed under Alternative 2, public access changes would not result in a significant impact on transportation routes near B-16.

Rights of Way: Implementation of Alternative 3 would close access to ROWs as described under Alternative 1. The Navy proposes to purchase the ROWs as applicable as real property.

Road Network: Alternative 3 would have the same impacts as Alternative 2 in the B-16 range. Under this alternative, Sand Canyon Road would be closed from public access to the Dead Camel Mountains. Closure of unpaved Sand Canyon Road would not result in a significant impact on transportation, because the road is used primarily for access to B-16 and closure of it would not impact LOS on surrounding roads or intersections as shown in Figure 3.5-2 and Table 3.5-10. Users of land that is currently open for recreational OHV use would be impacted by the closure of Sand Canyon Road if it were the route used to access these areas (e.g., Dead Camel Mountains). These impacts are discussed further in Section 3.12 (Recreation). The public would not be allowed to operate OHVs within B-16 when the range is operational during training activities.

Transit Network: Alternative 3 would have similar impacts as Alternatives 1 and 2. Under Alternative 3, the public would have limited access to the B-16 range for hunting, academic research, ceremonial or cultural site visits, and events such as races. The Navy and BLM would coordinate the permitting and scheduling of these events. The Navy would clear race routes of unexploded ordnance and other potential safety hazards prior to these events. Public access changes under Alternative 3 would not result in a significant impact on transportation routes near B-16. Therefore, they would not have significant impacts on transportation.

Construction

As described under Alternatives 1 and 2, no road construction is planned in B-16 under Alternative 3. Therefore, as discussed under Alternatives 1 and 2, construction activities would have no significant impact on transportation near B-16 under Alternative 3.

3.5.3.4.2 Bravo-17

Land Withdrawal and Acquisition

Under Alternative 3, B-17 would expand to the southeast by approximately 212,016 acres and be rotated counterclockwise (see Figure 2-16). This requested withdrawal would eliminate the WDZ overlapping State Route 839 (under Alternatives 1 and 2). The shift of B-17 would impact more of Nye County than would be impacted under Alternative 1 or 2. Approximately 4,000 acres would support convoy routes, military vehicle training routes, or ground target areas (see Figure 2-16). Under

Alternative 3, in addition to new targets and target areas, the Navy would continue to use existing targets and target areas. These new lands would be fenced in accordance with all applicable regulations, but would impact established ground transportation routes in the B-17 withdrawal lands. This shifted and rotated configuration would put B-17 further into Nye County and impact non-traditional roadways. Therefore, there would be a significant impact on transportation as a result of the withdrawal and acquisition under Alternative 3.

Training Activities

Training activities at B-17 under Alternative 3 would be the same as described under Alternative 1. Therefore, as discussed under Alternative 1, there would be no significant impacts on transportation under Alternative 3.

Public Accessibility

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Public access changes under Alternative 3 would result in the same impacts as described under Alternative 2. Therefore, as discussed under Alternative 2, public access changes under Alternative 3 would have a significant impact on transportation routes near B-17.

Rights of Way: Implementation of Alternative 3 would close access to ROWs in a similar way as described under Alternative 1. The Navy proposes to purchase the ROWs as applicable as real property.

Road Network: Alternative 3 creates the largest impact on Nye County through the closure of State-recognized, minor county, and non-traditional routes due to the shifting and rotating of B-17. Under Alternative 3, State Route 839 would not be closed and rerouted. Instead, a 12-mile segment of State Route 361 would be rerouted. The potential closing and re-routing of a portion of State Route 361 and closing access to the withdrawal lands for the expanded B-17 range would have an impact on transportation; however, it would not change the LOS at intersections or on segments of road that were included in the Transportation Study (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com). Several state and local roads within the B-17 range would be closed to the public. The notional relocation corridor for replacing State Route 361, analyzed in the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, may potentially be implemented if Alternative 3 were selected and after site-specific NEPA analysis of the potential relocation of the segment of State Route 361. The PSI rating would be expected to improve on the new segment of State Route 361 that is relocated but would not be expected to change in other areas. Additional NEPA analysis would be necessary before closing and re-routing part of State Route 361.

Transit Network: Alternative 3 would have similar impacts as Alternative 2 and would not result in any significant impacts on rail corridors or transit networks within B-17. Under Alternative 3, public access to the Sand Hills Range would not be restricted compared to Alternatives 1 and 2 due to the shift of B-17. The Recreation section of the EIS (Section 3.12) discusses impacts on hiking and recreation on trails in the ranges.

Construction

Site-specific NEPA analysis would need to occur at a later date for the potential relocation of part of State Route 361 and part of the Paiute Pipeline as an additional infrastructure improvement after the implementation of Alternative 3.

Road and Infrastructure Improvements to Support Alternative 3

Alternative 3 would include the relocation of part of State Route 361 and the re-routing of part of the Paiute Pipeline. The Navy and stakeholders explored a potential option for the potential relocation of a portion of State Route 361 and part of the Paiute Pipeline in this analysis, as shown in Chapter 4, Cumulative Impacts (Figure 4-3). The State Route 361 Notional Relocation Corridor would potentially re-route approximately 12 miles of the existing State Route 361 to skirt the eastern boundary of B-17 (Figure 4-3).

Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, designing, permitting, and constructing any realignment of State Route 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 361 unless and until any such new route has been completed and made available to the public.

State Route 361 Notional Relocation Corridor

As shown in Table 3.5-11 and as analyzed in the Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex (available at https://frtcmodernization.com), the LOS on all applicable roads and at intersections would not change because of the potential re-routing of State Route 361. The Notional Relocation Corridor would shift a 12-mile segment of the State Route 361, and the road would start and end in the same location it currently does. Transit times from all directions and travel distances would not be expected to appreciably change under this option (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

Paiute Pipeline

The Navy would purchase the approximately 18 miles of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

3.5.3.4.3 Bravo-20

Land Withdrawal and Acquisition

Under Alternative 3, B-20 would expand in all directions, growing by approximately 177,114 acres (see Table 2-7) and increasing in total size to approximately 218,119 acres. This expansion includes approximately 2,720 acres of land currently withdrawn by the USFWS as a portion of the Fallon National Wildlife Refuge and 1,920 acres of Lyon County Conservation Easements. As discussed under Alternative

1, the Navy is not proposing to develop targets in the refuge. Unlike Alternatives 1 and 2, the Navy would not request for withdrawal of the lands east of East County Road and the road itself. The Navy would leave the areas east of East County Road and the Road itself open under Alternatives 1 and 2; therefore, the impacts on transportation under Alternative 3 are the same as discussed under Alternatives 1 and 2. Therefore, there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 3.

Training Activities

Training activities at B-20 would be the same as described under Alternatives 1 and 2, and would therefore have no significant impact on transportation under Alternative 3.

Public Accessibility

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Alternative 3 would have the same impacts as Alternative 2 to transportation near B-20. Public access changes under Alternative 3 would be the same as described under Alternative 2. Therefore, public access would not result in a significant impact on transportation routes near B-20. The withdrawal land to the east of unpaved East County Road would remain open for public transit. There would be no change to the LOS in or near B-20. The closure of the B-20 Access Road, combined with the expansion of the B-20 range, would result in minimal impacts to transportation because the Navy is the only currently authorized user of the road, and because no trips were counted during data collection for the Transportation Study (see Supporting Study: Transportation/Traffic Study for the Fallon Range Training Complex, available at https://frtcmodernization.com).

Rights of Way: Implementation of Alternative 3 would not close access to any ROWs on B-20. The two ROWs held by the Navy would remain under Navy control.

Road Network: Implementation of Alternative 3 would not result in significant impacts on transportation or traffic patterns near B-20 as discussed under Alternatives 1 and 2.

Transit Network: Implementation of Alternative 3 would not result in any impact on rail corridors on B-20 since there are no rail corridors located within B-20 as discussed under Alternatives 1 and 2.

Construction

No new public roads would be constructed under Alternative 3 in or around the B-20 range. Therefore, there would be no significant impacts on transportation as a result of construction under Alternative 3.

3.5.3.4.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Under Alternative 3, the land requested for withdrawal would decrease by 77,010 acres compared to Alternatives 1 and 2, with the creation of the Special Land Management Overlay. With the shift of B-17, the BLM would create a Special Land Management Overlay along the western side of State Route 839 south of Highway 50 and around Earthquake Fault Road to the east of B-17. The requested withdrawal and proposed acquisition would total approximately 247,762 acres (see Table 2-7) and would increase the total size of the DVTA to 325,322 acres. The BLM would continue managing the remaining WSA portions of Clan Alpine WSA, Job Peak WSA, and Stillwater Range WSAs as WSAs. These new lands would not impact established ground transportation routes in the DVTA withdrawal lands. Therefore,

there would be no significant impact on transportation as a result of the withdrawal and acquisition under Alternative 3.

Training Activities

Training activities in the DVTA would be the same as described under Alternatives 1 and 2, and would therefore have no significant impact on transportation under Alternative 3.

Public Accessibility

Public accessibility in the DVTA would be the same as described under Alternative 2. Geothermal development west of State Route 121 would be authorized in the DVTA, with Navy-proposed design features, and managed under the Geothermal Steam Act of 1970 by the BLM where compatible. The BLM Special Land Management Overlay would be open to the public and allow for public uses through the BLM. The Special Land Management Overlay would be created via the withdrawal legislation and would require that BLM obtain approval from the Navy for installation of any fixed or mobile equipment used for transmitting and receiving radio signals, and consult with the Navy for any uses in this area requiring a permit from BLM.

Rights of Way: Implementation of Alternative 3 would not close any of the ROWs on the DVTA held by NDOT. The Navy is currently proposing to expand the ROW only on the west side of the current transmission corridor (close to the current line as possible) to be a 90-foot permanent and 300-foot temporary ROW for development along the west side of State Route 121.

Road Network: Alternative 3 would have similar impacts as Alternatives 1 and 2 to transportation near the DVTA. The primary difference would be that the area west of State Route 839 would be available for public access. Since State Route 121 would remain open to the public the LOS rating of this road would not change.

Transit Network: Implementation of Alternative 3 would not result in any impact on rail corridors on the DVTA since there are no rail corridors located within the DVTA as discussed under Alternatives 1 and 2.

Construction

As described under Alternatives 1 and 2, no road construction is planned in the DVTA under Alternative 3. The Navy would develop three Electronic Warfare sites under Alternative 3: North Job Peak, 11-Mile Canyon, and Fairview Low as described in Alternatives 1 and 2. Existing trails and roads would transport construction materials to the new Electronic Warfare sites, as well as provide access for servicing. Therefore, construction activities would have no significant impact on transportation near the DVTA.

3.5.3.4.5 Summary of Effects and Conclusions

Implementation of Alternative 3 would result in significant impacts on transportation. The potential changes in LOS and time in transit due to the potential closing and relocation of part of State Route 361 under Alternative 3 are not expected to be appreciable. The B-16 range would experience an impact on traffic patterns due to the closure of Sand Canyon Road, and B-20 would experience loss of access via customary/familiar transit routes impacts due to the closure of the B-20 access road to the public. Alternative 3 would have no transportation and access impacts on the DVTA. For any major transportation route that underlies restricted area airspace, the Nevada Department of Transportation would need to coordinate with the Navy prior to development of that corridor to ensure compatibility with military training activities. Alternative 3 would impact transportation and traffic through restricted access to range areas, road and OHV area closures, re-routing of State Route 361, and loss of access via

customary/familiar transit routes. Therefore, implementation of Alternative 3 would result in significant impacts to transportation.

3.5.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.5.3.5.1 Proposed Management Practices

Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, designing, permitting, and constructing any realignment of State Route 839 or 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839 or 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 or 361 unless and until any such new route has been completed and made available to the public.

The Navy would purchase and pay for relocation of that portion of the pipeline that would need to be relocated. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

Due to the Navy's usage of Lone Tree Road, the Navy is proposing, for public safety purposes, to reconstruct and maintain Lone Tree Road. The Navy would seek funding from Congress to pay for reconstruction of the road through the military construction program. The Navy will submit a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. Funds received would be used by the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, to plan, design, and construct the road segment. The Navy would coordinate with NDOT during each of these phases. Such proposed rerouting would be subject to follow-on NEPA analysis. NEPA documentation would be completed by the Federal Highway Administration prior to any road construction. The Navy would support, fund, and participate in any such NEPA analysis.

3.5.3.5.2 Proposed Monitoring

Monitoring measures would be warranted for transportation based on the analysis presented in Section 3.5.3 (Environmental Consequences). The Navy proposes to continue to work with ROW users to review potentially impacted county-designated access roads and other potential ROWs in the lands requested for withdrawal and proposed for acquisition and to look for appropriate replacement routes if appropriate and applicable.

3.5.3.5.3 Proposed Mitigation

No mitigation measures would be warranted for transportation based on the analysis presented in Section 3.5.3 (Environmental Consequences).

3.5.3.6 Summary of Effects and Conclusions

Table 3.5-12 summarizes the effects of the alternatives on transportation.

Table 3.5-12: Summary of Effects and Conclusions on Transportation

Summary of Effects and National Environmental Policy Act Determinations	
No Action Alternative	
Summary	• No changes to existing transportation routes would occur under the No Action Alternative. • The reduced level of training likely under the No Action Alternative would reduce the number of permanent residents, transient students, requirements for goods and service in the local area, and the overall traffic count. • Primarily the No Action Alternative would drastically curtail the Navy's ability to fulfill its Congressionally mandated duties to prepare Naval aviators and Special Warfare personnel for deployment in support of National Security objectives. • Implementation of the No Action Alternative would not result in changes to transportation routes or travel patterns, but may result in reduced traffic volumes.
Impact Conclusion	The No Action Alternative would have no significant impact on transportation.
Alternative 1	
Summary	• Implementation of Alternative 1 would result in significant impacts on transportation in the areas surrounding B-17 due to the potential closure and rerouting of State Route 839. Travel distance and travel time would both increase by varying degrees depending on which route is traversed. • Alternative 1 would also result in significant impacts on transportation access (via state/county ROWs/roads) in the areas closed to the public within the expanded FRTC. Site-specific NEPA analysis would need to occur at a later date for the potential relocations of State Route 839 and the Paiute Pipeline as additional infrastructure improvements after the implementation of Alternative 1. • The roads near B-16 would experience a small impact on traffic patterns due to the closure of Sand Canyon Road. • Alternative 1 would have no transportation or access impacts on the DVTA. • B-20 would experience minor impacts due to the closure of the B-20 Access Road (which is currently only authorized for Navy use). Implementation of Alternative 1 would also impact access to recreational areas that provide pedestrian hiking and biking trails in all ranges except the DVTA as discussed in Section 3.12 (Recreation).
Impact Conclusion	• Alternative 1 would result in a significant impact on transportation.

Table 3.5-12: Summary of Effects and Conclusions on Transportation (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 2	
Summary	• Implementation of Alternative 2 would result in significant impacts on transportation due to the potential closure and rerouting of State Route 839 and loss of access via customary/familiar transit routes. Travel distance and travel time would both increase by varying degrees depending on which route is traversed. • The roads near B-16 would experience an impact on traffic patterns due to the closure of Sand Canyon Road. • Alternative 2 would have minimal transportation and access impacts on B-20 due to closure of B-20 access road (known locally as Pole Line Road -which is only authorized for Navy use). Implementation of Alternative 2 would have similar impacts on transportation and traffic compared to Alternative 1. • However, Alternative 2 would allow for hunting on B-17 for bighorn sheep, allowing some routes to remain open for parts of the year, and would allow for geothermal mining and salable mining on the DVTA. The Navy is currently proposing to expand the ROW only on the west side of the current transmission corridor (close to the current line as possible) to be a 90-foot permanent and 300-foot temporary ROW for development along the west side of State Route 121.
Impact Conclusion	Alternative 2 would result in a significant impact on transportation.
Alternative 3	
Summary	• Implementation of Alternative 3 would not result in changes in LOS and time in transit due to the potential closing and relocation of part of State Route 361. • The B-16 range would experience an impact on traffic patterns due to the closure of Sand Canyon Road. The shift of the B-17 range would impact more of Nye County than would be impacted under Alternative 1 or 2. B-20 would experience loss of access via customary/familiar transit routes impacts due to the closure of Pole Line Road. • Alternative 3 would have no transportation or access impacts on the DVTA. The Navy is currently proposing to expand the ROW only on the west side of the current transmission corridor (close to the current line as possible) to be a 90-foot permanent and 300-foot temporary ROW for development along the west side of State Route 121. • Alternative 3 would impact transportation and traffic through restricted access to range areas, road and OHV area closures, and potential re-routing of State Route 361.
Impact Conclusion	Alternative 3 would result in significant impacts on transportation.

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3.6 Airspace

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.6 Airspace

This discussion of airspace encompasses the current uses and controls of the Fallon Range Training Complex (FRTC) airspace. The Federal Aviation Administration (FAA) manages all airspace within the United States (U.S.) and the U.S. territories. Airspace is defined in vertical and horizontal dimensions and also by time and is considered to be a finite national resource that must be managed for the benefit of all aviation sectors including commercial, general, and the military.

3.6.1 Methodology

This discussion of airspace includes all of the existing Special Use Airspace (SUA) within the FRTC, as well as the proposed changes to the SUA that would be the subject of the final FAA rulemaking, subsequent to and depending upon any decision(s) ultimately made about the U.S. Department of the Navy's (Navy) Proposed Action.

3.6.1.1 Region of Influence

The region of influence is within the FAA's Western Pacific Region. Oakland and Salt Lake Air Route Traffic Control Centers (ARTCC) are the controlling authorities for the FRTC's designated Air Traffic Control Assigned Airspace (ATCAA), restricted areas, and Military Operations Areas (MOA). Management of FRTC SUA is delegated to Naval Air Station (NAS) Fallon Desert Control, which is responsible for issuing airspace clearances. The ARTCCs activate SUA (in this case, for military use) on a daily basis as defined by FAA schedule and 7400.10 (U.S. Department of Transportation, 2018) series. On those occasions when activation is required outside of established hours, SUA is activated by issuing a notice to airmen. When the SUA is not active, the SUA returns to the national airspace system. Figure 3.6-1 displays the current FRTC airspace.

3.6.1.2 Regulatory Framework

The Office of the Chief of Naval Operations Instruction 3710.7 (series), *Naval Aviation Training and Operating Procedure Standardization* (U.S. Department of the Navy, 2016), establishes specific aviation and airspace management procedures and policies for the Navy to use. The Commander, Naval Air Forces Manual 3710.7 (series), *NATOPS General Flight and Operating Instructions* (Forces, 2016) issues detailed policy and procedure guidance. Marine Corps Order 3500.14, *Aviation Training and Readiness (T&R) Program* (Commandant of the Marine Corps, 2005), and Navy Marine Corps 3500.14C, *Aviation Training and Readiness (T&R) Program Manual* (Commandant of the Marine Corps, 2011) provides applicable Marine Corps aviation training and airspace requirements. The Naval Aviation Warfighting Development Center (NAWDC) and the FRTC have missions to train all Navy and Marine Corps aviation units. Marine Corps aviation units train under Naval Aviation Training guidance, but they also must comply with Marine Corps specific guidance. The FAA's Aeronautical Information Services serves as the FAA's aeronautical charting authority for the development, publication, and dissemination of aeronautical charts and products identified for military and other governmental activities in accordance with and other applicable regulations and orders. FAA regulations that apply to special use airspace management include specific FAA Orders:

- FAA Order 1050.1F (issued July 16, 2015), Environmental Impacts: Policies and Procedures (Federal Aviation Administration, 2015)
- FAA Job Order 7400.2L (issued April 7, 2017), Procedures for Handling Airspace Matters (U.S. Department of Transportation Federal Aviation Administration, 2017)
- FAA Job Order 7400.10 (issued February 16, 2018), Special Use Airspace

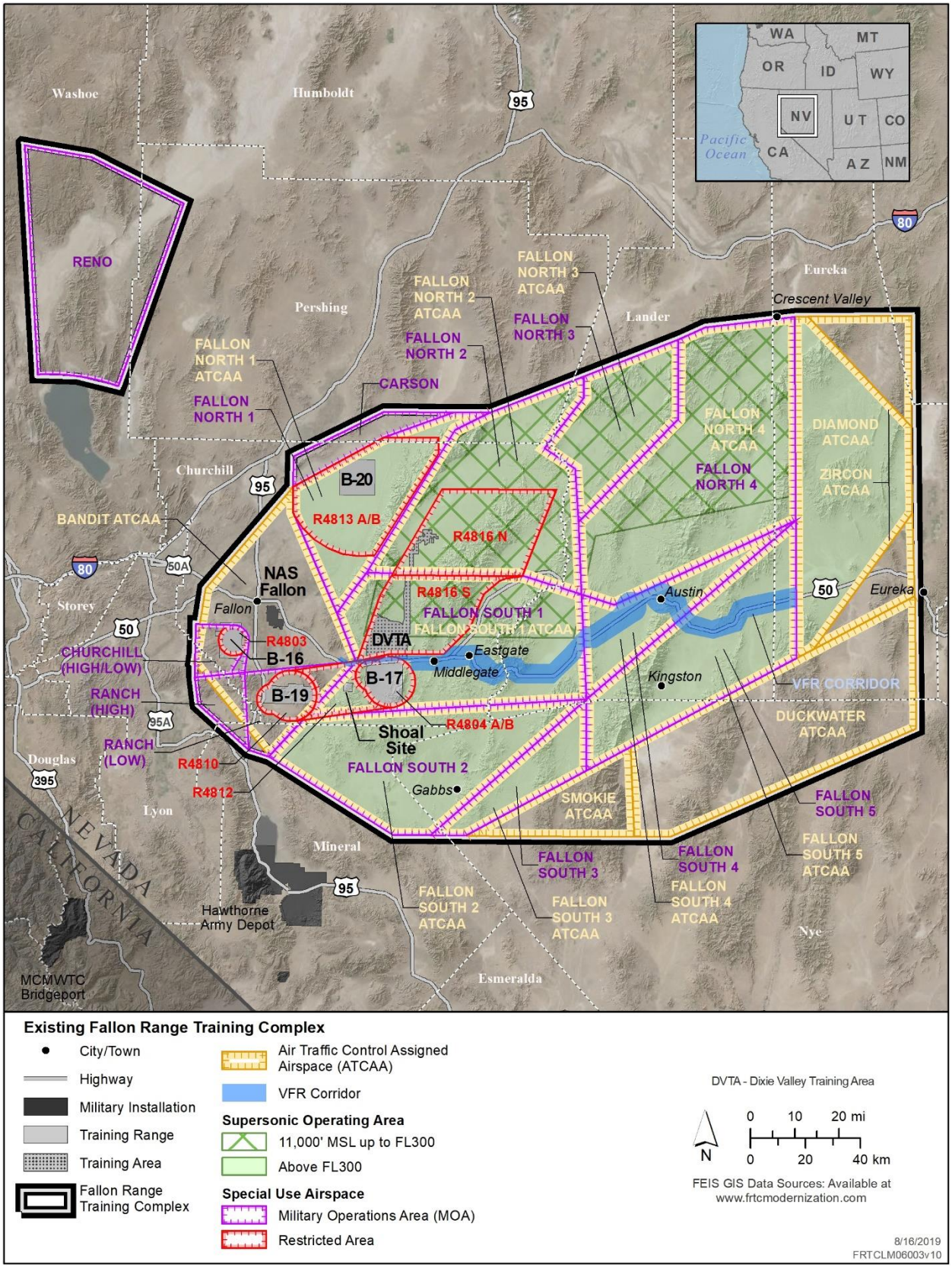


Figure 3.6-1: Existing Fallon Range Training Complex

Additionally, the Aeronautical Information Services catalogs both the affected airports underneath the FRTC SUA and those in regional proximity. As a component of the overall transportation system, the FAA-managed National Airspace System consists of any or all of the following: all classes of airspace, air routes, special use airspace, airspace management responsibilities, and the actual airspace users. It can be viewed on a local or regional scale. This Environmental Impact Statement addresses:

- Airspace components
- SUA
- Air routes
- Airspace management
- Local and regional airports

3.6.1.3 Approach to Analysis

The Navy analyzed impacts on air traffic and airspace management by considering the current FRTC airspace as well as the proposed changes to the FRTC airspace that would occur in conjunction with the overall proposed range modernization. The Supporting Study: Airspace and Air Traffic Study (available at https://frtcmodernization.com), considered 12 civil and private recognized airfields that are under or adjacent to the FRTC airspace. Additionally, it examined the 19 selected regional civil and private airfields, and the five major military and commercial regional airfields, that may contribute civil and commercial traffic that both utilizes FRTC airspace, or are impacted by the activation of SUA in the FRTC. The overall approach to analysis includes evaluating changes to FRTC airspace use based upon the anticipated FAA-approved final realignment of internal FRTC SUA and the overall configuration. Specific airspace impact analysis includes the following evaluations:

- Impacts of the reconfigured Restricted Area airspace over the final bombing range geography at Bravo (B)-16, B 17, and B-20 on general aviation
- Impacts to general aviation with any change in existing commercial and public use of FRTC airspace (to include emergency services as well as access to the Visual Flight Rules [VFR] Corridor)
- Impacts to general aviation and airfield operations at civil and private airports within the region of influence

Supporting airspace analysis, in the Supporting Study: Airspace and Air Traffic Study (available at https://frtcmodernization.com), examined the FRTC impact on FAA Air Traffic Control utilizing high altitude Jet (J) routes and Q-routes (routes available for use by area navigation equipped aircraft between 18,000 feet mean sea level [MSL] and Flight Level [FL] 450 inclusive), and low altitude T-routes (routes available for use by area navigation equipped aircraft from 1,200 feet above the surface [or in some instances higher], up to but not including 18,000 feet MSL) and V-routes (low-altitude airways defined in straight-line segments, each of which is based on a straight line between either two Very High Frequency omnidirectional range stations, or an omnidirectional range and an omnidirectional range intersection). The Military Training Routes that transit the FRTC were also considered in the analysis of the Modernization Environmental Impact Statement action alternatives. This section will discuss potential direct and indirect effects to existing airspace in and adjacent to the FRTC's region of influence.

The FAA, a cooperating agency for this Environmental Impact Statement, follows policies and procedures to ensure their compliance with the National Environmental Policy Act. The FAA has also identified numerous categories that it examines with respect to environmental impacts for most of its actions and will apply to its final rulemaking as required under Code of Federal Regulations (CFR),

Title 14, Chapter 1, Subchapter B, part 11, for the modernized FRTC SUA. The Department of Transportation Act of 1966 (set forth in 23 United States Code section 138 and 49 United States Code section 303), Section 4(f) prohibits the Federal Transportation Agency and other U.S. Department of Transportation agencies from using land from publicly owned parks, recreation areas (including recreational trails), wildlife and water fowl refuges, or public and private historic properties, unless there is no feasible and prudent alternative to that use and the action includes all possible planning to minimize harm to the property resulting from such a use. Designation of airspace for military flight operations is exempt from section 4(f). The National Defense Authorization Act for Fiscal Year 1998 (Public Law 105-85) provided that "[n]o military flight operations (including a military training flight), or designation of airspace for such an operation, may be treated as a transportation program or project for purposes of section 303(c) of title 49, United States Code." This exemption is consistent within the FRTC for the following FAA Impact Categories as defined in FAA Order 1050.1:

- transportation
- compatible land use
- historical sites and buildings
- cultural areas and specific cultural sites

Under the U.S. Department of Defense Reauthorization, P.L. 105-85, Div. A, Title X, Section 1079, Nov. 18, 1997, 111 Stat. 1916, Special use airspace actions are exempt from Section 4(f) of the Department of Transportation Act as avoidance alternatives result in unacceptable and severe operational and safety concerns. Section 3.5 (Transportation) addresses amplifying information pertaining to Section 4(f).

3.6.1.4 Public Concerns

Issues raised in regards to airspace were few. Public concerns were consistent with previously expressed concerns and addressed livelihood and quality of life such as increased noise in areas not previously affected (addressed in Section 3.7, Noise), how the changes in airspace configuration would affect civilian use of airspace, and continued operations concerning airfields underneath or adjacent to FRTC airspace. Churchill County expressed concern that the proposed changes may limit future development or expansion of the Fallon Municipal Airport. The Supporting Study: Airspace and Air Traffic Study (available at: https://frtcmodernization.com), details potential modernization influences on Fallon Municipal Airport. The Toiyabe Chapter of the Sierra Club presented general concerns of adverse impacts of airspace use and restrictions on commercial and general aviation, and rural airports. A specific concern was about the potential impacts from the floors of the eastern MOAs on residents and commercial interests. The Aircraft Owners and Pilots Association offered questions and suggestions on general aviation Instrument Flight Rules (IFR) flight plans, a new north-south VFR route through the FRTC, the effects on general aviation of the proposed Reno MOA's floor altitude, and the possible creation of Global Positioning System (GPS) VFR waypoints (to modernize the VFR corridor).

Additionally, Nye County Board of Commissions noted that military airspace operations would have the potential to directly impact operation of Nye County's Federal Aviation Administration-supported National Plan of Integrated Airport Systems (NPIAS) airport at Gabbs. NPIAS development is dependent upon the availability of funding sources and the adequacy of such funding to meet needs varies with type of airport and level of activity. Gabbs is currently categorized as having a Basic role in the NPIAS, with a five-year NPIAS development estimate cost of $770,000. Eureka County also identified concerns to local operations, and was concerned that the Eureka County airport operations remain unaffected and that the County can continue to use the airports for the attraction and retention of business and

industry, for public safety (firefighting) and medical emergencies, to serve commercial aviation and private pilots, and to support county agriculture and mining industries. The county questioned whether the proposed eastern MOAs would preclude use of the airport at any time, and to what, if any, extent would the active FRTC airspace in any way cause delay to VFR or IFR traffic to the Eureka County airports. Correspondingly, the county questioned if the potential modernization could in any way cause delay to VFR or IFR traffic between major medical facilities and Eureka County including Greater Reno, Las Vegas, Elko, or Salt Lake City areas.

For further information regarding comments received during the public scoping process or public comment process on the Draft EIS, please refer to Section 1.9.1 (Public Scoping), Section 1.10 (Draft Environmental Impact Statement Public Participation: Comment Themes), Appendix E (Public Participation), and Appendix F (Public Comments and Responses).

3.6.2 Affected Environment

The FRTC airspace encompasses SUA and influences air traffic into, out of, and through that airspace. Air traffic control supports both military and civilian air activity throughout the SUA, as well as local and regional civil airfields.

3.6.2.1 Special Use Airspace

SUA refers to airspace areas with "defined dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities" (definition from JO 7110.65W Glossary). The majority of SUA is established for military flight activities and may be used for commercial or general aviation when not reserved for military activities. The FRTC uses multiple types of SUA.

A MOA is airspace designated outside of Class A airspace, used to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic the location of these activities. General aviation aircraft flying using visual flight rules may fly through an active MOA during military training operations; however, for safety considerations, most VFR pilots choose to avoid flying through activated MOAs. An ATCAA area is an airspace of defined vertical/lateral limits assigned by FAA Air Traffic Control. ATCAA areas are established for providing air traffic segregation between the specified activities being conducted within the assigned airspace and other IFR air traffic.

The one type of SUA of particular relevance to the FRTC is a Restricted Area. Restricted Areas separate activities considered hazardous to other aircraft. 14 CFR part 73 defines them as follows:

> "A restricted area is airspace designated under Part 73 within which the flight of aircraft, while not wholly prohibited, is subject to restriction."

Civilian aircraft are not authorized within active restricted areas. 14 CFR part 73 states that: "No person may operate an aircraft within a restricted area between the designated altitudes and during the time of designation, unless he has the advance permission of the controlling agency." At the FRTC, the scheduling authority is NAWDC, which is also the FAA-defined using agency, and Oakland and Salt Lake City ARTCC are the FAA controlling authorities. NAWDC schedules the airspace, Desert Control manages traffic into and out of the FRTC, and the Range Operations Center ensures safety in the individual bombing ranges and training areas within the FRTC. The FRTC contains nine restricted areas, with six aligned over the four bombing ranges and three for dynamic events not associated with air-to-ground munitions, primarily over the Dixie Valley Training Area (DVTA). FRTC-restricted airspace complies with the FAA requirement that a restricted area floor may be established to the surface combined with Navy

requirements that the Navy owns, leases, or by agreement, controls the underlying surface, as well as ensure that the restricted airspace contour contains all activities conducted therein. The FRTC also currently contains 15 MOAs, 15 ATCAAs, and 2 supersonic operating areas (Table 3.6-1).

Table 3.6-1: Fallon Range Training Complex Special Use Airspace

Airspace	Description Notes	Floor	Ceiling	Scheduling/ Controlling Authority
Restricted Areas (R)				
R-4803	3 NM radius circle	Surface	Up to 17,999 feet MSL	NAWDC/Oakland ARTCC
R-4804A[1]	5 NM and 3 NM radius circles	Surface		
R-4804B	5 NM and 3 NM radius circles	18,000 feet MSL	50,000 feet MSL (as coordinated)	
R-4810	5 NM and 3 NM radius circles	Surface	Up to 17,000 feet MSL	
R-4812[2]	5 NM bounded on the east by R-4804 and on the west by R-4810	Surface	Up to 17,999 feet MSL	NAWDC/Oakland ARTCC
R-4813A	15 NM radius circle	Surface		
R-4813B	15 NM radius circle	18,000 feet MSL	50,000 feet MSL (as coordinated)	
R-4816N	Northern half of the DVTA	1,500 feet AGL	Up to 17,999 feet MSL	
R-4816S	1 NM north of U.S. Hwy 50	500 feet AGL		
Military Operations Areas (MOA)				
Fallon North 1	Excluding that airspace within R-4813A when active, and those portions of the Fallon and Stillwater National Wildlife Refuge areas below 3,000 feet AGL	100 feet AGL	Up to 17,999 feet MSL	NAWDC/Oakland ARTCC
Fallon North 2				
Fallon North 3				NAWDC/Salt Lake ARTCC
Fallon North 4		200 feet AGL		
Fallon South 1		100 feet AGL		NAWDC/Oakland ARTCC
Fallon South 2				
Fallon South 3				
Fallon South 4[3]		200 feet AGL		NAWDC/Salt Lake ARTCC
Fallon South 5	Excluding that airspace 2 NM either side of U.S. Route 50 between 2,000 feet AGL and 10,500 feet MSL			

Table 3.6-1: Fallon Range Training Complex Special Use Airspace (continued)

Airspace	Description Notes	Floor	Ceiling	Scheduling/ Controlling Authority
Churchill High	3 NM centered to the point of beginning excluding that airspace within R-4803	9,000 feet MSL	Up to 17,999 feet MSL	NAWDC/Oakland ARTCC
Churchill Low		500 feet AGL	9,000 feet MSL	
Ranch High	Excluding that airspace in R-4810 when active	9,000 feet MSL	13,000 feet MSL	
Ranch Low	Excluding that airspace in R-4810 when active	500 feet AGL	9,000 feet MSL	
Carson		500 feet AGL	Up to 17,999 feet MSL	
Reno		13,000 feet MSL	Up to 17,999 feet MSL	
Air Traffic Control Assigned Airspace (ATCAA)				
Bandit		18,000 feet MSL	As coordinated [5]	NAWDC/Oakland ARTCC
Fallon North 1[4]				
Fallon North 2[4]				
Fallon North 3[4]				NAWDC/Salt Lake City ARTCC
Fallon North 4[4]				
Fallon South 1[4]				NAWDC/Oakland ARTCC
Fallon South 2[4]				
Fallon South 3[4]				
Fallon South 4[4]				NAWDC/Salt Lake City ARTCC
Fallon South 5[4]				
Reno[4]			31,000 feet MSL	NAWDC/Salt Lake City ARTCC
Smokie			25,000 feet MSL [5]	
Diamond			28,000 feet MSL [5]	
Duckwater		18,000 feet MSL	25,000 feet MSL [5]	NAWDC/Salt Lake City ARTCC
Zircon			As coordinated [5]	
Supersonic Operating Areas				
Area A		30,000 feet MSL	50,000 feet MSL or as assigned	NAWDC/Oakland/ Salt Lake City ARTCC
Area B		11,000 feet MSL	30,000 feet MSL	

Table 3.6-1: Fallon Range Training Complex Special Use Airspace (continued)

Airspace	Description Notes	Floor	Ceiling	Scheduling/ Controlling Authority

[1] Surface to 17,999 feet MSL excluding 2,000 feet AGL up to but not including 8,500 feet MSL, north of and within 1 NM of U.S. Route 50 between the intersection of U.S. Route 50 with W118-26-00 and W118-08-00.
[2] Surface to 17,999 feet MSL excluding that portion from 2,000 feet AGL up to 8,500 feet MSL that lies north of and 1 NM from U.S. Route 50, between the intersections of U.S. Route 50 with W118-25-33 and W118-07-33.
[3] Airspace encompassed by a 3 NM radius centered on the town of Austin, NV; below 2,000 feet AGL. That airspace encompassed by a 3 NM radius centered on Austin Airport, NV. That airspace 2 NM either side of State Route 722 to the town of Austin, then 2 NM either side of U.S. Route 50 to the eastern boundary of the Fallon South 4 MOA between 2,000 feet AGL and 10,500 feet MSL.
[4] ATCAA overlays a MOA with the same name.
[5] All ATCAAs can go as high as 50,000 feet MSL or as coordinated.
Notes: AGL = above ground level, ARTCC = Air Route Traffic Control Center, FL = Flight Level, Hwy = Highway, MSL = mean sea level, NM = nautical miles, NAWDC = Naval Aviation Warfighting Development Center, U.S. = United States, DVTA = Dixie Valley Training Area

3.6.2.2 Fallon Range Training Complex Air Traffic

Air traffic refers to movements of aircraft through airspace. All airspace, including the FRTC, over the United States is considered National Airspace. Through the FAA, the U.S. Department of Transportation has established safety and security factors that mandate the judicious regulation of airspace use and air traffic control. Accordingly, the FAA distributes and administers regulations applicable to all aircraft. These regulations explain federally permissible uses of designated airspace and define the FAA obligations to control that use. The Navy controls all air traffic throughout the FRTC SUA in accordance with FAA regulations, as the airspace within and adjacent to the FRTC supports both military and non-military (private, service, and commercial) air traffic.

3.6.2.2.1 Air Traffic Control

FAA regulations accommodate the various categories of aviation (military, commercial, or general air travel) within the regulated National Airspace System. The regulatory scheme for airspace and Air Traffic Control varies from highly controlled to uncontrolled. The controlled airspace structure of the National Airspace System consists of three strata of flights under Instrument Flight Rules:

- Victor Airways are low-altitude airways that can be navigated using navigation aids and have names that start with the letter V. They are pre-determined routes that cover altitudes from approximately 1,200 feet above ground level (AGL) up to, but not including 18,000 feet above MSL.
- Jet Routes are high-altitude airways that have names that start with the letter J. These routes run from 18,000 feet to 45,000 feet MSL and are defined by Flight Levels. A Flight Level is the measured altitude with the last two digits omitted, computed at a standard sea-level pressure setting of 29.92 inches of Mercury, and expressed as FL180 to FL450.
- The FAA is replacing high (J) and low (V) altitude routes that rely on ground-based navigation aids with area navigation routes for use by aircraft with area navigation capability. Q-Routes can be flown using positioning from either satellite signals or Distance Measuring Equipment in case of a GPS outage. Q-Routes are replacing many Jet routes in high-altitude airspace (18,000 to

45,000 feet). T-Routes can be flown only with satellite navigation systems and are replacing many Victor routes in airspace from 1,200 feet above the surface to 18,000 feet.

- Flights above 45,000 feet MSL (FL450) are distinctive events, considered random operations and assigned by the FAA as needed.

Examples of highly controlled air traffic situations are flights near airports, where aircraft are in a critical phase of flight, either take-off or landing; and flights on high or low-altitude airways. Less controlled situations include flight under VFR or flight outside of U.S.-controlled airspace. The National Airspace System that includes the FRTC contains various categories of controlled airspace.

3.6.2.2.2 Military Air Traffic

FRTC airspace, both currently, and under any of the Modernization Environmental Impact Statement alternatives, is generally active from 7 a.m. to 7 p.m., Monday through Friday. As noted in Section 1.3 (Background), the FRTC airspace overlays approximately 10.4 million acres of land and consists of the nine restricted areas, 15 MOAs, 15 ATCAAs, two supersonic operating areas, and a civilian VFR corridor.

NAS Fallon Desert Control periodically reviews the Standard Operating Procedures to ensure safety in FRTC airspace. Oakland and Salt Lake ARTCCs are the controlling authorities for FRTC-assigned restricted areas, MOAs, and ATCAAs. NAWDC is the controlling authority for the ground ranges and all training airspace within the FRTC. NAS Fallon Desert Control delegates management to NAWDC of all SUA within the contiguous FTRTC and is responsible for issuing airspace clearances. Oakland Center issues airspace clearance for the Reno MOA.

NAWDC is the approved, designated range complex authority in charge of scheduling access to all areas of the FRTC. Aircrew and Range Operations Center personnel are jointly responsible for air safety. Specific safety procedures are defined by NAWDC and are applicable for each mission conducting weapons training in the airspace and onto the ranges of the FRTC. They include the following:

- For all weapons drops, a fly-by of the target area by one aircraft to ensure the target area is clear, as well as to clearly identify the intended target(s).
- During the clearing pass for an event, the inflight Range Safety Officer must ensure that nonparticipating aircraft, ground vehicles, livestock, and big game wildlife are clear of the surrounding airspace and the intended target.
- Aircrews operating within MOAs and ATCAAs are responsible for abiding by the spatial restrictions specified by Desert Control.

The FRTC airspace is managed by the Navy under a Letter of Agreement between NAWDC and the FAA. Two-way radio communications between Navy aircraft and Air Traffic Control are required at all times. Additionally, Navy aircraft must remain under Visual Meteorological Conditions at all times within the FRTC. Military Assumes Responsibility for Separation of Aircraft (MARSA) is a military command privilege utilized by the FRTC for IFR operations. Individual units or pilots cannot invoke MARSA. When it is authorized, NAWDC, through the Letter of Agreement, ensures that its implementation and terms of use are documented and coordinated with the FAA, as it has jurisdiction over the FRTC. The terms of use assign responsibility and provide for separation among participating aircraft at all times. The FAA responsibility concerning the use of MARSA is to provide separation between military aircraft engaged in MARSA operations and other nonparticipating IFR aircraft.

3.6.2.2.3 Civilian Air Traffic

Civilian air traffic in the region of influence includes scheduled commercial air carrier services, general aviation flying (agriculture/ranching, pilot training, and sightseeing), as well as air transport services. The creation of a VFR corridor allows civilian traffic a quicker transit through FRTC airspace while avoiding military operations. The corridor facilitates civilian aircraft transit through the FRTC SUA, thus ensuring aircraft can avoid delays associated with flying outside and around the FRTC airspace. The current civilian VFR corridor (Figure 3.6-1) follows U.S. Route 50 from Sand Mountain to Austin, Nevada,[1] and is a permanent FRTC feature sustaining general aviation's VFR east-west transit of the FRTC.

As stated above, most SUA is established for military or government use, though civilian VFR aircraft can transit MOAs at any time; however, when restricted areas are not in active use, civilian VFR air traffic may be able to transit through this airspace. Close coordination between military and civilian air traffic control facilities enables safe, effective, real-time use of the FRTC SUA. This procedure allows VFR civilian aircraft to transit SUA scheduled for military use until the scheduled military aircraft is actually en route to that area. When restricted areas are actively being used, the established civilian VFR corridor allows small commercial and private aircraft transit through the FRTC airspace, at any time.

Due to the expansive, hazardous, and persistent use of the FRTC airspace by the Navy, IFR traffic (which is predominantly commercial in nature) is typically limited to non-operating hours only. The FAA and Desert Control work closely throughout the day to coordinate airspace, allowing overflight of the FRTC airspace during normal operating hours, typically above 30,000 feet, when military operations allow.

Because the towns outside of Fallon that lie under the FRTC airspace are remote, access to medical evacuation (MEDEVAC) and fire suppression air service must be continually available. All emergency flights, both helicopter and fixed-wing, are given priority transit through the FRTC at all times. Desert Control ensures that real-time adjustments to airspace occur to expedite emergency aircraft and deconflict all Navy training events along the required routes or in the vicinity of fire suppression activities.

3.6.2.2.4 Local and Regional Airports

There are several registered small airports within or near the existing and proposed FRTC airspace that have been in continued, compatible use with FRTC operations since the establishment of Fallon as a Naval Aviation training complex. These airports (Table 3.6-2 and Figure 3.6-2), as well as larger regional and international airports outside of the FRTC SUA, are substantial contributors to the commercial traffic flow that flies adjacent to and when available through the FRTC. The Navy performed a supporting Airspace and Airfield Study that identified 36 selected airfields in the regional vicinity of the FRTC to determine any effects on airspace or airfield access that would need consideration in the proposed modernization alternatives. Any associated restrictions to future development and projected flight procedures for general aviation airfields would be enacted by the FAA, with input from NAWDC.

[1] Altitude restrictions for the civilian VFR corridor are from 2,000 feet above ground level (AGL) to 8,500 feet mean sea level (MSL) from Sand Mountain to Fairview Peak and then from 2,000 feet AGL to 10,500 feet MSL east from Fairview Peak until exiting the FRTC Airspace. From Sand Mountain to Fairview Peak, the corridor extends 1 mile north of Hwy 50. From Fairview Peak to State Hwy 722 at East Gate, the width increases to 1 miles north and 2 miles (3.2 kilometers) south. At East Gate, the corridor widens to 2 miles on each side of U.S. Route 50.

Table 3.6-2: Federal Aviation Administration Registered Airfields Under or Near the Fallon Range Training Complex Special Use Airspace

Name (Location Identification)	Location	Remarks	Runway Data	Operations Tempo
Austin (TMT)	70 miles east-northeast of Fallon, Nevada	Bureau of Land Management/Public Use	Asphalt – 1/19 6000’	Average 27/week, 57% transient, 36% local GA, 7% military
Battle Mountain (BAM)	127 miles northeast of Fallon, Nevada	Publicly Owned	Asphalt – 3/21 - 7300’, 12/30 7299’	Average 80/week, 43% local GA, 30% transient GA, 19% air taxi, 9% military
Burning Man Project(88NV)	92 miles north-northwest of Fallon, Nevada	Bureau of Land Management/ Special Recreation Permit	Dirt – 5R/23L 6272’, 5L/32R 6000’	N/A - Preregistration required for use. Detailed info at: http://airport.burningman.org
Black Rock Desert High Altitude Rocket Launch Area	97 miles north-northwest of Fallon, Nevada	Bureau of Land Management/ Public launches under terms of BLM permit	N/A	http://www.aeropac.org/blackrock.html
Crescent Valley (U74)	132 miles northeast of Fallon, Nevada	Bureau of Land Management/Public Use	Dirt - 5/23 5424’, 14/32 4650’	50/year, 100% transient GA
Elko Regional Airport (EKO)	181 miles northeast of Fallon, Nevada	Publicly Owned	Asphalt – 6/24 7454’, 12/30 3015’	Average 56/day. 48% transient GA, 23% local GA, 18% air taxi, 11% commercial, <1% military
Ely Airport (ELY)	206 miles east of Fallon, Nevada	Publicly Owned	Asphalt – 18/36 6018’, 12/30 4825’	Average 44/week, 17% local GA, 35% transient GA, 38% air taxi, 10% military
Empire (18NV)	82 miles north-northwest of Fallon, Nevada	Bureau of Land Management/ Leased for Private Use	Dirt – 18/36 3770’, 7/25 3170’	Average 20/month, 62% local GA, 38% transient GA
Eureka Airport (05U)	151 miles east of Fallon, Nevada	County Owned/Public Use	Asphalt – 18/36 5940’	Average 38/week, 70% transient, 30% local GA
Darrow Field Airport (26NV)	6 miles southwest of Fallon, Nevada	Private Use Visual Flight Rules	Asphalt – 16/34 2483’	N/A
Dayton Valley Airpark (A34)	53 miles west-southwest of Fallon, Nevada	Privately Owned/Allows Public Use	Asphalt – 5/23 5343’	Average 53/day, 33% local GA, 48% transient GA, 18% military
Derby Field (LOL)	50 miles north of Fallon, Nevada	County Owned/Public Use	Asphalt – 2/20 5529’, 8/26 4931’	Average 25/week, 96% transient, 4% local GA
Dixie Valley Airport (NV30)	50 miles northeast of Fallon, Nevada	Private Use Visual Flight Rules	Asphalt – 16/34 6000’	N/A
Fallon Municipal Airport (FLX)	2 miles northeast of Fallon, Nevada	Publicly Owned	Asphalt – 3/21 5703’ Dirt – 13/31 4207’	Average -24/day, 41% local GA, 37% transient GA, 18% air taxi, 4% military

Table 3.6-2: Federal Aviation Administration Registered Airfields Under or Near the Fallon Range Training Complex Special Use Airspace (continued)

Name (Location Identification)	Location	Remarks	Runway Data	Operations Tempo
Fallon Naval Air Station/Van Voorhis Field Airport (NFL)	3 miles northeast of Fallon, Nevada	U.S. Navy Owned	13R/31L – 14004', 13L/31R – 11078', 7/25 – 7003'	Naval Air Station Traffic
Fallon Southwest Airpark Airport (1NV1)	5 miles southwest of Fallon, Nevada	Private Use Visual Flight Rules	Gravel – 17/35 2650'	N/A
Gabbs (GAB)	53 miles southeast of Fallon, Nevada	County Owned/Public Use	Dirt – 9/27 5900', 16/34 2800'	Average 200/year, 50% transient, 50% local GA
Hadley (NV83)	104 miles southeast of Fallon, Nevada	Private Use Visual Flight Rules	Asphalt – 17/35 6776'	Average 38/week, 50% transient, 50% local GA
Kingston (N15)	77 miles east of Fallon, Nevada	Public Airport	Dirt/gravel – 7/25 3700', 16/34 3072', Helipad – concrete	12/year – 100% air taxi
McCarran International Airport (LAS)	307 miles southeast of Fallon, Nevada	International Airport	8L/26R – 14512', 8R/26L – 10525', 1R/19L - 9771', 1L/19R – 8988'	Average 1482/day, 66% commercial, 25% air taxi,7% transient GA, 2% local GA,<1% military
Nellis Air Force Base (LSV)	298 miles southeast of Fallon, Nevada	U.S. Air Force Owned	3L/21R – 10120', 3R/21L – 10051'	Average 89/day 100% military
North Las Vegas Airport (VGT)	293 miles southeast of Fallon, Nevada	Publicly Owned	7/25 – 5005', 12R/30L – 5001', 12L/30R – 4203'	Average 485/day, 55% local GA, 30% transient GA, 14% air taxi, 2% military, <1% commercial
O'Toole Ranch (NV02)	63 miles east-southeast of Fallon, Nevada	Private	Dirt – 7/25 4000'	N/A
Reno-Tahoe International Airport (RNO)	65 miles west of Fallon, Nevada	International Airport	16R/34L – 11001', 16L/34R – 9000', 7/25 – 6102'	Average 239/day, 50% commercial, 30% transient GA, 13% air taxi, 5% local GA, 2% military
Silver Springs (KSPV)	25 miles west of Fallon, Nevada	County Owned/Public Use	Asphalt – 6/24 – 4265'	Average 30/day, 52% transient GA, 31% local GA, 17% military

Note: GA = General Aviation

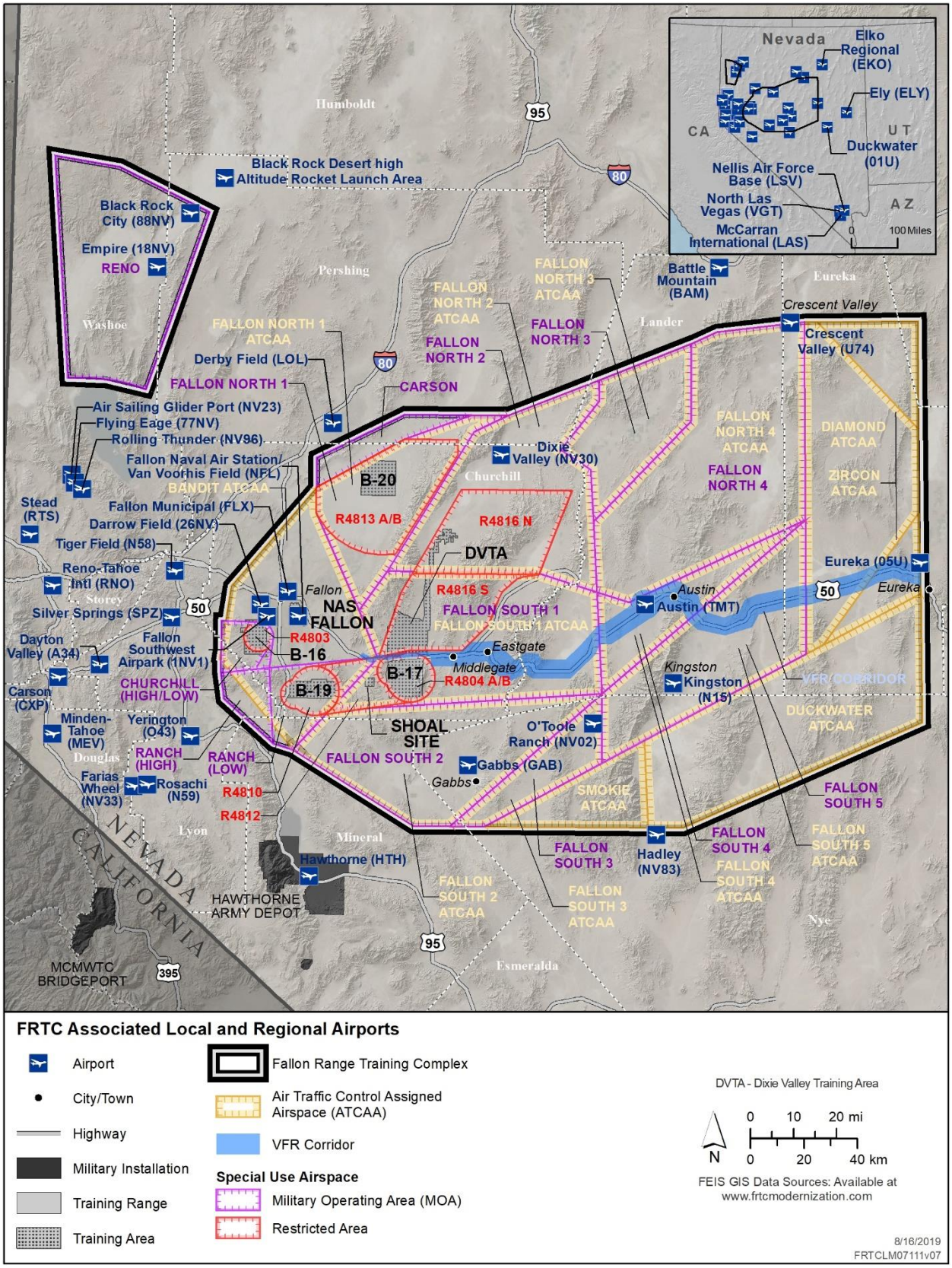


Figure 3.6-2: FRTC Associated Local and Regional Airports

For all of the proposed alternatives, the FAA would sustain established Airspace Exclusion Zones (3 nautical mile radius, surface to 1,500 feet AGL) for the Gabbs, Austin, and Eureka airports. Range Operation Procedures, established by NAWDC would create Noise Sensitive Areas (5 nautical mile radius, surface to 3,000 feet AGL) for the following:

- City of Fallon
- Cold Springs
- Crescent Valley Airport
- Kingston Airport
- Middlegate
- Town of Austin
- Town of Eureka
- Town of Gabbs
- Yomba Tribal Settlement

Noise sensitive areas are to be avoided by military aircraft unless safety considerations preclude avoidance. The airspace exclusion zones are to be avoided at all times. Figure 3.6-2 depicts regional and local airports located either underneath the FRTC SUA or regionally adjacent to the current FRTC ranges and airspace. Additional regional airfields are included for analysis in the Supporting Study: Airspace and Air Traffic Study (available at https://frtcmodernization.com).

3.6.3 Environmental Consequences

The analysis of airspace management and use involves consideration of many factors, including the types, locations, and frequency of aerial operations; the presence or absence of already designated (controlled) airspace; and the amount of air traffic using or transiting through a given area. The Navy assessed impacts on airspace with respect to the potential for disrupting existing airspace patterns and systems, safe civil airfield operations, and for causing changes in existing levels of aviation safety. A principal focus of the analysis is the potential for existing or proposed FRTC military air traffic to affect existing airspace conditions. The following provides an analysis of environmental effects of the No Action Alternative and Alternatives 1 through 3 against the environmental baseline as described in Section 2.4 (Environmental Baseline [Current Training Activities]). A summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (see Section 3.6.3.6, Summary of Effects and Conclusions).

3.6.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. Existing land withdrawal that encompasses the four bombing ranges and the current DVTA would not be renewed. The Navy would retain administrative control of the land withdrawn under Public Law 106-65 until environmental remediation and health and safety concerns were completed so as to allow return of the land to Bureau of Land Management for reincorporation into the public domain. With the reincorporation of the withdrawn and acquired lands into the public domain and the removal of all ground sites supporting training and tracking systems, the airspace of the FRTC would likely no longer be required to support Navy training. Following any relinquishment of Public Law 106-65 lands, the Navy would evaluate the future use of special use airspace and coordinate with the FAA on the disestablishment of special use airspace, as required. The Navy anticipates that any relinquished airspace would likely become available pursuant to applicable FAA policy, procedure, guidance, and orders. Therefore, no significant impacts on airspace would occur with implementation of the No Action Alternative.

3.6.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the existing SUA (Figure 3.6-2) would be reconfigured horizontally and would also increase vertical tactical airspace by 22 percent. The overall reconfiguration would update FRTC airspace to ensure compliance with the FAA and Navy requirements that the Navy both (1) control and restrict public use of any land that is within a weapons danger zone, and (2) ensure that the restricted airspace configuration matches weapons danger zones. Additionally, it would fully support the creation of corresponding MOAs to existing ATCAAs, as well as the reconfiguration of some of the existing MOAs. Specifically, the new MOAs under the Duckwater and Smokie ATCAAs would have a floor of 200 feet and a ceiling of 17,999 feet AGL. The new Ruby, Zircon, and Diamond MOAs would have a floor of 1,200 feet and a ceiling of 17,999 feet AGL. The Reno MOA would include a vertical expansion with the floor lowering from 13,000 feet to 1,500 feet, and allow for supersonic flight in the ATCAA above 30,000 feet. Supersonic activities are only expected to occur approximately twice a week and activities (maintenance check flights) would take approximately 10 minutes to complete. Figure 3.6-3 depicts the proposed airspace changes that match Restricted Airspace with the proposed new bombing range boundaries, illustrates the new MOAs and ATCAAs and shows proposed changes to existing MOAs and ATCAAs under Alternative 1. Figure 3.6-4 shows the entire airspace configuration for restricted areas, Figure 3.6-5 shows MOA configurations under Alternative 1, and Figure 3.6-6 shows the ATCAA configuration under Alternative 1. Table 3.6-3 lists specific airspace changes that would occur. The following list describes these changes:

- modification of restricted areas to match the proposed land boundaries for B-16, B-17, and B-20 ranges
- increase vertical size of R-4804, and R-4813 to 50,000 feet above MSL
- a minor expansion of the northern border of the FRTC
- establishment of two new restricted areas: R-4805 and R-4814
- establishment of two new restricted areas: R-4816N (Low) and R-4816S (Low) would be established to allow better use of current associated proposed land range changes in the DVTA
- establishment of a new restricted area (R-4810B) to increase safety and improve efficiency by mirroring the existing R-4812, and the modifications to the adjoining Ranch MOA
- establishment of new MOAs: Ruby, Zircon, Diamond, Smokie, and Duckwater
- establishment of new ATCAA: Ruby
- modification of ATCAAs: Diamond, Smokie, and Duckwater
- recombination and renaming of the Ranch High and Ranch Low MOAs into a single Ranch MOA, and expansion of Ranch MOA and R-4810 (vertically) to 17,999 feet above MSL
- recombination and renaming of the Churchill High and Churchill Low MOAs into a single Churchill MOA
- recombination and renaming of the Fallon South MOAs
- modification of the Reno MOA's floor from 13,000 feet to 1,500 feet and Reno ATCAA ceiling up to 40,000 feet on request
- extension of the VFR corridor eastward (terminating at the eastern edge of the FRTC airspace)
- extension of supersonic operating areas eastward through the Ruby, Diamond, and Zircon airspaces

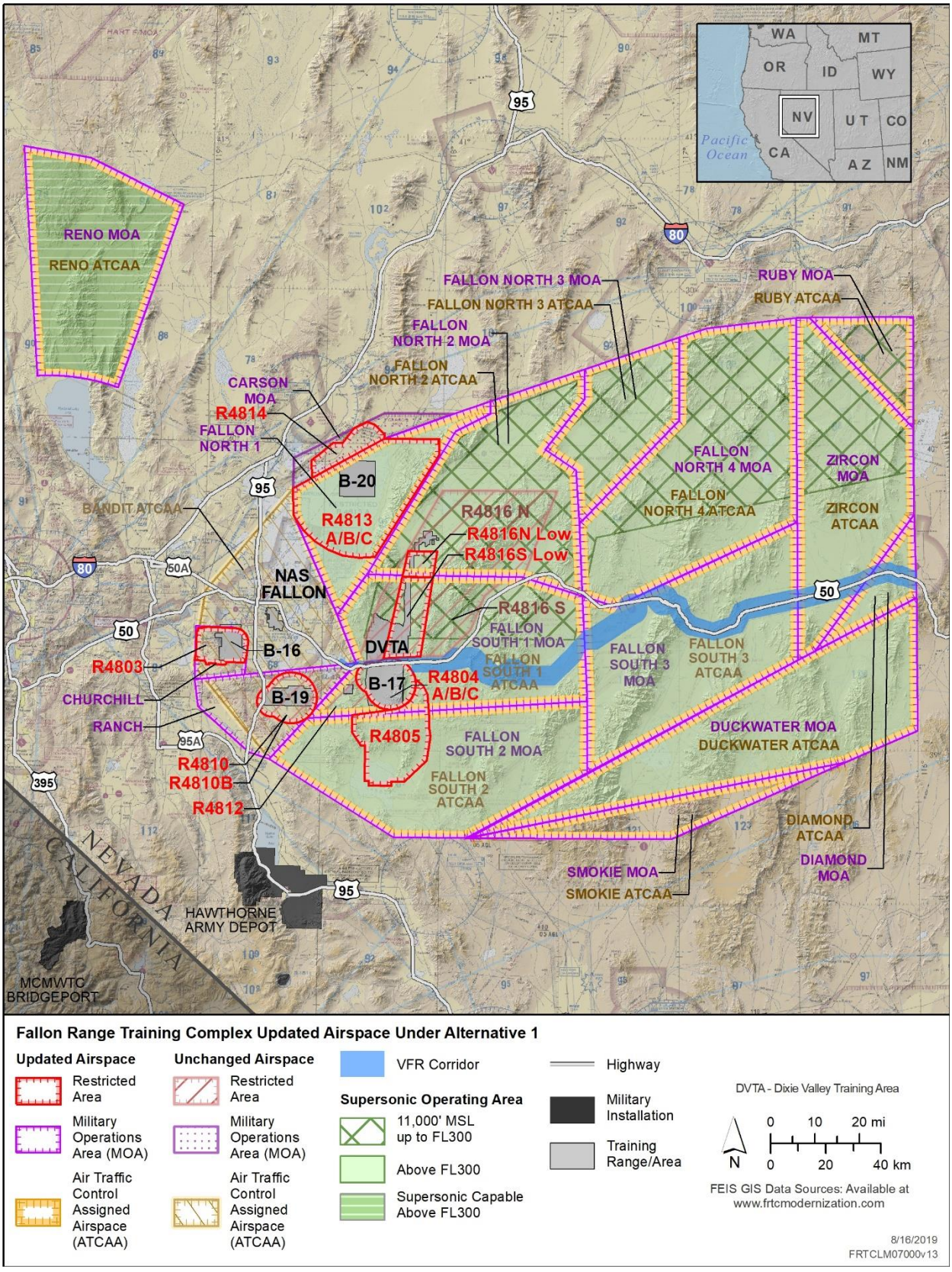


Figure 3.6-3: Fallon Range Training Complex Updated Airspace Under Alternative 1

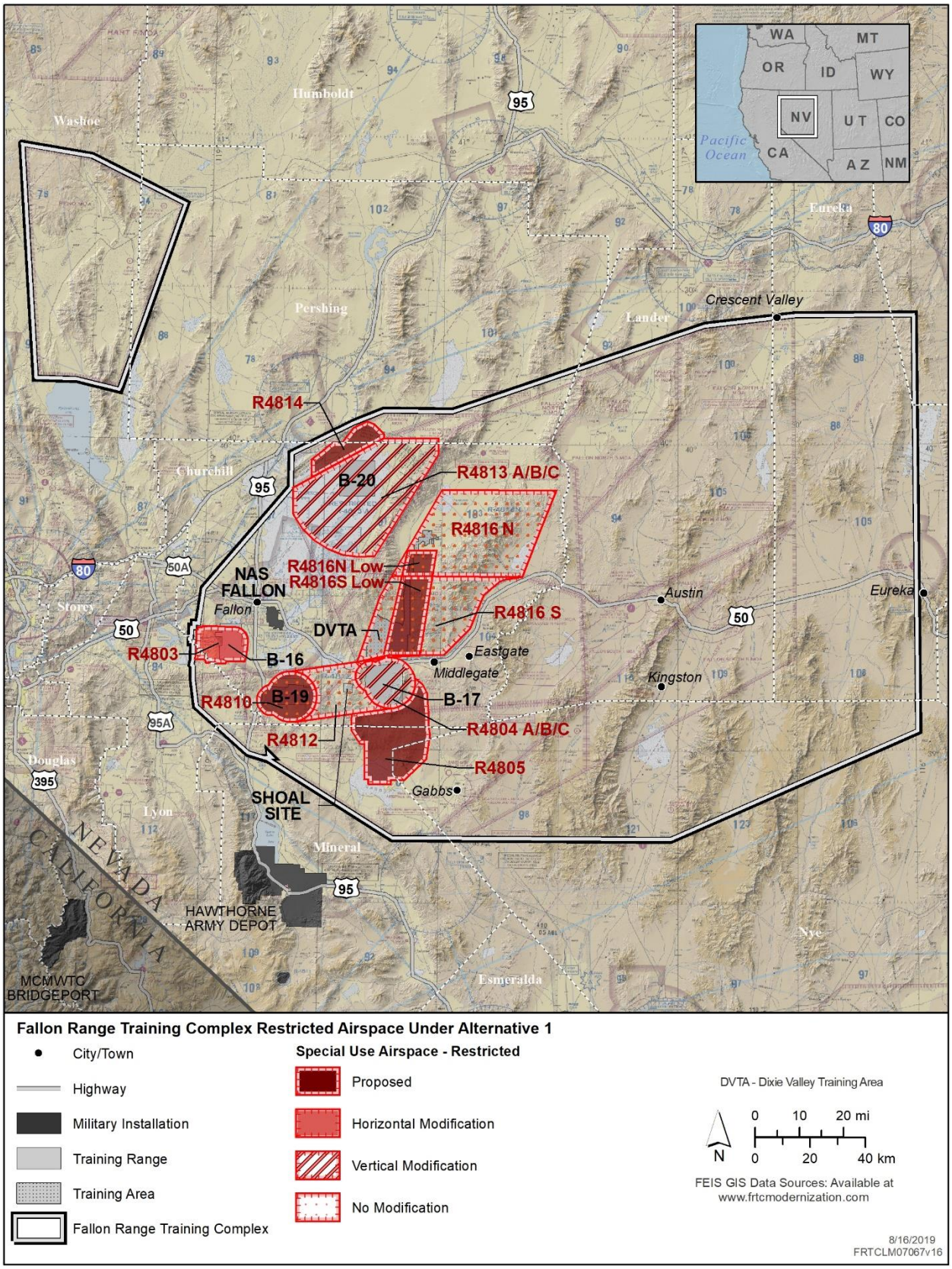


Figure 3.6-4: Restricted Airspace Under Alternative 1

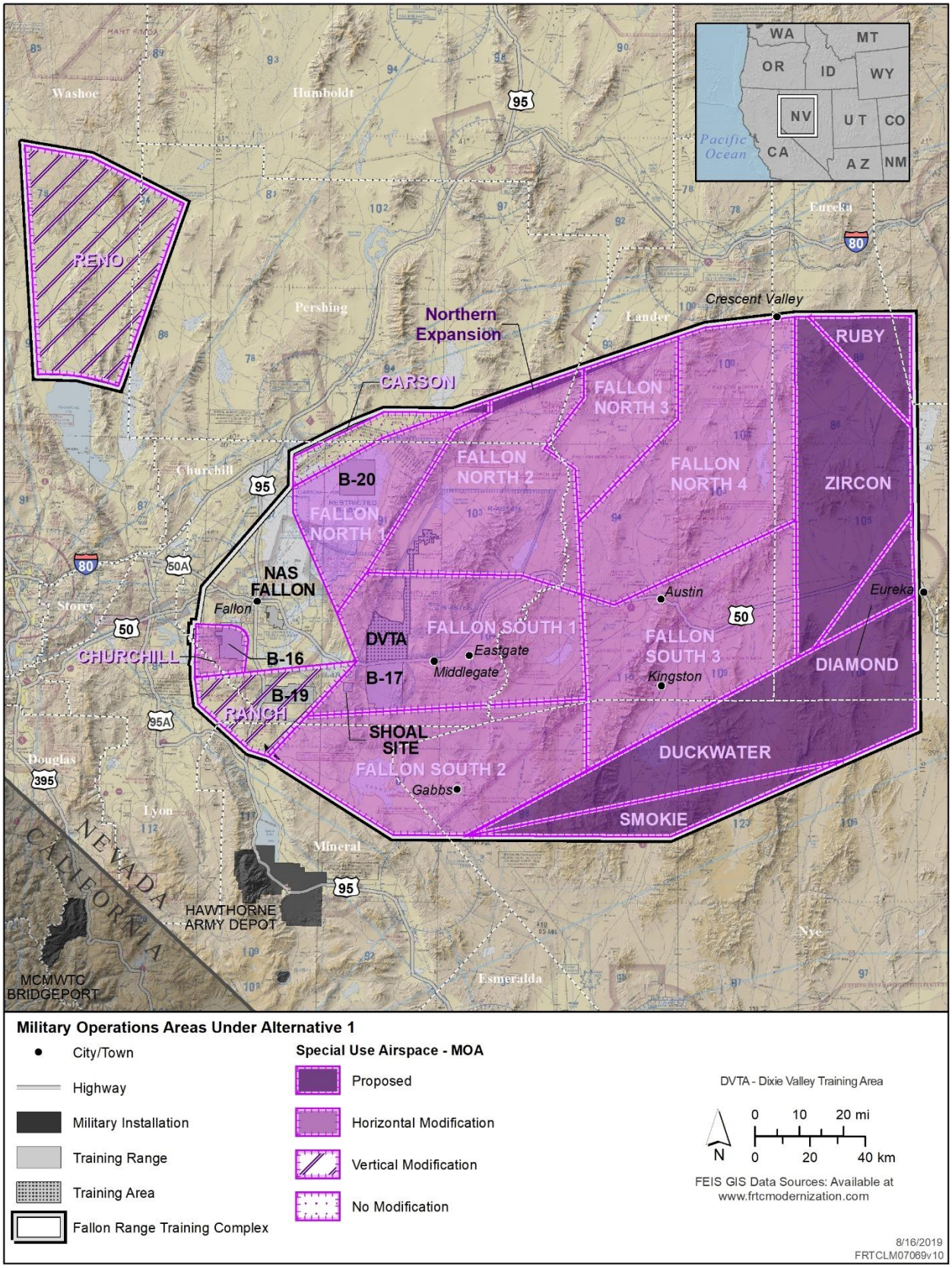


Figure 3.6-5: Military Operations Areas Under Alternative 1

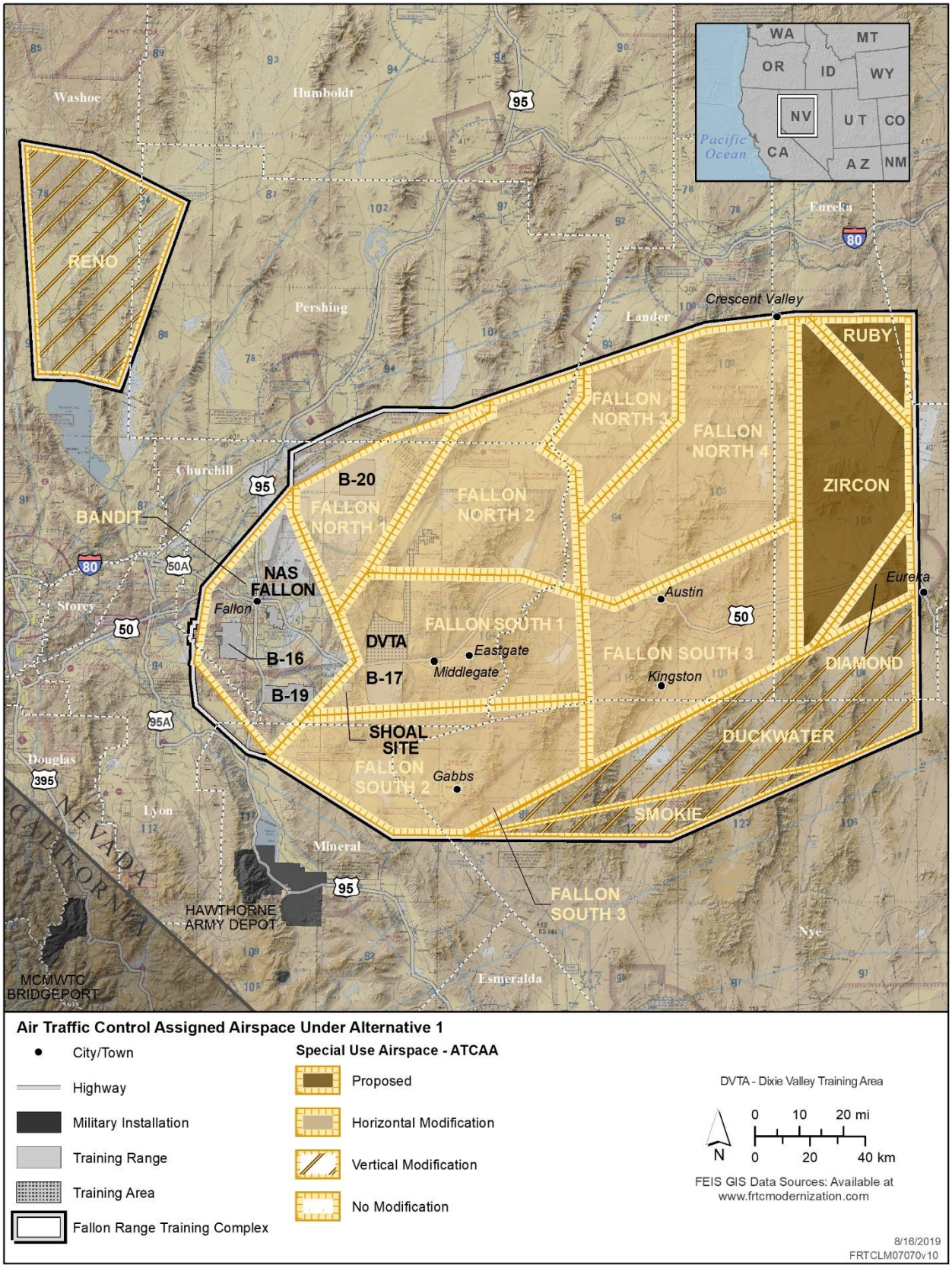


Figure 3.6-6: Air Traffic Control Assigned Airspace Under Alternative 1

Table 3.6-3: Proposed Special Use Airspace Changes

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
Restricted Areas					
R-4803	R-4803	Up to 17,999 feet MSL	No change	Increase in horizontal size to the west, to match associated land range changes.	Provides expanded live-fire training capability in B-16.
R-4804A[2]	R-4804A[2]			No change	-
R-4804B	R-4804B	18,000 feet MSL or as ATC Assigned			
-	R-4804C	-	35,000 feet MSL to 50,000 feet MSL	No change	-
-	R-4805A	-	Surface to 17,999 feet MSL	Abuts R-4804 and extends airspace to the south to encompass the new B-17	-
-	R-4805B	-	18,000 feet MSL to 50,000 MSL		
R-4810	R-4810	Surface to 17,000 feet MSL	No change	No change	-
-	R-4810B	-	17,000 feet MSL to 17,999 feet MSL	Established to increase safety and improve efficiency by mirroring the existing R-4812, and the modifications to the adjoining Ranch MOA	
R-4812[2]	R-4812[2]	Surface to 17,999 feet MSL	No change	No change	-
R-4813A	R-4813A	Surface to 17,999 feet MSL	No change	No change	-
R-4813B	R-4813B	18,000 feet MSL to 34,999 feet MSL	No change	No change	
-	R-4813C	-	35,000 feet MSL to 50,000 feet MSL	No change	
	R-4814	-	Surface to 29,000 feet MSL	Established to match associated B-20 range land changes to optimize training.	
-	R-4816S (Low)	-	Surface to 499 feet AGL[3]	Established to allow better use of current associated proposed land range changes in the Dixie Valley Training Area and allow usage of Smokey Sams.	
R-4816N	R-4816N (Low)	-	Surface to 1,499 feet AGL[3]	Established to allow better use of current associated proposed land range changes in the Dixie Valley Training Area and allow usage of Smokey Sams.	

Table 3.6-3: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
R-4816N	R-4816N	1,500 feet AGL to 17,999 feet MSL	No change		
R-4816S	R-4816S	500 feet AGL up to 17,999 feet MSL	No change	-	
Military Operations Areas (MOA)					
Churchill High	Churchill	9,000 feet MSL/Up to 17,999 feet MSL	500 feet AGL/ Up to 17,999 feet MSL	No change	
Churchill Low		500 feet AGL/9,000 feet MSL			
Fallon North 1	Fallon North 1	MOA: 100 feet AGL up to 17,999 feet MSL.	No change	Each of the Fallon North 1 to 3 MOAs northern borders would be expanded slightly to the North.	
Fallon North 2	Fallon North 2	ATCAA: 18,000 feet MSL to (as coordinated).			
Fallon North 3	Fallon North 3				
Fallon North 4	Fallon North 4	MOA: 200 feet AGL up to 17,999 feet MSL.		The Fallon North 4 MOA northern border would be expanded to the North.	
		ATCAA: 18,000 feet MSL to (as coordinated).			
Fallon South 1	Fallon South 1	MOA: 100 feet AGL up to 17,999 feet MSL.	No change	No change	
		ATCAA: 18,000 feet MSL to 50,000 feet MSL			
Fallon South 2	Fallon South 2	MOA: 100 feet AGL up to 17,999 feet MSL.		For the Fallon 2 through Fallon 5 MOA/ATCAAs, there are no changes to the airspace, but they would be re-aligned in the NAWDC working areas through internal processes.	
Fallon South 3		ATCAA: 18,000 feet MSL to 50,000 feet MSL			
Fallon South 4	Fallon South 3	MOA: 200 feet AGL up to 17,999 feet MSL.			
Fallon South 5	-	ATCAA: 18,000 feet MSL to 50,000 feet MSL	-		
Ranch High	Ranch	9,000 feet MSL to 13,000 feet MSL	-	No change	Modify the altitudes of the Ranch Low and High to be combined into a single Ranch MOA
Ranch Low		500 feet AGL to 9,000 feet MSL	500 feet AGL to 17,999 feet MSL		

Table 3.6-3: Proposed Special Use Airspace Changes (continued)

Current SUA	Proposed SUA	Current Floor/Ceiling[1]	Proposed Floor/Ceiling[1]	Proposed Boundary Changes	Other Proposed Changes
Reno	Reno	MOA: 13,000 feet MSL up to 17,999 feet MSL.	MOA: 1,500 feet AGL to 17,999 feet MSL.	-	Chaff and flare release capability. Supersonic Capable above 30,000 feet
		ATCAA: 18,000 feet MSL to 31,000 feet MSL.	ATCAA: 18,000 feet MSL to 31,000 feet MSL. Up to 40,000 feet MSL on request.		
	Ruby	-	MOA: 1,200 feet AGL up to 17,999 feet MSL	New MOA/ATCAA (formerly Diamond North ATCAA)	-
		-	ATCAA: 18,000 feet MSL to 28,000 feet MSL		
	Zircon	-	MOA: 1,200 feet AGL up to 17,999 feet MSL	-	New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 50,000 feet MSL.	No change		
	Diamond	-	1,200 feet AGL up to 17,999 feet MSL	Southeast corner of current Diamond ATCAA	Northern Diamond ATCAA renamed Ruby ATCAA
		ATCAA: 18,000 feet MSL to 29,000 feet MSL.	18,000 feet MSL to 50,000 feet MSL or as assigned.		
	Duckwater	-	MOA: 200 feet AGL up to 17,999 feet MSL.	The borders would be modified horizontally to better align with local air traffic routes.[4]	New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	ATCAA: 18,000 feet MSL to 50,000 feet MSL.		
	Smokie	-	MOA: 200 feet AGL up to 17,999 feet MSL.		New MOA under existing ATCAA
		ATCAA: 18,000 feet MSL to 25,000 feet MSL.	ATCAA: 25,000 feet MSL to 29,000 feet MSL		

[1]MSL = Mean Sea Level
[2]Excluding that portion of the VFR corridor from 2,000 AGL up to 8,500 MSL along U.S. Route 50.
[3]AGL = Above Ground Level
[4]Current alignment of Smokie and Duckwater ATCAAs are east and west. Navy proposes (with FAA concurrence) to realign Smokie and Duckwater in a north/south alignment with Duckwater to the north and Smokie to the south. These changes would provide better alignment with local FAA routes in the area.
Notes: MOA = Military Operations Area, SUA = Special Use Airspace, ATCAA = Air Traffic Control Assigned Airspace, NAWDC = Naval Aviation Warfighting Development Center, MSL = Mean Sea Level

The Alternative 1 objective is to make the FRTC airspace fully compatible with the proposed expanded bombing ranges and hazardous training areas, while at the same time allowing Large Force Exercises and emerging advanced tactics to use the existing overall airspace more efficiently. This reconfiguration would also sustain the current FRTC measures to allow as much public and commercial air access as possible.

With Alternative 1, all of the Restricted Areas, to include the new R-4814 that would complete restricted airspace coverage of the expanded B-20 range, would remain over the same corresponding ranges. Therefore, all rules and regulations related to Restricted Areas would remain unchanged from their present status. Non-participating aircraft may not enter Restricted Areas in the FRTC unless they have prior approval from the controlling authority (Desert Control). Non-military aviators must coordinate any flight activities that require entrance into the Restricted Areas with Desert Control, who manages in real time all special use airspace within the FRTC in support of the military training scheduling to determine available flight times for commercial and civil aviation through FRTC airspace. Commercial use of FRTC SUA would continue to operate in existing practices, with Desert Control providing de-confliction where needed.

