3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter of the LEIS concisely describes the environmental resources that may be affected by the alternatives, including the Proposed Action, and analyzes the potential impacts to those resources. The analysis in this LEIS is applied in proportion to the importance of the anticipated consequences (e.g., impacts). To ensure the LEIS properly considers substantive issues, the Air Force focused the analysis on important issues commensurate with the importance of anticipated impacts. The Air Force has deemphasized nonsubstantive issues. The affected environment includes all areas and lands that might be affected, to include natural, cultural, and socioeconomic resources they contain or support.

As stated in Sections 2.3.2 and 2.3.3, the analysis in this LEIS uses a projected 30 percent increase in test and training activities to provide a reference point for analytical comparisons. Therefore, aircraft operations, munitions expenditures, and motorized vehicular activity were analyzed for Alternatives 2 and 3 at operational tempos 30 percent greater than those levels stated for Alternative 1.

The land boundary under Alternative 3 would include the current NTTR boundary as outlined in Section 2.3.1, plus various options for additional lands needed for the operational and safety requirements described in Sections 1.4.1 through 1.4.3. Each of the subalternatives associated with Alternative 3 would require fencing but only on the proposed boundaries that do not abut the current NTTR boundary. The fencing would be constructed to meet BLM fencing requirements, dependent on the topography and wildlife present, as outlined in BLM Handbook H-1741-1: Fencing, and the objective of the fencing would be to provide a physical barrier to prevent public access while allowing wildlife passage. For example, if the topography in an area supports bighorn sheep predominantly, fencing would be constructed using BLM Handbook H-1741-1: Fencing, conducive to bighorn sheep passage.

However, to conduct programmatic analysis for the affected resources discussed in this chapter, the following fencing specifications were used. The fencing would consist of four strands of wire. The bottom strand would be smooth while the three upper wires would be barbed. The maximum fence height would 40 inches. Wire spacing from the ground up would be 16 inches, and then spacing between wires would be 6 inches, 6 inches, and 12 inches (i.e., 16 inches, 22 inches, 28 inches, and 40 inches above ground level), which is the standard for BLM antelope fencing.

The Air Force used the scoping process to identify substantive issues to be carried forward for analysis, deemphasize nonsubstantive issues, and assist in narrowing the scope of the LEIS. The LEIS reflects the focused analysis that scoping indicated was appropriate and beneficial to support the legislative proposal. The scope of the LEIS includes consideration of 14 resource areas. This chapter focuses on data reflecting the affected environment and environmental consequences associated with the existing withdrawal and proposed expansion areas.

3.1 AIRSPACE

3.1.1 Affected Environment

Although additional airspace is not a requirement at this time, the current airspace is not used to its full potential, and more efficient use of the airspace is critical. Therefore, this section is provided to help clarify and provide context for the NTTR and the overall use of the affected environment. Military airspace is generally established for national defense, national security, and national welfare. Special Activity Airspace (SAA) is the term often used to describe military airspace. For purposes of this document, SAA is considered any airspace having defined dimensions within the National Airspace System wherein limitations may be imposed on aircraft operations, such as Restricted Areas, Prohibited Areas, MOAs, ATCAAs, and any other designated airspace areas. SAA consists of two common types of airspace: SUA (i.e., Special Use Airspace) and Airspace for Special Use (ASU).

3.1.1.1 Description of Resource

For the Native American perspective on information in this section, please see Section 3.1.4 and Appendix K, paragraph 3.1.1.1.1.

SUA is airspace of 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 on aircraft operations that are not part of those activities. SUA includes the following types of charted airspace: MOAs, Restricted Areas, Warning Areas, Alert Areas, Prohibited Areas, and National Security Areas. Controlled Firing Areas (CFAs) are uncharted. With the exception of CFAs, SUA is depicted on aeronautical charts. Additional information on SUA may be found in the following publications: 14 CFR 73, Special Use Airspace; FAA Joint Order (JO) 7400.2, Procedures for Handling Airspace Matters (FAA, 2014); FAA JO 7400.8, Special Use Airspace; FAA JO 7610.4, Special Operations (FAA, n.d.); Flight Information Publications (FLIP): General Planning (Chapter 2), AP/1A, AP/2A, AP/3A, and AP/4A.

ASU is used to collectively identify non-SUA assets. Establishing certain types of ASU may not require coordination with the FAA. ASU includes the following types of airspace: Aerial Refueling (AR) tracks/anchors, ATCAA, Altitude Reservation, Low-Altitude Tactical Navigation (LATN) areas, Temporary Flight Restrictions, Cruise Missile Routes, Orbit Areas, Local Flying Areas, Military Training Routes (MTRs) (Instrument Routes and Visual Routes), and Slow Routes. Establishing these ASUs does not require a rule making process, and some (designated solely in military documents) do not require coordination with the FAA for establishment. Additional information on ASU may be found in the FAA JO 7610.4, Special Operations (FAA, n.d.), command or local military publications, and FLIP: General Planning, and AP/1B, Military Training Routes North and South America (DoD, 2017).

3.1.1.2 Region of Influence

Adding or eliminating SAA controlled by the Nellis Air Traffic Control Facility (NATCF) is not within the scope of any of the proposed alternatives analyzed in this LEIS; however, SAA is discussed to better define the context of the affected environment in which the NTTR is used. The FAA has designated SAA around Nellis AFB, including the NTTR, for the Air Force. The NATCF is staffed by military and DoD civilian air traffic controllers and is available, upon request, to provide traffic advisories and assist aircraft in remaining clear of SAA areas. With regard to the proposed land withdrawal, it should be noted that the NTTR ground space boundaries may differ from the air space boundaries in some areas. Specific airspace areas controlled by the NATCF are shown on Figure 3-1; below the map, the designated airspaces are listed by type.

3.1.1.3 Restricted Areas

Within or adjacent to the NTTR, there are eight Restricted Areas: R-4806E, R-4806W, R-4807A, R-4807B, R-4808N, R-4808S, R-4809A, and R-4809B. All of these areas contain operations that are hazardous to nonparticipating aircraft. During certain time periods, R-4806E, R-4806W, R-4807A, R-4807B, and R-4809 are authorized for transit with certain restrictions. The NATCF is the controlling agency for these areas. R-4808N and R-4808S are adjacent to the NTTR and are controlled by the DOE. Specific boundary points (latitude and longitude), as well as designated altitudes and times of use, can be found in FAA Order 7400.8Y, Special Use Airspace (FAA, 2016). While the outer boundary is published, it should be noted that internal subdivisions also exist to maximize effective utilization of the airspace.

3.1.1.4 Military Operations Areas

The Desert and Reveille North and South MOAs (and their associated ATCAAs) are located north of Nellis AFB and are available for transit by civil VFR aircraft. Although no VFR restrictions exist for transiting these areas, military aircraft are exempted from the provisions of 14 CFR 91.71 concerning acrobatic flight within federal airways and control zones. The training conducted within the Desert and Reveille North and South MOAs consists of high-speed operations, including supersonic flight at or above 5,000 feet above ground level (AGL) and abrupt aircraft maneuvers. The Desert MOA is subdivided into an Air Traffic Control transition corridor (Sally) and three training areas: Elgin, Caliente (Alpha, Bravo, and Charlie), and Coyote (Alpha, Bravo, Charlie, and Delta). There are two Reveille MOAs, Reveille North and Reveille South. ATCAA overlies the Desert MOA from Flight Level (FL) 180 to unlimited. Reveille North and South ATCAA extend from FL180 to FL600. For the Reveille North MOA/ATCAA, airspace requirements above FL300 must be requested/scheduled 30 days in advance.

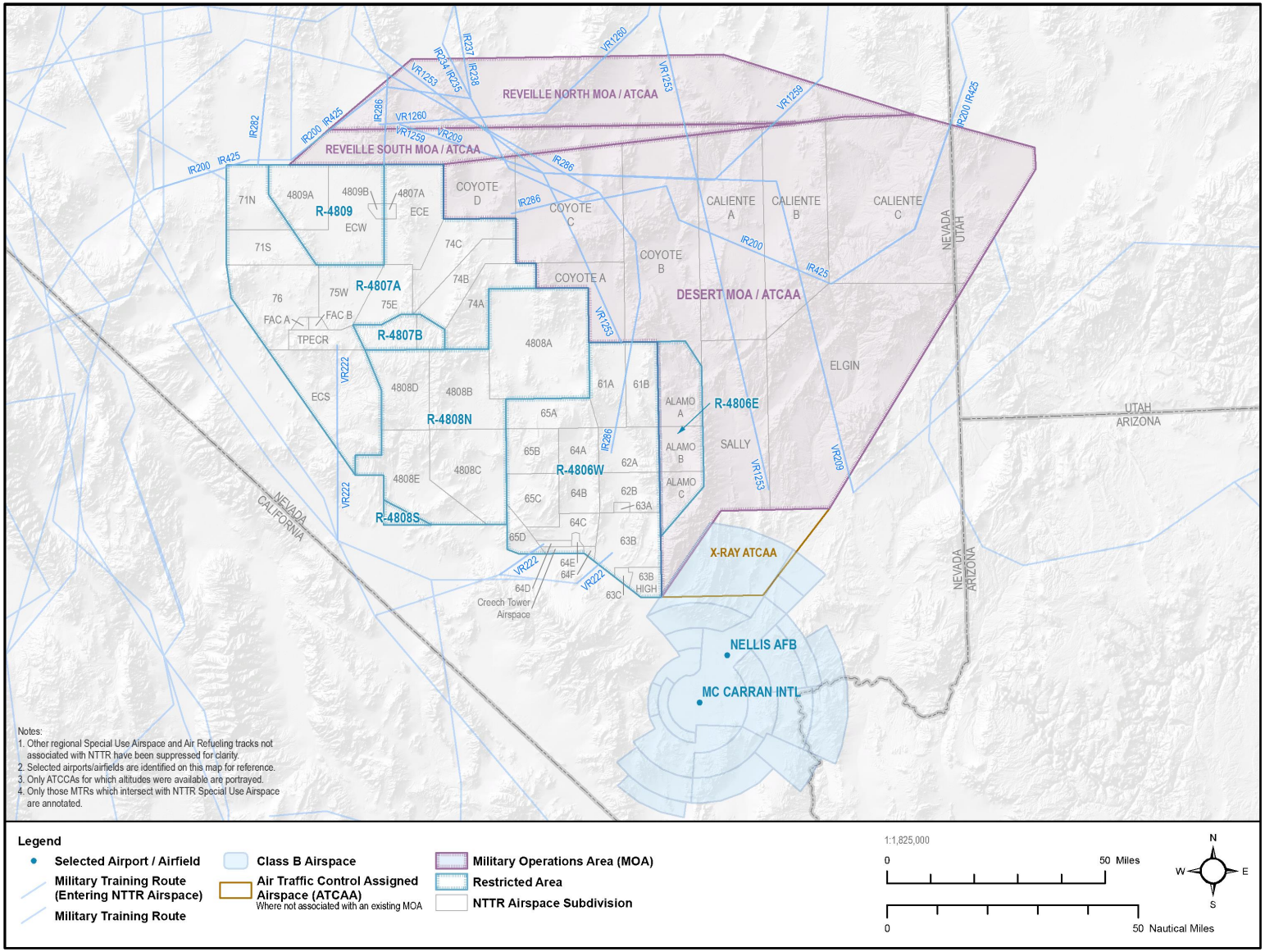

Figure 3-1. Airspace Map in the Vicinity of the NTTR

The NATCF is available to provide current status on activities and radar traffic advisories to VFR aircraft transiting the Desert and Reveille MOAs. Desert and Reveille North and South MOAs are depicted on the Las Vegas VFR Sectional and Low Altitude Enroute Charts. Specific boundary points (latitude and longitude) as well as designated altitudes and times of use can be found in FAA Order 7400.8Y, Special Use Airspace (FAA, 2016). Like the Restricted Areas, the outer boundary may be published, but internal subdivisions exist to maximize effective utilization of the airspace.

3.1.1.5 Alert Area 481 (A-481)

The Alert Area extends from Nellis AFB westward, 7,000 to 17,000 feet mean sea level (MSL). Military arrival and departure traffic transit this area, normally from 7,000 MSL to FL230. Although, the Alert Area begins at 7,000 MSL, military VFR departures may still occasionally pass through the VFR training area that lies beneath the Alert Area. Specific boundary points (latitude and longitude) as well as designated altitudes and times of use can be found in FAA Order 7400.8Y, Special Use Airspace (FAA, 2016).

3.1.1.6 Low-Altitude Tactical Navigation Area

Although LATN airspace is not charted, it is included in the flight planning process. LATN areas allow A-10, C-130, and helicopter aircraft to practice random tactical navigation and formations between 50 and 1,500 AGL. Airspeeds will be at or below 250 knots. There is a LATN area to the west of the Restricted Areas, south of the NTTR and east of the MOAs. These areas are normally used when no airspace is available within the NTTR.

3.1.1.7 Air Refueling Routes

There are two low-altitude VFR helicopter air refueling routes adjacent to the NTTR. AR-230V is west of Mesquite, Nevada, and extends from the LAS 025046 to the LAS 025081. Refueling altitudes are 6,000 to 8,000 MSL. Several types of helicopters and HC-130 refueling aircraft use AR-230V. All aircraft using AR-230V must remain under VFR. AR-231V is southeast of Beatty, Nevada, and extends from the BTY 124005 to the BTY 124042. Refueling altitudes are 6,000 to 8,000 MSL. Several types of helicopters and HC-130 refueling aircraft use AR-231V. All aircraft using AR-231V must remain under VFR. Additional refueling routes include AR-624, AR-625, and AR-635.

3.1.1.8 Military Training Routes

The MTR program was established by the FAA and the DoD for the purpose of conducting low-altitude and/or high-speed training. Generally, MTRs are established below 10,000 MSL for operations at speeds in excess of 250 knots. Each segment of an MTR is allocated a floor and ceiling altitude and lateral boundaries, described in nautical miles left and right of centerline. MTRs are established according to the criteria in FAA JO 7610.4, Special Operations (FAA, n.d.). Routes are established as either Instrument

Routes or Visual Routes. Instrument Routes are used by the DoD and associated Air Force Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions at airspeeds in excess of 250 knots below 10,000 MSL. Visual routes are used by the DoD and associated Air Force Reserve and Air Guard units for the purpose of conducting low-altitude navigation and tactical training under VFR weather conditions at airspeeds in excess of 250 knots below 10,000 MSL. The DoD has a speed exemption to 14 CFR 91.117 (see FAA JO 7610.4). The FAA has approval authority over Instrument Route establishment, and the appropriate DoD Major Command (MAJCOM) approves establishment of Visual Routes. Environmental documentation in accordance with 32 CFR 989 is required to establish MTRs. Visual Routes are processed through the FAA via an Air Force Representative, who assigns all route numbers. Ultimately, MTRs are published in FLIP AP/1B (DoD, 2017) and charted on the FLIP AP/1B Area Planning Chart and FAA sectional charts. Some MTRs are included on DoD low-altitude IFR en route charts.

Table 3-1 lists the MTRs in and around the NTTR airspace. For specific route descriptions (latitude/longitude, altitudes, route width, hours of operation, and specific operating procedures) refer to FLIP AP/1B, Military Training Routes North and South America.

Table 3-1. Military Training Routes Within or Adjacent to the NTTR

MTR	Scheduling Agency	NTTR Airspace Accessed
IR 286	Nellis AFB	Segments in Reveille North MOA, Reveille South MOA, Desert MOA, R-4806E, and R-4806W
IR 234	Edwards AFB	Final segment exits Reveille MOA
IR 235	Edwards AFB	Last segment enters Reveille MOA (reverse of IR 234)
IR 237	Edwards AFB	Last segment enters Reveille MOA
IR 238	Edwards AFB	First segment exits Reveille MOA (reverse of IR 237)
IR 425	Edwards AFB	Traverses Reveille and Desert MOAs
IR 200	NAS Point Mugu	Traverses Reveille and Desert MOAs (reverse of IR 425)
IR 206	NAS Point Mugu	None
IR 285	Offutt AFB	First segment exits North Desert MOA
IR 310	Offutt AFB	Last segment enters North Desert MOA (reverse of IR 285)
VR 1252	NAS Lemoore	None
VR 1253	NAS Lemoore	Traverses Desert MOA
VR 1259	NAS Lemoore	Traverses Reveille and Desert MOAs
VR 1260	NAS Lemoore	First and last segments in Reveille MOA
VR 208	NAS Lemoore	None
VR 209	NAS Lemoore	Traverses Reveille and Desert MOAs
VR 222	Nellis AFB	Final segments in R-4806W and R-4807A

AFB = Air Force Base; IR = Instrument Route; MOA = Military Operations Area; NAS = Naval Air Station; VR = Visual Route

3.1.2 Environmental Consequences

The Air Force recognizes that it is difficult to determine significance at the programmatic level. If the areas associated with the Proposed Action or alternatives are withdrawn for military use, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts, and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made. However, at a programmatic level, the Air Force does not anticipate significant impacts overall as they relate to airspace under any alternative.

3.1.2.1 Analysis Methodology

As previously mentioned in Section 3.1.1.2 (Region of Influence), none of the proposed alternatives would involve physical changes (external boundaries, dimensions, altitudes, etc.) to any airspace currently controlled by NATCF. As such, any changes will be limited to how the airspace is used. Although additional airspace is not required, certain airspace may be utilized more extensively, while use of other airspace units may decrease. Therefore, the utilization of the current airspace would likely be modified. The result could potentially change noise levels, patterns, and dispersal due to changes in aircraft operation. See the noise analysis in Section 3.2.2 for more details on potential noise impacts due to aircraft operation. Activities such as munitions use (bombs, small arms, blanks), ground disturbance (construction or troop movement), or emitter operations would not affect airspace under any of the alternatives and are not discussed further in this section.

3.1.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of the NTTR (North and South Range) – Status Quo

Under Alternative 1, congestion, range constraints, and the inability to properly test and train would continue across the NTTR.

3.1.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

Alternative 2 would provide ready access in the North and South Ranges through a Congressionally directed change in land management in the South Range that would effectively eliminate the need to manage the areas that were proposed for wilderness within the withdrawn lands as if they were wilderness, as well as reallocate primary jurisdiction between the USFWS and the Air Force for portions of the DNWR that overlap with the NTTR. This alternative would allow the NTTR to provide equal capabilities for MCO training and MCO T&E in the North Range and South Range, relieving scheduling challenges and increasing throughput. Threat emitters would be used to create a realistic IADS to maximize and enhance pilot training opportunities. There would be increased utilization of the airspace that overlies the South Range due

to an anticipated 30 percent increase in operations but ready access would allow better utilization of the airspace.

3.1.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

Alternatives 3A, 3A-1, and 3B would add land to create a safety buffer for the redesignated Range 77 and for the South Range, respectively. There would be no changes to airspace, but implementation of these alternatives could result in increased use and scheduling of the airspace in and around the proposed Range 77 and the South Range, respectively.

Alternative 3C would allow a two-axis front MCO concept and expand potential weapons safety footprints associated with the target area located on Range 62A. As with Alternative 2, there is anticipated to be a 30 percent increase in operations; however, this increase would not result in any changes to the existing airspace boundaries. While no changes would be made to the airspace boundaries, the future construction of two runways would likely result in increased use and scheduling within the South Range. However, it should be noted, as indicated in Section 2.3.3.4, any Alternative 3C future construction would require a site-specific NEPA analysis at that time.

3.1.2.5 Alternative 4 – Establish the Period of Withdrawal

The proposed withdrawal periods associated with Alternative 4—Alternative 4A (20-year withdrawal period), Alternative 4B (50-year withdrawal period), and Alternative 4C (indefinite)—must be implemented in conjunction with one or more of the other alternatives or subalternatives. Because Alternative 4 reflects periods of time, which do not in and of themselves affect airspace, there are no specific impacts associated with Alternative 4, and it is not anticipated that any of the subalternatives (4A, 4B, or 4C) would impact how the airspace is used.

3.1.2.6 No Action Alternative

Under the No Action Alternative, existing airspace would not be affected by not extending the land withdrawal. However, without control of ground areas, the restricted airspace could not be used for its intended purpose of primarily supporting live-fire exercises and related military high-hazard activities. Nonhazardous airspace activities would continue to occur.

3.1.3 Proposed Resource-Specific Mitigations and Management Actions

No mitigations have been identified for airspace.

3.1.4 Native American Perspective: Airspace

The CGTO understands the existing air space will not change under the proposed land withdrawal. However, cultural views about the air within the proposed air space are described under Section 3.3.4 (Native American Perspective on Air Quality).

3.2 NOISE

3.2.1 Affected Environment

3.2.1.1 Description of Resource

For the Native American perspective on information in this section, please see Section 3.2.4.1 and Appendix K, paragraph 3.2.1.1.1.

Noise is defined as unwanted sound. Potential noise impacts are dependent on characteristics of the noise such as sound level, pitch, and duration. Noise impacts are also strongly influenced by characteristics of the noise receiver (i.e., persons, animals, or objects that hear or are affected by noise). Noise analysis considers potential impacts that could result in annoyance, speech interference, sleep disturbance, human health effects (auditory and nonauditory), wildlife impacts, and structural damage. Additional discussion of specific noise effects on other affected resources can be found in Section 3.6 (Socioeconomics), Section 3.7 (Environmental Justice), Section 3.8 (Biological Resources), and Section 3.9 (Cultural Resources). Appendix C (Noise) presents information on noise metrics and describes methods used to model aircraft and munitions noise levels.

Because both the duration and frequency of noise events also play a role in determining overall noise impact, several metrics are used that account for these factors. Each metric discussed below is used in the assessment of noise impacts in this LEIS. A more thorough explanation of these metrics can be found in Appendix C (Noise).

- A-weighted decibel (dBA) sound level measurements reflect the frequencies to which human hearing is most sensitive. Noise levels in this LEIS can be assumed to be A-weighted unless a different weighting is specified.
- Day-night average sound level (DNL [symbol - L_{dn}]) represents aircraft noise level averaged over a 24-hour period with a 10-decibel (dB) penalty to flights occurring between 10:00 PM and 7:00 AM to account for the added intrusiveness of noise during these hours.

- Sound exposure level (SEL) accounts for both the maximum sound level and the length of time a sound lasts.
- Maximum sound level (L_{max}) is the highest sound level measured (using time integration of either 1/8 second or 1 second) during a noise event. L_{max} decreases as altitude or distance from the observer increases and varies according to the type of aircraft, airspeed, and power setting.
- Peak Noise Exceeded by 15 Percent of Firing Events, or PK_{15}(met), accounts for weather-influenced statistical variation in received single-event peak noise levels, such as with munitions use. This metric is not frequency-weighted.
- C-weighted day-night average sound level (CDNL [symbol - L_{cdn}]) is the 24-hour day-night averaged C-weighted sound level computed for areas subjected to sonic booms and blasts from high explosives.
- Onset-rate adjusted monthly day-night average sound level (L_{dnmr}) is the measure used for subsonic aircraft noise in military airspace (ranges, MTRs, or MOAs).

3.2.1.2 Region of Influence

The region of influence (ROI) for noise includes the lands under and near NTTR airspace and airspace above the proposed expansion areas. This includes land under the SUAs, MOAs, and MTRs. For Nellis AFB, installation aircraft operations, such as takeoffs, landing, and touch-and-goes are not included in this analysis since these are already included in the installation noise analyses. However, this information was included for the analysis associated with Creech AFB since it is included within the NTTR boundary. The same airspace units would be utilized under all of the alternatives; however, the frequency of operations in some airspace units would increase under some alternatives. Noise environments in the vicinity of the NTTR are dominated by aircraft noise and munitions activities. Other noise sources include ground vehicles and other machinery.

3.2.1.3 Laws and Regulations

There are no specific legal limits that apply to military noise. In 1972, Congress passed the *Noise Control Act*, which imposed limitations on source noise levels of several types of equipment. However, because noise controls could, in some cases, reduce the combat effectiveness of military equipment, military equipment was exempted from these requirements. For the same reason, FAA limitations on civilian aircraft noise do not apply to military aircraft. The Air Force participated in the Federal Interagency Committee on Urban Noise, which developed guidelines for compatibility of land uses with elevated noise levels. Noise impacts are defined based on published guidelines on the compatibility of various land uses with noise and published scientific documents on noise effects.

3.2.1.4 Noise Modeling

The NOISEFILE database is used to represent noise data for each aircraft. NOISEFILE is used by the noise modeling software MR_NMAP and NOISEMAP to predict noise levels. Operational data were collected from pilots, air traffic controllers, aircraft maintainers, range operators, and other sources in accordance with standard data collection procedures.

The data were put into computerized noise models to generate estimates of noise levels. The following noise models were applied as appropriate for each type of noise.

Subsonic Noise

The MOA and Range NOISEMAP (MR_NMAP) suite of computer programs is used for computing subsonic aircraft noise underneath SUAs. Noise levels from aircraft operations beneath military airspace units were calculated using the L_{dnmr} metric.

The NOISEMAP suite of computer programs was used for computing subsonic aircraft noise in the vicinity of Creech AFB. Aircraft noise levels in the vicinity of Creech AFB were calculated and are presented using the DNL metric.

Supersonic Noise

The BOOMAP modeling software was used to model supersonic noise. BOOMAP accounts for the statistical variations in air combat maneuvers when computing CDNL levels and the number of sonic booms per month expected to reach the ground under an SUA. CDNL values are measured in C-weighted decibels and are denoted dBC.

Large-Caliber Weapon Noise

Noise from detonation of large-caliber weapons (20 millimeter or greater) is computed using DoD's Blast Noise (BNOISE) program. BNOISE is a collection of computer programs which together can produce CDNL contours for impulsive sources such as guns, artillery, mortars, demolitions, bombs, etc.

Construction Noise

Construction noise was evaluated using Roadway Construction Noise Model version 1.1, the Federal Highway Administration's standard model for the prediction of construction noise (U.S. Department of Transportation [USDOT], 2016). The Roadway Construction Noise Model has the capability to model types of construction equipment that would be expected to be the dominant construction-related noise sources associated with this aspect of the Proposed Action. All construction noise analyses assumed that a standard set of construction equipment would be used. Construction noise is expected to be limited to normal working hours (7:00 AM to 5:00 PM). Construction noise impacts are quantified using the metrics L_{max} and L_{10} (loudest 10 percent noise level) as calculated based on distance from a given receptor.

3.2.1.5 Baseline Noise Levels

Baseline aircraft noise levels for the NTTR were calculated using the models discussed above based on operations conducted in the NTTR airspace for calendar year 2015. As mentioned, these data were obtained from NTTR operators, pilots, schedulers, air traffic controllers, etc., using standard data collection methods.

Subsonic Noise

Table 3-2 presents the resulting noise levels for Restricted Areas, MOAs/ATCAAs and MTRs. The baseline L_{dnmr} values for Restricted Areas, MOAs/ATCAAs, and MTRs were calculated to vary from less than 45 dB to 69 dB. The baseline noise levels are also illustrated in Figure 3-2.