Military aircraft under Alternative 1 would continue to use existing FRTC airspace, as well as in the proposed establishment of new MOAs southeast of the existing FRTC SUA, and the minor northward expansion between the Carson and Fallon North MOAs. They would continue to comply with noise sensitive and airspace exclusion zone guidelines. The reconfiguration of the existing MOAs together with the creation of new MOAs would achieve the following goals:

- simplify the composition of the FRTC airspace while facilitating a more efficient use of the airspace for training
- lower the minimum altitude to support the requirement for more realistic training, while improving the safety of operations during the large force exercises

Under Alternative 1, no adverse impacts on general aviation regarding access or usability of the current training area would occur because the Navy is not proposing to add to or change any of the external boundaries or operating hours of the current MOAs that comprise the airspace elements of the FRTC SUAs (with the exception of the minor expansion between the Carson and Fallon North MOAs on the north border of the FRTC airspace). General and commercial aviation access to the proposed new southern and eastern MOAs that would be created under existing ATCAA airspace would operate under the same general aviation access and usability as practiced for the current FRTC MOAs. While the floors of the proposed new MOAs are either 200 feet AGL (Duckwater and Smoke) or 1,200 feet AGL (Ruby, Zircon, and Diamond), general aviation pilots may still fly through a MOA under Visual Flight Rules. FRTC SUA, outside of active restricted areas, follows FAA guidance on MOA usage by civil aviation. NAWDC and Desert Control ATC would make provisions to sustain aerial access to private and public use land beneath the FRTC, and for terminal VFR and IFR flight operations where available. MOAs are always joint use in that VFR aircraft are not denied access, and IFR aircraft may be routed through the airspace. As such, civil traffic would continue to be authorized in all FRTC MOAs.

The Navy would modify or establish restricted areas to comply with its and FAA requirements. The restricted areas would increase in size for the B-16, B-17, and B-20 ranges, but would still be within the current overall FRTC footprint, and the procedures for general aviation access remains unchanged. However, for Gabbs westerly general aviation traffic, rather than proceed direct to Fallon Municipal Airport, the larger B-17 associated restricted airspace would require pilots to turn within 5.5 miles after departure and either fly due north 20 miles to pick up the VFR corridor west, or fly 20 miles southwest

before turning north, in order to avoid the proposed R-4805. The two small airports under the proposed Smokie MOA, Hadley and Barker Creek (NV31), have a total of three aircraft based at the fields. Daily operations are not expected to change from current use under Alternative 1. Changes under Alternative 1 would not impact general aviation outside the FRTC airspace, which includes the Eureka airport and the privately-owned Red Rock Ranch (NV22) airport just outside the eastern border of the proposed Zircon and Ruby MOA/ATCAA respectively. Eureka airport access, flight patterns, and availability would be unchanged under Alternative 1.

The current military aviation flight tempo for the FRTC would remain unchanged from the 2015 *Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015) for under any alternative proposed. Procedures for commercial and civilian access to FRTC airspace, to include the sustainment of current Nevada Department of Wildlife and U.S. Fish and Wildlife Service survey flights, and the priority always afforded to MEDEVAC and fire suppression flights, would also remain unchanged. The reconfiguration of the SUA inside the overall FRTC airspace sustains the existing air transportation accessibility factors in the region of influence as they apply to non-military flights through the FRTC MOAs. As such, the implementation of Alternative 1 would not increase the collision potential between military and non-participating civilian aircraft. With the unchanged FRTC operations tempo and procedures, there would be no impact on the use of the access to and use of the VFR corridor, which would be extended through the proposed Zircon and Diamond MOAs to the eastern boundary of the FRTC SUA, or commercial and general aviation's use of the FRTC airspace under Alternative 1.

The Navy is not considering an increase in the number and type of air activities in any of the action alternatives for this proposal. Restricted airspace would be expanded solely to accommodate weapons release ranges and profiles to ensure the safety of Navy personnel and the public. Aircraft flight paths and delivery profiles would not change from their current practices. Similarly, the non-firing flight profiles that are routine and integral components of Navy training at the FRTC would not change. The noise analysis concluded that no significant impacts on the noise environment would occur because the tempo of operations in any alternative would not increase from baseline conditions, and the reconfigured airspace actually expands the overall FRTC airspace volume. Sections 3.7 (Noise) and 3.10 (Biological Resources) discuss impacts on habitat from noise and lower altitude aircraft operations as a result of the internal reconfiguration of the FRTC SUA.

In summary, the proposed internally reconfigured airspace would maintain the existing FRTC airspace footprint in the National Airspace. As such, the FRTC would sustain the capability to operate at the required tempo and would not interfere with existing commercial air traffic patterns or airports/airstrips, would continue to support unrestricted MEDEVAC and fire suppression flights, and would have no impact on the daily logistics flights between Fallon Municipal and Dixie Valley. It would not significantly restrict civilian aviation in the area, aside from westerly traffic out of Gabbs and limiting easterly approaches to Gabbs and O'Toole due to the proximity of the R-4805 boundary. Therefore, implementation of Alternative 1 would not result in significant impacts on airspace.

3.6.3.3 Alternative 2: Modernization of the Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, airspace changes, and training tempo as Alternative 1 but would allow certain public uses within specified areas of B-16, B-17, and B-20 when the ranges would not be operational (i.e., typically weekends, holidays, and when closed to training to allow for scheduled maintenance).

Under Alternative 2, the reconfiguration of the FRTC SUA would be the same as under Alternative 1, as all differences between Alternative 1 and Alternative 2 are due to differences in public ground access to restricted ranges. The air transportation accessibility factors in the region of influence, as studied for implementation of Alternative 1 would not result in an increase in collision potential between military and non-participating civilian operations. Military aircraft would continue to comply with noise sensitive and airspace exclusion zone guidelines. Like Alternative 1, there would be no impact on the access to and use of the VFR corridor, which would be extended through the proposed Zircon and Diamond MOAs to the eastern boundary of the FRTC SUA, or commercial and general aviation's use of the FRTC airspace under Alternative 2.

Further, the internally reconfigured airspace under Alternative 2 would maintain the existing ATCAAs activated FRTC airspace footprint in the National Airspace, and would allow the FRTC to operate at the required tempo. It would not interfere with existing commercial air traffic patterns or airports/airstrips, and would continue to support unrestricted MEDEVAC flights. Civilian aviation in the area would not be significantly restricted from the current FRTC impacts. Therefore, implementation of Alternative 2 would not result in significant impacts on airspace.

3.6.3.4 Alternative 3: B-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 encompasses the same modernization and expansion actions as Alternative 1 for all ground ranges. For the B-17 withdrawal only, it would be roughly the same acreage and overall dimensions, but would be shifted to the southeast and rotated counterclockwise. Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy. For Alternative 3, as described for Alternative 1, the entire range would be closed and restricted from public use except for Navy-authorized activities, and any required regulatory or management activities.

Under Alternative 3, the reconfiguration of the B-17 range affects the newly required restricted airspace, which would require R-4805 to shift southeast and slightly rotate counter clockwise. The overall amount of restricted airspace would remain the same as R-4805 proposed in Alternative 1. The remainder of SUA for the rest of the FRTC would remain approximately the same as identified in Alternative 1. Figure 3.6-7 depicts the proposed Alternative 3 Restricted Airspace. The air transportation accessibility factors in the region of influence, as studied for implementation of Alternative 1, would not lead to an increase in collision potential between military and non-participating civilian operations. Military aircraft would continue to comply with noise sensitive and airspace exclusion zone guidelines. There would be no impact on the VFR corridor or commercial and general aviation's use of the FRTC airspace under Alternative 3.

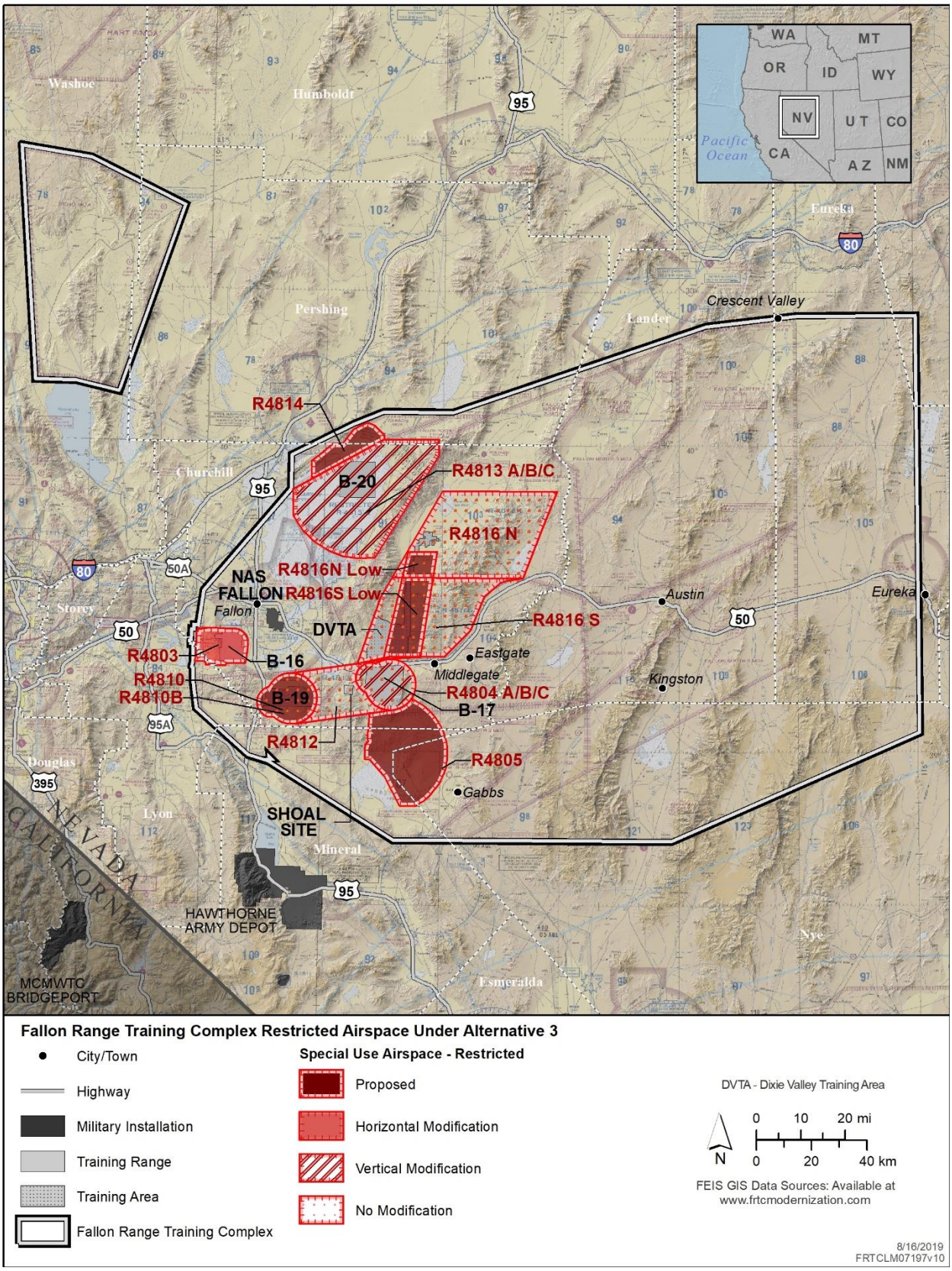


Figure 3.6-7: Fallon Range Training Complex Restricted Airspace Under Alternative 3

The internally reconfigured airspace under Alternative 3 maintains the existing FRTC airspace footprint in the National Airspace, allowing the FRTC to operate at the required tempo. It would not interfere with existing commercial air traffic patterns or airports/airstrips, and would continue to support unrestricted MEDEVAC flights. Civilian aviation in the area would not be significantly restricted from the current FRTC impacts; however, for Gabbs general aviation traffic, rather than proceed direct to Fallon Municipal Airport, pilots would have to turn immediately after departure and fly due north 20 miles to pick up the VFR corridor west, or fly 20 miles southwest before turning north, in order to avoid the proposed R-4805. Therefore, aside from new westerly VFR routing options from Gabbs and limiting easterly approaches to Gabbs and O'Toole due to the proximity of the R-4805 boundary, implementation of Alternative 3 would not result in significant impacts on airspace.

3.6.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.6.3.5.1 Proposed Management Practices

The Navy would continue current levels of operations, and manage all facets of the FRTC airspace under the guidance of official policies, procedures, and Navy instructions. Specifically, the Navy would:

- Maintain a close working relationship with the FAA in the management of the FRTC SUA, following FAA publication guidance that would fully support the final modernization configuration of the FRTC SUA.
- Continue a proactive outreach to civil and commercial aviation to ensure safe and efficient transit across the FRTC via the VFR Corridor, as well as the safe and efficient managed access and civil flight profiles within the FRTC SUA.
- Ensure that the NAS Fallon Airfield Operations Manual is maintained with the most current airspace information, restrictions, and compliance requirements.
- Avoid Q (GPS-based) routes to the maximum extent possible.
- NAS Fallon would update the NAS Fallon Airfield Operations Manual to reflect Naval Aviation Warfighting Development Center operational guidance on noise-sensitive areas, and confirmation of FAA airspace exclusion zone guidelines, for the Proposed Action.

3.6.3.5.2 Proposed Monitoring

No monitoring measures would be warranted for airspace based on the analysis presented in Section 3.6.3 (Environmental Consequences).

3.6.3.5.3 Proposed Mitigation

NAS Fallon would update the NAS Fallon Airfield Operations Manual to reflect NAWDC operational guidance on noise sensitive areas, and confirmation of FAA airspace exclusion zone guidelines, for the Proposed Action.

3.6.3.6 Summary of Effects and Conclusions

Table 3.6-4 summarizes the effects of the alternatives on the airspace environment.

Table 3.6-4: Summary of Effects for Airspace

Summary of Effects and National Environmental Policy Act Determinations	
No Action Alternative	
Summary	• The Navy would retain administrative control of the land withdrawn under Public Law 106-65 until environmental remediation and health and safety concerns were completed so as to allow return of the land to BLM for reincorporation into the public domain. • With the reincorporation of the withdrawn and acquired lands into the public domain and the removal of all ground sites supporting training and tracking systems, the airspace of the FRTC would likely no longer be required to support Navy training. • Following any relinquishment of Public Law 106-65 lands, the Navy would evaluate the future use of special use airspace and coordinate with the FAA on the disestablishment of special use airspace, as required. • The Navy anticipates that any relinquished airspace would likely become available pursuant to applicable FAA policy, procedure, guidance, and orders.
Impact Conclusion	No significant impacts on airspace would occur with implementation of the No Action Alternative.
Alternative 1	
Summary	• Alternative 1 would not result in an increase in collision potential between military and non-participating civilian operations. • The tempo of military operations would remain the same as it is today, and established safe separation doctrine and MARSA would continue to apply. • Military aircraft would continue to comply with noise sensitive and airspace exclusion zone guidelines. • There would be no impact on the extended VFR corridor or commercial and general aviation's use of the FRTC airspace. • Alternative 1 would sustain the capability to operate at the required tempo and not interfere with existing commercial air traffic patterns or airports/airstrips with the exception of westerly departures from Gabbs. • It would continue to support unrestricted MEDEVAC and fire suppression flights, and would not significantly restrict civilian aviation.
Impact Conclusion	Alternative 1 would not result in significant impacts on airspace.

Table 3.6-4: Summary of Effects for Airspace (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 2	
Summary	• Managed access on the ground would not impact airspace utilization. • Alternative 2 would not result in an increase in collision potential between military and non-participating civilian operations. • The tempo of military operations would remain the same as it is today, and established safe separation doctrine and MARSA would continue to apply to the revised FRTC MOAs consistent with the current FRTC application. • Military aircraft would continue to comply with noise sensitive and airspace exclusion zone guidelines. • There would be no impact on the extended VFR corridor or commercial and general aviation's use of the FRTC airspace. • Alternative 2 would sustain the capability to operate at the required tempo and not interfere with existing commercial air traffic patterns or airports/airstrips, would continue to support unrestricted MEDEVAC and fire suppression flights, and would not significantly restrict civilian aviation in the area.
Impact Conclusion	Alternative 2 would not result in significant impacts on airspace.
Alternative 3	
Summary	• Managed access on the ground would not impact airspace utilization. • Alternative 3 would not result in an increase in collision potential between military and non-participating civilian operations, as the tempo of military operations would remain at its current level. • MARSA would apply to the revised FRTC MOAs consistent with the current FRTC application. • Military aircraft would continue to comply with noise sensitive and airspace exclusion zone guidelines. • There would be no impact on the extended VFR corridor or commercial and general aviation's use of the FRTC airspace. • Alternative 3 would sustain the capability to operate at the required tempo and not interfere with existing commercial air traffic patterns or airports/airstrips with the exception of westerly departures from Gabbs. • It would continue to support unrestricted MEDEVAC and fire suppression flights, and would not significantly restrict civilian aviation in the area.
Impact Conclusion	Alternative 3 would not result in significant impacts on airspace.

Notes: FRTC = Fallon Range Training Complex, MARSA = Military assumes responsibility for separation of aircraft, FAA = Federal Aviation Administration, MOA = Military Operations Area, VFR = Visual Flight Rules, MEDEVAC = Medical Evacuation

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3.7 Noise

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

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3.7 Noise

This discussion of noise includes the types or sources of noise and the effects of noise on people. Noise in relation to biological resources and wildlife species is discussed in Biological Resources (Section 3.10). This section does not address noise from Naval Air Station (NAS) Fallon as none of the action alternatives change the type or number of airfield operations.

3.7.1 Methodology

3.7.1.1 Region of Influence

The region of influence for noise includes the lands on and within the Fallon Range Training Complex (FRTC) land and special use airspace (SUA) where noise may interfere with normal human activities. The region of influence is within western and central Nevada and includes all or portions of the following counties: Churchill, Elko, Eureka, Lander, Lyon, Mineral, Nye, Pershing, and Washoe Counties.

This region is largely rural and is composed of private and public land as well as Indian Reservations. Public land within the region of influence includes land managed by the Bureau of Land Management (BLM), Bureau of Reclamation, United States (U.S.) Fish and Wildlife Service (USFWS), U.S. Forest Service, Department of Energy, and the Department of Defense (DoD), including the U.S. Department of the Navy (Navy). As such, the region is comprised of a wide variety of land uses, including agricultural (cropland and livestock grazing), residential, commercial, industrial, renewable energy development, mining and mineral exploration and development, conservation, military, and recreational.

3.7.1.2 Regulatory Framework and Management Practices

Per DoD Instruction 4165.57 (U.S. Department of Defense, 2017), noise contours are used for recommending land uses that are compatible with aircraft noise levels. The joint instruction, Chief of Naval Operations Instruction (OPNAVINST) 11010.36C and Marine Corps Order 11010.16, *Air Installations Compatible Use Zones (AICUZ) Program* (U.S. Department of the Navy, 2008a), provides guidance administering the Air Installations Compatible Use Zones program which recommends land uses that are compatible with aircraft noise levels. OPNAVINST 3550.1A and Marine Corps Order 3550.11 (U.S. Department of the Navy, 2008b) provide guidance for a similar program, Range Air Installations Compatible Use Zones. This program includes range safety and noise analyses, and provides land use recommendations that would be compatible with Range Compatibility Zones and noise levels associated with military range operations.

3.7.1.3 Introduction to Sound

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB)
- Frequency – the number of cycles per second the air vibrates, in Hertz (Hz)
- Duration – the length of time the sound can be detected

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. The primary human response to noise is annoyance, which is defined by the U.S. Environmental Protection Agency (EPA) as any negative subjective reaction on the part of an individual or group (U.S. Environmental Protection Agency, 1974). The response of different individuals to similar

noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual. While aircraft are not the only sources of noise in an urban or suburban environment, they are readily identified by their noise output and are given special attention in this Environmental Impact Statement (EIS).

3.7.1.3.1 Basics of Sound and Weighted Sound Levels

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be heard. Because of this vast range, it is unwieldy to use a linear scale to represent the intensity of sound. As a result, a logarithmic unit known as the dB represents the intensity of a sound, also referred to as the sound level. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above 120 dB begin to be felt inside the human ear as discomfort. Sound levels between 130 and 140 dB are felt as pain (Berglund, 1995).

All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second or Hz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale, which places less weight on very low and very high frequencies in order to replicate human hearing sensitivity. The general range of human hearing is from 20 to 20,000 cycles per second, or Hz; humans hear best in the range of 1,000–4,000 Hz. A-weighting is a frequency-dependent adjustment of sound level used to approximate the natural range and sensitivity of the human auditory system. Table 3.7-1 provides a comparison of how the human ear perceives changes in loudness on the logarithmic scale.

Table 3.7-1: Subjective Responses to Changes in A-Weighted Decibels

Change	***Change in Perceived Loudness***
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic – twice or half as loud
20 dB	Striking – fourfold change

Note: dB = decibel(s)

Figure 3.7-1 provides a chart of A-weighted sound levels from typical noise sources (Cowan, 1994; Harris, 1979). Some noise sources (e.g., air conditioner, vacuum cleaner) are continuous sounds that maintain a constant sound level for some period of time. Other sources are time-varying events and reach a maximum sound level during an event, such as a vehicle passing by. Sounds can also be part of the ambient environment (e.g., urban daytime, urban nighttime) and are described by averages taken over extended periods. A variety of noise metrics has been developed to describe noise, particularly aircraft noise, in different contexts and over different time periods.

Aircraft noise varies with time. During an overflight, noise starts at the background level, rises to a maximum level as the aircraft flies above the receiver, then returns to the background level as the aircraft recedes into the distance. A number of metrics can be used to describe aircraft operations—from a particular individual aircraft event to the cumulative noise effect of all aircraft events over time.

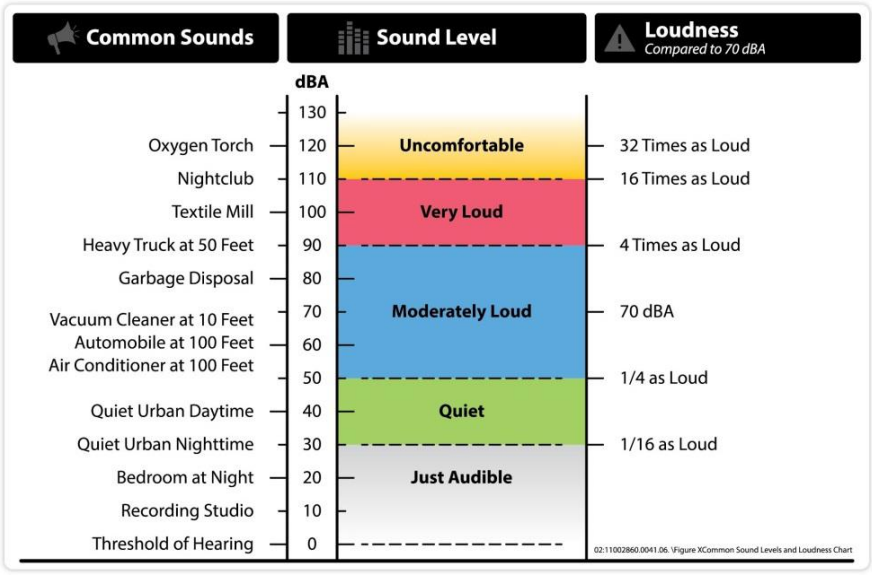


Figure 3.7-1: A-Weighted Sound Levels from Typical Sources

The C-weighting scale approximates the ear's sensitivity at high sound levels and weighs sound energy levels equally across the frequency range of human hearing, while discounting some of the very high and very low frequencies at each end of the range. Accordingly, the C scale closely resembles the actual sound pressure level received by sound level meters, and is often used to calibrate sound meters. The analysis of low-frequency sounds such as artillery and detonations also often uses C-weighted sound levels. Sound measurements thus adjusted are termed "C-weighted" sound levels, denoted as dB(C) or simply dBC.

Impulsive sound is measured and expressed in peak decibels (dBP). Peak impulsive sound weighting is used for single-event sound, or impulsive sound events that last less than one second in duration, such as gun noise. Peak sound does not correlate directly with time-averaged ambient sound standards. The peak sound values presented in this analysis are PK-15, or the calculated peak sound level expected to be exceeded 15 percent of the time. PK-15 accounts for statistical variation in the peak sound level due to weather conditions (U.S. Army & Center for Health Promotion and Preventive Medicine, 2005; U.S. Department of the Army, 2005). The PK-15 sound value is conservative and is considered to represent meteorological conditions that favor atmospheric transmission of sound.

3.7.1.3.2 Noise Metrics and Modeling

A "metric" is a system for measuring or quantifying a particular characteristic of a subject. Since noise is a complex physical phenomenon, different noise metrics help to quantify the noise environment. The noise metrics used in this EIS are described in summary format below.

Day-Night Average Sound Level

The Day-Night Level (DNL) metric is the energy-averaged sound level measured over a 24-hour period, with a 10 dB nighttime adjustment to account for heightened human sensitivity to noise when ambient sound levels are low, such as when sleep disturbance could occur. DNL does not represent a sound level heard at any given time but instead represents long-term exposure. Scientific studies have found good correlation between the percentages of groups of people highly annoyed and the level of their average noise exposure measured in DNL (U.S. Department of the Navy et al., 1978; U.S. Environmental

Protection Agency, 1999). As such, DNL has been determined to be a reliable measure of long-term community annoyance with aircraft noise and has become the standard noise metric used by the U.S. Department of Housing and Urban Development, Federal Aviation Administration (FAA), the EPA, and U.S. DoD for assessing aircraft noise exposure.

DNL values are average quantities, mathematically representing the continuous sound level that would be present if all of the variations in sound level that occur over a 24-hour period were averaged to have the same total sound energy. The DNL metric quantifies the total sound energy received and is therefore a cumulative measure, but it does not provide specific information on the number of noise events or the individual sound levels that occur during the 24-hour day. The DNL metric also adds an additional 10 dB to nighttime (10:00 p.m. to 7:00 a.m., also known as "acoustic night") sound levels to account for heightened human sensitivity to noise when ambient sound levels are low, such as when sleep disturbance could occur.

The results of the modeling are DNL noise contours, or lines connecting points of equal value, usually in 5 dB increments (e.g., 65 dB DNL and 70 dB DNL). The modeled DNL contours are depicted on noise contour maps, which provide a visual depiction of the overall geographic area covered by the different levels of noise.

Per OPNAVINST 11010.36C, NOISEMAP is to be used for developing DNL contours. Noise exposure in DNL contours is typically analyzed within contour bands, or ranges of DNL exposure, which cover the land areas between two contour lines. Below are listed the DNL noise contour ranges used in this analysis:

- 60 to less than 65 dB DNL
- 65 to less than 70 dB DNL
- 70 to less than 75 dB DNL
- Greater than or equal to 75 dB DNL

Per DoD Instruction 4165.57 (U.S. Department of Defense, 2017), DNL noise contours are used for recommending land uses that are compatible with aircraft noise levels. Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments (Schultz, 1978). A consistent relationship exists between DNL and the level of annoyance experienced (refer to Supporting Study: Noise Study, available at https://www.frtcmodernization.com). DoD recommends land use controls beginning at the 65 dB DNL level. Research has indicated that about 87 percent of the population is not highly annoyed by outdoor sound levels below 65 dB DNL (Federal Interagency Committee on Noise, 1992). Most people are exposed to sound levels of 50 to 55 DNL or higher on a daily basis. Therefore, the 65 dB DNL contour helps determine compatibility of military aircraft operations with local land use, particularly for land use surrounding airfields, and is the lower threshold for this analysis.

While the DNL noise metric is the federal standard for analyzing the cumulative noise exposure from all aircraft operations, the DoD has developed additional metrics to supplement the noise analysis. These supplemental metrics and analysis tools provide more detailed noise exposure information for the decision process and improve the discussion regarding noise exposure. The DoD Noise Working Group technical bulletin *Using Supplemental Noise Metrics and Analysis Tools* (U.S. Department of Defense, 2009) was used to determine the appropriate metrics and analysis tools for this EIS.

Equivalent Sound Level

The Equivalent Sound Level (L_{eq}), measured in dB, is a cumulative noise metric that represents the average sound level (on a logarithmic basis) over a specified period of time—for example, an hour, a school day, daytime, nighttime, weekend, facility rush periods, or a full 24-hour day (i.e., the L_{eq} for a full 24-hour day is similar to the DNL metric but for the fact that the DNL metric includes the additional 10 dB for those events during acoustic night). In this EIS, the effect of noise interference in the school classroom is analyzed using L_{eq}, which describes the cumulative noise environment based on the noise events (i.e., aircraft overflights) that occur in an eight-hour school day.

Sound Exposure Level

The Sound Exposure Level (SEL) metric is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. SEL provides a measure of total sound energy of the entire acoustic event, but it does not directly represent the sound level heard at any given time. During an aircraft overflight, SEL captures the total sound energy for the noise event, meaning as the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. The total sound energy from the entire event is then condensed into a one-second period, and the metric represents the total sound exposure received. The SEL has proven to be a good metric to compare the relative exposure of transient sounds, such as aircraft overflights, and is the recommended metric for sleep disturbance analysis (U.S. Department of Defense, 2009). In this EIS, SEL is used in aircraft comparison and sleep disturbance analyses.

Maximum Sound Level

The highest A-weighted decibel (dBA) level measured during a single event where the sound level changes value with time (e.g., an aircraft overflight) is called the maximum A-weighted sound level or L_{max}. During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. L_{max} defines the maximum sound level occurring for a fraction of a second. For aircraft noise, the "fraction of a second" over which the maximum level is defined is generally one-eighth of a second (American National Standards Institute, 1988). For sound from aircraft overflights, the SEL is usually greater than the L_{max} because an individual overflight takes seconds and the L_{max} occurs instantaneously. In this EIS, the effects of noise on speech interference, including speech in the classroom and potential effects on recreation or biology, are evaluated using L_{max}.

Noise Modeling

Aircraft noise levels are represented in this EIS by various noise metrics that are generated by a computer model and not actual noise measurements at the FRTC. Computer modeling provides a tool to describe the noise environment and assess noise exposure. The noise environment for this EIS was modeled using programs called NOISEMAP, MR_NMAP, BooMap96, and Blast Noise Prediction (BNOISE). NOISEMAP draws from a library of actual aircraft noise measurements obtained in a controlled environment. It then incorporates all of the site-specific operational data (types of aircraft, number of operations, flight tracks, altitude, speed of aircraft, engine power settings, and engine maintenance run-ups), environmental data (average humidity and temperature), and surface hardness and terrain that contribute to the noise environment. The DoD uses NOISEMAP as the accepted standard noise modeling

program for assessing potential noise exposure from fixed-wing aircraft. NOISEMAP is routinely updated and validated through extensive study to provide the best possible noise modeling results for these applications. It also encompasses the most extensive database of actual military aircraft noise measurements, which are validated through subsequent testing and used for installation-specific noise analyses.

NOISEMAP is generally used when analyzing aircraft operations' well-defined flight tracks, such as around airfields or target areas (see Supporting Study: Noise Study, available at https://www.frtcmodernization.com). When the aircraft flight tracks are not well defined, but are distributed over a wide area, such as in Military Operations Area (MOA), Range/Restricted Areas, and Military Training Routes with wide corridors, noise is assessed using the MOA and Range Noise Model (MR_NMAP). These models are the approved DoD computer noise models for estimating the aircraft noise exposures. See Supporting Study: Noise Study (available at https://www.frtcmodernizationeis.com) for additional details on the models used. Of note, the special use airspace boundaries are often used to define the area for modeling and for aircraft operations. When operations are uniformly distributed within those boundaries for modeling, the resultant contours often follow the special use airspace boundary as well.

Depending on the elevation, flight path, and maneuver of an aircraft, supersonic flight can cause a sonic boom (an impulsive sound) to be heard on the ground. BooMap96 is a program that computes C-weighted DNL contours in military air combat maneuver training airspaces for supersonic activities. C-weighted DNL contours in air combat maneuver arenas follow an elliptical pattern that depends on the size of the airspace and the sortie rate.

Noise from ordnance deliver (blast noise) is impulsive in nature and of short duration. Blast noise contours are developed using the DoD's BNOISE program. See Supporting Study: Noise Study (available at https://www.frtcmodernizationeis.com) for additional details on the models used.

3.7.1.3.3 Noise Effects

Speech Interference (Indoor). Speech interference associated with aircraft noise is a primary cause of annoyance for communities. Speech interference can cause disruption of routine activities, such as enjoyment of radio or television programs, telephone use, or family conversation, giving rise to frustration or irritation. In extreme cases, speech interference may cause fatigue and vocal strain to individuals who try to communicate over the noise.

Classroom/Learning Interference. There has been limited research in the area of aircraft noise effects on children and classroom/learning interference. Research suggests that environments with sustained high background noise can have a variety of effects on children, including effects on learning and cognitive abilities and various noise-related physiological changes. Research on the impacts of aircraft noise, and noise in general, on the cognitive abilities of school-aged children has received more attention in recent years. Several studies suggest that aircraft noise can affect the academic performance of school children. Physiological effects in children exposed to aircraft noise and the potential for health effects have been the focus of limited investigation. Two studies have been conducted, both in Germany, that examined potential physiological effects on children from noise. One examined the relationship between stress hormone levels and elevated blood pressure in children residing around the Munich airport. The other study was conducted in diverse geographic regions and evaluated potential physiological changes (e.g., change in heart rate and muscle tension) related to noise. The studies showed that there may be some relationship between noise and these health factors;

however, the researchers noted that further study is needed in order to differentiate the specific cause and effect to understand the relationship (U.S. Department of Defense, 2013).

This EIS assesses the magnitude of classroom interference by estimating the number of events above a level. For this analysis, the DoD Noise Working Group recommends that an interior noise level of 50 dB L_{max} be used because this represents a level at which a person with normal hearing can clearly hear someone (i.e., a teacher) speaking at a level of 50 dB indoors in a classroom setting (U.S. Department of Defense, 2009). This assumes that the classroom is insulated and typically possesses heating and air systems, which can reduce the amount of noise coming from outside disturbances. The American National Standards Institute (ANSI) standard (ANSI S12.60) for inside a classroom is 35 dB. The 35 dB acoustical performance criteria for steady classroom background noise levels was based on the assumption that a signal-to-noise ratio of at least +15 dB is necessary to ensure that noise will not be a barrier to learning within a classroom. Assuming a minimum speech level of 50 dB, a signal-to-noise ratio of at least +15 dB will always be achieved if the background noise level does not exceed 35 dB. Normal conversation is about 60 dB, but this is assumed to be for up-close, person-to-person conversation; therefore, the level of 50 dB is used for classroom/learning interference to account for children who may be sitting in the back of the classroom.

Sleep Disturbance. Disturbance of sleep is a major concern for communities exposed to nighttime aircraft noise. The DoD guidelines for evaluating sleep disturbance are based upon the methodology and standards developed by ANSI and the Acoustical Society of America in 2008 (American National Standards Institute, 1988; U.S. Department of Defense, 2009). In this EIS, the effect of aircraft noise on sleep is evaluated using an indoor SEL noise metric (the sound exposure level inside a building from a noise outside the building. This metric represents the probability of awakening at least once during a night of average aircraft noise activities. The SELs are based upon the particular type of aircraft, flight profile, power setting, speed, and altitude relative to the receptor. The results are then presented as a percent probability of awakening (U.S. Environmental Protection Agency, 1974).

Outdoor Speech Interference, Potential Noise Effects on Recreation and Outdoor Activities. Outdoor speech interference, similar to indoor speech interference, can disrupt routine outdoor activities, such as hiking, participating in or being a spectator at ball games, or camping in a park. In this EIS, the analysis of outdoor speech interference is based on the number of events that are greater than 65 dB outdoors. The assumption is this noise level would be above background and normal conversation sound levels and may cause disturbance for recreationists.

Potential Hearing Loss. Hearing loss is generally interpreted as a decrease in the ear's sensitivity or acuity to perceive sound (i.e., a shift in the hearing threshold to a higher level). This change can be either a temporary threshold shift or a permanent threshold shift. The 1982 EPA Guidelines for Noise Impact Analysis provides that people who experience continuous, daily exposure to high noise in the workplace over a normal working lifetime of 40 years, with exposure lasting eight hours per day for five days per week, beginning at an age of 20 years old, may be at risk for a type of hearing loss called Noise Induced Permanent Threshold Shift (NIPTS). NIPTS defines a permanent change in hearing level, or threshold, caused by exposure to noise (U.S. Environmental Protection Agency, 1982). NIPTS can result from repeated exposure to high noise levels, during which the ears are not given adequate time to recover. A temporary threshold shift can eventually become a NIPTS over time with repeated exposure to high noise levels. Even if the ear is given time to recover from temporary threshold shift, repeated occurrence may eventually lead to permanent hearing loss. The point at which a temporary threshold shift results in a NIPTS is difficult to identify and varies with a person's sensitivity to noise. According to

the EPA, changes in hearing level of less than 5 dB are generally not considered noticeable (U.S. Environmental Protection Agency, 1982). No known evidence exists that an NIPTS of less than 5 dB is perceptible or has any practical significance for the individual affected, which is supported by the fact that the variability in audiometric testing is generally assumed to be plus or minus 5 dB.

As stated previously, NIPTS is stated in terms of the average threshold shift at several frequencies that can be expected from daily exposure to noise over a normal working lifetime. This workplace exposure standard is not intended to accurately describe the impact of intermittent noise events such as periodic aircraft overflights but is presented as a "worst-case" analytical tool. This analysis assumes that individuals are outdoors at the location of their residence for at least 8 hours per day, every day, for 40 years. To put the conservative nature of this analysis into context, the national average of time spent indoors is approximately 87 percent (or almost 21 hours of the day). Nonetheless, this analysis is provided per DoD policy directive to support informed decision-making.

DoD policy directive requires that hearing loss risk be estimated for the at-risk population, defined as the population exposed to a DNL greater than or equal to 80 dB (U.S. Department of Defense, 2009). To assess the potential for NIPTS, the Navy generally uses the 80 dB DNL contour (i.e., areas with high noise levels) as an initial threshold to identify the population to be analyzed for possible hearing loss (U.S. Department of Defense, 2013). Within this contour, the analysis identifies individuals subject to specific levels of sound using the 24-hour Equivalent Sound Level (L_{eq}[24]). L_{eq}(24) is used instead of DNL because characterizing noise exposure in terms of DNL will usually overestimate the assessment of hearing loss risk, particularly at night. DNL includes an artificial 10 dB weighting factor for aircraft operations occurring between 2200 and 0700. However, this added 10 dB is not sound actually heard by the public.

Nonauditory Health Effects. Studies have been conducted to examine the nonauditory health effects of aircraft noise exposure, focusing primarily on stress response, blood pressure, birth weight, mortality rates, and cardiovascular health. Exposure to noise levels higher than those normally produced by aircraft in the community can elevate blood pressure and also stress hormone levels. However, the response to such loud noise is typically short in duration: after the noise goes away, the physiological effects reverse and levels return to normal. In the case of repeated exposure to aircraft noise, the connection is not as clear. The results of most cited studies are inconclusive, and it cannot be conclusively stated that a causal link exists between aircraft noise exposure and the various type of nonauditory health effects that were studied (U.S. Department of Defense, 2009).

No studies have shown a definitive causal and significant relationship between aircraft noise and health. Inconsistent results from studies examining noise exposure and cardiovascular health have led the World Health Organization to conclude that there was only a weak association between long term noise exposure and hypertension and cardiovascular effects (Ludlow & Sixsmith, 1999). A later study also concluded that the relationship between noise exposure and heart disease was inconclusive (Federal Aviation Administration, 2016). More recently, major studies have been conducted in an attempt to identify an association between noise and health effects, develop a dose-response relationship, and identify a threshold below which the effects are minimal. These studies have produced inconsistent results for associations between aircraft noise and heart health, ranging from no statistical significance to marginal statistical significance. In some cases, the studies did not control for variables that could impact conclusions such as smoking and poor diet, both of which can contribute to cardiovascular disease.

Several researchers have examined pooled results from multiple studies examining noise exposure effects on heart health. The outcomes of these pooled studies have also produced inconsistent results. Two such studies found that an exposure-response relationship could not be established for the association between aircraft noise and cardiovascular risk due to methodological differences between studies (Bureau of Land Management & Department of Energy; Sonner, 2016). A third pooled study suggested that aircraft noise could contribute to hypertension, but it noted that the relationship was inconclusive due to limitations in study populations, exposure characterization, and control of confounding variables (Ely Gold, 2017). Finally, Federal Aviation Administration (2016) found that the risk of heart disease per 10 dB increase in noise exposure had marginal statistical significance, but the relationship between noise exposure and mortality from heart disease was not statistically significant.

Vibration Effects from Aircraft Operations. Depending on the aircraft operation, altitude, heading, power settings, maneuvers, and the structure, certain vibration effects may be observed. Typically, the structural elements that are most susceptible to vibration from aircraft noise are windows and sometimes walls or ceilings. Conservatively, only sounds lasting more than one second above a sound level of 130 dB are potentially damaging to structural components of a building (Nevada Division of Environmental Protection, 2011). Noise-induced structural vibration may cause annoyance to dwelling occupants because of induced secondary vibrations, or "rattle," of objects within the dwelling, such as hanging pictures, dishes, plaques, and bric-a-brac. Loose window panes may also vibrate noticeably when exposed to high levels of airborne noise, which could cause homeowners to fear breakage.

3.7.1.4 Approach to Analysis

Noise contours for aviation activity and ordnance noise were generated for activities performed under the Action Alternatives (see Supporting Study: Noise Analysis, available at www.frtcmodernization.com). The contours for activities performed under the Action Alternatives were compared to the contours for activities performed under the environmental baseline. The DNL from each alternative was overlaid on the DNL contour map for the environmental baseline. Overlaying the maps created a "difference" map, which shows areas where the DNL may increase or decrease. Any such increases or decreases in DNL within a particular area were taken into account in conjunction with baseline DNLs.

Contours for construction or transportation noise supporting construction or infrastructure were not generated, but were calculated using established noise metrics for construction or transportation noise.

Noise contours for aviation activity and ordnance noise, and calculations for construction or transportation noise for each of the alternatives, were examined to determine whether they would produce one or more of the following effects:

- An increase in the DNL at any sensitive receptor of 5 or more dB, which is a notable change to the receiver and would indicate a substantial degradation in the noise environment.
- An increase in the number or intensity of intrusive noise events on nearby public or private lands, which would indicate an associated increase in distraction and interference with noise-sensitive activities. This includes the potential for annoyance, speech interference, classroom/learning interference, sleep disturbance, effects on recreation, or potential hearing loss.
- Impulse noise that would result in a high risk of noise complaints.

Additionally, since the FAA may utilize this EIS to fulfill requirements to establish the proposed MOAs and for the reconfiguration of the FRTC airspace, an additional level of analysis was performed to

compare DNLs under each alternative with the DNL under the environmental baseline. This analysis included the following considerations:

- Areas experiencing an increase in DNL of 1.5 dB or more into or within the DNL 65 dB noise exposure when compared to the environmental baseline for the same timeframe (aerial maps of the areas were inspected for residences or other sensitive receptors (such as schools, libraries, hospitals, etc.) within the 65 and 70 dB contours) were considered a significant change in the noise environment. If DNLs did not increase 1.5 dB or more because of implementation of an Action Alternative (or dropped), this was considered a non-significant change in the noise environment.

In addition to contour generation, the Navy selected 20 locations throughout the FRTC to model additional noise metrics. These locations (points of interest) and metrics were used in addition to the contours described above to evaluate the potential for annoyance, speech interference, classroom/learning interference, sleep disturbance, effects on recreation, or potential hearing loss.

3.7.1.5 Public Concerns

The public identified several concerns regarding noise, most notably regarding sonic booms and noise from low-level aircraft overflights, as well as concerns regarding potential vibrational impacts to structures from aviation and ordnance noise. Potential vibrational impacts to cultural buildings or sites are discussed in 3.11 (Cultural Resources) and noise effects to biological resources are discussed in 3.10 (Biological Resources). Public commenters also indicated the need to include compiled data from any noise complaints that have occurred throughout the region. For further information regarding comments received during the public scoping process and the public commenting process on the Draft EIS, please refer to Appendix E (Public Participation) and Appendix F (Public Comments and Responses).

3.7.2 Affected Environment

The predominant noise sources within the FRTC consist of aircraft operations, both at and around NAS Fallon, as well as in the airspace and on ranges. Other components include range operations and noise from ordnance use, noise from construction, aircraft ground support equipment for maintenance purposes, and vehicle traffic, but such noise generally represents a transitory and negligible contribution to the average noise level environment. Response to noise varies, depending on the type and characteristics of the noise, the distance between the noise source and whoever hears it (the receptor), the receptor's sensitivity, and the time of day.

The number of aircraft events in the affected environment commonly varies day to day. Due to the sporadic characteristic of SUA activity, noise assessments for the DNL noise metric are normally conducted for the busiest month of activities. The busiest month sorties are the basis for the modeling of aircraft operations within SUA throughout the analysis in this EIS. Overall, aircraft overflights would create discrete brief noise events that, while noticeable because they would exceed the ambient background sound level, would contribute very little to the DNL.

Military aircraft utilizing SUA under the environmental baseline (Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement*), such as Military Training Routes, MOAs, and Restricted Areas/Ranges, generate a noise environment that is somewhat different from that associated with airfield operations. As opposed to patterned or more continuous noise environments associated with airfields, flight activity in SUAs is highly sporadic and often seasonal, ranging from 10 flights per hour to less than one per week. Airfield operations at NAS Fallon (i.e., takeoffs and landings, pattern work, etc.) are not analyzed in this document as the

number of operations would not change. The environmental impacts of operations at NAS Fallon that have been analyzed in separate National Environmental Policy Act (NEPA) documentation remain valid.

3.7.2.1 Sensitive Receptors

Sensitive receptors are those areas where noise interferes with normal activities associated with its use. The FRTC SUA overlies portions of Washoe, Lyon, Churchill, Pershing, Mineral, Nye, Elko, Lander, and Eureka counties (Figure 3.7-2). Most of the lands under the FRTC airspace are public lands administered by the Bureau of Land Management. Sensitive receptors on these lands include residential, educational, health, and religious structures and sites; parks; recreational areas (including areas with wilderness characteristics); tribal reservations; wildlife refuges; and cultural and historical sites. In the context of noise from explosives firing ranges, sensitive receptors may include areas in the immediate vicinity of operations. Users of designated recreational areas are considered sensitive receptors.

Additionally, FRTC operators are aware of a number of locations, either as coordinate points or areas defined by 5 nautical mile buffers from coordinate points, as shown in Figure 3.7-2 and labelled as noise sensitive areas. As a noise abatement measure, pilots overflying these areas are instructed to maintain altitudes of no lower than 3,000 feet above ground level to minimize potential noise impacts to these areas.

3.7.2.2 Noise Zones and Compatibility

3.7.2.2.1 Small Arms and Aviation Land Use Zones

OPNAVINST 3550.1 (U.S. Department of the Navy, 2008b) provides suggested compatibility criteria for various land uses (Table 3.7-2) exposed to aircraft noise at certain DNL levels. Army Regulation 200-1 defines the land use planning zones to classify the compatibility of small arms noise (less than 20 calibers – these are used on B-16) with residential or noise-sensitive areas. Compatible land use means the use of land that is identified as normally compatible with the outdoor sound environment (or an adequately attenuated sound level reduction for any indoor activities involved) at the location because the DNL is at or below those identified for that land use. The Navy utilizes these land use planning zones for small arms and aviation noise as well. The three noise zones are described below.

- Noise Zone I includes all areas in which the A-weighted DNL (ADNL) from small arms or aviation activities is less than 65 dBA. Noise Zone I is the zone farthest from the sound source and includes all areas not within the other two Noise Zones. Zone I is generally acceptable with any residential or noise-sensitive uses.
- Noise Zone II includes all areas in which the ADNL is between 65 and 75 dBA. Sound exposure in this zone is substantial, and recommended land uses include manufacturing, warehousing, and transportation. Residential development in this zone is not normally recommended.
- Noise Zone III includes all areas in which the ADNL is above 75 dBA. Noise-sensitive land uses, such as housing, schools, churches, and medical facilities, are not compatible with this zone.

Table 3.7-2: Noise Zones and Compatibility Levels for Small Arms and Aviation A-Weighted Day-Night Levels

Zone	Small Arms/Aviation A-weighted DNL	Compatibility with Residential/ Noise-Sensitive Land Uses
I	< 65 dBA	Compatible
II	65–75 dBA	Normally Incompatible[1]
III	> 75 dBA	Incompatible

[1] Sensitive receptors include residences, mobile home parks, transient lodging, schools, hospitals, and churches

Notes: dBA = A-weighted decibels, DNL = Day-Night Average Sound Level

Source: OPNAVINST 3550.1 (U.S. Department of the Navy, 2008b) and A.R. 200-1 (U.S. Army & Center for Health Promotion and Preventive Medicine, 2005)

3.7.2.2.2 Impulse Sound

The U.S. Army Public Health Command has defined the following three land use planning zones (Table 3.7-3) for explosive/impulse noise in its *Operational Noise Manual: An Orientation for Department of Defense Facilities* (U.S. Army & Center for Health Promotion and Preventive Medicine, 2005), which the Navy uses for land planning recommendations:

- Noise Zone I includes all areas in which the C-weighted DNL from explosives is below 62 dBC. Noise Zone I is the zone farthest from the sound source and includes all areas not within the other two Noise Zones. This area is suitable for all types of land uses.
- Noise Zone II includes all areas in which the C-weighted DNL is between 62 and 70 dBC. Sound exposure in this zone is substantial, and allowable land uses include manufacturing, warehousing, and transportation. Residential development in this zone is not normally recommended.
- Noise Zone III includes all areas in which the C-weighted DNL is above 70 dBC. Sound-sensitive land uses, such as housing, schools, churches, and medical facilities, are not recommended within this zone.

For reference, noise from munitions (blast noise) is impulsive in nature and of short duration. The C-weighted DNL is used when employing sound sources that are impulsive in nature, less than one second in duration, but are not small arms related (e.g., larger munitions, explosive detonations). C-weighted sound levels are often used for the analysis of low-frequency sounds such as artillery and detonations.

Additionally, community annoyance from impulsive noise can be assessed using C-weighted DNL. The relationship between C-weighted DNL and annoyance has been estimated, based on community reaction to impulsive noises over several years (Federal Interagency Committee on Noise, 1992). Whereas occupational sound levels are assessed in terms of hearing loss, environmental sound levels are assessed in terms of their potential to interfere with personal, workplace, and community activities, and in terms of their potential to annoy occupants of nearby land uses.

Table 3.7-3: Noise Zones and Compatibility Levels for Impulse and Large Arms Day-Night Levels

Zone	Explosives Day-Night Average C-weighted DNL	Compatibility with Residential/Noise-Sensitive Land Uses
I	< 62 dBC	Compatible
II	62–70 dBC	Normally Incompatible
III	> 70 dBC	Incompatible

Notes: dBC = C-weighted decibels, DNL = Day-Night Average Sound Level
Source: AR 200-1 (U.S. Army & Center for Health Promotion and Preventive Medicine, 2005)

The DoD's Noise Working Group indicates that impulse noises should be considered separately when the peak sound level exceeds 110 dB. The effects of impulse noises should be determined based on C-weighted DNL (U.S. Department of Defense, 2013). Table 3.7-4 presents DoD guidelines for evaluating the effects of impulsive gun noise on the community. The DoD developed metrics to evaluate the complaint potential from impulsive noise. This set of metrics, developed by the Naval Surface Warfare Center, Dahlgren, Virginia, are based on over 10 years' experience using meteorological forecasts. The table below shows the guidelines.

These levels resulted from the best compromise between cost, efficiency of range operations, and good community relations. The metrics are presented in Table 3.7-4, expressed in dBP rather than dBC, and correspond to areas of low-to-high risk of noise complaints (U.S. Army & Center for Health Promotion and Preventive Medicine, 2005). These impulsive noise levels are an additional metric used to assess the extent of impulsive effects on the region.

Table 3.7-4: Impulse and Large Arms Complaint Prediction Guidelines

Predicted Sound Level (dBP)	Risk of Complaints	Action
< 115	LOW	Fire all programs
115–130	MODERATE	Fire important tests Postpone non-critical testing if possible
130–140	HIGH	Only extremely important tests should be fired.
> 140	HIGH (risk of physiological and structural damage claims)	Postpone all explosive activities

Notes: (1) For rapid-fire test programs or programs that involve many repetitions of impulse sound, reduce allowed sound levels by 15 dBP; (2) dBP = peak decibels
Source: U.S. Department of Defense (2013).

Schromer (2005) suggests that "regular" impulse sounds be given a 5 dBP penalty to properly account for their characteristics, and penalties of 12–15 dBP are suggested for highly energetic impulsive sound. As Table 3.7-4 indicates, the Naval Surface Warfare Center recommends a 15 dBP weighting for rapid-fire impulse sound. Such an adjustment potentially moves a sound source up one risk category.

3.7.2.3 Bravo-16

Land surrounding B-16 is used for farming, ranching, mining, and recreation (e.g., trail use, hunting, and off-highway vehicle use). The existing B-16 is approximately 9 miles southwest of the NAS Fallon Main

Station (Figure 3.7-2). The closest offsite sensitive receptors (residences) are located approximately 0.25 mile northeast of B-16.

3.7.2.3.1 Existing Aircraft Noise

Figure 3.7-3 shows the DNL levels for a "busy month" for B-16 based on the number of activities listed in the environmental baseline as described in Supporting Study: Noise Study (available at https://www.frtcmodernization.com). As displayed in Figure 3.7-3, under the environmental baseline, approximately 110 acres to the west of the existing B-16 are within the 65 dBA (and above) noise contour. Approximately 926 acres are within the 75 dBA contour (but not above 80 dBA). Visual inspection of aerial maps of the areas within regions where the DNL is above 65 dBA reveals no sensitive receptors (e.g., residences, lodging, or medical facilities).

3.7.2.3.2 Existing Munitions Noise

Small arms use on B-16 under the environmental baseline is restricted to .50 caliber, 5.56 millimeters (mm), 7.62 mm, and 9 mm. Contours for small arms munitions were not created; instead, Table 3.7-5 displays the maximum noise levels from various small arms at various distances from firing points to illustrate how far noise levels propagate. Distances to sensitive receptors at B-16 are such that noise levels do not significantly contribute to the noise environment, as received noise levels near the range boundary from these activities would be at or near ambient levels. Further, noises from small arms would likely be subsumed by noises from large-caliber weapons use on B-16.

Table 3.7-5: Maximum Noise Levels (A-Weighted Decibels) at Various Distances Generated by Small Arms Weapons Firing

Munition Type	Distance from Source[1]			
	500 m (1,640 ft.)	1,000 m (3,281 ft.)	2,000 m (6,562 ft.)	3,000 m (9,842 ft.)
5.56 mm	*	65	55	48
7.62 mm	71	62	54	49
.50 caliber	92	85	78	*

[1] Noise Level in the direction of fire

* Not presented in source material

Notes: ft. = feet, m = meters, mm = millimeters

Source: U.S. Army Environmental Command (2012).

While small arms are utilized at B-16, large-caliber weapons (defined as weapons projectiles with diameters larger than 20 mm) are also used. Figure 3.7-4 shows 57, 62, and 70 C-weighted DNL levels from existing bombing activities at B-16. Activities at these locations do not affect surrounding areas or sensitive receptors because the 62 dB contour does not extend beyond the range boundary. Additionally, Figure 3.7-5 presents the existing peak decibel levels from existing munitions use at B-16. Neither the 115 nor 130 dBP values extend past the boundary of the existing range.

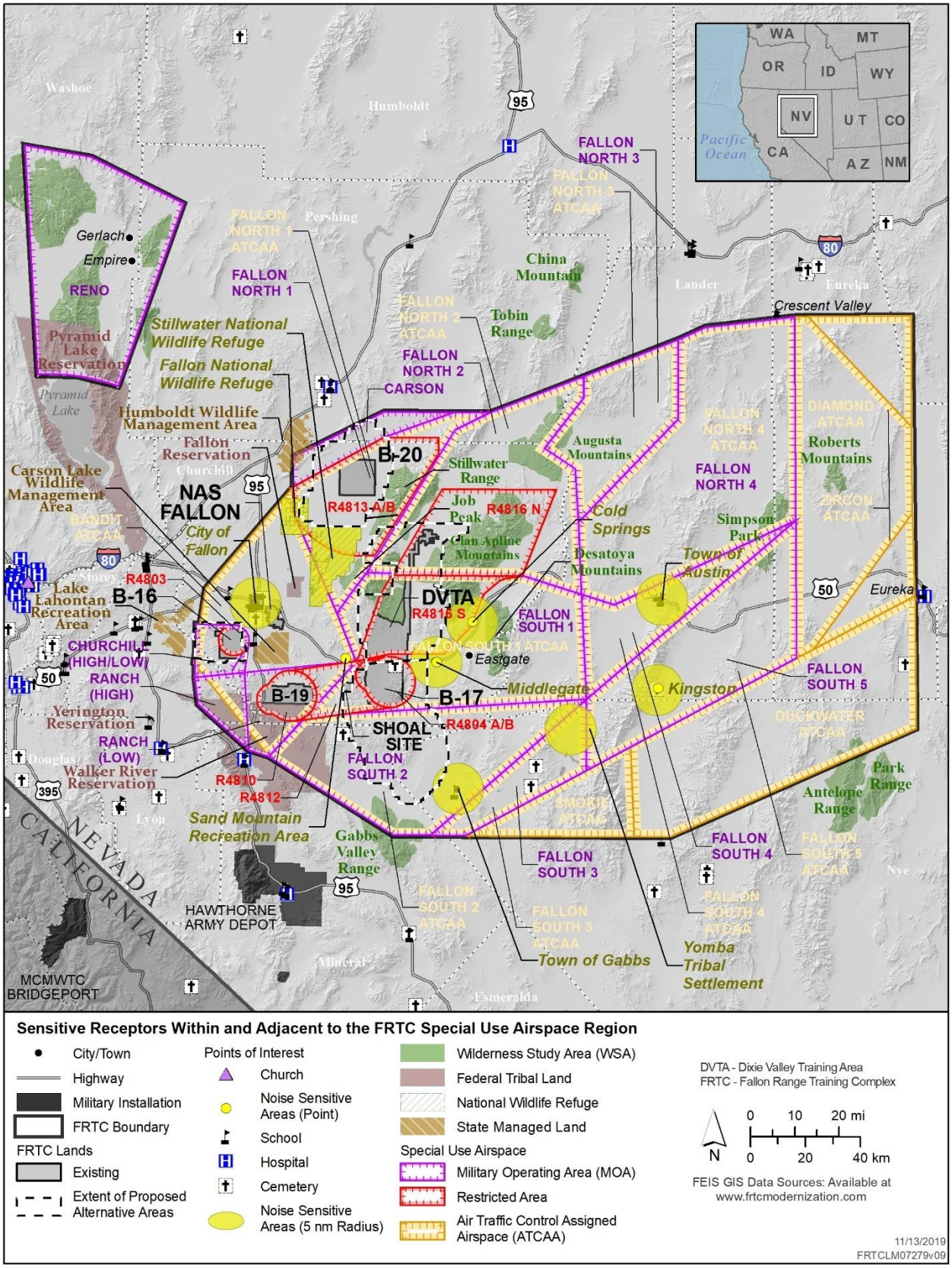


Figure 3.7-2: Sensitive Receptors Within and Adjacent to the FRTC Special Use Airspace Region

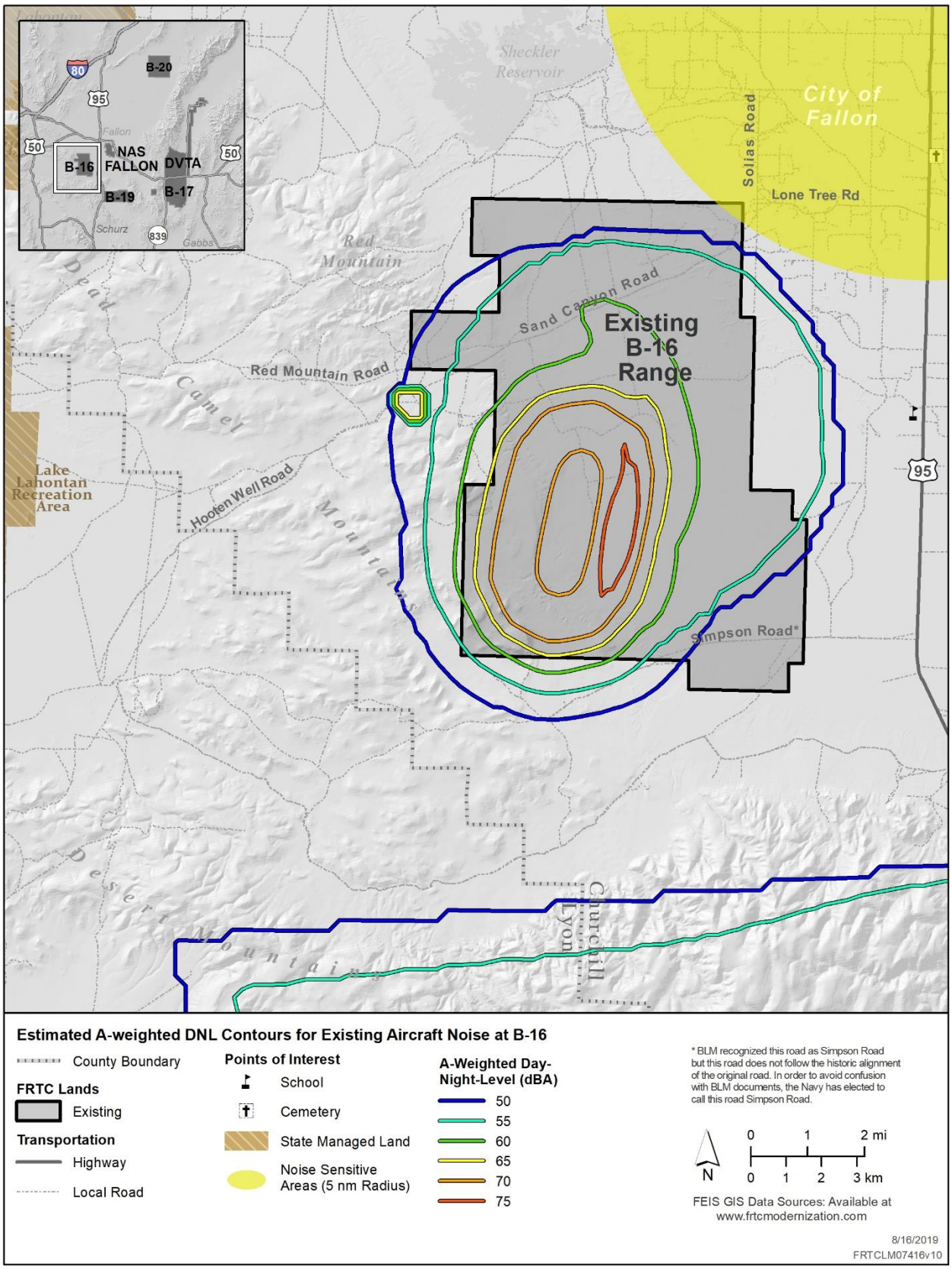


Figure 3.7-3: Estimated A-weighted DNL Contours for Existing Aircraft Noise at B-16

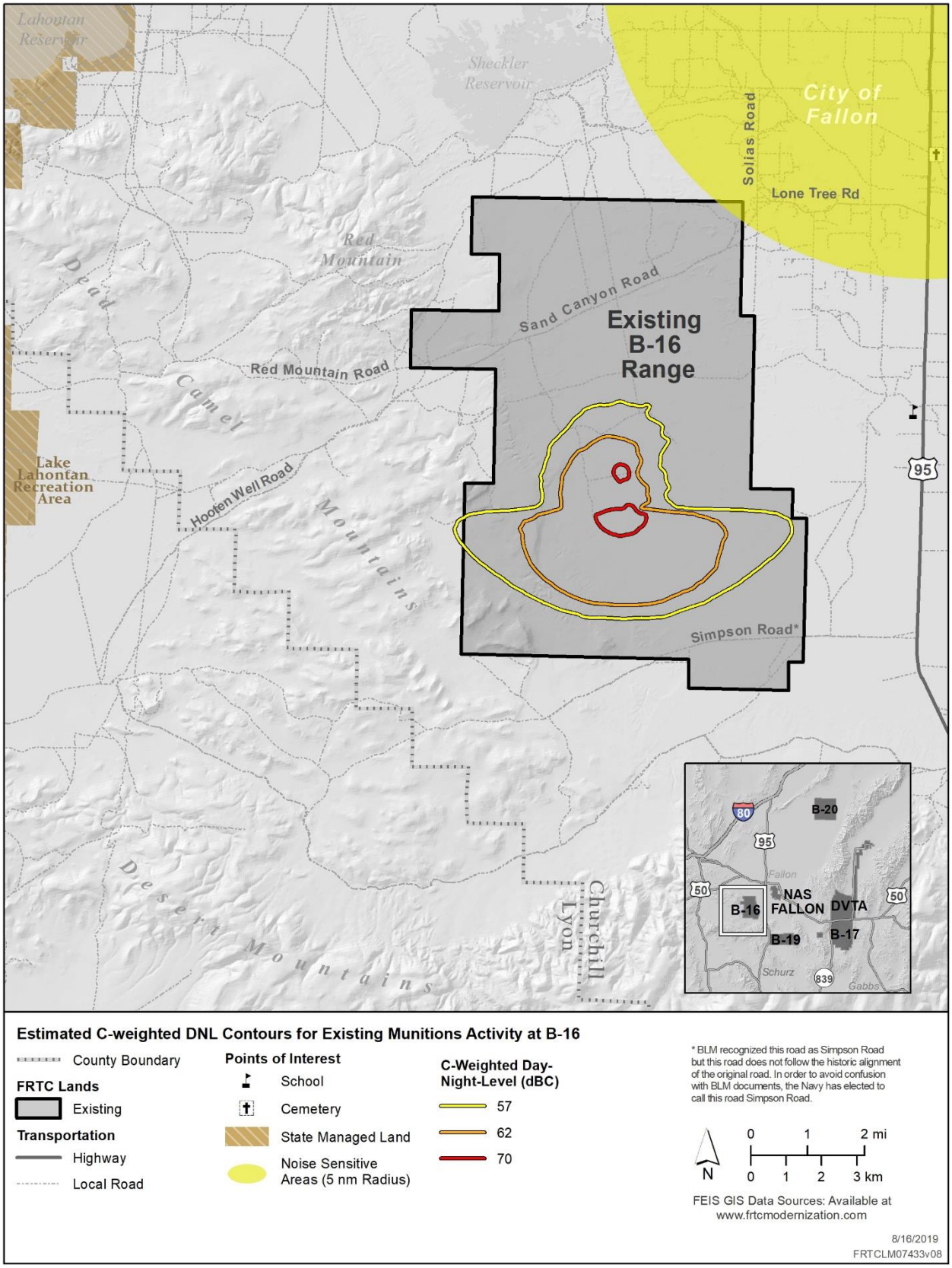


Figure 3.7-4: Estimated C-weighted DNL Contours for Existing Munitions Activity at B-16

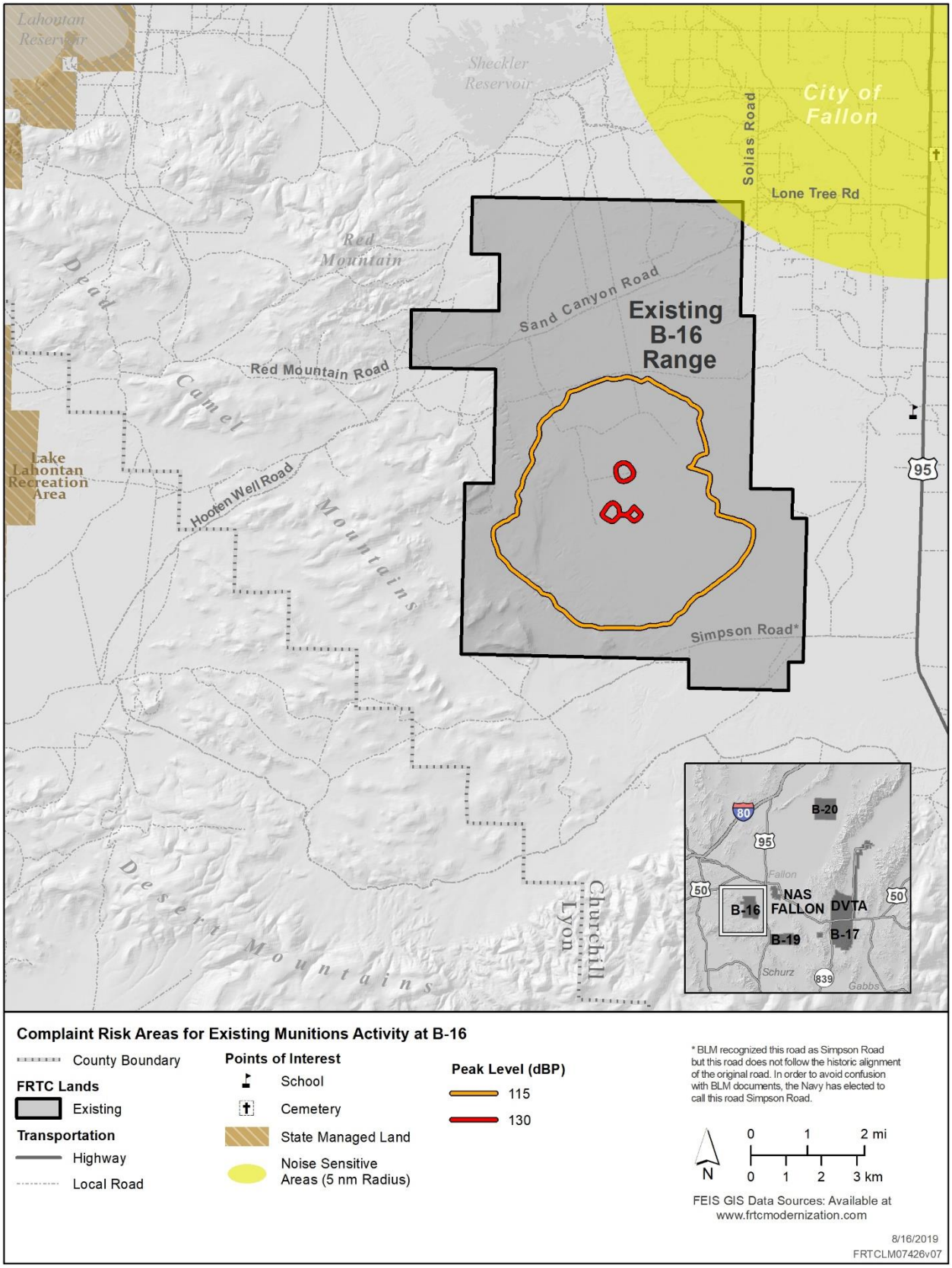


Figure 3.7-5: Complaint Risk Areas for Existing Munitions Activity at B-16

3.7.2.4 Bravo-17

The existing and proposed B-17 range is south and southeast of Fallon, Nevada (Figure 3.7-6). This area includes portions of southern Churchill County as well as northern Mineral County and northeastern Nye County. BLM land surrounds B-17 with unconnected private parcels located south and west of the range as well as north of Fairview Peak. The surrounding land is primarily used for livestock grazing, recreation (e.g., hunting and off-highway vehicle racing), and mining and geothermal development. B-17 is just south of U.S. Route 50 and is flanked on the west by the Sand Spring Mountains and State Route 839 and on the east by Fairview Peak.

3.7.2.4.1 Existing Aircraft Noise

Aircraft use B-17 for Close Air Support, Gunnery Exercise (Air-to-Ground), Missile Exercise (Air-to-Ground), and Bombing Exercise (Air-to-Ground) activities. As shown on Figure 3.7-6, a small portion of the 65 dBA contour is contained within the existing range boundary. However, a larger portion of the 65 dBA contour extends onto lands outside of the northern boundary of B-17. The 75 dBA contour exists outside the B-17 eastern boundary. Visual inspection of aerial maps indicated no sensitive receptors (e.g., residences, lodging, medical facilities) in this area.

3.7.2.4.2 Existing Munitions Noise

Noise contours were developed for the environmental baseline using the DoD's BNOISE program. Noise-generating events from munitions training within B-17 are intermittent. Figure 3.7-7 shows 57, 62, and 70 C-weighted DNL levels from existing bombing activities at B-17 and Figure 3.7-8 shows the C-weighted DNL levels from existing high-energy munitions at B-17. Neither the 62 dBC nor 70 dBC contours extend past the existing range boundary, and they do not affect surrounding areas or sensitive receptors. Additionally, Figure 3.7-9 presents the existing peak decibel levels from existing munitions use at B-17. Neither the 115 nor 130 dBP values extend past the boundary of the existing range.

3.7.2.5 Bravo-20

B-20 is located approximately 15 miles northeast of Fallon, Nevada (Figure 3.7-10). The area around the existing and proposed B-20 includes the northern portion of Churchill County and the southern portion of Pershing County. This area is predominated by the Carson Sink, which is a largely un-vegetated alkali flat between the Stillwater Range and Humboldt Mountains.

Private lands near the existing B-20 range include agricultural and vacant land northwest and northeast of B-20. The rest of the private land use is vacant/open space. Public lands within the proposed B-20 expansion area include lands managed or controlled by the Navy (B-20), BLM, Bureau of Reclamation, USFWS (i.e., Stillwater Wildlife Refuge Complex), and Churchill County.

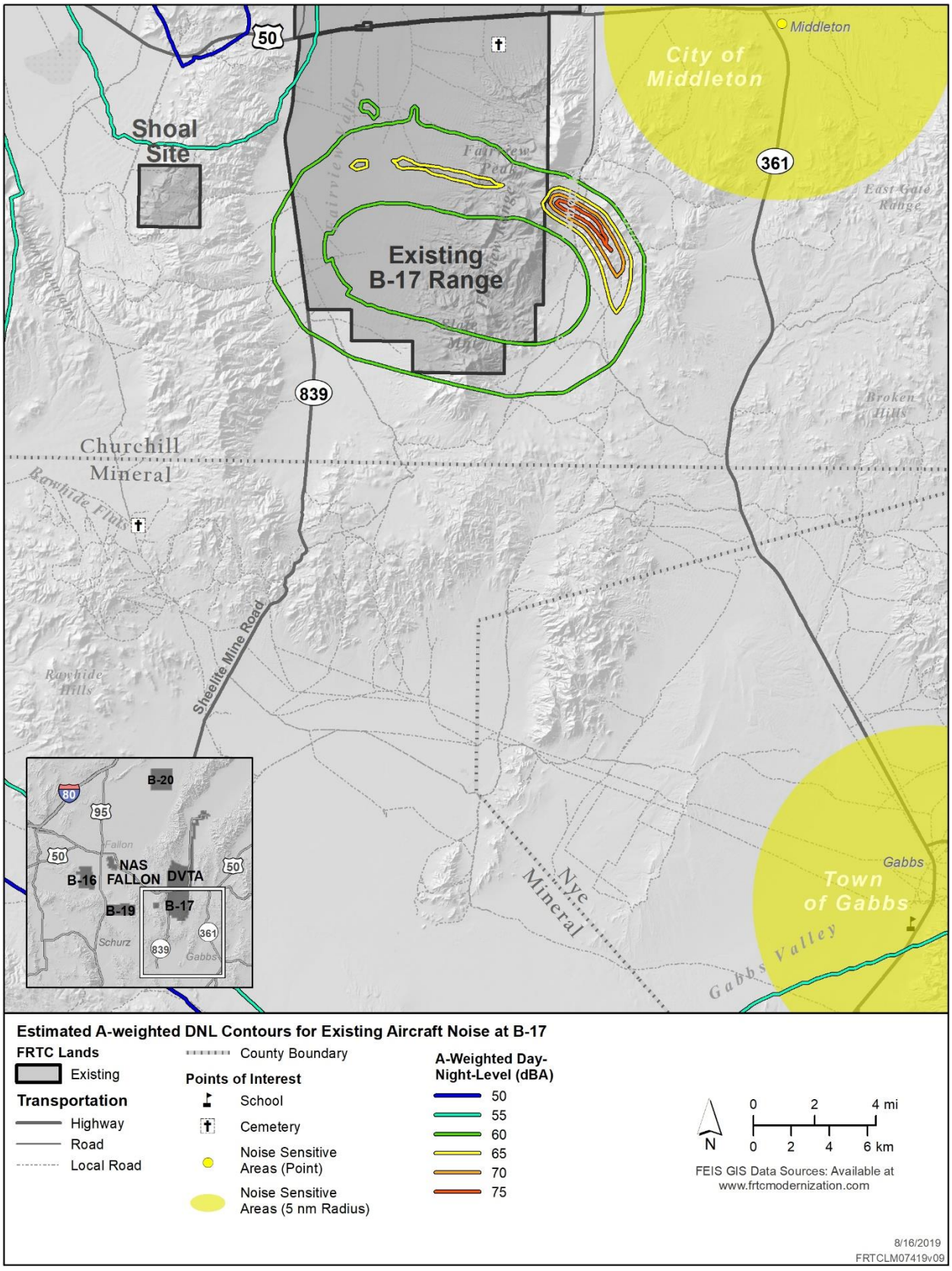


Figure 3.7-6: Estimated A-weighted DNL Contours for Existing Aircraft Noise at B-17

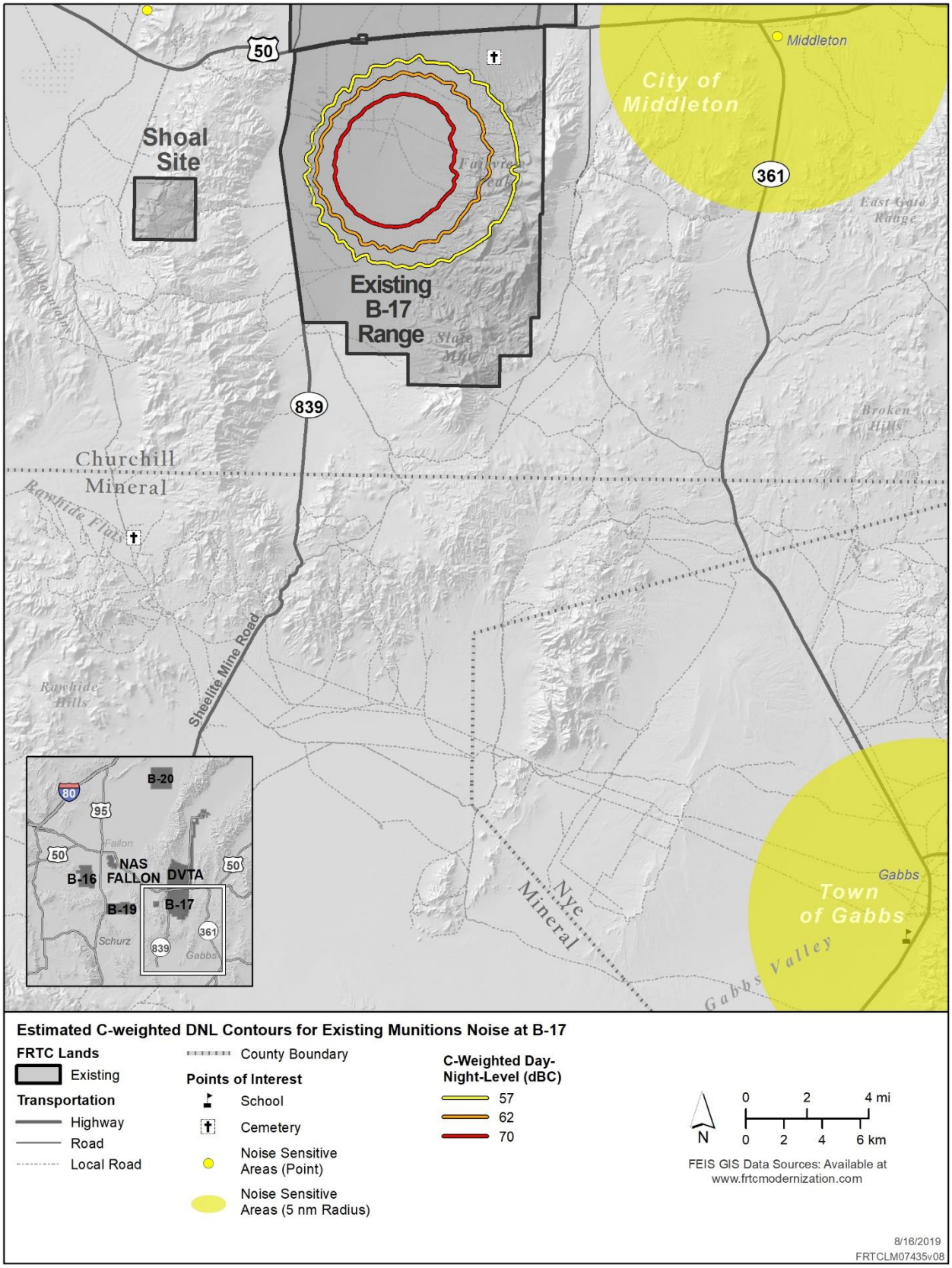


Figure 3.7-7: Estimated C-weighted DNL Contours for Existing Munitions Noise at B-17

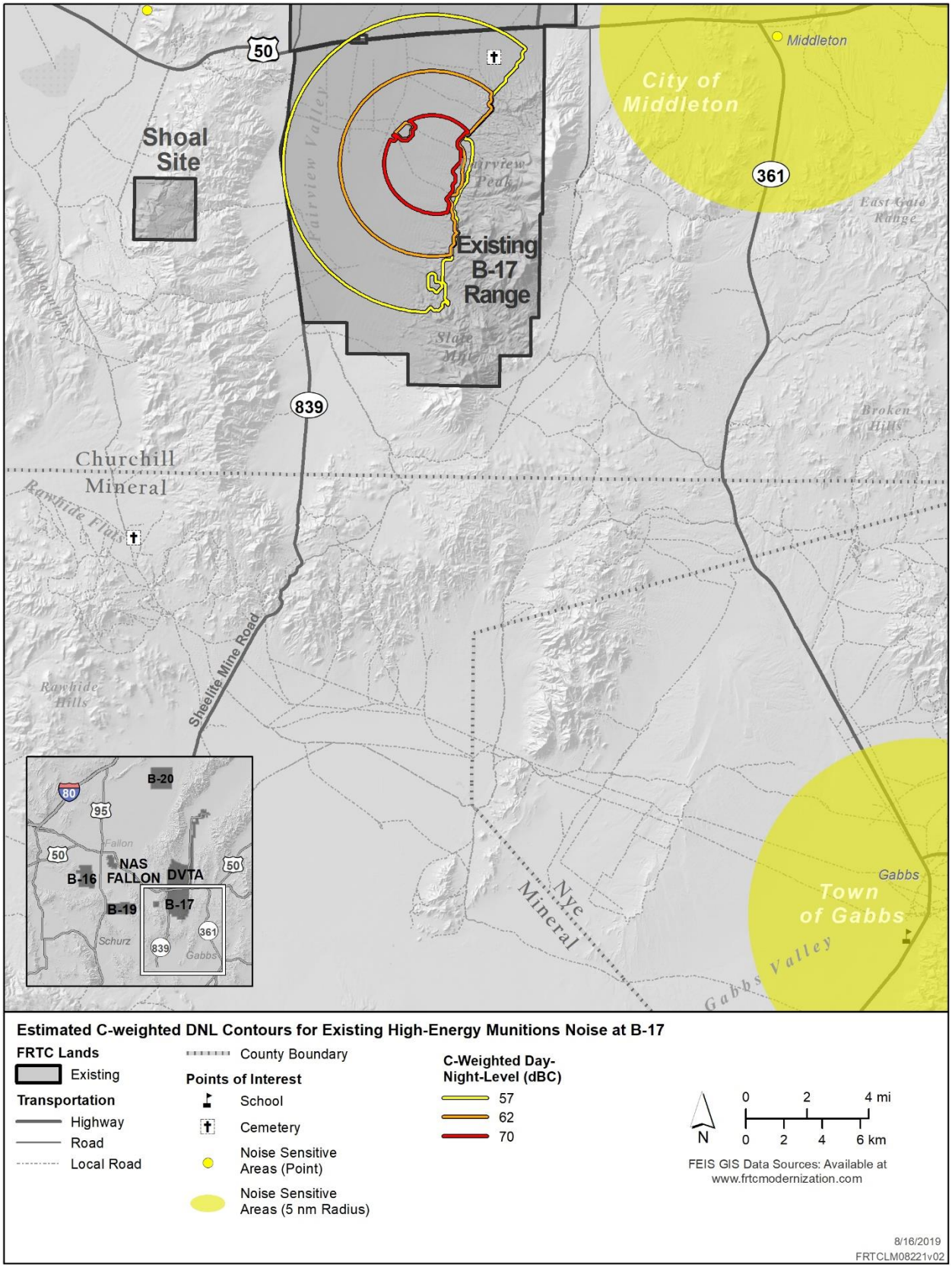


Figure 3.7-8: Estimated C-weighted DNL Contours for Existing High-Energy Munitions Noise at B-17

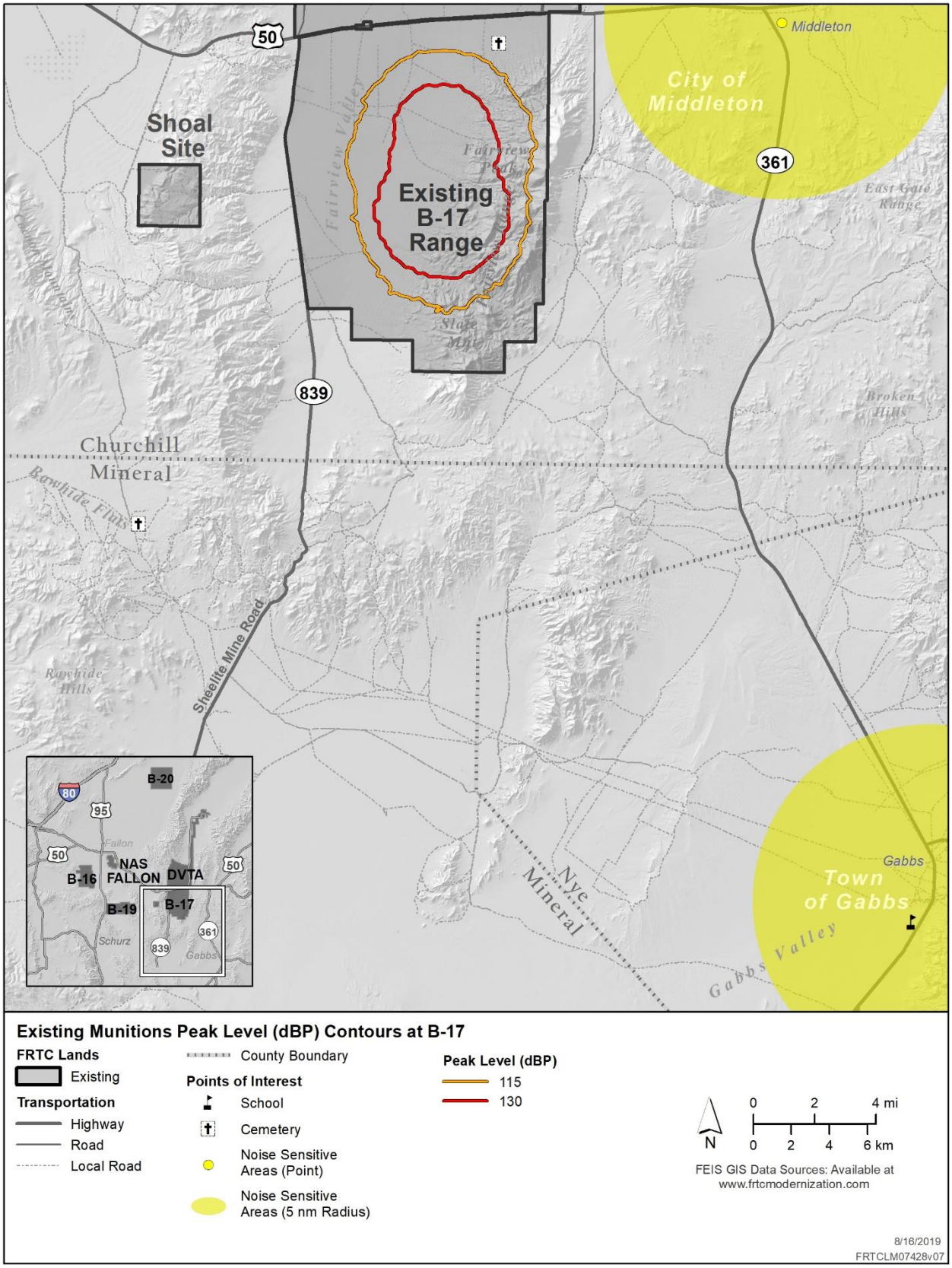


Figure 3.7-9: Existing Munitions Peak Level (dBP) Contours at B-17

3.7.2.5.1 Existing Aircraft Noise

Under the environmental baseline, aircraft use B-20 for Bombing Exercises (Air-to-Ground), Gunnery Exercises (Air-to-Ground), and Missile Exercises (Air-to-Ground). Only the 60 dBA contour extends past the range boundaries on the west, east, and south sides of B-20.