Table 3-2. Summary of L_{dnmr} Values for Special Use Airspaces

SUA Name	Baseline L_{dnmr} (dBA)	SUA Name	Baseline L_{dnmr} (dBA)
R-4806	60	Coyote	67
R-4807	66	Elgin	60
R-4808	<45	Reveille	61
R-4809	69	Sally	<45
Caliente	67	VR-209	<45
		VR-222	<45

< = less than; dBA = A-weighted decibels; L_{dnmr} = Onset-rate adjusted monthly day-night average sound level; SUA = Special Use Airspace

Creech AFB

The analysis of Creech AFB operations results in DNL contours of 65 to 85 dB plotted in increments of 5 dB for an average annual day condition (Figure 3-2 [Inset]). The 65-dB contour extends approximately 2 NM to the southwest and southeast mostly due to transient military and RQ-170 operation.

Under baseline conditions, a total of approximately 4,159 people live within areas affected by 65 to 69 dB DNL. Approximately 12 to 21 percent of the population in an area exposed to 65 to 70 dB DNL is highly annoyed by noise (see Section 3.7, Environmental Justice, for more on populations affected by noise).

Supersonic Aircraft Noise

Aircraft flight in excess of the speed of sound (Mach 1) generates a sonic boom. The BOOMAP software was used to analyze the operational data for supersonic flights and generate the CDNL values associated with these operations.

Table 3-3 and Figure 3-3 show the CDNL values associated with baseline supersonic operations. For example, Table 3-3 shows that the CDNL values for the baseline condition vary from 51 dBC to 61 dBC. The number of sonic booms expected to reach the ground per day varies from one to five. Under baseline conditions, there are minimally populated areas outside of the NTTR boundary that are exposed to 62 dB CDNL or greater due to supersonic booms (see Section 3.7, Environmental Justice, for more on populations affected by noise).

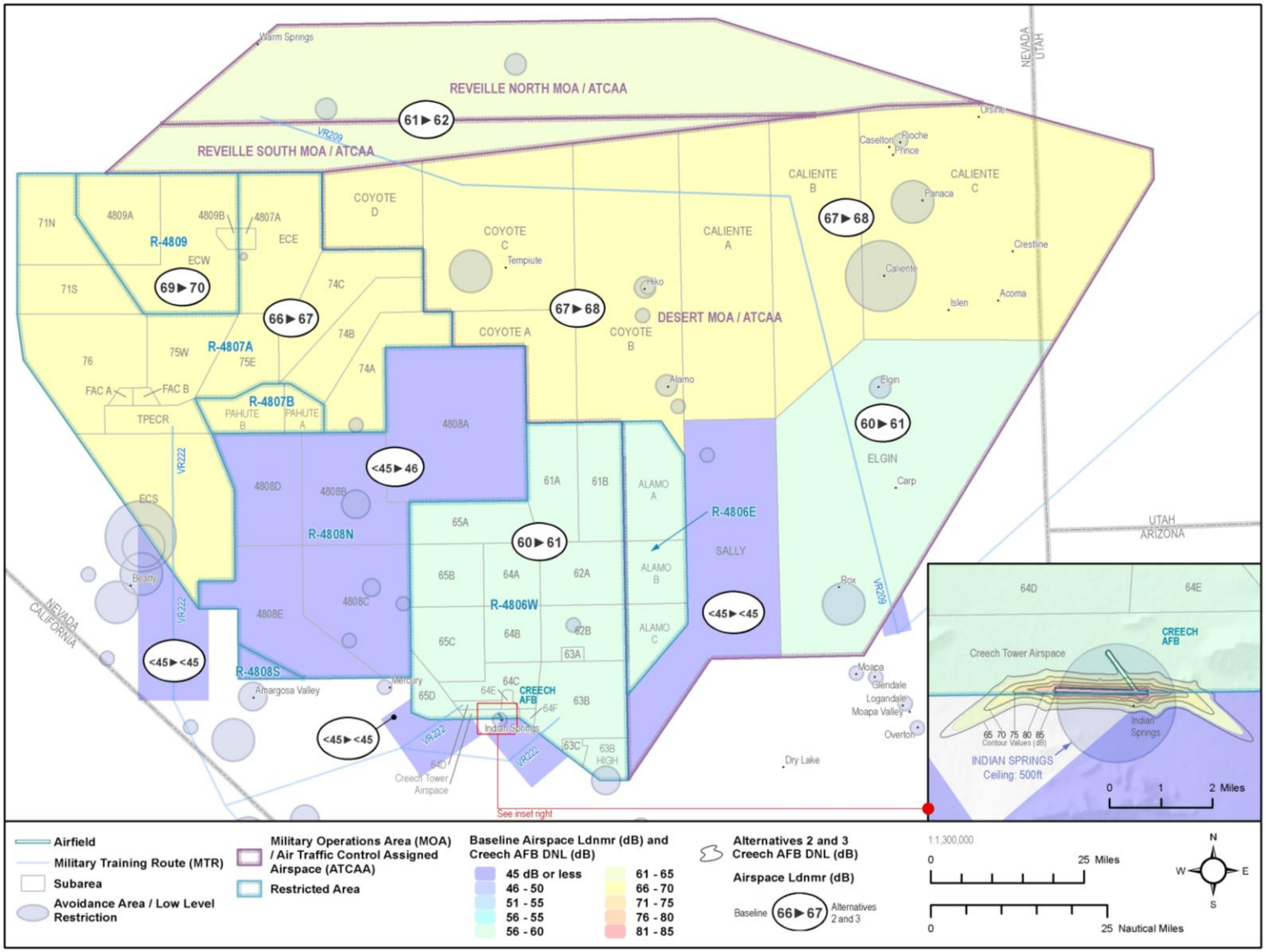

Figure 3-2. Subsonic Noise Exposure Within the NTTR

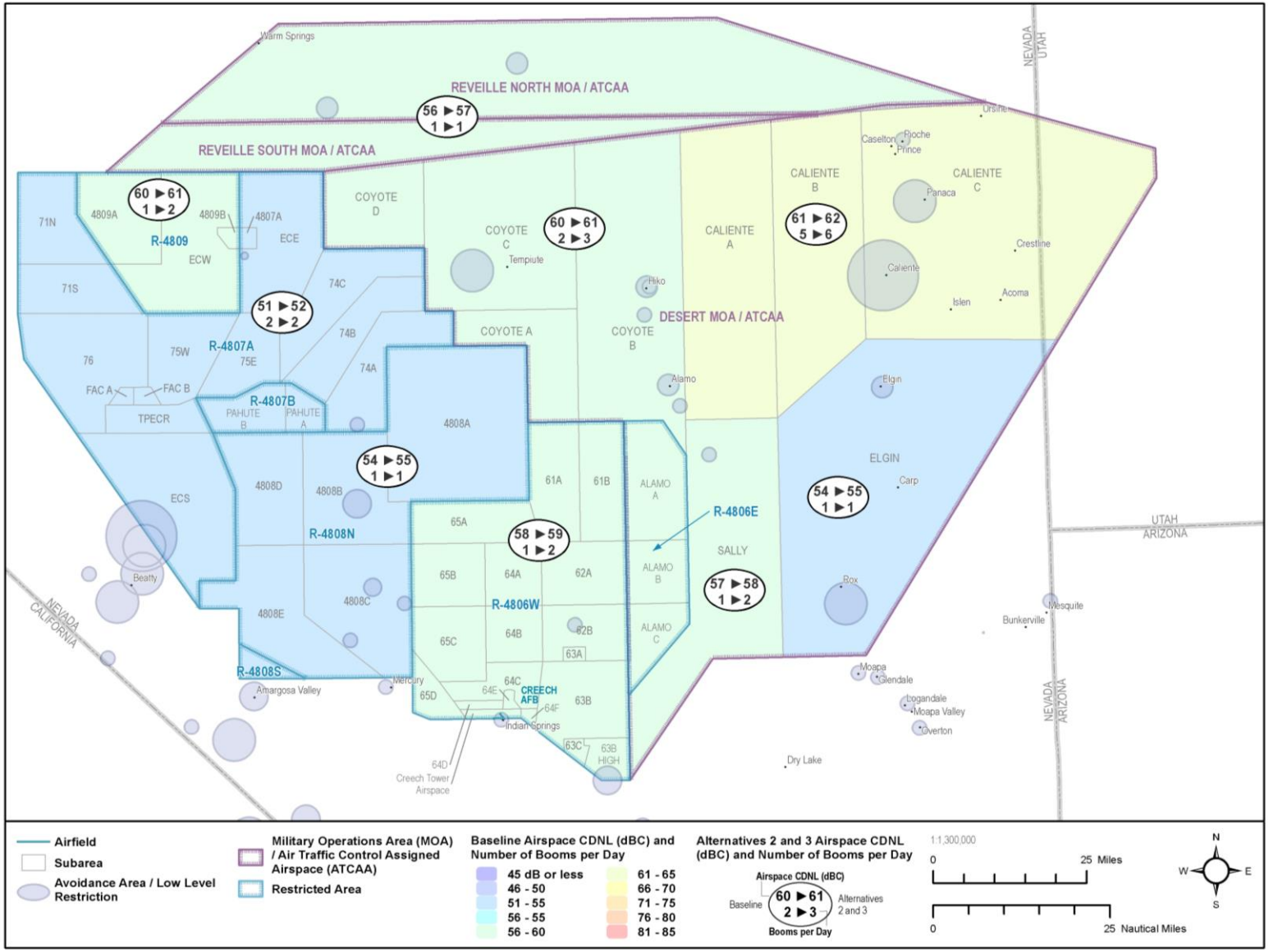

Figure 3-3. Supersonic Noise Exposure Within the NTTR

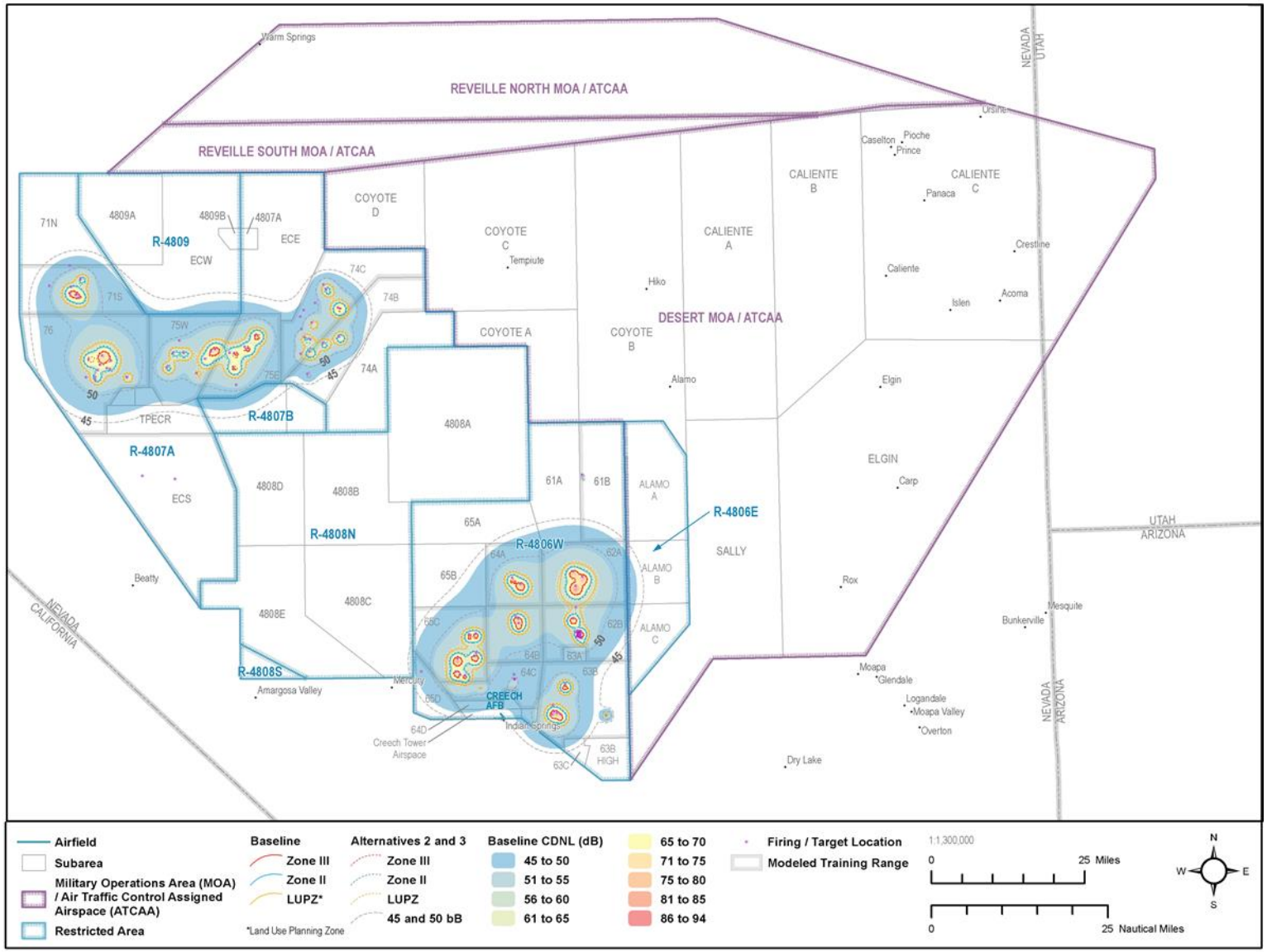

Figure 3-4. Large-Caliber Weapons Noise Exposure Within the NTTR

Table 3-3. Baseline Sonic Boom CDNL Values Within the NTTR

SUA Name	Baseline		SUA Name	Baseline	
	CDNL (dBC)	Booms per Day		CDNL (dBC)	Booms per Day
R-4806	58	1	Caliente	61	5
R-4807	51	2	Coyote	60	2
R-4808	54	1	Elgin	54	1
R-4809	60	1	Reveille	56	1
			Sally	57	1

dBC = C-weighted decibels; CDNL = C-weighted day-night average sound level; SUA = Special Use Airspace

Large-Caliber Weapon Noise

The BNOISE computer program was used to analyze the operational data for large-caliber weapons and to calculate the overall blast noise exposure in CDNL. The resulting noise levels are presented in Figure 3-4.