Aerial imagery reveals no sensitive receptors (e.g., residences, lodging, or medical facilities) within the areas where DNLs are above 60 dBA. Lands to the east and south of B-20 are a mixture of privately owned parcels, or BLM-managed lands, none of which are currently developed. The Stillwater Range Wilderness Study Area is immediately to the east of B-20, but the 65-dBA contour does not extend to the Wilderness Study Area boundary.

3.7.2.5.2 Existing Munitions Noise

Noise contours were developed for the environmental baseline using the DoD's BNOISE. Noise-generating events from training are intermittent. Figure 3.7-11 shows 57, 62, and 70 C-weighted DNL levels from existing bombing activities at B-20, and Figure 3.7-12 shows the C-weighted DNL levels from existing high-energy munitions at B-20. Neither the 62 nor 70 dBC extend past the existing range boundary, and they do not affect surrounding areas or sensitive receptors. Additionally, Figure 3.7-13 presents the existing peak decibel levels from existing munitions use at B-20. Neither the 115 nor 130 dBP values extend past the boundary of the existing range.

3.7.2.6 Dixie Valley Training Area

The existing Dixie Valley Training Area (DVTA) is located north of U.S. Route 50, less than 20 miles east of Fallon (Figure 3.7-14). This area is in Churchill County, Nevada. Dixie Valley is an alluvial valley between the Clan Alpine Mountains in the east and the Stillwater Range in the west. The BLM manages the majority of the land within the proposed DVTA boundaries; however, this area also includes a few private parcels. Although there are no wilderness areas within the DVTA, the Clan Alpine Mountains, Job Peak, and Stillwater Range Wilderness Study Areas are adjacent to the DVTA.

The DVTA is open to the public. U.S. Route 50 is south of the DVTA. State Route 121 is the main access road to the DVTA, which is a public road that intersects U.S. Route 50 and runs north to south through Dixie Valley. State Route 121 also connects to Dixie Valley Road. The DVTA is also accessible by Frenchman Flat Road. This road intersects with Mountain Wells Road, which provides public access to the Stillwater Mountains west of the DVTA. There are also several unnamed and named roads within Area D, which may be used by the public.

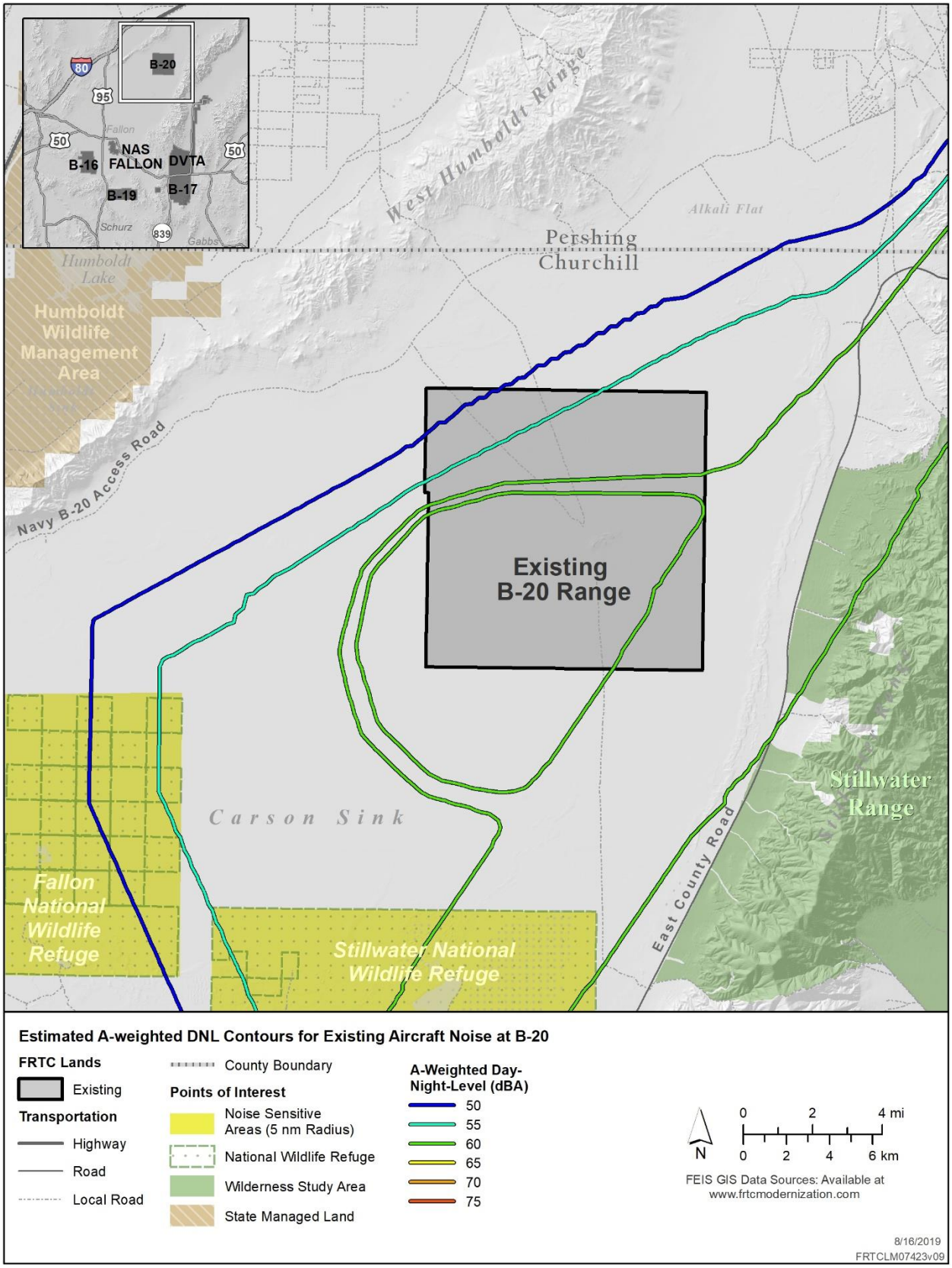


Figure 3.7-10: Estimated A-weighted DNL Contours for Existing Aircraft Noise at B-20

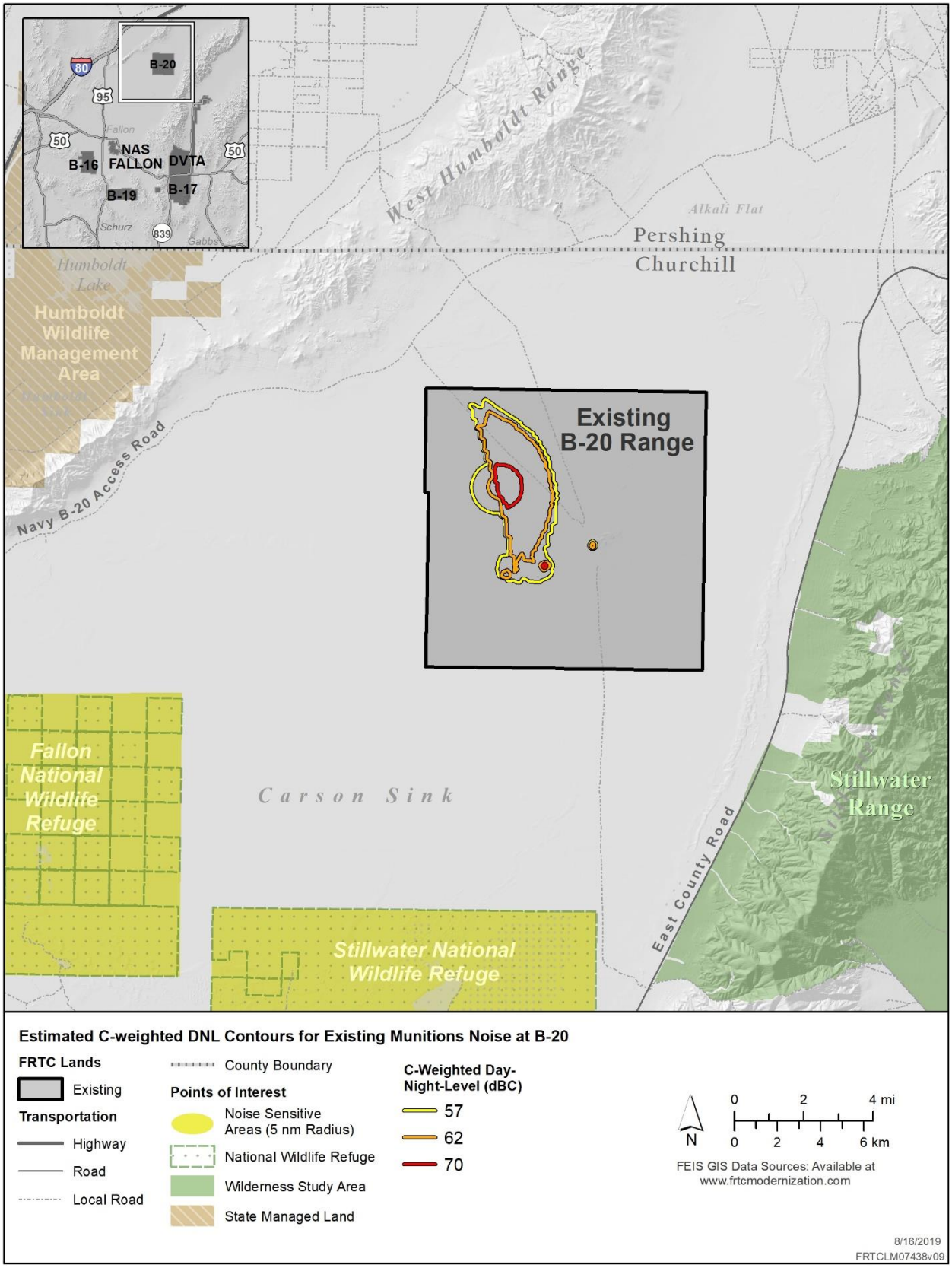


Figure 3.7-11: Estimated C-weighted DNL Contours for Existing Munitions Noise at B-20

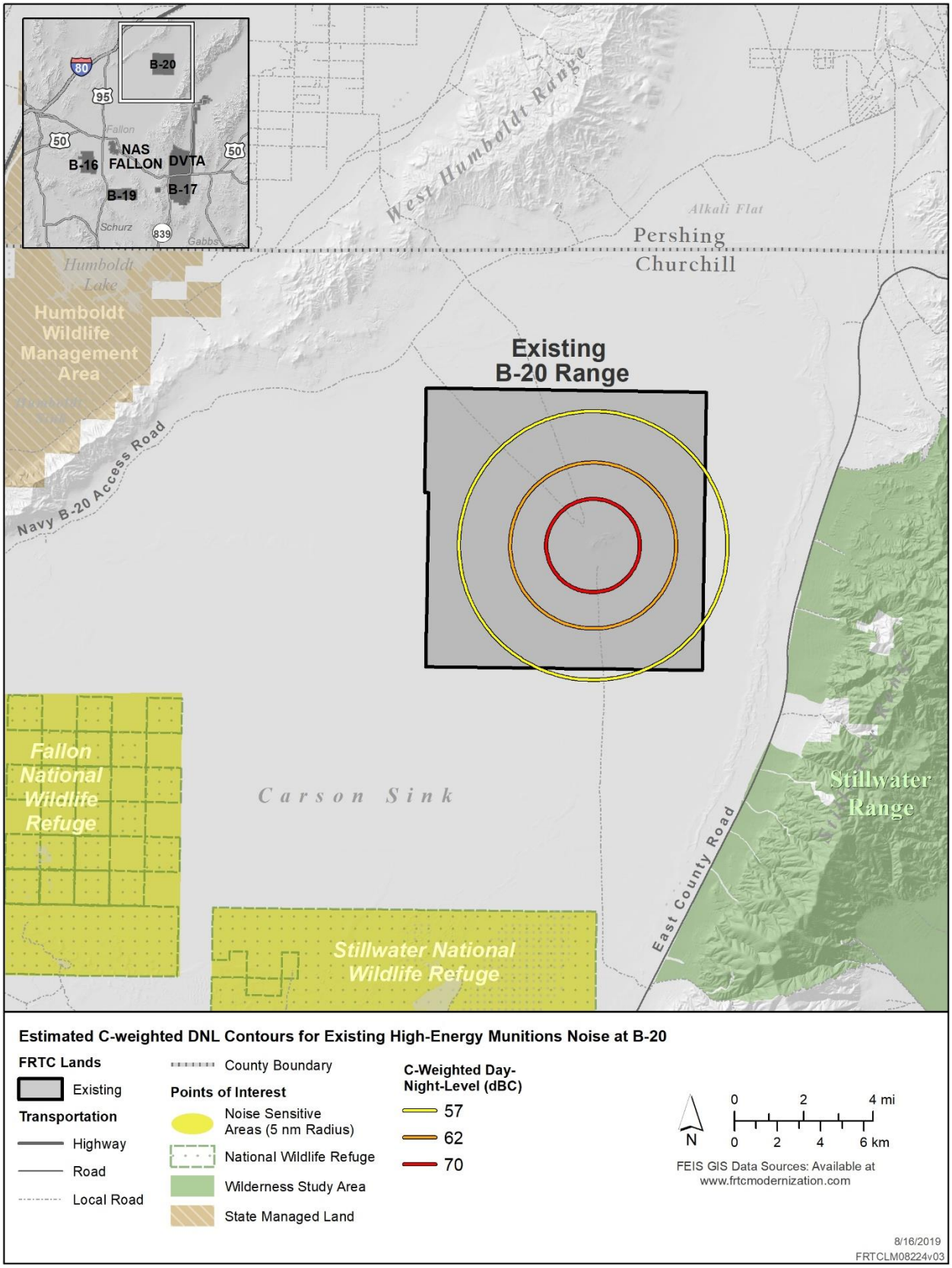


Figure 3.7-12: Estimated C-weighted DNL Contours for Existing High-Energy Munitions Noise at B-20

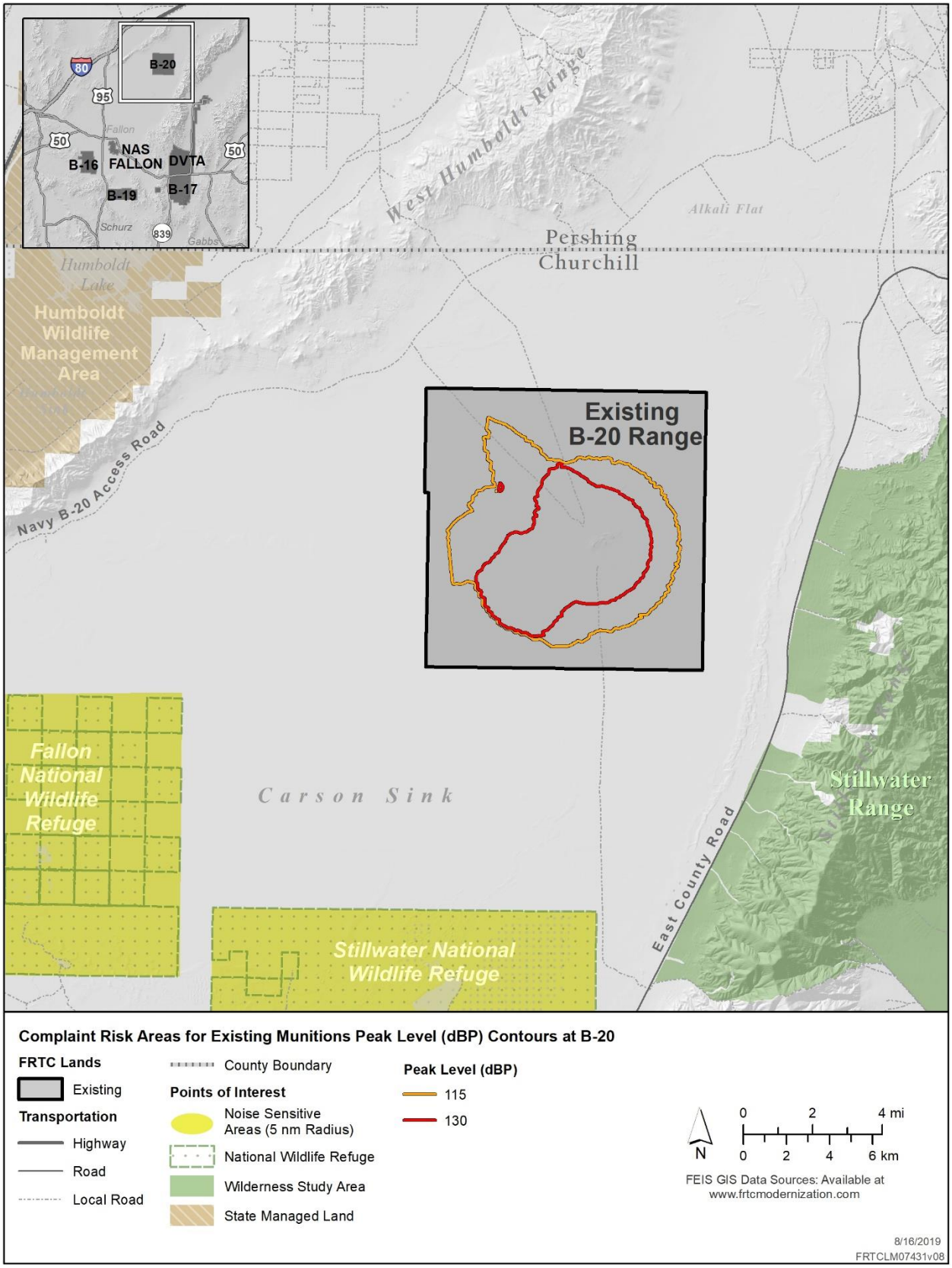


Figure 3.7-13: Complaint Risk Areas for Existing Munitions Peak Level (dBP) Contours at B-20

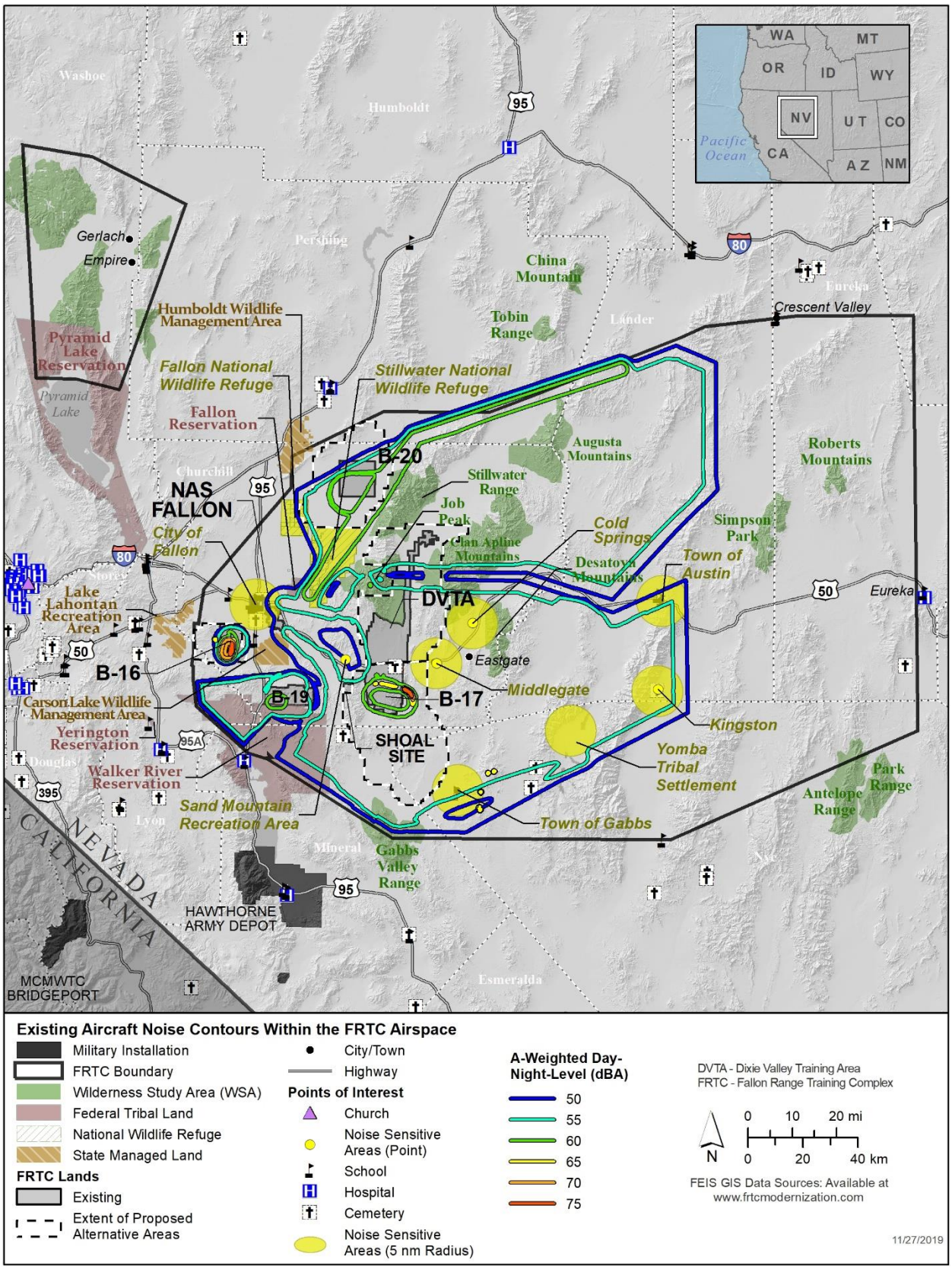


Figure 3.7-14: Existing Aircraft Noise Contours Within the FRTC Airspace

3.7.2.6.1 Existing Aircraft Noise

Under the environmental baseline, most of the aircraft noise that does occur over the DVTA is a result of transit routes aircraft use within the FRTC SUA, described in the following section. Noise levels between 60 dBA and 65 dBA occur over the entire DVTA (Figure 3.7-14).

3.7.2.6.2 Existing Munitions Noise

Munitions are not used in the DVTA. Therefore, no munitions noise occurs at the DVTA.

3.7.2.7 Fallon Range Training Complex Special Use Airspace

FRTC SUA overlies approximately 10.4 million acres of land, including large portions of Churchill, Lander, and Eureka Counties as well as portions of Pershing, Nye, Mineral, Lyon, Eureka, Elko, and Washoe Counties. Metropolitan areas under this airspace include the City of Fallon and the communities of Austin, Crescent Valley, and Gabbs among numerous others. FRTC SUA also overlaps portions of the following Native American reservations: Walker River Paiute Indian Reservation, Fallon Paiute-Shoshone Reservation, Pyramid Lake Reservation, Duckwater Reservation, and Yomba Indian Reservation. Approximately 94 percent of the lands beneath the FRTC SUA are federally managed public lands, including BLM land, USFWS refuges (e.g., Stillwater Wildlife Refuge Complex), and U.S. Forest Service land (e.g., the Humboldt-Toiyabe National Forest). The Humboldt-Toiyabe National Forest includes 23 wilderness areas. Within FRTC SUA, this includes portions of the Arc Dome Wilderness Area (120,556 acres), which is Nevada's largest Wilderness Area; the Alta Toquima Wilderness Area (35,860 acres), which includes Mount Jefferson, the tallest peak in Nevada; and the Table Mountain Wilderness Area (92,485 acres).

3.7.2.7.1 Existing Aircraft Noise

Existing aircraft operations in the previous sections focused on activity in and around the Bravo training ranges that commonly utilizes ground targets. A significant portion of range operations do not focus on the Bravo ranges but instead utilize much larger portions of FRTC. This includes the utilization of multiple contiguous areas as single flight areas. A typical busiest month for these large area operations would include the first three weeks of Navy Fighter Weapons School (TOPGUN) and four weeks of Carrier Air Wing (CVW) training.

The TOPGUN and CVW training often utilizes large portions of FRTC that extend beyond individual MOAs. The TOPGUN students, flying F/A-18 aircraft, typically set up in the staging area in the east (south of Crescent Valley). The instructors operate F-5, F-16, and F/A-18 aircraft to represent enemy aircraft, referred to as “bandits,” and set up in the Bandit area, northwest of NAS. Once all aircraft are in the proper initial locations, the simulated combat begins with air-to-air combat in the engagement area to the east of B-17 and B-20. The CVW air-to-air combat training is conducted in a similar manner with students initiating in the east while instructors operating F-5 or other adversarial aircraft begin in the west.

In order to utilize the four Bravo training ranges, aircraft typically follow predetermined routes (“course rules routes”) for access into (ingress) and out of (egress) the training ranges. Four ingress and five egress routes are identified for fixed- and rotary-wing aircraft. Aircraft typically originate at NAS Fallon for training in FRTC but may also arrive from other air stations such as NAS Lemoore.

Using this information, MR_NMAP was used to calculate the DNL contours, in 5 dB increments, for all FRTC aircraft operations within the SUA under the environmental baseline. Figure 3.7-14 plots the

resulting DNL contours for all FRTC aircraft operations within the SUA. With the exception of higher DNLs concentrated around bombing ranges (described above), aircraft operations do not result in DNL contours above 65 dBA.

For comparison with the Action Alternatives, Table 3.7-6 presents the approximate uniform population density for each census tract and block group that underlies DNL contours above 65 dB. For example, Census Tract 9501, Block Group 1 in Churchill County, has an approximate area of 2,236,087 acres (approximately 3,494 square miles) and a population of 1,092 individuals. For the purpose of analyzing potential changes in affected population (i.e., when comparing to the Alternatives), a uniform distribution of individuals was assumed, resulting in a population density of 0.313 individual per square mile for Census Tract 9501, Block Group 1. While population centers typically exhibit patchy distribution, the assumption of uniform population distribution in the FRTC area allows for conservative estimates of overlap.

The area of each DNL contour (>65 dBA) was calculated for each Tract/Block group and multiplied by the approximate uniform population density of that Tract/Block to result in the approximate number of individuals under each DNL contour. Under the Environmental Baseline and assuming a uniform population distribution, approximately two individuals would be in areas where the DNL is greater than 65 dBA. In these areas, during busy months of training activities at the FRTC, noise may interfere with normal activities.

Table 3.7-6: Population Underlying Environmental Baseline DNL Contours

Block Group	Census Tract	County	Total Tract Acreage	Estimated Total Population 2021[1]	Total Acreage at or above 65 dB DNL (% of tract)	Approximate Population Impacted[2]
Environmental Baseline						
1	9501	Churchill	2,236,087	1,092	3,330 (0.15)	2
1	9601	Nye	1,427,284	687	572 (0.04)	<1

[1]Total population for 2021 is estimated based on Nevada Department of Taxation projections for the county (Nevada Department of Taxation, 2017). This assumes a uniform growth for the entire county. The growth factors from the U.S. Census Bureau's estimates for 2012–2016 were 10 percent for Churchill County, 5 percent for Lander County, 9 percent for Lyon County, -4 percent for Mineral County, 8 percent for Nye County, and -2 percent for Pershing County (Nevada Department of Taxation, 2017; U.S. Census Bureau, 2017).

[2] The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour range, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contour ranges. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

Supersonic Activities

In addition to the ranges and SUA discussed in the previous sections, the FRTC includes two Supersonic Operating Areas (SOAs) to support high-speed training activities and maneuvers in excess of the speed

of sound. Figure 1-1 shows the SOAs, with a minimum altitude of 11,000 feet mean sea level (MSL) for supersonic flight in SOA A, and above 30,000 feet MSL in SOA B.

When a vehicle moves through the air, it pushes the air out of its way. At subsonic speeds, the displaced air forms a pressure wave that disperses rapidly. At supersonic speeds, the vehicle is moving too quickly for the wave to disperse, so it remains as a coherent wave. This wave is a sonic boom. When heard at ground level, a sonic boom consists of two shock waves (one associated with the forward part of the vehicle, the other with the rear part) of approximately equal strength and (for fighter aircraft) separated by 100 to 200 milliseconds. When plotted, this pair of shock waves and the expanding flow between them has the appearance of a capital letter "N," so a sonic boom pressure wave is usually called an "N-wave." An N-wave has a characteristic "bang-bang" sound that can be startling. Figure 3.7-15 shows the sonic boom pattern for a vehicle in steady, level supersonic flight. The boom forms a cone that trails behind the plane and where that cone intersects the ground is usually called a sonic boom "carpet" under the flight track. Since aircraft fly supersonically with relatively low horizontal angles, the boom is directed toward the ground.

The intensity and width of a sonic boom path depends on the physical characteristics of the aircraft (size, shape, and weight) and how it is operated (trajectory and speed). In general, the greater an aircraft's altitude, the lower the overpressure on the ground. Greater altitude also increases the boom's lateral spread, exposing a wider area to the boom.

Overpressures in the sonic boom impact area, however, will not be uniform. The boom levels (measured in pound per square foot [psf]) vary along the lateral extent of the "carpet" with the highest levels directly underneath the flight track and decreasing as the lateral distance increases to the cut-off edge of the "carpet." Additionally, aircraft maneuvering can cause distortions in shock wave patterns. Some maneuvers—pushovers, acceleration and "S" turns—can amplify the intensity of the shock wave. Hills, valleys and other terrain features can create multiple reflections of the shock waves and affect intensity.

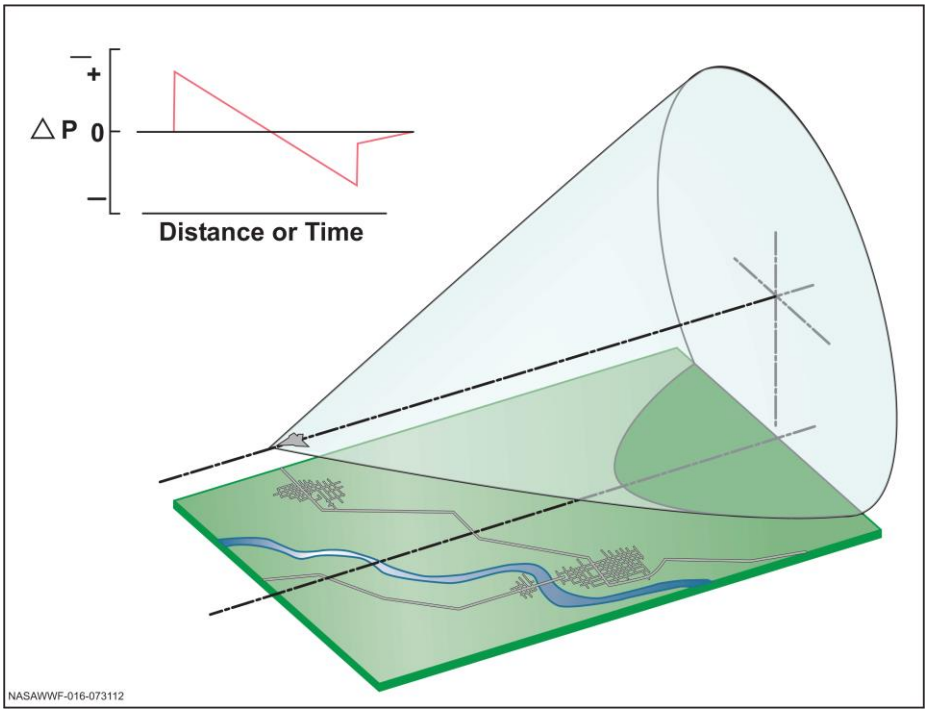


Figure 3.7-15: Sonic Boom Carpet for a Vehicle in Steady Flight

As discussed earlier, to determine the land use compatibility when employing noise sources that are impulsive in nature, less than 1 second in duration, but are not small arms related (e.g., sonic booms), the C-weighted DNL is used. The C-weighted DNL is the primary metric for assessing impacts from cumulative sonic booms from supersonic flights. The maximum C-weighted DNL of 57 dB calculated by the area-based BooMap96 model occurs near the center of SOA A, but does not exceed 62 dBC (Figure 3.7-16). With respect to Day-Night Levels, C-weighted DNLs calculated from supersonic activities do not represent a degradation of the noise environment.

While the C-weighted DNL is the primary metric for assessing cumulative impacts from sonic booms, sensitive receptors experience sonic booms per occurrence. To analyze potential sonic boom impacts from single supersonic trajectories (structural damage) the peak overpressure metric (psf) is a supplemental metric used. Figure 3.7-17 and Figure 3.7-18 present general sonic boom "footprints" from F-16s and F-18s at various altitudes and velocities. While supersonic flight can occur anywhere within the Supersonic Operating Areas, these figures present individual tracks for illustrative purposes. Aircraft flying supersonically operate well within the supersonic airspace limits. However, their resulting sonic booms propagate and may be experienced outside of the SOAs and even the FRTC airspace boundaries.

The proximity of the aircraft trajectory to the border of the airspace would affect how much area outside of the FRTC airspace could be impacted by a sonic boom. The sonic boom heard outside of the boundaries will generally be less than 2 psf, which is below the potential structural damage threshold for sonic booms (see Supporting Study: Noise Study, available at https://www.frtcmodernization.com).

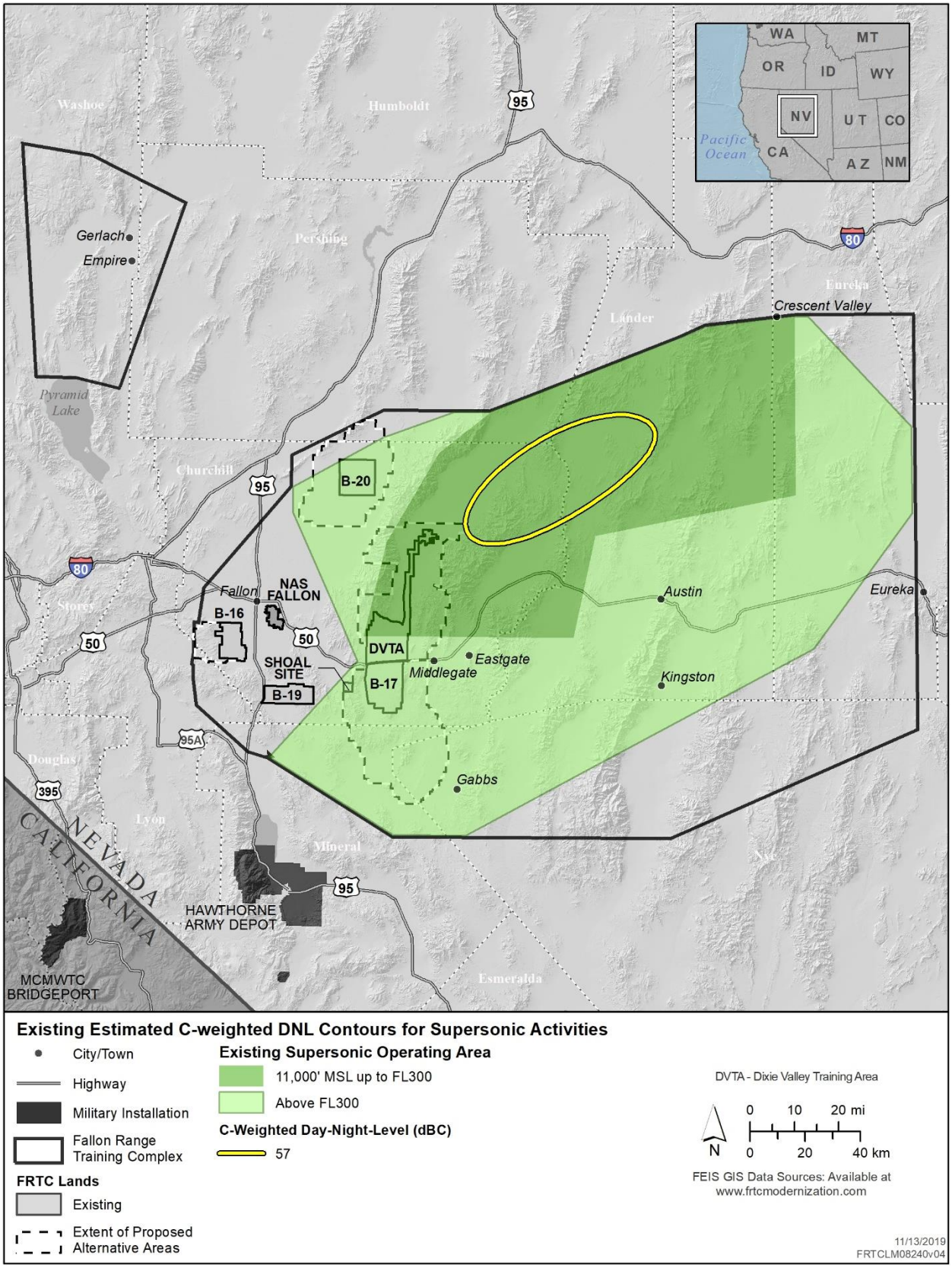


Figure 3.7-16: Existing Estimated C-weighted DNL Contours for Supersonic Activities

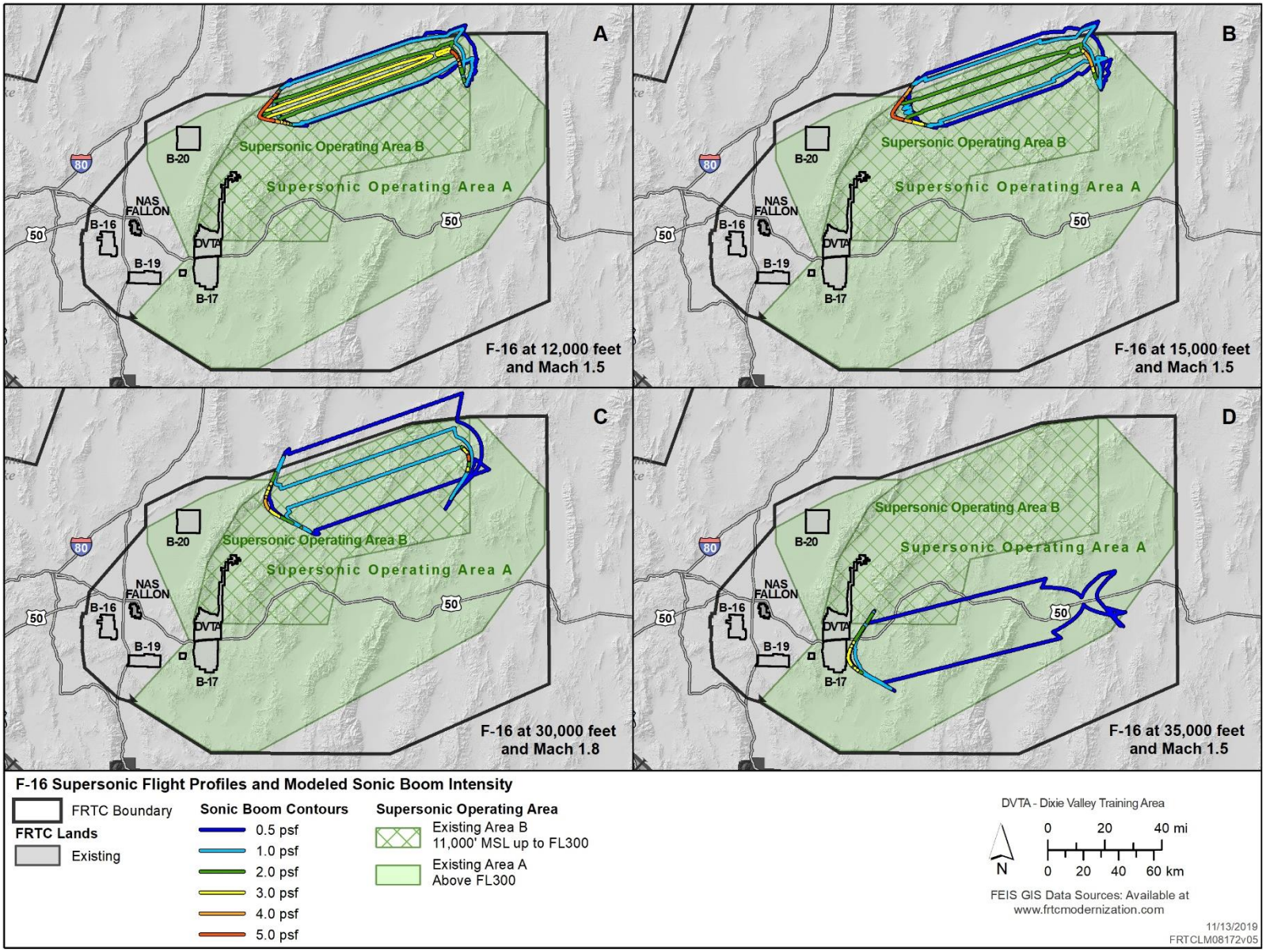


Figure 3.7-17: F-16 Supersonic Flight Profiles and Modeled Sonic Boom Intensity

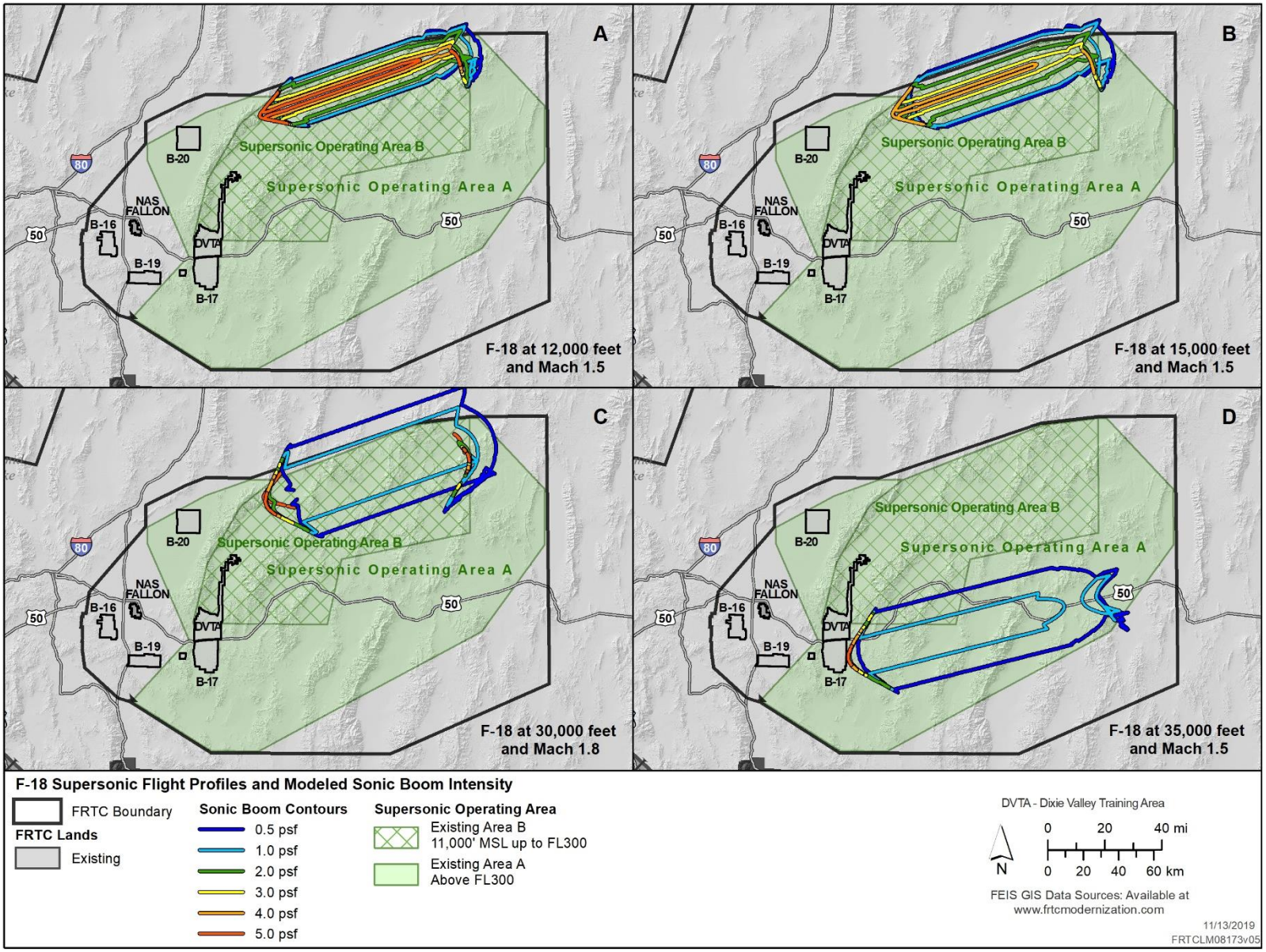


Figure 3.7-18: F-18 Supersonic Flight Profiles and Modeled Sonic Boom Intensity

3.7.2.7.2 Existing Munitions Noise

Outside of the existing ranges, there is no ordnance use. No munitions noise occurs on non-range lands underneath the FRTC Special Use Airspace.

3.7.3 Environmental Consequences

Analysis of potential noise impacts includes estimating likely noise levels from Action Alternatives and determining potential effects to sensitive receptors. A summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (Section 3.7.3.6, Summary of Effects and Conclusions).

3.7.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and the existing legislative withdrawals would expire on November 5, 2021. In comparison to the environmental baseline, training activities under the No Action Alternative requiring the use of aviation or ground range munitions would likely cease and there would not be a significant increase in the noise environment. With the potential reincorporation of the existing withdrawn and acquired lands into the public domain, and the potential removal of all ground sites supporting training and tracking systems, the airspace of the FRTC would no longer support existing Navy training. FAA guidance on the validity of restricted airspace would no longer apply, and the Navy would likely take steps to coordinate with the FAA to remove all restricted areas, disestablish all MOAs, and potentially return all of the FRTC airspace to the FAA for full integration into the commercial national airspace.

If the airspace no longer supported FRTC training and airspace was released into the commercial national airspace, Naval activities would likely no longer generate noise at B-16, B-17, or B-20. Noise levels near air-to-ground ranges could decrease, but predicting noise levels for lands under the remaining SUA would be speculative as use of remaining airspace would need to be evaluated prior to development of noise contours. Generally speaking, the two approach corridors into Naval Air Station Fallon could continue to be used but would likely be used less than that described in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015) potentially decreasing the extent of the noise contours in the area. Additionally, with the cessation of aviation or ground based munitions use, noise associated with their use could also cease.

Therefore, any reduction in activities as a result of the reevaluation of the FRTC and the NAS Fallon's mission would also reduce associated noise from those activities. Under the above described potential cessation of activities, there would be no significant noise increases (as described in Section 3.7.1.4, Approach to Analysis) from military training activities under the No Action Alternative.

3.7.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would renew its current public land withdrawal at the FRTC. The Navy would also withdraw and acquire additional land to be reserved for military use. Alternative 1 would close public access to approximately 390,043 acres for expanding the Bravo ranges. As presented in the sections below, Alternative 1 would create a significant increase in the noise environment, particularly underneath the newly established MOAs in the eastern portion of the FRTC airspace.

3.7.3.2.1 Bravo-16

Alternative 1 would expand B-16 to approximately 59,560 acres, which is an increase of approximately 32,201 acres from existing conditions (Table 2-1). The expansion of B-16 under Alternative 1 would be used for the Navy SEAL Tactical Ground Mobility Course, Naval Aviation basic air-to-surface training, and Helicopter Gunnery Training Range (Figure 2-1). It is important to note that while the locations of activities change (become more widely distributed), actual numbers of activities do not increase under any Action Alternative.

Aircraft Noise

Figure 3.7-19 shows the DNL levels from aircraft activities for B-16 under Alternative 1. Because the targets used by aircraft under Alternative 1 remain the same as the environmental baseline (for a detailed explanation, see Section 2.4, Environmental Baseline [Current Training Activities and Affected Environment]), the general shape of the noise contours also remains the same. Contours for 65 dBA and above do not extend past the boundary of the existing and proposed B-16 range.

Munitions Noise

Contours for small arms munitions were not created for Alternative 1, as new firing locations at B-16 are at greater distances from the proposed range boundaries than under the environmental baseline. Distances to sensitive receptors at B-16 are expected to be great enough such that noise levels would not significantly contribute to the noise environment, as received noise levels from these activities would be at or near ambient levels.

Under Alternative 1, DNLs from air gunnery activities create localized areas between 62 and 70 dBC, (Figure 3.7-20). A portion of this area is within the 70 dBC contour. However, neither of these contours extend past the proposed and existing boundary of B-16. Further, the peak noise levels from air gunnery operations would not extend past the proposed expanded B-16 boundary (Figure 3.7-21).

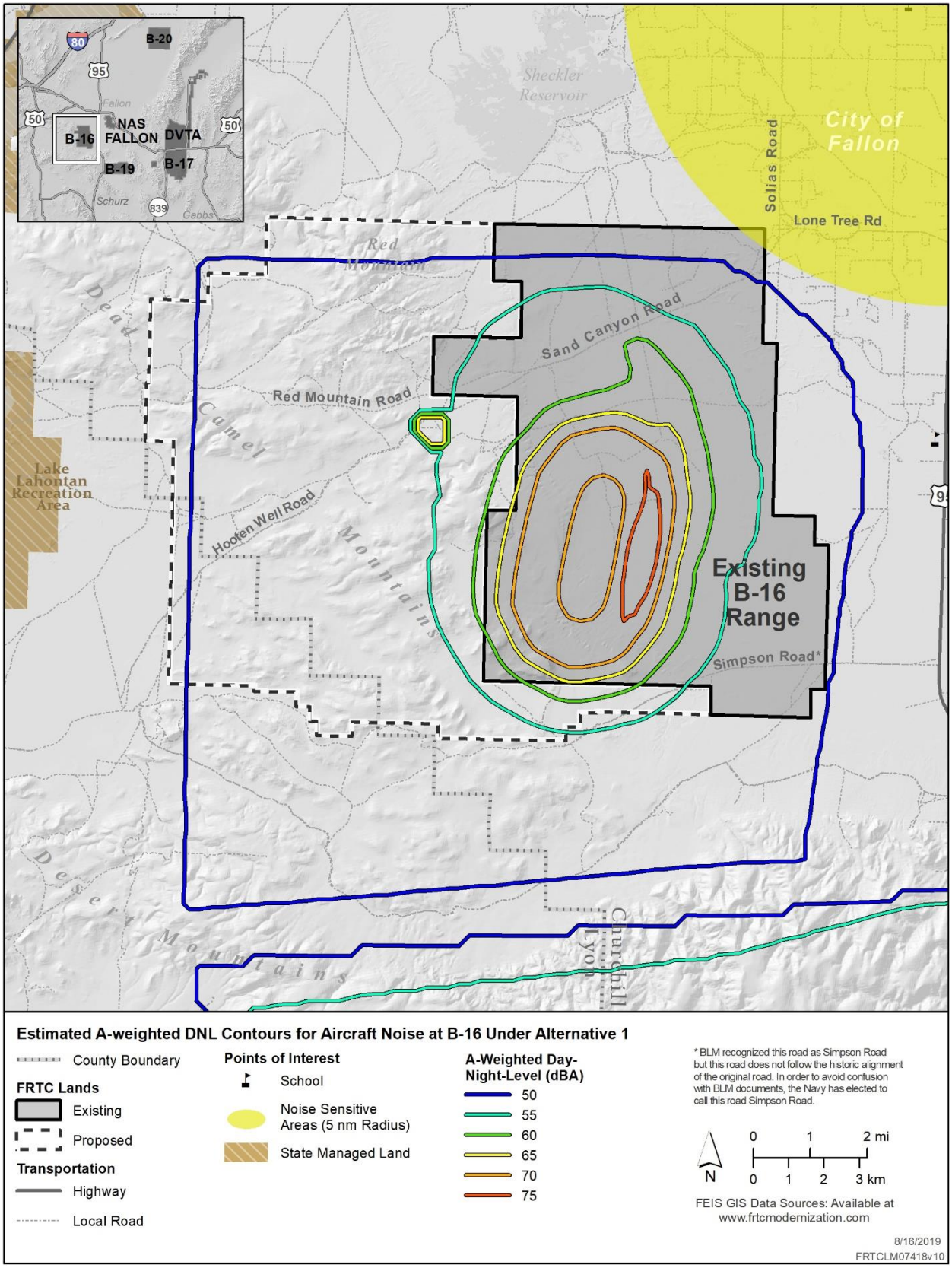


Figure 3.7-19: Estimated A-weighted DNL Contours for Aircraft Noise at B-16 Under Alternative 1

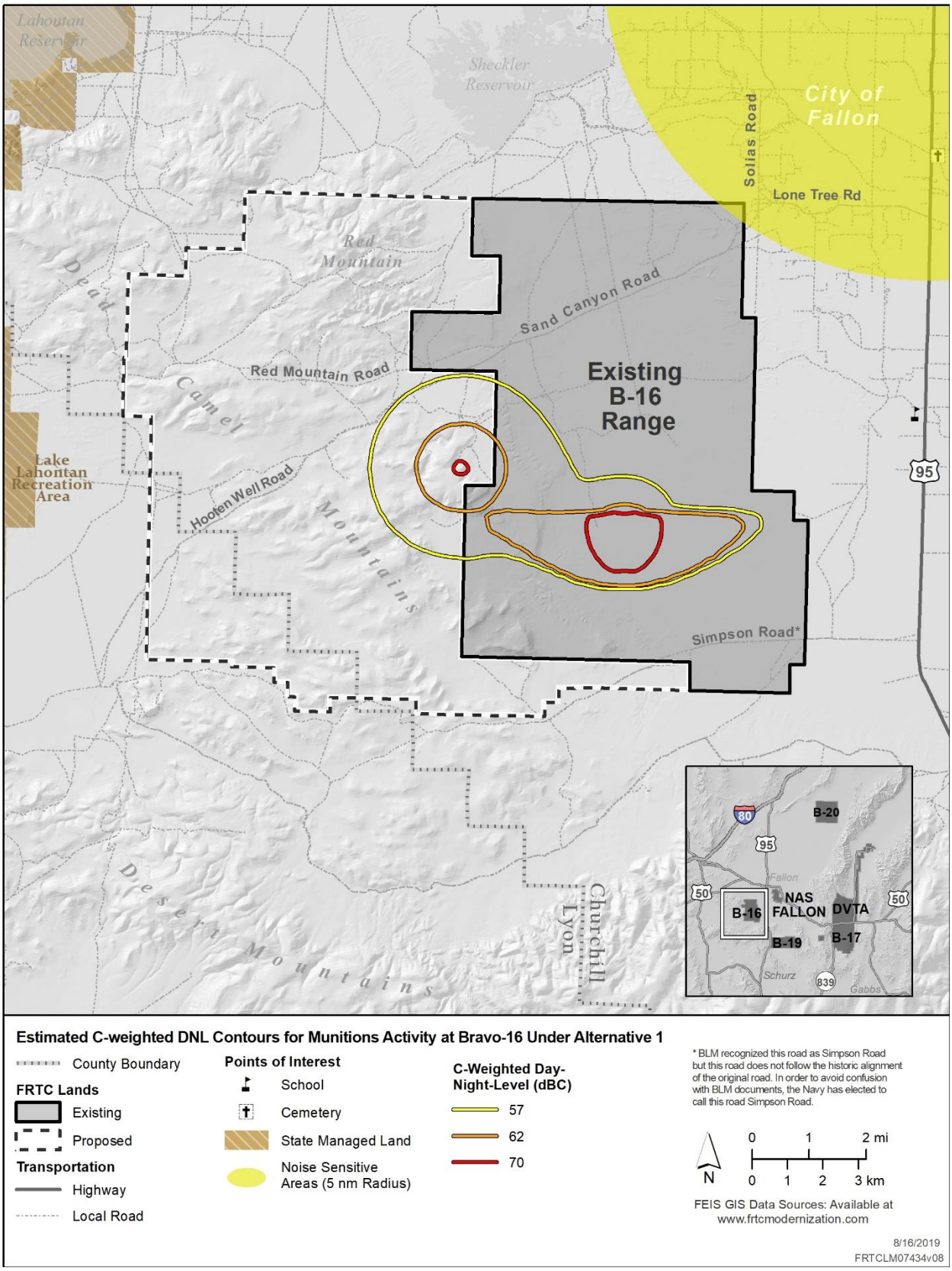


Figure 3.7-20: Estimated C-weighted DNL Contours for Munitions Activity at B-16 Under Alternative 1

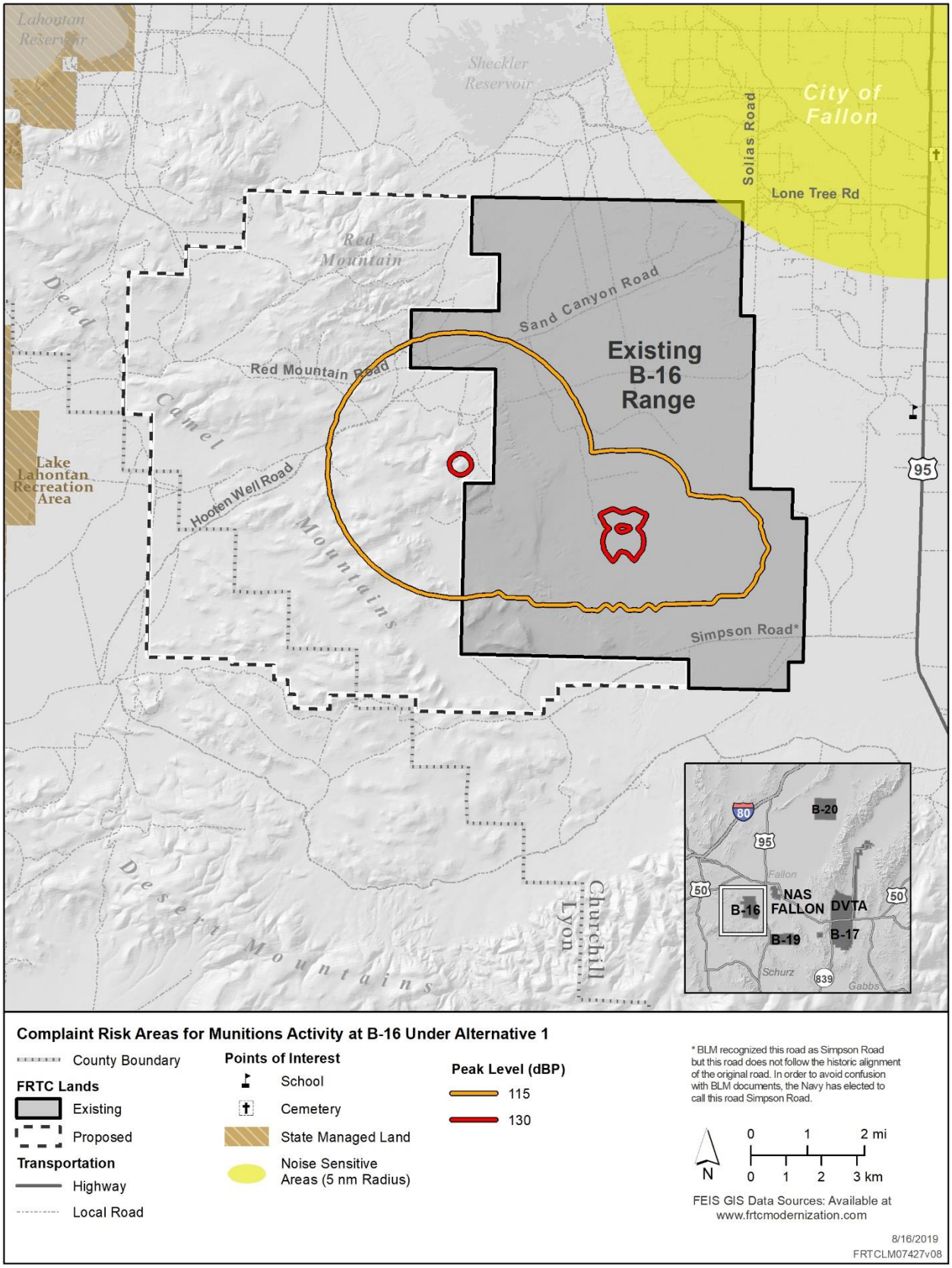


Figure 3.7-21: Complaint Risk Areas for Munitions Activity at B-16 Under Alternative 1

3.7.3.2.2 Bravo-17

Under Alternative 1, B-17 range would expand to the south, with the entire range closed and restricted from public use. The portion of Highway 839 that overlaps with the proposed area would be closed and re-routed outside of the closed lands. The southern boundary of the proposed expanded B-17 is approximately 10 miles northwest of Gabbs. Approximately 3,000 acres would be utilized for convoy routes, military vehicle training routes, or ground target areas (Figure 2-1). Alternative 1 would continue to use the existing targets on B-17.

Aircraft Noise

Figure 3.7-22 shows the DNL levels from aircraft activities for B-17 under Alternative 1. Under Alternative 1, the 60 dBA DNL contour covers almost the entire range. As displayed in Figure 3.7-22, the 65 dBA contour and above do not extend beyond the existing and proposed B-17 range. Visual inspection of aerial maps of the areas within regions where the contours are 65 dBA and above reveals no sensitive receptors (e.g., residences, lodging, or medical facilities) or incompatibility with current land use.

Munitions Noise

Under Alternative 1, the DNL contours from large arms explosions would not extend past the proposed expanded B-17 range boundary (Figure 3.7-23 and Figure 3.7-24). Additionally, peak noise levels from air gunnery operations would not extend past the proposed expanded B-17 boundaries (Figure 3.7-25).

Road Construction and Infrastructure In Support of Alternative 1

With the expansion of B-17, approximately 24 miles of State Route 839 would potentially no longer be available for public use. Under Alternative 1, one of three notional relocation corridors would be developed to an asphalt surface. The State Route 839 replacement road would be constructed by mechanically removing vegetation and grading native soils. The Navy anticipates that typical road construction equipment would be used during the route replacement, and that noise from such equipment would temporarily exist in the region of construction. However, prior to implementation of this alternative, site-specific NEPA would be performed on this action, which would include a noise analysis for the potential relocation of the state route.

Alternative 1 would also include the potential relocation of the Paiute Pipeline that runs through the southern area of the proposed B-17 expansion area. Similar equipment would likely be used to relocate the pipeline as is used in the relocation of State Route 839. Given typical propagation of noise away from a point source, the loudest equipment used during the pipeline replacement would be audible only in the immediate vicinity of construction activities. However, prior to implementation of this alternative, site-specific NEPA would be performed on this action, which would include a noise analysis for the relocation of the state route.

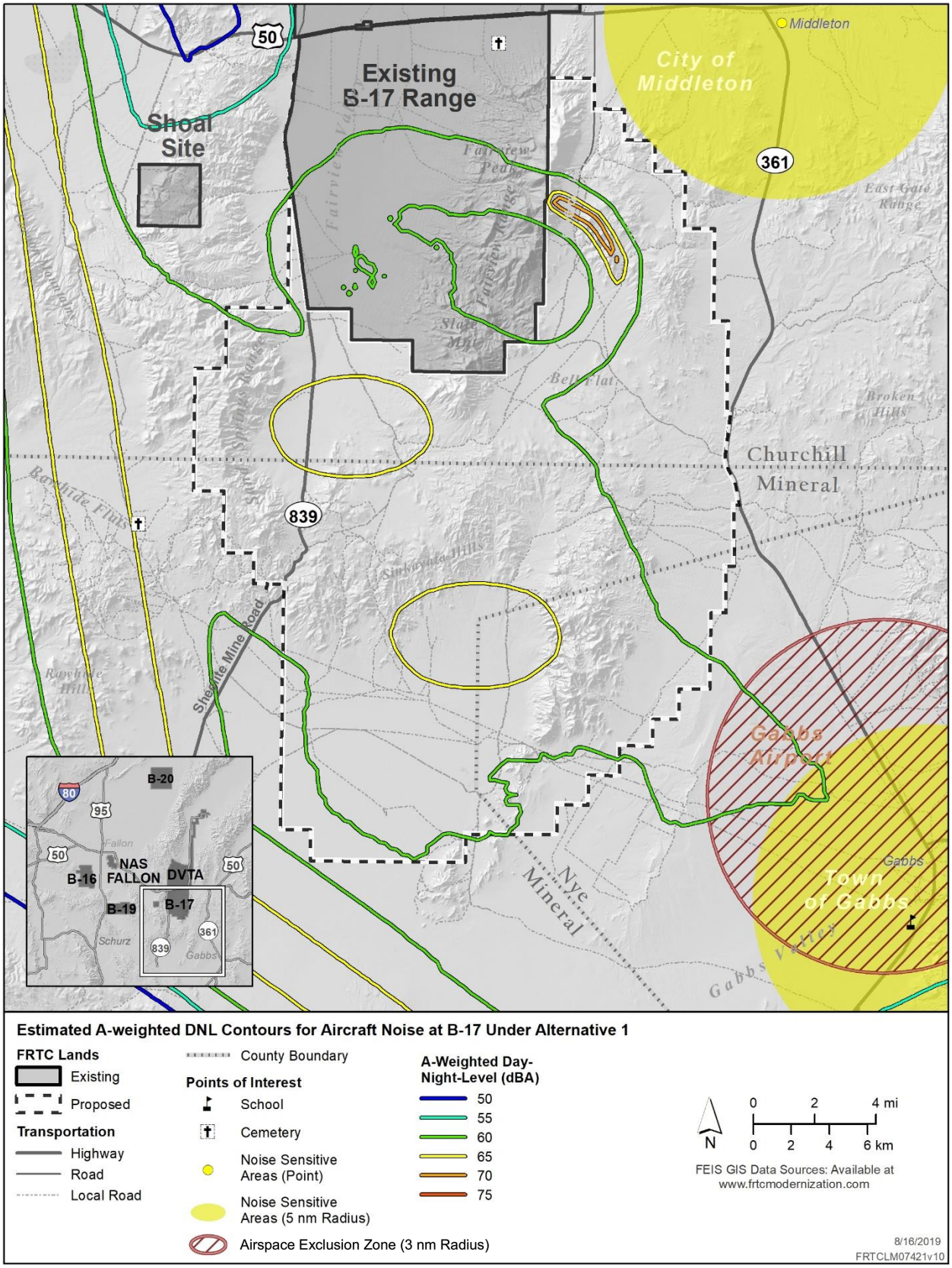


Figure 3.7-22: Estimated A-weighted DNL Contours for Aircraft Noise at B-17 Under Alternative 1

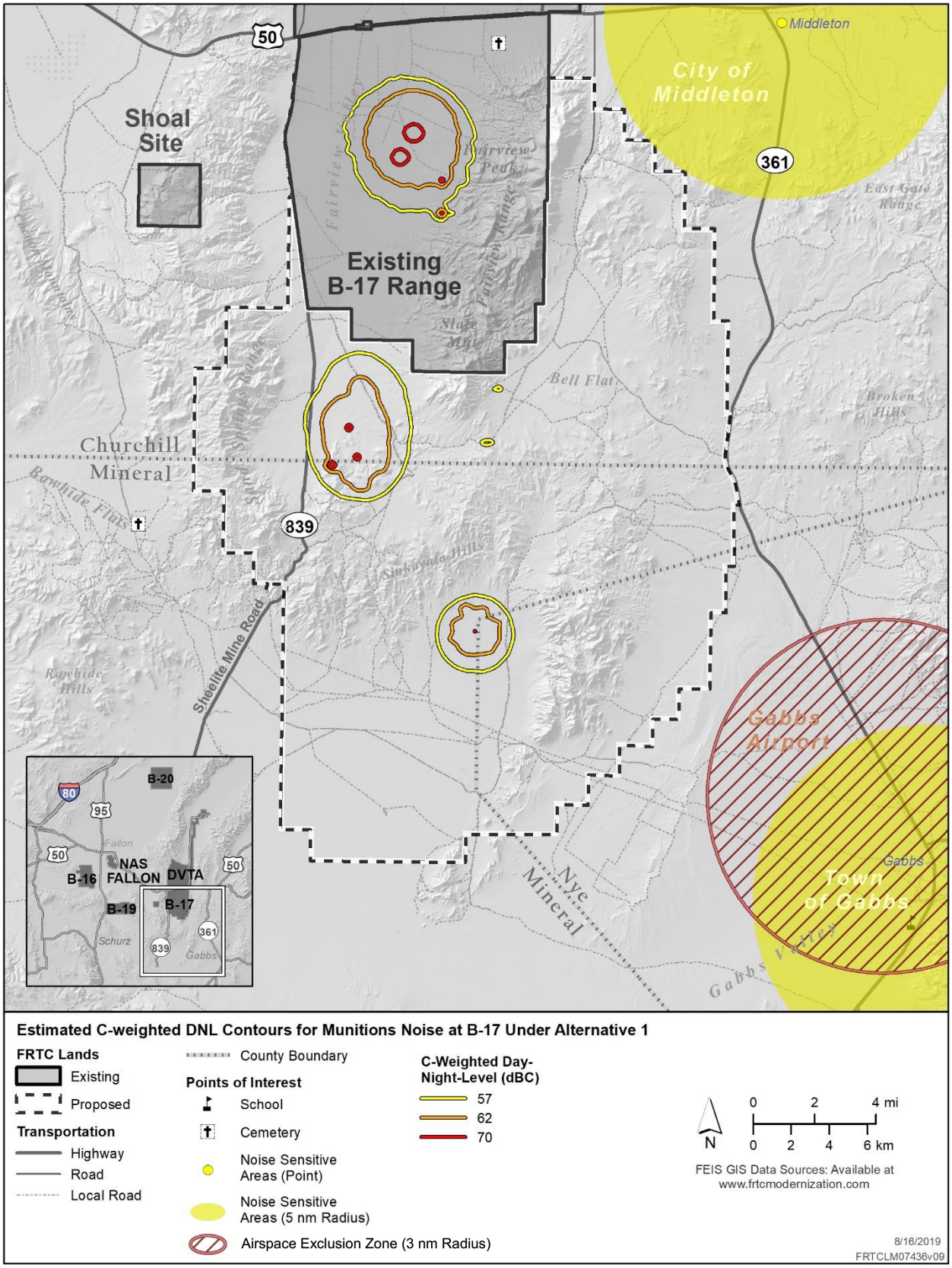


Figure 3.7-23: Estimated C-weighted DNL Contours for Munitions Noise at B-17 Under Alternative 1

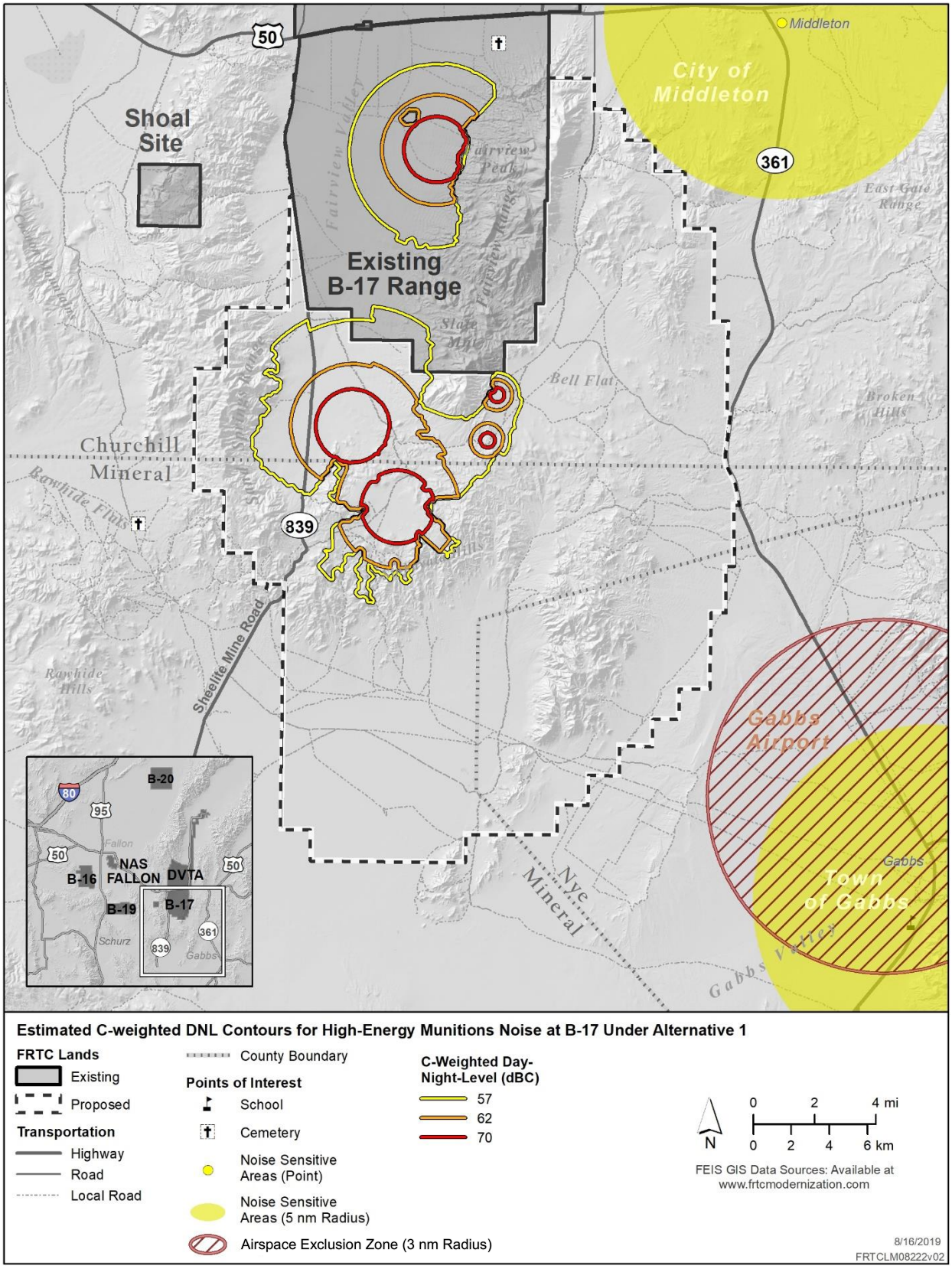


Figure 3.7-24: Estimated C-weighted DNL Contours for High-Energy Munitions Noise at B-17 Under Alternative 1

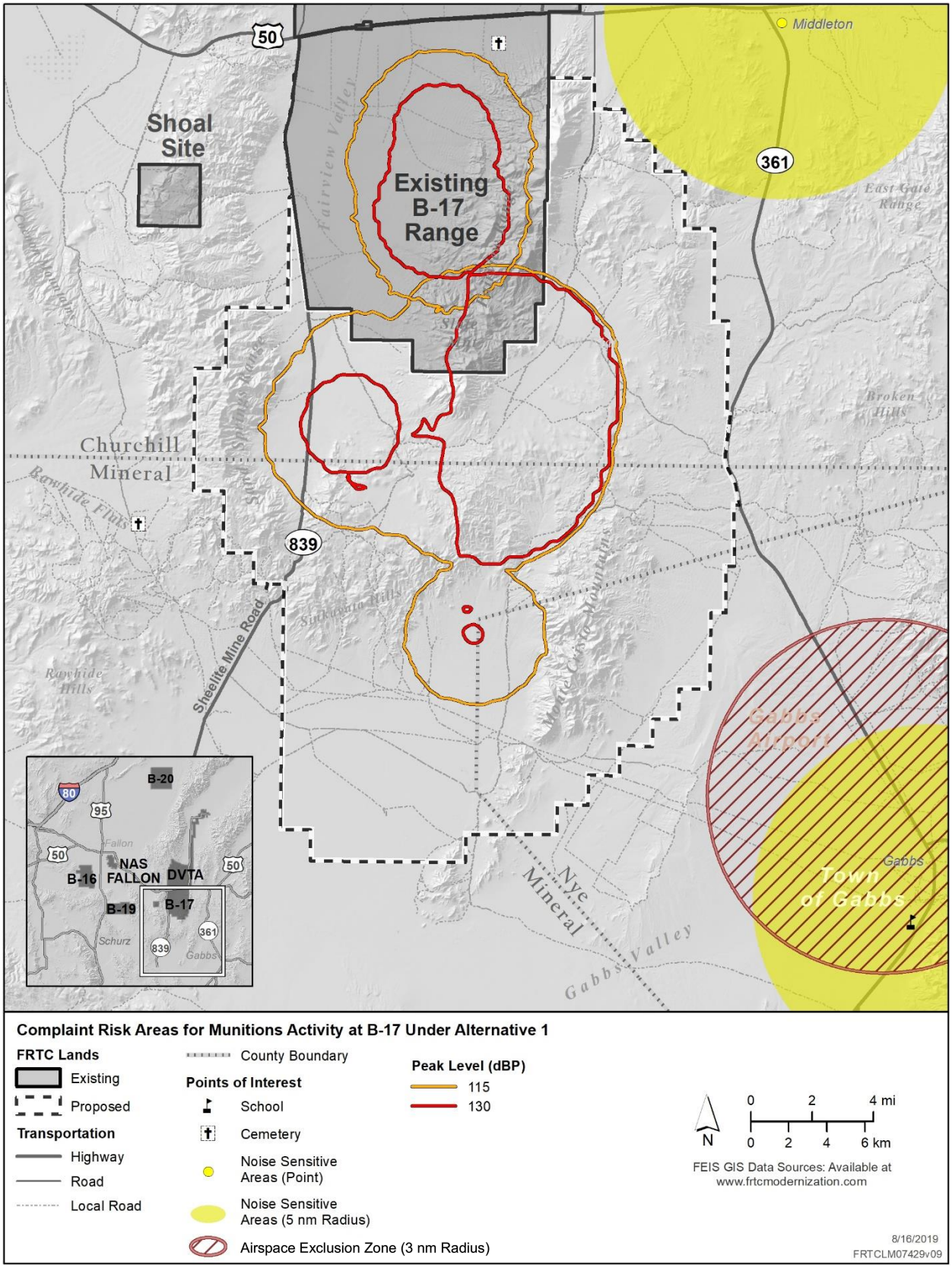


Figure 3.7-25: Complaint Risk Areas for Munitions Activity at B-17 Under Alternative 1

3.7.3.2.3 Bravo-20

Under Alternative 1, B-20 range would expand in all directions, with the majority of the range closed and restricted from public use except for Navy-authorized activities. The proposed expanded B-20 would overlap and abut the Fallon National Wildlife Refuge in the southwest and directly abut the Stillwater National Wildlife Refuge to the south. Additionally, the northern boundary of the proposed expansion area lies approximately 3.35 miles southeast of residences associated with agricultural activities south of Lovelock, and approximately 9 miles southeast of Lovelock itself.

Aircraft Noise

Figure 3.7-26 shows the DNL levels from aircraft activities for B-20 under Alternative 1. Under Alternative 1, the 60 dBA DNL contour covers the southwest portion range, which is an increase from the environmental baseline. This is a result of direct activities over B-20, as well as general use of the airspace. Under Alternative 1, there are no noise contours greater than 65 dBA at B-20.

Munitions Noise

Under Alternative 1, the DNLs from large arms explosions would not extend past the proposed expanded B-20 range boundary (Figure 3.7-27 and Figure 3.7-28). Under Alternative 1, the peak noise levels from air gunnery operations would not extend past the proposed expanded B-20 boundaries (Figure 3.7-29).

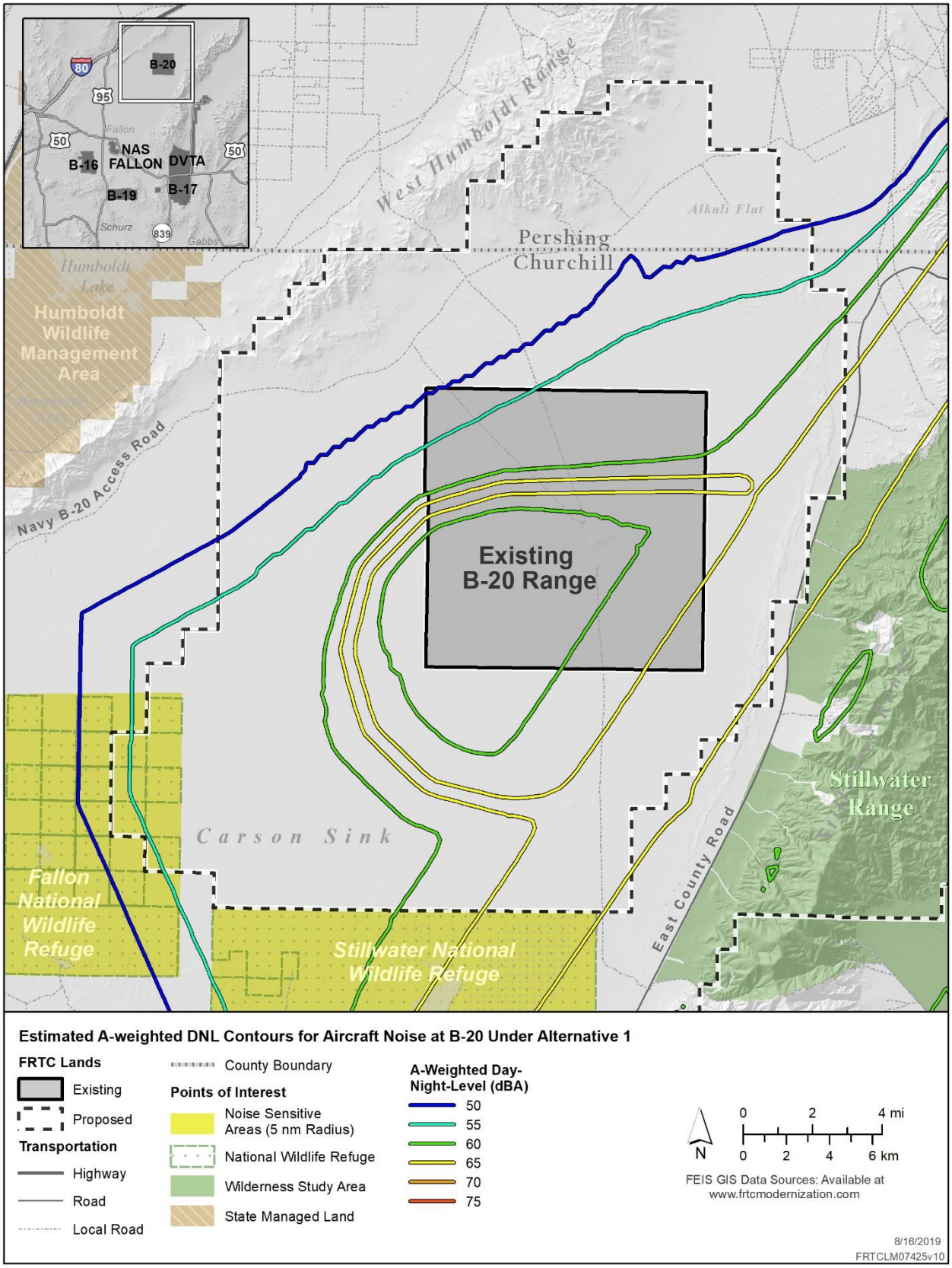


Figure 3.7-26: Estimated A-weighted DNL Contours for Aircraft Noise at B-20 Under Alternative 1

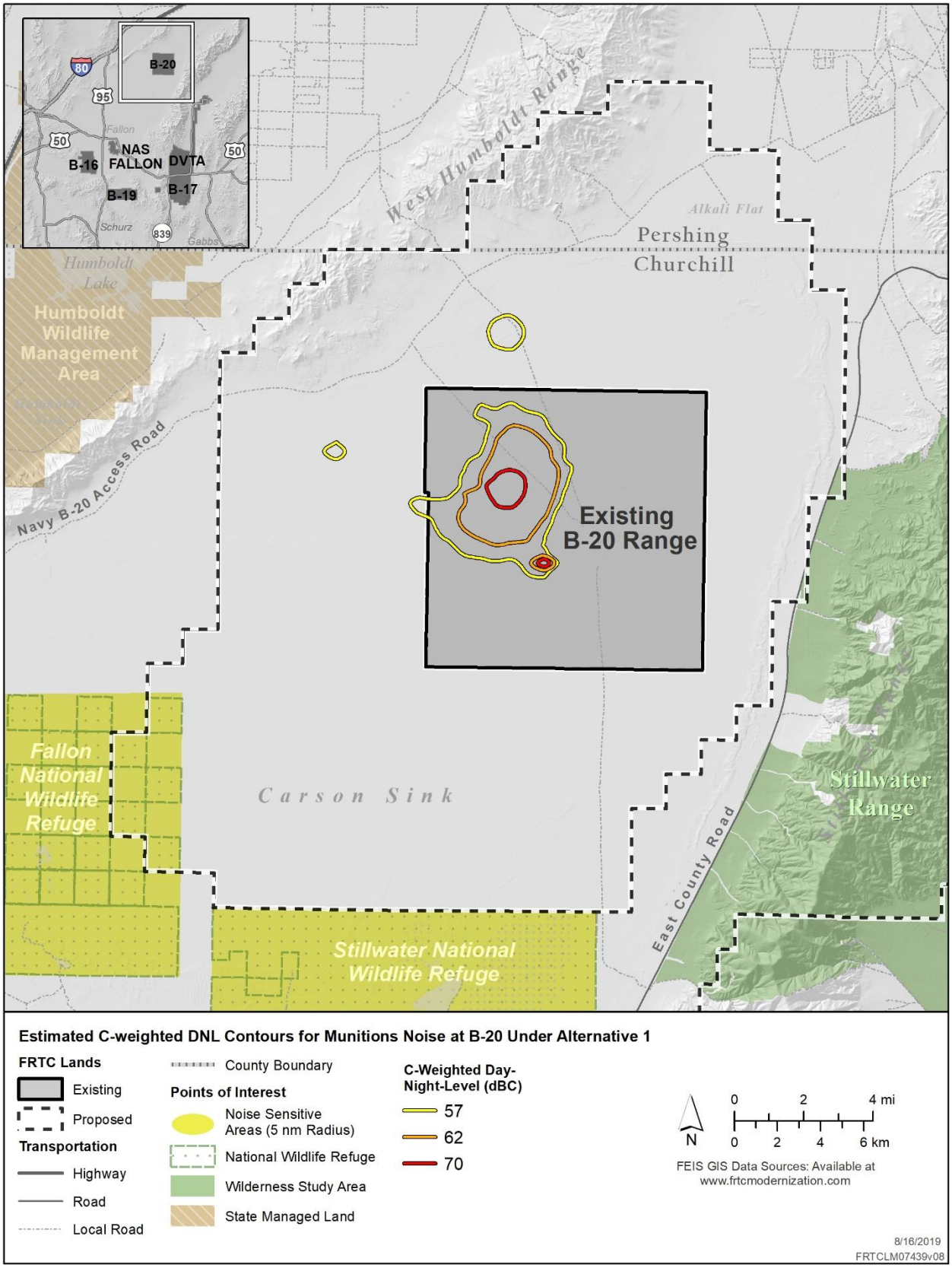


Figure 3.7-27: Estimated C-weighted DNL Contours for Munitions Noise at B-20 Under Alternative 1

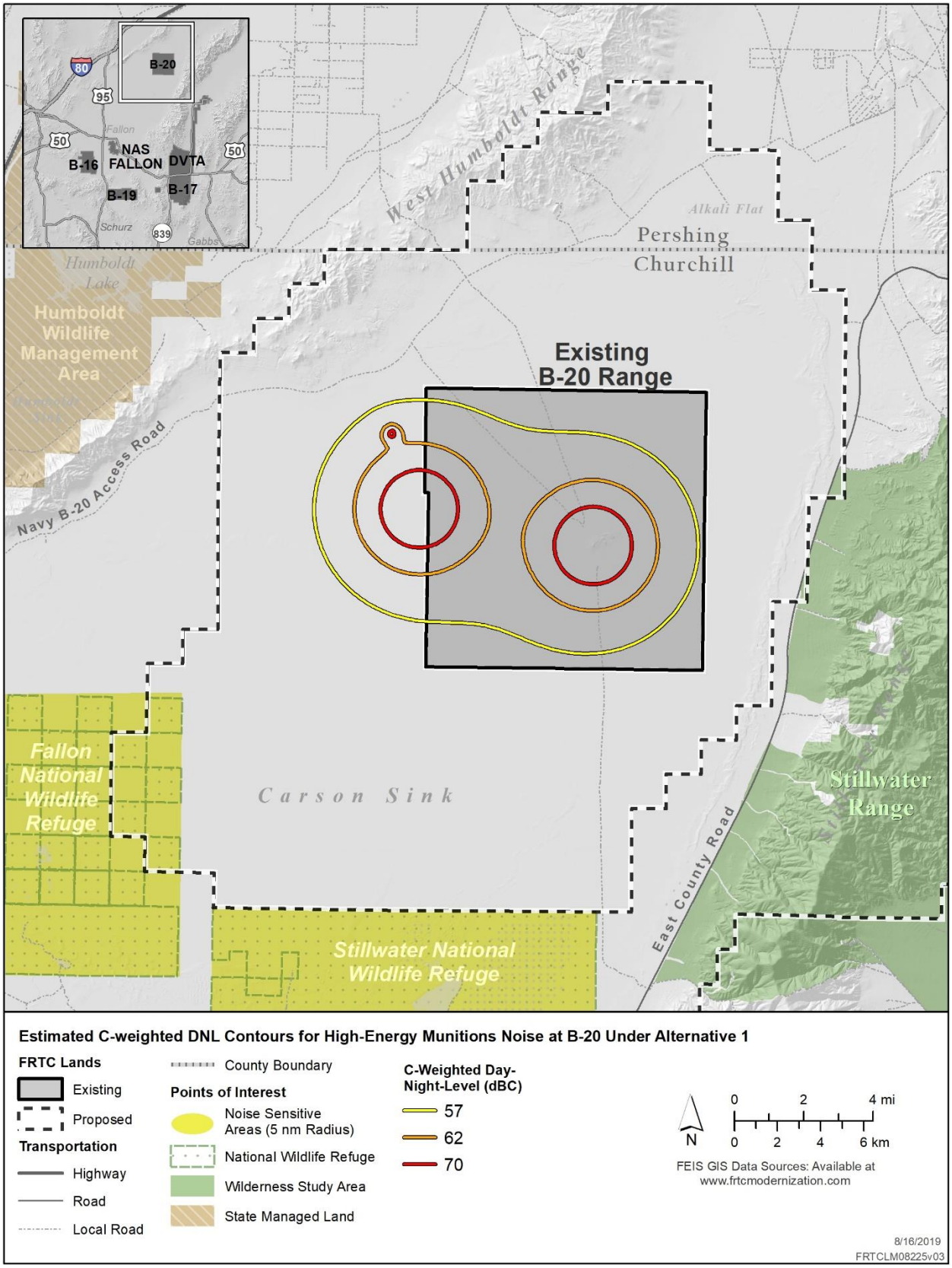


Figure 3.7-28: Estimated C-weighted DNL Contours for High-Energy Munitions Noise at B-20 Under Alternative 1

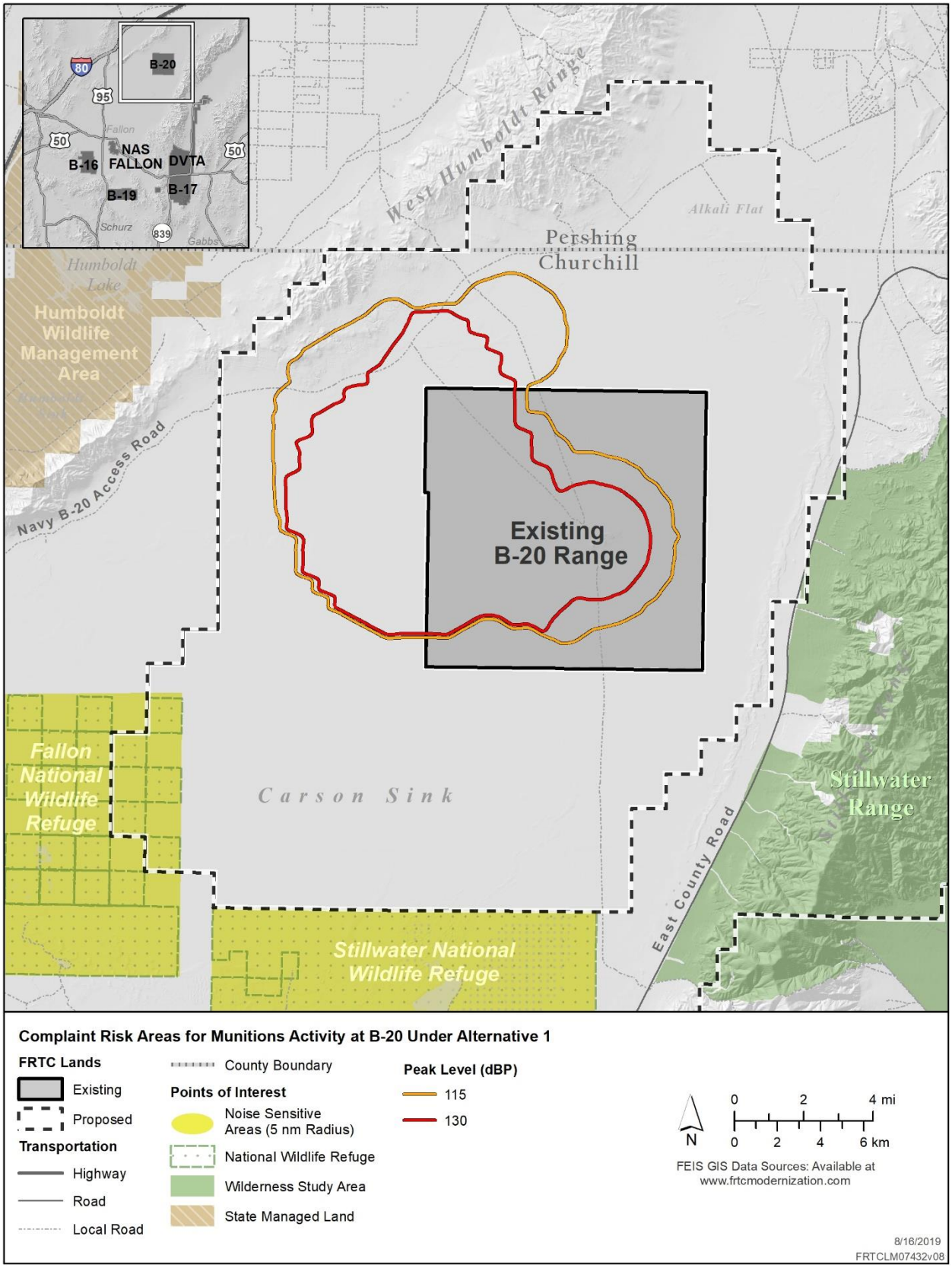


Figure 3.7-29: Complaint Risk Areas for Munitions Activity at B-20 Under Alternative 1

3.7.3.2.4 Fallon Range Training Complex Special Use Airspace

Figure 3.7-30 shows the 24 locations that were selected for modeling DNL levels that are listed in Table 3.7-7.

Table 3.7-7: Modeled Day-Night Levels (dBA) at selected Points of Interest Under Alternative 1

Point of Interest		*Day Night Level (dBA)*		
ID	**Name**	**Baseline**	**Alternative 1**	**Change from Environmental Baseline**
1	Fallon	<45	<45	N/A
2	Lovelock/B-20	<45	<45	N/A
3	Eureka	<45	<45	N/A
4	Walker River Paiute Tribe	48.6	50.3	1.7
5	Middlegate	56.8	58.5	1.7
6	Gabbs	56.3	57.8	1.5
7	Yomba	55.7	57.4	1.7
8	Austin	54	54.9	0.9
9	Fallon National Wildlife Refuge/B-20	52.2	53.7	1.5
10	Fallon/B-16	<45	<45	N/A
11	Red Mountain/B-16	<45	50.9	5.9
12a	Upland Scrub Community A	57	58.5	1.5
12b	Upland Scrub Community B	56.6	57.6	1
13	Stillwater National Wildlife Refuge	62.8	66.7	3.9
14	Unpopulated Mountainous Area	61.4	62.5	1.1
15	Fairview Peak	59	59.5	0.5
16	Unpopulated Mountainous Area #2	51.8	53.3	1.5
17	Fallon Paiute Shoshone Tribe	46.8	47.4	0.6
18	Schurz	<45	<45	N/A
19	North DVTA	58.4	59.6	1.2
20	Crescent Valley	<45	<45	N/A
21	Reno MOA - Pyramid Lake	<45	<45	N/A
22	Gerlach	45.4	46.9	1.5
23	Kingston	56.1	57.1	1
24	Reese River	58	59.2	1.2

Notes: dBA = A-weighted decibels, NC = No Change

The last region where noise increases significantly is in the eastern portion of the FRTC SUA, on lands under the newly proposed MOAs (Zircon, Ruby, Diamond, Duckwater, and Smokie). Under the environmental baseline, military activities do not contribute much to the DNL, and these areas are typically quiet. Under Alternative 1, aircraft overflights would occur in these new MOAs, and DNLs would increase 10–20 dBA. While the noise contours themselves do not exceed 65 dBA, a change in DNL of 10–20 dBA would be considered a significant change in the noise environment. As a noise abatement measure, the Navy proposes to create avoidance areas over towns underneath the eastern SUA (Crescent Valley and Eureka) and implement elevation restrictions (no lower than 3,000 feet above ground level) to reduce the overall noise in these areas and decrease the difference between the environmental baseline and Alternative 1.

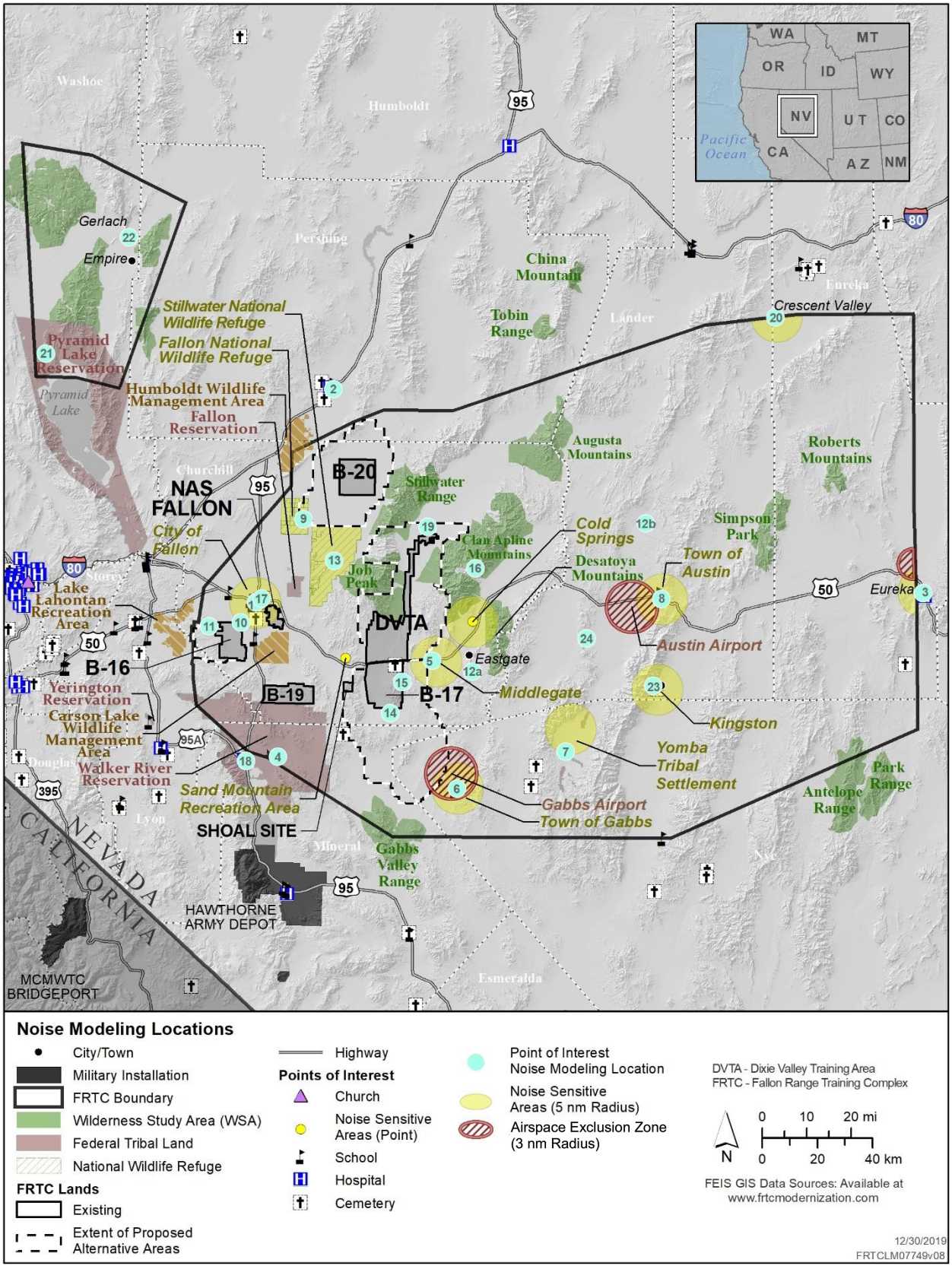


Figure 3.7-30: Noise Modeling Locations

Alternative 1 would include the reconfiguration of the existing SUA within the overall horizontal and vertical boundaries, with the planned extension of a minor shelf to accommodate the required restricted airspace over the expanded B-20 bombing range. Under Alternative 1, and with the exception of slight changes concentrated around bombing ranges (described in each ranges section above), the western portion of the SUA remains similar in terms of DNL contours. The creation of the eastern MOAs and associated increase aircraft overflights would create discrete brief noise events, which are short term and localized (such as a single jet overflight), that is not part of the continuous, ambient noise of the area, and would be noticeable because they would exceed the ambient background sound level. The DNL in the eastern portion of the SUA increases as a result of the creation of MOAs, with contours above 55 dBA, but not above 60 dBA (Figure 3.7-31). These DNLs from aircraft activities are compatible with land uses such as residences, transient lodging, and medical facilities.

The DNL from Alternative 1 was overlaid on the DNL contour map for the environmental baseline. By overlaying the maps, a “difference” or “delta” map was created, which shows areas where the DNL may rise or drop as a result of implementation of Alternative 1 (Figure 3.7-32). In relation to the environmental baseline there are there are four regions where the DNLs increase significantly (an increase in the average hourly sound level at any sensitive receptor of 5 dBA or more). These four areas include areas around B-16, B-17, and B-20 as well as on lands underneath the newly created MOAs in the eastern portion of the FRTC SUA. The expansion of the B-16 to the west results in an increase in DNL contours over the requested withdrawal lands. With the slight shift in activities to the west, the contours over the existing B-16 decrease. This change in DNL occurs at the B-17 and B-20 ranges as well, with DNLs increasing over new target areas, and slight decreases over existing target areas, as activities shift and redistribute to utilize the new targets. For these three ranges, even though the DNLs increase in comparison with the environmental baseline, these elevated DNLs are contained within the proposed range boundaries. This is reflected in the Point of Interest noise estimates of DNL shown in Table 3.7-7, where changes in DNL are most notable near B-16 and B-20. With the exception of B-16, and B-20, DNLs for a busy month do not appreciably change from the environmental baseline under Alternative 1.

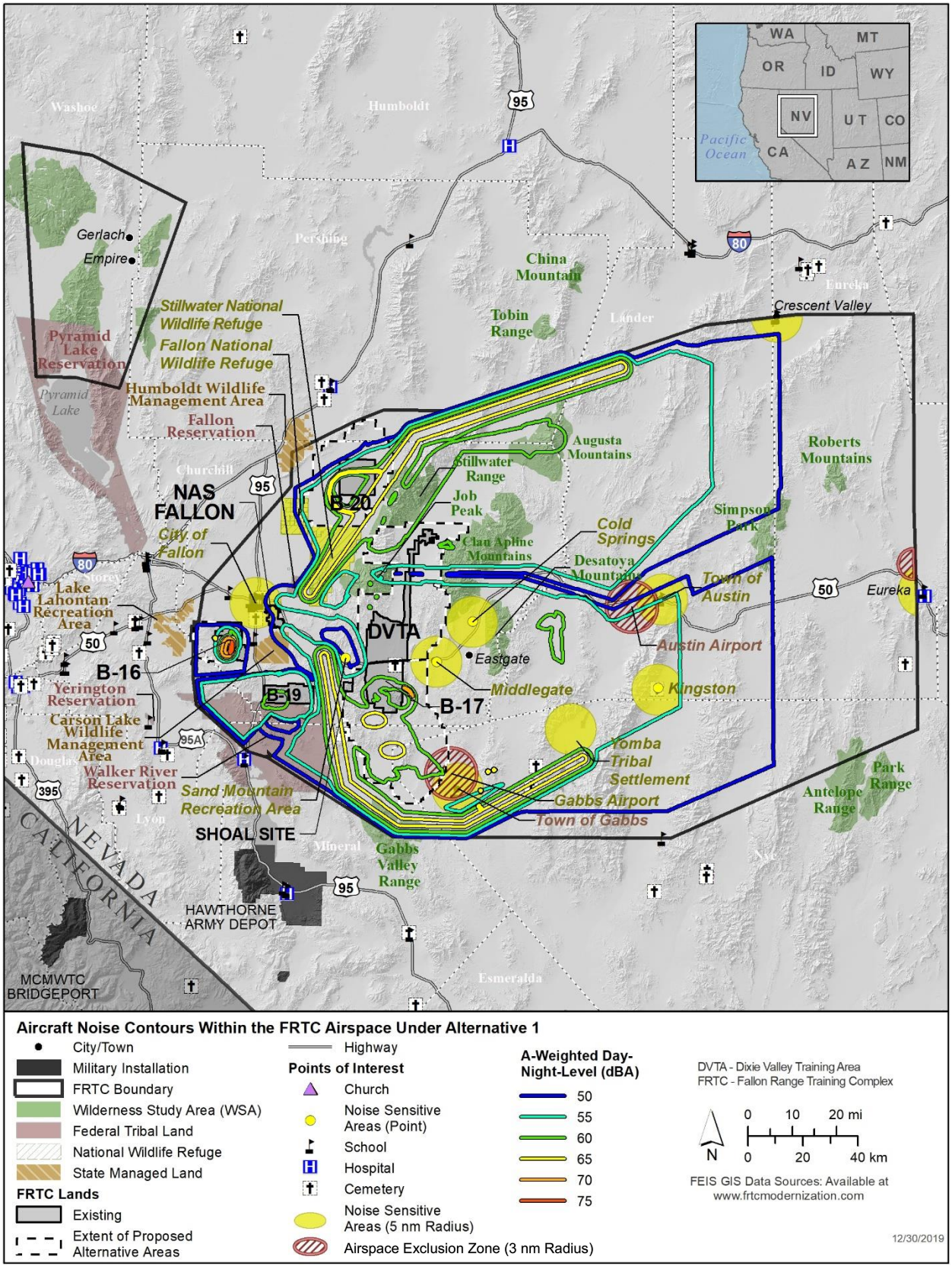


Figure 3.7-31: Aircraft Noise Contours Within the FRTC Airspace Under Alternative 1

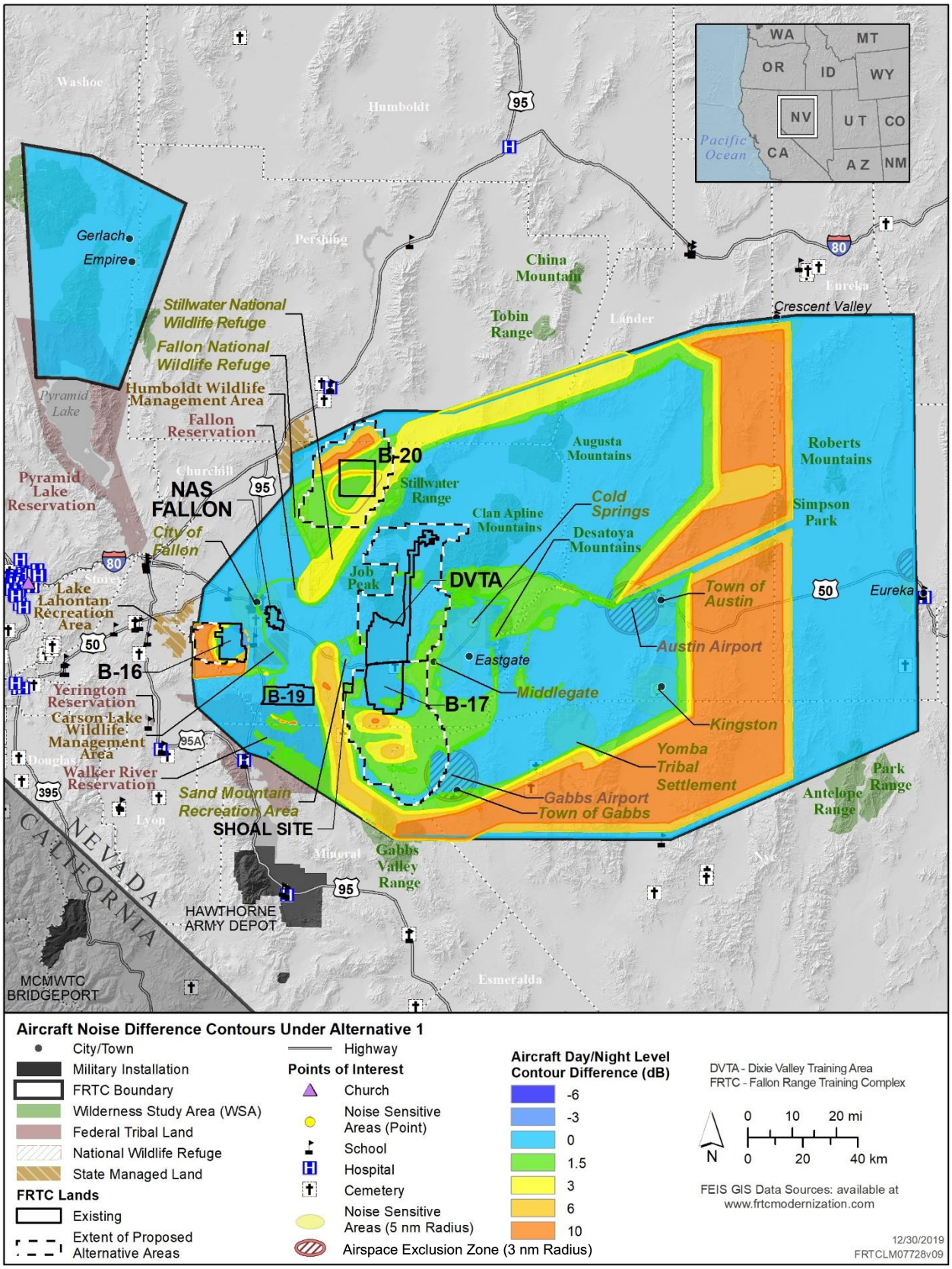


Figure 3.7-32: Aircraft Noise Difference Contours Under Alternative 1

For comparison with the Environmental Baseline, Table 3.7-8 presents the approximate uniform population density for each census tract and block group that underlies DNL contours above 65 dB (Figure 3.7-33). While population centers typically exhibit patchy distribution, the assumption of uniform population distribution in the FRTC area allows for conservative estimates of overlap. For example, Census Tract 9501, Block Group 1 in Churchill County has an approximate area of 2,236,087 acres (approximately 3,494 square miles) and an estimated population of 1,092 individuals. For the purpose of analyzing potential changes in affected population (i.e., when comparing to the Alternatives), a uniform distribution of individuals was assumed, resulting in a population density of 0.313 individual per square mile for Census Tract 9501, Block Group 1.

Table 3.7-8: Population Underlying Alternative 1 & 2 DNL Contours

Block Group	Census Tract	County	Total Tract Acreage	Estimated Total Population 2021[1]	Total Acreage at or above 65dB DNL (% of tract)	Approximate Population Impacted[2]
Environmental Baseline						
1	9501	Churchill	2,236,087	1,092	3,330 (0.15)	2
1	9601	Nye	1,427,284	687	572 (0.04)	<1
Alternative 1 & 2						
1	9501	Churchill	2,236,087	1,092	54,272 (2.43)	27
2	9501	Churchill	165,362	1,633	12,187 (7.37)	120
3	0003	Lander	2,998,871	1,919	18,399 (0.61)	12
1	9708	Mineral	2,310,200	1,623	45,021 (1.95)	32
1	9601	Nye	1,427,284	687	35,759 (2.51)	17
1	9601	Pershing	1,255,601	1,163	36,992 (2.95)	34
2	9601	Pershing	1,023,733	2,738	19,348 (1.89)	52

[1]Total population for 2021 is estimated based on Nevada Department of Taxation projections for the county (Nevada Department of Taxation, 2017). This assumes a uniform growth for the entire county.
[2]The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour range, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contour ranges. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

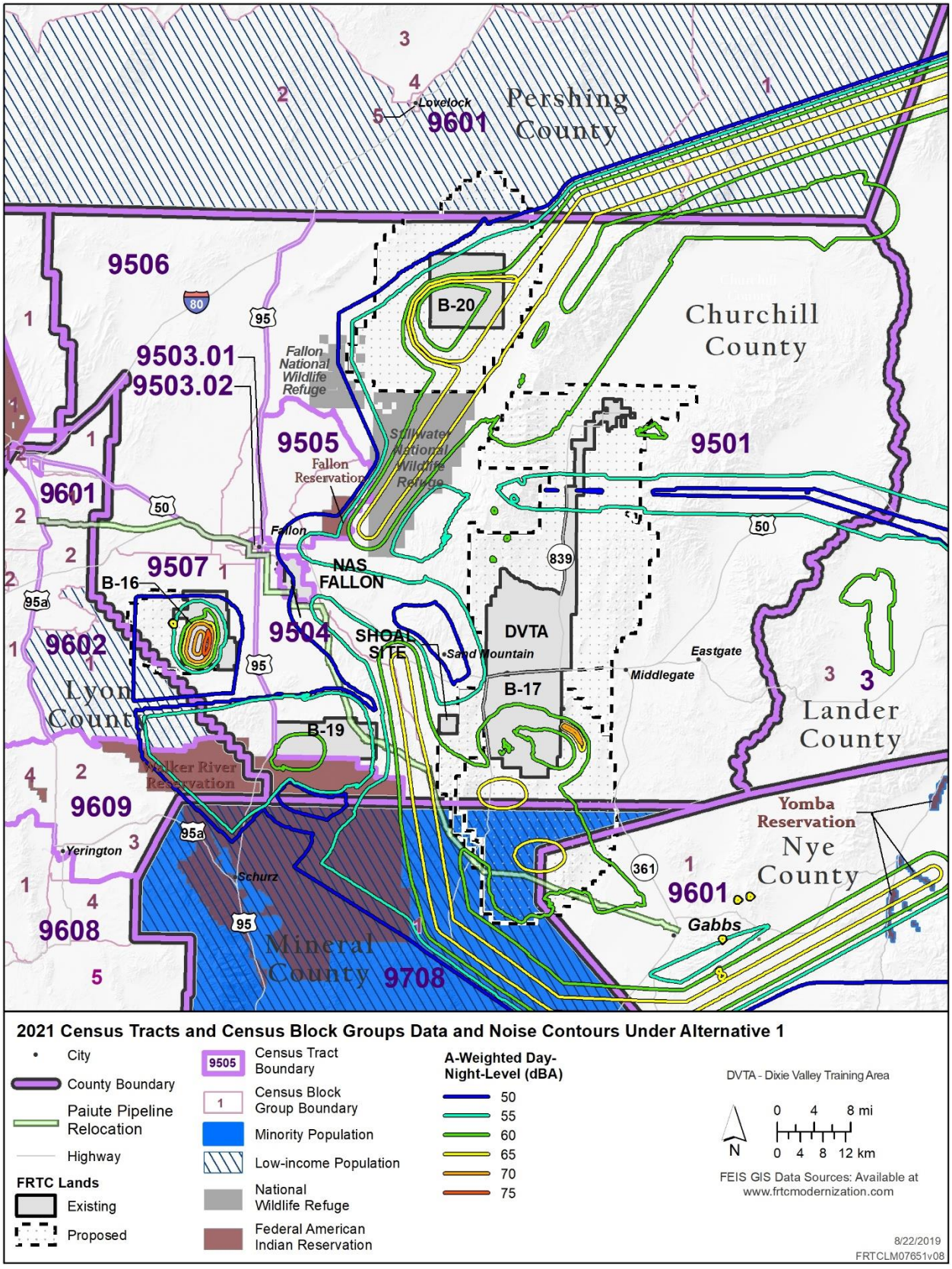


Figure 3.7-33: 2021 Census Tracts and Census Block Groups Data and Noise Contours Under Alternative 1

The area of each DNL contour (>65 dBA) was calculated for each Tract/Block group and multiplied by the approximate uniform population density of that Tract/Block to result in the approximate number of individuals under each DNL contour. Under Alternative 1 (and Alternative 2) and assuming a uniform population distribution, approximately 27 individuals would be in areas where the DNL is greater than 65 dBA. In total, using uniform distribution, approximately 294 individuals would be exposed to DNLs higher than 65 dBA. However, as described for bombing ranges above, visual inspection of aerial maps indicates a much lower number of individuals under the >65 dBA contours than a uniform distribution suggests. Residences were noted south of the Yomba Tribal Settlement (Figure 3.7-40) under the ingress/egress route that runs east of Gabbs, in Nye County, as well as residences underneath the ingress/egress route that runs northeast of Fallon. Regardless, noise may interfere with normal activities in these areas during busy months of training activities at the FRTC.

As presented in Section 2.3.4.7 (Special Use Airspace Modifications), the supersonic areas would be extended to the east. Supersonic operating area A (above 30,000 feet MSL) would extend into the Duckwater Air Traffic Control Assigned Airspaces and supersonic operating area B (11,000–30,000 feet MSL) would be extended to the east horizontally, into the Zircon and Ruby MOA/Air Traffic Control Assigned Airspaces (though in the Ruby MOA/Air Traffic Control Assigned Airspace the ceiling is proposed to be 28,000 feet MSL). The Reno MOA would also be modified to support supersonic activities above 30,000 feet MSL.

Under Alternative 1, supersonic activities would occur throughout the expanded SOAs. Given the wider area of use, it is expected that areas in the east and south would experience more sonic booms than current levels. Similarly, with redistribution of activities throughout the expanded SOAs, a greater area within the FRTC airspace would experience direct overflights of a supersonic aircraft. However, the sonic boom analysis indicates that, the C-weighted DNL would be very similar to that reported under the environmental baseline (Figure 3.7-34). It is important to note that DNL noise metric is used to reflect a person's cumulative exposure to sound over a 24-hour period rather than exposure to a single instance The redistribution of supersonic events over a wider area results in either no change, or a reduction in the C-weighted DNL contours (Figure 3.7-34). Communities in Gabbs, Yomba, Austin, and Crescent Valley would experience an increase in the C-weighted DNL, which indicates that enough sonic booms could be heard in these areas to change the 24-hour period noise level (DNL). However, this would be an increase of not more than 4 dBC DNL. As described in Section 3.7.2.2.2 (Impulse Sound), the Navy uses the C-weighted DNL to determine where activities could impact human activities, with C-weighted DNLs below 62 dBC generally considered compatible with most land uses. Other regions may experience slightly higher changes in the C-weighted DNL, but are removed from population centers (although they are in locations where recreational activities could occur) and are also below the 62 dBC threshold.

While supersonic activities would occur in the Reno MOA, there would not be enough supersonic activities to generate DNL contours above 57 dBC DNL, nor would there be a notable change in the C-weighted DNL presented in Table 3.7-9.

Under Alternative 1, supersonic activities would be redistributed throughout the expanded SOAs and larger area within the FRTC airspace would experience direct overflights of a supersonic aircraft. While a greater area may be subject to sonic booms with the expansion of the SOAs, there is no proposed increase in the number of supersonic activities, therefore the chance of experiencing a sonic boom in any one location would actually be lower than under current conditions. Under Alternative 1, sonic booms would be heard in a greater area anywhere within and adjacent to the expanded SOAs under Alternative 1, based on direction of flight and atmospheric pressure.

Figure 3.7-35 presents a comparison of existing supersonic flight tracks and associated sonic booms with flight tracks that could occur under Alternative 1.

As indicated above, the Navy proposes to create avoidance areas over towns underneath the eastern SUA (Crescent Valley and Eureka) and implement elevation restrictions (no lower than 3,000 feet above ground level) to reduce the overall noise in these areas and decrease the difference between the environmental baseline and Alternative 1.

While sonic booms could be heard within and adjacent to the expanded SOA, the C-weighted DNL would be very similar to that reported under the environmental baseline (Figure 3.7-34) and would not represent a significant degradation of the noise environment.

Table 3.7-9: Modeled C-Weighted Day-Night Levels (dBC) from Sonic Booms at selected Points of Interest Under Alternative 1, 2, and 3

Point of Interest		***C-Weighted Day Night Level (dBC)***		
ID	**Name**	**Baseline**	**Alternative 1, 2, and 3**	**Change from Environmental Baseline**
1	Fallon	<35	<35	NC
2	Lovelock/B-20	<35	<35	NC
3	Eureka	<35	<35	NC
4	Walker River Paiute Tribe	41.4	39.8	-1.6
5	Middlegate	50	49.8	-0.2
6	Gabbs	46.7	49.2	2.5
7	Yomba	44.9	48.7	3.8
8	Austin	40.9	43.4	2.5
9	Fallon National Wildlife Refuge/B-20	<35	<35	NC
10	Fallon/B-16	<35	<35	NC
11	Red Mountain/B-16	<35	<35	NC
12a	Upland Scrub Community	51.3	50.9	-0.4
12b	Upland Scrub Community	48.4	53.6	5.2
13	Stillwater National Wildlife Refuge	43.4	44.1	0.7
14	Unpopulated Mountainous Area	50.1	49.2	-0.9
15	Fairview Peak	49.6	49	-0.6
16	Unpopulated Mountainous Area #2	55	54.7	-0.3
17	Fallon Paiute Shoshone Tribe	<35	<35	NC
18	Schurz	38.2	37.2	-1
19	North DVTA	53.9	54.1	0.2
20	Crescent Valley	42.7	45.1	2.4
21	Reno MOA - Pyramid Lake	<35	<35	NC
22	Gerlach	<35	<35	NC
23	Kingston	45.9	46.5	0.6
24	Reese River	46.9	46.1	-0.8

Notes: dBC = C-weighted decibels, NC = No Change

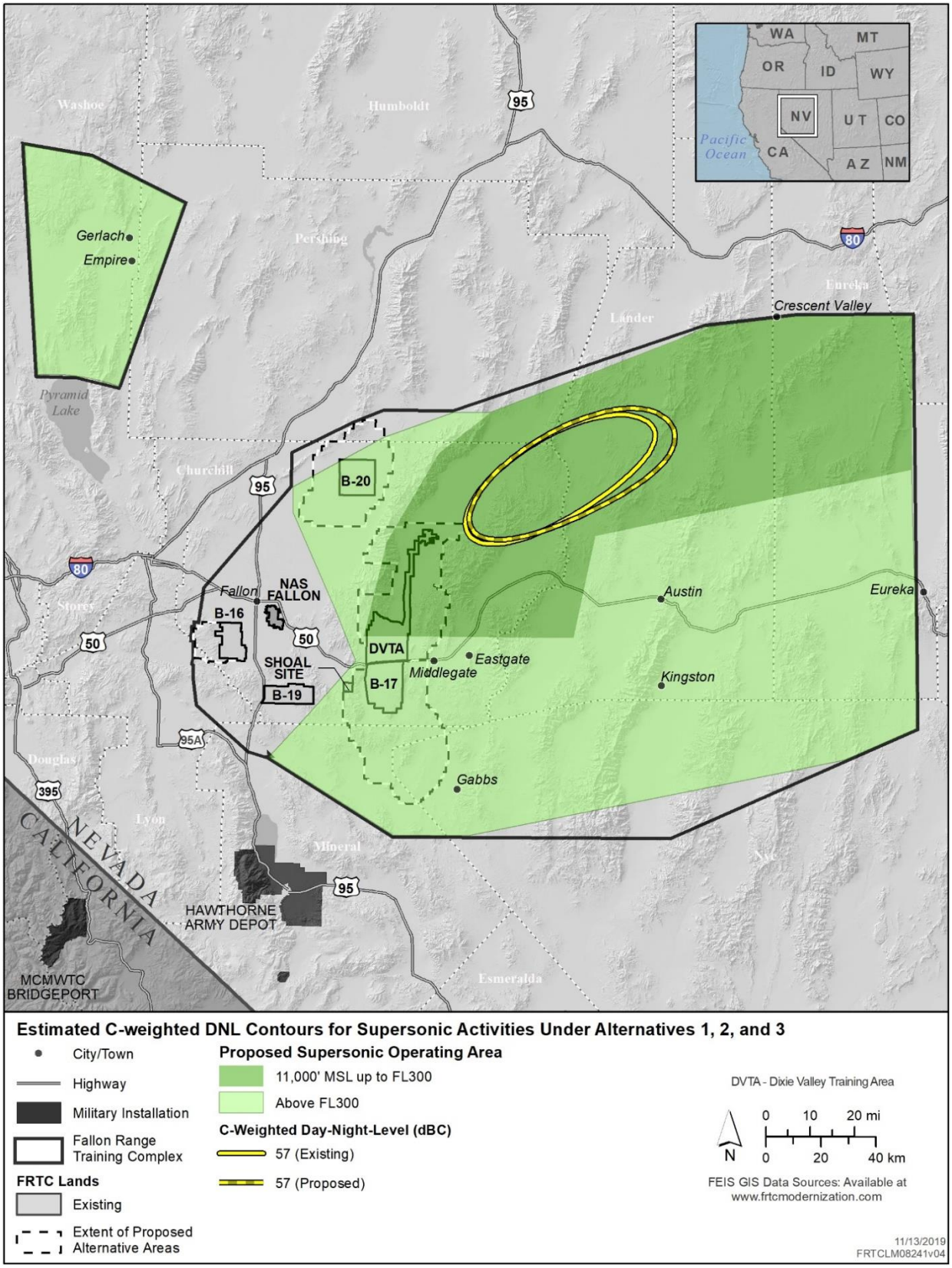


Figure 3.7-34: Estimated C-weighted DNL Contours for Supersonic activities Under Alternatives 1, 2, and 3

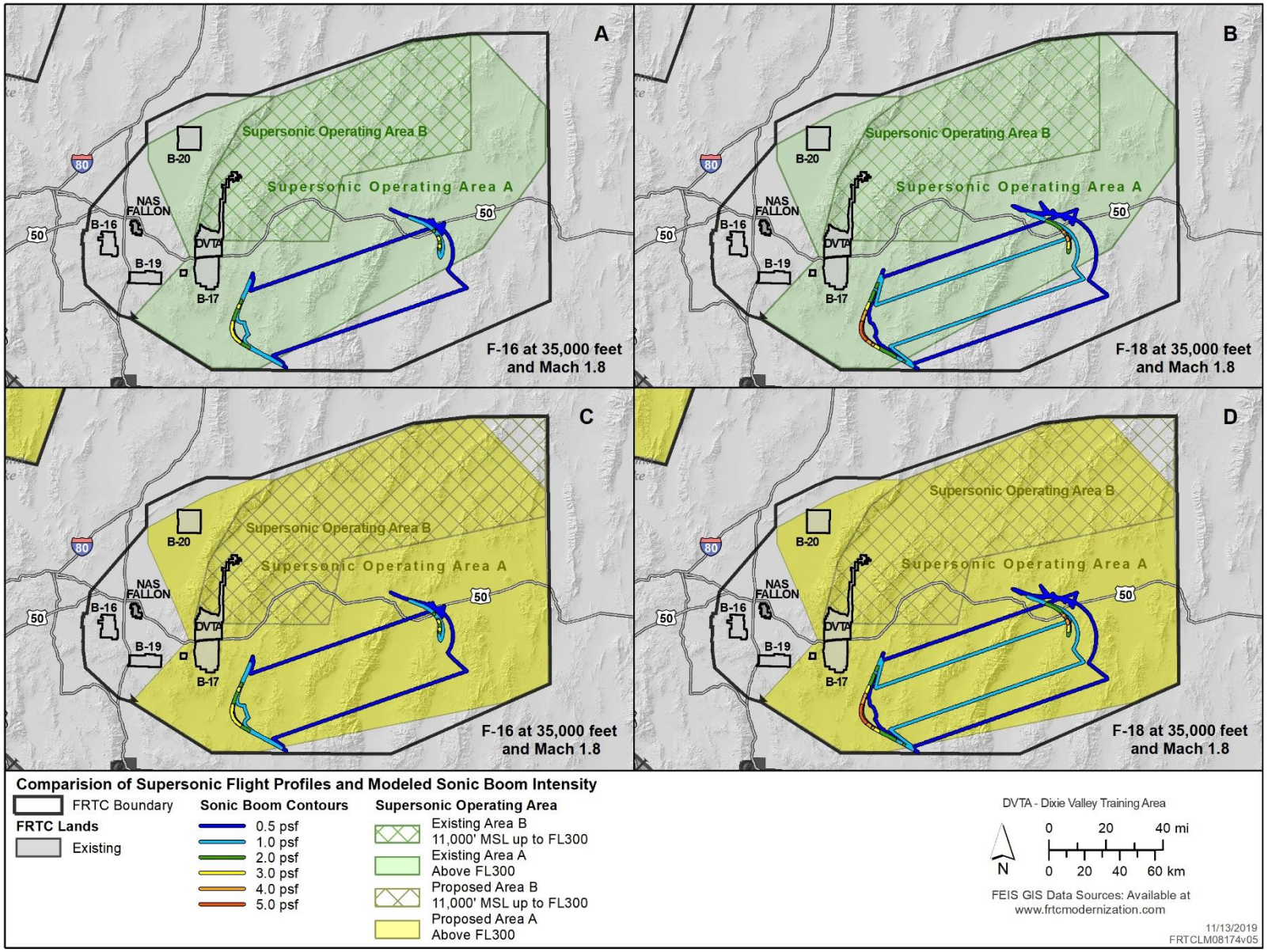


Figure 3.7-35: Comparison of Supersonic Flight Profiles and Modeled Sonic Boom Intensity

3.7.3.2.5 Supplemental Noise Analysis at Points of Interest

In addition to the DNL modeling for aviation activities and sonic boom activities, the Navy also modeled the maximum SEL from selected aircraft at 24 locations throughout the FRTC (Table 3.7-10).

To reiterate, SEL metric is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. The total sound energy from the entire event is then condensed into a one-second period, and the metric represents the total sound exposure received.

Table 3.7-10: Modeled Maximum A-Weighted Sound Exposure Levels (SEL dBA) from Selected Aircraft at Selected Points of Interest Under Alternative 1

Point of Interest		***A-Weighted Sound Exposure Level (SEL dBA)***					
		Baseline			**Alternative 1**		
ID	**Name**	**F/A-18E/F**	**F-35A**	**HH-60**	**F/A-18E/F**	**F-35A**	**HH-60**
1	Fallon	81	N/A	<35	81	76.8	<35
2	Lovelock/B-20	<35	N/A	<35	<35	<35	<35
3	Eureka	<35	N/A	<35	<35	<35	<35
4	Walker River Paiute Tribe	42.8	N/A	<35	46.5	41.9	<35
5	Middlegate	71.7	N/A	<35	71.7	79.8	<35
6	Gabbs	78.2	N/A	79.2	78.2	67.8	79.2
7	Yomba	51.3	N/A	<35	55	49.8	<35
8	Austin	66.8	N/A	<35	66.8	80.4	<35
9	Fallon National Wildlife Refuge/B-20	46.2	N/A	<35	49.9	44.7	<35
10	Fallon/B-16	79.9	N/A	64.6	79.9	76.5	64.6
11	Red Mountain/B-16	<35	N/A	<35	49.5	42.5	<35
12a	Upland Scrub Community	72.6	N/A	<35	72.6	81.2	<35
12b	Upland Scrub Community	81.4	N/A	<35	81.4	76.2	<35
13	Stillwater National Wildlife Refuge	50.6	N/A	<35	54.3	49.3	<35
14	Unpopulated Mountainous Area	99.5	N/A	<35	104.5	108.5	<35
15	Fairview Peak	94.7	N/A	40.1	94.7	98	37.7
16	Unpopulated Mountainous Area #2	79.8	N/A	<35	79.8	77.7	<35
17	Fallon Paiute Shoshone Tribe	83.5	N/A	<35	83.5	73.2	<35
18	Schurz	<35	N/A	<35	<35	<35	<35
19	North DVTA	70.3	N/A	75.5	70.3	83.6	75.5
20	Crescent Valley	<35	N/A	<35	<35	<35	<35
21	Reno MOA - Pyramid Lake	<35	N/A	N/A	<35	<35	N/A
22	Gerlach	42.2	N/A	N/A	42.2	<35	N/A
23	Kingston	58.9	N/A	<35	58.9	76.9	<35
24	Reese River	68.1	N/A	<35	68.1	76.2	<35

Note: dBA = A-weighted decibels

3.7.3.2.6 Speech Interference

Compared to the environmental baseline, Alternative 1 would result in additional events at representative sensitive receptors during which conversations or indoor speech would be interrupted, though those activities would be intermittent. Notably, these locations include the town of Gabbs, which would experience an increase in aircraft overflights using the new targets at B-17, and sensitive receptors underneath the newly created MOAs in the eastern SUA. However, there are also several sensitive receptors at which no change would occur under any of the scenarios compared to the environmental baseline. Given the information presented in Table 3.7-7, Table 3.7-9, and Table 3.7-10, the number of events that could impact speech interference would not change appreciably from the environmental baseline.

3.7.3.2.7 Classroom/Learning Interference

The potential for classroom interference from single aircraft events generating sound levels inside classrooms greater than 50 dB L_{max} would increase under Alternative 1 by compared to the environmental baseline, though those activities would be intermittent. Notably, these locations include the town of Gabbs, which would experience an increase in aircraft overflights using the new targets at B-17, and sensitive receptors underneath the newly created MOAs in the eastern SUA. As explained under Special Use Airspace above, the 55–60 dBA extends to the east under Alternative 1, and schools east of the existing SUA would be expected to experience additional events of classroom/learning interference, with most being unchanged from the environmental baseline. However, many schools in the region have central air conditioning and heating systems; therefore, it is more likely that classroom windows would remain closed the majority of the time, and classroom interference would be the same as under the environmental baseline.

Mitigation in the form of payment for retrofitting classrooms at schools to decrease sound attenuation is not under the authority of the DoD. The Navy has not sought additional appropriations for improvements to state or private property. Specific Congressional authorization and appropriation would be required for such funding. The Navy does not intend to seek specific Congressional authorization and appropriation of funds for these purposes to support the increase in land and changes to SUA at the FRTC.

3.7.3.2.8 Sleep Disturbance

Under Alternative 1, SELs remain the same for the majority of populated lands underneath the SUA, with the exception of the Yomba area. In these locations and during normal operating hours, sensitive receptors underneath the SUA could experience an increase in the percent probability of awakening during nights of average aircraft activity. These locations are removed from bombing ranges, and the only noise from training activities would be aircraft overflight noise. Additionally, the maximum SELs modeled for the Yomba area are less than 60 dBA. These SEL values are measured outside, and attenuation from structures would reduce this SEL level such that the SEL inside a building is much less than what is experienced outside.

3.7.3.2.9 Effects on Recreation

Under Alternative 1, the data show a slight increase for some sensitive receptors where there would be additional daytime events during which a recreationist may experience outdoor speech interference. Again, this is most notable near the town of Gabbs and the eastern portions of the FRTC SUA (Figure 3.7-31). For many of the sensitive receptors and based on typically decreasing DNL levels, there is no

change from the environmental baseline. The data show that there is a range of potential outdoor speech interference that may disturb individuals participating in outdoor recreational activities depending on the location of the sensitive receptor relative to the airfields and flight tracks.

3.7.3.2.10 Potential Hearing Loss

According to the EPA, changes in hearing level of less than 5 dB are generally not considered noticeable. The level at which there may be a noticeable NIPTS would be at the 84 to 85 dB DNL range and above. The 80 dB DNL noise contour (i.e., potential at-risk population) that overlaps with sensitive receptors does not increase under Alternative 1.

3.7.3.2.11 Nonauditory Health Effects

Per studies noted, the data and research are inconclusive with respect to the linkage between potential nonauditory health effects of aircraft noise exposure. As outlined within the analysis of DNL contours and supplemental metrics presented within this section, the data show that Alternative 1 would result in both an increase in the number of people exposed to noise as well as those individuals exposed to higher levels of noise. However, research conducted to date has not made a definitive connection between intermittent military aircraft noise and nonauditory health effects. The results of most cited studies are inconclusive and cannot identify a causal link between aircraft noise exposure and the various type of nonauditory health effects that were studied. An individual's health is greatly influenced by many factors known to cause health issues, such as hereditary factors, medical history, and life style choices regarding smoking, diet, and exercise. Research has demonstrated that these factors have a larger and more direct effect on a person's health than aircraft noise. It is important to note that the highest levels of noise would be contained within expanded range boundaries which would be closed to the public. Areas getting occasional flyovers would be very different than a range getting a lot of noise in a short period of time. The occasional flyover is unlikely to cause health effects.

3.7.3.2.12 Vibration Effects

In addition to the noise effects on the population outlined above, structural vibration may result from certain aircraft operations. Depending on the aircraft operation, altitude, heading, power settings, and the structure, certain vibration effects may be observed. Typically, the structural elements that are most susceptible to vibration from aircraft noise are windows and sometimes walls or ceilings. Conservatively, only sounds lasting more than one second above a sound level of 130 dB are potentially damaging to structural components of a building. Noise-induced structural vibration may cause annoyance to dwelling occupants because of induced secondary vibrations, or "rattle," of objects within the dwelling, such as hanging pictures, dishes, plaques, and bric-a-brac. Loose window panes may also vibrate noticeably when exposed to high levels of airborne noise, causing homeowners to fear breakage. The data show that implementation of Alternative 1 would result in an increase in area/structures exposed to noise. However, as shown on Figure 3.7-21, Figure 3.7-25, and Figure 3.7-29, L_{max} values above 115 dBP are contained within range boundaries, and therefore sound levels damaging to structural components of buildings are not likely to occur.

3.7.3.2.13 Summary of Effects and Conclusions

Overall, Alternative 1 would have not have significant noise impacts in the areas surrounding the Bravo training ranges. With the exception of B-16, all DNL contours from aircraft overflights are contained within the range boundaries. At B-16, the area that the contours with DNLs in excess of 65 dBA reach off range are similar to the environmental baseline, and do not overlap any sensitive receptors. Under

Alternative 1, there would be a slight increase in the number of incidents of indoor and outdoor speech interference, classroom interference, and a slightly higher probability of awakening, especially for sensitive receptors under the newly created MOAs. However, with intermittent aircraft operations coupled with the time most people spend indoors, it is very unlikely that individuals would experience noise exposure that would result in hearing loss. The population potentially at risk for potential hearing loss would not change under Alternative 1. Implementation of this action alternative would result in significant impacts on the noise environment.

3.7.3.3 Alternative 2: Modernization of the Fallon Range Training Complex and Managed Access

The difference between Alternative 1 and Alternative 2 is that Alternative 2 would allow certain categories of users to access B-16, B-17, and B-20 when the ranges are not operational (i.e., typically weekends, holidays, and when closed for scheduled maintenance). Similar to Alternative 1, Alternative 2 would create a significant increase in the noise environment, particularly underneath the newly established MOAs in the eastern portion of the FRTC airspace.

3.7.3.3.1 Bravo-16

Alternative 2 would have the same impacts on noise levels at B-16 as Alternative 1. For B-16, the difference between Alternative 2 and Alternative 1 is that Alternative 2 would not allow the public to access B-16 for any purpose other than for racing events, land management activities, and traditional ceremonial site visits. Changes regarding public access would not change the proposed distribution of military training activities within and above B-16 from Alternative 1.

3.7.3.3.2 Bravo-17

Alternative 2 would have the same impacts on noise levels at B-17 as Alternative 1. For B-17, the difference between Alternative 2 and Alternative 1 is that Alternative 2 would not allow the public to access B-17 for any purpose other than for hunting, racing events, land management activities, and traditional ceremonial site visits. Changes regarding public access would not change the proposed distribution of military training activities within and above B-17 from Alternative 1.

3.7.3.3.3 Bravo-20

Alternative 2 would have the same impacts on noise levels at B-20 as Alternative 1. For B-20, the difference between Alternative 2 and Alternative 1 is that Alternative 2 would not allow the public to access B-20 for any purpose other than for traditional ceremonial site visits or land management activities. Changes regarding public access would not change the proposed distribution of military training activities within and above B-20 from Alternative 1.

3.7.3.3.4 Dixie Valley Training Area

Alternative 2 would have the same impacts on noise levels as Alternative 1. Changes regarding public access would not change the proposed distribution of military training activities within the DVTA from Alternative 1.

3.7.3.3.5 Fallon Range Training Complex Special Use Airspace

Alternative 2 would have the same impacts on noise levels as Alternative 1. Changes regarding public access would not change the proposed distribution of military training activities within the FRTC Special Use Airspace from Alternative 1.

3.7.3.3.6 Summary of Effects and Conclusions

Implementation of this action alternative would result in significant impacts on the noise environment and impacts would be the same as Alternative 1.

3.7.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternative 1 and Alternative 2, but B-17 would be moved further southeast and tilted. This alternative would have the same access restrictions and Controlled Access Program as Alternative 2. As presented in the sections below, Alternative 3 would create a significant increase in the noise environment, particularly underneath the newly established MOAs in the eastern portion of the FRTC airspace.

3.7.3.4.1 Bravo-16

Alternative 3 would have the same impacts on noise levels as Alternative 1. For B-16, the difference between Alternative 3 and Alternative 1 is that Alternative 3 would not allow the public to access B-16 for any purpose other than for racing events, land management activities, and traditional ceremonial site visits. Changes regarding public access would not change the proposed distribution of military training activities within and above B-16 from Alternative 1. There are no reconfigurations of the B-16 range proposed under Alternative 3.

3.7.3.4.2 Bravo-17

Under Alternative 3, B-17 would be shifted to the south and east and tilted (rather than the north-south orientation under Alternatives 1 and 2). Additionally, instead of the numerous target areas proposed under Alternative 1, all targets and convoy routes (moving targets) would be situated in three large target areas, and existing targets on B-17 would continue to be used.

Aircraft Noise

Figure 3.7-36 shows the DNL levels from aircraft activities for B-17 under Alternative 3. Under Alternative 3, the 60 dBA DNL contour covers the entire range, similar to the environmental baseline. With the exception of approximately 810 acres along the eastern portion of the proposed B-17 range, and within this area, only approximately 235 acres would have DNLs greater than 65 dBA (Noise Zone II).

Munitions Noise

Under Alternative 3, the DNL contours from large arms explosions would not extend past the proposed expanded B-17 range boundary (Figure 3.7-37 and Figure 3.7-38). A small portion of the 115 dB peak noise contour from air gunnery operations extends past the western portion of the proposed expanded B-17 boundaries (Figure 3.7-39).

Road Construction and Infrastructure In Support of Alternative 3

With the expansion of B-17, approximately 12 miles of State Route 361 would no longer be available for public use. Under Alternative 3, one of two notional relocation corridors would potentially be developed to an asphalt surface. The Navy would fund construction of a new road corridor outside of the requested withdrawal area. The State Route 361 replacement road would be constructed by mechanically removing vegetation and grading native soils. The Navy anticipates that typical road construction equipment would be used during the route replacement, and that noise from such equipment would temporarily exist in the region of construction. However, prior to implementation of this alternative, site-specific NEPA would be performed on this action, which would include a noise analysis for the relocation of the state route.

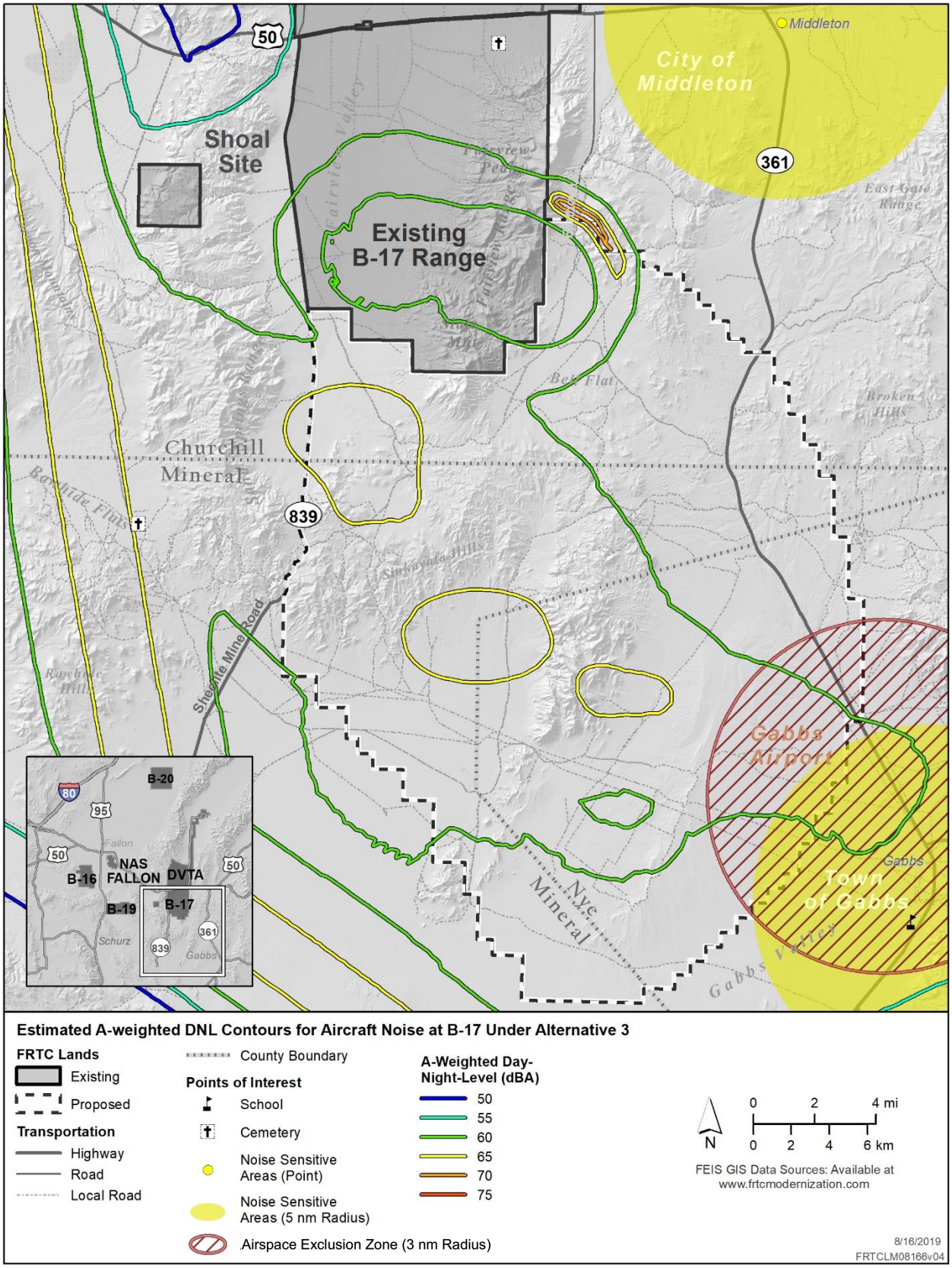


Figure 3.7-36: Estimated A-weighted DNL Contours for Aircraft Noise at B-17 Under Alternative 3

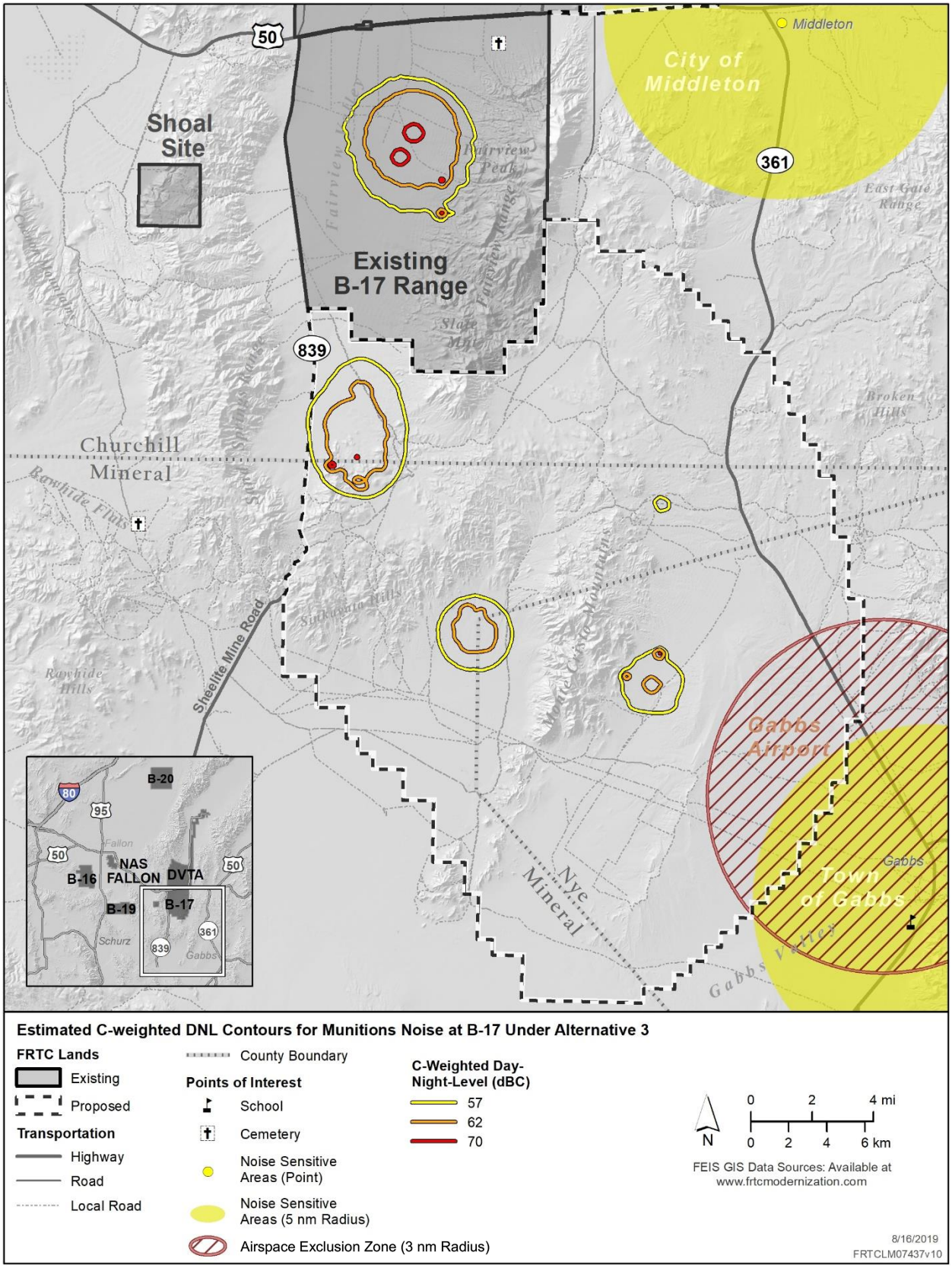


Figure 3.7-37: Estimated C-weighted DNL Contours for Munitions Noise at B-17 Under Alternative 3

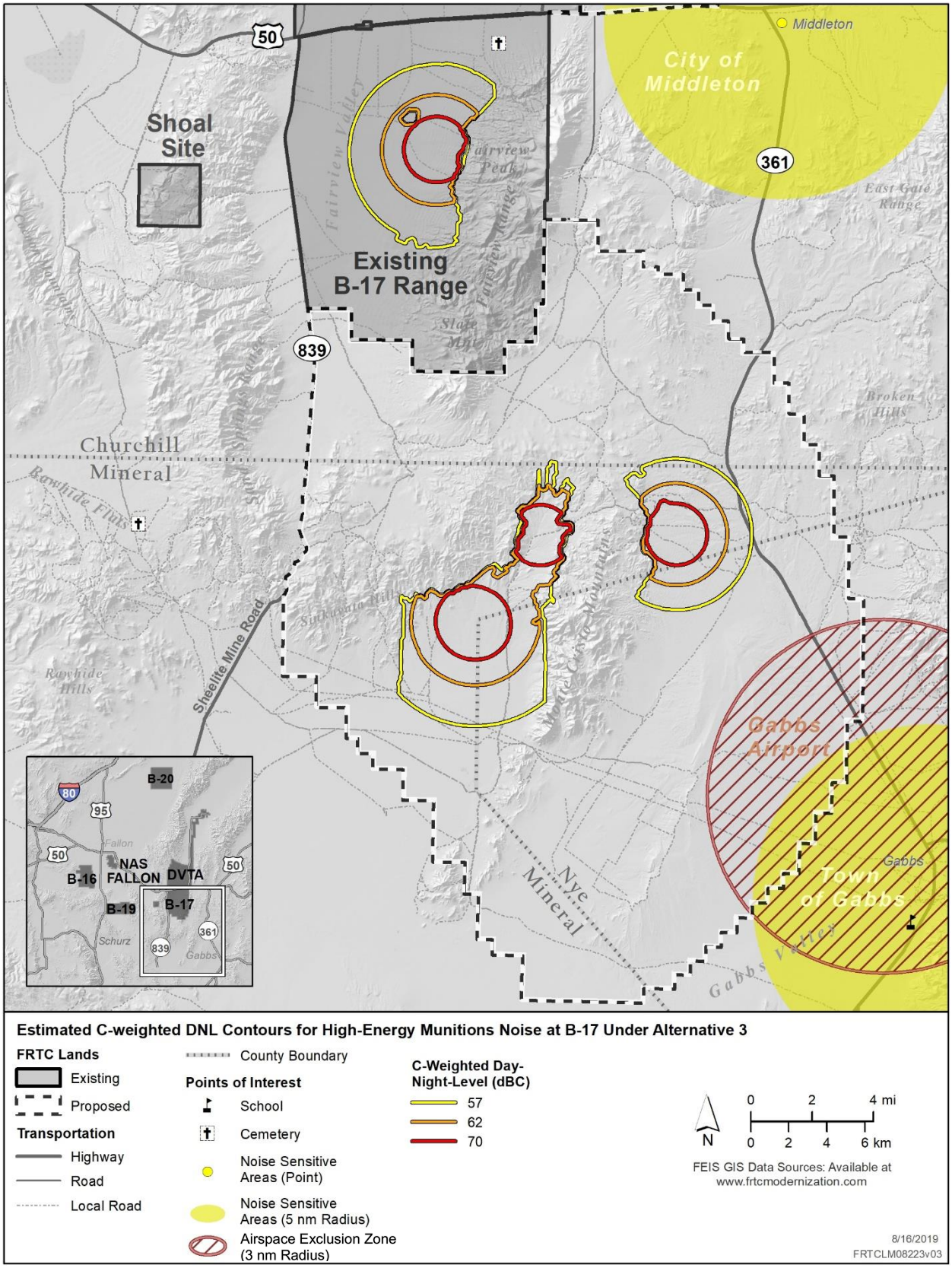


Figure 3.7-38: Estimated C-weighted DNL Contours for High-Energy Munitions Noise at B-17 Under Alternative 3

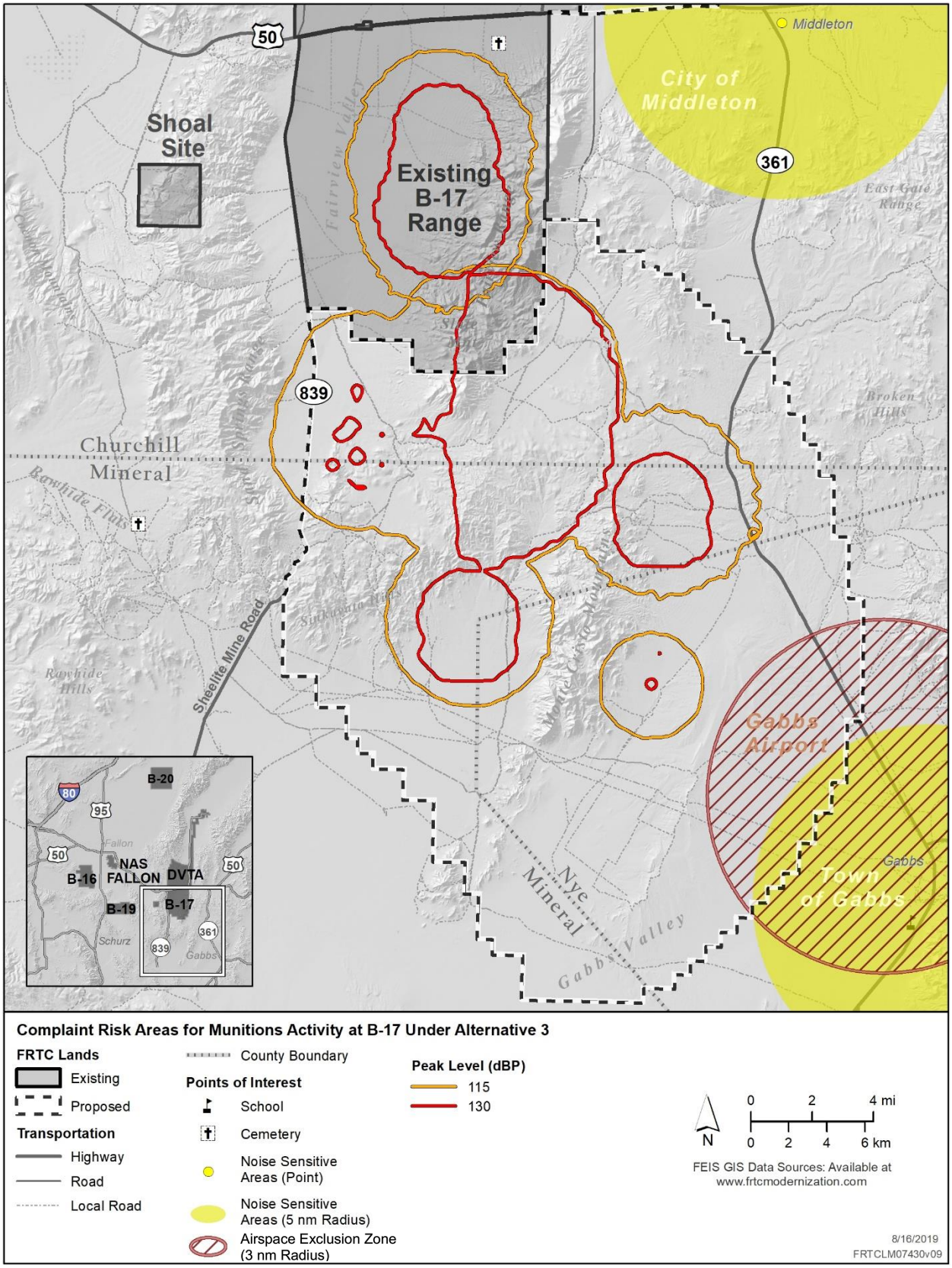


Figure 3.7-39: Complaint Risk Areas for Munitions Activity at B-17 Under Alternative 3

Alternative 3 would also potentially include relocation of the Paiute Pipeline that runs through the southern area of the proposed B-17 expansion area. Similar equipment would likely be used to relocate the pipeline as is used in the potential relocation of State Route 361. Given typical propagation of noise away from a point source, the loudest equipment used during the pipeline replacement would be audible only in the immediate vicinity of construction activities. However, prior to implementation of this alternative, site-specific NEPA would be performed on this action, which would include a noise analysis for the relocation of the state route.