The CDNL contours for baseline conditions in Figure 3-4 are generally centered around the most active target complexes. The 57-dBC contours extend approximately 2 to 3 NM from active target areas.

Only a small area outside the NTTR boundary is exposed to 62 dB CDNL or greater due to large caliber weapons. However, review of satellite imagery shows there are no populations residing within these areas (see Section 3.7, Environmental Justice, for more on populations affected by noise).

Ground Disturbance

Ground-disturbing activities such as construction and maintenance operations and vehicle or troop movements do not generate sufficient noise to leave the NTTR boundary or affect members of the public. In general, the NTTR is remote and noise levels from construction equipment or vehicle noise from NTTR operations remain below the existing noise levels from vehicles and other sources associated with populated areas. Additionally, these activities are short in duration, and the noise environment returns to ambient levels following any construction, maintenance, or troop transport activities.

Emitter Operations

Conceptual emitter operation involves the running of a generator to power the emitter. Standard generator noise levels were used from the USDOT's Federal Highway Administration's extensive construction equipment noise database, with data obtained from numerous predicted and actual noise data sampling. Resulting noise levels at various receptor distances from the emitter operation sites are listed in Table 3-4. The noise associated with emitters is similar to running a large engine in a vehicle. This level of noise is unlikely to leave the NTTR boundaries and reach any members of the public.

Table 3-4. Noise Level Expected from Each Operating Emitter (Generator) Site

Distance to Receptor (feet)	L_{max} (dBA)	L_{10} (dBA)
1,100	74.6	74.6
200	68.6	68.6
300	65.1	65.1
400	62.6	62.6
500	60.6	60.5
600	59.0	59.0

dBA = A-weighted decibels; L_{10} = loudest 10% noise level; L_{max} = maximum noise level

3.2.2 Environmental Consequences

The Air Force understands the difficulty in determining significance of impacts at the programmatic level. If the areas associated with the Proposed Action are withdrawn for military use, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts, and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made. However, at a programmatic level, while the Air Force anticipates that under all action alternatives there may be impacts associated with noise (e.g., annoyance), at this time the Air Force has not identified these impacts as significant overall.

3.2.2.1 Analysis Methodology

AFI 32-7070, *Air Force Noise Program*, provides the overall framework for computing noise levels associated with aircraft operations within SUAs and in the vicinity of military airfields (U.S. Air Force, 2016a).

The primary effect of aircraft noise on exposed communities is one of annoyance, including activity interference, which includes speech interference and sleep disturbance. Noise annoyance is defined by the EPA as any negative subjective reaction on the part of an individual or group (EPA, 1974). The best available method for predicting community annoyance response to aircraft noise is the updated Schultz curve (sometimes called the “Air Force Curve”) (Table 3-5). The Schultz curve was validated by the Federal Interagency Committee on Noise (FICON) (1992) based on the additional data points collected by the Air Force, for use by Federal agencies in aircraft noise-related environmental impact analysis and by the American National Standards Institute as a standard on community responses to environmental noise (U.S. Air Force, 2016a).

Table 3-5. Relationship Between Annoyance and DNL

Noise Exposure (DNL)	Percent of Population Highly Annoyed
<65	<12.29
65–70	12.29–22.10
70–75	22.10–36.47
75–80	36.47–53.74

< = less than; DNL = day-night average sound level

There are several commonly recognized average noise level thresholds that are based on expected community reaction. The first is DNL of 65 dB. This is a level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like aviation, which unavoidably result in noise. Areas exposed to DNL above 65 dB generally are not considered suitable for residential use. The second is DNL of 55 dB, which was identified by the EPA as a level "…requisite to protect public health and welfare with an adequate margin of safety," (EPA, 1974). From a noise exposure perspective, that would be an ideal selection. However, financial and technical resources are generally not available to achieve that goal. Most agencies have identified DNL of 65 dB as a criterion that protects those most impacted by noise, and that often can be achieved on a practical basis (FICON, 1992). This corresponds to about 12 percent of the exposed population being highly annoyed. The third is DNL of 75 dB. This is the lowest level at which adverse health effects could be credible (EPA, 1974). For all practical purposes, DNL and L_{dnmr} are equivalent with the major differences being that DNL is based on the number of average annual day operations while L_{dnmr} is based on the month with the largest number of operations. Also, L_{dnmr} accounts for the startle effect of humans and/or animals from high speed jet aircraft overflying the terrain, which is not necessary when analyzing noise in the normal airdrome environment.

Community annoyance from sonic booms, firing of heavy weaponry, and other impulsive noises is predicted using CDNL. The correlation between CDNL and annoyance has been estimated based on community reaction to impulsive sounds over several years (CHABA, 1981). Values of the C-weighted equivalent to the Schultz curve are different than that of the Schultz curve itself. Table 3-6 shows the relationship between percentage of the population highly annoyed, DNL, and CDNL. If both continuous and impulsive noise occurs in the same area, impacts are assessed separately for each.

Table 3-6. Relationship Between Annoyance, DNL, and CDNL

CDNL	Percent Highly Annoyed	DNL
48	2	50
52	4	55
57	8	60
61	14	65
65	23	70
69	35	75

Source: (CHABA, 1981)
CDNL = C-weighted day-night average sound level; DNL = day-night average sound level

In a similar way, U.S. Army Regulation 200-1 (AR 200-1) (U.S. Army, 2007) provides the overall framework for modeling noise levels associated with large-caliber weapons noise on air-to-ground and ground-to-ground training ranges. Consistent with AR 200-1, munitions noise level results at 57, 62, and 70 dBC are reported to the Army Construction Engineering Research Laboratory as a quality assurance and verification of the large caliber noise modeling. AR 200-1 recommends the utilization of a Land Use Planning Zone (57 to 62 dBC) and a Noise Zone I (less than 62 dBC) where noise-sensitive land uses such as housing, schools, and medical facilities need to be carefully managed; a Noise Zone II (62 to 70 dBC) where noise-sensitive land uses are normally

not recommended; and a Noise Zone III (greater than 70 dBC) where noise-sensitive land uses are not recommended.

For all types of noise impacts, significance is determined based on the extent, context, and intensity of the impact in relation to relevant regulations, guidelines, and scientific documentation. Additional detail on noise analysis methodology can be found in Appendix C, Noise. Noise impacts on specific resources can be found in the respective resource's Environmental Consequences section, such as biological resources (Section 3.8.2), cultural resources (Section 3.9.2), land use (Section 3.4.2), and socioeconomics (Section 3.6.2).

During public hearings, some commenters asked about the process to address public noise concerns and complaints. The Air Force explained that complaints are addressed through the Public Affairs office at Nellis AFB, as outlined in AFI 32-7070, *Air Force Noise Program,* and specifically addressed in AFI 35-108, *Environmental Public Affairs*, which states:

> Noise Complaints. [Public Affairs (PA)] should handle noise complaints or queries directly and as completely as possible. PA should not refer callers to other bases or commands regardless of the aircraft origin or type. PA should provide timely, responsive, and factual answers to aircraft noise complaints in order to maintain positive media and community relations. PA should attend relevant installation meetings which are conducive to presenting the complaints, such as the Air Operations Board Meeting. Refer all claims to the installation office of the Staff Judge Advocate.

3.2.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of NTTR (North and South Range) – Status Quo

Aircraft Operations

For Alternative 1, aircraft operations would remain at the baseline levels discussed above. As listed in Table 3-2 and depicted in Figure 3-2, noise levels in the SUAs located in the southern portion of the NTTR, nearest populated areas, would remain at their existing levels, which are generally below an L_{dnmr} value of 45 dB except for R-4806W and Elgin, which are at an L_{dnmr} value of 60 dB, still well below the L_{dnmr} value of 65 dB level at which noise levels become a concern. Likewise, those SUAs in the northernmost portions of the NTTR would remain at the baseline 61-dB level, which is well below levels that result in land use compatibility concerns. Therefore, there would be no impact based on an increase in aircraft noise above the existing baseline noise environment.

Similarly, on-installation noise levels at Creech AFB would remain at the baseline levels discussed above, and the surrounding communities, wildlife on the NTTR, and potential cultural sites would not experience any additional noise beyond what has been already ongoing for years. As shown, noise levels above an L_{dnmr} value of 65 dB only extend off-installation in a small, remote area.

Supersonic noise levels would also remain at the existing baseline levels discussed above. Generally, sonic booms may or may not reach the ground depending on environmental and flight conditions. Several factors influence the trajectory of a sonic boom and its magnitude on the ground (e.g., aircraft altitude, temperature gradients). Furthermore, only one to five sonic booms would be generated in a given airspace region per day. Due to the large size of each airspace unit, booms within neighboring airspace regions would most often be separated geographically such that wildlife, structures, or neighboring communities would not typically experience numerous supersonic events on any given day.

However, the Air Force could continue providing information regarding noise sensitive areas and impacts on wildlife to military personnel, specifically pilots, prior to conducting training or testing activities. This would assist pilots in avoiding the creation of noise-related impacts. This action could minimize any impacts across all action alternatives.

Munitions Use

For Alternative 1, munitions use would remain at the baseline levels discussed in Section 3.2.1.5 (Baseline Noise Levels). Therefore, there would be no noise-related impact from munitions use with Alternative 1.

Ground Disturbance

Ground-disturbing activities such as construction and maintenance operations and vehicle or troop movements would remain at baseline levels and would not generate sufficient noise to leave the NTTR boundary or affect members of the public. Generally, noise levels from construction equipment or vehicle noise from NTTR operations would remain less than the existing noise levels from vehicles and other sources associated with populated areas. Additionally, these activities would continue to be short in duration, and the noise environment would return to ambient levels following any construction, maintenance, or troop transport activities. There would be no significant adverse impacts from noise associated with ground-disturbing activities with Alternative 1.

Emitter Operations

Noise associated with emitters would remain at the baseline levels discussed above. These would continue to be similar to running a large engine in a vehicle, and this level of noise would be unlikely to leave the NTTR boundaries and reach any members of the public or disturb wildlife or cultural sites. (See Table 3-4 for noise levels at various distances from emitter locations.) Therefore, there would be no significant adverse impacts from noise associated with emitter operations for Alternative 1, and noise levels would remain at or very near baseline levels.

3.2.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

Aircraft Operations

Table 3-7 and Figure 3-2 present the noise modeling results for Alternatives 2 and 3 (which are the same for aircraft noise). With a 30 percent increase in operations, the L_{dnmr} values for Restricted Areas, MOAs/ATCAAs, and MTRs would be expected to vary from less than 45 dB L_{dnmr} to 70 dB L_{dnmr}, with an average 1-dB L_{dnmr} increase in each individual airspace unit associated with the NTTR airspace complex.

For example, the L_{dnmr} value within R-4806 would be expected to increase from 60 dB L_{dnmr} (baseline conditions) to 61 dB L_{dnmr} for Alternative 2, an increase of only 1 dB L_{dnmr}. Again, the airspace units in the South Range would tend to remain below the 65 dB L_{dnmr} threshold, and all airspace units would remain below the 75 dB L_{dnmr} threshold. Therefore, there would not be any expected significant adverse impacts related to noise with Alternative 2.

Table 3-7. Summary of L_{dnmr} Values for SUAs

SUA Name	Baseline	Alternative 2	Alternative 3
	L_{dnmr} (dBA)	L_{dnmr} (dBA) (Change)	L_{dnmr} (dBA) (Change)
R-4806	60	61 (+1)	61 (+1)
R-4807	66	67 (+1)	67 (+1)
R-4808	<45	46 (+1)	46 (+1)
R-4809	69	70 (+1)	70 (+1)
Caliente	67	68 (+1)	68 (+1)
Coyote	67	68 (+1)	68 (+1)
Elgin	60	61 (+1)	61 (+1)
Reveille	61	62 (+1)	62 (+1)
Sally	<45	<45 (+0)	<45 (+0)
VR-209	<45	<45 (+0)	<45 (+0)
VR-222	<45	<45 (+0)	<45 (+0)

< = less than; dBA = A-weighted decibels; L_{dnmr} = onset-rate adjusted monthly day-night average sound level; SUA = Special Use Airspace

At Creech AFB and the surrounding areas, the 65-dB contour would be expected to extend slightly over 2 NM to the southwest and southeast due to transient military and RQ-170 operations and the overall increase in the number of operations. The 65-dB contour only overlaps the Indian Springs census-designated place boundary in one small area, which would expand approximately 150 feet south over a non-populated area. However, the adjacent community of Indian Springs has experienced a similar level of aircraft noise for decades, so while the residents may notice a gradual increase in the number of operations, compatibility issues would not be expected. Beyond that, the area surrounding Creech AFB is very remote, with the next nearest communities over 15 miles away (Mercury, Nevada, to the west and Pahrump and Las Vegas over 25 miles to the southwest and southeast, respectively). Therefore, it is unlikely that any surrounding communities would be impacted. Consequently, it is not likely that the increase in installation aircraft noise in the vicinity of Creech AFB under Alternative 2 would lead to any significant adverse impacts.

Table 3-8 and Figure 3-3 show the CDNL values associated with Alternatives 2 and 3. With a 30 percent increase in operations, the CDNL values would be expected to range from 52 dB to 62dB, with an average 1-dB increase over baseline noise levels for each airspace unit. The number of sonic booms per day would be expected to increase by one sonic boom over the baseline levels. However, these increases would be minimal and would not be anticipated to have any significant adverse impacts related to noise from the implementation of Alternative 2.