3.7.3.4.3 Bravo-20

Alternative 3 would have the same impacts on noise levels as Alternative 1. For B-20, the difference between Alternative 3 and Alternative 1 is that Alternative 3 would not allow the public to access B-20 for any purpose other than for racing events, land management activities, and traditional ceremonial site visits. Changes regarding public access would not change the proposed distribution of military training activities within and above B-20 from Alternative 1.

3.7.3.4.4 Dixie Valley Training Area

Changes regarding public access would not change the proposed distribution of military training activities within the DVTA from Alternative 1. Alternative 3 would have the same impacts on noise levels as Alternative 1.

3.7.3.4.5 Fallon Range Training Complex Special Use Airspace

Changes regarding public access would not change the proposed distribution of military training activities within the majority of FRTC Special Use Airspace from Alternative 1. With the shift and tilt of the B-17 range, approach routes into B-17 would also shift and tilt accordingly, though C-weighted DNL contours are not expected to extend past the range boundaries (Figure 3.7-40). Aircraft overflights would create discrete brief noise events that, while noticeable because they would exceed the ambient background sound level, would contribute very little to the DNL. DNL noise contours below 65 dBA from aircraft activities are compatible with land uses such as residences, transient lodging, and medical facilities. Therefore, no significant impacts on the sound environment would occur.

The DNL from Alternative 3 was overlaid on the DNL contour map for the environmental baseline. Alternative 3 would have similar impacts on noise levels as Alternative 1 (Figure 3.7-41, Table 3.7-11). In relation to the environmental baseline there are four regions where the DNLs increase significantly (a change in the DNL of 5 dB or more). These four areas include areas around B-16, B-17, and B-20 as well as on lands underneath the newly created MOAs in the eastern portion of the FRTC SUA. The expansion of the B-16 to the west results in an increase in DNL contours over the requested withdrawal lands. With the slight shift in activities to the west, the contours over the existing B-16 decrease. This change in DNL occurs at the B-17 and B-20 ranges as well, with DNLs increasing over new target areas, and slight decreases over existing target areas, as activities shift and redistribute to utilize the new targets. For these three ranges, even though the DNLs increase in comparison with the environmental baseline, DNL noise contours exceeding 65 dBA are contained within the proposed range boundaries.

The last region where noise increases significantly is in the eastern portion of the FRTC SUA, on lands under the newly proposed MOAs (Zircon, Ruby, Diamond, Duckwater, and Smokie). Under the environmental baseline, military activities do not contribute much to the DNL, and these areas are typically quiet. Under Alternative 3, aircraft overflights would occur in these new MOAs, and DNLs would increase 10–20 dBA, which is noted for Crescent Valley in Table 3.7-11. While the noise contours

themselves do not exceed 65 dBA, a change in DNL of 10-20 dBA would be considered a significant change in the noise environment.

For comparison with the Environmental Baseline, Table 3.7-12 presents the approximate uniform population density for each census tract and block group that underlies DNL contours above 65 dB (Figure 3.7-33). While population centers typically exhibit patchy distribution, the assumption of uniform population distribution in the FRTC area allows for conservative estimates of overlap. For example, Census Tract 9501, Block Group 1 in Churchill County has an approximate area of 2,236,087 acres (approximately 3,494 square miles) and an estimated population of 1,092 individuals. For the purpose of analyzing potential changes in affected population (i.e., when comparing to the Alternatives), a uniform distribution of individuals was assumed, resulting in a population density of 0.313 individual per square mile for Census Tract 9501, Block Group 1.

The area of each DNL contour (>65 dBA, Figure 3.7-42 was calculated for each Tract/Block group and multiplied by the approximate uniform population density of that Tract/Block to result in the approximate number of individuals under each DNL contour. Under Alternative 1 and Alternative 2, and assuming a uniform population distribution, approximately 35 individuals would be in areas where the DNL is greater than 65 dBA. In total, using uniform distribution, approximately 317 individuals would be exposed to DNLs higher than 65 dBA. However, as described for bombing ranges above, visual inspection of aerial maps indicates a much lower number of individuals under the >65dBA contours than a uniform distribution suggests. Residences were noted south of the Yomba Tribal Settlement (Figure 3.7-40) under the ingress/egress route that runs east of Gabbs, in Nye County, as well as residences underneath the ingress/egress route that runs northeast of Fallon. Regardless, in these areas during busy months of training activities at the FRTC, noise may interfere with normal activities.

Similar to Alternative 1, supersonic areas would be extended to the east. Supersonic operating area A (above 30,000 feet MSL) would extend into the Zircon and Duckwater Air Traffic Control Assigned Airspaces and supersonic operating area B (11,000–30,000 feet MSL) would be extended to the east horizontally, into the Zircon and Ruby MOA/Air Traffic Control Assigned Airspaces. BooMap96 was used to calculate the 57 dBC through 85 dBC C-weighted DNL contours, in 5 dB increments, for Alternative 1, as well as C-weighted DNLs for specific points of interest, as indicated in Table 3.7-7.

The sonic boom analysis indicates that while the supersonic operating areas are expanded to the east, the redistribution of supersonic events over a wider area results in either no change, or a reduction in the C-weighted DNL. However, communities in Gabbs, Yomba, Austin, and Crescent Valley would experience an increase in the C-weighted DNL, though not more than 4 dBC.

Because sound radiates outward from its source, sonic booms could be heard outside the Supersonic Operating Area, based on direction of flight and atmospheric pressure. It should be noted that noise modeling indicates that while sonic booms could be heard outside (and under) SOA, the C-weighted DNL is very similar to that reported under the environmental baseline.

Table 3.7-11: Modeled Day-Night Levels (dBA) at Selected Points of Interest Under Alternative 3

Point of Interest		*Day Night Level (dBA)*		
ID	**Name**	**Alternative 3**	**Change from Environmental Baseline**	**Change from Alternative 1**
1	Fallon	<45	NC	NC
2	Lovelock/B-20	<45	NC	NC
3	Eureka	<45	NC	NC
4	Walker River Paiute Tribe	50.3	1.7	NC
5	Middlegate	58.5	1.7	NC
6	Gabbs	57.9	1.6	1.1
7	Yomba	57.4	1.7	NC
8	Austin	54.9	0.9	NC
9	Fallon National Wildlife Refuge/B-20	53.7	1.5	NC
10	Fallon/B-16	<45	NC	NC
11	Red Mountain/B-16	50.9	5.9	NC
12a	Upland Scrub Community A	58.5	1.5	NC
12b	Upland Scrub Community B	57.6	1	NC
13	Stillwater National Wildlife Refuge	66.7	3.9	NC
14	Unpopulated Mountainous Area A	61.8	0.4	-0.8
15	Fairview Peak	59.2	0.2	-0.3
16	Unpopulated Mountainous Area B	53.3	1.5	NC
17	Fallon Paiute Shoshone Tribe	47.4	0.6	NC
18	Schurz	<45	NC	NC
19	North DVTA	59.6	1.2	NC
20	Crescent Valley	<45	NC	NC
21	Reno MOA - Pyramid Lake	<45	NC	NC
22	Gerlach	46.9	1.5	NC
23	Kingston	57.1	1	NC
24	Reese River	59.2	1.2	NC

Notes: dBA = A-weighted decibels, NC = No Change

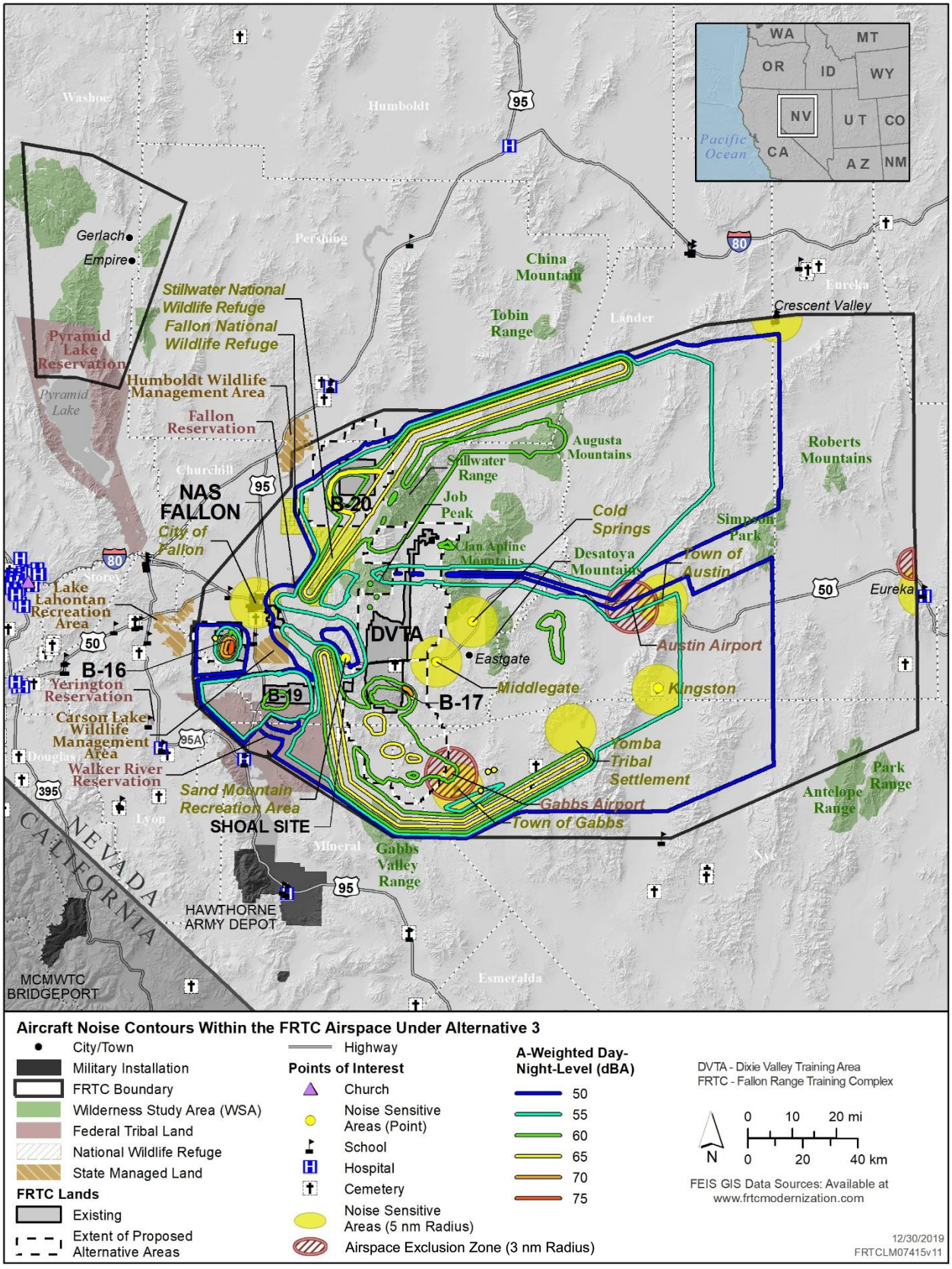


Figure 3.7-40: Aircraft Noise Contours Within the FRTC Airspace Under Alternative 3

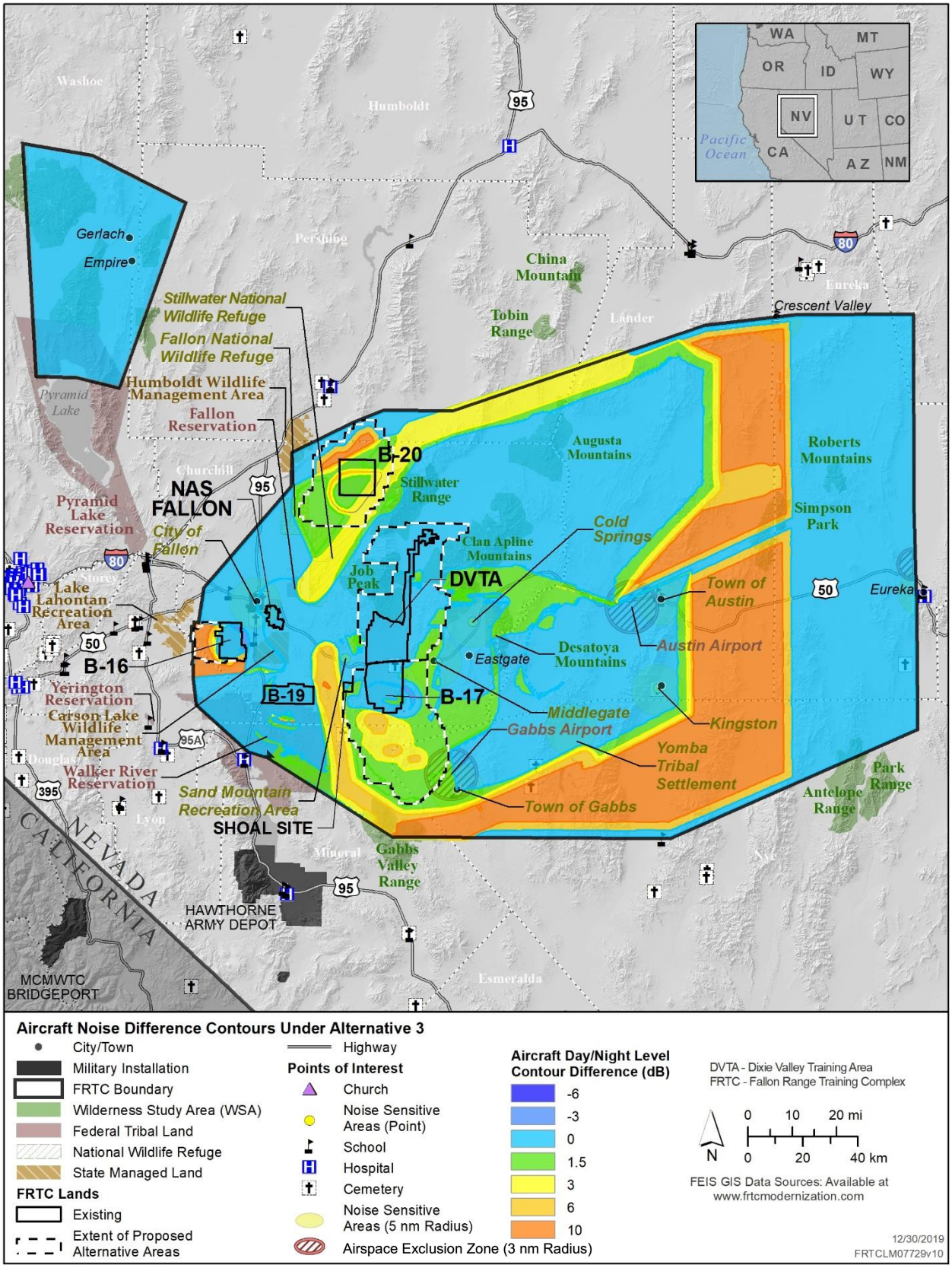


Figure 3.7-41: Aircraft Noise Difference Contours Under Alternative 3

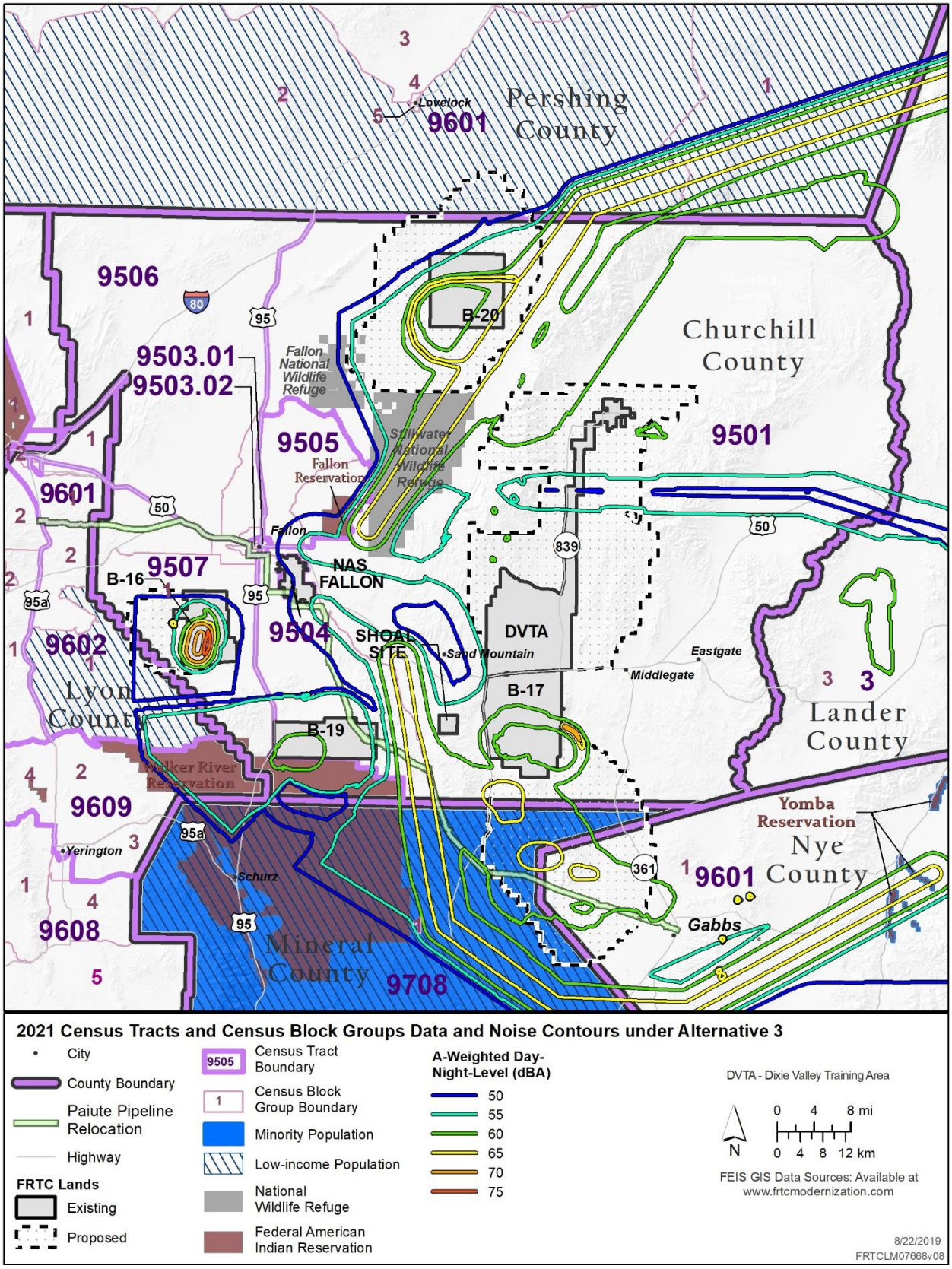


Figure 3.7-42: 2021 Census Tracts and Census Block Groups Data and Noise Contours Under Alternative 3

Table 3.7-12: Population Underlying Alternative 3 DNL Contours

Block Group	Census Tract	County	Total Tract Acreage	Estimated Total Population 2021[1]	Total Acreage at or above 65dB DNL (% of tract)	Approximate Population Impacted[2]
Environmental Baseline						
1	9501	Churchill	2,236,087	1,092	3,330 (0.15)	2
1	9601	Nye	1,427,284	687	572 (0.04)	<1
Alternative 3						
1	9501	Churchill	2,236,087	1,092	93,474 (4.18%)	35
2	9501	Churchill	165,362	1,633	12,149 (7.35%)	118
3	0003	Lander	2,998,871	1,919	18,399 (0.61%)	11
1	9708	Mineral	2,310,200	1,623	53,206 (2.30%)	41
1	9601	Nye	1,427,284	687	41,383 (2.90%)	22
1	9601	Pershing	1,255,601	1,163	36,992 (2.95%)	38
2	9601	Pershing	1,023,733	2,738	19,348 (1.89%)	52

[1]Total population for 2021 is estimated based on Nevada Department of Taxation projections for the county (Nevada Department of Taxation, 2017). This assumes a uniform growth for the entire county. The growth factors from the U.S. Census Bureau's estimates for 2012–2016 were 10 percent for Churchill County, 5 percent for Lander County, 9 percent for Lyon County, -4 percent for Mineral County, 8 percent for Nye County, and -2 percent for Pershing County (Nevada Department of Taxation, 2017; U.S. Census Bureau, 2017).
[2] Population counts of people within the DNL contour ranges were computed using 2021 population estimates. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour range, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contour ranges. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

3.7.3.4.6 Noise Modeling Location Data

Similar to Alternative 1, the SEL of selected aircraft were modeled for 24 locations throughout the FRTC. Under Alternative 3, there are no notable changes from SELs experienced in populated areas as presented in Table 3.7-13, with one exception. Modeled SELs of aircraft near Gabbs would increase approximately 20 dBA as aircraft approach targets on the expanded B-17 bombing range.

Table 3.7-13: Modeled A-Weighted Sound Exposure Levels (SEL dBA) from Selected Aircraft at Selected Points of Interest Under Alternative 3

Point of Interest		*A-Weighted Sound Exposure Level (SEL dBA)*					
		Alternative 1			**Alternative 3**		
ID	**Name**	**F/A-18E/F**	**F-35A**	**HH-60**	**F/A-18E/F**	**F-35A**	**HH-60**
1	Fallon	81	76.8	<35	81	76.8	<35
2	Lovelock/B-20	<35	<35	<35	<35	<35	<35
3	Eureka	<35	<35	<35	<35	<35	<35
4	Walker River Paiute Tribe	46.5	41.9	<35	42.8	38.2	<35
5	Middlegate	71.7	79.8	<35	71.7	79.8	<35
6	Gabbs	78.2	67.8	79.2	91.9	95.1	79.2
7	Yomba	55	49.8	<35	51.3	46.1	<35
8	Austin	66.8	80.4	<35	66.8	80.4	<35
9	Fallon National Wildlife Refuge/B-20	49.9	44.7	<35	46.2	41	<35
10	Fallon/B-16	79.9	76.5	64.6	79.9	76.5	64.6
11	Red Mountain/B-16	49.5	42.5	<35	47.8	42.5	<35
12a	Upland Scrub Community A	72.6	81.2	<35	72.6	81.2	<35
12b	Upland Scrub Community B	81.4	76.2	<35	81.4	76.2	<35
13	Stillwater National Wildlife Refuge	54.3	49.3	<35	50.6	45.7	<35
14	Unpopulated Mountainous Area A	104.5	108.5	<35	104.5	108.5	<35
15	Fairview Peak	94.7	98	37.7	94.7	98	37.7
16	Unpopulated Mountainous Area B	79.8	77.7	<35	79.8	77.7	<35
17	Fallon Paiute Shoshone Tribe	83.5	73.2	<35	83.5	73.2	<35
18	Schurz	<35	<35	<35	<35	<35	<35
19	North DVTA	70.3	83.6	75.5	70.3	83.6	75.5
20	Crescent Valley	<35	<35	<35	<35	<35	<35
21	Reno MOA - Pyramid Lake	<35	<35	N/A	<35	<35	N/A
22	Gerlach	42.2	<35	N/A	42.2	<35	N/A
23	Kingston	58.9	76.9	<35	58.9	76.9	<35
24	Reese River	68.1	76.2	<35	68.1	76.2	<35

Note: dBA = A-weighted decibels

3.7.3.4.7 Speech Interference

Alternative 3 would have similar interference impacts as listed for Alternative 1, with the exception of the region around B-17. With the shift of the range to the south, sensitive receptors nearer to the range boundary (including the town of Gabbs) would experience slightly louder noise from aircraft overflights and ordnance use at the new targets at B-17. Given the information presented in Table 3.7-9, Table 3.7-11, and Table 3.7-13, the number of events that could impact speech interference would not change appreciably from the environmental baseline or from Alternative 1, except for Gabbs, where the number of events that could impact speech interference would increase.

3.7.3.4.8 Classroom/Learning Interference

The potential for classroom interference from single aircraft events generating sound levels inside classrooms greater than 50 dB L_{max} would be the same as Alternative 1 with the exception of town of Gabbs, which would experience an increase in aircraft overflights using the new targets at B-17. Schools near Gabbs would be expected to experience additional events of classroom/learning interference, with most being unchanged from the environmental baseline. However, many schools in the region have central air conditioning and heating systems; therefore, it is more likely that classroom windows would remain closed the majority of the time, and classroom interference would be the same as under the environmental baseline.

Mitigation in the form of payment for retrofitting classrooms at schools to decrease sound attenuation is not under the authority of the DoD. The Navy has not sought additional appropriations for improvements to state or private property. Specific Congressional authorization and appropriation would be required for such funding. The Navy does not intend to seek specific Congressional authorization and appropriation of funds for these purposes to support the increase in land and changes to SUA at the FRTC.

3.7.3.4.9 Sleep Disturbance

Similar to Alternative 1, under Alternative 3, SELs remain the same for the majority of populated lands underneath the SUA, with the exception of the Gabbs area. These SEL values are measured outside, and attenuation from structures would reduce this SEL level such that the SEL inside a building is much less than what is experienced outside. However, in these locations and during normal operating hours, sensitive receptors underneath the SUA could experience an increase in the percent probability of awakening during nights of average aircraft activity. These locations are removed from bombing ranges, and the only noise from training activities would be aircraft overflight noise.

3.7.3.4.10 Effects on Recreation

Under Alternative 3, the data a show a slight increase for some sensitive receptors where there would be additional daytime events during which a recreationist may experience outdoor speech interference. Again, this is most notable near the town of Gabbs (Figure 3.7-40). For many of the sensitive receptors, there is no change from Alternative 1. The data show that there is a range of potential outdoor speech interference that may disturb individuals participating in outdoor recreational activities depending on the location of the sensitive receptor relative to the airfields and flight tracks.

3.7.3.4.11 Potential Hearing Loss

According to the EPA, changes in hearing level of less than 5 dB are generally not considered noticeable. The level at which there may be a noticeable NIPTS would be at the 84 to 85 dB DNL range and above. There is no increase in the population within the 80 dB DNL noise contour (i.e., potential at-risk population) that overlaps with sensitive receptors under Alternative 3.

3.7.3.4.12 Nonauditory Health Effects

Similar to Alternative 1, Alternative 3 would result in both an increase in the number of people exposed to noise as well as those individuals exposed to higher levels of noise. However, research conducted to date has not made a definitive connection between intermittent military aircraft noise and nonauditory health effects. The results of most cited studies are inconclusive and cannot identify a causal link between aircraft noise exposure and the various type of nonauditory health effects that were studied.

An individual's health is greatly influenced by many factors known to cause health issues, such as hereditary factors, medical history, and life style choices regarding smoking, diet, and exercise. Research has demonstrated that these factors have a larger and more direct effect on a person's health than aircraft noise.

3.7.3.4.13 Vibration Effects

Similar to Alternative 1, Alternative 3 would result in an increase in the number of area/structures exposed to noise. However, as shown on Figure 3.7-21, Figure 3.7-29, and Figure 3.7-39, almost all peak values above 115 dBP are contained within range boundaries and therefore sound levels damaging to structural components of buildings are not likely to occur.

3.7.3.4.14 Summary of Effects and Conclusions

Overall, Alternative 3 would not have significant noise impacts in the areas surrounding the Bravo training ranges. With the exception of B-16, all DNL contours from aircraft overflights are contained within the range boundaries. At B-16, the area that the elevated DNLs reach off range are similar to the environmental baseline, and do not overlap any sensitive receptors. DNLs would however, increase significantly on lands under the eastern portion of the FRTC SUA. Under Alternative 3, there would be a slight increase in the number of incidents of indoor and outdoor speech interference, classroom interference, and a slightly higher probability of awakening, especially for sensitive receptors near Gabbs. However, with intermittent aircraft operations coupled with the time most people spend indoors, it is very unlikely that individuals would experience noise exposure that would result in hearing loss. The population potentially at risk for potential hearing loss would not change under Alternative 3. Implementation of this action alternative would result in significant impacts on the noise environment.

3.7.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.7.3.5.1 Proposed Management Practices

Existing policies and procedures would continue to be implemented to ensure proper use of the FRTC airspace and munitions release rules. The Air Operations Office logs noise complaints at NAS Fallon. The office records information about the time, location, and nature of the complaint, and initiates investigation of what airspace operations were occurring. If the caller requests, range personnel would follow up with a return phone call to explain the resolution of the complaint. No additional management practices would be warranted for noise based on the analysis presented in Section 3.7.3 (Environmental Consequences).

3.7.3.5.2 Proposed Monitoring Measures

No monitoring measures would be warranted for the noise environment based on the analysis presented in Section 3.7.3 (Environmental Consequences).

3.7.3.5.3 Proposed Mitigation

Based on the analysis presented in Section 3.7.3 (Environmental Consequences), the Navy would revise their range operations to include Crescent Valley and Eureka as noise-sensitive areas. Due to the extension of MOAs in the eastern portion of the FRTC SUA, the Navy proposes to implement a 5-nautical-mile buffer around the towns of Crescent Valley and Eureka.

Additionally, the Navy will implement a 3-nautical-mile airspace exclusion zone over the Gabbs and Eureka airports (Figure 3.7-43). Though established for airspace separation, this will serve as an additional means to reduce low-level overflights near both locales.

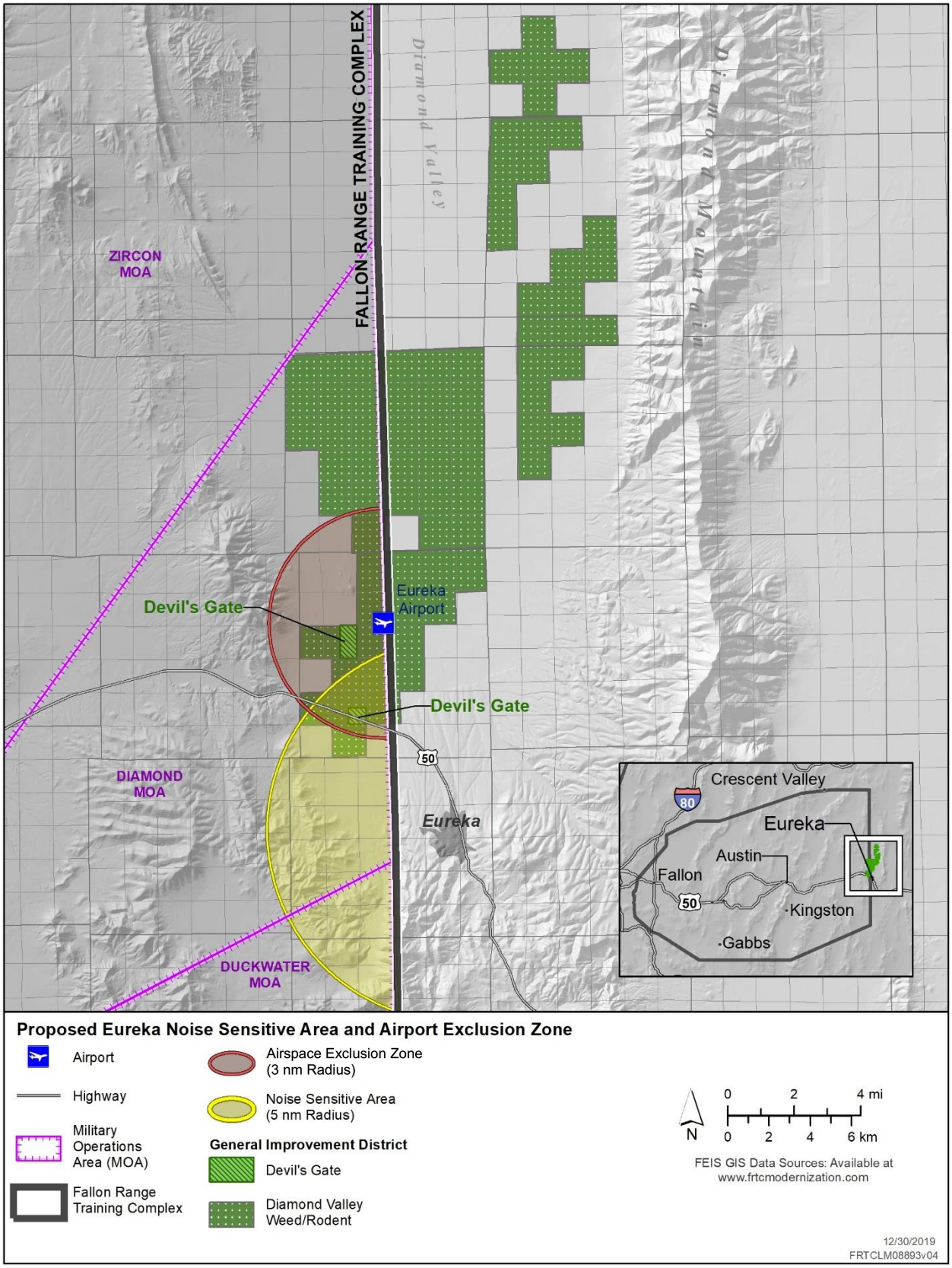


Figure 3.7-43: Proposed Eureka Noise Sensitive Area and Airspace Exclusion Zone

3.7.3.6 Summary of Effects and Conclusions

Table 3.7-14 summarizes the effects of the alternatives on the noise environment.

Table 3.7-14: Summary of Effects for Noise

Summary of Effects and National Environmental Policy Act Determinations	
No Action Alternative	
Summary	• All training activities within FRTC that require ground ranges or restricted airspace would likely cease following the expiration of the land withdrawal in November 2021. • Some range activities that only require MOAs that are independent of the land withdrawal (e.g., non-firing air combat maneuvers, search and rescue, close air support) could still be performed.
Impact Conclusion	Any reduction in activities as a result of the reevaluation of the FRTC and the NAS Fallon's mission would also reduce associated noise from those activities. There would be no significant noise increases from military training activities under the No Action Alternative.
Alternative 1	
Summary	• Would create new areas of noise exposure on lands under the eastern portion of the FRTC SUA. • DNL noise contours exceeding 65 dBA near bombing ranges are contained by expanded range boundaries. • Visual inspection of aerial maps of impacted areas (regions where the DNL contours are in excess of 65 dBA) reveals small areas of sensitive receptors (e.g., residences, lodging, or medical facilities) or incompatibility with current land use. The noise from training activities at the FRTC may interfere with normal activities in these areas.
Impact Conclusion	Alternative 1 would result in significant impacts on the acoustic environment.
Alternative 2	
Summary	• Access rule changes would not impact noise exposure areas. • Noise contours would not change under Alternative 2, as compared to Alternative 1.
Impact Conclusion	Alternative 2 would result in significant impacts on the acoustic environment.
Alternative 3	
Summary	• Would be similar to Alternative 1 with the exception of noise contours around B-17. • Would create new areas of noise exposure on lands under the eastern portion of the FRTC SUA. • DNL noise contours exceeding 65 dBA near bombing ranges are contained by expanded range boundaries. • Visual inspection of aerial maps of impacted areas (regions where the DNL contours are in excess of 65 dBA) reveals small areas of sensitive receptors (e.g., residences, lodging, or medical facilities) or incompatibility with current land use. In these areas, during busy months of training activities at the FRTC, noise may interfere with normal activities.
Impact Conclusion	Alternative 3 would result in significant impacts on the acoustic environment.

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3.8 Air Quality

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.8 Air Quality

Air pollution is a threat to human health and harmful to the environment (U.S. Environmental Protection Agency, 2009). Air pollution damages trees, crops, other plants, lakes, and animals. In addition to damaging the natural environment, air pollution damages the exteriors of buildings, monuments, and statues. It creates haze or smog that reduces visibility in national parks and cities and interferes with aviation. To improve air quality and reduce air pollution, Congress passed the Clean Air Act (CAA) in 1963, and its amendments in 1970 and 1990, which set regulatory limits on air pollutants and help to ensure basic health and environmental protection from air pollution.

Air quality is defined by atmospheric concentrations of specific air pollutants—pollutants the United States (U.S.) Environmental Protection Agency (EPA) determined may affect the health or welfare of the public. The six major air pollutants of concern, called "criteria pollutants," are carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulate matter, and lead. Particulate matter is further categorized as particulates less than or equal to 10 microns in diameter and fine particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). The CAA requires that the EPA establish National Ambient Air Quality Standards (NAAQS) for these criteria pollutants. These standards set specific concentration limits for criteria pollutants in the outdoor air. The concentration limits were developed because the criteria pollutants are common in outdoor air, considered harmful to public health and the environment, and come from numerous and diverse sources. The intent of these concentration limits is to aid in protecting public health and the environment. Areas with air pollution problems typically have one or more criteria pollutants consistently present at levels that exceed the NAAQS. These areas are designated as nonattainment for the NAAQS.

Criteria air pollutants are classified as either primary or secondary pollutants based on how they are formed in the atmosphere. Primary air pollutants are emitted directly into the atmosphere from the source of the pollutant and retain their chemical form. Examples of primary pollutants are the smoke produced by burning wood and volatile organic compounds emitted by industrial solvents. Secondary air pollutants are those formed through atmospheric chemical reactions that usually involve primary air pollutants (or pollutant precursors) and normal constituents of the atmosphere. Ozone, a major component of photochemical smog, is a secondary air pollutant. Ozone precursors, nitrogen oxides, and volatile organic compounds chemically react in the atmosphere in the presence of sunlight to form ground-level ozone. Nitrogen oxides consist of nitric oxide and nitrogen dioxide.

Finally, some criteria air pollutants are a combination of primary and secondary pollutants. Particulate matter less than or equal to 10 microns in diameter (PM_{10}) and $PM_{2.5}$ are generated as primary pollutants by various mechanical processes (e.g., abrasion, erosion, mixing, or atomization) or combustion processes. They are generated as secondary pollutants through chemical reactions or through the condensation of gaseous pollutants (e.g., nitrogen oxides, sulfur oxides, and volatile organic compounds) into fine aerosols.

In addition to the six criteria pollutants, the EPA has designated 187 substances as hazardous air pollutants (HAPs) under the federal CAA. HAPs, also known as toxic air pollutants or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects (Nevada Division of Environmental Protection, 2016). NAAQS are not established for these pollutants; however, the EPA developed rules that limit emissions of HAPs from specific industrial sources. These emissions control standards are known as "maximum achievable control technologies" and "generally achievable control technologies." They are intended to achieve the maximum degree of reduction in emissions of the HAPs, taking into consideration the cost of emissions control, non-air-quality health and environmental

impacts, and energy requirements. These emissions are typically one or more orders of magnitude smaller than concurrent emissions of criteria air pollutants, and only become a concern when large amounts of fuel, explosives, or other materials are consumed within a localized area and short time span. HAPs are discussed qualitatively in relation to the number and concentration of the sources emitting these pollutants during construction or training activities.

Mobile sources operating due to the Proposed Action would be functioning intermittently over a large area and would produce negligible ambient hazardous air pollutants in a localized area not located near any publicly accessible areas. For these reasons, this analysis does not further evaluate hazardous air pollutants.

Air pollutant emissions are reported as the rate (by weight or volume) at which specific compounds are emitted into the atmosphere by a source and are often expressed using the following units of measurement: pounds per hour, pounds per day, or tons per year. Typical units for emission factors for a source or source activity are pound per thousand gallons of fuel burned, pound per ton of material processed, and grams per vehicle-mile of travel.

Ambient air quality is reported as the atmospheric concentrations of specific air pollutants at a particular time and location. The units of measure are expressed as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million [ppm] by volume). The pollutant emissions rate, local meteorology, and atmospheric chemistry determine the ambient air pollution concentrations measured at a particular location. Wind speed and direction, the vertical temperature gradient of the atmosphere, and precipitation patterns affect the dispersal, dilution, and removal of air pollutant emissions from the atmosphere.

3.8.1 Methodology

The methodology for analyzing potential impacts considers the region of influence, regulatory framework, approach to analysis, and public scoping concerns.

3.8.1.1 Region of Influence

For air quality planning purposes, Nevada has three jurisdictions (Figure 3.8-1, which shows the Fallon Range Training Complex [FRTC] extent and also shows expansion areas where construction may occur) defined in 40 Code of Federal Regulations (CFR) 81 that independently manage their own air programs as designated by statute. However, only two of them are relevant to the Proposed Action. The FRTC is located mostly in Churchill County, which is one of the 15 rural counties that fall under the Nevada Intrastate Air Quality Control region. The region of influence also includes portions of Nye, Eureka, Mineral, Pershing, and Lander counties. Since all of the bombing ranges are all within the same air basin and managed by the same air programs, this section analyzed all four areas together. However, the noncontiguous Reno Military Operations Area (MOA) portion of the FRTC region of influence lies partially within Washoe County, which is within the Northwest Nevada Intrastate Air Quality Control Region.

3.8.1.2 Regulatory Framework

3.8.1.2.1 Mobile Sources

HAPs emitted from mobile sources are called Mobile Source Air Toxics (MSATs). MSATs are compounds emitted from highway vehicles and non-road equipment known or suspected to cause cancer or other serious health and environmental effects. In 2001, the EPA issued its first MSAT Rule. In 2007, the EPA issued a second MSAT rule, which identified several engine emission certification standards that must be

implemented (40 CFR parts 59, 80, 85, and 86; Federal Register [FR] Volume 72, No. 37, pp. 8427–8570, 2007). Unlike the criteria pollutants, there are no NAAQS for benzene and other HAPs. The primary control methodologies for these pollutants for mobile sources involve reducing their content in fuel and altering the engine operating characteristics to reduce the volume of pollutant generated during combustion.

3.8.1.2.2 General Conformity

The EPA General Conformity Rule (40 CFR 93 Subpart B) applies to only those federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. Direct emissions are those emissions caused by the federal action and emitted while the action is underway, whereas indirect emissions are emissions that are caused by the federal action, but which can occur at a later time or in a different location from the action itself and are reasonably foreseeable. A conformity applicability analysis is the first step of a conformity evaluation and assesses if a federal action must be supported by a conformity determination. The emissions thresholds that determine whether a conformity analysis is applicable are called *de minimis* levels. *De minimis* levels (in tons per year) vary by pollutant and also depend on the severity of the nonattainment status for the air quality management area in question. The federal agency typically quantifies reasonably foreseeable direct and indirect emissions that are projected to result due to implementation of the federal action and compares these emissions against the *de minimis* thresholds. If the results of the applicability analysis indicate that the total emissions would not exceed the *de minimis* emissions thresholds, then the conformity evaluation process is completed. *De minimis* threshold emissions are presented in Table 3.8-1.

Table 3.8-1: General Conformity *de minimis* Levels

Pollutant	Area Type	tpy
Ozone (VOC or NO_x)	Other areas outside an ozone transport region	100
Carbon monoxide, SO_2 and NO_2	All nonattainment and maintenance	100
PM_{10}	Moderate nonattainment and maintenance	100
$PM_{2.5}$ Direct emissions, SO_2, NO_x (unless determined not to be a significant precursor), VOC, or ammonia (if determined to be significant precursors)	All nonattainment and maintenance	100
Lead (Pb)	All nonattainment and maintenance	25

Notes: tpy = tons per year, VOC = volatile organic compound, NO_x = nitrogen oxide, SO_2 = sulfur dioxide, NO_2 = Nitrogen dioxide, $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter, PM_{10} = particulate matter less than or equal to 10 microns in diameter. VOC and NO_x are precursors to ozone and therefore share a *de minimis* threshold.
Source: U.S. Environmental Protection Agency (2017a).

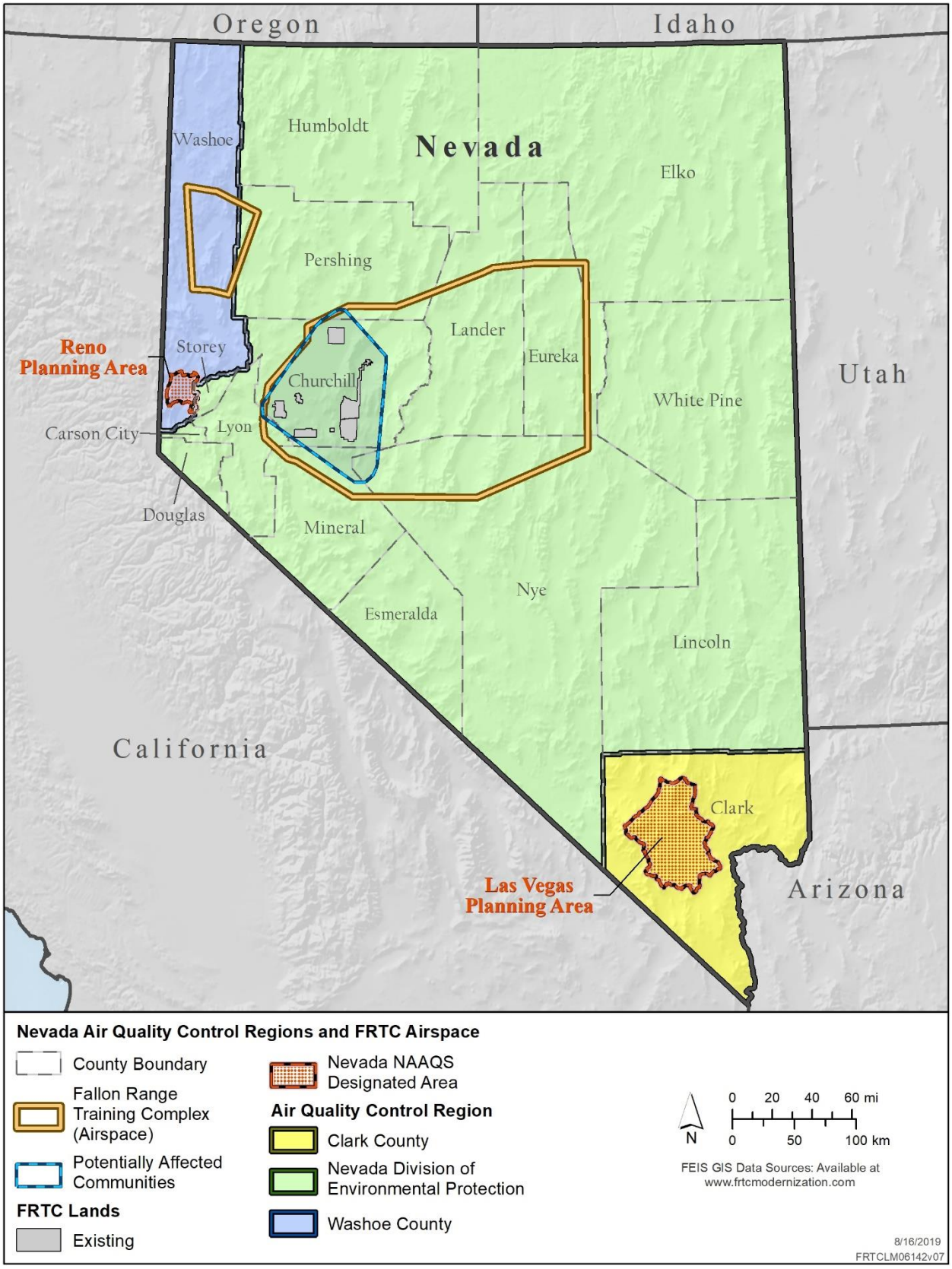


Figure 3.8-1: Nevada Air Quality Control Regions and FRTC Airspace

3.8.1.2.3 Permitting

The CAA Preconstruction Permit program is called New Source Review and is designed to ensure no new or reconstructed modified emission source will have a significant adverse impact on air quality. The New Source Review program has three different types of permits that apply to various stationary sources. Major New Source Review permits are required for large stationary sources that would be constructed or installed within attainment areas. Major non-attainment New Source Review permits are required for large stationary sources that would be constructed in non-attainment areas. Finally, there is the Minor New Source Review permit, which applies to small stationary sources. The program is typically implemented by State or local regulatory agencies, which may impose stricter requirements than the EPA's federal program requirements. It is divided into two types of preconstruction permits, based on the attainment status of the area. U.S. Department of the Navy (Navy) facilities must apply for and obtain required permits for air emission sources prior to the project beginning construction. Any stationary sources associated with the Proposed Action would be minor sources and therefore would require a Minor New Source Review permit prior to construction or installation.

3.8.1.2.4 Fugitive Dust

The Western Regional Air Partnership Dust Emissions Joint Forum adopted a definition of fugitive dust on October 21, 2004 (Western Governors' Association, 2006). Fugitive dust was defined as dust that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. A similar definition is contained in Nevada Administrative Code section 445B.075 for this solid airborne particulate matter. Fugitive dust can be generated from agricultural tilling, construction, materials handling, paved travel surfaces, unpaved travel surfaces, minerals products industry, abrasive blasting, livestock husbandry, and wind erosion of exposed areas. Fugitive dust can become a contributor to nonattainment of the NAAQS for PM_{10} or $PM_{2.5}$. $PM_{2.5}$ emissions are typically less than PM_{10} emissions for fugitive dust sources published in Section 13 of AP-42. Nevada Administrative Code Rule 445B.22037 regulates the emission of fugitive dust on a state level.

3.8.1.2.5 Greenhouse Gases

Greenhouse gases (GHGs) are compounds that contribute to the greenhouse effect—a natural phenomenon in which gases trap heat in the lowest layer of the earth's atmosphere (surface-troposphere system), causing heating (radiative forcing) at the surface of the earth. The primary long-lived (lasting more than a few years) GHGs directly emitted by human activities are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. Carbon dioxide, methane, and nitrous oxide occur naturally in the atmosphere. These gases influence global climate by trapping heat in the atmosphere that would otherwise escape to space. The heating effect of these gases is considered the probable cause of the global warming observed over the last 50 years (U.S. Environmental Protection Agency, 2009). Global warming and climate change affect many aspects of the environment. Not all effects of GHGs are related to climate. For example, elevated concentrations of carbon dioxide can lead to ocean acidification and stimulate terrestrial plant growth, and methane emissions can contribute to higher ozone levels.

The administrator of the EPA determined that GHGs in combination endanger both the public health and the public welfare of current and future generations. The EPA specifically identified carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride as GHGs (U.S. Environmental Protection Agency, 2009) (74 FR 66496).

To estimate global warming potential, the United States quantifies GHG emissions using 100-year timeframe values. All global warming potentials are expressed relative to a reference gas, carbon dioxide, which is assigned a global warming potential equal to one. Six other primary GHGs have global warming potentials of 25 for methane, 298 for nitrous oxide, 124–14,800 for hydrofluorocarbons, 7,390 to greater than 17,340 for perfluorocarbons, 17,200 for nitrogen trifluoride, and up to 22,800 for sulfur hexafluoride. To estimate the carbon dioxide equivalency of a non-carbon dioxide GHG, the appropriate global warming potential of that gas is multiplied by the amount of the gas emitted. All seven GHGs are multiplied by their global warming potential and the results added to calculate the total equivalent emissions of carbon dioxide. The dominant GHG emitted is carbon dioxide, mostly from fossil fuel combustion (85.4 percent) (U.S. Environmental Protection Agency, 2017b). Weighted by global warming potential, methane is the second-largest component of emissions, followed by nitrous oxide. Global warming potential-weighted emissions are presented in terms of equivalent emissions of carbon dioxide, using units of metric tonnes.

Activities under the Proposed Action and alternatives are anticipated to release GHGs to the atmosphere from combustion emissions from stationary and mobile sources, including but not limited to employee commuting and construction vehicles. These emissions are quantified primarily using methods elaborated upon in the Inventory of *U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2015* for the proposed modernization activities in the region of influence, and Table 3.8-6 presents the estimates (U.S. Environmental Protection Agency, 2017b).

3.8.1.3 Approach to Analysis

This Environmental Impact Statement (EIS) calculates only criteria air pollutants generated by any new activities (construction activities related to range infrastructure development). The existing ranges and expansion areas are predominantly located in Churchill County but also take place in small portions of Lyon, Mineral, Pershing, and Nye counties. Counties underlying the airspace that do not contain portions of the ranges or their expansion areas would not experience new sources of emissions. While HAPs are expected to be produced, this EIS only qualitatively analyses their impacts. The Proposed Action and Alternatives would involve the potential relocation of State Routes 839 (Alternatives 1 and 2) and State Route 361 (Alternative 3) for safety reasons, as well as the potential relocation of a section of the Paiute Pipeline. Site-specific National Environmental Policy Act (NEPA) analysis of these relocations would be required prior to implementation of any alternative selected in the Record of Decision for this EIS. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, designing, permitting, and constructing any realignment of State Route 839 or 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. The Nevada Department of Transportation would ensure that construction of any new route is complete before closing any portion of the existing State Route 839 or 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 or 361 unless and until any such new route has been completed and made available to the public.

The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A Right of Way application submitted to the Bureau of

Land Management (BLM) by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

Therefore, while potential construction of new road segments or pipeline would potentially increase air emissions during construction, the qualitative analysis of the specific activities would be performed in the follow-on site-specific NEPA, and not in this EIS. If road construction activities would be performed within tribal lands, further coordination would be required with EPA Region IX, which would occur during the site-specific NEPA analysis for the notional relocation corridors.

The impact analysis for air quality considers possible changes in ambient air quality that could result from the Proposed Action. As stated in Chapter 2 (Description of Proposed Action and Alternatives), the Proposed Action would use the entire modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015). Therefore, this analysis considers the levels of activities and associated air emissions from the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* to be the environmental baseline emissions. The significance of air quality impacts is assessed by comparing new emissions (emissions that are unique to the Proposed Action), which is primarily comprised of construction emissions, that would be expected under the Proposed Action against the *de minimis* thresholds. The *de minimis* thresholds are only being used as a screening threshold to help illustrate the impacts that the Proposed Action could have on the ambient air quality. *De minimis* thresholds are not directly applicable to the analysis since the area is in attainment of NAAQS. However, they are useful as a point of comparison for showing to what extent the impact an activity would have.

The air quality stressors vary in intensity, frequency, duration, and location within the region of influence. The stressors applicable to air quality in the region of influence are analyzed below and include the following:

- Criteria Air Pollutants: In this analysis, criteria air pollutant emissions estimates were calculated for ground vehicles and equipment used in construction and range infrastructure development. For each alternative, emissions estimates were developed by construction activity within each range. Supporting Study: Air Quality Calculations (available at https://frtcmodernization.com) provides details of the emission estimates.

Combat search and rescue activities and electronic warfare countermeasures generate emissions of chaff, a form of particulate not regulated under the federal CAA as a criteria air pollutant. A 1997 Air Force study evaluated the environmental effect and air quality impacts of chaff (U.S. Department of the Air Force, 1997) and concluded that most chaff fibers maintain their integrity after ejection. Any fibers that do fracture during ejection do not release particulate matter. A 2004 study at Naval Air Station (NAS) Fallon found that the release of 50,000 cartridges of chaff per year over 10,000 square miles would result in an annual average PM_{10} or $PM_{2.5}$ concentration of 0.018 microgram per cubic meter ($\mu g/m^3$) (U.S. Department of the Navy, 2004). That was far below the then-NAAQS standard of 50 $\mu g/m^3$

for PM_{10} and 15 µg/m^3 for $PM_{2.5}$ over a one-year averaging time (Agency for Toxic Substances and Disease Registry, 2003). Currently, $PM_{2.5}$ has the only annual standards, a primary of 12.0 µg/m^3 and a secondary of 15.0 µg/m^3. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. When the EPA eliminated the PM_{10} annual as part of the NAAQS update, EPA either retained or established 24-hour standards for $PM_{2.5}$ and PM_{10} of 35 µg/m^3 and 150 µg/m^3, respectively. As the levels presented in the 2004 study fall below the updated standards, and chaff usage does not change from levels presented in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement*, this EIS does not further evaluate chaff.

3.8.1.4 Public Concerns

The Toiyabe Chapter of the Sierra Club, EPA, Basin Watch, and several members of the public raised several issues during scoping and the public comment period for this EIS, including general effects to air quality, most notably fugitive dust from ordnance delivery, as well as air contamination from aircraft, especially carbon dioxide emissions. The EPA requested that the EIS contain the ambient air conditions (baseline or existing conditions), the NAAQS, criteria pollutant nonattainment areas, and potential air quality impacts of the project (including cumulative and indirect impacts) for each alternative. For further information regarding comments received during the public scoping and commenting process, please refer to Appendix E (Public Participation) and Appendix F (Public Comments and Responses).

3.8.2 Affected Environment

As described above, only two areas in Nevada are classified as nonattainment areas. Figure 3.8-1 shows that these two areas do not overlap with the FRTC region of influence. Accordingly, the FRTC region of influence is not within any nonattainment or maintenance area for criteria pollutants. Since the region of influence is within an attainment area for all criteria pollutants, the General Conformity Rule does not apply to this action.

The most recent air emissions inventory data that are available for Nevada (U.S. Environmental Protection Agency, 2014) are set forth in Table 3.8-2. It should also be noted that the existing ranges and range expansions are mostly in Churchill County and barely touch the other counties of Lyon, Mineral, Pershing, and Nye.

Table 3.8-2: Annual Baseline (2014) Criteria and Precursor Air Pollutant Emissions for Nevada

Geographic Area	Criteria and Precursor Air Pollutant Emissions in Tons/Year					
	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$
Churchill County	6,027.2	1,354.4	1,522.4	48.6	5,654.5	977.7
Lyon County	8,489.0	2,692.6	2,122.1	144.6	14,524.9	2,098.9
Mineral County	1,780.3	306.6	473.7	10.1	1,160.8	270.1
Nye County	16,493.2	1,373.7	3,921.7	174.9078	28,926.6	4,436.0
Pershing County	3,326.1	1,955.2	657.1	47.8	4,800.3	765.3
Totals for Affected Counties	36,116	7,682.5	8,697.1	425.88	55,067	8,548.1

Notes: CO = carbon monoxide, NO_x = nitrogen oxides, SO_x = sulfur oxides, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter, VOC = volatile organic compounds.
Source: U.S. Environmental Protection Agency (2014)

3.8.2.1 Existing Air Pollutant Emissions from Fallon Range Training Complex Activities

Training-related air pollutant emissions within the FRTC region of influence primarily originate from mobile sources, with the main source being fixed-wing aircraft overflights in the Special Use Airspace (SUA). These emissions are shown in Table 3.8-3. Training activities account for approximately 0.3 percent of carbon monoxide emissions, 8 percent of nitrogen oxide emissions, 0.1 percent of volatile organic compound emissions, 20 percent of sulfur oxide emissions, 0.3 percent of PM_{10} emissions, and 2 percent of $PM_{2.5}$ emissions within affected counties. NAS Fallon has 11 different burn variances from Nevada Bureau of Air Pollution Control, four of which apply to FRTC. These allow burning for activities such as weed management, fire training, training exercises, and disposal of materials such as wood and cardboard (associated with training). Training exercises could induce burning from explosions, the use of chaff, and flares. Although target areas would be constructed to not burn, there is potential for areas around target areas to burn. Any fires started by training activities would be managed by the Navy.

3.8.2.1.1 Criteria Pollutants

Table 3.8-3 lists criteria air pollutant and precursor emissions in the FRTC region of influence from the Preferred Alternative of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement*. These emission levels are considered the environmental baseline to which emissions associated with the Proposed Action were compared to determine the net change in emissions.

Other sources of criteria pollutant emissions include those emanating from munitions detonation and vehicles used in ground training activities. Based on the nature of the detonation process and the very low emission rates that have been published (AP-42, Chapter 15) in studies of munitions firing and open detonations, emission quantities from munitions use are very small. As stated in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement*, criteria pollutant emissions associated with munitions were negligible and would not noticeably contribute to the overall emission levels that were predicted in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (see Section 3.2.3.1, No Action Alternative, of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada*

Final Environmental Impact Statement). Ground vehicle emissions were also predicted to not have a noticeable contribution to overall emissions levels in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement*, because vehicle use during range activities is very limited in comparison to aircraft use. Therefore, these sources of emissions were not quantified for the environmental baseline.

Table 3.8-3: Baseline Criteria and Precursor Air Pollutant Emissions for Training Within the FRTC Region of Influence

Emissions Source	Criteria and Precursor Air Pollutant Emissions in Tons/Year					
	CO	NO_x	VOC	SO_x	PM_{10}	$PM_{2.5}$
Fixed-Wing Aircraft	95	593	8	82	184	184
Rotary Aircraft	9	10	1	3	6	6
Unmanned Aircraft Systems	< 1	< 1	< 1	< 1	< 1	< 1
Total =	**105**	**603**	**9**	**85**	**190**	**190**

Notes: CO = carbon monoxide, NO_x = nitrogen oxides, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter, SO_x = sulfur oxides, VOC = volatile organic compounds. Includes estimated criteria and precursor air pollutant emissions for all flight activities below the default mixing height (3,000 feet above ground level).

3.8.2.1.2 Hazardous Air Pollutants

Hazardous air pollutants are emitted by processes associated with Navy training activities presented in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement*, including fuel combustion. It was found that trace amounts of hazardous air pollutants are emitted by combustion sources participating in training activities, including aircraft, ordnance, and military vehicles and equipment, but that they would be in very low concentrations following dispersal and initial mixing and would not have a significant impact on ambient air quality. In this action, the hazardous air pollutant emissions would be short term in nature and even more dispersed than what was presented in the *2015 Military Readiness Activities of Fallon Range Training Complex, Nevada Final Environmental Impact Statement*, meaning the potential for HAP exposure is very small. In addition, the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* explained that hazardous air pollutant emissions are intermittent and distributed over the entire FRTC region of influence. While sensitive receptors exist within this area, they are not exposed to any measurable amounts of hazardous air pollutants due to the large area of distribution, the small amounts that are produced, and because their concentrations are further reduced by atmospheric mixing and other dispersion processes.

3.8.2.1.3 Fugitive Dust

The potential for fugitive dust exists from training activities within the FRTC, including ground-based activities (e.g., convoy operations [increase of three activities], tactical ground mobility operations [increase of one activity], ground LASER targeting, combat search and rescue, air-to-ground bombing, and dismounted fire and maneuver). As presented in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement,* ground LASER targeting training by ground-based military equipment in the Dixie Valley Training Area (DVTA), Shoal Site, B-16, B-17 and B-19 generates fugitive dust. During combat search and rescue training, helicopters and

ground-based military equipment create fugitive dust. Bombing activities would eject loose dust into the air from explosions. Finally, during dismounted fire and maneuver training, ground-based military equipment, and dismounted personnel in B-17 generate fugitive dust. Fugitive dust emissions ($PM_{2.5}$ and PM_{10}) during training are localized and temporary (short term), only existing during the event itself.

Ground-based activities use all-terrain vehicles, pickup trucks, high-mobility multipurpose wheeled vehicles, and mine-resistant ambush-protected vehicles. Operation of military vehicles on range generates dust during dry conditions. Adhering to standard operating procedures contained in Navy doctrine and stated below helps minimize the dust:

- Vehicles shall be operated only on established roads.
- Vehicles shall adhere to posted speed limits and drive at safe speeds commensurate with conditions.

In addition, conditions are evaluated before starting a large-scale ground training event to determine if additional dust abatement measures, such as watering high-use areas or other measures in the *NAS Fallon Dust Control Plan* (U.S. Department of the Navy, 2004), are warranted. The need for additional dust abatement measures is determined on a case-by-case basis during pre-exercise planning with input from the NAS Fallon Environmental Division. Factors considered in determining the need for additional dust abatement include the locations and duration of the exercise; the number of vehicles involved in the exercise; soil moisture conditions prior to the exercise; and predicted precipitation, wind speed, and wind direction during the exercise.

While specific wind speeds and directions in the Study Area are dependent on local topography, the average wind speed for the area is between 5.3 and 7.3 miles per hour, depending on the time of year. From late February into mid-September, the predominant wind direction is out of the west; between mid-September and early November, the predominant wind direction is out of the north; and between early November and late February, the wind blows primarily from the south.

3.8.2.2 Climate Change

Climate change refers to any significant change in the measures of climate lasting for an extended period. Climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer.

Emissions of GHGs are considered to have a potential impact on global climate. Global surface temperatures have increased by an average of about 1.3 degrees Fahrenheit during the last century (Solomon et al., 2007). Most of the observed temperature increase since the mid-20th century is correlated with increasing amounts of GHGs emitted by human activities such as combustion of fossil fuels and deforestation (Solomon et al., 2007). The annual contribution to GHG emissions from the United States is 6,587 million metric tons of carbon dioxide equivalent (CO_2e) (U.S. Environmental Protection Agency, 2017b). The state of Nevada on average produces approximately 40 million metric tons of CO_2e per year (Nevada Division of Environmental Protection, 2016).

On the issue of global climate change, however, no adopted federal plans, policies, regulations, or laws are yet in place mandating reductions in GHG emissions. The climate change research community has not yet developed tools specifically intended to evaluate or quantify end-point impacts attributable to the emissions of GHGs from a single source. In particular, due to the uncertainties involving the assessment of such emissions regionally and locally, the very minor incremental contribution of the Proposed Action to climate change cannot be determined given the current state of the science and

assessment methodology. Therefore, the contribution of the Proposed Action to the global issue of climate change uses GHG emissions as an indicator.

The potential effects of proposed GHG emissions are by nature global and may result in cumulative impacts, as individual sources of GHG emissions are generally not going to be large enough to have any noticeable effect on climate change. While Nevada produces approximately 40 million metric tons of CO_2e on an annual basis (Nevada Division of Environmental Protection, 2016), the counties that underlie the airspace are merely a small fraction (12.4 percent [4,960,000 metric tons]) of the state's contribution to global GHG emissions. Therefore, GHG emissions are calculated and compared against emissions of the counties underneath the airspace. Chapter 4 (Cumulative Impacts) discusses the impact of proposed GHG emissions in the context of cumulative impacts and compares them against the current emissions inventory from regional projects that emit GHGs.

3.8.3 Environmental Consequences

This section evaluates how and to what degree the activities described in Chapter 2 (Description of Proposed Action and Alternatives) potentially impact air quality within the region of influence. A summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (Section 3.8.3.6, Summary of Effects and Conclusions).

3.8.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. All training activities within FRTC that require ground ranges or restricted airspace would likely cease following the expiration of the land withdrawal in November 2021. The Navy could still perform some range activities that only require Military Operations Areas that are independent of the land withdrawal (e.g., non-firing air combat maneuvers, search and rescue, close air support). As such, the Navy would have to reevaluate the mission of NAS Fallon if this alternative were implemented.

3.8.3.1.1 Criteria Pollutants

Construction and infrastructure activities would not occur under this Alternative, and existing aircraft operations would likely decrease in relation to the environmental baseline. In addition, the opening of approximately 220,000 acres of land for public use could further disperse emissions generated by off-highway vehicles, and other vehicles used in connection with grazing, mining, recreation, and tourism. Therefore, implementation of the No Action Alternative would likely improve the ambient air quality of the region.

3.8.3.1.2 Greenhouse Gases

Implementation of the No Action Alterative would continue to contribute emissions of GHGs from the combustion of fossil fuels. However, construction and infrastructure activities would not occur under the No Action Alternative, and existing aircraft operations would also likely decrease in relation to the environmental baseline GHG emission value. Therefore, implementation of the No Action Alternative would substantially contribute to regional GHG emissions.

3.8.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

As described in Chapter 2 (Description of Proposed Action and Alternatives), Alternative 1 would include renewing the current withdrawal as well as withdrawing additional public land and acquiring non-federally owned land. The amount of training activities would not increase under this Alternative.

Instead, it would redistribute training activities across the expanded area, which has no impact on annual emissions. Therefore, there would be no change from the environmental baseline for training activities. All construction/installation/perimeter fencing activities would be within the Nevada Intrastate Air Quality Control Region. Creation of new target areas include the placement of targets (e.g., conex boxes, plywood targets simulating missile placements), which already occurs under the environmental baseline. These activities would continue under the action alternatives, but in new locations as part of typical range operations. Since operational/long-term emissions would not change as a result of implementation of Alternative 1, only temporary construction period emission and impacts are addressed in the following subsections.

3.8.3.2.1 Bravo-16

Under Alternative 1, the Navy would construct a combat village (a collection of conex boxes arranged to mimic an urban landscape) on existing B-16 lands. The Navy would use an off-highway vehicle to deliver the conex boxes to the site and a soil compactor and grader to level the ground around each conex box beforehand.

The entirety of the lands requested for withdrawal and proposed for acquisition would be fenced utilizing BLM-approved four-strand fencing with six 20-feet double swinging gates installed to provide controlled access. Approximately 31 miles of fencing is anticipated to be required to completely enclose the land area requested for withdrawal and join with existing fences of B-16. A single crew using a skid steer loader, backhoe, dump truck, and fuel truck, would take approximately 140 days to construct this fence, with an estimated 1,200 feet installed per day. Emissions from this activity would be generated by combustion of fossil fuels and ground disturbance.

3.8.3.2.2 Bravo-17

The Navy would construct two target maintenance buildings (pre-engineered metal building, approximately 60 feet by 100 feet) on existing cleared and graded B-17 lands, near the existing entry gate on State Route 839. In addition to the administration building, the Navy would install two communication towers within the proposed expansion area, though their configuration and placement has yet to be determined. However, the communications towers would be solar powered, compatible with military training, and serviced via existing gravel road, which do not need to be developed. All of the lands requested for withdrawal and proposed for acquisition would be fenced utilizing BLM-approved four-strand fencing with eight 20-foot double swinging gates installed to provide controlled access. Approximately 75 miles of fencing is anticipated to be required to completely enclose the land area requested for withdrawal and join with existing fences of B-17. The final length of the fence would depend on topography and final routing around obstacles. Two crews would take approximately 330 days to install the fence, with an estimated 1,200 feet installed per day.

Infrastructure and Road Construction to Support Alternative 1

With the expansion of B-17, up to 30 miles of State Route 839 would no longer be available for public use. Under Alternative 1, three notional relocation corridors (Figure 2-1) would be potentially used for construction. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation, would be responsible for planning, design, permitting, and constructing any realignment of State Route 839. While construction of any notional relocation corridor would increase air emissions associated with clearance, grading, and construction activities, this EIS does not quantify those emissions, as the Federal Highway Administration, in cooperation with the

Nevada Department of Transportation, would perform site-specific NEPA action prior to any potential ultimate relocation of the corridor.

Under Alternative 1, the Navy would potentially relocate the Paiute Pipeline that runs through the southern area of the proposed B-17 expansion area. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline, which would account for emissions produced by this action. Emissions that would potentially arise from the relocation of the corridor would be temporary and would not persist following completion of construction.

3.8.3.2.3 Bravo-20

Under Alternative 1, one target maintenance building would be installed (approximately 60 feet by 100 feet pre-engineered metal building) on existing B-20 lands. Additionally, the entirety of the lands requested for withdrawal and proposed for acquisition would be fenced utilizing BLM-approved four-strand fencing with five 20-foot double swinging gates installed to provide controlled access. Approximately 90 miles of fencing is anticipated to be required to completely enclose the land area requested for withdrawal and join with existing fences of B-20. Two crews would take approximately six months to install the fence, with an estimated 1,200 feet of fence being installed per crew per day.

3.8.3.2.4 Dixie Valley Training Area

Under Alternative 1, the Navy would develop three new electronic warfare sites: North Job Peak, 11-Mile Canyon, and Fairview Low. Each site would be placed on a small flat parcel of land (up to 5 acres, though size of each electronic warfare site would be expected to be approximately 60 by 100 feet) to minimize amount of soil disturbance and grading activities. Each electronic warfare site would be fenced with 8-foot chain link fencing and a 16-foot swing gate, which would be the only semi-permanent structures on each site. Construction would be limited to the perimeter fencing. Roads would not be developed to each of the new electronic warfare sites, as existing trails and roads would be used to transport construction materials to the site as well as provide access for servicing.

3.8.3.2.5 Fallon Range Training Complex Special Use Airspace

Proposed airspace changes under Alternative 1 are primarily within the existing SUA of the FRTC. Section 2.3.4.7 (Special Use Airspace Modifications) describes airspace changes. Although the lowering of certain SUA floors (see Section 3.6, Airspace) would increase the amount of area where flights could go below 3,000 feet, which would presumably increase the amount of emissions under 3,000 feet, the percentage of time that these flights would actually be under 3,000 feet would not appreciably change. Since changes in the amount of criteria air pollutant and precursor emissions that would originate from changes in SUA would be negligible, and there are no construction activities proposed under Alternative 1 under the SUA (other than those discussed above for the potential State Route 839 and Paiute Pipeline relocations), emissions within the FRTC SUA would not appreciably change.

3.8.3.2.6 Criteria Pollutants

Total emissions were estimated from proposed construction activities defined in the above sections and are based on emission factors for specific equipment from the EPA's MOVES 2014b model. The list of equipment includes general construction equipment such as dump trucks, tractors, backhoes, and generator sets. Table 3.8-4 lists estimated annual criteria and precursor air pollutant emissions under all

Alternatives. As discussed in the approach to analysis, General Conformity *de minimis* thresholds were used as a screening level to determine whether pollutant emissions associated with Alternative 1 would be significant. The increases in construction/infrastructure activities would result in a corresponding increase in criteria and precursor pollutant emissions, though emissions from activities under Alternative 1 would not exceed *de minimis* standards. All criteria air pollutants would temporarily increase under Alternative 1 while construction activities are ongoing but would not contribute significantly to changes in regional air quality, as their contributions to regional emissions are minimal and short term. Following construction, emissions associated with Alternative 1 would return to their normal levels. In addition, the revocation of roughly 600,000 acres would reduce the amount of off-highway vehicles being driven in the area, further bettering air quality within the ranges. However, these emissions would most likely be relocated to adjacent areas within the same air basin.

Table 3.8-4: Maximum Annual Criteria Air Pollutant Emissions from Construction Under Alternative 1

Emissions Source	Criteria and Precursor Air Pollutant Emissions in Tons					
	CO	NO_x	VOC	SO_x	PM_{10}*	$PM_{2.5}$*
B-16						
Installation of Perimeter Fencing	0.0324	0.0678	0.0170	0.0003	3.0534	0.0384
Combat Village Installation	0.0139	0.0602	0.005	0.00006	0.2698	0.0285
B-17						
Construction of two target maintenance buildings	0.0021	0.0034	0.0013	0.0000	0.0058	0.0008
Installation of Perimeter Fencing	0.0730	0.1540	0.0352	0.0005	6.2579	0.6329
B-20						
Construction of target maintenance building	0.0117	0.0018	0.0008	0.0001	0.0261	0.0020
Installation of Perimeter Fencing	0.0876	0.1848	0.0422	0.0006	7.4995	0.7585
DVTA						
Installation of Electronic Warfare sites	0.0004	0.0008	0.0002	0.0000	0.035	0.0035
Alternative 1 Total	**0.2211**	**0.4728**	**0.1017**	**0.0102**	**17.1475**	**1.4646**

Table 3.8-4: Maximum Annual Criteria Air Pollutant Emissions from Construction Under Alternative 1 (continued)

Emissions Source	Criteria and Precursor Air Pollutant Emissions in Tons					
	CO	NO_x	VOC	SO_x	PM_{10}*	$PM_{2.5}$*
***de minimis* Threshold or Level**	100	100	100	100	100	100
Exceeds *de minimis*?	**No**	**No**	**No**	**No**	**No**	**No**

*PM_{10} and $PM_{2.5}$ emissions include both general vehicle emissions and emissions generated in the form of fugitive dust.

Notes: B- = bravo, CO = carbon monoxide, NO_x = nitrogen oxides, PM_{10} = suspended particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = fine particulate matter less than or equal to 2.5 micrometers in diameter, SO_x = sulfur oxides, DVTA = Dixie Valley Training Area.

3.8.3.2.7 Hazardous Air Pollutants

Processes associated with Alternative 1, including fuel combustion, emit hazardous air pollutants. Trace amounts of hazardous air pollutants are emitted by combustion sources participating in construction/demolition activities. As described in Section 3.8.2.1.2 (Hazardous Air Pollutants), the hazardous air pollutants emitted by training activities covered by the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* were sufficiently small that they did not need to be quantified. Under Alternative 1, even fewer combustion sources for construction activities would be used than for ongoing training, meaning that construction activities would also emit even less hazardous air pollutants than training activities. Therefore, hazardous air pollutant emissions estimates were not calculated because the small amounts that would be emitted from construction activities would be temporary and trivial. Furthermore, the majority of hazardous air pollutants emissions would be intermittent and distributed within the air basin. Their concentrations would be further reduced by atmospheric mixing and other dispersion processes. After initial mixing, it is possible that hazardous pollutants would be measurable, but they would be in very low concentrations and would not affect the air quality in the air quality control regions.

3.8.3.2.8 Fugitive Dust

The potential for fugitive dust to be generated by construction activities that would cause ground disturbance under Alternative 1 would increase in comparison to the existing conditions. Although new target areas would be used in Alternative 1, there would be no construction activities in these areas. Preparation of the target areas would simply involve placing already-constructed targets at the target areas, which would not generate discernable amounts of fugitive dust. Table 3.8-5 lists estimated annual controlled PM_{10} and $PM_{2.5}$ emissions under Alternative 1, which indicates that while fugitive dust emissions from construction activities are low, they would still be considered an emission source and would require a Class II Surface Area Disturbance permit from the Nevada Department of Environmental Protection since emissions would be less than 100 tons per year for each criteria pollutant. Standard operating procedures as listed in the NAS Fallon Dust Control Plan would be implemented, which would reduce the potential for fugitive dust from construction. The primary strategy for dust control described in the NAS Fallon Dust Control Plans consists of a phased approach to acreage disturbances; Surface Area Disturbance activities (grading/leveling and shoulder-dragging) may be conducted in discrete phases rather than via disturbances of entire areas in one operation.

Specific measures, using best practical methods available for dust suppression, would include, but would not be limited to, the following approaches and procedures:

- Water trucks may be used for water spraying.
- Traffic control measures, including vehicle speed controls (not to exceed 15 miles per hour), would be imposed. Restrictions on non-project vehicles may also be imposed in affected areas during Surface Area Disturbance activities.
- Whenever possible, Surface Area Disturbance activities shall be scheduled immediately following periods of precipitation. Operations may be suspended when winds (or other meteorological conditions) make fugitive dust control difficult.
- Any visible material tracked from Surface Area Disturbance locations onto adjoining paved roads shall be promptly removed.
- A designated on-base facility with wash racks and water hoses would be made available to clean equipment and machinery as needed.

Table 3.8-5: Potential Fugitive Dust from Construction Activities

Emissions Source	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
B-16		
Installation of perimeter fencing	3.05	0.305
Combat Village Installation	0.268	0.0268
B-17		
Construction of two target maintenance buildings	0.0056	0.0006
Perimeter fencing	6.25	0.625
B-20		
Construction of target maintenance building	0.019	0.0019
Installation of perimeter fencing	7.49	0.749
DVTA		
Installation of Electronic Warfare sites	0.035	0.0035
Total	**17.118**	**1.7118**

Notes: tpy = tons per year, PM_{10} = particulate matter less than or equal to 10 micrometers in diameter, $PM_{2.5}$ = particulate matter less than or equal to 2.5 micrometers in diameter, DVTA = Dixie Valley Training Area. These emissions are included in Table 3.8-4.

Following construction activities, fugitive dust emissions are anticipated to decrease back to original levels. Additionally, since the withdrawal would close off several roads used by Off Highway Vehicles, the amount of ground disturbance sources would decrease, as would fugitive dust production in the area from Off Highway Vehicle users.

Fugitive dust from construction activities would have no significant impact on air quality under Alternative 1.

3.8.3.2.9 Greenhouse Gas Emissions

Implementation of Alternative 1 would contribute directly to emissions of GHGs from the combustion of fossil fuels. Alternative 1's emissions have been compared with Nevada's statewide GHG emissions. Table 3.8-6 summarizes the annual GHG emissions associated with construction activities of Alternative 1. Construction and infrastructure activities would generate approximately 281 metric tons of CO_2e (Table 3.8-6), which is approximately 0.000007 percent of Nevada's annual CO_2e contribution. These estimated annual GHG would be unlikely to have a significant impact on the regional air quality; however, cumulative GHG impacts are anticipated.

Table 3.8-6: Greenhouse Gas Emissions from Construction Activities Under Alternatives 1, 2, and 3

Emissions Source	GHG Emissions in Metric Tons[1]
	CO_2e
B-16	
Perimeter Fencing	37.05
Combat Village Installation	11.26
B-17	
Construction of two target maintenance buildings	19.28
Perimeter Fencing	89.64
B-20	
Construction of target maintenance building	15.90
Installation of Perimeter Fencing	107.57
DVTA	
Installation of Electronic Warfare sites	0.42
Total	**281.12**
Affected County GHG Emissions	**4,960,000**
Percentage of Nevada's Emissions	**0.0057%**

[1] $CO_2e = (CO_2 * 1) + (CH_4 * 25) + (N_2O * 298)$.

Notes: CO_2 = carbon dioxide, CH_4 = methane, N_2O = nitrogen dioxide, CO_2e = carbon dioxide equivalent. DVTA = Dixie Valley Training Area. All actions would take up to one year for implementation and would no longer contribute to air quality after completion of project.

3.8.3.2.10 Summary of Effects and Conclusions

The implementation of Alternative 1 would result in impacts on the ambient air quality from emissions produced during construction activities. The amount of emissions released across all ranges during the construction process would be well below the *de minimis* levels of 100 tons per year. In addition to the low amounts of emissions being released, construction activities would be distributed across a vast area and would not have lasting impacts. Therefore, it is expected that Alternative 1 would not have a significant impact on the ambient air quality and would be unlikely to affect the attainment status of the region.

3.8.3.3 Alternative 2: Modernization of the Fallon Range Training Complex and Managed Access

Under Alternative 2, the Navy would renew its current public land withdraw at the FRTC. The Navy would also withdraw and acquire additional land to be reserved for military use similar to Alternative 1. However, under Alternative 2, certain public uses within specified areas of B-16, B-17, and B-20 would be allowed when the ranges are not operational (i.e., typically weekends, holidays, and when undergoing scheduled maintenance) (refer to Table 2-5). Allowing certain activities would mean that some emissions, specifically those associated with hunting activities and geothermal activities, would be pushed off the ranges under Alternative 1 but could continue to occur within the boundary of the ranges under Alternatives 2 and 3. However, this would not likely affect the emissions that would occur within the air basin since these activities would likely continue on adjacent lands if access were completely restricted.

3.8.3.3.1 Bravo-16

Changes regarding public access would not change the proposed distribution of military training activities within and above B-16 or the proposed construction activities. Alternative 2 would have the same impacts on air quality as Alternative 1.

3.8.3.3.2 Bravo-17

Changes regarding public access would not change the proposed distribution of military training activities within and above B-17 or the proposed construction activities. Alternative 2 would have the same impacts on air quality as Alternative 1.

3.8.3.3.3 Bravo-20

Changes regarding public access would not change the proposed distribution of military training activities within and above B-20 or the proposed construction activities. Alternative 2 would have the same impacts on air quality as Alternative 1.

3.8.3.3.4 Dixie Valley Training Area

Changes regarding public access would not change the proposed distribution of military training activities within the DVTA from Alternative 1 or the proposed construction activities. Alternative 2 would have the same impacts on air quality as Alternative 1.

3.8.3.3.5 Fallon Range Training Complex Special Use Airspace

Changes regarding public access would not change the proposed distribution of military training activities within the FRTC SUA from Alternative 1. Alternative 2 would have similar impacts on air quality as Alternative 1.

3.8.3.3.6 Criteria Pollutants

Table 3.8-4 lists estimated annual criteria and precursor air pollutant emissions under Alternative 1 (which would be the same under Alternative 2). The increases in construction activities would result in a corresponding increase in criteria and precursor pollutant emissions. All would increase under Alternative 2 compared to the existing conditions, but would not contribute significantly to changes in regional air quality.

3.8.3.3.7 Hazardous Air Pollutants

Similar to Alternative 1, HAPs produced during construction activities would be produced in very small quantities and would be sufficiently dispersed to be considered negligible. Allowing public access on the

ranges for certain activities would not lead to increases in HAP production as compared to Alternative 1. Therefore, the implementation of Alternative 2 would not have a significant impact on the regional air quality.

3.8.3.3.8 Fugitive Dust

The potential for the generation of fugitive dust under Alternative 2 would be the same as in Alternative 1. Therefore, fugitive dust from construction activities would have no significant impact on air quality under Alternative 2.

3.8.3.3.9 Greenhouse Gases

Implementation of Alternative 2 would produce the same amount of GHG emissions as Alternative 1. Therefore, implementation of Alternative 2 would not result in significant impacts on air quality.

3.8.3.3.10 Summary of Effects and Conclusions

The implementation of Alternative 2 would result in impacts on the ambient air quality from emissions produced during construction activities. The amount of emissions released across all ranges during the construction process would be well below the *de minimis* levels of 100 tons per year. In addition to the low amounts of emissions being released, construction activities would be distributed across a vast area and would not have lasting impacts. Although there are differences from Alternative 1 with regards to public access on the ranges, these differences would not change the impact conclusions presented under Alternative 1. Therefore, it is expected that Alternative 2 would not have a significant impact on the ambient air quality and would be unlikely to affect the attainment status of the region.

3.8.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternative 1 and Alternative 2, but B-17 would be moved further southeast and tilted. Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Rather, the Navy proposes that Congress categorizes this area as a Special Land Management Overlay. This Special Land Management Overlay would define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy. This alternative would have the same access restrictions and Controlled Access Program as Alternative 2.

3.8.3.4.1 Bravo-16

Changes regarding public access would not change the proposed distribution of military training activities within and above B-16 from Alternative 1 or the proposed construction activities. An area of 365 acres that lay south of Simpson Road on B-16 would not be withdrawn. This would reduce the amount of perimeter fencing that would need to be installed, thereby reducing the overall emissions. Implementation of Alternative 3 would have less impacts on air quality than Alternative 1.

3.8.3.4.2 Bravo-17

Under Alternative 3, B-17 would be shifted to the south and east and rotated counterclockwise (rather than the north-south orientation under Alternatives 1 and 2). While target areas would be moved under Alternative 3, the distribution and number of activities at B-17 would not change under Alternative 3. Therefore, Alternative 3 would have similar impacts on air quality as Alternative 1.

With the expansion, rotation, and shift of B-17, Alternative 3 would involve the potential relocation of a 12-mile portion of State Route 361. Similar to the potential relocation of State Route 839, site-specific NEPA action would need to be conducted prior to any potential ultimate relocation of the highway, which would account for emissions produced by this action. However, emissions that would arise from the relocation of the corridor are expected to be temporary and would not likely persist following completion of construction. A different relocation corridor would also be involved as a potential future action under Alternative 3 for approximately 18 miles of the Paiute Pipeline, but this analysis would be covered in a site-specific NEPA analysis prior to any action.

Although the B-17 range would consist of an alternative withdrawal boundary in relation to Alternatives 1 and 2, the construction activities that would occur on B-17 under Alternative 3 would be approximately the same as those analyzed in the other Alternatives. The only difference would be the installation of an additional 3 miles of fence to enclose the alternative boundary. The additional 3 miles of fencing would result in an increase in emissions of about 1.5 percent for fence installation activities on all ranges. Therefore, criteria pollutant emissions and GHG emissions would be approximately the same as those presented in Alternative 1.

3.8.3.4.3 Bravo-20

Changes regarding public access would not change the proposed distribution of military training activities within and above B-20 or the proposed construction activities. An area of 360 acres that lay east of East County Road on B-20 would not be withdrawn as indicated in Alternative 1. This would reduce the amount of perimeter fencing that would need to be installed, thereby reducing the overall emissions. Implementation of Alternative 3 would have less impacts on air quality than Alternative 1.

3.8.3.4.4 Dixie Valley Training Area

Changes regarding public access would not change the proposed distribution of military training activities within the DVTA from Alternative 1 or the proposed construction activities. Unlike Alternative 1, the Navy would not withdraw land south of U.S. Route 50 as DVTA. Although this would be a change in size of training area from Alternative 1, levels of training would not change. Therefore, Alternative 3 would have the same impacts on air quality as Alternative 1.

3.8.3.4.5 Fallon Range Training Complex Special Use Airspace

Changes regarding public access would not change the proposed distribution of military training activities within the majority of FRTC SUA from Alternative 1. Alternative 3 would have similar impacts on air quality as Alternative 1.

3.8.3.4.6 Criteria Pollutants

Table 3.8-4 lists estimated annual criteria and precursor air pollutant emissions under Alternative 1 (which would be the same under Alternative 3). The proposed construction activities would result in a corresponding increase in criteria and precursor pollutant emissions under Alternative 3 compared to the environmental baseline but would not contribute significantly to changes in regional air quality.

3.8.3.4.7 Hazardous Air Pollutants

As described in Alternative 2, HAP emissions would not increase by allowing public access on the ranges. In addition, the installation of an additional three miles of fence as compared to the other alternatives would not result in a significant change in HAP emissions. Pollutants would continue to be temporary

and highly dispersed. Therefore, implementation of Alternative 3 would not have a significant impact on regional air quality.

3.8.3.4.8 Fugitive Dust

The potential for the generation of fugitive dust under Alternative 3 would increase in comparison to the existing conditions. Following standard operating procedures and, where warranted, implementing best management practices, such as watering soils, would ensure that fugitive dust from construction does not result in significant impacts on air quality. Fugitive dust from construction activities would have no significant impact on air quality under Alternative 3.

3.8.3.4.9 Greenhouse Gases

Implementation of Alternative 3 would produce the same amount of GHG emissions as Alternative 1. This limited amount of emissions would not have the potential to contribute to global warming to any discernible extent. Therefore, implementation of Alternative 3 would not result in significant impacts on air quality from GHG emissions.

3.8.3.4.10 Summary of Effects and Conclusions

The implementation of Alternative 3 would result in impacts on the ambient air quality from emissions produced during construction activities. Differences in fencing distance between Alternative 1 and Alternative 3 are miniscule and would not be expected to alter the expected emissions estimates. The amount of emissions released across all ranges during the construction process would be well below the *de minimis* levels of 100 tons per year. In addition to the low amounts of emissions being released, construction activities would be distributed across a vast area and would not have lasting impacts. Similar to Alternative 2, the differences in public access between Alternative 3 and Alternative 1 would not change the impact conclusions presented above. Therefore, it is expected that Alternative 3 would not have a significant impact on the ambient air quality and would be unlikely to affect the attainment status of the region.

3.8.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.8.3.5.1 Proposed Management Practices

The primary proposed management practice is dust control. Strategies for dust control are described in the NAS Fallon Dust Control Plans and would continue to be implemented under the Action Alternatives. Specific measures, using best practical methods available for dust suppression, would include, but would not be limited to, the following approaches and procedures:

- Phasing of Surface Area Disturbance activities (grading/leveling and shoulder dragging) to reduce the amount of area that is disturbed at a single time.
- Water trucks may be used for water spraying.
- Whenever possible, Surface Area Disturbance activities shall be scheduled immediately following periods of precipitation. Operations may be suspended when winds (or other meteorological conditions) make fugitive dust control difficult.
- Equipment used by military units in the region of influence, including construction equipment, is properly maintained in accordance with applicable Navy requirements. Operating equipment meets federal and state emission standards, where applicable.

- Generation of dust would be minimized by adhering to standard operating procedures to operate vehicles on existing roads and two-track trails (unless otherwise noted in standard operating procedures or in the event of emergency).
- Vehicles participating in construction activities that occur on unpaved surfaces would minimize fugitive dust generation implementing traffic control measures, including vehicle speed controls (not to exceed 15 miles per hour). Restrictions on non-project vehicles may also be imposed in affected areas during Surface Area Disturbance activities.
- Any visible material tracked from Surface Area Disturbance locations onto adjoining paved roads shall be promptly removed.
- A designated on-base facility with wash racks and water hoses would be made available to clean equipment and machinery as needed.
- The need for additional dust abatement measures would be determined on a case-by-case basis during pre-construction planning with input from the NAS Fallon Environmental Division. Factors considered in determining the need for additional dust abatement include the locations and duration of the exercise; the number of vehicles involved in the exercise; soil moisture conditions prior to the exercise; and predicted precipitation, wind speed, and wind direction during the exercise.

3.8.3.5.2 Proposed Monitoring

No monitoring measures would be warranted for air quality based on the analysis presented in Section 3.8.3 (Environmental Consequences).

3.8.3.5.3 Proposed Mitigation

No mitigating measures would be warranted for the air quality based on the analysis presented in Section 3.8.3 (Environmental Consequences).

3.8.3.6 Summary of Effects and Conclusions

Table 3.8-7 summarizes the effects of the alternatives on air quality.

Table 3.8-7: Summary of Effects and Conclusions on Air Quality

Summary of Effects and National Environmental Policy Act Impact Determination	
No Action Alternative	
Summary	• Impacts on Criteria Air Pollutants, Hazardous Air Pollutants, and Fugitive Dust would be negligible. Changes to air quality would not be detectable and would be below or within historical or desired air quality conditions.
Impact Conclusion	Implementation of the No Action Alternative would not result in significant impacts on air quality.
Alternative 1	
Summary	• Small increase of Criteria Air Pollutants relative to baseline Nevada emissions and the Environmental Baseline. Measurable changes in air quality would be expected locally, but the attainment status in the Northwest Nevada Intrastate Air Quality Control Region and Nevada Intrastate Air Quality Control Region would not be affected. • Very small increase of Hazardous Air Pollutant Emissions relative to baseline Nevada emissions since they would be at least an order of magnitude smaller than levels of criteria air pollutants. • Small increases in fugitive dust from construction activities, though management practices would minimize the generation of dust. • Construction emissions are expected to be localized and temporary, minimizing the overall impact on ambient air quality. • Restricting public access on approximately 600,000 acres of land would most likely relocate emissions that would occur within the range boundaries from public activities to adjacent lands within the air basin.
Impact Conclusion	Implementation of Alternative 1 would not result in significant impacts on air quality.

Table 3.8-7: Summary of Effects and Conclusions on Air Quality (continued)

Summary of Effects and National Environmental Policy Act Impact Determination	
Alternative 2	
Summary	• Implementation of access allowances would not impact the level of Criteria Air Pollutants relative to baseline Nevada emissions and the Environmental Baseline. Measurable changes in air quality would be expected locally, but the attainment status in the Northwest Nevada Intrastate Air Quality Control Region and Nevada Intrastate Air Quality Control Region would not be affected. • Implementation of access allowances would not impact Hazardous Air Pollutant Emissions relative to baseline Nevada emissions. • Implementation of access allowances would not impact fugitive dust from construction activities, though management practices would minimize the generation of dust. • Construction emissions are expected to be localized and temporary, minimizing the overall impact on ambient air quality. • Allowing public access on the ranges for certain activities would increase the amount of pollutants being released within the ranges when compared to Alternative 1.
Impact Conclusion	Implementation of Alternative 2 would not result in significant impacts on air quality.
Alternative 3	
Summary	• Small increase of Criteria Air Pollutants relative to baseline Nevada emissions and the Environmental Baseline. Measurable changes in air quality would be expected locally, but the attainment status in the Northwest Nevada Intrastate Air Quality Control Region and Nevada Intrastate Air Quality Control Region would not be affected. • Small increase of Hazardous Air Pollutant Emissions relative to baseline Nevada emissions. • Small increases in fugitive dust from construction activities, though management practices would minimize the generation of dust. • Construction emissions are expected to be localized and temporary, minimizing the overall impact on ambient air quality. • An additional 3 miles of fence would need to be added under Alternative 3 as compared to the other alternatives. This would only constitute a minor difference and would not be a significant change.
Impact Conclusion	Implementation of Alternative 3 would not result in significant impacts on air quality.

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3.9 Water Resources

No Action Alternative

Under the No Action Alternative, the 1999 Congressional land withdrawal of 201,933 acres from public domain (Public Law 106-65) would expire on November 5, 2021, and military training activities requiring the use of these public lands would cease. Expiration of the land withdrawal would terminate the Navy's authority to use nearly all of the Fallon Range Training Complex's (FRTC's) bombing ranges, affecting nearly 62 percent of the land area currently available for military aviation and ground training activities in the FRTC.

Alternative 1 – Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy would request Congressional renewal of the 1999 Public Land Withdrawal of 202,864 acres, which is scheduled to expire in November 2021. The Navy would request that Congress withdraw and reserve for military use approximately 618,727 acres of additional Federal land and acquire approximately 65,157 acres of non-federal land. Range infrastructure would be constructed to support modernization, including new target areas, and expand and reconfigured existing Special Use Airspace (SUA) to accommodate the expanded bombing ranges. Implementation of Alternative 1 would potentially require the reroute of State Route 839 and the relocation of a portion of the Paiute Pipeline. Public access to B-16, B-17, and B-20 would be restricted for security and to safeguard against potential hazards associated with military activities. The Navy would not allow mining or geothermal development within the proposed bombing ranges or the Dixie Valley Training Area (DVTA). Under Alternative 1, the Navy would use the modernized FRTC to conduct aviation and ground training of the same general types and at the same tempos as analyzed in Alternative 2 of the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada, Final Environmental Impact Statement* (EIS). The Navy is not proposing to increase the number of training activities under this or any of the alternatives in this EIS.

Alternative 2 – Modernization of Fallon Range Training Complex with Managed Access

Alternative 2 would have the same withdrawals, acquisitions, and SUA changes as proposed in Alternative 1. Alternative 2 would continue to allow certain public uses within specified areas of B-16, B-17, and B-20 (ceremonial, cultural, or academic research visits, land management activities) when the ranges are not operational and compatible with military training activities (typically weekends, holidays, and when closed for maintenance). Alternative 2 would also continue to allow grazing, hunting, off-highway vehicle (OHV) usage, camping, hiking, site and ceremonial visits, and large event off-road races at the DVTA. Additionally under Alternative 2, hunting would be conditionally allowed on designated portions of B-17, and geothermal and salable mineral exploration would be conditionally allowed on the DVTA. Large event off-road races would be allowable on all ranges subject to coordination with the Navy and compatible with military training activities.

Alternative 3 – Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 differs from Alternative 1 and 2 with respect to the orientation, size, and location of B-16, B-17, B-20 and the DVTA, and is similar to Alternative 2 in terms of managed access. Alternative 3 places the proposed B-17 farther to the southeast and rotates it slightly counter-clockwise. In conjunction with shifting B-17 in this manner, the expanded range would leave State Route 839 in its current configuration along the western boundary of B-17 and would expand eastward across State Route 361 potentially requiring the reroute of State Route 361. The Navy proposes designation of the area south of U.S. Route 50 as a Special Land Management Overlay rather than proposing it for withdrawal as the DVTA. This Special Land Management Overlay would define two areas, one east and one west of the existing B-17 range. These two areas, which are currently public lands under the jurisdiction of BLM, would not be withdrawn by the Navy and would not directly be used for land-based military training or managed by the Navy.

Environmental Impact Statement

Fallon Range Training Complex Modernization

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3.9 Water Resources

This discussion of water resources includes surface waters (streams, floodplains, and playas), groundwater (confined and unconfined aquifers), along with climate factors that contribute to hydrologic conditions, and water rights. This section summarizes any potential contamination of surface waters and groundwater resources, and any impacts on water rights. Water rights are considered real property; therefore, if impacted, the Navy would consider purchasing them following the valuation of water rights process that has been included in this section, specifically in Section 3.9.3.2 (Alternative 1: Modernization of the Fallon Range Training Complex, Disposition of Water Rights and Water Wells), Figure 3.9-16, and Section 3.9.3.5.3 (Proposed Mitigation).

3.9.1 Methodology

3.9.1.1 Region of Influence

The region of influence for water resources is the project footprint of the Fallon Range Training Complex (FRTC) land assets (i.e., proposed acquisition and requested withdrawal) and any other area that could be directly or indirectly impacted due to any of the alternatives. For example, if a surface or subsurface hydrological connection exists between areas within the project footprint and outside of the project footprint, the waters outside of the footprint would be analyzed as part of the region of influence. This region of influence methodology is used for Bravo (B)-16, Bravo-17, Bravo-20, and the Dixie Valley Training Area (DVTA).

There are no changes proposed to land withdrawal, training activities, public access, or construction on B-19. Therefore, B-19 is not discussed further and would be maintained as discussed in the *2015 Military Readiness Activities at Fallon Range Training Complex, Nevada Final Environmental Impact Statement* (U.S. Department of the Navy, 2015a).

3.9.1.2 Regulatory Framework

The United States (U.S.) Department of the Navy (Navy) has established water resource policies to ensure its compliance with federal regulations. The State of Nevada has been granted primacy and manages water resources within its jurisdiction and administers the Clean Water Act (CWA) and Safe Drinking Water Act within its borders, in accordance with state and federal water resources regulations. Chapter 1 (Purpose of and Need for the Proposed Action) describes the following regulations that are relevant to the regulatory requirements concerning water resources:

- CWA
- Safe Drinking Water Act
- Resource Conservation and Recovery Act
- Executive Order 11990 (Protection of Wetlands)
- Executive Order 11988 (Protection of Floodplains)
- Chapters 533 and 534 of the Nevada Revised Statutes

The CWA regulates discharges to Waters of the United States. Waters of the United States are defined as (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow perennially or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries under Section 404 of the CWA, as amended, and are regulated by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). The CWA requires that the State of Nevada establish a Section 303(d) list to identify impaired waters and establish

Total Maximum Daily Loads (TMDLs) for the sources causing the impairment. There are no designated Waters of the U.S. on the expansion areas. The Navy conducted a survey of wetland areas in support of environmental surveys and identified a small area (less than 0.1 acre) on the northern edge of B-20 that may be classified as a Waters of the United States. The Diagonal Drains (waterbodies around the main base) are considered Waters of the United States by the State of Nevada, which has identified these drains as impaired in the latest Section 303(d) list.[1] Wetlands are currently regulated by the USACE under Section 404 of the CWA as a subset of all "Waters of the United States." However, none of these areas would require Section 404 permitting, as no activities are planned that would impact these locations.

The State of Nevada National Pollutant Discharge Elimination System stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more to obtain coverage under a National Pollutant Discharge Elimination System Construction Stormwater General Permit for stormwater discharges to Waters of the United States (permit NVR100000). Coverage under this general permit requires preparation of a Notice of Intent to discharge stormwater and a Stormwater Pollution Prevention Plan that is implemented during construction. As part of the 2010 Final Rule for the CWA, titled *Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category*, activities covered by this permit must implement project erosion and sediment controls and pollution prevention measures.

Activities that result in the dredging or filling of Waters of the United States, including wetlands, are regulated under Sections 401 and 404 of the CWA. The USACE established the Section 404 Nationwide Permit (NWP) 14 to efficiently authorize common linear transportation project activities that do not significantly impact Waters of the United States, including wetlands. For "Linear Transportation Projects" (e.g., roads, highways, and road improvements such as those presented in the Proposed Action), the discharge cannot cause the loss of greater than 0.5 acre of waters of the United States. In addition, the permittee must submit a pre-construction notification to the USACE district engineer prior to commencing the activity if (1) the loss of Waters of the United States exceeds 0.1 acre or (2) there is a discharge in a special aquatic site, including wetlands. Each project that may impact jurisdictional waters under the CWA is assessed individually in the permit acquisition process.

The USACE also established Section 404 NWP 12 to efficiently authorize construction, maintenance, repair, and removal of utility lines and associated facilities in Waters of the United States, provided the activity does not result in the loss of greater than 0.5-acre of Waters of the United States for each single and complete project. The definition of "utility line" is any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and internet, radio, and television communication. This NWP also authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal Waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 0.5-acre of non-tidal Waters of the United States.

[1] The Bureau of Reclamation does not consider the Diagonal Drains to be jurisdictional Waters of the United States, and therefore they are not regulated under Section 404 of the CWA.

Section 438 of the Energy Independence and Security Act establishes stormwater design requirements for development and redevelopment projects. Under these requirements, federal facility projects larger than 5,000 square feet must "maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

In addition, the Navy utilizes Unified Facilities Criteria 3-210-10, Low Impact Development, which provides technical criteria, technical requirements, and references for the planning and design of applicable Department of Defense projects to comply with stormwater requirements.

State of Nevada Water Law

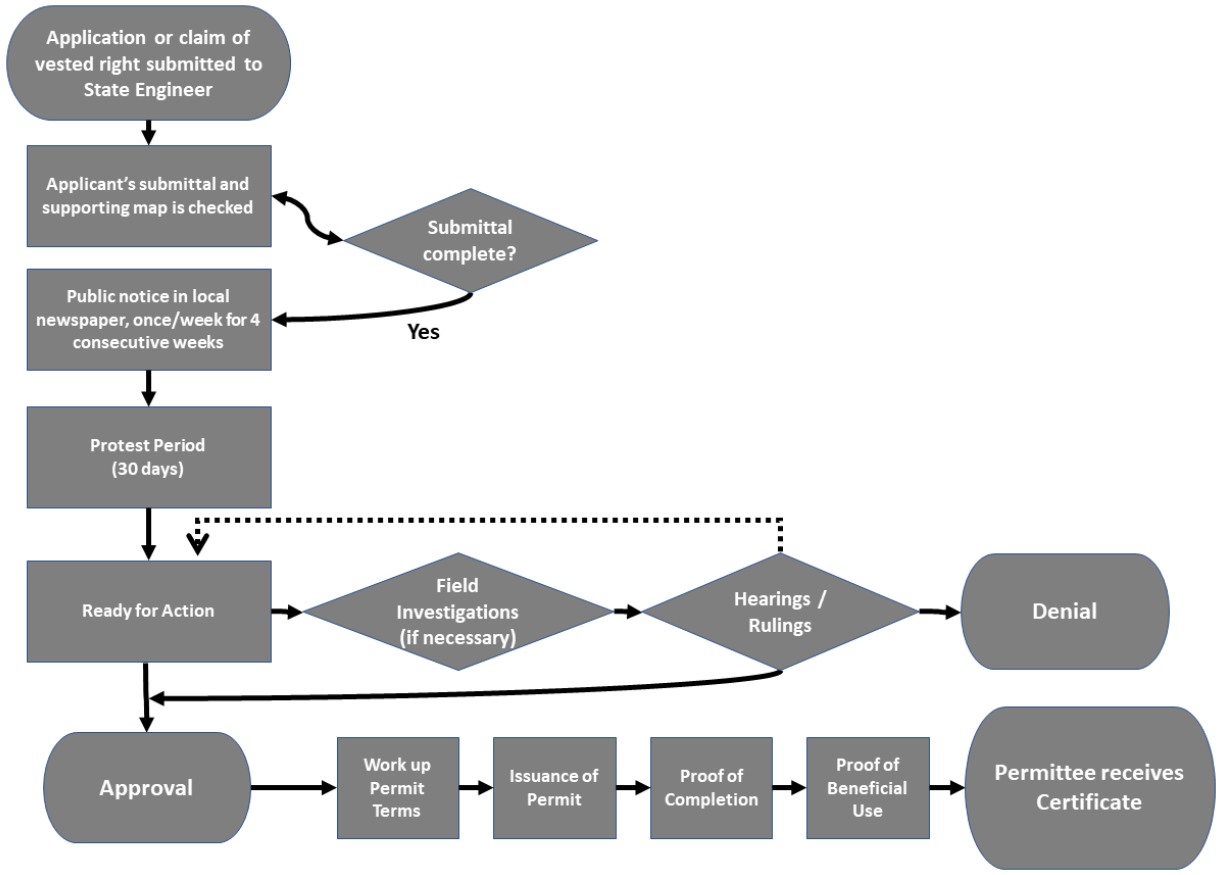
As established by Nevada Revised Statute 533.025, the sources of water supply within the state of Nevada, whether surface water or groundwater, are managed as a public resource. Nevada water law is based on two fundamental principles: prior appropriation and beneficial use. Prior appropriation (also known as "first in time, first in right") ensures the senior uses are granted priority, even as new uses for water are allocated. Beneficial use is based on the demonstration of water utilization for manners such as irrigation, mining, stockwatering, recreation, commercial, industrial, and municipal supply. Water may be appropriated for beneficial use as provided in Chapters 533 and 534 of the Nevada Revised Statutes.

The Nevada Department of Conservation and Natural Resources is responsible for management of the state's natural resources, which includes conserving, protecting, managing, and enhancing these resources. The Nevada Department of Conservation and Natural Resources is organized into nine divisions or programs to meet this goal, which includes the Nevada Division of Water Resources (NDWR). With respect to water rights that are claimed as vested water rights, the Navy's understanding is that such rights are required by Nevada state law to be submitted for adjudication as potentially-valid water rights, and thus ideally the Navy would await the outcome of adjudication before providing compensation for any such claimed vested rights that might be acquired by the Navy as a result of any implementation of the Proposed Action. However, the Navy also understands that the adjudication process can be very lengthy, potentially lasting many years. Therefore—rather than awaiting completion of adjudication—the Navy would engage in discussions with affected parties claiming vested rights in order to confirm the status of such rights before making any commitment to provide compensation for them. The Navy notes that the obligation to provide just compensation in accordance with the Fifth Amendment of the U.S. Constitution is independent of—and is not limited by—the NEPA process, and potentially-affected parties would accordingly be free to present additional information concerning property interests subsequent to issuance of the Navy's Record of Decision.

Once a State of Nevada Water Right is granted (which includes any application, permit, certificate, or claim of vested right), it has the standing of both real and personal property, meaning it is conveyed as an appurtenance to real property unless it is specifically excluded in the deed of conveyance and is subject to transaction. These state-based rights will arise when property has been acquired from private entities. When water rights are purchased or sold as personal property or treated as a separate appurtenance in a real-estate transaction, they are conveyed specifically by a deed of conveyance. It is possible to buy or sell water rights and change the water's point of diversion, manner of use, and/or place of use by filing the appropriate application with the State Engineer.

Federal Reserve Water Rights (FRWR) is a distinct legal basis for water rights separate from state law. Under U.S. Supreme Court case law defining the FRWR, federal agencies have an implied right to water to support the primary mission for which Congress and the federal government have designated that land, including a provision of water for growth to support that mission. The FRWR date of priority is the date upon which the land was withdrawn from public use. The FRWR applies to both surface water and groundwater. The FRWR was first recognized by the U.S. Supreme Court in the context of tribal interests (see Winters v. United States, 207 U.S. 564 [1908]) and subsequently expanded to other federal agencies (see Cappaert v. United States, 426 U.S. 128 [1976]), Federal Power Commission v. Oregon, 349 U.S. 435 [1955]). It is well established in the Supremacy Clause of the U.S Constitution, Article VI, Clause 2, that the federal government is not subject to state regulation, unless Congress clearly and unambiguously waives this sovereign immunity. There is no such waiver for state regulation of water, except in the case of a comprehensive state court adjudication of all rights to water, as expressed in the McCarran Amendment (43 United States Code section 666).

Consistent with its historic engagement with the Nevada State Engineer, federal interests have a vested interest in cooperating on water basin planning efforts and reporting efforts as a matter of comity to assist the Water Engineer in managing the water resource. Federal agencies also have an interest in participating in state water rights permitting process for water rights originally obtained under state law.



Source: Nevada Revised Statute 533. Providing that all application materials are complete and all stages of the application process are not delayed (e.g., through hearings and rulings; field investigation phases, if there are competing applicants for the same right; and backlog of applications in the State Engineer's office), minimum times

to obtain a certificate can be approximately 90–120 days; however, longer periods are generally experienced by applicants, typically a year or more depending on the project.

Figure 3.9-1: Nevada Water Law: Obtaining Water Rights

The appropriation of water under state law in Nevada requires a permit for the ownership of water rights. The key definitions associated with water rights are summarized below.

Waters as a public trust resource are defined under Nevada statute as waters situated wholly or partly within or bordering upon the state, including but not limited to: (1) all streams, lakes, ponds, impounding reservoirs, marshes, water courses, waterways, wells, springs, irrigation systems, and drainage systems; and (2) all bodies or accumulations of water, surface and underground, natural or artificial (see Nevada Revised Statutes 445A.415 and 445.191).

The Nevada **State Engineer**, otherwise known as the head of NDWR, is responsible for administering and enforcing Nevada water law. This includes the appropriation of surface and groundwater in the state, and the adjudication of pre-statutory vested water rights, dam safety, and other duties. Nevada was founded based on prior appropriation doctrine, which allocates water based on the "first in time, first in right" principle. A vested water right is the first person to divert water and put it to beneficial use from a source; this person has the superior right to take water before any junior water rights holders in times of water shortages. State water rights law applies where property has been or will be acquired from private entities.

A **permit application** is an application to NDWR to appropriate water for a Beneficial Use.

A **permit** is issued by NDWR, and authorizes the permitee to use the appropriated amount of water for beneficial use in a specified manner (such as stockwatering for ranching).

Beneficial Use examples include irrigation, mining, stock watering, recreation, commercial, industrial, wildlife supplemental watering (guzzlers do not require a formal water right in most cases), and municipal uses. Permitees must also exercise the beneficial use or they will lose the water right. Guzzlers are simple water runoff catchment devices installed in uphill locations to catch and hold rainfall runoff for wildlife.

A **Point of Diversion** is the legal location where a right holder can divert water from its source. Points of Diversion must be mapped and tied to the Public Land Survey System. Legal descriptions that might be used are government lots, block, subdivision, parcel numbers, townsite names, mining claim information, homestead entry surveys, and other survey information. Points of Diversion may be changed through an application process.

The **Place of Use** is the legal location where a right holder may use the water. The Place of Use may be changed through an application process.

NDWR issues a **Certificate of Appropriation** after an application is granted and after the applicant files proof of completion of division works and proof of Beneficial Use.

If a water rights user does not provide proof of completion of work and proof of beneficial use by the deadlines outlined in the permit terms, the permit will be **cancelled**. In terms of cancellation, both proof of completion and proof of beneficial use may be extended by filing for Extensions of Time.

Forfeiture of a groundwater right occurs if the beneficial use is not exercised for five consecutive years. Surface water rights can only be lost by **abandonment**. A review of whether or not a surface water right has been abandoned is based on a review of all the surrounding circumstances; however, water law provides statutory reasons that prevent a declaration of abandonment.

3.9.1.3 Approach to Analysis

In this Environmental Impact Statement (EIS), the analysis of surface water quality considers the potential for impacts that may change the water quality, including both improvements and degradation of current water quality. Surface water quality analysis considers the potential for effects that may change the water quality, including both improvements to and degradation of current water quality. This analysis also considers potential impacts on stream drainages, wetlands, and floodplains. The groundwater analysis focuses on the potential for effects to the quality, quantity, and accessibility of the water.

The analysis of water resources effects would consider possible changes in the quality of surface waters or groundwater that could result from the Proposed Action. Such changes could arise from use of military munitions, incidental spills, or soil disturbance or compaction from construction activities. Factors evaluated to determine the potential effects on water resources would include (1) the potential for surface water or groundwater to become contaminated, (2) whether surface water or groundwater represents a substantial threat of a contaminant release to an off-range area, (3) whether such a release would pose an unacceptable risk to human health or the environment, and (4) stormwater management associated with proposed construction activities, such as any rerouted Nevada State Highway or other roads required to maintain new targets and infrastructure, or perimeter fencing.

This section will discuss potential direct and indirect effects to existing water quality in and adjacent to the region of influence. Effects to existing water quality will focus on a qualitative discussion regarding the potential for military training activities and site improvements to affect groundwater quality, surface water quality, wetlands, and waters as a public trust resource.

Nevada Water Rights Inventory and Assessment

The Navy is proposing an expansion of land ranges through the additional withdrawal of public lands and the acquisition of non-federal land. Some of these lands are associated with existing water rights issued through the State of Nevada that provide an entity the right to use water and are considered real property. Therefore, a state water right is transferable; assignable; and must be valued, inventoried, and maintained. In addition, a water right can be revoked by the State due to non-use and requires the water be used for a beneficial use, such as agriculture or industry.

The FRTC Modernization Project will limit public access to Bravo ranges for any purpose other than for ceremonial or cultural site visits by local Indian Tribes and wildlife management (e.g., primarily hunting), which are currently occurring within the existing and proposed withdrawal areas with coordination between the visitor and Naval Air Station (NAS) Fallon. Land previously used for livestock grazing, mineral exploration surveying and development, or recreation would no longer be used for these purposes or would be limited to controlled access. Public access in the DVTA would remain as is and would not be impacted under all alternatives analyzed in this EIS. However, any development associated with water rights in the DVTA would need to be compatible with military training activities. The Navy would evaluate water rights development requests in the DVTA on a case-by-case basis, including geothermal development.

The Proposed Action would impact existing water rights within these areas. Therefore, the Navy, as part of this EIS, has conducted an inventory of current water rights for both surface water and groundwater that exist on current and proposed withdrawal areas. The results of this database search are discussed under each range's description in Section 3.9.2 (Affected Environment). For a detailed analysis of water rights on existing FRTC lands and lands requested for withdrawal or proposed for acquisition, please see

the supporting study, NAS Fallon Water Rights Research and Inventory, on the FRTC Modernization website at https://frtcmodernization.com.

The disposition of these water rights and associated wells is also discussed in this EIS under each range's impact analysis summary in Section 3.9.3 (Environmental Consequences). In addition, the Navy acknowledges that more detailed and complete information may be obtained directly from site visits and NDWR field offices. Ongoing collaboration with the NDWR to further identify relevant water rights and related information would be a continuous process. The Navy is also performing an independent water rights inventory. The water rights found while conducting this inventory that may have the potential to be impacted under the Proposed Action are shown for each Bravo Range and the DVTA in Table 3.9-1 (for additional detail of a particular water right, please see the NAS Fallon Water Rights Research and Inventory available at https:\\frtcmodernization.com). The Navy acknowledges that there may be some uses for which claims of vested rights have not yet been filed. Vested claims are not required to be filed until a call for proofs under an adjudication proceeding or by 2027, based on legislation passed last session by the Nevada State Legislature and signed into law.

Table 3.9-1: Potentially Impacted Water Rights within the Potential FRTC Under the Alternatives

Use	Bravo-16		Bravo-17		Bravo-20		Dixie Valley Training Area		Alt 1 & 2 Grand Total	Alt 3 Grand Total
	Alt 1 & 2	Alt 3	Alt 1 & 2	Alt 3	Alt 1 & 2	Alt 3	Alt 1 & 2	Alt 3		
Commercial							1	1	1	1
Domestic							1		1	0
Irrigation			1	1			2	2	3	3
Mining and Milling			1	1	4	4	4	3	9	8
Municipal							5	5	5	5
Quasi-Industrial					1	1			1	1
Quasi-Municipal							5	5	5	5
Recreational			2						2	0
Stock-Watering	2	1	9	13	1	1	50	50	62	65
Grand Total	**2**	**1**	**13**	**15**	**6**	**6**	**68**	**66**	**89**	**88**

Note: Alt = Alternative
For additional detail of a particular water right, please see the NAS Fallon Water Rights Research and Inventory available at https:\\frtcmodernization.com.

3.9.1.4 Public Concerns

The public raised several issues during scoping (Appendix E, Public Participation, for more detail) and during the public comment period (Appendix F, Public Comments and Responses) for the Draft EIS, including general effects on water and water resources. Specifically, concerns focused on potential contamination of the water table or damage to the structure of the aquifer(s), potential loss of natural surface water flows or direction of surface waters, effects of training with explosive ordnance on the groundwater table and other hazardous materials concerns, and expansion of water quality monitoring with the expanded range area. Public commenters also expressed concerns regarding water wells. Each of the region of interest maps in Section 3.9.2 (Affected Environment) show water wells, which are analyzed within the expanded areas in the context of the Safe Drinking Water Act.

The Churchill County Board of Commissioners, Mineral County Board of Commissioners, Nye County Commissioners, Lahontan Conservation District, Stillwater Conservation District, Theodore Roosevelt Conservation Partnership, Nevada Department of Wildlife, and the Nevada Board of Wildlife Commissioners raised concerns regarding game and non-game wildlife preservation, with specific concerns regarding long-term investments to date for water structures for wildlife.

The Nevada Department of Agriculture, among many individual members of the public such as Ranchers and the Eureka County Board of Commissioners, raised specific concerns regarding water rights. Some of these water rights claims of beneficial use for groundwater or surface water pre-date statutory water law and are considered "vested" water rights. As vested water rights, the Nevada Department of Agriculture commented that that these rights enjoy maximum protection against later appropriations and later statutory provisions. Watering of livestock is a beneficial use of water rights that are vested and non-vested. These water rights hold value, which will be lost if livestock operators cannot prove beneficial use of water in the areas proposed for closure or seasonal restrictions.

The Sierra Club of Nevada provided comments regarding potential contamination of surface and groundwater resources, with specific concerns on potential impacts on Stillwater National Wildlife Refuge. The EPA provided additional comments on addressing contamination issues, such as a description of range clearance activities, fate and transport of munitions constituents in low and high-order detonations, and the use of perfluorinated compounds.

During the public comment period for the Draft EIS, the Navy received additional clarifications and comments from county governments in regards to water projects, and the Navy further refined the process to analyze and compensate for potential water right acquisitions. See Section 1.10 (Draft Environmental Impact Study Public Participation: Comment Themes) for an overview of comments, and Appendix F (Public Comments and Responses) for the Navy's responses to comments and changes made in this Final EIS.

3.9.2 Affected Environment

3.9.2.1 Overview

This section provides a general description of the surface and subsurface hydrology within the region of influence. Climate, along with geologic substrate, strongly influences the hydrological characteristics of surface waters and groundwater within the region of interest.

Evapotranspiration and Precipitation

The climate of Nevada is semiarid, with precipitation in the state averaging about 5 inches per year (Western Regional Climate Center, 2017). Because approximately 90 percent of precipitation falling within the region is lost to evapotranspiration (water lost to the atmosphere from the ground surface, evaporation from the capillary fringe of the groundwater table, and evaporation of water from plants, called transpiration), rainfall is a secondary source of water in the region. Reservoirs and groundwater aquifers, the primary sources of water in the region, retain only 10 percent of precipitation (Nevada Division of Environmental Protection, 2016; Western Regional Climate Center, 2017).

Hydrographic Regions

The Great Basin hydrographic province is a 200,000-square-mile area that drains internally. All precipitation in the region evaporates, sinks underground, or flows into mostly saline lakes. The Wasatch Mountains to the east, the Sierra Nevada to the west, and the Snake River Plain to the north bound this region. The Great Basin includes most of Nevada, approximately half of Utah, and portions of California, Oregon, Wyoming, and Oregon. The Great Basin region within Nevada can be divided into 14 hydrographic regions, four of which are within the region of interest—the Carson River Basin hydrographic region and the Central Region hydrographic region, with relatively smaller overlap with the Humboldt River Basin and the Walker River Basin (Figure 3.9-2).

Carson River Basin hydrographic region. The Carson River Basin hydrographic region is about 3,900 square miles and extends about 150 miles from eastern California to Pershing County, Nevada. The Carson River, the major surface water feature in this region, flows approximately 184 miles to the northeast from its headwaters in the Sierra Mountains of California to its terminus at Carson Sink in Churchill County, Nevada. Flow in Carson River is extremely variable, ranging from a low of about 26,000 acre-feet per year in 1977 to slightly more than 800,000 acre-feet per year in 1983 near Fort Churchill. The Carson River Basin includes the following hydrographic areas: Carson Desert, Churchill Valley, Dayton Valley, Eagle Valley, and Carson Valley.

Terminology and Spatial Scales: Provinces, Hydrographic Regions, and Hydrologic Landscape Regions

The Great Basin is a large hydrologic province with no surface connection to the Pacific Ocean. The Great Basin covers most of Nevada (with the exception of the Colorado River Basin in the southeast portion of the state, which empties into the Gulf of California and the Snake River Basin in the northeast portion of the state, which drains into the Snake River, and eventually the Columbia River and the Northwest Pacific coast).

Hydrographic Regions generally coincide with drainage basin boundaries of major river systems and their tributaries. Within the Great Basin hydrographic province, there are 14 hydrographic regions. Within project areas, there are four hydrographic regions—the Carson River Basin and the Central Region, with relatively smaller overlap with the Humboldt River Basin and the Walker River Basin.

Hydrographic is the measurement and description of physical features of lakes and rivers.

Within hydrographic regions, **Hydrologic Landscape Regions** (HLRs) are delineated to further characterize such variables as slope, soil permeability, precipitation, and surface drainage.

Hydrographic basins correspond to hydrographic regions and is the spatial unit used by Nevada Department of Water Resources to administer water rights and to make calculations by the State Water Engineer for water right allocations.

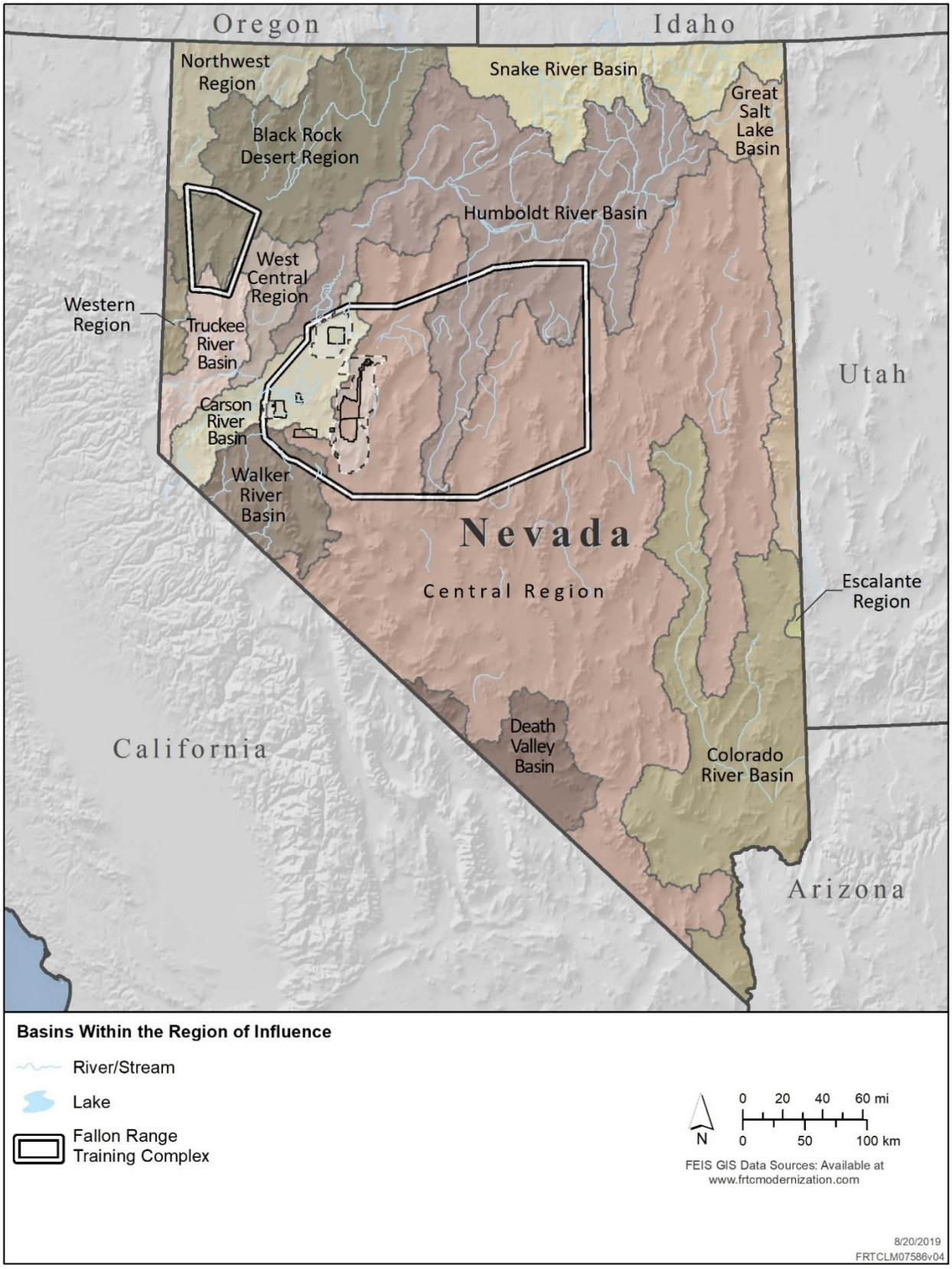


Figure 3.9-2: Basins Within the Region of Influence

Flooding occurs fairly often in the Carson River Basin. Floods are either main channel flooding, localized (flash) flooding, or debris flows. A rain-on-snow event in the higher elevations is the usual cause of main channel flooding. History shows repeated incidents of flooding, with 33 documented floods in the watershed since 1852, on an average of every five years (Azad, 2008). At least 17 of these events caused major flooding and extensive damage. Rapid snowmelt causes the river channel to fill quickly until the river overflows it banks. Localized flooding usually occurs during the summer months and is caused by intense rainfall during thunderstorms. Debris flows can occur when water from rapid snowmelt or intense rainfall mixes with sediment; the texture of a debris flow often resembles wet concrete. The predominate use of Carson River waters is agriculture. Only a few storage reservoirs exist in the basin, of which Lahontan Reservoir southwest of Fallon is the largest. Lahontan Reservoir stores water from Carson River, as well as water diverted from Truckee River via Truckee Canal. The Sheckler Reservoir is used to convey water to a delivery feature. Carson Lake is used for grazing and wildlife purposes. The Truckee-Carson Irrigation District, originally formed in 1918 to work with the U. S. Reclamation Service (now the Bureau of Reclamation within the U. S. Department of Interior), controls all releases from the Lahontan Reservoir as part of the Newlands Project. The Newlands Project was one of the first large-scale land reclamation projects in the U.S. Data from Carson River gauging stations show an overall trend of decreasing stream flow for water in the years 1940–2006 (Maurer et al., 2009) continuing through the present as evidenced by streamflow data available from the U.S. Geological Survey.

Point source pollution is defined as any single identifiable source of pollution from which pollutants are discharged, such as a pipe or ditch. Because the Proposed Action does not include any new facilities that would discharge point source pollutants into the drainages within the region of interest, this EIS does not analyze point source pollution. The development of water storage reservoirs, the buildout of an extensive system of canals, and the use of agricultural water on fields have altered groundwater levels, degrading water quality upstream and within the region of interest (Maurer et al., 2009). Nonpoint source pollution typically occurs because of runoff. When precipitation moves over and through the ground, the water absorbs and assimilates any naturally occurring pollutants it comes into contact with. Subsequently, poor water quality can flow into basins within the region of interest (e.g., Carson Sink, wetlands at Stillwater National Wildlife Refuge).

The State of Nevada has identified the drains in the area of the main base as impaired waterbodies under Section 303(d) of the CWA (Nevada Division of Environmental Protection, 2016). The state classifies a waterbody as impaired if it does not meet any single associated water quality standard and thereby does not support a beneficial use. Water quality parameters that have one or more associated impaired beneficial uses in the drains in the area of the main base include arsenic, boron, *Escherichia coli* (bacteria), iron, mercury in fish tissue and sediment, total phosphorus, and total dissolved solids (Nevada Division of Environmental Protection, 2016). The TMDL is the allowable loading from all pollutant sources established as a level necessary to achieve compliance with applicable water quality standards. States are required to develop TMDLs for waterbody segment/parameter combinations appearing in the 303(d) List (40 Code of Federal Regulations part 130.7). However, the State of Nevada has not yet established TMDLs for drainages within the region of interest (Nevada Division of Environmental Protection, 2016).

Water pollution in Carson River Basin is due mainly to historic mining activities and mill sites, with continued non-point source pollution from agricultural operations, urban runoff, and hydrologic modifications (Bonzongo et al., 2002; Chen et al., 1996; Cobourn & Lewis, 2018). Water quality parameters of concern include nutrients, pesticides and herbicides, suspended solids, turbidity, and

bacteria, all of which the state's Nonpoint Source Program (administered by the Nevada Division of Environmental Protection) targets.

Central Region hydrographic region. The Central Region hydrographic region has a surface area of approximately 46,783 square miles spanning 13 Nevada counties. No major urban or industrial lands lie within this sparsely settled basin. Carson River Basin and Walker River Basin to the west, Humboldt River Basin to the north, Great Salt Lake Basin and Colorado River Basin to the east, and Death Valley Basin to the southwest bound the Central Region hydrographic basin. The Central Region hydrographic basin consists of several small, isolated watersheds. Horse Creek in the upper Dixie Valley watershed is a perennial stream. No other continuous surface water flows are found in this region. The Bravo training ranges and the DVTA are within the Central Region hydrographic region and located in the Rawhide, Stingaree, Fairview, and Dixie Valley watersheds.

Hydrologic Landscape Regions

To further characterize the region of interest, hydrological landscape regions (HLRs) are defined to generalize large areas of land with similar characteristics. Maurer et al. (2004) and Maurer et al. (2009) defined HLRs for Nevada. They used slope, mean annual precipitation, soil permeability, and hydrogeological units (also called administrative groundwater basins) as variables to describe and map the different HLRs. These are the basic variables that control the hydrologic processes that take place within an area. While there are other variables that affect the hydrologic processes, considering more of these variables would make hydrologic landscape regions too complex for generalization for the purposes of this EIS.

Within these HLRs, groundwater movements are typically determined by surface and subsurface soil permeability (the measure of how fast water permeates soils, where poor permeability results in surface flow faster than soils with high permeability). Figure 3.9-3 shows the relationship of surface and groundwater flows, as determined by the slope and permeability of mountain blocks and alluvial slopes.

With permeable consolidated soils, rainfall on mountain slopes will infiltrate surface rocks, resulting in meager runoff. The area where precipitation infiltrates subsurface soils is the zone of recharge. On alluvial slopes, the subsurface flow enters the zone of lateral discharge, where evapotranspiration within the valley floor will define the zone of discharge. With poorly permeable rocks or soils with low permeability, recharge typically occurs at more shallow depths as water is conveyed on the surface towards alluvial slopes, and into receiving basins. Within each detailed discussion of ranges, maps are included that list the HLR number, which may be indexed to Table 3.9-2, which lists each HLR along with the major defining variables.

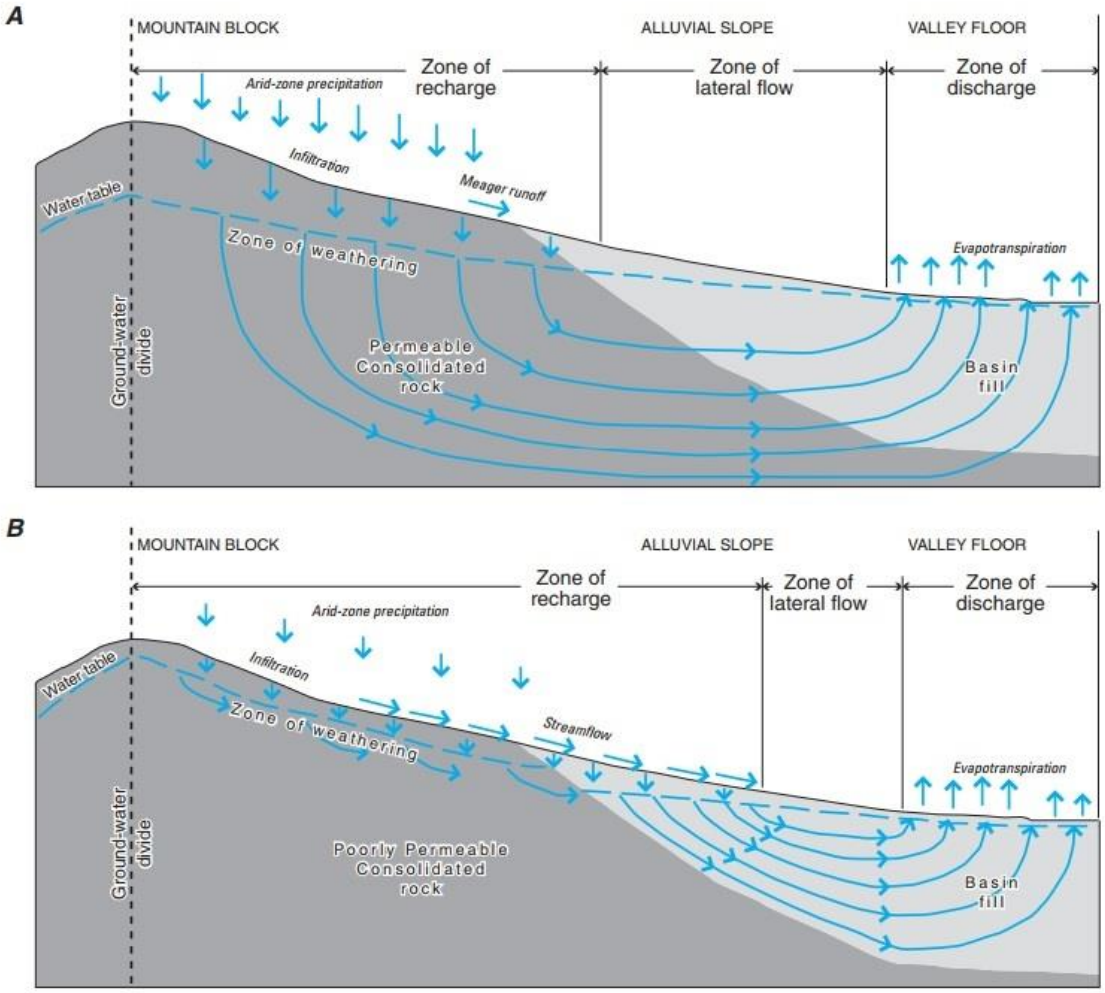
Water Wells and Water Rights

The Navy used NDWR database archives as the primary sources of information regarding existing water rights and their status. However, this source may not be entirely comprehensive and without errors. Some of the limitations of this source are that it may include limited information regarding current status, surface water rights, water rights existing on Bureau of Land Management (BLM) grazing allotments, or other federal reserve water rights that are not recorded in the NDWR database.

In an effort to gather existing water rights and well information, the Navy performed three queries of the information included on the NDWR website (http://water.nv.gov/): (1) wells located in the existing and proposed withdraw areas, (2) well logs that have been recorded on wells located in the existing and proposed withdraw areas, and (3) water rights located in the existing and proposed withdraw areas.

Using the information from these queries, a comprehensive database search of the NDWR was conducted to download any associated well data information, including well driller's reports, well log details, certificate, and permit information associated with wells identified as being inside the proposed withdraw area. Further analysis cross checked well information and associated well log information. Information from the three queries was organized by Bravo ranges/DVTA and summarized in each training area description below. For example, wells developed for domestic uses do not require a water right. Similarly, some water rights do not have wells. For example, a holder of a water right may use the water from a spring, surface impoundment, or other federal reserve water right. Additionally, some water rights may be associated with wells not included in the database, as some older drilling activities did not have reporting requirements to NDWR.

Through the independent water rights inventory, the Navy found that within the lands currently being considered for expansion, there are a total of 119 water rights applications or permits in the region of the proposed expansion. Of these 50 have been certified, meaning that there are no further filing requirements to protect these rights. Thirty-four are permits in various states of usage. Nineteen applications are ready for action (an additional application is under protest), and 15 are vested rights, meaning that they are unadjudicated pre-statutory rights. The Navy then mapped these water right locations with the proposed land expansion footprints to determine which regional permits or applications could be impacted by the proposed action. Further detail on these water rights are described under each training area description, with potential impacts and disposition of these water rights discussed in Section 3.9.3 (Environmental Consequences).



Note: This figure shows a cross section conceptualizing surface and subsurface flows with two different scenarios. Panel A shows how precipitation that reaches highly permeable rocks or soils (zone of recharge) will convey water under the surface to basins (zone of lateral flow), and if the water table intersects the surface (within the zone of discharge), the water would be subject to evapotranspiration. With permeable surfaces, infiltration is higher and surface flow is relatively less significant in conveying water to receiving basins. Panel B show precipitation falling on poorly permeable surfaces, and conveys relatively more water on the surface via stream flow and sheet down mountain blocks and alluvial slopes towards basins. Source: Maurer et al. (2009).

Figure 3.9-3: Typical Groundwater Flow Patterns for Mountain Blocks with Different Permeability

Table 3.9-2: HLRs Within Areas B-16, B-17, B-20, and the DVTA

Hydrogeological Landscape Region	Precipitation Amount[1]	Soil Permeability[2]	Slope[3]	Distribution
1	High	Low	Moderate	Most ranges in Nevada
2	Low	Low	Moderate	Carson Sink
3	Moderate	Moderate	High	Most ranges in central Nevada
4	Moderate	Moderate	Low	Playas
5	Moderate	Moderate	Moderate	Scattered, consolidated rock
6	Moderate	Moderate	High	Scattered, consolidated rock
7	Low	High	Moderate	Playas, unconsolidated rock
8	High	High	Moderate	Southerly aspect
9	Moderate	Moderate	Low	Valley floors
10	Low	Moderate	Moderate	Alluvial slopes
11	High	Low	Moderate	Most ranges in central Nevada
12	Low	Low	Moderate	Alluvial slopes
13	Moderate	Moderate	High	Most ranges in central Nevada
14	Moderate	Moderate	Moderate	Northerly aspects, consolidated rock
15	High	High	Moderate	Southerly aspect, alluvial slopes
16	Moderate	Moderate	High	Northerly aspects, consolidated rock

[1] Low precipitation = <8 in/year, Moderate = 8-16 in/year, High = >16 in/year

[2] Low soil permeability = <5 ft./day, Moderate = 5-10 ft./day, High = >5 ft./day[3] Low slope = <3 percent, Moderate = 3–25 percent, High = >25 percent

3.9.2.2 Bravo-16

B-16 is within the southwestern portion of Carson River Basin hydrographic region, as shown in Figure 3.9-4. The existing B-16 range is generally associated with the Lahontan Valley basin, a terminal sub-basin for the Carson River. The requested withdrawal area associated with B-16 extends to the west to include portions of the Dead Camel Mountains. Runoff in Lahontan Valley eventually reaches wetlands at Carson Lake, Stillwater National Wildlife Refuge, and Carson Sink.

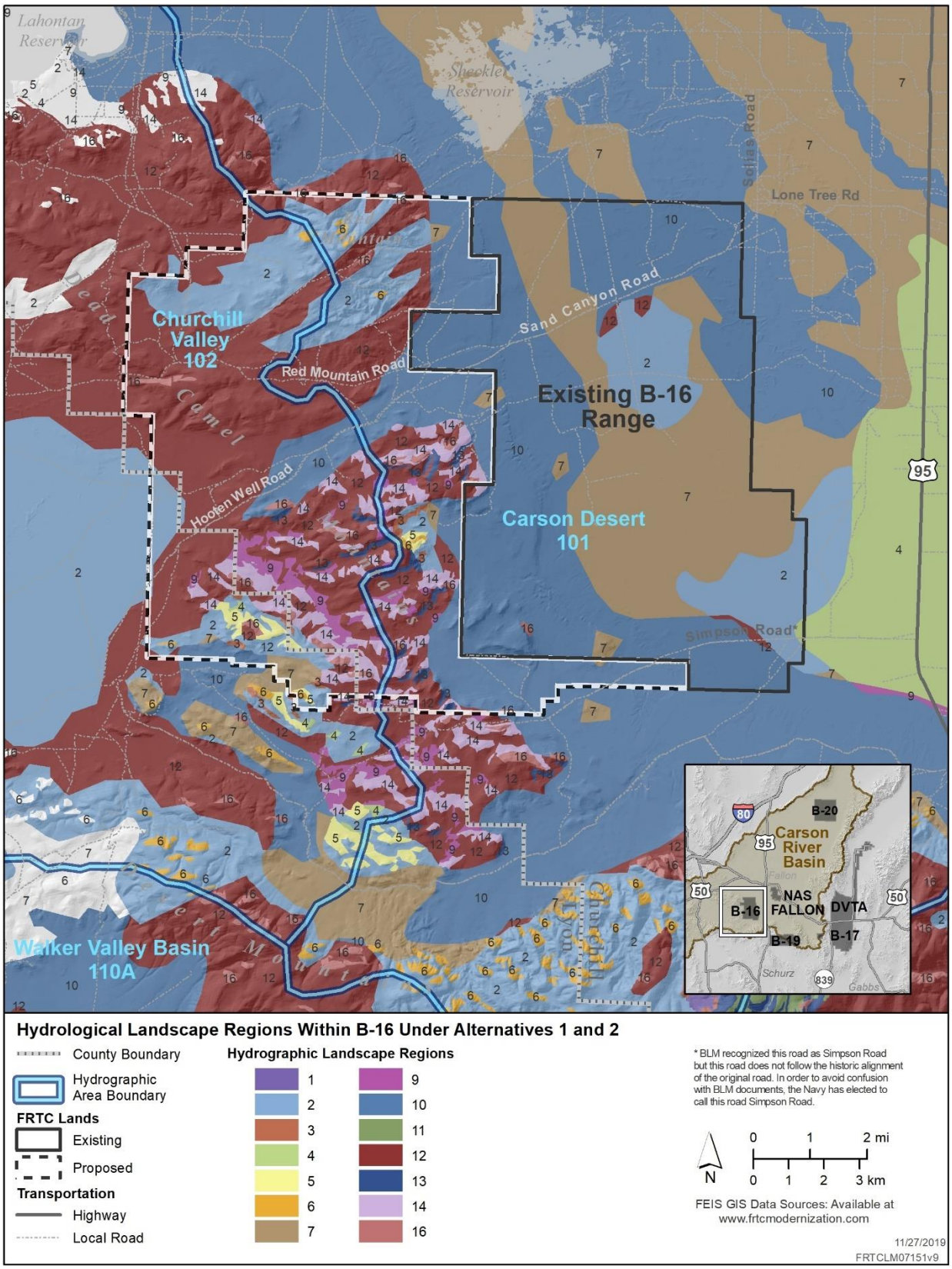
Surface Water

Several major ephemeral stream channels converge in and cross the existing B-16 and requested withdrawal areas that would be part of the B-16 range as they flow to Carson Lake (U.S. Department of the Navy, 2014a). The training area contains alluvial fans, valley bottoms, alkali flats, sand dunes, and segments of one major irrigation canal (Sheckler Spill – GT17). During wet years, water may pond seasonally in low areas (U.S. Department of the Navy, 2014a). No ponds, streams, or other permanent surface waters occur in B-16, and no intermittent streams have been identified (U.S. Department of the Navy, 1998). Springs, where they occur, are found in bedrock outcrops, near fault zones, and in areas with high water tables. Truckee Carson Irrigation District maintains a spillway and constructed a new weir system to divert large flows from the Carson River away from the town of Fallon. These waters flood a portion of B-16 prior to passing through to Carson Lake and ultimately to the Stillwater National Wildlife Refuge and the Carson Sink. There is a conveyance facility located within the existing boundary of the B-16 range.

Groundwater

There are several hydrologic landscape regions throughout the B-16 range and requested withdrawal areas (Figure 3.9-4). The current B-16 range and requested withdrawal areas that would be part of B-16 are mainly comprised of HLRs 2, 7, and 10. All of these areas receive less than 5 inches of rain per year. HLR 2 has low soil permeability, and moderate slope, which is characteristic of playas systems. HLR 7 has high soil permeability, with moderate slopes. HLR 10 is found on alluvial slopes surrounding the Carson Sink, and soil permeability is considered moderate with moderate slopes.

The northwestern portion of the proposed range is primarily HLRs 2, 10, and 12, which are found on moderately sloping alluvial areas with low soil permeability. The southwestern portion of the proposed range is within the southern portion of the Dead Camel Mountains, has some high variation of topography, and is composed primarily of HLRs 2, 9, 12, 14, and 16. Section 3.1 (Geological Resources) contains a detailed description of the distribution of soils underlying B-16 and specific aspects of their hydrogeological properties (U.S. Department of the Navy, 2014a).



Note: The key to the characteristics of the Hydrographic Landscape Regions is provided in Table 3.9-1.

Figure 3.9-4: Hydrographic Landscape Regions Within B-16 Under Alternatives 1 and 2

Water Rights and Water Wells

The disposition of state water rights associated with B-16 are discussed under each alternative's discussion within Section 3.9.3 (Environmental Consequences). The Navy evaluated state water rights and well locations within B-16 based on periodic searches (throughout 2018 and 2019) of the NDWR Hydrographic Assay database (available online) in order to use the most current information for evaluating potential impacts on water right holders. The results for the B-16 expansion area are summarized in Table 3.9-1 and the expanded and existing B-16 range and shown in Figure 3.9-5 and Figure 3.9-6. The searchable databases accessed through the NDWR website represent the best available information on the current status and location of wells and associated water rights; however, the Navy recognizes that not all wells may be captured in the NDWR databases. In the event of any ultimate Congressional decision, any affected individuals would have the ability to provide supplemental information beyond what is currently reflected in the document.

State water rights. The databases accessed through the NDWR website show no water rights within the existing B-16 range; however, the Navy received comments from cooperating agencies after the release of the public version of this document, which improves the understating of the water rights and wells within the areas potentially impacted. One state water right is located off of Simpson Road south of the existing B-16 range boundary and is associated with the West Well, which is used for stock water. Within the areas proposed for expansion associated with B-16, there are two water rights, both of which have certificates of appropriation and are used for stock watering.

Wells. A search of the NDWR website identified a total of 38 wells in the B-16 range. The beneficial uses include 13 test wells, 9 domestic wells, 7 monitoring wells, 5 wells used for stock water, 1 irrigation well, 1 unused well, and 2 additional wells listed in the NDWR database as having an unknown use.

3.9.2.3 Bravo-17

B-17 is located east of NAS Fallon and south of U.S. Route 50, and is bounded on the west by State Route 839. The area around B-17 is composed primarily of BLM-administered land with a few private parcels. The existing B-17 range is wholly located within Churchill County. Mineral and Nye Counties are south of B-17, and the Walker River Indian Reservation is southwest of B-17 (under Alternatives 1 and 2, the expanded B-17 range would also include Mineral County, and under Alternative 3, the expansion of B-17 would extend east beyond State Route 361 into both Mineral and Nye Counties). HLRs within B-17 are shown in Figure 3.9-7, Figure 3.9-8 shows the water rights, and Figure 3.9-9 shows the types and locations of water wells and guzzlers within B-17.

B-17 is the most highly used range within FRTC, with respect to the amount of ordnance expended (U.S. Department of the Navy, 2008a). The live ordnance impact area is in the eastern portion of the range, with topography generally associated with alluvial slopes. The Navy uses inert conventional weapons in the western portion of the B-17 range (U.S. Department of the Navy, 2004, 2015a). There have been spills and other releases near B-17. These incidents are primarily oil and gas spills and include the release of 50 gallons of diesel fuel that leaked from a diesel tank at an unspecified electronic warfare site in Section 11 of T16N R34E (U.S. Department of the Navy, 2008a, 2014a, 2015b).

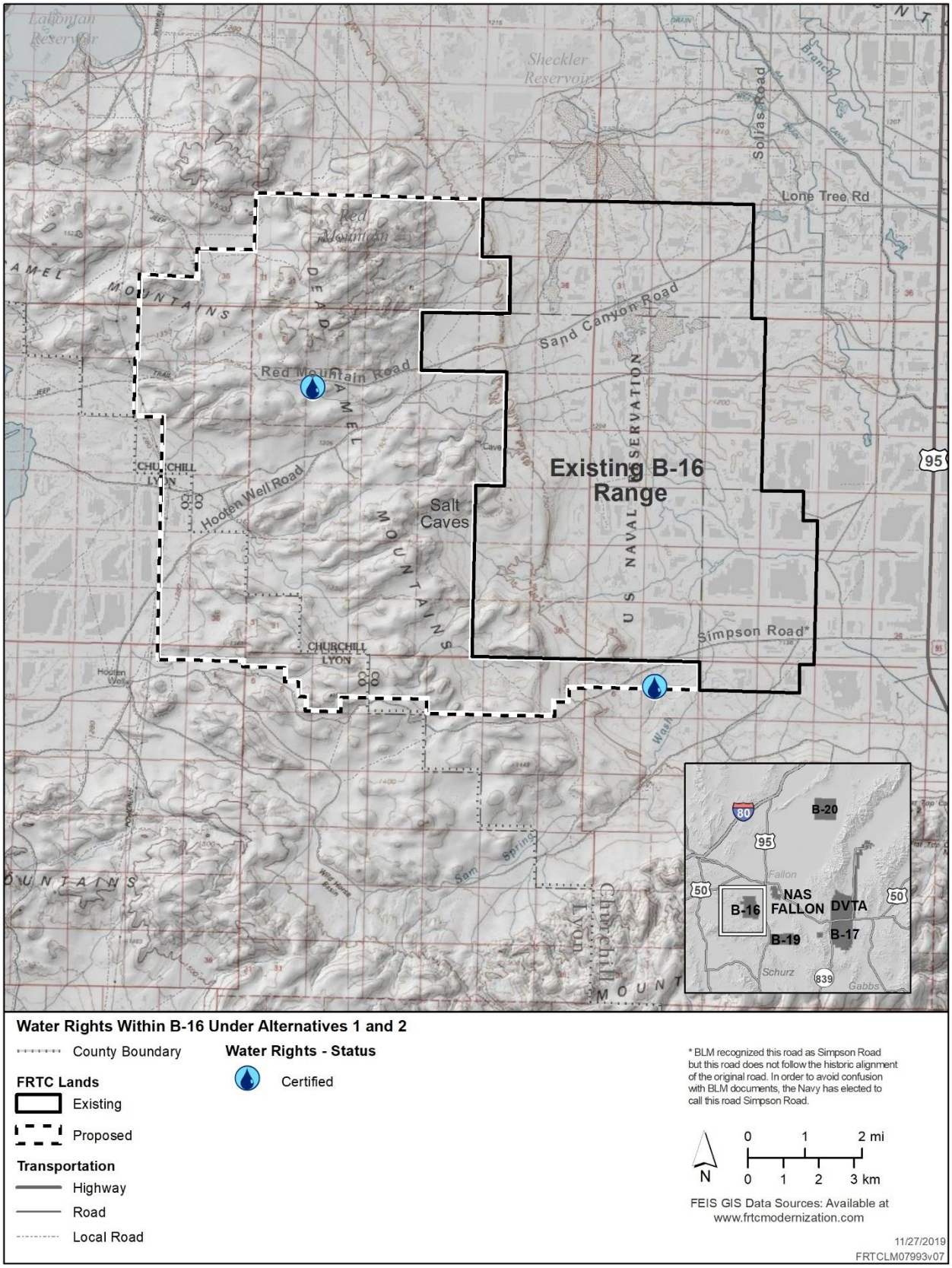


Figure 3.9-5: Water Rights Within B-16 Under Alternatives 1 and 2

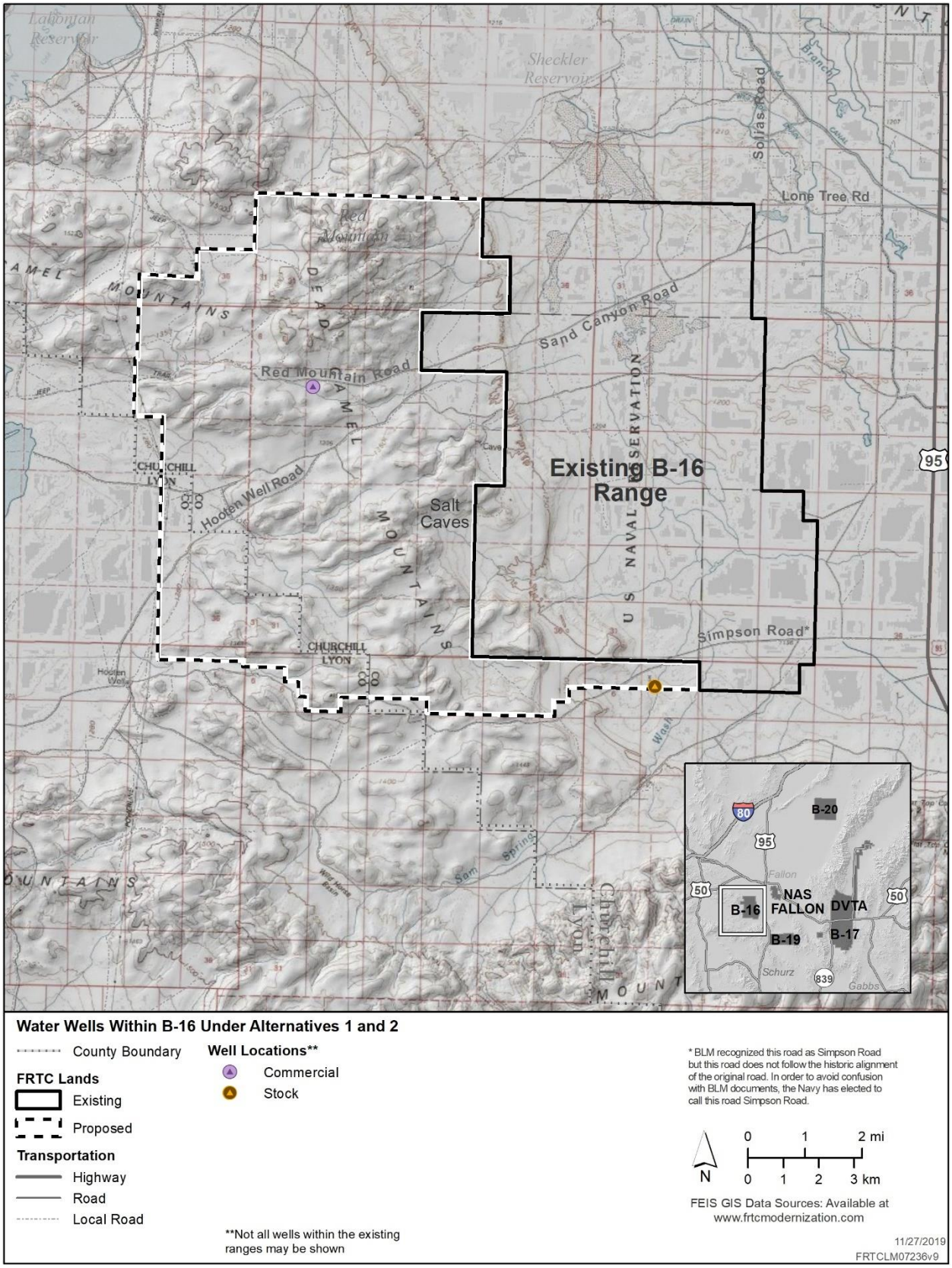
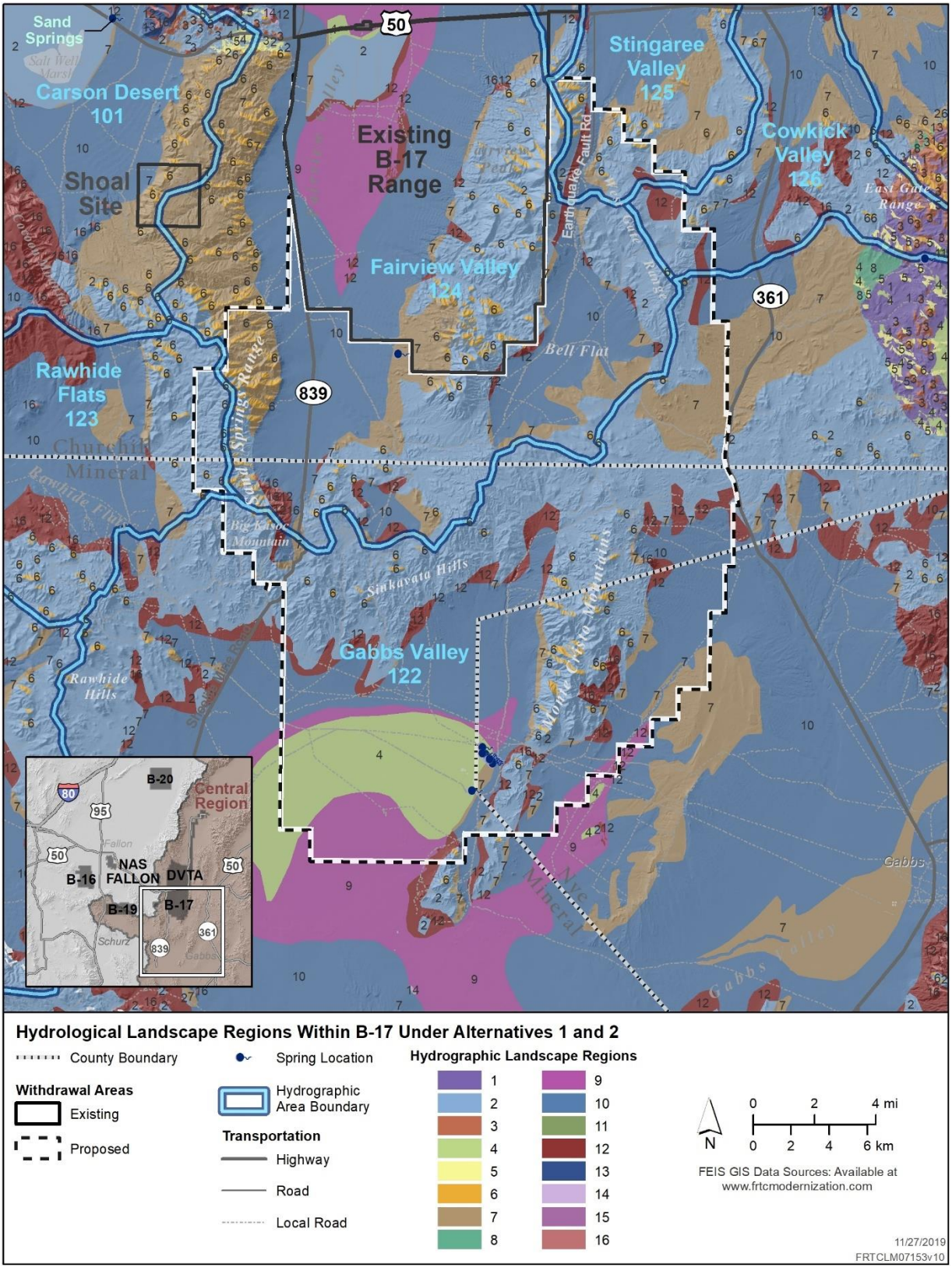


Figure 3.9-6: Water Wells Within B-16 Under Alternatives 1 and 2



Note: The key to the characteristics of the Hydrographic Landscape Regions is provided in Table 3.9-1.

Figure 3.9-7: Hydrographic Landscape Regions Within B-17 Under Alternatives 1 and 2

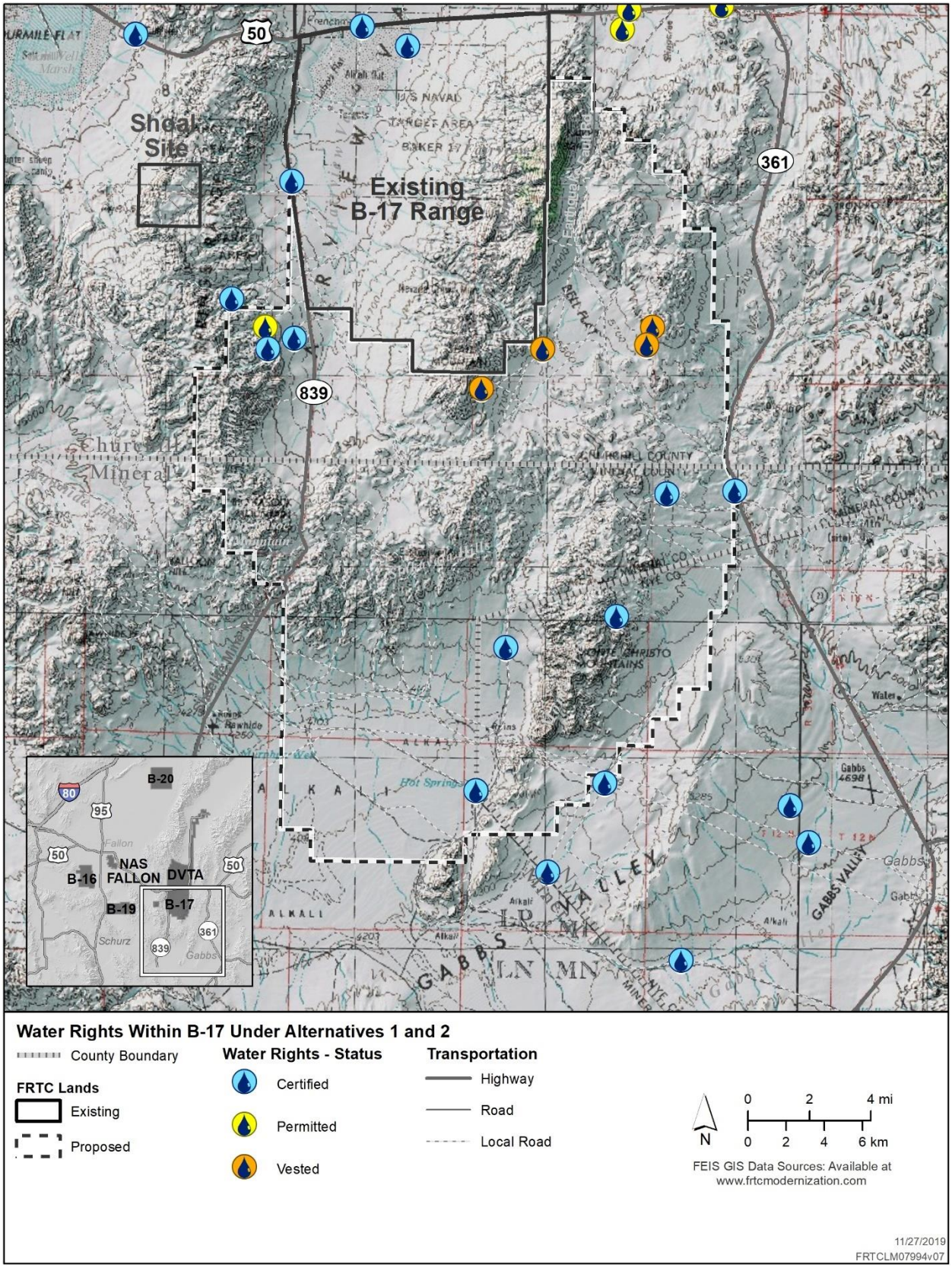


Figure 3.9-8: Water Rights Within B-17 Under Alternatives 1 and 2

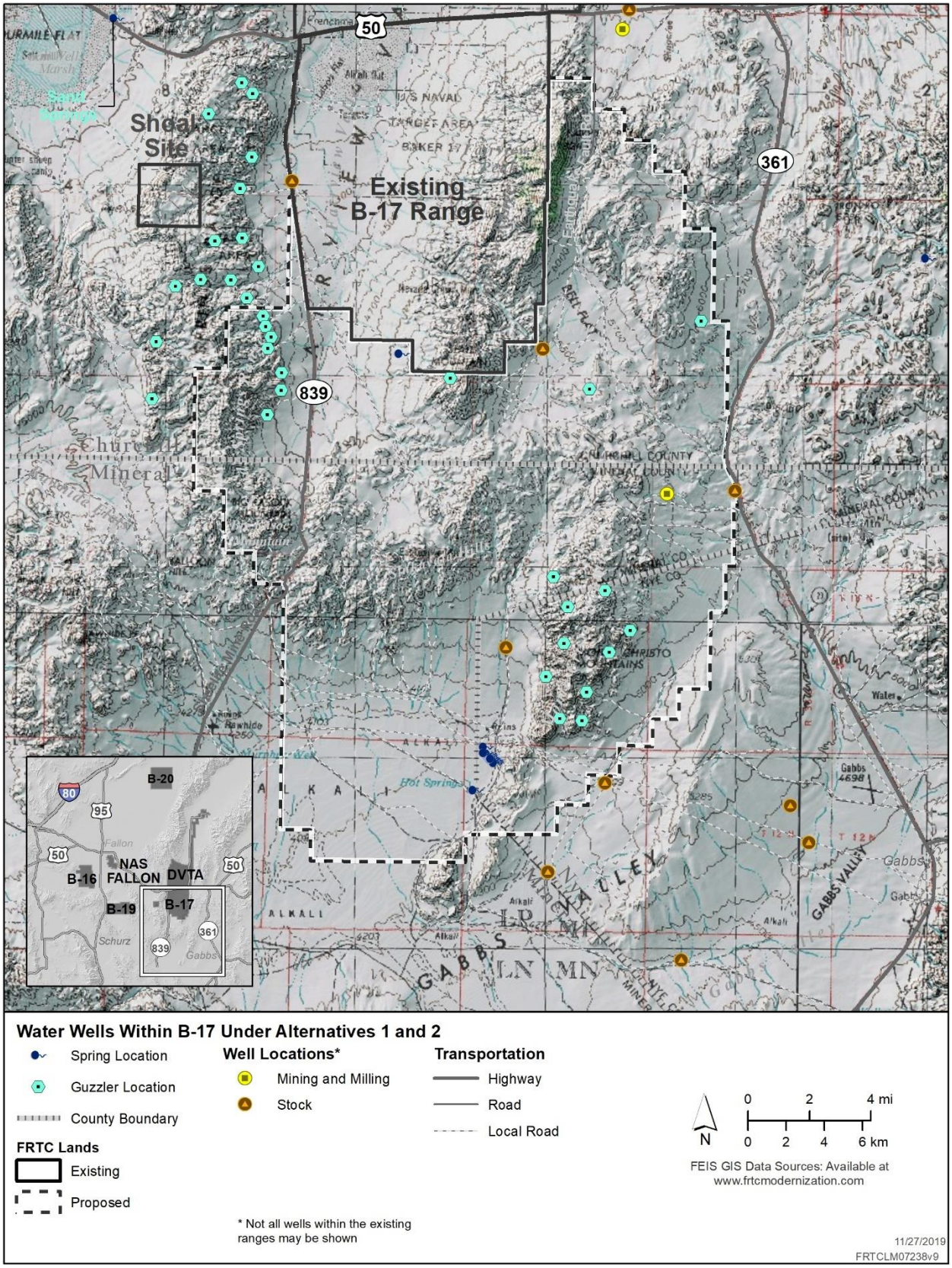


Figure 3.9-9: Water Wells Within B-17 Under Alternatives 1 and 2

Surface Water

There are no perennial streams present in the area and, as such, ephemeral washes around B-17 tend to drain into the Labou Flat. In addition, floodwater around Gabbs Valley reaches the alkali flats in the western part of Gabbs Valley.