Table 3-8. Summary of Sonic Boom CDNL Values for SUA

SUA Name	Baseline		Alternative 2		Alternative 3	
	CDNL (dBC)	Booms per Day	CDNL (dBC) (Change)	Booms per Day (Change)	CDNL (dBC) (Change)	Booms per Day (Change)
R-4806	58	1	59 (+1)	2 (+1)	59 (+1)	2 (+1)
R-4807	51	2	52 (+1)	2 (+0)	52 (+1)	2 (+0)
R-4808	54	1	55 (+1)	1 (+0)	55 (+1)	1 (+0)
R-4809	60	1	61 (+1)	2 (+1)	61 (+1)	2 (+1)
Caliente	61	5	62 (+1)	6 (+1)	62 (+1)	6 (+1)
Coyote	60	2	61 (+1)	3 (+1)	61 (+1)	3 (+1)
Elgin	54	1	55 (+1)	1 (+0)	55 (+1)	1 (+0)
Reveille	56	1	57 (+1)	1 (+0)	57 (+1)	1 (+0)
Sally	57	1	58 (+1)	2 (+1)	58 (+1)	2 (+1)

CDNL = C-weighted day-night average sound level; dBC = C-weighted decibels; SUA = Special Use Airspace

Munitions Use

With an increase of 30 percent in large-caliber munitions expenditure, the CDNL contours for Alternative 2 would be expected to show a slight increase relative to baseline conditions by approximately 1 dBC. The 57-dBC contours would be expected to continue to extend approximately 2 to 3 NM from active target areas (Figure 3-4). Only the lowest level (45 to 50 dB) noise contours would extend off of the NTTR, and only in very small areas in the westernmost region of R-4807A and in the southernmost area south of Creech Tower Airspace, Range 64F, 63B, and 63C, where the noise contour is already extended off-installation under baseline conditions with no adverse impacts. No Land Use Planning Zone or Zone I/II/III areas would extend off of the NTTR itself. These increases would be minimal and would not be anticipated to have any adverse impacts related to noise from the implementation of Alternative 2.

Ground Disturbance

Ground-disturbing activities such as construction and maintenance operations and vehicle or troop movements would not generate sufficient noise to leave the NTTR boundary or affect members of the public. In general, the NTTR is remote, and noise levels from construction equipment or vehicle noise from NTTR operations would be less than the existing noise levels from vehicles and other sources associated with populated areas. Additionally, these activities would be short in duration, and the noise environment would return to ambient levels following any construction, maintenance, or troop transport activities. There would be no adverse impacts from noise associated with ground-disturbing activities from implementation of Alternative 2.

Emitter Operations

Emitter operation involves running a generator to power the emitter. The noise levels associated with emitters for Alternative 2 would be the same as discussed for Alternative 1. Therefore, there would be minor, less than significant, projected impacts from noise associated with emitter operations for Alternative 2.

3.2.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

Aircraft Operations

Noise associated with Alternatives 3A, 3A-1, 3B, and 3C from aircraft operations associated with the NTTR and at Creech AFB would be the same as those discussed above for Alternative 2 (Table 3-7 and Table 3-8). There would be minimal to no adverse impacts due to aircraft operations anticipated with the implementation of Alternatives 3A, 3A-1, 3B, and 3C.

Munitions Use

Noise associated with Alternatives 3A, 3A-1, 3B, and 3C from munitions use on the NTTR would be the same as those discussed above for Alternative 2 (Table 3-8). There would be no adverse impacts anticipated with the implementation of Alternatives 3A, 3A-1, 3B, and 3C.

Ground Disturbance

There would be no troop movement or construction (with exception of fencing installation) within the expansion areas proposed for Alternative 3A, 3A-1, or 3B. Therefore, there would be no adverse impacts from noise associated with ground-disturbing activities associated with implementation of Alternative 3A, 3A-1, or 3B.

Under Alternative 3C, conceptually, there would be construction of additional concrete or aggregate pads to place threat emitters within the newly withdrawn areas in order to create a more realistic training scenario. Construction noise was evaluated for the proposed construction of emitter pads, including clearing, grading, compacting, and paving activities. The analysis assumed that a standard set of construction equipment would be used in all construction projects and would run for approximately 40 percent of the workday. Resulting noise levels at various receptor distances from the construction site are listed in Table 3-9.

Table 3-9. Construction Noise Level Expected from Each Emitter Pad Construction Site

Distance to Receptor (feet)	L_{max} (dBA)	L_{10} (dBA)
100	79.0	82.6
200	73.0	76.6
300	69.4	73.0
400	66.9	70.5
500	65.0	68.6
600	63.4	67.0

dBA = A-weighted decibels; L_{10} = loudest 10% noise level; L_{max} = maximum noise level

Other ground-disturbing activities such as vehicle or troop movements would be minimal. For Alternative 3C, military vehicle use to transit to and from emitter sites for routine maintenance would be minimal and would occur in an area geographically separated from the public. Additionally, these activities would be short in duration, and the noise environment would return to ambient levels following any construction, maintenance, or troop transport activities. Personal vehicle use by recreational users is already ongoing in the proposed expansion area, and military vehicle use to transit to and from emitter sites for routine maintenance would produce similar or potentially less noise than from recreational use. Therefore, there would be no adverse impacts from noise due to ground-disturbing activities under Alternative 3C.

Emitter Operations

Emitter operations in the Alternatives 3A, 3A-1, and 3B expansion areas are not proposed under this withdrawal effort; therefore, there would be no adverse impacts from noise associated with emitter operations for Alternative 3A, 3A-1, or 3B.

The noise associated with emitters for Alternative 3C would also be the same as discussed for Alternative 1. Although the exact location of the emitters and associated noise are unknown at this time, the noise levels estimated are minimal at safe distances from the emitters. The proposed expansion area for Alternative 3C is remote and very few individuals are likely to be impacted at any given time. However, people engaging in recreation in the area likely desire its wilderness characteristics, including natural sound levels. Such recreationalists may feel more highly annoyed by relatively low noise levels associated with emitter operations than they would by the same noise level in a populated area. Because the emitters would likely be placed in the interior areas of the proposed Alamo expansion area and protected by fences or other access-prohibiting measures, this level of noise would be unlikely to leave the NTTR boundaries and reach any members of the public. Therefore, there would be minor, less than signficantly projected impacts from noise associated with emitter operations for Alternative 3C.

3.2.2.5 Alternative 4 – Establish the Period of Withdrawal

The proposed withdrawal periods associated with Alternative 4—Alternative 4A (20-year withdrawal period), Alternative 4B (50-year withdrawal period), and Alternative 4C (indefinite)—must be implemented in conjunction with one or more of the other alternatives or subalternatives. Because Alternative 4 reflects periods of time, which do not in and of themselves affect noise, there are no specific noise impacts associated

with any subalternatives of Alternative 4, except to provide a point in time at which impacts from other chosen alternatives may end.

3.2.2.6 No Action Alternative

Under the No Action Alternative, the land withdrawal for the NTTR would not be extended. In this case, the land would be returned to the public and would require numerous management activities under FLPMA. Noise associated with military activities such as aircraft operations, munitions, and training operations would decrease greatly initially, and noise would decrease overall. However, in the long term, industrial activities such as mining could be associated with increased noise and potentially in areas that would affect the public to a greater degree than military operations do currently. Prohibitions previously placed in effect by the MLWA on appropriations under the public land laws would expire. Expiration of these prohibitions means that appropriative land uses such as mining, mineral leasing, or livestock grazing could potentially be reintroduced. Cleanup of contaminated or dudded areas would be required. This would involve the use of heavy machinery and vehicles. Noise from these activities would likely be greater than what is currently ongoing for military vehicular or troop movements and maintenance activities. Further, public use in these areas could also contribute to noise through vehicle operation, firearms use, and other recreational activities. While it is not possible to determine the overall impacts of the No Action Alternative at this time, noise impacts may occur but the level of significance cannot be determined at this time.

3.2.3 Proposed Resource-Specific Mitigations and Management Actions

Identified resource-specific mitigations and/or management actions for noise that would be implemented under all action alternatives include the following:

- Continue to provide information to range users, through the NTTR Supplement to AFI 13-212, *Range Planning and Operations*, regarding noise-sensitive areas, prior to conducting training or testing activities. This assists pilots in avoiding noise-related impacts. This action minimizes impacts across all action alternatives. (See Section 3.2.2.)

3.2.4 Native American Perspective on Noise

3.2.4.1 Native American Perspective: Noise Description of Resource

The CGTO is comprised of tribes with deep-rooted epistemological beliefs that connect us to the land. The CGTO believes noise is created by unnatural or man-made sounds that can intensify the effects on the land. Central to the Indian experience of viewscapes is isolation and serenity in an uncompromised landscape. If construction and operation of the proposed activities proceed in a culturally inappropriate manner, then visual resources within the NTTR will be adversely impacted, further perpetuating an unbalanced environment. (See Section 3.4.4.3, Native American Perspective: Visual Resources.)

Indian people know the land is a sentient being with eyes to see, ears to hear and feelings to express or react. The land must be kept in balance or else it will react and not have the ability to sustain the cultural and ecological balance needed to survive. The CGTO knows echoes can be intensified by man-made sounds such as sonic booms or other noises that occur from military activities that resonate through the landscape. This disturbance causes the land to become sick and out of balance. When sickness occurs, Indian culture is adversely impacted in the same way. Noise can cause a disruption to the serenity or can affect animals when solitude is needed to maintain resources that will ultimately have far reaching or long lasting effects beyond the NTTR.

Noise can create vibration that brings harm to the land, mountains, water, springs, rocks, rock writings (petroglyphs/pictographs), and other cultural resources including but not limited to plants and animals. Noise from sonic booms send shockwaves through the land and can cause echoes that travel through the mountains and canyons, thus becoming the voices of the land to provide warnings to everything within the region. If ignored or not understood, ecological imbalance will be inevitable creating lack of cultural continuity.

Echoes that resonate over the landscape are perceived as the voices of the land that mimic the sounds and can become a distraction to the serenity of the land. Unnatural sounds from military activities bring harm to the resources that can deteriorate them and cause an imbalance to the cultural landscape. The CGTO knows understands the cultural divisions between day time and night time and how they can act differently with different powers but have the ability to work together to sustain ecological balance in the world. When noise is continuous or high intensive, the land reacts from being sick or out of balance. When this occurs, animal behavior changes, which can effect stress levels or animal mortality rates. The CGTO knows that cultural intervention is necessary to conduct traditional balancing ceremonies to heal the land.

3.3 AIR QUALITY

3.3.1 Affected Environment

Air quality within the NTTR, the proposed expansion areas, and surrounding region would be affected by emissions from the Proposed Action and alternatives. The following sections describe the existing conditions related to air quality, including a description of the resource, applicable rules and regulations, the ROI, and baseline air quality and emissions.

3.3.1.1 Description of Resource

For the Native American perspective on information in this section, please see Section 3.3.4.1 and Appendix K, paragraph 3.3.1.1.1.

Air quality is affected by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The levels of pollutants are generally expressed on a concentration basis in units of parts per million or micrograms per cubic meter.

The baseline standards for pollutant concentrations are the National Ambient Air Quality Standards (NAAQS) and state air quality standards established under the CAA. These standards represent the maximum allowable atmospheric concentrations that can occur and still protect public health and welfare. The NAAQS provide both short- and long-term standards for the following criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter equal to or less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively), ozone, and lead.

Under the CAA, it is the responsibility of the individual states to achieve and maintain the NAAQS. To accomplish this, states use the EPA-required State Implementation Plan. A State Implementation Plan identifies goals, strategies, schedules, and enforcement actions designed to achieve and maintain compliance with the NAAQS.

All areas of the United States are designated as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Areas where there are insufficient air quality data for EPA to form a basis for attainment status are unclassifiable; such areas are treated as attainment areas until proven otherwise. “Maintenance areas” are those that were previously classified as nonattainment but where air pollution concentrations have been successfully reduced to levels below the standard. Maintenance areas are subject to special maintenance plans to ensure compliance with the NAAQS.

The NDEP has adopted the NAAQS to regulate air pollutant levels within the state of Nevada, with the following exceptions and additions: (1) the state annual sulfur dioxide standard is more stringent than the national standard; (2) Nevada has added an 8-hour carbon monoxide standard specific to elevations greater than 5,000 feet above mean sea level; and (3) Nevada has added standards for visibility impairment and 1-hour hydrogen sulfide concentrations. However, in accordance with Nevada Administrative Code (NAC) 445B.22097, Nevada standards are only to be used “in considering whether to issue a permit for a stationary source and shall ensure that the stationary source will not cause the Nevada standards to be exceeded in areas where the general public has access” and further states that the NAAQS are to be used in determinations of attainment or nonattainment. The national and state ambient air quality standards are shown in Appendix D, Air Quality: Table D-1 (Summary of Nevada and National Ambient Air Quality Standards).

Hazardous air pollutants are chemicals that are known or suspected of causing cancer or other serious health effects. Unlike the criteria pollutants, there are currently no national ambient standards for hazardous air pollutants. Some volatile organic compounds are classified as hazardous air pollutants. Volatile organic compounds are also ozone precursors and include any organic compound involved in atmospheric photochemical reactions, except those designated by an EPA administrator as having negligible photochemical reactivity. Hazardous air pollutants are not covered by the NAAQS but may present a threat of adverse human health or environmental effects under certain conditions.

Permits

The NTTR operates currently under multiple air quality permits. Portions of the South Range are incorporated into the Creech AFB Title V Part 70 Air Operating Permit for Source 473 issued in accordance with Clark County Air Quality Regulations on May 31, 2013. The North Range of the NTTR operates under Class II Air Quality Operating Permit Number 9711-1233.01, issued on November 7, 2014. The Angel Peak Radar Complex operates under a Minor Source Permit for Source 17038 issued by Clark County Department of Air Quality and Environmental Management on February 14, 2012.