Numerous water developments for wildlife (including guzzlers) have been installed within B-17 by the Nevada Department of Wildlife, in conjunction with the Navy and others, to support large and small game hunting. Nevada Department of Wildlife is planning several water developments within existing B-17 range areas and areas proposed for withdrawal.

Groundwater

B-17 has large stretches of HLRs 2 and 10. Relatively large patches of Region 7 are present within the area. Hydrologic landscape Region 9 covers a portion of the northern part of the area. Many small patches of Region 6 are interspersed within the portions of Regions 2 and 7. Lining the stretches of Region 2 are thin patches of Region 12. Section 3.1 (Geological Resources) contains a detailed description of the distribution of soils underlying B-17 and specific aspects of their hydrogeological properties.

Water Rights and Water Wells

The disposition of state water rights associated with B-17 are discussed under each alternative's discussion within Section 3.9.3 (Environmental Consequences). The Navy evaluated state water rights and well locations within B-17 based on periodic searches (throughout 2018 and 2019) of the NDWR Hydrographic Assay database (available on-line) in order to use the most current information for evaluating potential impacts on water right holders. The results for the B-17 expansion area are summarized in Table 3.9-1 and the existing and expanded B-17 range shown in Figures 3.8-8 and Figure 3.8-9. The searchable databases accessed through the NDWR website represent the best available information on the current status and location of wells and associated water rights; however, the Navy recognizes that not all wells may be captured in the NDWR databases. In the event of any ultimate Congressional decision, any affected individuals would have the ability to provide supplemental information beyond what is currently reflected in the document.

State water rights. Within the existing B-17 range, there are two water rights with certificates of appropriation used for stock watering. Within the areas proposed for expansion of B-17, the Navy's search of the NDWR database identifies a total of 18 water rights (three state water rights are unique to areas proposed for expansion under Alternatives 1 and 2; 10 state water rights are common to Alternatives 1, 2 and 3; and five additional state water rights are unique to Alternative 3). Of these 18 state water rights, 12 have certificates of appropriation, one is a permitted water right, and five are vested. Fourteen of the 18 state water rights within lands proposed for expansion are used for stock water, two for recreation, one for irrigation, and one for mining and milling.

Wells. A search of the NDWR website identified a total of 20 surface and subsurface water sources associated with the water rights discussed above. Within the existing B-17 range extent, two wells (North Well and HS-1) are used for stock water. Within lands proposed for expansion, nine of the water sources are associated with wells. The NDWR database names seven of these wells (Well Number 1, Bell Flat Well, Frank's Well Number 2, Gabbs Valley Well, Derringer Well, Upper Phillips Well Number 2, and Lower Phillips Well). One well is used for mining and milling, and the other wells are used for stock watering.

3.9.2.4 Bravo-20

The majority of the lands requested for withdrawal and proposed for acquisition for B-20, shown in Figure 3.9-2, is located within the Carson Sink, between the Stillwater and the Humboldt mountain ranges. The existing B-20 area is completely within Churchill County. However, the requested withdrawal area will extend into the southern portion of Pershing County. The southwest portion of the requested withdrawal area will extend into the Fallon National Wildlife Refuge. HLRs within B-20 are shown in Figure 3.9-10, Figure 3.9-11 shows the water rights, and Figure 3.9-12 shows the types and locations of water wells within B-20.

Surface water

There are no identified perennial waters within B-20. Although a portion of the Fallon National Wildlife Refuge is being requested for withdrawal, the perennial waters of the Refuge are southwest of the requested withdrawal area. The Carson Sink is the lowest area in the Carson River drainage, so it may be inundated depending on rainfall; it floods on average every five years (Azad, 2008).

The southern and western portions of B-20 are located in the Operable Unit 2 (OU2) section of the Carson River Mercury Superfund site. This site includes mercury, arsenic, and lead contaminated soils migrating from former mill sites and mercury contamination in water, sediments, and fish over more than 100 miles of the Carson River. Historic mining activities used imported elemental mercury at mill sites to amalgamate gold and silver. Mercury, lead, and arsenic from these upstream mill sites migrated into the Carson River to the river's termination points at the Carson Lake, Stillwater National Wildlife Refuge, and the Carson Sink (Nevada Division of Environmental Protection, 2006, 2013). In the 1970s, the EPA listed the Carson River Mercury Superfund site on the National Priority List. The Comprehensive Environmental Response, Compensation, and Liability Act regulates the list.

On April 26, 2017, the EPA released the Final OU2 Remedial Investigation Report. The report includes the Final Remedial Investigation Report, the Human Health Risk Assessment, and the Screening Level Ecological Risk Assessment. The EPA has initiated the Feasibility Study, which will evaluate costs and benefits of cleaning up the mercury, arsenic, and lead contamination in the river, reservoir, and wetlands and establish the need for any type of cleanup.

B-20 expansion area also includes the Fallon Aerial Gunnery Range West Formerly Used Defense Site (T22N, R32E). The Navy acquired this range in 1944 and terminated control of the range site in 1947. Military activities at this range included aerial gunnery, strafing, dive-bombing using practice bombs, and rocket fire. The Navy has removed several bombing targets, including Target 15 Carson Sink A, Target 16 Carson Sink B, and Target 11 Carson Sink, from this area. There were no reported ordnance-related incidents connected with this site.

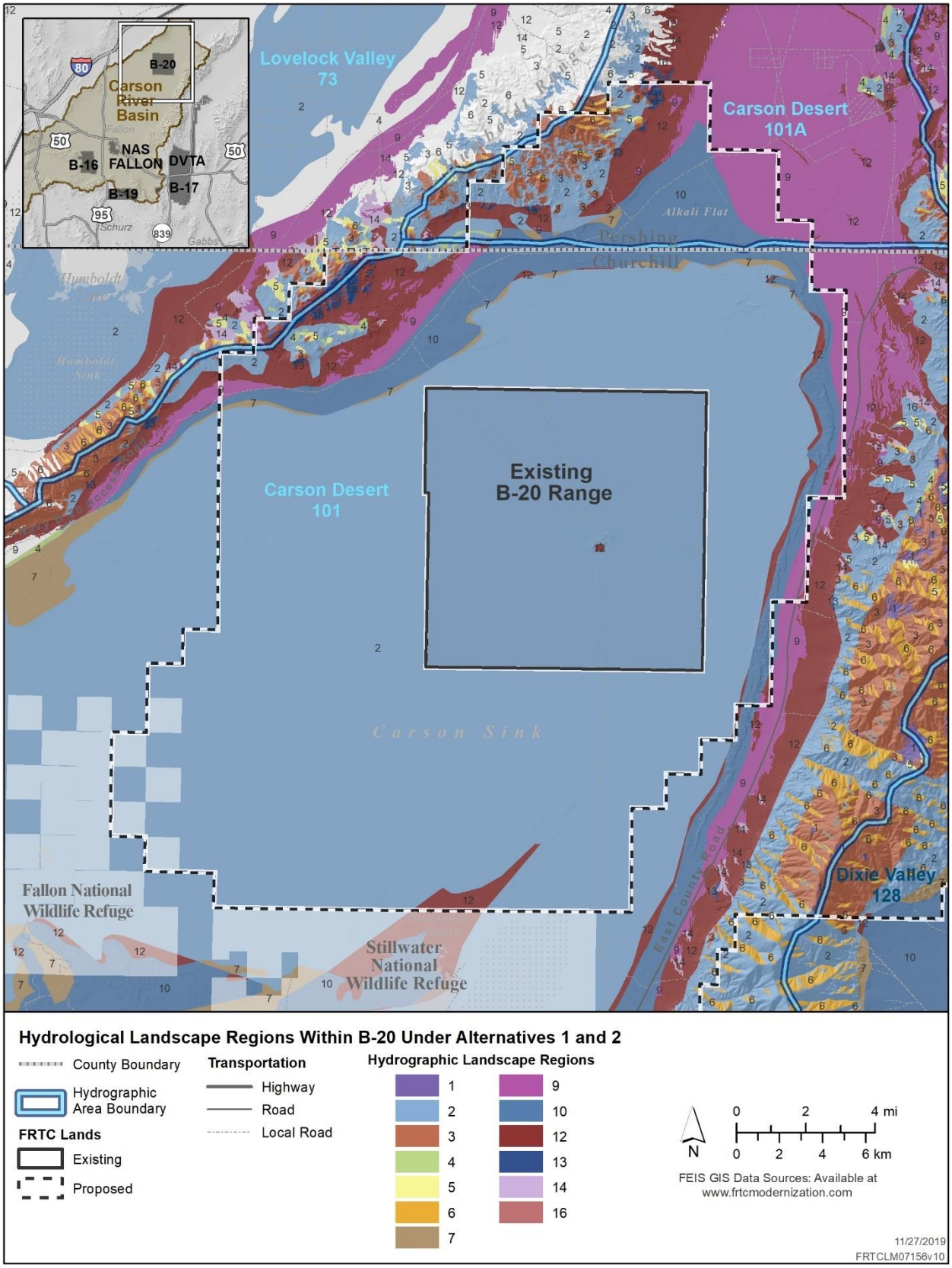


Figure 3.9-10: Hydrographic Landscape Regions Within B-20 Under Alternatives 1 and 2

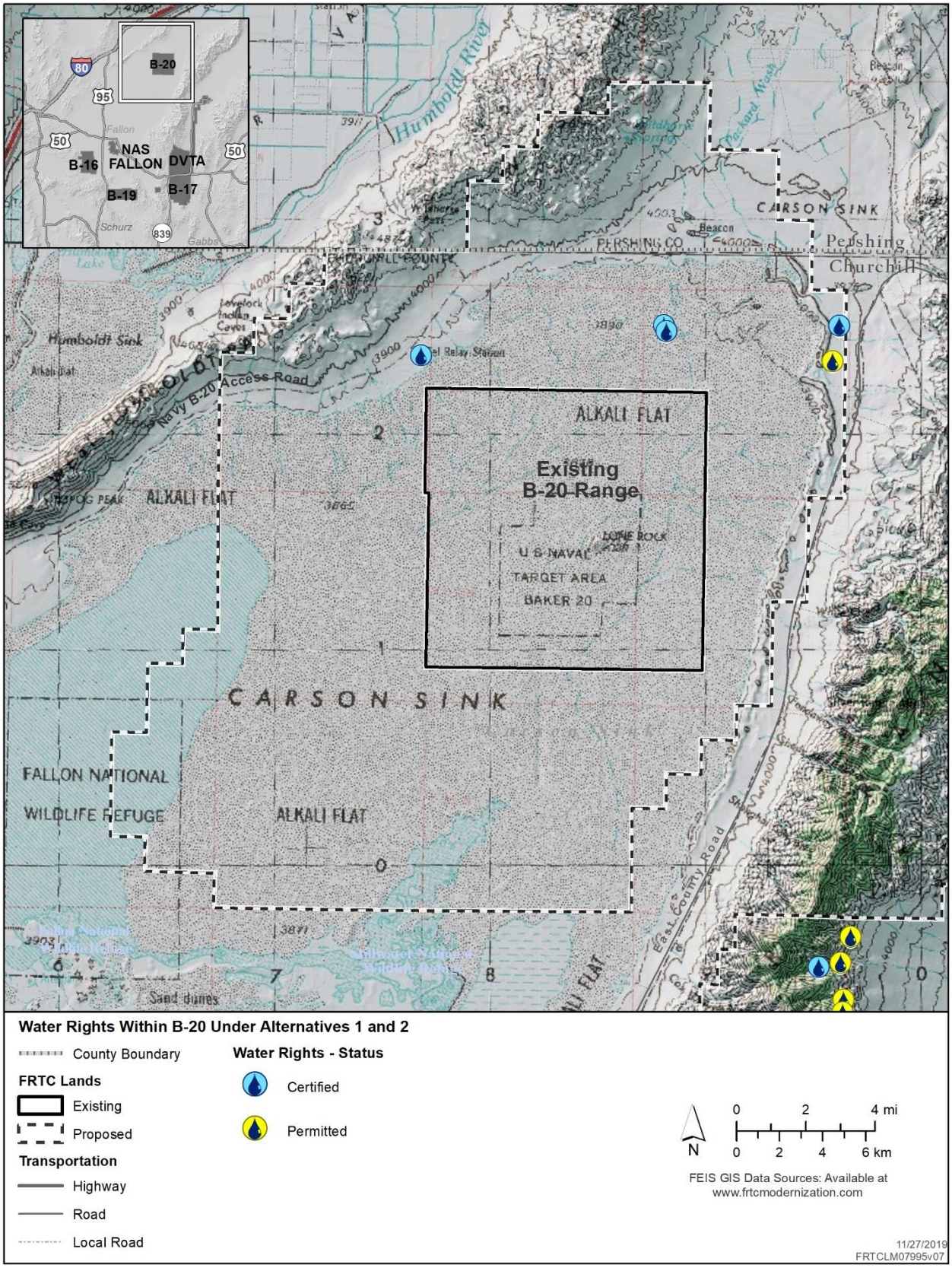


Figure 3.9-11: Water Rights Within B-20 Under Alternatives 1 and 2

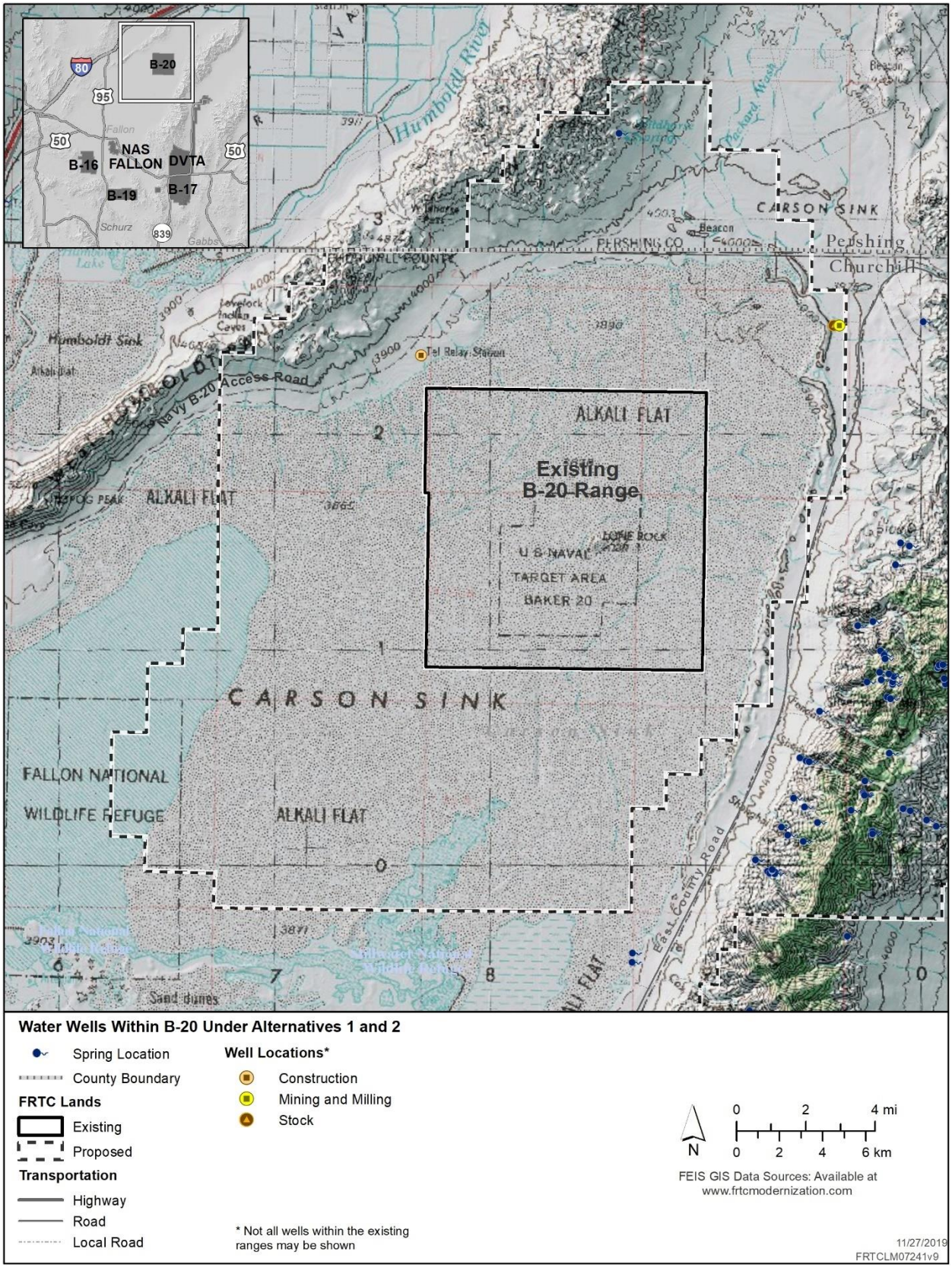


Figure 3.9-12: Water Wells Within B-20 Under Alternatives 1 and 2

Groundwater

B-20 is comprised almost entirely of HLR 2. In the northern portion of the area, a line of HLR 10 separates a variety of landscape regions from the large swath of Region 2 along the Humboldt Range and along the eastern side with the Stillwater Range. North of the stretch of HLR 10 are patches of HLRs 2, 3, 4, 5, 6, 12, and 13. In the southern portion of the lands requested for withdrawal for B-20, the topography slopes southward towards the Stillwater Marsh (and eventually into the wetlands within the Stillwater National Wildlife Refuge). The existing B-20 range is entirely within the Carson Sink and is most predominantly characterized by HLR 2. Section 3.1 (Geological Resources) contains a detailed description of the distribution of soils underlying the lands requested for withdrawal for B-20 and specific aspects of their hydrogeological properties.

Water Rights and Water Wells

The disposition of state water rights associated with B-20 are discussed under each alternative's discussion within Section 3.9.3 (Environmental Consequences). The Navy evaluated state water rights and well locations within B-20 based on periodic searches (throughout 2018 and 2019) of the NDWR Hydrographic Assay database (available on-line) in order to use the most current information for evaluating potential impacts on water right holders. The results for the B-20 expansion area and the existing B-20 range are summarized in Table 3.9-1 and shown in Figures 3.8-11 and Figure 3.8-12. The searchable databases accessed through the NDWR website represent the best available information on the current status and location of wells and associated water rights; however, the Navy recognizes that not all wells may be captured in the NDWR databases. In the event of any ultimate Congressional decision, any affected individuals would have the ability to provide supplemental information beyond what is currently reflected in the document.

State water rights. No water rights were identified within the existing B-20 range during the Navy's search of the NDWR on-line databases. Within the areas proposed for expansion of B-20, the Navy's search of the NDWR database identified a total of six water rights. Five of these six state water rights have certificates of appropriation and are used for mining and milling, stock watering, or quasi-industrial uses as shown in Table 3.9-1. One of the six water rights is a permitted state water right, with a beneficial use of mining and milling.

Wells. A search of the NDWR website identified a total of 12 wells in the B-20 range. Five wells are used as geothermal test wells, two wells as test wells, two wells for industrial purposes, and one for mining activities, with the two remaining wells either identified as unused or unknown.

3.9.2.5 Dixie Valley Training Area

The DVTA encompasses the portion of the DVTA north of U.S. Route 50 and includes the Dixie Valley, the western slope of the Clan Alpine Mountains, and the eastern portion of the Stillwater Mountain Range, as shown in Figure 3.9-2. A significant portion of the DVTA is composed of remnant livestock and agricultural farmland with abandoned outbuildings, as well as training locations such as Centroid electronic warfare sites, and other training sites. The existing boundary of the DVTA is comprised of a strip of HLR 12, with the southern portion of the existing DVTA characterized by HLRs 9 and 10. HLRs for the DVTA are shown in Figure 3.9-13, Figure 3.9-14 shows the water rights, and Figure 3.9-15 shows the types and locations of water wells, springs, and guzzlers within the DVTA.

Surface water

North Dixie Valley includes numerous wetlands associated with flowing wells and isolated areas of sandy habitats. These wetlands are typically streams and washes that support vegetation, such as

cottonwoods, willows, cattails, and bulrushes (U.S. Department of the Navy, 2014a). The DVTA also includes the Humboldt Salt Marsh, a playa lake where Dixie Valley drainages terminate. Navy lands are near the junction of Shoshone Creek and Spring Creek, the principal ephemeral drainages in the area. Several manmade ponds, which are designed to enhance water quality and availability for wildlife and enhance wetland vegetation, are within the DVTA (U.S. Department of the Navy, 2014a).

Groundwater

Within the lands requested for withdrawal for the DVTA, to the east and west of the existing DVTA are stretches of HLR 10. The mountain ranges that lie on either side of Dixie Valley are primarily comprised of Region 2 with patches of Regions 6 and 7. A variety of hydrologic landscape regions are scattered within the portion of the DVTA that is north of Cowkick Valley. Hydrologic landscape regions included in the DVTA include HLRs 1, 3, 4, 5, 8, 9, 11, 13, 14, and 15 (Figure 3.9-13). In the southern portion of the DVTA, just north of U.S. Route 50, is an area of Region 9.

Water Rights and Water Wells

The disposition of state water rights associated with the DVTA are discussed under each alternative's discussion within Section 3.9.3 (Environmental Consequences). The Navy evaluated state water rights and well locations within the DVTA based on periodic searches (throughout 2018 and 2019) of the NDWR Hydrographic Assay database (available on-line) in order to use the most current information for evaluating potential impacts on water right holders. The results for the expanded DVTA area are summarized in Table 3.9-1 and the existing and expanded results are shown in Figures 3.8-13 and Figure 3.8-14. The searchable databases accessed through the NDWR website represent the best available information on the current status and location of wells and associated water rights; however, the Navy recognizes that not all wells may be captured in the NDWR databases. In the event of any ultimate Congressional decision, any affected individuals would have the ability to provide supplemental information beyond what is currently reflected in the document.

State water rights. Within the existing extent of the DVTA, there were 37 water rights identified during the Navy's search of the NDWR database. Of these 39 state water rights, 24 have certificates of appropriation, 8 are ready for action, 3 are permitted water rights, and 2 are vested water rights. Fifteen of these state water rights are used for wildlife, 11 are used for stock watering, 5 for irrigation, 5 for quasi-municipal use, and 3 for municipal use. Within the areas proposed for expansion, the Navy's search of the NDWR databases show 68 state water rights within the areas proposed for expansion (2 of these state water rights are unique to Alternative 1 and 2, while the other 66 are common to Alternatives 1, 2, and 3). Of the 68 state water rights, 29 have certificates of appropriation, 18 are permitted water rights, 11 are ready for action (one of which is currently under protest), and 10 are vested water rights. Fifty of the 68 state water rights are used for stock water, 5 for quasi-municipal uses, 5 for municipal uses, 4 for mining and milling, 2 for irrigation, 1 for commercial purposes, and 1 for domestic uses.

Wells. All of the 37 water rights within the existing extent of the DVTA are associated with underground sources. Within the lands proposed for expansion for the DVTA, 19 state water rights are associated with underground sources with 10 identified wells. Of these, the available information shows four municipal wells, three stock wells, and three mining wells. Several of these wells feed a number of the ponds mentioned above that are designed to provide water for wildlife and wetland vegetation (U.S. Department of the Navy, 2014a). In addition to wells, there are 43 guzzlers identified in the lands proposed for expansion associated with the DVTA.

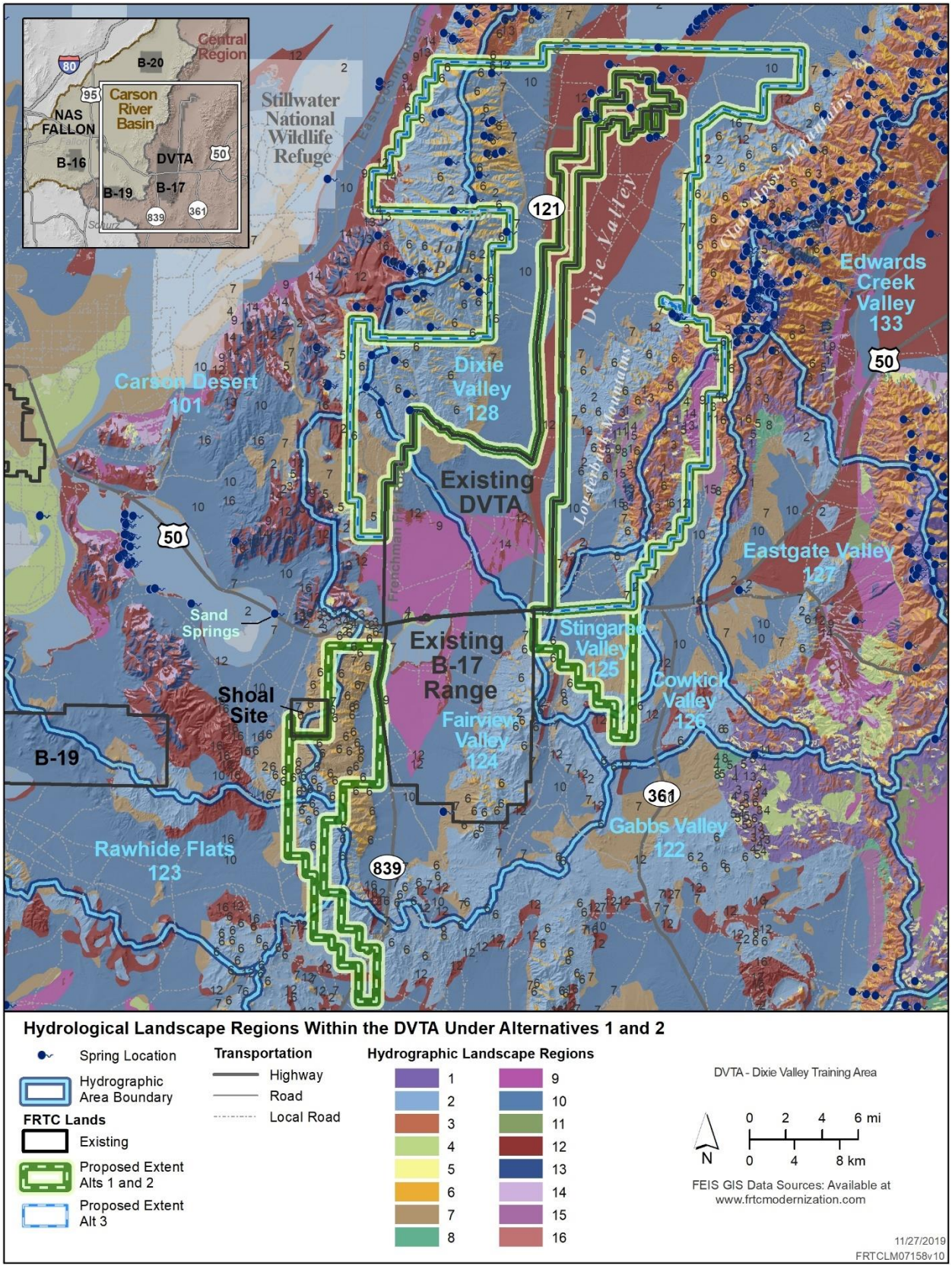


Figure 3.9-13: DVTA Hydrographic Landscape Regions Within the DVTA Under Alternatives 1 and 2

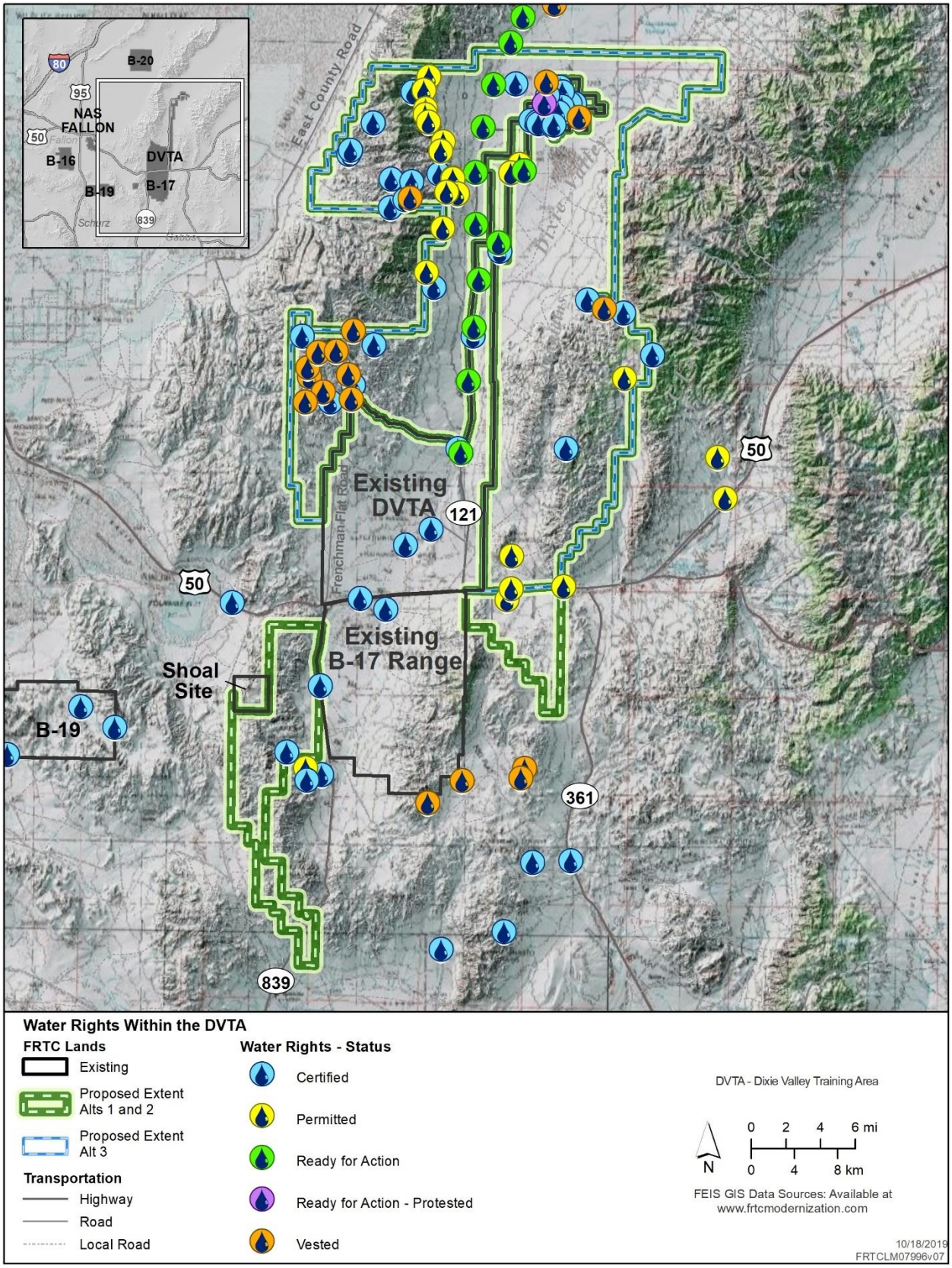


Figure 3.9-14: Water Rights Within the DVTA

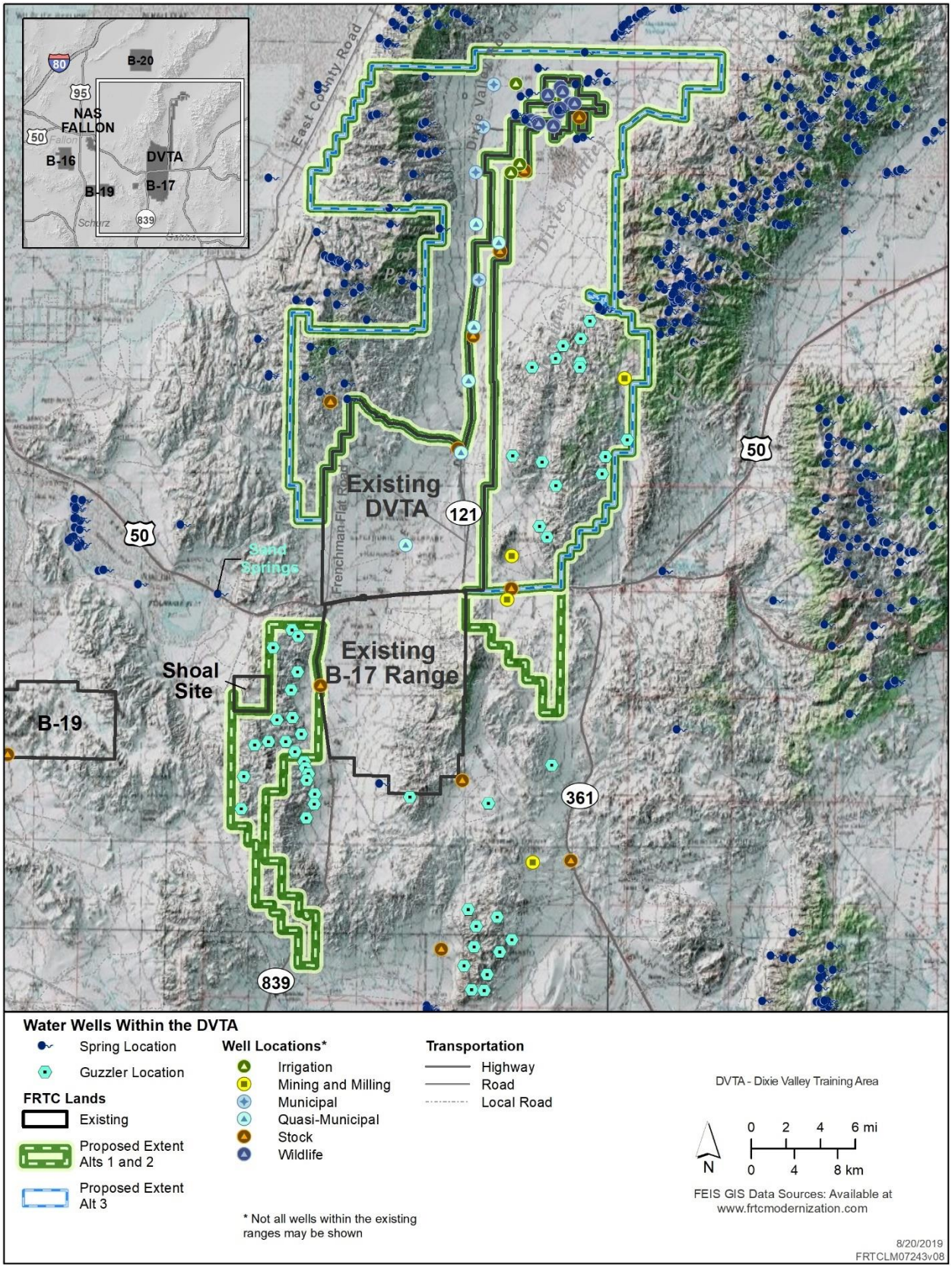


Figure 3.9-15: Water Wells Within the DVTA

Of these 57 water rights, 30 have a certificate of appropriation; 10 are listed as pending certificates; 10 are listed as vested water rights; and 1 is a permitted water right, with the remaining water rights having been either terminated, abrogated, withdrawn, or otherwise forfeited. Most of these water rights are used for stock water (35 of the 57 water rights), 9 are used for either municipal or "quasi-municipal" purposes, 5 for irrigation, 7 for supplemental water for wildlife, and 1 for mining and milling operations. Eighty-four wells are within the DVTA, as shown in Figure 3.9-15.

3.9.2.6 Special Use Airspace Area

Modifications to the special use airspace (SUA) proposed in this EIS would not impact water resources; therefore, SUA is not a component of the affected environment analyzed for potential impacts.

3.9.3 Environmental Consequences

This section evaluates each of the three different alternatives' potential effect on water resources for Bravo-16, Bravo-17, Bravo 20, and DVTA. The following text provides an analysis of environmental effects of the No Action Alternative and Alternatives 1 through 3 against the environmental baseline as described in Section 2.4 (Environmental Baseline [Current Training Activities]). A summary of the potential impacts with implementation of the No Action Alternative or any of the three action alternatives (Alternatives 1, 2, and 3) is provided at the end of this section (Section 3.9.3.6, Summary of Effects and Conclusions).

3.9.3.1 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur. For water resources, potential future land uses in the event that the current FRTC land withdrawal were not renewed under the No Action Alternative could include clean-up or restricted land use of areas previously disturbed by military operations and recreational use; utility corridor construction; or mining and geothermal, solar, or wind energy resource development. These activities may increase impervious cover and compact soils, thereby affecting surface and groundwater. Under the No Action Alternative, the cessation of military surface uses reduces the potential for ground disturbance. Release of the FRTC lands to another Department of Defense agency, the BLM, or the State of Nevada would likely open restricted lands to public use or mineral resource development, which would likely broaden the areas subject to soil disturbance compared to current baseline levels.

Munitions constituents[2] are typically consumed entirely during a detonation. When chemical constituents of explosive ordnance are released, these chemicals are immediately and continually subjected to a natural attenuation and degradation process. Munitions constituents are not considered recalcitrant to biodegradation like some other organic chemicals commonly known as groundwater and soil contaminants at hazardous waste sites. The Navy conducts Range Conditions Assessments as part of the Navy's Range Sustainment Environmental Program Assessment every five years. The most recent Range Conditions Assessment for FRTC was completed in 2015 (U.S. Department of the Navy, 2015b). A team of environmental and operational range experts evaluated the history of range use within FTRC ranges, the types and quantities of munitions or military expended materials used and their chemical

[2] Military expended materials, include munitions constituents (all materials from munitions and their emissions, and the degradation or breakdown of the constituent elements) and expended material constituents (any material released into the environment from the use of military expended materials).

constituents, range location, spatial distribution of activities, available environmental data, environmental regulatory requirements, and compliance efforts. The Range Conditions Assessment information and data were derived from site visits, personnel interviews, archive search reports, and document reviews conducted in 2013 and 2014. The review team's findings, based on these data, concluded that the range and training operations are in compliance with environmental laws and policies, and there are no munitions constituents migrating off of the ranges.

Surface Water. Depending on the future land uses allowed, impacts on surface water resources from parties other than the U.S. Navy could be considerable. While future allowable uses are undefined at this time, a few examples of potential use can help to understand the potential effects. Off-road activities, whether from recreational use or mineral or energy exploration and development, could increase sheet flow erosion in localized locations where off-road vehicle traffic would occur; however, it is unlikely that soil compaction would affect measurable changes in runoff. The amount of runoff from off-road vehicle use, as with any ground-disturbing activities, is dependent on site-specific factors and localized characteristics of the surface (e.g., surface texture, slope). Combined, these activities increase sedimentation and runoff in the ephemeral drainages. However, erosion and runoff control measures, if implemented during mining activities, would reduce sediment transport and minimize impacts on water quality.

Groundwater. Mineral or energy exploration and development would likely have the most substantial impacts on groundwater resources within the region of interest. One of the most important impacts on groundwater from geothermal exploration and development is pumping and reinjection of water during exploration, production, and operation of injection wells. Deep wells, as typical of geothermal test wells, would not likely have measurable impacts on groundwater resources because of the lack of aquifer connectivity with deep substrates and substrates shown in the conceptual groundwater models shown in Figure 3.9-3.

Disposition of Water Rights and Water Wells. Under the No Action Alternative, there would be no requirements for the Navy to acquire state water rights or for state water right holders to move place of use or point of diversion locations. Beneficial uses, although they may change with future water development projects in the region, would continue for each state water right in accordance with the State of Nevada's Revised Statutes and Administrative Code. The Navy would evaluate the way forward regarding currently held water rights and address each water right on a case-by-case basis.

In summary, the No Action Alternative could result in significant impacts on water resources through the continued development of water resources in lands requested for withdrawal. Sedimentation and ground disturbance through allowed activities (e.g., recreation and resource extraction) would likely continue, but not impede in a measurable way the normal flow and residency times of surface waters.

3.9.3.2 Alternative 1: Modernization of the Fallon Range Training Complex

Under Alternative 1, the Navy proposes renewal by Congress of the current public land withdrawal at the FRTC. Additional public lands would be requested for withdrawal and non-federally owned lands would be proposed for acquisition. Under Alternative 1, the Weapons Danger Zones (WDZs) for all ranges would be within the expanded range boundaries, and the probability of munitions landing beyond the range boundaries would be very low (i.e., 99.99 percent containment). There are minute opportunities for munitions constituents to migrate beyond range boundaries (e.g., excessive flooding and transport of contaminants). However, the intention of the withdrawal request is to expand range boundaries. The larger distances from target areas to the new boundaries would decrease the chances

of transport of munition constituents and compounds beyond requested new range boundaries. Policies and procedures would continue to remain in place at FRTC that prevent off-range release of munitions. A response would be made in the unlikely event of a future off-range release of munitions. Range cleanup activities, the same activities that occur within the existing ranges, would occur within the requested withdrawal areas. The following sections assess the potential impacts on groundwater and surface water resources from training activities that would occur within the requested withdrawal areas.

Disposition of Water Rights and Water Wells

Under Alternative 1, the Navy would acquire water rights associated with the expanded closed ranges (B-16, B-17, B-20), but would not seek to acquire any within the DVTA. The Navy does not plan to use any water rights purchased for stock water but would instead request to modify the beneficial use as appropriate relative to mission requirements. Private water rights would be purchased as real property as necessary.

The Navy will continue to work with Churchill County to determine appropriate design features for water development projects compatible with military training activities within the DVTA. Within B-16, B-17, and B-20, implementation of Alternative 1 would discontinue livestock grazing within these ranges and render the wells that support stock and irrigation activities inactive. Some wells may be kept active for beneficial use (e.g., conservation and wildland fire response). The primary purposes for withdrawing and acquiring this land are to contain weapon and surface danger zones. As such, large portions of these areas would remain in their natural state following implementation of Alternative 1 and, therefore, this alternative would not affect baseline current hydrological functions in the withdrawal areas.

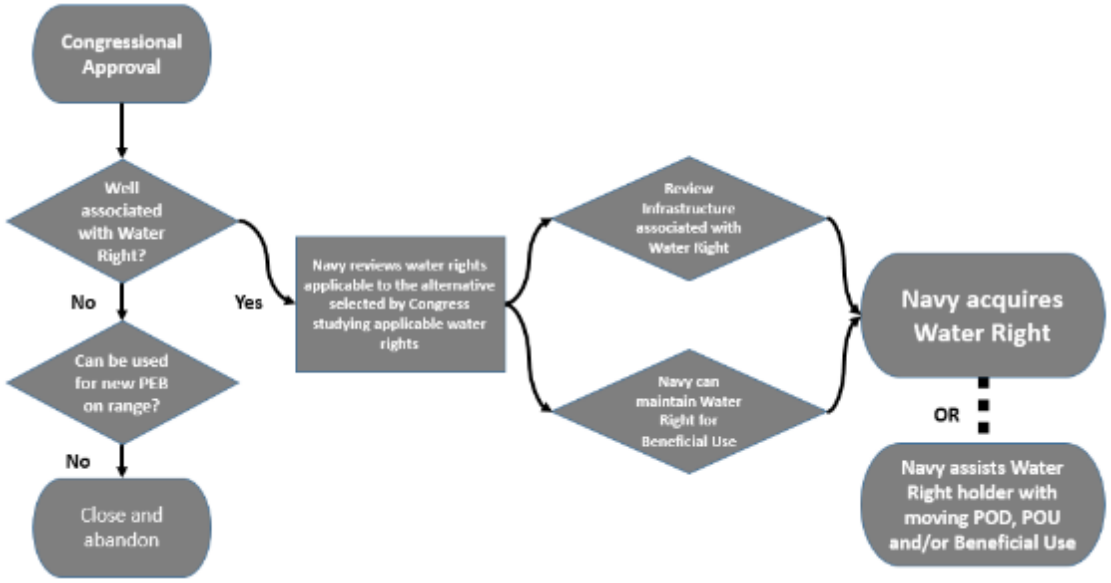
Any surface impoundments may continue to be used for firefighting operations. Any wells indicated on Navy land would be verified and inspected. Those with no existing water rights (such as those indicated as “domestic”) can be considered for new water rights (Wildlife, Other, including for use as a source for new construction planned on the ranges), or be plugged and abandoned. Those with existing water rights could be considered for a change in Place of Use, change in Point of Diversion, or change in Beneficial Use.

3.9.3.2.1 Bravo-16

Land Withdrawal and Acquisition

Alternative 1 would expand B-16 to approximately 59,560 acres, which is an increase of approximately 32,201 acres over existing conditions (Table 2-1). Figure 3.9-4 shows the HLRs within the requested withdrawal area that would expand B-16. Most of the expansion area includes HLRs associated with low permeable soils on alluvial slopes that convey water downslope into the Carson Sink.

Disposition of Water Rights and Water Wells within B-16. As stated previously, pending Congressional approval, the two state water rights and 36 wells discussed in Section 3.9.2.2 (Bravo-16) would be evaluated on a case-by-case basis by the Navy. The general case-by-case evaluation process would generally follow the steps shown in Figure 3.9-16. Pending congressional approval and selection of Alternative 1, the Navy, as part of the case-by-case evaluation of state water rights within B-16, would obtain the most recent hydrographic abstracts and water rights and wells information through NDWR database queries, and review paper files in the NDWR archives at NDWR state and field offices. These files may differ from or may contain more information than the information obtained through NDWR database queries as of the date of this Final EIS.



Note: The decision process for the disposition of water rights and associated wells would begin once Congressional approval is obtained and the Navy selects an alternative. Sources for water right information for the EIS has come from NDWR online sources. After selection of an alternative, the Navy would further investigate water rights in more detail (e.g., with visits to search paper sources in NDWR field office archives). If no water right is associated with a well, and no use for the well can be obtained, the Navy would close and abandon the well. For identified water rights, the Navy would review the infrastructure (e.g., diversion works, stock ponds) and determines if a beneficial use for the water right can continue under the selected alternative. The result of this process is either the Navy's acquisition of the water right or working with the water right holder to move the point of diversion or place of use so that there is no need for water right acquisition.

Figure 3.9-16: Case-by-Case Evaluation of the Disposition of Water Rights

Since it is possible that a state water right within B-16 has a Point of Diversion outside of the proposed B-16 expansion area but a Place of Use inside that could be missed doing a search of the database (which appears to only include Point of Diversion location data), the NDWR "Township Cards" should be consulted. The cards, according to NDWR, will likely contain a listing of all water rights that have a Point of Diversion or Place of Use located in that township. The paper files in the NDWR offices are more likely to contain the most recent information than the online files, as well providing much better ownership and contact information critical to accurately reviewing the existing state water rights potentially impacted by the Navy action within B-16. The Navy recognizes there may be differences between the Hydrographic Abstracts and detailed place of use/point of diversion information from NDWR and will continue to coordinate with NDWR between the online and detailed water right information.

Regarding the Scheckler Spill, the Navy would allow land managers to continue accessing the ranges for flood management purposes. The Bureau of Reclamation and the Navy would develop a Memorandum of Understanding to ensure continued access that is compatible with military training activities. The Navy will work with the Bureau of Reclamation on incorporating the required design features for fencing over water.

Under Alternative 1 within the requested withdrawal area to expand the B-16 range, the following changes from the No Action Alternative may impact or beneficially affect surface waters and groundwater resources: (1) changes to public access under Alternative 1, (2) construction activities, and (3) training activities.

Training Activities

Surface waters. Under Alternative 1, unit-level types and tempo of training activities would not increase over baseline activities, but would expand to utilize the entire proposed B-16 range. Unit-level training includes Air-to-Surface Ordnance Delivery, Combat Search and Rescue training, and Naval Special Warfare training. The proposed expansion area would include additional land for Navy Special Warfare Tactical Ground Mobility Course, Naval Aviation, basic air-to-surface training, and a Helicopter Gunnery Training Range.

If compaction occurred over a wide area, differences in runoff (a function of precipitation amounts, permeability of surface rocks and soils, and slope) would be measurable; however, because the training activities have a localized and small footprint, differences in runoff rates would be negligible.

Groundwater. B-16 allows only practice/inert ordnance with spotting charges for air-to-ground training activities. Figure 3.9-5 and Figure 3.9-6 show the water rights and water wells that exist within the B-16 existing and proposed withdrawal areas. The use of practice ordnance would not release measurable quantities of munitions constituents to the environment (U.S. Department of the Navy, 2008a). A potential concern is the fate and transport of metals from bullets and bullet fragments accumulating in soil, with lead being the primary constituent of concern because of its toxicity and its ability to persist in the environment. Several factors influence the fate and transport of lead on a training range, including soil type, soil pH, annual precipitation rate, and topographic slope (U.S. Environmental Protection Agency, 2005). Backstops at targets would concentrate small-caliber munitions and be considered a source of potential metal contamination into sediments and eventually into groundwater. However, range scrap would be removed at regular intervals based on the Fallon Operational Range Clearance Plan (U.S. Department of the Navy, 2004), further reducing the potential for heavy metal infiltration of sediments and groundwater.

Approximately 7,541 acres within B-16 would be set aside for an Immediate Action Drill Ground Maneuver B-16 and Close Air Support Target Area. There would be physical disturbance to soils within the target area from military munition strikes and targets would be moved around within this target area. The existing B-16 target areas are within alkali flats. Alternative 1 would move targets from these flats upslope into the eroded slopes dissected by ephemeral washes. As shown in Figure 3.9-4, these alluvial slopes (HLRs 10 and 12) have low soil permeability. This increases the potential for sediments to migrate from disturbance areas compared to baseline conditions. With poorly permeable rocks or soils with low permeability, recharge typically occurs at more shallow depths as water is conveyed on the surface on the alluvial slopes, and into receiving basins (as shown in Figure 3.9-3, Panel B).

Potential impacts on surface and groundwater resources within B-16 under Alternative 1 would be negligible for the following reasons: (1) the limited amount of disturbance from munitions use within the B-16 withdrawal lands, (2) the localized areas of disturbance from munitions use within the withdrawal areas, (3) the small footprint of new infrastructure, (4) best management practices (BMPs) specifically designed to reduce or avoid potential impacts on surface water and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation Measures), (5) rainfall amounts under 5 inches per year where potential contaminants would rapidly degrade and dry in the arid environment, and (6) a change in the beneficial use of a water right may relieve pressure on groundwater resources if the beneficial use reduces water draws (e.g., closing and abandoning the well, relinquishing the water right).

Public Accessibility

Surface waters. Alternative 1 would not allow the public to access B-16 for any purpose other than ceremonial or cultural site visits by local Indian Tribes and management, which are currently occurring within the requested withdrawal area. Accordingly, livestock grazing would not be allowed at B-16. Areas previously used for livestock grazing, mineral exploration and development, or recreation would no longer be used for these purposes.

Groundwater. The Navy anticipates that with the requested withdrawal of lands and expansion of the B-16 range, some state water rights would be obtained with a possible change in the beneficial use, with plugging and capping as required by Nevada statutes. Figure 3.9-5 shows the state water rights within the proposed B-16 range. Closing water wells within B-16 would likely benefit groundwater quality and result in a higher water table within basins, sinks, and valley floors. Water well locations in relation to Alternative 1 proposed withdrawal areas are shown in Figure 3.9-6.

Construction

Surface water. As part of Alternative 1, the construction of a Combat Village and installation of perimeter fences and gates would have a permanent impact of 92 acres with temporary impacts of an additional 69 acres. The total construction area (161 acres) is less than 1 percent of the requested withdrawal area of B-16 (see Table 3.1-3). Proposed construction would directly disturb the ground surface within B-16 by excavating, grading, grubbing, compacting, and clearing soil and vegetation in construction areas during the construction phase.

Another concern is potential contamination from spills of petroleum, oil, and lubricants during training and other range activities. Vehicle targets would continue to be drained of petroleum, oil, and lubricants prior to being placed on the range (U.S. Department of the Navy, 2008a). Personnel are required to notify Range Control and NAS Fallon Environmental Division whenever there is a spill of petroleum, oil, or lubricants that is greater than five gallons, enters any drain, contaminates soil, are of an unknown material, or are beyond the capability of the activity to handle.

Although there are several ephemeral washes within the B-16 expansion area, there are no perennial streams or waterbodies in the proposed boundary of B-16. During wet years, water may pond seasonally in low areas within the range, and flow out of the basin. Soil structure and function are important to the resistance, resilience, and overall function of semiarid ecosystems in Nevada. Construction could disturb soils, increasing the potential for water erosion and sedimentation to enter these ephemeral washes. The vegetation and terrain of the area influence erosion. If vegetation, soil crusts, or desert pavement are damaged or destroyed by surface use and not provided adequate recovery periods, water erosion would cause the bare ground to expand, impacting vegetation and soil productivity beyond the initial disturbance area, and continue to impact surface water resources through sedimentation. Wind erosion can occur in playas, sand dunes, and other disturbed sites, but shrub and grasslands of the Great Basin usually do not have appreciable wind erosion in their undisturbed state. Therefore, construction has the potential to facilitate wind erosion if soils are not covered after disturbance events. As with any construction project, the construction phase would likely include an increased number of personnel, vehicles, and equipment on the construction site. Personnel would stay within established corridors in order to minimize disturbance areas to the maximum extent practicable during construction. All personnel would follow posted speed limits. The maximum speed limit on FRTC bombing ranges is 35 miles per hour unless otherwise posted. This requirement minimizes fugitive dust, decreases the

spread of invasive plant species, and reduces the potential to disturb or compact soil off road or outside target areas during construction.

As a standard operating procedure, all project-related BMPs would include erosion and sediment control measures (e.g., wattles, silt fences) and measures that would minimize or avoid direct and indirect impacts on soil, vegetation, and surface waters (Nevada Division of Environmental Protection, 2015). BMPs would remain in effect until the construction sites have stabilized. Although BMPs do not eliminate potential for impacts on water resources, implementation of BMPs minimizes impacts on the maximum extent practical during construction, when impacts on water resources are likely to occur.

Safe Drinking Water Act

As shown in Figure 3.9-6, there is only one domestic well in the database within the B-16 proposed for domestic water consumption within the B-16 proposed expansion area, with eight other domestic water wells within the existing B-16 range. With the exclusion of the public from B-16, it is unlikely that the existing domestic wells in the expansion area would be used as a source of drinking water, even if they have previously been used for that purpose. None of these wells qualify as a public water system (having at least 15 service connections or serving at least 25 people per day for 60 days of the year). Therefore, the Safe Drinking Water Act provisions are not applicable to the proposed expansion of B-16 under Alternative 1.

Clean Water Act

No permanent or intermittent sources of water within the proposed B-16 expansion area would be considered as jurisdictional waters of the U.S.; therefore, there are no locations under the authority of the EPA or U.S. Army Corps of Engineers granted to these agencies under Section 404 of the CWA.

3.9.3.2.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 1 would expand B-17 to approximately 232,799 acres, which would be an increase of approximately 176,977 acres from existing conditions (Table 2-1). In addition, Alternative 1 includes the discussion of three notional options for relocating State Route 839 and one notional option of relocating the Paiute Pipeline. HLRs within the B-17 expansion area in relation to Alternative 1 are shown in Figure 3.9-7 and described in Table 3.9-2 and show alluvial slopes with high soil permeability that convey water to valley floors and the Carson Sink. Figure 3.9-8 shows the state water rights within the B-17 expansion area in relation to Alternative 1, and Figure 3.9-9 shows the water wells potentially impacted under Alternative 1 within B-17. There would be no change to water resources at the Shoal Site under any alternative.

Disposition of Water Rights and Water Wells within B-17. As stated previously, pending Congressional approval, the 13 state water rights and 9 wells discussed in Section 3.9.2.3 (Bravo-17) would be evaluated on a case-by-case basis by the Navy. The general case-by-case evaluation process would generally follow the steps shown in Figure 3.9-16. Pending congressional approval and selection of Alternative 1, the Navy, as part of the case-by-case evaluation of state water rights within B-17, would obtain the most recent hydrographic abstracts and water rights and wells information through NDWR database queries, and review paper files in the NDWR archives at NDWR state and field offices. These files may differ from or may contain more information than the information obtained through NDWR database queries conducted in August 2018. Since it is possible that a state water right within B-17 has a Point of Diversion outside of the proposed B-17 expansion area but a Place of Use inside that could be

missed doing a search of the database (which appears to only include Point of Diversion location data), the NDWR "Township Cards" should be consulted. The cards, according to NDWR, will likely contain a listing of all state water rights that have a Point of Diversion or Place of Use located in that township. The paper files in the NDWR offices are more likely to contain the most recent information than the online files, as well, providing much better ownership and contact information critical to accurately reviewing the existing water rights potentially impacted by the Navy action within B-17. The Navy recognizes there may be differences between the Hydrographic Abstracts and detailed place of use/point of diversion information from NDWR and will coordinate with NDWR to resolve differences between the online and detailed water right information.

Under Alternative 1 within the requested withdrawal area to expand the B-17 range, the following changes from baseline conditions may impact or beneficially affect groundwater: (1) changes to public access under Alternative 1 and (2) training activities.

Training Activities

Surface water. Under Alternative 1, B-17 would continue to be the most heavily used bombing range at the FRTC. Alternative 1 would not increase the use of B-17, and training activities would be uniformly or proportionately redistributed over the range. Live and inert munitions would continue to be used at this range. Although the types and tempo of activities would not increase under Alternative 1, expended munitions may be concentrated in additional target locations within the requested expansion areas. Alternative 1 would require the establishment of 39 new target areas within the requested withdrawal area that would be added to the existing B-17 boundary. It is estimated that Alternative 1 would set aside approximately 2,833 acres for new target areas within the proposed B-17 expansion area. When combined with existing target areas, it is estimated that approximately 24,161 acres of B-17 would be used for target areas (approximately 10 percent of B-17).

This range would continue to use live and inert munitions and potentially release munitions constituents into the environment.[3] Although minor concentrations (estimated, below the reporting limit[4,5]) of munitions constituents were detected in one soil sample collected at B-17,[6], munitions constituents do not appear to be accumulating in large quantities on the surface and in the near subsurface because (1) the primary source of explosives such as intact unexploded ordnance (UXO) and low order detonations are regularly and routinely cleared from the range; (2) explosives are mostly consumed in the detonation (greater than 99 percent consumed) (Hewitt et al., 2003; Taylor et al., 2004); and (3) the minor residual explosives naturally attenuate and degrade through physical, chemical, and biological processes (Dontsova & Taylor, 2017; U.S. Department of the Navy, 2008a). Any impact on the surface from using these target areas would continue to be highly localized to target areas and would not be anticipated to alter the hydrological functions characteristic of the area within existing ranges, the areas proposed for B-17 expansion, or in surrounding areas.

Most nonexplosive practice and explosive munitions would impact the ground and thus physically disturb surficial soils in designated new target areas, which would likely induce higher sediment content in runoff. The long-term effect from military munitions strikes would result in an increased potential for soil erosion, compaction, and displacement within and in the immediate vicinity of the target areas. Compared to baseline conditions, there is an increased potential for sediments or contaminants to migrate from the new target areas, specifically in areas with high runoff rates. Loose soil and sediment could then be carried downhill and settle into canyon systems, valleys, and sinks during rain events. Runoff is a function of precipitation amounts, permeability of surface rocks and soils, and slope. Training activities within B-17 would not likely result in soil compaction at enough of the overall surface of the B-17 range to cause detectable changes in runoff rates compared to baseline conditions. Most of the training is air based, with target placement and debris removal the primary ground operations.

[3] The Navy's Range Sustainment Program is designed to ensure ranges remain operational and that the Navy protects human health and the environment for nearby communities. The Range Sustainment Environmental Program Assessment (RSEPA) process is designed to assess environmental impacts of testing and training operations and to implement measures to protect the environment when needed. Munitions constituents are defined in the RSEPA Policy Implementation Manual (U.S. Department of the Navy, 2008b) as materials originating from military munitions, including explosive and non-explosive materials; and the emissions, degradation, or breakdown of such munitions. For live munitions, the primary munitions constituents are royal demolition explosive (commonly referred to as RDX), high melting explosive (commonly referred to as HMX), and 2,4,6-Trinitrotoluene (commonly referred to as TNT), and aluminum. Primary munitions constituents for practice munitions are nitroglycerin and nitrocellulose. For surface-to-air missiles, the primary munitions constituent is perchlorate (U.S. Department of the Navy, 2008a).

[4] Many authors have defined "minor concentrations" in groundwater and surface water samples as substances in concentrations between 1 mg/L and 0.1 mg/L (Knödel et al., 2007; Singhal & Gupta, 2010). More generally, the International Union of Pure and Applied Chemistry defines minor concentrations of analytes (substances that are being measured for composition of constituents) as between 0.1 percent to 1 percent.

[5] The "reporting limit" is defined by the EPA as the lowest concentration at which an analyte can be detected in a sample and its concentration can be reported with a reasonable degree of accuracy. Generally, a criterion of 20 percent accuracy and 20 percent relative standard deviation in repeated sampling is used to define "reasonable."

[6] Sampling conducted in B-17 in October 2007 and reported in the 2008 FRTC RCA show minor concentrations below the reporting limit for explosive byproducts, such as 4-amino-2,6-DNT (a TNT degradation product), RDX, and HMX (Soule & Buckner, 2015; U.S. Department of the Navy, 2008a, 2015b).

Groundwater. Generally, groundwater is largely stored beneath valley fills between mountain ranges. Figure 3.9-3 shows different groundwater infiltration patterns for consolidated and unconsolidated surface soils. As shown in Figure 3.9-7, HLRs within B-17 on alluvial slopes (HLRs 7 and 10) demonstrate moderate to high permeability, which allows for subsurface flows towards sinks and valley floors (HLRs 2, 4, and 9). With highly permeable surfaces, groundwater flows down gradient towards sinks, as conceptualized in Figure 3.9-3, Panel A. Although this area appears to be more conducive to subsurface flows, vertical migration of munition constituents to groundwater would be limited.

Based on the findings presented under the surface water discussion above, munitions constituents do not appear to be accumulating in large quantities on the surface and in the near subsurface because (1) the primary source of explosives such as intact UXO and low order detonations are regularly and routinely cleared from the range; (2) explosives are mostly consumed in the detonation (greater than 99 percent consumed) (Hewitt et al., 2003; Taylor et al., 2004); and (3) the minor residual explosives naturally attenuate and degrade through physical, chemical, and biological processes (Dontsova & Taylor, 2017; U.S. Department of the Navy, 2008a). Any impact on the surface from using these target areas would continue to be highly localized to target areas and would not be anticipated to alter the hydrological functions characteristic of the area within existing ranges, the areas proposed for B-17 expansion, or in surrounding areas. Therefore, through attenuation and degradation, residual munitions constituents that are not cleared from the range would have low potential to accumulate in groundwater to exceed minor concentrations and reporting limits.

Another concern is potential contamination from spills of petroleum, oil, and lubricants during training and other range activities. Vehicle targets would continue to be drained of petroleum, oil, and lubricants prior to being placed on the range (U.S. Department of the Navy, 2008a). Personnel are required to notify Range Control and NAS Fallon Environmental whenever there is a spill of petroleum, oil, or lubricants that is greater than 5 gallons, enters any drain, contaminates soil, is of an unknown material, or is beyond the capability of the activity to handle. Potential impacts on surface water and groundwater resources within B-17 under Alternative 1 would be minimal for the following reasons: (1) the limited amount of disturbance from munitions use within the B-17 withdrawal lands, (2) the localized areas of disturbance from munitions use within the requested withdrawal areas, (3) the small footprint of new infrastructure, (4) BMPs specifically designed to reduce or avoid potential impacts on surface and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation), (5) rainfall amounts under 5 inches per year where potential contaminants would rapidly degrade and dry in the arid environment, and (6) water rights obtained and relinquished back to the State of Nevada and cessation of some wells would relieve pressure on groundwater resources.

Another concern is potential contamination from spills of petroleum, oil, and lubricants during training and other range activities. Vehicle targets would continue to be drained of petroleum, oil, and lubricants prior to being placed on the range (U.S. Department of the Navy, 2008a). Personnel are required to notify Range Control and NAS Fallon Environmental whenever there is a spill of petroleum, oil, or lubricants that is greater than five gallons, enter any drain, contaminate soil, are of an unknown material, or are beyond the capability of the activity to handle. Potential impacts on surface water and groundwater resources within B-17 under Alternative 1 would be minimal for the following reasons: (1) the limited amount of disturbance from munitions use within the B-17 withdrawal lands, (2) the localized areas of disturbance from munitions use within the requested withdrawal areas, (3) the small footprint of new infrastructure, (4) BMPs specifically designed to reduce or avoid potential impacts on surface and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring,

and Mitigation), (5) rainfall amounts under 5 inches per year where potential contaminants would rapidly degrade and dry in the arid environment, and (6) water rights obtained and relinquished back to the State of Nevada and cessation of some wells would relieve pressure on groundwater resources.

Public Accessibility

Surface waters. Under Alternative 1, public access would not be allowed, and no livestock grazing would continue. Ending public access within the requested withdrawal area of B-17 may improve surface water quality by reducing factors that are known to diminish water quality (e.g., nutrient loading from cattle grazing) outside of the target area. Other activities, such as recreational off-road vehicle use, have discrete and localized impacts on soils; however, these activities typically take place in upland areas with minimal impacts on water resources. Cessation of these activities under Alternative 1 would not likely improve surface water quality in any measurable way.

Groundwater. Under Alternative 1, public access would not be allowed, and no livestock grazing would continue, thereby effectively ending most current beneficial uses associated with the wells located within B-17. Figure 3.9-9 shows water wells within the B-17 proposed expansion area. There are 10 wells within the proposed expansion area. Of these 10, 3 wells are rated for domestic use, 1 for irrigation, and 6 for stockwater. Some wells may be maintained for other purposes (e.g., wildlife conservation purposes, wildland fire response). Closing water wells within B-17 would likely benefit groundwater quality and result in a higher water table within basins, sinks, and valley floors.

Construction

Surface waters. Under Alternative 1, construction at B-17 would include constructing an administrative building, communication towers, and electronic warfare sites, as well as installing approximately 75 miles of perimeter fence. Fence construction would require some ground-disturbing activities to dig posts and vehicles to deliver fence materials and construction workers along the fence alignments. This ground disturbance may loosen soils and would be susceptible to erosion and transport, especially along slopes. This alternative would also include the potential construction of approximately 30 miles of road for State Route 839 and 12 miles of pipeline. B-17 is largely composed of alkaline desert soils. No perennial water bodies are found along the proposed realignments of State Route 839. In topographically low spots along the route, it is possible for ponding to occur during wet years. There are several ephemeral washes within the proposed boundary of B-17. As a standard operating procedure, all project-related BMPs would include erosion and sediment control measures (e.g., wattles, silt fences) and measures that would minimize or avoid direct and indirect impacts on soil, vegetation, and surface waters (Nevada Division of Environmental Protection, 2015). BMPs would remain in effect until the construction sites have stabilized. Although BMPs do not eliminate potential for impacts on water resources, implementation of BMPs minimizes impacts to the maximum extent practical during construction, when impacts on water resources are likely to occur.

Road and Infrastructure Improvements to Support Alternative 1

State Route 839

Alternative 1 includes three notional options for the potential relocation of State Route 839. All three of these options include closing portions of the existing State Route 839 to public travel and improving existing roads from dirt roads to paved roads. Using funding provided by the Navy, the Federal Highway Administration, in cooperation with the Nevada Department of Transportation (NDOT), would be responsible for planning, design, permitting, and constructing any realignment of State Route 839. The

Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 839, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 839 unless and until any such new route has been completed and made available to the public. A follow-on, site-specific National Environmental Policy Act (NEPA) document would be required to analyze the impacts of any feasible relocation of the road, which would include analyzing potential impacts on water resources.

Paiute Pipeline

Alternative 1 includes the potential relocation of the Paiute Pipeline outside the B-17 WDZ. The Navy is working with the operator of the pipeline, the BLM, Mineral and Nye Counties, and other stakeholders to identify a suitable location for relocating the pipeline. The Navy and stakeholders are exploring one notional option at this time as part of this alternative. Construction activities would result in impacts on surface water resources, including direct physical disturbance of soils within drainage basins (e.g., excavating, grading, grubbing, and soil compaction) and could lead to soil contamination resulting from accidental spills of petroleum, oil, or lubricants. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A Right of Way (ROW) application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and National Environmental Policy Act (NEPA) planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

Safe Drinking Water Act

As shown in Figure 3.9-9, there are nine water wells listed for domestic water consumption within the B-17 proposed expansion area. With the exclusion of the public from B-17, it is unlikely that wells with water rights obtained and relinquished back to the State of Nevada would be prospectively used as a potable water source outside of the need for potable water for administrative buildings constructed as part of Alternative 1. None of these wells qualify as a public water system (having at least 15 service connections or serving at least 25 people per day for 60 days of the year). Therefore, the Safe Drinking Water Act provisions are not applicable to the proposed expansion of B-17 under Alternative 1.

Clean Water Act

No permanent or intermittent bodies of water are within the proposed B-17 expansion area that would be considered as jurisdictional Waters of the U.S.; therefore, there are no locations under the authority of the EPA or USACE granted to these agencies under Section 404 of the CWA.

3.9.3.2.3 Bravo-20

Land Withdrawal and Acquisition

Alternative 1 would expand B-20 to approximately 221,334 acres, which would be an increase of approximately 180,329 acres from existing conditions (Table 2-1). Hydrological landscape units within the B-20 expansion area in Figure 3.9-10 and described in Table 3.9-2 show alluvial slopes with high soil permeability that convey water to valley floors and the Carson Sink. Figure 3.9-11 shows the state water rights within the B-20 expansion area in relation to Alternative 1, and Figure 3.9-12 shows the water well locations within the proposed expansion area for B-20.

Disposition of Water Rights and Water Wells within B-20. As stated previously, pending Congressional approval, the six state water rights and 12 wells discussed in Section 3.9.2.4 (Bravo-20) would be evaluated on a case-by-case basis by the Navy. The general case-by-case evaluation process would generally follow the steps shown in Figure 3.9-16. Pending congressional approval and selection of Alternative 1, the Navy, as part of the case-by-case evaluation of water rights within B-20, would obtain the most recent hydrographic abstracts and water rights and wells information through NDWR database queries, and review paper files in the NDWR archives at NDWR state and field offices. These files may differ from or may contain more information than the information obtained through NDWR database queries in August 2018. Since it is possible that a state water right within B-20 has a Point of Diversion outside of the proposed B-20 expansion area but a Place of Use inside that could be missed doing a search of the database (which appears to only include Point of Diversion location data), the NDWR "Township Cards" should be consulted. The cards, according to NDWR, will likely contain a listing of all state water rights that have a Point of Diversion or Place of Use located in that township. The paper files in the NDWR offices are more likely to contain the most recent information than the online files, as well, providing much better ownership and contact information critical to accurately reviewing the existing state water rights potentially impacted by the Navy action within B-20. The Navy recognizes there may be differences between the Hydrographic Abstracts and detailed place of use/point of diversion information from NDWR and will coordinate with NDWR to resolve differences between the online and detailed state water right information.

Under Alternative 1 within the requested withdrawal area to expand the B-20 range, the following changes from baseline conditions may impact or beneficially affect surface waters: (1) changes to public access under Alternative 1, (2) construction, and (3) training activities. Under Alternative 1 within the requested withdrawal area to expand the B-20 range, only training activities proposed under Alternative 1 may impact or beneficially affect groundwater resources.

Training Activities

Surface water. The Navy would continue to use B-20 for any air-to-ground delivery of live munitions. Alternative 1 would not increase the use of B-20, and training activities would be distributed to existing targets and five new target areas within the expansion area. High-velocity explosives would be capable of shattering rock and displacing soil. However, these target areas are within primarily flat playa marsh lands (dry lake) with flat alluvial deposits. Runoff is a function of precipitation amounts, permeability of surface rocks and soils, and slope. Training activities within B-20 would not likely result in soil compaction (most of the training is air based, with target placement and debris removal the primary ground operations) in sufficient areas as to affect detectable changes in runoff rates compared to baseline conditions.

This range would continue to use live and inert munitions and potentially release munitions constituents into the environment. Despite continued use and concentration of munitions use at Lone Rock, no samples within B-20 have exceeded detection limits (Soule & Buckner, 2015; U.S. Department of the Navy, 2008a, 2015b). Therefore, it is unlikely that Alternative 1 would lead to long-term elevated levels of constituents in the immediate area of target areas used in expansion areas associated with B-20. Additional factors that limit the potential for accumulation of munitions constituents in surface waters include (1) the primary source of explosives such as intact UXO and low order detonations are regularly and routinely cleared from the range; (2) explosives are mostly consumed in the detonation (greater than 99 percent consumed)(Hewitt et al., 2003; Taylor et al., 2004); and (3) the minor residual explosives naturally attenuate and degrade through physical, chemical, and biological processes (Dontsova & Taylor, 2017; U.S. Department of the Navy, 2008a). Any impact on the surface from using these target areas would continue to be highly localized to target areas and would not be anticipated to alter the hydrological functions characteristic of the area within existing ranges, the areas proposed for B-17 expansion, or in surrounding areas.

In addition, range condition assessments (soil sampling and predictive modeling) would continue to be used as part of the RSEPA process to ensure that munition constituents are not migrating outside the range. Routine removal of expended munitions and range material, conducted under the Navy's Operational Range Clearance program, would reduce potential sources of heavy metals, for example, into the Carson Sink. This location already receives heavy metal contamination associated with the Carson River Mercury Superfund Site.

Potential impacts on surface water quality within B-20 under Alternative 1 would occur. Cessation of training activities, however, would not measurably improve surface water quality because of the concentration of heavy metals from a long environmental contamination legacy associated with the Carson River and OU2 Superfund Site.

Groundwater. With the establishment of five new target areas within the lands requested for withdrawal surrounding B-20, new sources of contamination may be concentrated in the vicinity of targets. As shown in Figure 3.9-10, most of B-20 is comprised of HLR 2, an area typical of playas demonstrating low soil permeability. The playa deposits consist of fine-textured sediments that have not developed characteristics of soil and are very poorly drained (reducing the potential for rapid infiltration to groundwater). Soils in the vicinity of Lone Rock, a small igneous outcrop in the northeast portion of B-20, consists primarily of alluvial and dune deposits. These soils are deep and well drained, and available water capacity is moderate (Natural Resources Conservation Service, 2017). Lone Rock is mapped as HLR 12 (Figure 3.9-10). Groundwater flows down the alluvial slopes of the Humboldt Mountains and the Stillwater Ridge (HLRs 9, 10, and 12 with moderate soil permeability) likely reflect the conceptual model of groundwater movement shown in Figure 3.9-3, Panel B. In this situation, alluvial slopes that drain into the Carson Sink likely carry precipitation via sheetflow down gradient, rather than through a downslope subsurface flow towards the water table underlying the Carson Sink as would happen with highly permeable soils. Based on this information, infiltration of contaminants from training activities into subsurface waters is slight on the flatter playa deposits, with increased permeability on the relatively more permeable soils surrounding Lone Rock and on the alluvial slopes of the Humboldt Range and Stillwater Ridge.

Figure 3.9-12 shows the location of wells within the requested withdrawal areas surrounding the existing B-20 range. These wells include geothermal exploration and test wells, which would not be allowed to continue operations under Alternative 1. These wells are likely deeper than any aquifer or

water table potentially impacted by training activities. Therefore, discontinued operation of these wells would not likely impact the groundwater resources potentially affected under Alternative 1.

Potential impacts on groundwater resources within B-20 under Alternative 1 would not likely be measurable because (1) the low permeability of surface strata preventing contamination of underlying groundwater resources within the majority of B-20; (2) although concentrated around target areas, expended munitions would be removed as part of routine range maintenance activities; and (3) discontinued use of wells associated with geothermal exploration is not likely to influence the water table or other shallow aquifer lenses closer to the surface.

Public Accessibility

Surface water. Under Alternative 1, the Navy would not allow the public to access B-20 for any purpose other than for ceremonial or cultural site visits by local Indian Tribes and wildlife management activities, which are currently occurring within the requested withdrawal area. Land previously used for livestock grazing, mineral exploration and development, or recreation would no longer be used for these purposes. This could reduce the amount of soil erosion, compaction, and displacement that is currently occurring; however, any beneficial impact on surface water resources would be largely offset by the proposed construction and training activities on B-20, discussed below.

Construction

Surface water. As part of Alternative 1, the construction of a Target Maintenance Building and installation of perimeter fences and gates would have a permanent impact of 24 acres with temporary impacts of 203 acres. The total construction area (227 acres) is less than 1 percent of the requested expansion area of B-20. Proposed construction would directly disturb the ground surface within B-20 by excavating, grading, grubbing, compacting, and clearing soil and vegetation in construction areas during the construction phase.

Construction within the proposed B-20 boundary would be located in the Carson Sink, a large playa with an alkali flat composed of silty clay. Although there are several ephemeral washes within the B-20 expansion area, there are no perennial streams or waterbodies in the proposed boundary of B-20. These ephemeral streams and draws are found along the periphery of the Carson Sink (southeast facing slopes of the Humboldt Range and west facing slopes of Stillwater Ridge). Carson Sink tends to flood and fill on wet years or during a series of wet years. As discussed in Section 3.9.2.4 (Bravo-20), Carson Sink is the terminal basin for the Carson River and OU2 section of the Carson River Mercury Superfund site. This site includes mercury, arsenic, and lead contaminated soils due to migration from former mill sites and mercury contamination in water, sediments, and fish over more than 100 miles of the Carson River. Construction could disturb soils, increasing the potential for water erosion. As the terminal basin for the Carson River, however, ground disturbance during construction would not contribute to downstream/down gradient impacts on water resources.

As with any construction project, the construction phase would likely include an increased number of personnel, vehicles, and equipment on the construction site. Personnel would stay within established corridors in order to minimize disturbance areas to the maximum extent practicable during construction. All personnel would follow posted speed limits. The maximum speed limit on FRTC bombing ranges is 35 miles per hour unless otherwise posted. This requirement minimizes fugitive dust, decreases the spread of invasive plant species, and reduces the potential to disturb or compact soil off road or outside target areas during construction.

As a standard operating procedure, all project-related BMPs would include erosion and sediment control measures (e.g., wattles, silt fences) and measures that would minimize or avoid direct and indirect impacts on soil, vegetation, and surface waters (Nevada Division of Environmental Protection, 2015). BMPs would remain in effect until the construction sites have stabilized. Although BMPs do not eliminate potential for impacts on water resources, implementation of BMPs minimizes impacts to the maximum extent practical during construction, when impacts on water resources are likely to occur.

Safe Drinking Water Act

With the exclusion of the public from B-20, it is unlikely that wells with water rights obtained and relinquished back to the State of Nevada would be prospectively used as a potable water source outside of the need for potable water for administrative buildings constructed as part of Alternative 1. None of these wells qualify as a public water system (having at least 15 service connections or serving at least 25 people per day for 60 days of the year). Therefore, the Safe Drinking Water Act provisions are not applicable to the proposed expansion of B-20 under Alternative 1.

Clean Water Act

No permanent or intermittent sources of water are within the proposed B-20 expansion area that would be considered as jurisdictional waters of the U.S.; therefore, there are no locations under the authority of the EPA or U.S. Army Corps of Engineers granted to these agencies under Section 404 of the CWA.

3.9.3.2.4 Dixie Valley Training Area

Land Withdrawal and Acquisition

Alternative 1 would expand the DVTA to approximately 370,903 acres, which would be an increase of approximately 293,343 acres from existing conditions (Table 2-1). Hydrological landscape regions associated with Alternative 1 within the DVTA are shown in Figure 3.9-13. Figure 3.9-14 shows the state water rights within the DVTA in relation to Alternative 1, and Figure 3.9-15 shows the water wells potentially impacted under Alternative 1 within the DVTA.