General Conformity

The EPA General Conformity Rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emissions thresholds that trigger requirements for a conformity analysis 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.

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. This process and requirements are further detailed in Appendix D, Air Quality. General Conformity is not applicable to this land withdrawal extension or expansion currently.

On June 4, 2018 (83 *Federal Register* 25776–25848), the EPA issued a revision to 40 CFR Part 81, Subpart C, which designated non-attainment areas under the 2015 ozone standard. Nellis AFB and a small portion of the NTTR are located in the portion of Clark County, Nevada, that was designated as non-attainment with the revision to 40 CFR 81.329 (83 *Federal Register* 25819). The effective date of the designation is August 3, 2018 (83 *Federal Register* 25776). By operation of law, a General Conformity applicability analysis will be required to be completed for covered actions that are approved and scheduled for implementation to begin on, or after, August 2, 2019. If the General Conformity applicability analysis demonstrates that emissions of ozone precursor pollutants from the Proposed Action equal or exceed the applicable *de minimis* levels promulgated in 40 CFR 93.153(b)(1), then draft and final General Conformity determinations will be required before any emissions-related activities associated with the Proposed Action may proceed. (42 USC 7506(c) and 40 CFR Part 93, Subpart B (40 CFR 93.150–165).

New Source Review/Prevention of Significant Deterioration

The CAA established New Source Review (NSR) and Prevention of Significant Deterioration (PSD) regulations to protect the air quality in regions that already meet the NAAQS. The major requirement of the PSD regulations is that the air quality impacts from new or modified NSR/PSD sources must not exceed the maximum allowable incremental increases for nitrogen dioxide, PM_{10}, or sulfur dioxide, as identified in Table 3-10.

Certain national parks, monuments, and Wilderness Areas have been identified as Class I areas, where any appreciable deterioration in air quality is considered significant. Class II areas are those where moderate, well-controlled growth could be permitted. There are three PSD Class I areas within 50 miles of the NTTR airspace. The Great Basin National Park on the eastern border of Nevada is approximately 45 miles northeast of the eastern corner of the NTTR airspace. The closest Class I area in Utah, Zion National Park, is approximately 37 miles east of the NTTR. The northeast corner of Death Valley National Park, which overlaps the California/Nevada border within 50 miles, is located approximately 10 miles from the southwestern portion of the NTTR. In addition, the Grand Canyon National Park Class I area is located approximately 55 miles east of the southeastern portion of the NTTR. The Lake Mead National Recreation Area, which is not a Class I area, is located approximately 23 miles from the southeastern corner of the NTTR South Range. The newly designated Basin and Range National Monument is located approximately 15 miles northeast of the NTTR boundary. Another recently designated monument, the Gold Butte National Monument, is located approximately 20 miles southeast of the NTTR boundary. It should be noted that the majority of emissions associated with the Proposed Action and alternatives would be from mobile sources and are not subject to NSR/PSD standards for stationary sources.

Table 3-10. Maximum Allowable Pollutant Concentration Increases Under PSD Regulations

Pollutant	Averaging Time	PSD Increments ($\mu g/m^3$)	
		Class I	Class II
Nitrogen dioxide	Annual	2.5	25
	24-hour	4	17
PM_{10}	24-hour	8	30
Sulfur dioxide	Annual	2	20
	24-hour	5	91
	3-hour	25	512

$\mu g/m^3$ = microgram per cubic meter; PSD = Prevention of Significant Deterioration; PM_{10} = particulate matter equal to or less than 10 microns in diameter

3.3.1.2 Region of Influence

The NTTR land and airspace associated with the proposed land withdrawal extension and expansion areas are located in Clark, Lincoln, and Nye Counties; therefore, these three counties have been designated as the ROI for the air quality analysis. According to the EPA, Lincoln and Nye Counties are in attainment for all criteria pollutants. Clark County has previously been in nonattainment for 8-hour ozone (1997 standard), carbon monoxide (1971 standard), and PM_{10} (1987 standard). However, as of November 5, 2014, Clark County has been redesignated as a maintenance area for each of these pollutants and is currently in attainment for all pollutants (EPA, 2016a). As a result of each county's attainment status, a conformity determination would not be required.

Emissions that would be generated from conceptual activities described in Section 2.2.1 (Increase MCO Test/Training Capability), and Section 2.2.2 (Enhance IW Test/Training Capability), were compared with Clark, Lincoln, and Nye County emissions (Table 3-11) obtained from EPA's 2014 National Emissions Inventory, which provides the latest

available data. The county data include emissions amounts from point sources, area sources, and mobile sources. Point sources are stationary sources that can be identified by name and location. Area sources are point sources from which emissions are too low to track individually, such as a home or small office building, or a diffuse stationary source, such as wildfires or agricultural tilling. Mobile sources are any kind of vehicle or equipment with gasoline or diesel engine, an airplane, or a ship. Two types of mobile sources are considered: on-road and nonroad. On-road sources consist of vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles. Nonroad sources are aircraft, locomotives, diesel and gasoline boats and ships, personal watercraft, lawn and garden equipment, agricultural and construction equipment, and recreational vehicles (EPA, 2016b).

Table 3-11. Baseline Criteria Pollutant Emissions Inventory for Clark, Lincoln, and Nye Counties, Nevada

County	Criteria Pollutant (tons/year)					
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC
Clark	305,637	48,711	31,973	11,432	7,165	185,150
Lincoln	36,511	2,269	8,805	1,708	77	127,753
Nye	56,419	2,453	28,927	4,436	175	188,212
Total ROI	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**

Source: (EPA, 2016c)
CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound

3.3.1.3 Greenhouse Gas Emissions/Baseline

Any greenhouse gas (GHG) analysis contained in this document was prepared in accordance with the Air Force Air Quality EIAP guidance. The six primary GHGs as defined by the EPA under Section 202(a) of the CAA by rulemaking (see Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the CAA, 74 *Federal Register* 66,495–66,546, December 15, 2009) are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Section 16(e) of EO 13693, *Planning for Federal Sustainability in the Next Decade*, released in March 2015, also includes nitrogen trifluoride. Each GHG has an estimated global warming potential (GWP), which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the Earth's surface. The GWP allows GHGs to be compared with each other by converting the GHG quantity into the common unit "carbon dioxide equivalent." Hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride are produced in relatively very small quantities and most often by very specific niche industries such as electronic component manufacturing. Additionally, EPA's National Emissions Inventory database only tracks the most abundant GHGs (carbon dioxide, nitrous oxide, and methane). Therefore, analysis focuses on these three primary GHGs represented as carbon dioxide equivalents (CO_2e) based on their GWP. Baseline GHG emissions for Clark, Lincoln, and Nye Counties, obtained from EPA's 2014 National Emissions Inventory, are summarized in Table 3-12.

Table 3-12. Baseline Greenhouse Gas Emissions Inventory for Clark, Lincoln, and Nye Counties, Nevada

County	Greenhouse Gas (tons/year)			
	CH_4	CO_2	N_2O	CO_2e
Clark	853	11,402,575	292	11,510,897
Lincoln	346	170,035	1	179,069
Nye	504	474,073	10	489,581
Total ROI	**1,703**	**12,046,684**	**303**	**12,179,548**

Source: (EPA, 2016c)
CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; CH_4 = methane; N_2O = nitrous oxide; ROI = region of influence

3.3.2 Environmental Consequences

Air quality within the NTTR, the proposed expansion areas, and the immediately surrounding region would be affected by emissions from sources associated with aircraft operations, munitions use, ground disturbance (construction, troop movement, vehicle use, etc.), and emitter operations. The following sections provide a description of air quality impacts that would occur from each alternative. Emissions from any alternative that cause an exceedance of any state or national ambient air quality standard would result in significant environmental impacts.

The Air Force acknowledges that it is difficult to determine significance at the programmatic level. However, if areas associated with the Proposed Action or alternatives are withdrawn for military use, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts, and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made. Nonetheless, at a programmatic level, while the Air Force has identified the likelihood of increased air emissions under all action alternatives, the Air Force does not anticipate these emissions to result in any significant impacts to air quality overall.

3.3.2.1 Analysis Methodology

In order to evaluate air emissions and their impact on the overall ROI, the emissions associated with the Proposed Action activities were evaluated in accordance with the tiered approach outlined in the *Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide – Fundamentals, Volume I and Volume II – Advanced Assessments*. The first step was to conduct an assessment to determine if the action was exempt for air quality analysis. The Proposed Action was not subject to any categorical exclusions or General Conformity exemptions. Since the Proposed Action is not subject to any exemptions under Tier I, a quantitative assessment (Tier II) was completed. The Tier II assessment requires a formal evaluation of air impacts based on a quantitative net change emissions inventory of the annual net total direct and indirect emissions of pollutants of concern. It should be noted that in the case of the Proposed Action, there were no net emissions realized.

Air quality impacts were evaluated quantitatively based on a two-pronged approach. Potential impacts to air quality were first identified as the total emissions of any primary pollutant that equals 250 tons per year for that pollutant based on the federal NSR/PSD major stationary source threshold. In addition to primary pollutants, GHGs were compared to an indicator level of 75,000 tons of GHGs. This established a first-level indicator of potential significance for both primary pollutants and GHGs.

However, since the majority of the emissions related to the Proposed Action and alternatives would result from activities associated with mobile sources, a second-level indicator was deemed appropriate. Consequently, if the evaluation showed that the first-level indicators for primary pollutants and GHGs would be exceeded, each pollutant was evaluated and compared with the total ROI emissions (Lincoln, Clark, and Nye Counties) on a pollutant-by-pollutant basis against the ROI's 2014 National Emissions Inventory data.

Potential impacts to air quality are evaluated with respect to the extent, context, and intensity of the impact in relation to relevant regulations, guidelines, and scientific documentation. The CEQ defines significance in terms of context and intensity in 40 CFR 1508.27. This requires the significance of the action to be analyzed with respect to the setting of the proposed action and based relative to the severity of the impact. NEPA regulations (40 CFR 1508.27[b]) provide 10 key factors to consider in determining an impact's intensity, which are described in Appendix D, Air Quality.

To provide a more conservative analysis, the three counties were selected as the ROI instead of the EPA-designated Air Quality Control Region, which is a much larger area. Air quality impacts would be considered significant if the increases in annual emissions of a pollutant would be anticipated to: (1) cause or contribute to a violation of any national or state ambient air quality standard; (2) expose sensitive receptors to substantially increased pollutant concentrations; (3) exceed any evaluation criteria established by a State Implementation Plan or permit limitations/requirements; or (4) be anticipated to cause an exceedance of the NAAQS or contribute to nonattainment.

The Air Conformity Applicability Model (ACAM) Version 5.0.7 was utilized to provide a level of consistency with respect to emissions factors and calculations. The ACAM provides estimated air emissions from proposed federal actions in areas designated as nonattainment and/or maintenance for each specific criteria and precursor pollutant as defined in the NAAQS. The ACAM was utilized to calculate construction emissions. Emission factors for aircraft were also obtained from ACAM. Munitions emission factors were used from EPA's *AP-42, Fifth Edition* (Volume I, Chapter 15: Ordnance Detonation) and calculated based on the net weight of the explosive (or a conversion factor for pounds per item) and the number of times that the munition was used annually. Generator emissions factors were obtained from the *Air Emissions Guide for Air Force Mobile Sources* (U.S. Air Force, 2016b) and calculated based on the horsepower and annual hours of operation. Equations and emission factors can be found in Appendix D, Air Quality.

The potential effects of GHG emissions from the Proposed Action are, by nature, global. Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any

specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the No Action Alternative, Proposed Action, and alternatives have been quantified to the extent feasible in this LEIS for information and comparative purposes.

GHGs were included in the analysis, and are expressed in the following sections as CO_2e (carbon dioxide equivalents). The primary source of carbon dioxide emissions would be fuel combustion from aircraft emissions during training activities. GHG emissions were compared with the Air Force's recommended *de minimis* significance emissions rate of 75,000 tons per year. Details on GHG calculations are provided in Appendix D, Air Quality.

3.3.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of NTTR (North and South Range) – Status Quo

Under Alternative 1, Air Force testing and training activities on the NTTR would continue at current levels. Activities currently include aircraft operations, ground and vehicle operations, munitions use, and operation of threat emitters. Aircraft operations occurring below the 3,000-foot AGL atmospheric mixing layer in NTTR airspace, as well as Creech AFB total airfield operations and munitions use, were obtained from schedulers, air traffic control, and operators for the 2015 calendar year baseline. Since specific numbers and types of vehicles (i.e., motorized vehicles that are not aircraft) for each base are difficult to obtain, emissions from this category were based on historical installation fuel consumption data. Threat emitter operations were based on a conservative assumption of operating a 1.5-kilovolt-amp (kVA) diesel generator continuously for the entire year. For more detailed information on assumptions, emission factors, and calculations, see Appendix D, Air Quality.

Operational activities proposed under Alternative 1 would be the same as activities that presently occur in the ROI. As these activities are currently part of the environment and the area is in attainment/maintenance for all pollutants, aircraft operations associated with the NTTR do not adversely affect the regional air quality. Further, as shown in Table 3-13, the aircraft operations represent a small percentage of the overall annual emissions in the ROI. At less than 5 percent, nitrogen oxide represents the highest percentage of annual emissions in the ROI. Therefore, air quality impacts from aircraft operations associated with Alternative 1 in the ROI would be insignificant.

Table 3-13. Alternative 1 Aircraft Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOC	CO_2e
Aircraft Emissions	702.07	2,418.90	184.40	162.53	120.33	127.83	448,746
Creech Airfield Emissions	44.56	25.97	3.73	3.30	2.06	7.92	6,317
Total Annual Emissions	**746.62**	**2,444.87**	**188.13**	**165.84**	**122.40**	**135.75**	**455,063**
ROI Baseline Emissions[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percentage of Baseline	***0.19%***	***4.58%***	***0.27%***	***0.94%***	***1.65%***	***0.03%***	***3.74%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_x = sulfur oxides; VOC = volatile organic compound

[1] Source: (EPA, 2016c)

The potential exists for military aircraft to impair visibility within a federal Class I area, defined as (1) a reduction in regional visual range and (2) temporary atmospheric discoloration or plume blight. Criteria to determine significant impacts on visibility within Class I areas usually pertain to stationary emission sources, because mobile sources are generally exempt from permit review by regulatory agencies. Since there are no readily available quantitative techniques to estimate visibility impacts from in-flight aircraft, the assessment is made in a qualitative manner. The nearest Class I area to the NTTR is Death Valley National Park, approximately 10 miles from the western edge of the NTTR. Emissions from aircraft quickly disperse and do not currently affect visual range from a reference point 10 miles away. Additionally, plume blight would occur within an aircraft flight path, but only for a short duration immediately after passage of the aircraft. Therefore, impacts on visibility from the alternative within Class I areas in proximity to the NTTR would be insignificant.

There are emissions associated with munitions detonations occurring during test and training operations on NTTR. Ordnance use numbers for the baseline year (calendar year 2015) were provided by NTTR operators. Annual emissions were calculated and are provided in Table 3-14.

Table 3-14. Alternative 1 Munitions Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOC	CO_2e
Munitions Emissions	10.67	0.50	359.59	346.57	0.14	0.26	441.12
ROI Baseline Emissions	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percentage of Baseline	***0.18%***	***4.53%***	***0.78%***	***2.90%***	***1.62%***	***0.03%***	***3.74%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_x = sulfur oxides; VOC = volatile organic compound

Additional particulate matter emissions may also occur from fugitive dust emitted during the delivery of ordnance from aircraft. However, fugitive dust emissions associated with munitions activities is generally small when nonexplosive ordnance is used. However, use of live ordnance does produce a substantial amount of fugitive dust, depending on the explosive potential of the ordnance and softness of the impacted soil. Fugitive dust emissions from ordnance deliveries may also be exacerbated during periods of high winds. However, these impacts would be localized and short in duration, and there are currently no major impacts from fugitive dust that affect the monitored regional air quality. The area remains in attainment for both PM_{10} and $PM_{2.5}$ despite these ongoing activities. Munitions deployment would remain the same under Alternative 1, and, therefore, would continue to be unlikely to contribute to any significant impacts to local or regional air quality within the ROI.

Construction, maintenance activities, and troop movements (both via vehicles and on foot) are expected to occur under Alternative 1 only at current levels. Air quality impacts associated with activities within the ROI could occur from combustive emissions due to equipment and vehicle usage and fugitive dust emissions in the form of particulate matter less than 10 microns in diameter (i.e., PM_{10}) as a result of ground-disturbing activities and equipment/vehicle operations on dirt roads. Table 3-15 shows a

representative baseline for annual emissions associated with military vehicles and construction equipment based on annual fuel consumption (U.S. Air Force, 2014b; 2014c). Impacts due to combustive emissions from these sources would be insignificant because most emission sources would be mobile and intermittent, and pollutant impacts would not be large enough in a localized area to cause any exceedance of an ambient air quality standard.

Air quality impacts during construction and general maintenance activities would be short-term and would cease at the end of the required maintenance. Additionally, the level of maintenance activity proposed under Alternative 1 would not differ substantially from activities that presently occur in this area. Therefore, air quality impacts from maintenance activities under Alternative 1 would be insignificant.

Although emissions associated with construction activities would be insignificant, the Air Force should consider employing standard management measures for construction activities such as watering of graded areas, covering of soil stockpiles, and contour grading (if necessary), to minimize temporary generation of dust and particulate matter. This would serve to minimize air emissions associated with elements of the Proposed Action and across all action alternatives.

Table 3-15. Alternative 1 Vehicle Emissions

Source	Pollutant (tons/year)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Vehicle Operations	65.76	18.76	0.74	0.70	0.07	6.52	8,485
Total ROI[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.02%***	***0.04%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.07%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound
[1] Source: (EPA, 2016c)

Air quality impacts from Alternative 1 emitter operations within the NTTR would primarily be caused by generator emissions associated with operation of various threat emitters across the NTTR. Generator emissions were calculated for a single threat emitter using a 1.5-kVA generator operating continuously for the entire year (Table 3-16). Actual emissions would likely be much lower, since emitters would only operate during necessary test or training exercises, which typically last on the order of days or weeks. It should be noted that multiple generator-powered emitters would be likely to be operated concurrently. However, typically in practice, these emissions would be localized and temporary in nature, only lasting for the duration of the test or training operation during which they are necessary for the mission.

Table 3-16. Alternative 1 Emitter Operation Emissions

Source	Pollutant (tons/year)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Emitter Operation Emissions	0.08	0.15	0.01	0.01	0.01	0.02	13.81
Total ROI[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound
[1] Source: (EPA, 2016c)

Alternative 1 Emissions Summary

Table 3-17 lists the annual emissions from all sources under Alternative 1. While annual emissions for each criteria pollutant exceed the 250-ton NSR/PSD threshold for carbon monoxide, nitrogen oxides, and particulate matter, it is important to note that these operations have been ongoing for many years and are already included in the baseline air environment. Further, Alternative 1 emissions would not exceed 5 percent of the ROI annual baseline emissions. Therefore, implementation of Alternative 1 would not be likely to contribute to a significant adverse impact to regional air quality.

Table 3-17. Summary of Alternative 1 Emissions

Source	Pollutant (tons/year)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Aircraft Emissions	702.07	2,418.90	184.4	162.53	120.33	127.83	448,746
Creech Airfield Emissions	44.56	25.97	3.73	3.3	2.06	7.92	6,317
Munitions Emissions	10.67	0.5	359.59	346.57	0.14	0.26	441.12
Vehicle Operations	65.76	18.76	0.74	0.7	0.07	6.52	8,485
Emitter Operation Emissions	0.08	0.15	0.01	0.01	0.01	0.02	14
Total Alternative 1 Emissions	**823.14**	**2,464.28**	**548.47**	**513.11**	**122.61**	**142.55**	**464,003**
Total ROI[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.21%***	***4.61%***	***0.79%***	***2.92%***	***1.65%***	***0.03%***	***3.81%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound

[1] Source: (EPA, 2016c)

3.3.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

Under Alternative 2, Air Force testing and training activities on the NTTR would be assumed to increase by approximately 30 percent from those levels stated for Alternative 1, as presented in Section 2.3.2 (Alternative 2). Aircraft operations, vehicle operations, and munitions use were all assumed to increase by the estimated 30 percent. It is difficult at this time to estimate the increase in operation of threat emitters, so a range of operations increases and number of total emitters operated is presented in order to inform the reader of the impacts of a minimal increase as well as a conservative, extreme increase. For more detailed information on assumptions, emission factors, and calculations, see Appendix D, Air Quality.

Table 3-18 shows the estimated annual emissions from aircraft operations under Alternative 2. The highest criteria pollutant emissions would be nitrogen oxides, which would represent only 1.37 percent of the ROI's annual emissions. Therefore, air quality impacts associated with Alternative 2 aircraft operations in this area would be less than significant.

The air quality analysis for munitions use associated with Alternative 2 also assumed an increase of 30 percent for all munitions/ordnance, as stated in Section 2.3.2 (Alternative 2). Table 3-19 shows the estimated annual emissions from munitions

operations under Alternative 2. The highest criteria pollutant emissions would be $PM_{2.5}$, which would represent only 0.59 percent of the ROI's annual emissions. Therefore, operational air quality impacts associated with Alternative 2 in this area would be insignificant.

Table 3-18. Alternative 2 Aircraft Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOC	CO_2e
Aircraft Emissions	210.62	725.67	55.32	48.76	36.10	38.35	134,624
Creech Airfield Emissions	13.37	7.79	1.12	0.99	0.62	2.38	1,895
Total Annual Emissions	**223.99**	**733.46**	**56.44**	**49.75**	**36.72**	**40.72**	**136,519**
ROI Baseline Emissions	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percentage of Baseline	***0.06%***	***1.37%***	***0.08%***	***0.28%***	***0.50%***	***0.01%***	***1.12%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_x = sulfur oxides; VOC = volatile organic compound

Table 3-19. Alternative 2 Munitions Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOC	CO_2e
Munitions Emissions	3.20	0.15	107.88	103.97	0.04	0.08	132.33
ROI Baseline Emissions	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percentage of Baseline	***0.00%***	***0.00%***	***0.15%***	***0.59%***	***0.00%***	***0.00%***	***0.00%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_x = sulfur oxides; VOC = volatile organic compound

Conceptually, up to fifteen 150-by-150-foot pads would be constructed to allow for placement and operation of threat emitters within the ready access areas to increase the operational relevance of MCO operations. Additionally, Alternative 2 would include approximately 4 acres of road improvements to allow for access to threat emitters and repeaters for installation, maintenance, and potentially periodic relocation. Construction activity and worker commute emissions were calculated using ACAM modeling software and compared with the ROI's baseline annual emissions.

Annual vehicular operations were also assumed to increase by 30 percent for Alternative 2, as stated in Section 2.3.2. Table 3-20 shows the estimated annual emissions from ground-disturbing activities and vehicular operations with Alternative 2. The highest criteria pollutant emissions would be PM_{10}, which would represent only 0.09 percent of the ROI's annual emissions.

Impacts related to ground-disturbing activities associated with Alternative 2 would amount to no more than 0.09 percent of the total ROI annual emissions for any of the criteria pollutants. Based on air emissions modeling and analysis, ground-disturbing activities with Alternative 2 would not be expected to result in any significant increase in air emissions and no adverse impacts would occur. Therefore, air quality impacts from ground-disturbing activities associated with Alternative 2 in this area would be insignificant.

Table 3-20. Alternative 2 Ground Disturbance Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Emitter Pad and Roadway Construction Emissions	7.04	7.78	60.15	0.35	0.02	1.25	1,707
Vehicle Operations	85.49	24.38	0.96	0.91	0.08	8.47	11,030
Alternative 2 Ground Disturbance Total	**92.53**	**32.16**	**61.11**	**1.26**	**0.10**	**9.72**	**12,737**
Total ROI[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.02%***	***0.06%***	***0.09%***	***0.01%***	***0.00%***	***0.00%***	***0.10%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound

[1] Source: (EPA, 2016c)

With Alternative 2, providing ready access and allowing for a dual-front MCO would lead conceptually to increased usage of threat emitters. While it has not yet been determined specifically how many emitters would be operated and at what level, a 30 percent increase was assumed to correspond with the increase in test and training activities. Table 3-21 provides the total emissions anticipated from a single emitter and a sampling of what emissions levels would be, assuming various numbers of emitters operated in the same manner (10, 15, 20, and 30 emitters, respectively) and compares these emissions to the ROI's annual baseline. Even assuming 30 emitters operated at a conservatively high frequency and duration, the highest percentage of baseline emissions is nitrogen oxides at less than 0.01 percent of the ROI's total emissions. Therefore, it is not likely that increases in emitter operations under Alternative 2 would adversely impact regional air quality.

Table 3-21. Alternative 2 Emitter Operation Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Single Emitter Emissions	0.08	0.15	0.01	0.01	0.01	0.02	13.81
10 emitters	0.76	1.53	0.15	0.14	0.10	0.20	138.11
Total ROI[1]	398,567	53,433	69,705	17,576	7,417	501,115	12,179,548
Percent of ROI	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***
15 emitters	1.14	2.30	0.22	0.21	0.14	0.30	207.17
Total ROI[1]	398,567	53,433	69,705	17,576	7,417	501,115	12,179,548
Percent of ROI	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***
20 emitters	1.52	3.06	0.30	0.28	0.19	0.41	276.23
Total ROI[1]	398,567	53,433	69,705	17,576	7,417	501,115	12,179,548
Percent of ROI	***0.00%***	***0.01%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***
30 emitters	2.28	4.59	0.44	0.43	0.29	0.61	414.34
Total ROI[1]	398,567	53,433	69,705	17,576	7,417	501,115	12,179,548
Percent of ROI	***0.00%***	***0.01%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***	***0.00%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound

[1] Source: (EPA, 2016c)

Alternative 2 Emissions Summary

Table 3-22 lists the annual emissions increase over baseline 2015 levels from all sources under Alternative 2. While annual emissions for carbon monoxide and nitrogen oxides would exceed the 250-ton NSR/PSD threshold, Alternative 2 emissions would be less than 2 percent of the ROI annual baseline emissions. Therefore, implementation of Alternative 2 would not be likely to contribute to a significant adverse impact to regional air quality.

Table 3-22. Summary of Alternative 2 Emissions

Source	Pollutant (tons/year)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Aircraft Emissions	210.62	725.67	55.32	48.76	36.1	38.35	134,624
Creech Airfield Emissions	13.37	7.79	1.12	0.99	0.62	2.38	1,895
Munitions Emissions	3.2	0.15	107.88	103.97	0.04	0.08	132.33
Vehicle Operations	85.49	24.38	0.96	0.91	0.08	8.47	11,030
Emitter Pad and Roadway Construction Emissions	7.04	7.78	60.15	0.35	0.02	1.25	1,707
Emitter Operation Emissions	2.28	4.59	0.44	0.43	0.29	0.61	414
Total Alternative 2 Emissions	**322.00**	**770.36**	**225.87**	**155.41**	**37.15**	**51.14**	**149,802**
Total ROI[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.08%***	***1.44%***	***0.32%***	***0.88%***	***0.50%***	***0.01%***	***1.23%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound

[1] Source: (EPA, 2016c)

3.3.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

Emissions associated with Alternatives 3A, 3A-1, 3B, and 3C from aircraft operations would be the same as those discussed for Alternative 2 (Table 3-18). As with Alternative 2, there would be no adverse impacts to air quality due to aircraft operations anticipated with the implementation of Alternatives 3A, 3A-1, 3B, and 3C.