Disposition Water Rights and Water Wells within the DVTA. As stated previously, pending Congressional approval, state water rights and wells discussed in Section 3.9.2.5 (Dixie Valley Training Area) would be evaluated on a case-by-case basis by the Navy. As noted previously, the Navy would not seek to acquire state water rights within the DVTA. Water right holders would continue to exercise their beneficial uses associated with the water right. The Navy will continue to consult with county planners so that future water development projects are designed to meet Churchill County and other planning authorities' water development goals with project design features consistent with military training activities within the DVTA.

Under Alternative 1 within the requested withdrawal area to expand the DVTA, the following changes from baseline conditions may impact or beneficially affect surface waters: (1) construction and (2) training activities. Unlike the Bravo ranges, the public would largely be allowed to continue accessing and using the DVTA area proposed for expansion. As such, impacts on surface waters would be comparable to existing conditions. Under Alternative 1 within the requested withdrawal area to expand the DVTA, public access is the only change from baseline activities may impact or beneficially affect groundwater resources. Additionally, training activities within the DVTA would not include munitions or explosives; therefore, Alternative 1's training activities would not introduce potential contaminants into subsurface waters.

Training Activities

Surface water. Implementation of Alternative 1 would expand Convoy Training and Combat Search and Rescue training within the DVTA. Ground-disturbing activities would have long-term impacts on soils, which would consist of increased potential for soil erosion, compaction, and displacement during training events. Soil erosion and displacement would increase sedimentation into the ephemeral washes and receiving basins. Based on the types of training activities within the DVTA under Alternative 1, compaction of soils is not likely to occur over a wide area as to induce measurable differences in runoff (a function of precipitation amounts, permeability of surface rocks and soils, and slope).

Potential impacts on surface water and groundwater resources within the DVTA under Alternative 1 would be negligible for the following reasons: (1) the limited amount of disturbance expected to occur within the DVTA withdrawal lands, (2) the localized areas of disturbance from convoy training and search and rescue training activities use within the withdrawal areas, (3) the small footprint of new infrastructure, and (4) BMPs specifically designed to reduce or avoid potential impacts on surface water (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation). At this time, convoy training is limited to existing roads and trails. Any change in this approach would include any required additional NEPA analysis.

Public Accessibility

Surface water. Allowable public uses of surface waters within lands requested for withdrawal for the DVTA would not change from current conditions under Alternative 1. These activities include fishing. Ongoing military training activities would continue (e.g., search and rescue activities, convoy training), as would the protective measures employed as standard operating procedures to protect surface water resources as described in the current Integrated Natural Resources Management Plan (U.S. Department of the Navy, 2014b).

Groundwater. Allowable public uses of the lands requested for withdrawal for the DVTA would not change from current conditions under Alternative 1, except for mineral resource exploration and development. Churchill County is planning to expand water development within Dixie Valley to serve the growing water requirements for domestic and commercial use for the City of Fallon. The exercise of Churchill County's water rights is consistent with activities proposed under Alternative 1; however, design criteria for improvements (e.g., pump houses, utility lines, pipelines) would need to be consistent with Navy training requirements. The Navy would allow existing recreational activities to continue within the DVTA. As such, impacts on groundwater resources would be comparable to existing conditions. Additionally, training activities within the DVTA would not include munitions or explosives; therefore, Alternative 1's training activities would not introduce potential contaminants into subsurface waters.

Construction

Surface water. Under Alternative 1, construction within the requested withdrawal area of the DVTA would directly disturb an estimated 15 acres for the construction of three electronic warfare sites (i.e., less than 1 percent of the DVTA). All staging and laydown areas for these sites would be located within the proposed construction area. These activities would directly disturb surface substrates by excavating, grading, grubbing, compacting, and clearing soil and vegetation during the construction phase.

As a standard operating procedure, all project-related BMPs would include erosion and sediment control measures (e.g., wattles, silt fences) and measures that would minimize or avoid direct and indirect impacts on soil, vegetation, and surface waters (Nevada Division of Environmental Protection, 2015).

BMPs would remain in effect until the construction sites have stabilized. Although BMPs do not eliminate potential for impacts on water resources, implementation of BMPs minimizes impacts to the maximum extent practical during construction, when impacts on water resources are likely to occur (Nevada Division of Environmental Protection, 2015).

Safe Drinking Water Act

As shown in Figure 3.9-15, there is one well rated to serve as a public water supply, which provides potable water to the existing electronic warfare range facility. The existing Centroid water treatment facility removes arsenic in the well water to levels safe for human consumption. This treatment system is expected to continue in service throughout the future range expansion. Infrastructure supporting electronic warfare training would not require a potable water supply. Churchill County is planning expansion of water resource development activities within Dixie Valley, primarily to serve expanding potable water needs for the city of Fallon. Under Alternative 1, the infrastructure improvements originally proposed by Churchill County may be constrained to meet military requirements (e.g., safety requirements for structure height), but these design constraints would not be expected to affect the quality of water for domestic consumption and commercial use.

Clean Water Act

No permanent or intermittent sources of water are within the proposed DVTA expansion area that would be considered as jurisdictional waters of the U.S.; therefore, there are no locations under the authority of the EPA or USACE granted to these agencies under Section 404 of the CWA.

3.9.3.2.5 Special Use Airspace

Proposed changes to the SUA under Alternative 1 would not impact water resources.

3.9.3.2.6 Summary of Effects and Conclusions

Potential impacts on water resources (surface water and groundwater resources) would be limited, because of (1) the limited amount of disturbance from munitions use within the withdrawal lands, (2) the localized areas of disturbance from munitions use within the withdrawal areas, (3) the small footprint of new infrastructure, (4) BMPs and mitigation measures specifically designed to reduce or avoid potential impacts on surface and groundwater, (5) in training ranges that expend munitions (B-16, B-17, and B-20), operational range clearance activities would periodically remove expended munitions and munitions fragments (removing a source of potential contamination to surface and groundwater), and (6) for expended munitions not retrieved, the arid environment would likely dry and degrade chemical compounds. Therefore, there would be no significant impacts on surface waters or groundwater quality.

Although there would be no significant impacts on surface waters or groundwater quality, impacts to state water rights would be significant as a result of the implementation of Alternative 1. Private water rights would be purchased as real property as necessary. Acquisition of state water rights would be factored into the processes for valuing grazing and mining-related just compensation or other authorized payments as appropriate. However, in the DVTA, the Navy would not seek to acquire existing state water rights. The Navy does not have the authority or the expertise to assist water rights holders with any other water rights actions (i.e., change applications).

With respect to water rights that are claimed as vested water rights, the Navy's understanding is that such rights are required by Nevada state law to be submitted for adjudication as potentially-valid water rights, and thus ideally the Navy would await the outcome of adjudication before providing compensation for any such claimed vested rights that might be acquired by the Navy as a result of any implementation of the Proposed Action. However, the Navy also understands that the adjudication process can be very lengthy, potentially lasting many years. Therefore—rather than awaiting completion of adjudication—the Navy would engage in discussions with affected parties claiming vested rights in order to confirm the status of such rights before making any commitment to provide compensation for them. The Navy notes that the obligation to provide just compensation in accordance with the Fifth Amendment of the U.S. Constitution is independent of—and is not limited by—the NEPA process, and potentially-affected parties would accordingly be free to present additional information concerning property interests subsequent to issuance of the Navy's Record of Decision.

3.9.3.3 Alternative 2: Modernization of the Fallon Range Training Complex and Managed Access

Alternative 2 is similar to Alternative 1. The differences between Alternative 1 and Alternative 2 are the public activities that would be allowed within B-16, B-17, B-20, and the DVTA (Table 2-5). Hydrological landscape regions associated with Alternative 2 within B-16, B-17, B-20, and the DVTA are shown in Figure 3.9-4, Figure 3.9-7, Figure 3.9-10, and Figure 3.9-13. Water rights potentially impacted by Alternative 2 within B-16, B-17, B-20, and the DVTA are shown in Figure 3.9-5, Figure 3.9-8, Figure 3.9-11, and Figure 3.9-14. Water wells potentially impacted by Alternative 2 within B-16, B-17, B-20, and the DVTA are shown in Figure 3.9-6, Figure 3.9-9, Figure 3.9-12, and Figure 3.9-15. The requested withdrawal areas, construction and extents, and training activities and locations would be the same as Alternative 1. The disposition and case-by-case evaluation of water rights under Alternative 2 within B-16, B-17, B-20, and the DVTA would be the same as described under Alternative 1. The proposed modifications to SUA under Alternative 2, as with Alternative 1, would have no impact on water resources.

Visits requiring access to the Bravo ranges would be coordinated with the Navy and allowed if compatible with Navy training activities and range safety. Opening the bombing ranges to special events (e.g., off-road races) could potentially lead to substantial impacts in localized areas on water resources because these activities directly disturb soil and increase erosion, potentially causing additional sediments to eventually settle in ephemeral washes and sinks. In addition, continuing to allow for the exploration and development of leasable and salable minerals within the DVTA could substantially impact surface and subsurface water resources. However, these activities are currently occurring within the proposed withdrawal areas, and therefore, any impact on water resources from continuation of such activities would presumably be comparable to current conditions. Other public activities allowed under Alternative 2 would not significantly impact surface or groundwater resources because of the low intensity of impacts associated with some public use activities. For example, impacts on water resources from hunting would be minimal because these activities would not significantly increase erosion or impede surface or groundwater flows. The primary environmental concern from camping and hunting activities are solid waste (trash) management and the prevention of wildfires. The Navy would create a program to oversee the approval process of any allowed land use activities within B-16, B-17, and B-20 (in the DVTA public access for grazing, hunting, OHV usage, camping, hiking, site and ceremonial visits, and large event off-road races would not change), which would review the environmental impacts of any proposed public use of FRTC lands. Although the specific locations and details of these activities are uncertain, these activities are assumed comparable to existing baseline conditions. However, combined

with military activities, it is more likely that these activities would have greater impacts on the soil, particularly when considering the length of time necessary for the desert soils to recover or stabilize, with adverse consequences for sedimentation.

As discussed under Alternative 1, there would be significant impacts on state water rights under Alternative 2. However, the Navy would not seek to acquire water rights within DVTA under Alternative 2. Water right holders would continue to exercise their beneficial uses associated with the water right. The Navy, through the BLM, will continue to consult with Churchill County planners and engineers so that future water development projects are designed to meet Churchill County water development goals with project design features consistent with military training activities within the DVTA.

Although impacts on water resources would be greater under this alternative compared to Alternative 1, implementation of this alternative would not result in significant impacts on water resources. Potential impacts on water resources (surface water and groundwater resources) would be limited, because of (1) the limited amount of disturbance from munitions use within the lands requested for withdrawal; (2) the localized areas of disturbance from munitions use within the withdrawal areas; (3) the small footprint of new infrastructure; (4) BMPs and mitigation measures specifically designed to reduce or avoid potential impacts on surface and groundwater; (5) in training ranges that expend munitions (B-16, B-17, and B-20), operational range clearance activities would periodically remove expended munitions and munitions fragments (removing a source of potential contamination to surface and groundwater); and (6) for expended munitions not retrieved, the arid environment would likely dry and degrade chemical compounds. In summary, there would be no significant impacts on surface water and groundwater quality under Alternative 2. As discussed under Alternative 1, impacts on water rights would be significant as a result of the implementation of Alternative 2 because of the potential impact on individual water right holders.

3.9.3.4 Alternative 3: Bravo-17 Shift and Managed Access (Preferred Alternative)

Alternative 3 is similar to Alternatives 1 and 2. The main difference between Alternatives 1 and 2, and Alternative 3 is that the B-17 range would be shifted and situated farther south and east under Alternative 3. The areas adjacent to the B-17 range to the east and west as indicated in Figure 2.3-13 would be managed as Special Land Management Overlay by the BLM. Alternative 3 would implement the same managed access programs as Alternative 2.

The Navy evaluated state water rights and well locations based on an August 2018 search of the NDWR Hydrographic Assay database within lands proposed for expansion under Alternative 3. The disposition and case-by-case evaluation of state water rights under Alternative 3 within B-16, B-17 shift, B-20, and the DVTA would be the same as described under Alternatives 1 and 2. After selection of an alternative, the Navy would further investigate water rights in more detail (e.g., with visits to search paper sources in NDWR field office archives). If no well is associated with a state water right, and no use for the well can be obtained, the Navy would close and abandon the well. For identified state water rights, the Navy would review the infrastructure (e.g., diversion works, stock ponds) and determine if a beneficial use for the water right can continue under the selected alternative. The result of this process is either the Navy's acquisition of the state water right or working with the water right holder to move the point of diversion or place of use so that there is no need for water right acquisition. The Navy recognizes there may be differences between the Hydrographic Abstracts and detailed place of use/point of diversion

information from NDWR and will continue to coordinate with NDWR to resolve differences between the online and detailed state water right information.

3.9.3.4.1 Bravo-16

Under Alternative 3, the removal of proposed and existing withdrawals south of Simpson Road (including Simpson Road itself) on B-16 would decrease the withdrawal portion associated with B-16 by 365 acres compared to Alternatives 1 and 2 (see Section 3.9.3.2, Alternative 1: Modernization of the Fallon Range Training Complex; and Section 3.9.3.3, Alternative 2: Modernization of Fallon Range Training Complex and Managed Access). The total requested additional withdrawal area for B-16 is 31,875 acres. In addition to the existing range size of 27,359 acres, the total size of B-16 under Alternative 3 would be 58,155 acres (which includes the subtraction of 1,079 acres that would not be renewed). Hydrological landscape regions associated with Alternative 3 within B-16 are shown in Figure 3.9-17. Figure 3.9-18 shows the one water right within B-16 in relation to Alternative 3, and Figure 3.9-19 shows the water wells potentially impacted under Alternative 3 within B-16. This alternative would have the same access restrictions to B-16 as Alternative 2. Regarding Scheckler Spill, the Navy would allow land managers to continue accessing the ranges for flood management purposes. The Bureau of Reclamation and the Navy would develop a Memorandum of Understanding to ensure continued management access.

Potential impacts on water resources within B-16 under Alternative 3 would be negligible, because of (1) the limited amount of disturbance from munitions use within B-16 withdrawal lands, (2) the localized areas of disturbance from munitions use within the withdrawal areas, (3) the small footprint of new infrastructure, (4) BMPs and management practices specifically designed to reduce or avoid potential impacts on surface and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation), and (5) for expended munitions not retrieved, the arid environment would likely dry and degrade chemical compounds.

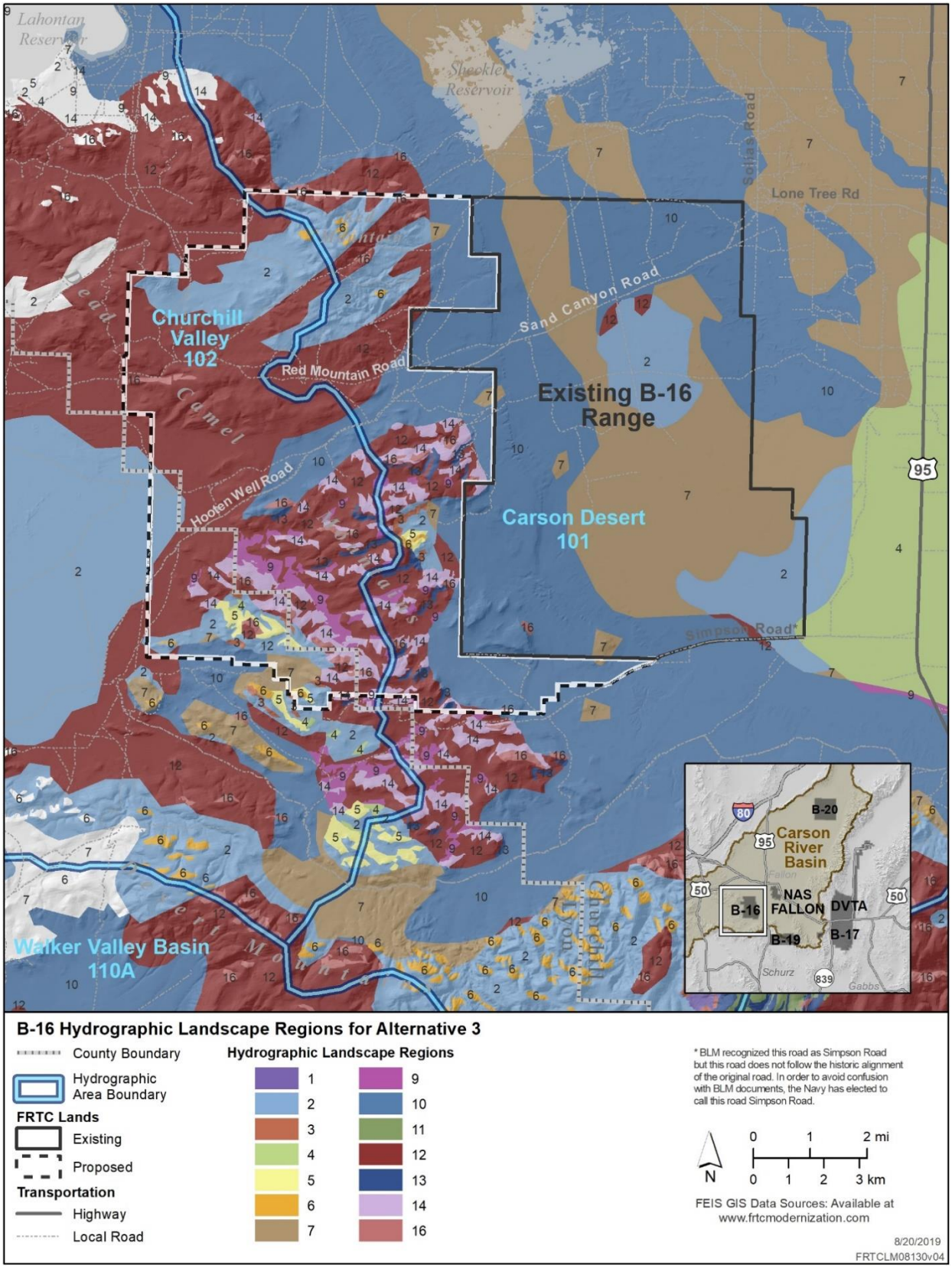


Figure 3.9-17: B-16 Hydrological Landscape Regions for Alternative 3

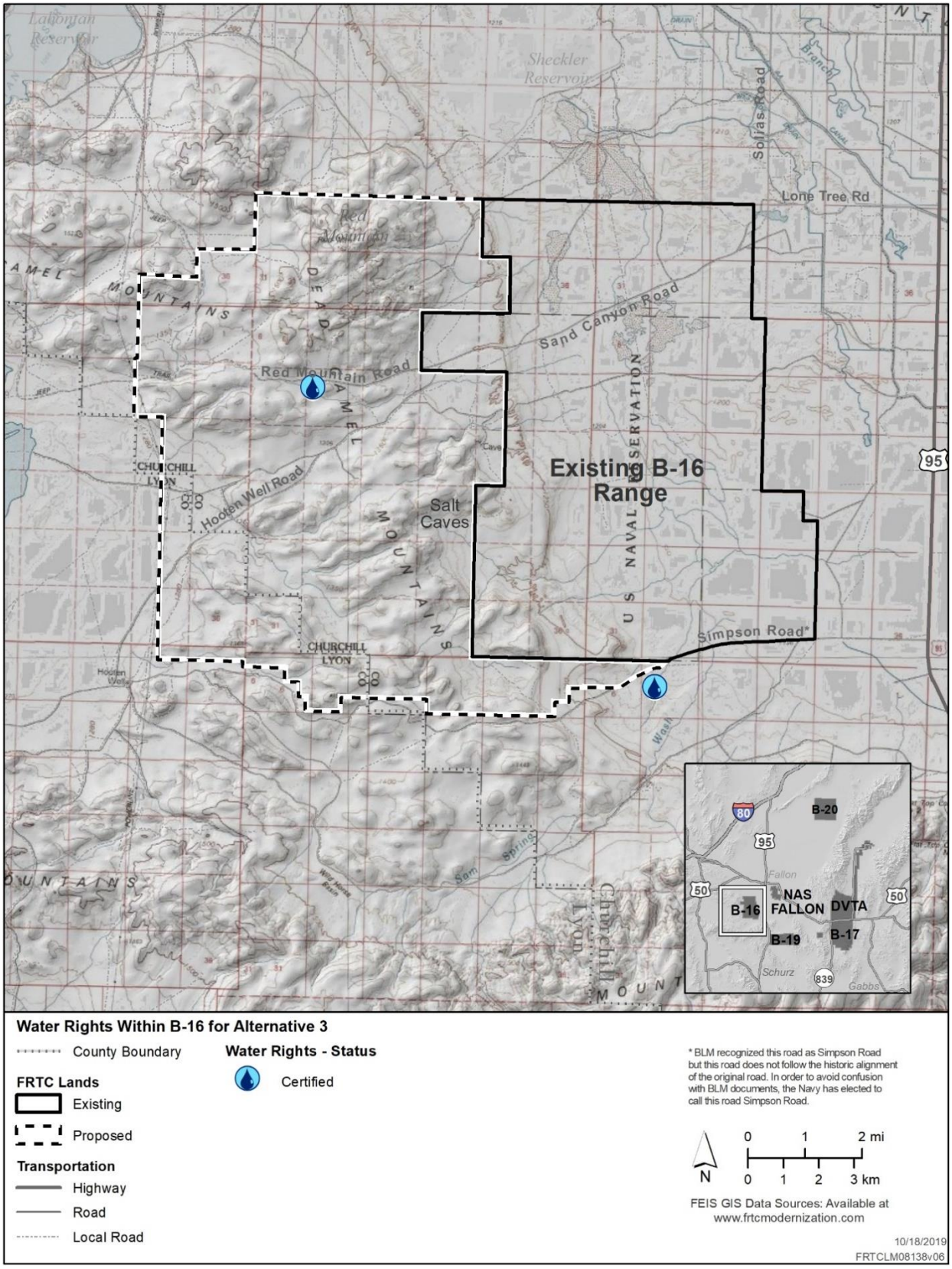


Figure 3.9-18: Water Rights Within B-16 for Alternative 3

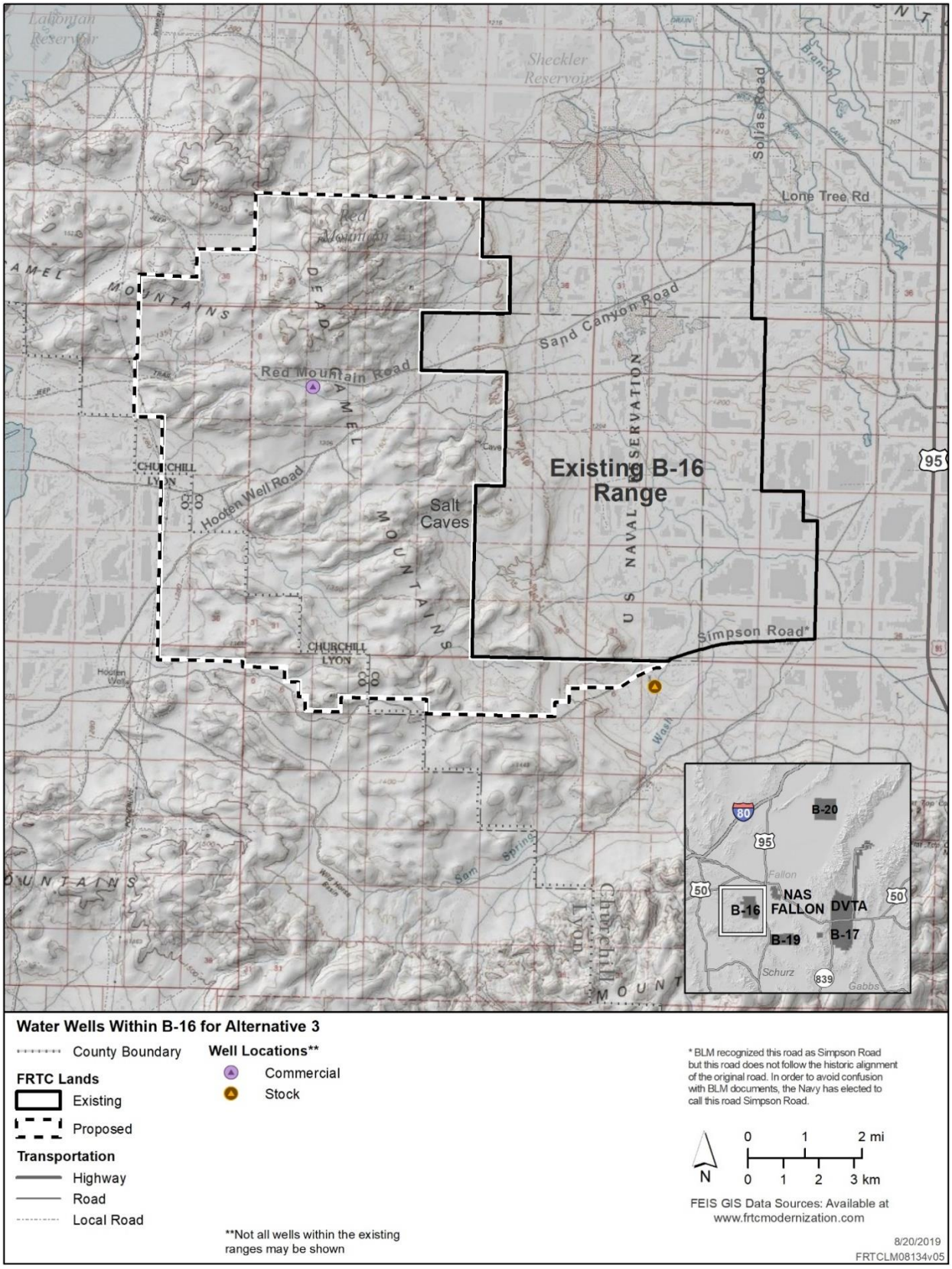


Figure 3.9-19: Water Wells Within B-16 for Alternative 3

3.9.3.4.2 Bravo-17

Land Withdrawal and Acquisition

Alternative 3 would expand B-17 to approximately 265,588 acres, which includes the proposed withdrawal of approximately 209,564 acres and acquisition of 2,474 acres of non-federally owned lands (Table 2-6). Hydrological landscape regions associated with Alternative 3 within B-17 are shown in Figure 3.9-20. Figure 3.9-21 shows the 15 water rights within B-17 in relation to Alternative 3, and Figure 3.9-22 shows the water wells potentially impacted under Alternative 3 within B-17. The proposed expansion of B-17 would include withdrawing public land (e.g., BLM-administered land) and purchasing private land. These private parcels are largely vacant land, which landowners have historically used for livestock grazing and other uses.

Training Activities

The potential impacts of training activities on water resources in the B-17 area would be the same as with Alternative 1 and Alternative 2, except that under Alternative 3 targets for high-explosive ordnance use would be placed on the western portion of Gabbs Valley and in areas surrounding ephemeral tributaries (but not in the actual washes) that connect to Gabbs Wash. Because of the proposed locations of these targets under Alternative 3, training activities would likely induce additional erosional processes relative to baseline conditions or Alternatives 1 and 2. However, explosive constituents are largely consumed during detonation, and those that are not consumed degrade rapidly in the environment. In addition, given the low level of precipitation within the region, the lack of perennial surface water in the area, and the low solubility of munition constituents, concentrations of explosives in soils would not represent a substantial threat of a release to an off-range area that poses unacceptable risk to human health or the environment. Finally, it is the Navy's intention to locate targets away from washes. Potential impacts on water quality within B-17 under Alternative 3 would not be significant. As stated previously, munitions constituents do not appear to be accumulating in large quantities on the surface and in the near subsurface because (1) the primary source of explosives such as intact UXO and low order detonations are regularly and routinely cleared from the range; (2) explosives are mostly consumed in the detonation (greater than 99 percent consumed) (Hewitt et al., 2003; Taylor et al., 2004); (3) the minor residual explosives naturally attenuate and degrade through physical, chemical, and biological processes (Dontsova & Taylor, 2017; U.S. Department of the Navy, 2008a); and (4) BMPs and management practices specifically designed to reduce or avoid potential impacts on surface and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation). Any impact on the surface from using these target areas would continue to be highly localized to target areas and would not be anticipated to alter the hydrological functions characteristic of the area within existing ranges, the areas proposed for B-17 expansion, or in surrounding areas.

Public Accessibility

Alternative 3 would implement the same managed access program as described under Alternative 2. Therefore, the impacts of public access on water resources under Alternative 3 would be similar to Alternative 2.

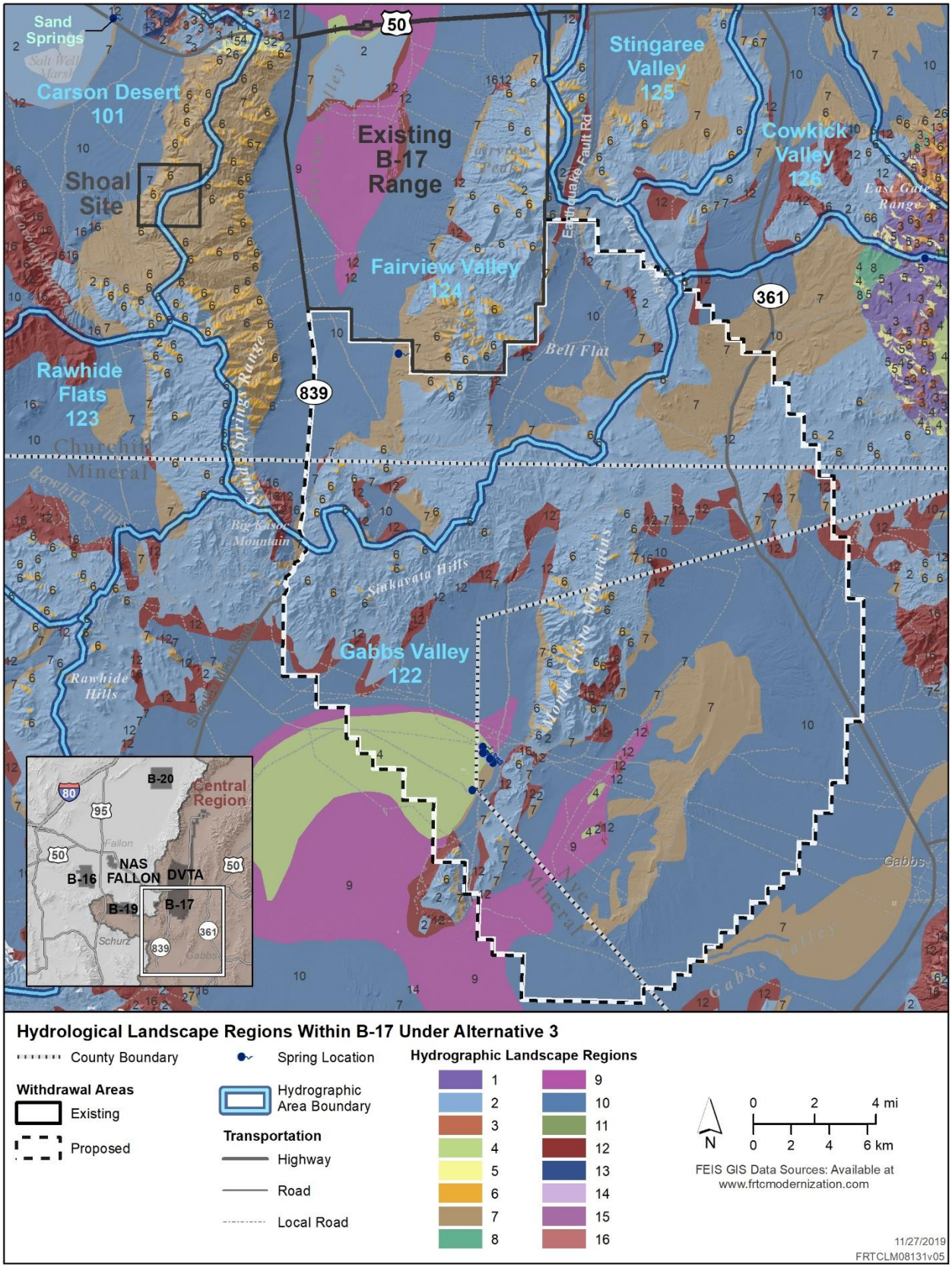


Figure 3.9-20: Hydrological Landscape Regions Within B-17 Under Alternative 3

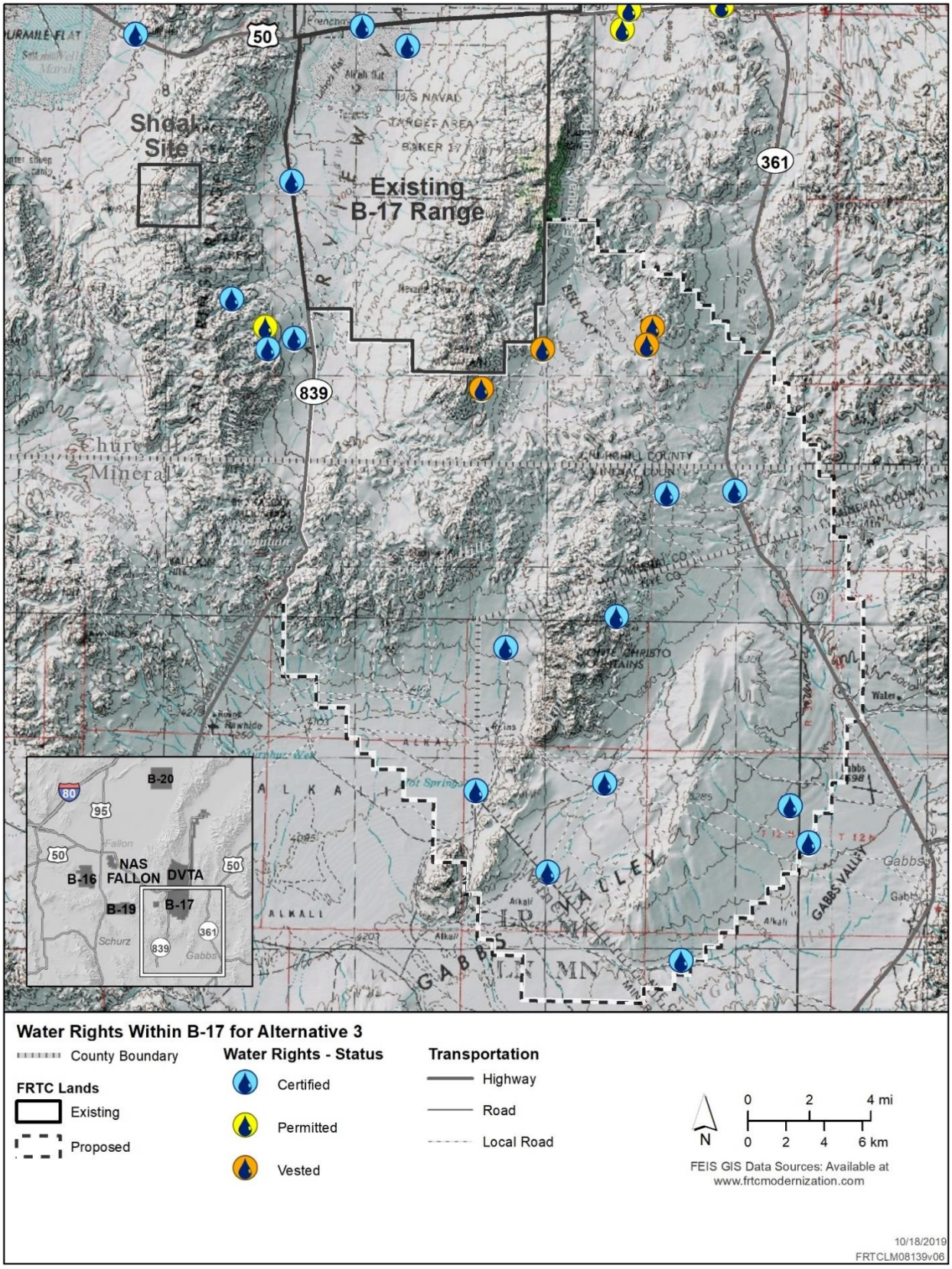


Figure 3.9-21: Water Rights Within B-17 for Alternative 3

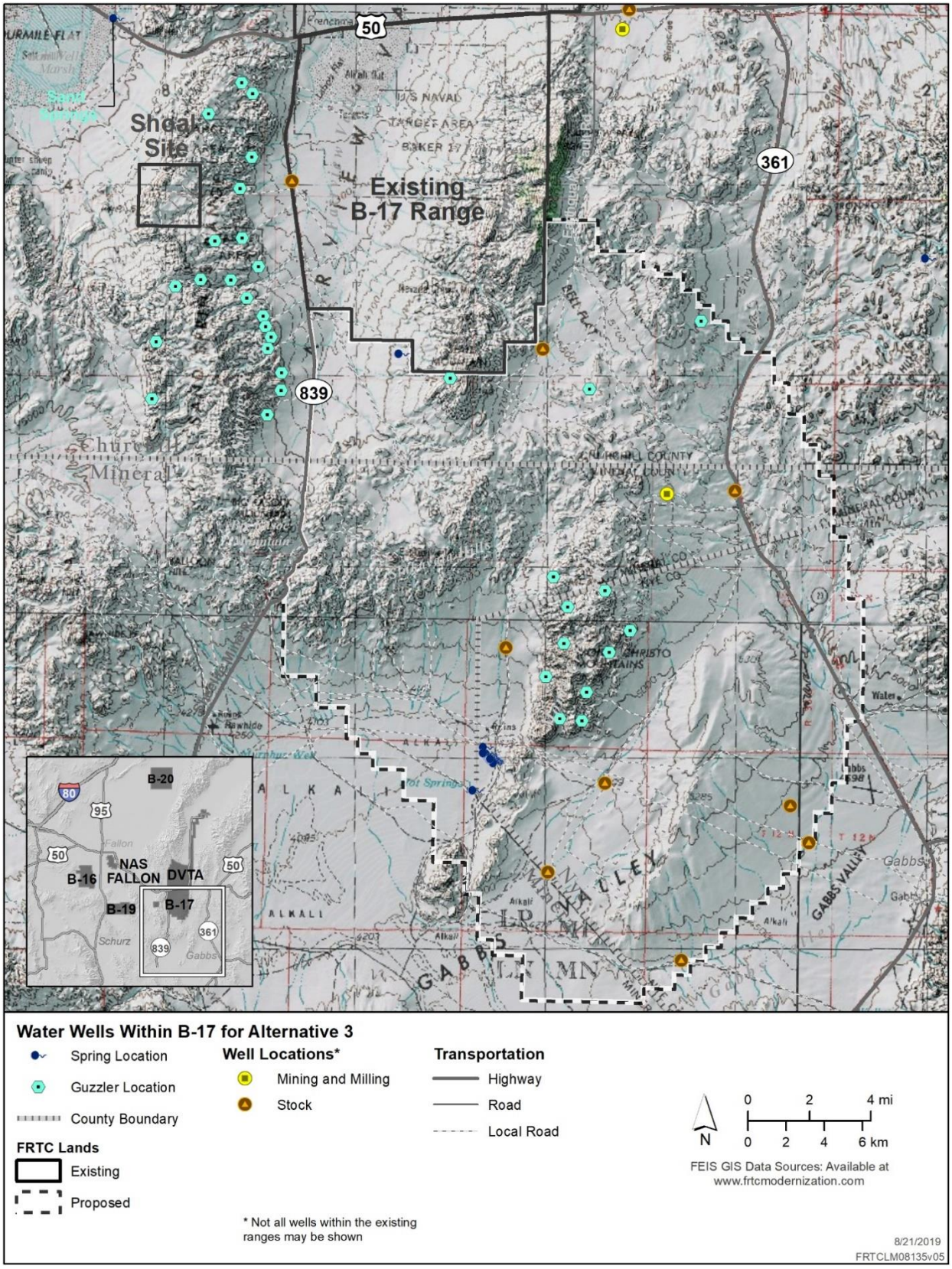


Figure 3.9-22: Water Wells Within B-17 for Alternative 3

Construction

The proposed construction within B-17 would be similar to Alternative 1. The primary difference would be the location of the proposed perimeter fence and infrastructure locations (e.g., target locations). The Navy would conduct follow-on site surveys prior to the installation of the fence. This would involve creation of service roads. These activities may potentially have indirect effects on water resources through excavation, grading, grubbing, compacting, and clearing soil and vegetation necessary during the construction phase of the project. As with Alternative 1, as standard operating procedure, all project-related BMPs would include erosion and sediment control measures (e.g., wattles, silt fences) and measures that would minimize or avoid direct and indirect impacts on soil, vegetation, and surface waters (Nevada Division of Environmental Protection, 2015). BMPs would remain in effect until the construction sites have stabilized. Although BMPs do not eliminate potential for impacts on water resources, implementation of BMPs minimizes impacts on the maximum extent practical during construction, when impacts on water resources are likely to occur. Any proposed fencing and maintenance roads would be evaluated in follow-on NEPA documentation after a legislative decision is made.

Road and Infrastructure Improvements to Support Alternative 3

State Route 361 Relocation Corridor: Under Alternative 3, using funding provided by the Navy, the Federal Highways Administration, in cooperation with NDOT, would be responsible for planning, design, permitting and construction of any realignment of State Route 361. The Navy has submitted a Needs Report to the Surface Deployment and Distribution Command requesting authority to utilize funding through the Defense Access Roads program. If approved, the Navy would coordinate construction execution through the Federal Highway Administration. NDOT would ensure that construction of any new route is complete before closing any portion of the existing State Route 361, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing State Route 361 unless and until any such new route has been completed and made available to the public. NEPA documentation would be completed by the Federal Highway Administration prior to any road construction. The Navy would support, fund, and participate in any such NEPA analysis.

Paiute Pipeline: Alternative 3 also includes the potential relocation of a portion of the Paiute Pipeline outside the B-17 WDZ. The Navy would purchase the impacted portion of the Paiute Pipeline and then would pay for relocation of the existing Paiute Pipeline south of the proposed B-17 range. Using funding provided by the Navy, the Paiute Pipeline Company would be responsible for planning, designing, permitting, funding, and constructing any realignment of the pipeline. A ROW application submitted to the BLM by the pipeline owner would formally identify any proposed reroute. Site-specific environmental analysis and NEPA planning would be required before any potential relocation of the pipeline could occur, and the Navy would not utilize any portion of an expanded B-17 range (if implemented) that would overlap the existing pipeline unless and until any such re-routing of the pipeline has been completed and made available to the pipeline owner. The BLM would have decision authority with respect to any proposed final routing subsequent to completion of site-specific environmental analysis.

Safe Drinking Water Act

As shown in Figure 3.9-9, there are three water wells identified for domestic water consumption. Under the managed access, it is unlikely that wells would be used prospectively as a source of potable water for domestic conception, although support facilities within B-17 as part of Alternative 3 may require a potable water source. None of these wells qualify as a public water system (having at least 15 service

connections or serving at least 25 people per day for 60 days of the year). Therefore, the Safe Drinking Water Act provisions are not applicable to the proposed expansion of B-17 under Alternative 3.

Clean Water Act

No permanent or intermittent sources of water are within the proposed B-17 expansion area that would be considered jurisdictional Waters of the U.S.

3.9.3.4.3 Bravo-20

The proposed expansion areas, construction areas, and training activities for B-20 under Alternative 3 would be similar to Alternatives 1 and 2 (see Section 3.9.3.2, Alternative 1: Modernization of the Fallon Range Training Complex). With the removal of proposed withdrawals east of East County Road on B-20, the B-20 withdrawal area decreases by 360 acres under Alternative 3 compared to Alternatives 1 and 2. In summary, under Alternative 3, B-20 would include 218,119 acres. Hydrological landscape regions associated with Alternative 3 within B-20 are shown in Figure 3.9-23. Figure 3.9-24 shows the six state water rights within B-20 in relation to Alternative 3, and Figure 3.9-25 shows the water wells potentially impacted under Alternative 3 within B-20. This alternative would have the same access restrictions to B-20 as Alternative 2. Therefore, expanding B-20 under Alternative 3 would impact water resources the same as Alternative 2.

Potential impacts on water quality within B-20 under Alternative 3 would be not be significant because of (1) the limited amount of disturbance from munitions use within B-20 withdrawal lands; (2) the localized areas of disturbance from munitions use within the withdrawal areas; (3) the small footprint of new infrastructure; (4) BMPs and management practices specifically designed to reduce or avoid potential impacts on surface and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation); (5) for expended munitions not retrieved, the arid environment would likely dry and degrade chemical compounds; and (6) water rights obtained and relinquished back to the State of Nevada and cessation of some wells would relieve pressure on groundwater resources. There would be no significant impacts on surface water and groundwater quality under Alternative 3 within B-20.

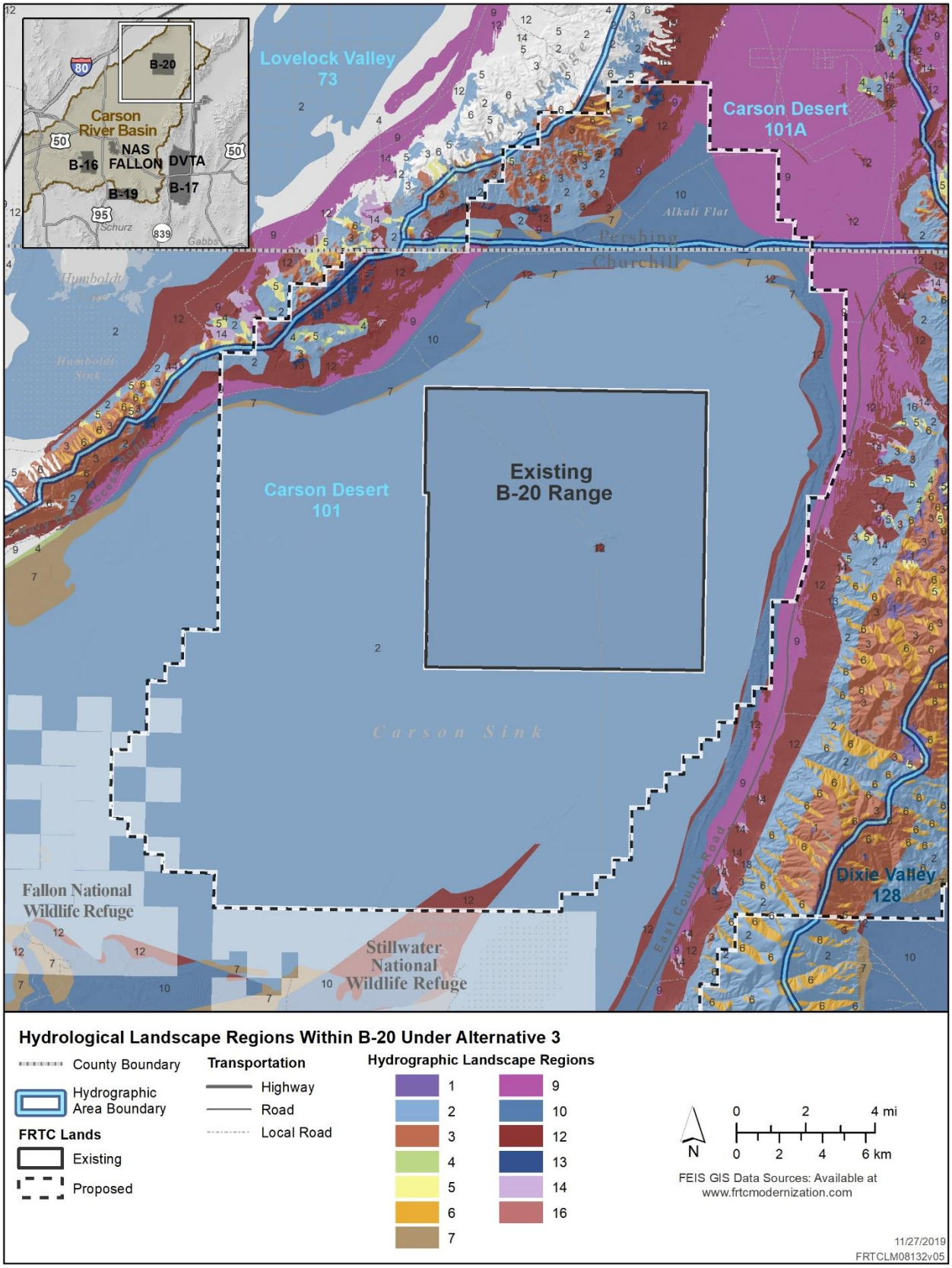


Figure 3.9-23: B-20 Hydrological Landscape Regions Within B-20 for Alternative 3

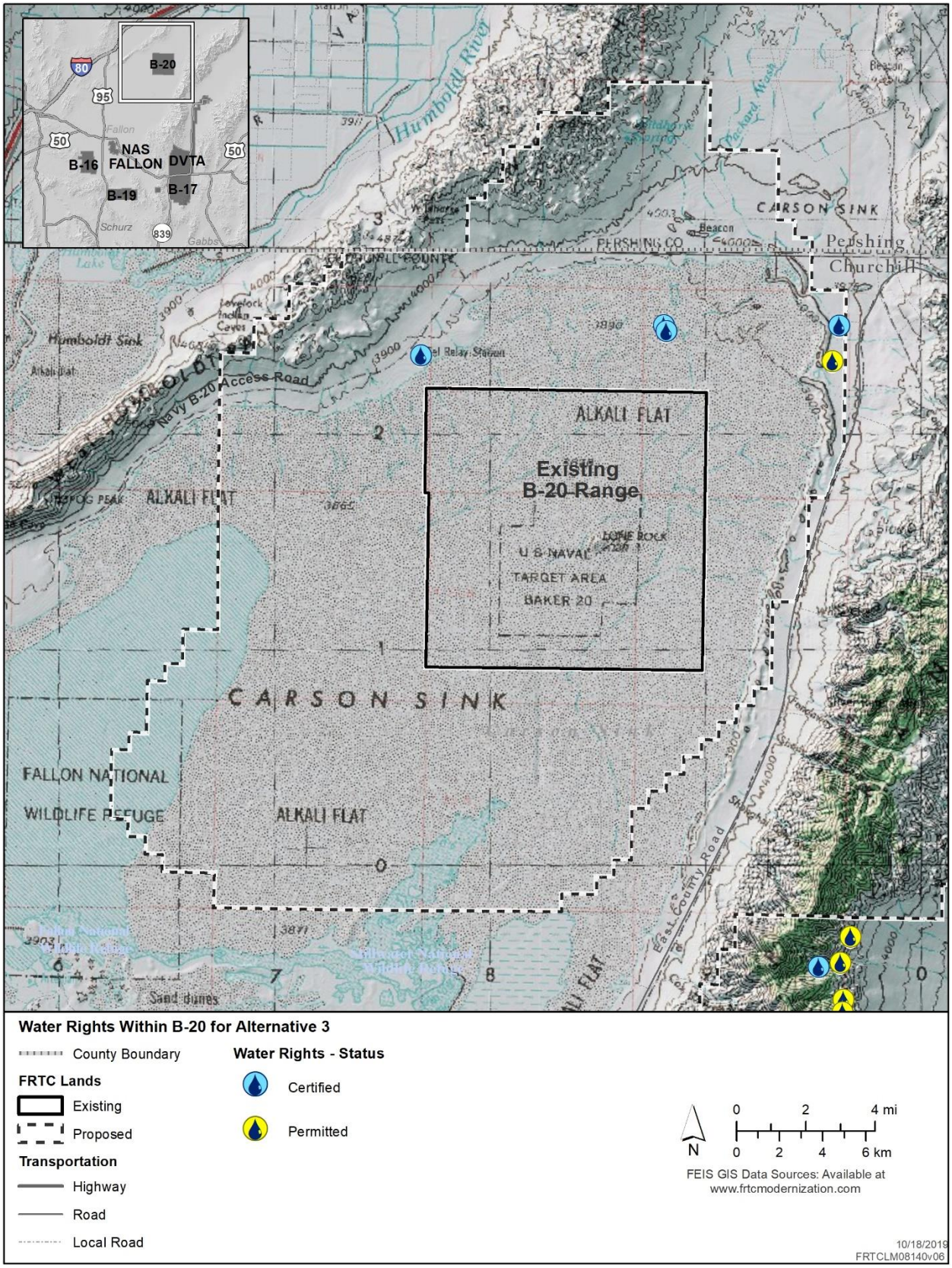


Figure 3.9-24: Water Rights Within B-20 for Alternative 3

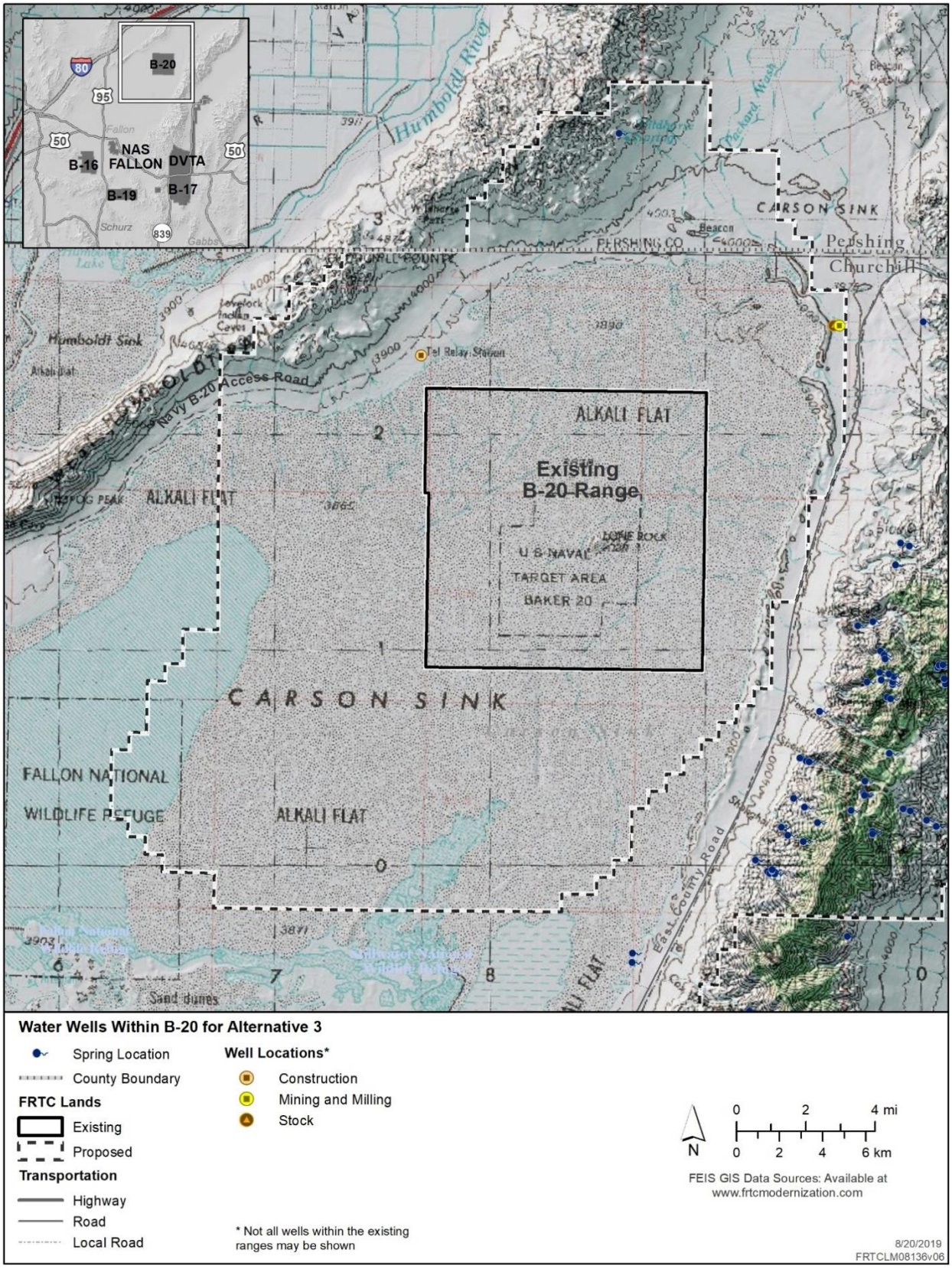


Figure 3.9-25: Water Wells Within B-20 for Alternative 3

3.9.3.4.4 Dixie Valley Training Area

The withdrawal area proposed under Alternative 3 for the DVTA would differ slightly from Alternatives 1 and 2. Hydrological landscape regions associated with Alternative 3 within the DVTA are shown in Figure 3.9-26. Figure 3.9-27 and Figure 3.9-28. These figures show the water rights and water wells that exist within the existing DVTA and proposed withdrawal area. Under Alternative 3, the land requested for withdrawal for the DVTA north of U.S. Route 50 would remain the same as under Alternatives 1 and 2. Unlike Alternatives 1 and 2, the Navy would not withdraw land south of U.S. Route 50 under Alternative 3. Rather, the Navy proposes that Congress categorize this area as a Special Land Management Overlay. This Special Land Management Overlay will define two areas (one east and one west of the B-17 range) as Military Electromagnetic Spectrum Special Use Zones. These two areas, which are public lands under the jurisdiction of BLM, would not be withdrawn or managed by the Navy. The proposed expansion (requested withdrawal and proposed for acquisition) would total approximately 247,762 acres and would increase the total range size to 325,322 acres. Ground-disturbing activities that would occur on the DVTA from public and operational activities could impact a slightly larger area; however, these activities are anticipated to be commensurate with current baseline activities. Therefore, implementation of Alternative 3 would result in similar impacts on water resources as Alternative 1.

Under Alternative 3 (as with Alternatives 1 and 2), the Navy would not seek to acquire water rights within DVTA. Water right holders would continue to exercise their beneficial uses associated with the water right. The Navy will continue to consult with Churchill County planners and engineers so that future water development projects are designed to meet Churchill County water development goals with project design features consistent with military training activities within the DVTA.

Potential impacts on water quality within the DVTA under Alternative 3 would not be significant for the following reasons: (1) the limited amount of disturbance from munitions use within the DVTA withdrawal lands, (2) the localized areas of disturbance from munitions use within the withdrawal areas, (3) the small footprint of new infrastructure, (4) BMPs and management practices specifically designed to reduce or avoid potential impacts on surface and groundwater (discussed in Section 3.9.3.5, Proposed Management Practices, Monitoring, and Mitigation), and (5) an arid environment that would likely dry and degrade chemical compounds in expended munitions not retrieved. There would be no significant impacts on surface water and groundwater quality under Alternative 3.

3.9.3.4.5 Special Use Airspace

Proposed changes to the SUA under Alternative 3 would not impact water resources.

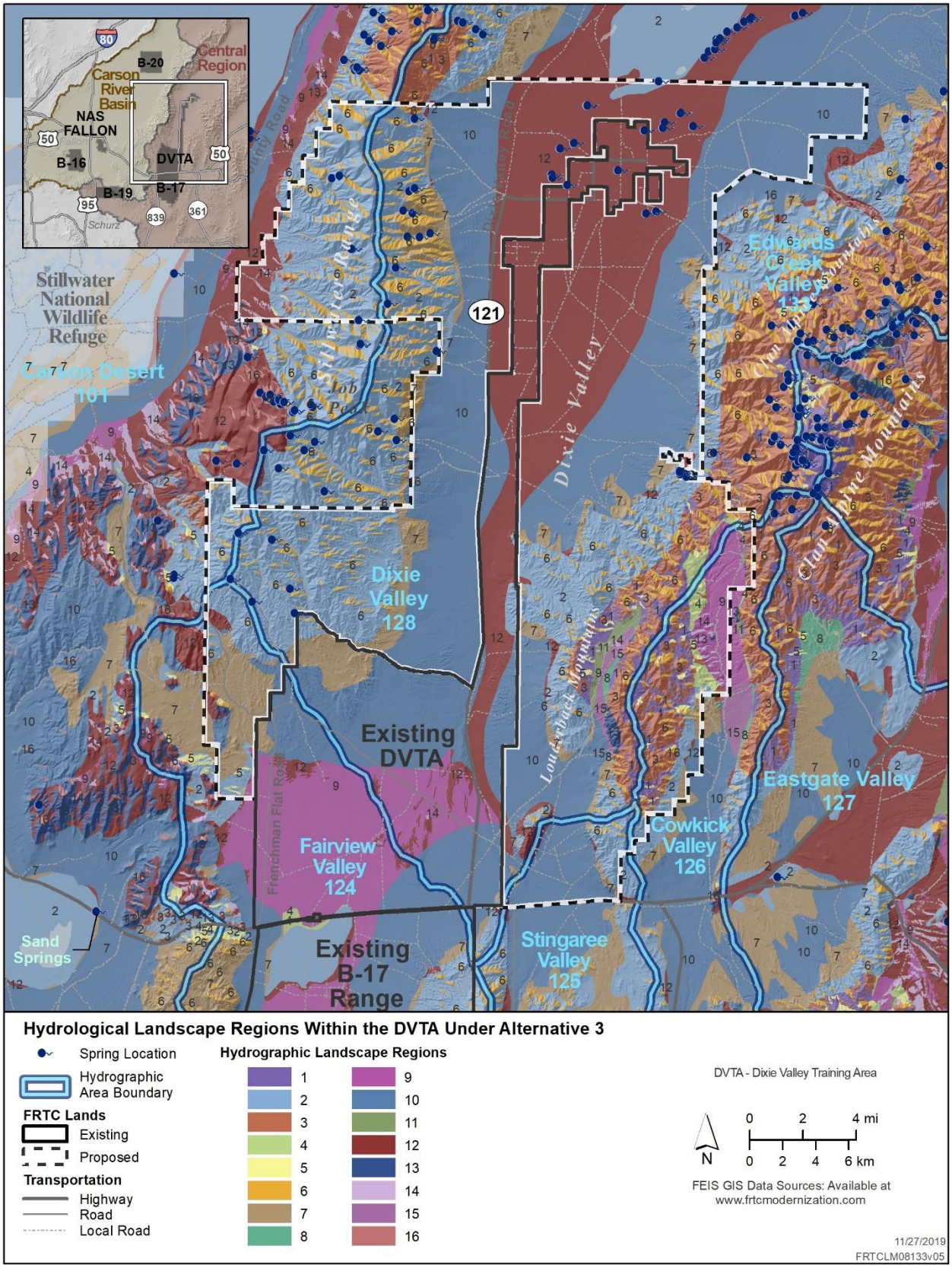


Figure 3.9-26: Hydrological Landscape Regions Within the DVTA Under Alternative 3

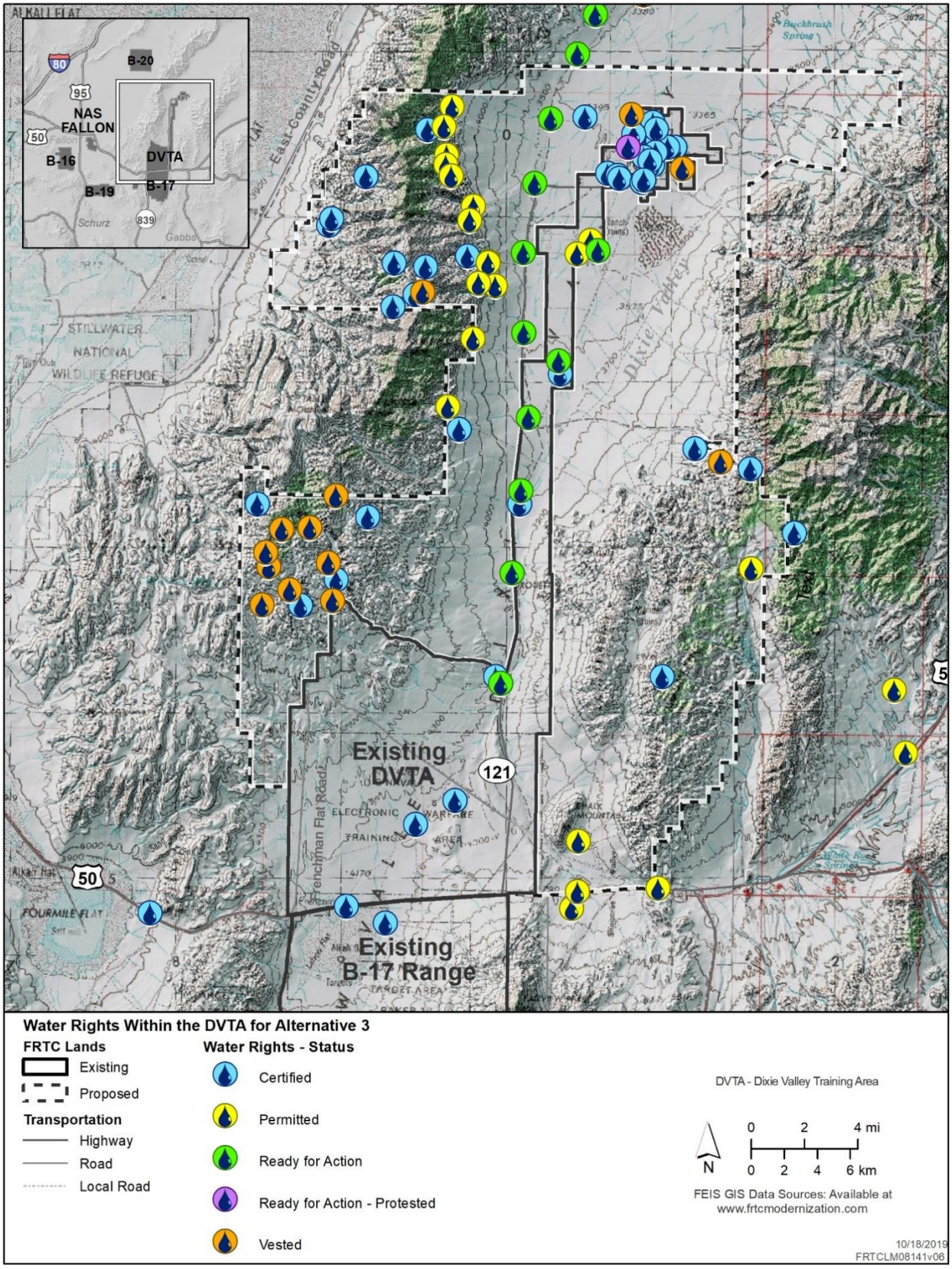


Figure 3.9-27: Water Rights Within the DVTA for Alternative 3

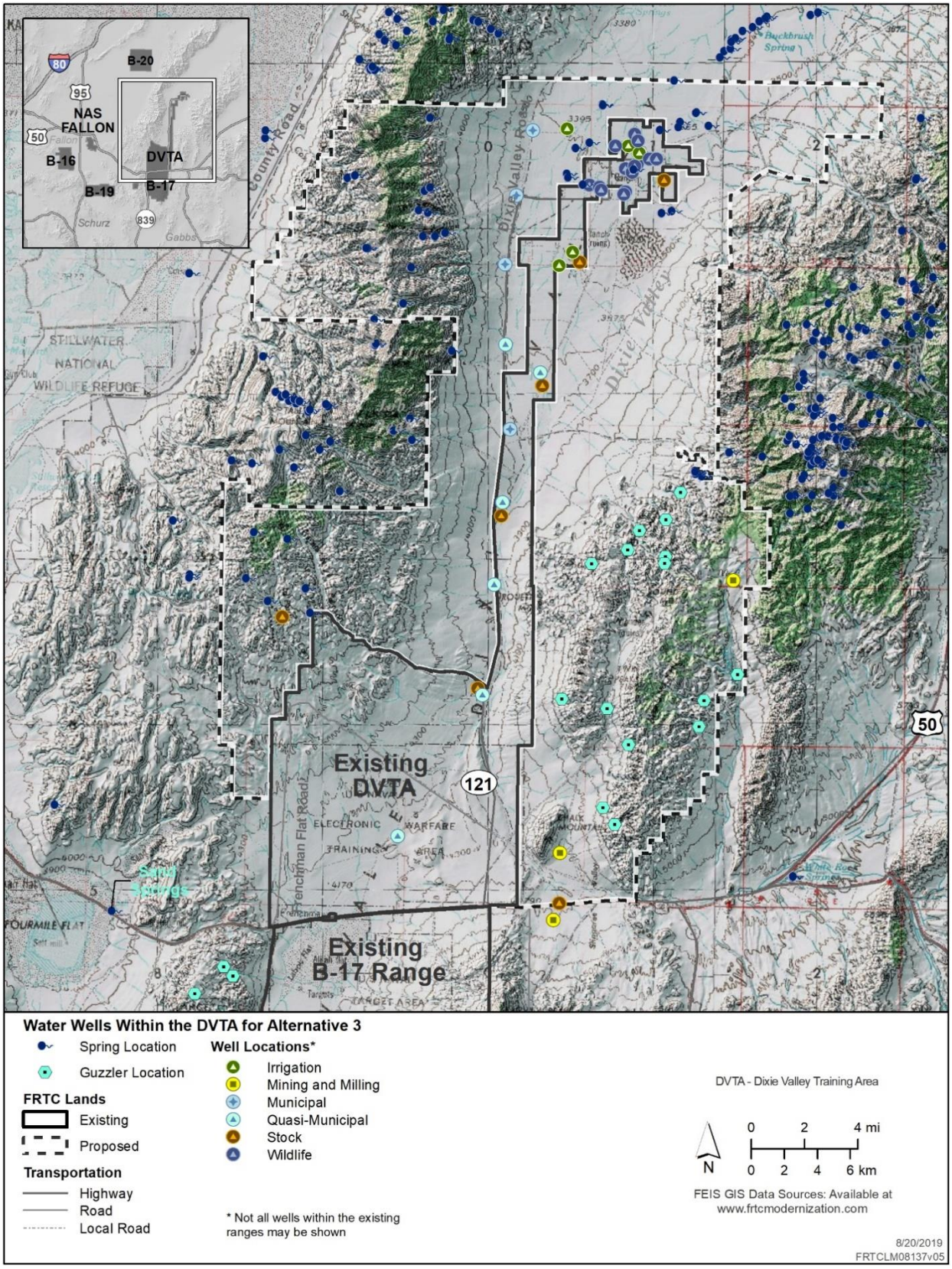


Figure 3.9-28: Water Wells Within the DVTA for Alternative 3

3.9.3.4.6 Summary of Effects and Conclusions

Potential impacts on water quality under Alternative 3 would not be significant, because of (1) the limited amount of disturbance from munitions use within the withdrawal lands, (2) the localized areas of disturbance from munitions use within the withdrawal areas, (3) the small footprint of new infrastructure, (4) BMPs and mitigation measures specifically designed to reduce or avoid potential impacts on surface and groundwater, (5) operational range clearance activities that would periodically remove expended munitions and munitions fragments (removing a source of potential contamination to surface and groundwater) in training ranges that expend munitions (B-16, B-17, and B-20), and (6) an arid environment that would likely dry and degrade chemical compounds in expended munitions not retrieved. There would be no significant impacts on surface water and groundwater quality under Alternative 3.

As discussed under Alternative 1, impacts to water rights would be significant as a result of the implementation of Alternative 3 because of the potential impact on individual water right holders. Private water rights would be purchased as real property as necessary. Acquisition of water rights would be factored into the processes for valuing grazing and mining-related just compensation or other authorized payments as appropriate. However, in the DVTA, the Navy would not seek to acquire existing state water rights. The Navy does not have the authority or the expertise to assist water rights holders with any other water rights actions (i.e., change applications).

With respect to water rights that are claimed as vested water rights, the Navy's understanding is that such rights are required by Nevada state law to be submitted for adjudication as potentially-valid water rights, and thus ideally the Navy would await the outcome of adjudication before providing compensation for any such claimed vested rights that might be acquired by the Navy as a result of any implementation of the Proposed Action. However, the Navy also understands that the adjudication process can be very lengthy, potentially lasting many years. Therefore—rather than awaiting completion of adjudication—the Navy would engage in discussions with affected parties claiming vested rights in order to confirm the status of such rights before making any commitment to provide compensation for them. The Navy notes that the obligation to provide just compensation in accordance with the Fifth Amendment of the U.S. Constitution is independent of—and is not limited by—the NEPA process, and potentially-affected parties would accordingly be free to present additional information concerning property interests subsequent to issuance of the Navy's Record of Decision.

3.9.3.5 Proposed Management Practices, Monitoring, and Mitigation

3.9.3.5.1 Proposed Management Practices

Current management practices would continue to be implemented under the No Action Alternative, Alternative 1, Alternative 2, or Alternative 3 and existing programs and plans would be updated to reflect new conditions. The following management practices would continue to be implemented to avoid and minimize potential impacts on water quality under each alternative.

- Environmental impacts from incidental fuel spills would be avoided by conducting all ground-based refueling activities in a secondary containment area.
- Drip pads would be placed under equipment when parked to avoid soil contamination from leaking fluids.
- A spill prevention, control, and countermeasures plan would be developed to respond to any event that would exceed spill prevention, containment, and countermeasures quantity

thresholds. The plan would help to ensure rapid and effective response to incidental spills and avoid contaminant migration to groundwater.

- Any spills of petroleum or other waste products would be managed and cleaned up in accordance with applicable state and federal regulatory requirements. If such a spill included a regulated material or impacted a waterway, the event would be immediately reported to the Nevada Department of Environmental Protection by the NAS Fallon Environmental Program. For more information, see Section 3.14 (Public Health and Safety and the Protection of Children).
- The operational range clearance plan would be updated and implemented to address any new requirements for the ranges.
- Range condition assessment five-year reviews would continue to be conducted, and appropriate steps would be taken, if necessary, to prevent or respond to a release or substantial threat of a release of munitions constituents of potential concern to off-range areas that could pose unacceptable risks to human health or the environment.
- Evaluate wells on expansion areas prior to closing to determine if a beneficial use (e.g., fire suppression, wildlife/stock water) could be established.

3.9.3.5.2 Proposed Monitoring

The need for groundwater sampling, analysis, or monitoring would continue to be considered during range condition assessment five-year reviews conducted under the Navy's Range Sustainability Environmental Program assessment program. There are no new monitoring programs proposed.

3.9.3.5.3 Proposed Mitigation

Under Alternative 2 and Alternative 3 (Preferred Alternative), the Navy would incorporate mitigation by proposing to allow development of water resources activities to continue on certain withdrawn areas as long as the actions are consistent with training activities and approved by the Navy. The Navy is currently proposing the following required design features for infrastructure supporting water development:

- A permanent right-of-way immediately adjacent to the existing Terra-Genn ROW to accommodate the main transmission power line
    - Maximum width of permanent ROW is 90 feet each
    - Maximum width of temporary ROW is 300 feet
- Infrastructure outside the ROW to be located west of State Route 121 to the greatest extent possible.
- Place all transmission lines located outside of the main ROW corridor underground.
    - A 90-foot-wide permanent ROW for all lateral transmission lines from the main transmission power line ROW to the well locations, 300 feet for construction.
    - Trenching for water and electrical lines will be constructed to recommended engineering standards assuming separate trenches will be necessary.
- Provide 1.5-acre ROWs for well houses. Provide a 2-acre temporary construction ROW for all proposed well locations for well siting and construction.
- Communication tower locations minimized and the use of fiber communication maximized.
- Communication towers would be limited to 20 feet and appropriately lighted for safety.
- Major facilities (permanent structures) within Dixie Valley would be collocated and have no structures over 40 feet in height.

- Coordinate with Navy on frequency spectrum.
- Use compatible lighting with downward facing shades, lighting with frequency that doesn't "wash out" night-vision devices and motion sensors to minimize light as appropriate.
- Coordinate all exploratory and construction activities in the DVTA with NAS Fallon.
- Coordinate with NAS Fallon for all temporary vertical obstruction safety lighting.
- Coordinate with NAS Fallon on the use of unmanned aerial vehicles used in the DVTA.
- Minimize impacts to current access roads from electrical and water utilities in ROWs.

The Navy, as part of the Proposed Action, would acquire existing and valid state water rights within the proposed withdrawal areas if the water right can be maintained for beneficial use. If a condition of the water right can be modified, then the water right would not be acquired by the Navy. The Navy would reimburse the movement of the water right on a case-by-case basis. If wells are associated with the water right, then the Navy would evaluate on a case-by-case basis the disposition of the well (e.g., continued beneficial use or capping of the well). The Navy does not plan to use any water rights purchased for stock water but would instead request to modify the beneficial use as appropriate relative to mission requirements. In the DVTA, the Navy would not seek to acquire existing water rights.

In addition, the following mitigation measures would be implemented to reduce impacts to water resources:

- The Navy would allow access for spring and wildlife guzzler monitoring and maintenance.
- The Navy would ensure the LeBeau water allotment remains accessible.
- The Navy is currently performing a land parcel survey to allow the potential relinquishment of 12 acres of land on the existing B-17 adjacent to State Route 839 to allow continued use of the area for local livestock and wildlife watering efforts

3.9.3.6 Summary of Effects and Conclusions

Based on the analysis of potential impacts on water quality of the No Action Alternative, Alternative 1, Alternative 2, and Alternative 3, there would be no significant impacts on groundwater or surface water resources within the withdrawal areas. Table 3.9-2 summarizes the effects of the alternatives on water resources. In the event that any of the alternatives analyzed herein is ultimately implemented, follow-on NEPA analysis would be conducted for any potential road and/or pipeline relocations, and a decision would ultimately be made as to whether to implement any such relocations.

Table 3.9-3: Summary of Effects and Conclusions for Water Resources

Summary of Effects and National Environmental Policy Act Determinations	
No Action Alternative	
Summary	• Existing land uses at FRTC would be returned to accessible public lands managed by the BLM for multiple uses following range closure activities, potentially making the land available for uses that could have significant impacts on surface and groundwater (e.g., mining activities, agriculture, energy development). No public access would occur at the ranges during any decontamination or range clearance processes. • The cessation of military surface uses reduces the potential for ground disturbance. Release of the FRTC lands to another Department of Defense agency, the BLM, or the State of Nevada would likely open restricted lands to public use or mineral resource development, which would likely broaden the areas subject to soil disturbance compared to current baseline levels. • Depending on the future land uses allowed, impacts on surface water resources from parties other than the U.S. Navy could be considerable. Sedimentation and ground disturbance through allowed activities (e.g., recreation and resource extraction) would likely continue, but not impede in a measurable way the normal flow and residency times of surface waters. • Mineral or energy exploration and development would likely have the most substantial impacts on groundwater resources within the region of interest. • There would be no requirements for the Navy to acquire state water rights or for water right holders to move place of use or point of diversion locations. Beneficial uses, although they may change with future water development projects in the region, would continue for each water right in accordance with the State of Nevada's Revised Statutes.
Impact Conclusion	The No Action Alternative could result in significant impacts on water resources because continued development of water resources would occur in areas proposed for withdrawal under the action alternatives.

Table 3.9-3: Summary of Effects and Conclusions for Water Resources (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 1	
Summary	• Impacts from training activities under Alternative 1 would not likely be measurable because (1) the low permeability of surface strata preventing contamination of underlying groundwater resources within the majority range substrates, (2) although concentrated around target areas, expended munitions would be removed as part of routine range maintenance activities, and (3) discontinued use of wells associated with geothermal exploration are not likely to influence the water table or other shallow aquifer lenses closer to the surface. In addition, range condition assessments (soil sampling and predictive modeling) would continue to be used as part of the RSEPA process to ensure that munition constituents are not migrating outside the range. Routine removal of expended munitions and range material, conducted under the Navy's Operational Range Clearance program, would reduce potential sources of heavy metals, for example, into the Carson Sink. This location already receives heavy metal contamination associated with the Carson River Mercury Superfund Site. • Road construction and facilities may cause temporary impacts on water resources; however, all construction activities would incorporate best management practices to contain and divert runoff from construction sites. • Standard operating procedures, such as range clearance procedures and spill response would reduce potential impacts of runoff. • Implementation of Alternative 1 may necessitate the Navy's acquisition of state water rights and fair market compensation of water right holders. This evaluation of water right acquisitions would occur on a case-by case basis if Alternative 1 is selected.
Impact Conclusion	Alternative 1 would not result in significant impacts on surface or groundwater quality; however, the changes in state water right ownership and management represent a significant impact on individuals.

Table 3.9-3: Summary of Effects and Conclusions for Water Resources (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 2	
Summary	• Impacts from training activities under Alternative 2 would not likely be measurable because (1) the low permeability of surface strata preventing contamination of underlying groundwater resources within the majority range substrates, (2) although concentrated around target areas, expended munitions would be removed as part of routine range maintenance activities, and (3) discontinued use of wells associated with geothermal exploration are not likely to influence the water table or other shallow aquifer lenses closer to the surface. In addition, range condition assessments (soil sampling and predictive modeling) would continue to be used as part of the RSEPA process to ensure that munition constituents are not migrating outside the range. Routine removal of expended munitions and range material, conducted under the Navy's Operational Range Clearance program, would reduce potential sources of heavy metals, for example, into the Carson Sink. This location already receives heavy metal contamination associated with the Carson River Mercury Superfund Site. • Road construction and facilities may cause temporary impacts on water resources; however, all construction activities would incorporate best management practices to contain and divert runoff from construction sites. • Standard operating procedures, such as range clearance procedures and spill response would reduce potential impacts of runoff. • Any impacts on surface and groundwater features would be temporary and minor. • Implementation of Alternative 2 may necessitate the Navy's acquisition of state water rights and fair market compensation of water right holders. This evaluation of water right acquisitions would occur on a case-by case basis if Alternative 2 is selected.
Impact Conclusion	Alternative 2 would not result in significant impacts on surface or groundwater quality; however, the changes in state water right ownership and management represent a significant impact on individuals.

Table 3.9-3: Summary of Effects and Conclusions for Water Resources (continued)

Summary of Effects and National Environmental Policy Act Determinations	
Alternative 3	
Summary	• Training activities would not increase compared to the baseline. However, range improvements may increase the number of targets and thus the number of sites where expended munitions can accumulate and from which residual constituents could potentially migrate. Alternative 3 could therefore result in an increased chance of surface and subsurface waters potentially receiving trace amounts of such residual material from larger areas up-gradient. However, regularly-conducted range clearance activities would remove most expended munitions and munitions fragments, greatly reducing the potential for such migration. The Navy has not identified any evidence of or potential for significant impacts to water resources (or otherwise to human health and the environment) from munitions constituents in the FRTC. • Road construction and facilities may cause temporary impacts on water resources; however, all construction activities would incorporate best management practices to contain and divert runoff from construction sites. • Standard operating procedures, such as range clearance procedures and spill response would reduce potential impacts of runoff. • Any impacts on surface and groundwater features would be temporary and minor. • Implementation of Alternative 3 may necessitate the Navy's acquisition of state water rights and fair market compensation of water right holders. This evaluation of water right acquisitions would occur on a case-by case basis if Alternative 3 is selected.
Impact Conclusion	Alternative 3 would not result in significant impacts on surface or groundwater quality; however, the changes in state water right ownership and management represent a significant impact on individuals.

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