Emissions associated with Alternatives 3A, 3A-1, 3B, and 3C from munitions use would be the same as those discussed for Alternative 2 (Table 3-19). Munitions use associated with Alternative 3B would remain at the current locations and at the increased levels evaluated for Alternative 2, but no munitions use would occur in the expansion area proposed for Alternative 3B (Range 64C/D and 65D, and the Administrative Incorporation area) nor Alternative 3C (Alamo areas). The Air Force would continue to utilize current target impact areas, so while munitions use would increase as discussed for Alternative 2, those munitions would not be used in newly

withdrawn areas. Therefore, there would be no adverse impacts to air quality due to munitions use anticipated with the implementation of Alternatives 3A, 3A-1, 3B, and 3C.

While ground-disturbing activities for Alternative 3A or 3A-1 may include a minor increase in maintenance activities, there would be no substantial increase in vehicle or fossil fuel combusting equipment operations as a result of Alternative 3A or 3A-1. For Alternative 3B, construction and troop movement would increase as discussed for Alternative 2, but would not occur within the Range 64C/D and 65D or Administrative Incorporation areas proposed for withdrawal for Alternative 3B. With Alternative 3B, there may be a minor increase in maintenance activities in newly withdrawn areas (such as fencing, road maintenance, etc.), but there would be no substantial increase in vehicle or fossil fuel combusting equipment operations. Therefore, impacts to air quality due to ground-disturbing activities with Alternative 3A, 3A-1, or Alternative 3B would be minimal.

For Alternative 3C, while there would be an increase in troop movement associated with additional IW training, the primary increase in air emissions would result from the construction of additional threat emitter pads in the Alamo withdrawal areas. Conceptually, up to fifteen 150-by-150-foot pads would be constructed to allow for placement and operation of threat emitters within the Alamo areas to increase the operational relevance of MCO operations. Additionally, Alternative 3C would include approximately 4 acres of road improvements to allow for access to threat emitters and repeaters for installation, maintenance, and potentially periodic relocation. Some surface improvements, such as grading and leveling using heavy machinery, would also be necessary for preparation of the runway to be used for FARRP activities. Construction activity and worker commute emissions were calculated using ACAM modeling software and compared with the ROI's baseline annual emissions. Likewise, as with Alternative 2, vehicle operations for Alternative 3C were assumed to increase by 30 percent to account for additional areas of maintenance and transport. This increase would also account for additional maintenance and installation activities associated with fencing of the expanded area for Alternative 3C (Table 3-23).

Table 3-23. Alternative 3C Ground Disturbance Air Emissions Compared with ROI Emissions (tons per year)

Source	Pollutant (tons/year)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Emitter Pad, Roadway, and Runway Construction Emissions	7.88	9.06	127.80	0.40	0.02	1.43	1,983
Vehicle Operations	111.14	31.7	1.25	1.18	0.11	11.01	14,340
Ground Disturbance Total	**119.02**	**40.76**	**129.05**	**1.58**	**0.13**	**12.44**	**16,323**
ROI emissions[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percentage of Total ROI	***0.03%***	***0.08%***	***0.19%***	***0.01%***	***0.00%***	***0.00%***	***0.13%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound
[1]Source: (EPA, 2016c)

Impacts related to ground-disturbing activities associated with Alternative 3C would amount to no more than 0.19 percent of the total ROI annual emissions for any of the criteria pollutants. Based on air emissions modeling and analysis, ground-disturbing activities with Alternative 3C would not be expected to result in any significant increase in air emissions and no adverse impacts would occur.

Emitter operations would not increase as a result of Alternative 3A or 3A-1. For Alternative 3B, emitter use would increase as discussed for Alternative 2, but there would be no increase in emitter operations in the proposed expansion area (Ranges 64C/D and 65D and the Administrative Incorporation area). For Alternative 3C, the operation of threat emitters would likely increase over levels analyzed previously; however, as discussed for Alternative 2 and shown in Table 3-21, even the most conservative estimates show very minor contribution to the ROI's existing criteria pollutant baseline. Therefore, impacts to air quality resulting from emitter operations due to Alternative 3A or 3A-1 would be minimal, and no adverse impacts to regional air quality would be anticipated from implementation of Alternative 3B or Alternative 3C.

Additional particulate matter emissions may also occur from fugitive dust emitted during FARRP training activities such as takeoff and landings from aircraft at an austere unimproved runway location as discussed in Section 2.3.3.4 (Alternative 3C). Fugitive dust emissions associated with these activities could produce a substantial amount of particulate matter and fugitive dust, depending on the type of aircraft and time of year as well as the softness of the impacted soil. Fugitive dust emissions from FARRP training may also be exacerbated during periods of high winds. However, these impacts would be localized and short in duration, and there are currently no major impacts from fugitive dust that affect the monitored regional air quality. The ROI remains in attainment for both PM_{10} and $PM_{2.5}$. Since similar activities occur under Alternative 1, these fugitive dust emissions would be unlikely to contribute to any significant impacts to local or regional air quality within the ROI.

Although emissions associated with these training activities would be insignificant, the Air Force should consider employing standard management measures similar to those used for construction activities, such as watering of graded areas, covering of soil stockpiles, and contour grading (if necessary), to minimize temporary generation of dust and particulate matter.

Alternative 3 Emissions Summary

Table 3-24 lists the annual emissions increase over baseline 2015 levels from all sources under Alternative 3C, which is the most conservative alternative since it includes additional emissions for the construction of emitter pads. Emissions produced under Alternatives 3A and 3B would actually be lower than under Alternative 3C. While annual emissions for carbon monoxide and nitrogen oxides would exceed the 250-ton NSR/PSD threshold, Alternative 3 emissions would not exceed 2 percent of the ROI annual baseline emissions under any subalternative. Therefore, implementation of Alternative 3A, 3B, or 3C would not be likely to contribute to a significant adverse impact to regional air quality.

Table 3-24. Summary of Alternative 3 Emissions

Source	Pollutant (tons/year)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Aircraft Emissions	210.62	725.67	55.32	48.76	36.10	38.35	134,624
Creech Airfield Emissions	13.37	7.79	1.12	0.99	0.62	2.38	1,895
Munitions Emissions	3.20	0.15	107.88	103.97	0.04	0.08	132
Vehicle Operations	111.14	31.70	1.25	1.18	0.11	11.01	14,340
Emitter Operation Emissions	2.28	4.59	0.44	0.43	0.29	0.61	414
Emitter Pad Construction Emissions	7.88	9.06	127.80	0.40	0.02	1.43	1,983
Total Alternative 3 Emissions	**348.49**	**778.96**	**293.81**	**155.73**	**37.18**	**53.86**	**153,388**
Total ROI[1]	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.09%***	***1.46%***	***0.42%***	***0.89%***	***0.50%***	***0.01%***	***1.26%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound
[1] Source: (EPA, 2016c)

3.3.2.5 Alternative 4 – Establish the Period of Withdrawal

The proposed withdrawal periods associated with Alternative 4—Alternative 4A (20-year withdrawal period), Alternative 4B (50-year withdrawal period), and Alternative 4C (indefinite)—must be implemented in conjunction with one or more of the other alternatives or subalternatives. Because Alternative 4 reflects periods of time, which do not in and of themselves affect air emissions, there would be no impacts specific to the time-related portion of Alternative 4. Emissions are analyzed on an annual basis, and there are no known or anticipated changes to criteria pollutants or GHG emissions affected by the period of withdrawal. Annual emissions would remain at or near the baseline or implemented alternative level throughout the period of withdrawal.

3.3.2.6 No Action Alternative

Under the No Action Alternative, the land withdrawal for the NTTR would not be renewed. In this case, the land would be returned to the public and would require numerous management activities under the FLPMA. Initially, air pollutant emissions associated with military activity would decrease. However, in the longer term, overall emissions may increase, as industrial activities such as mining could be associated with greater levels of emissions of certain criteria pollutants such as particulate matter. Prohibitions previously placed in effect by the MLWA on appropriations under the public land laws would expire. Expiration of these prohibitions means that appropriative land uses such as mining, mineral leasing, or livestock grazing could potentially be reintroduced. While it is not possible to estimate emissions from such industrial activities at this time, the associated emissions could contribute greatly to the regional air pollutant emissions, potentially adversely impacting air quality. Further, appropriate decontamination operations may be required and could be extensive in scope and long in duration. These decontamination activities would include operation of heavy machinery and associated combustion of fossil fuels, which may lead to increased air

pollutant emissions over the long term, potentially greater than current military emissions. While it is not possible to determine the overall impacts of the No Action Alternative at this time, air quality impacts may be significant.

3.3.2.7 Air Emissions Alternative Comparison

Table 3-25 lists the total net emissions from direct and indirect emissions under each of the proposed alternatives. It is important to note (1) that Alternative 1 emissions are ongoing and have been for many years, so these are not new emissions and should actually be considered part of the ROI baseline, and (2) because the alternatives involve different geographic regions, more than one alternative could be implemented. However, aircraft and munitions activities would increase by 30 percent under either Alternative 2 or 3 or if both were implemented; thus, the emissions from those sources would not be additive if both were implemented. Conservatively, all emissions were added in Table 3-25, and total emissions from all action alternatives would still contribute to less than 8 percent of the ROI's annual regional criteria pollutant emissions for each pollutant. Carbon dioxide emissions would greatly exceed the 75,000-ton per year relative significance indicator. However, emissions from threat emitters would be the only emissions from potential stationary sources, and their emissions would be well below 75,000 tons per year in all cases.

Table 3-25. Alternatives Comparison of Emissions

Source	Pollutant (tons/year)						
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_x	VOC	CO_2e
Alternative 1 Emissions	823.14	2,464.28	548.47	513.11	122.61	142.55	464,003
Alternative 2 Emissions	322.00	770.36	225.87	155.41	37.15	51.14	149,802
Alternative 3 Emissions	348.49	778.96	293.81	155.73	37.18	53.86	153,388
Total Alternative 1, 2, and 3 Emissions	**1,493.63**	**4,013.61**	**1,068.16**	**824.26**	**196.94**	**247.55**	**767,193**
Total ROI Baseline	**398,567**	**53,433**	**69,705**	**17,576**	**7,417**	**501,115**	**12,179,548**
Percent of ROI	***0.37%***	***7.51%***	***1.53%***	***4.69%***	***2.66%***	***0.05%***	***6.30%***

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; NO_x = nitrogen oxides; PM_{10} or $PM_{2.5}$ = particulate matter with a diameter less than or equal to 10 or 2.5 microns, respectively; ROI = region of influence; SO_2 = sulfur dioxide; VOC = volatile organic compound

[1] Source: (EPA, 2016c)

3.3.3 Proposed Resource-Specific Mitigations and Management Actions

Identified resource-specific mitigations and/or management actions for air quality that would be implemented across all action alternatives include the following:

- Employ standard management measures for construction activities such as watering of graded areas, covering of soil stockpiles, and contour grading (if necessary) to minimize temporary generation of dust and particulate matter. This would serve to minimize air emissions associated with elements of the Proposed Action and across all action alternatives. (See Section 3.3.2.2.)

As outlined in Section 3.3.1.1 (Description of Resource), on June 4, 2018 (83 *Federal Register* 25776–25848), the EPA issued a revision to 40 CFR Part 81, Subpart C, which designated non-attainment areas under the 2015 ozone standard. Nellis AFB and a

small portion of the NTTR are located in the portion of Clark County, Nevada, that was designated as non-attainment with the revision to 40 CFR 81.329 (83 *Federal Register* 25819). The effective date of the designation is August 3, 2018 (83 *Federal Register* 25776). By operation of law, a General Conformity applicability analysis will be required to be completed for covered actions that are approved and scheduled for implementation to begin on, or after, August 2, 2019. If the General Conformity applicability analysis demonstrates that emissions of ozone precursor pollutants from the Proposed Action equal or exceed the applicable *de minimis* levels promulgated in 40 CFR 93.153(b)(1), then draft and final General Conformity determinations will be required before any emissions-related activities associated with the Proposed Action may proceed (42 USC 7506(c) and 40 CFR Part 93, Subpart B [40 CFR 93.150–165]).

3.3.4 Native American Perspective on Air Quality

3.3.4.1 Native American Perspective: Air Quality Description of Resource

The CGTO knows that the air is alive and can be affected by military activities. The Creator puts life into the air, which is shared by all living things. When a child is born, he pulls in the air to begin their life. The mother watches carefully to make sure that the first breath is natural and that there is no obstruction in the throat. It is believed if the day of birth is a windy day, it is a good day and the child will have a good life.

According to the tribal elders' perspectives expressed during visits to the NTTR, "...You can listen to the wind. The wind talks to you. Things happen in nature. Our people have weather watchers, who know when inclement weather conditions are imminent or when crops and things should occur. They watch the different elements in nature and pray to ask the winds to come and talk about these things. Sometimes you ask the north wind to come down and cool the weather. The north wind is asked to blow away the footsteps of the people who have passed on to the afterlife. That kind of wind helps people and it is considered positive. The wind also brings you songs, stories and messages. Sometimes the messages are about healing people, a sign that the sickness is gone now from the person or the land. Other times, we know change is coming to get the sickness and take it away. Other times the wind and other changes to the air can bring you the strength that you will need to confront the illness."

Dead Air - Indian people know air can be destroyed, causing pockets of *dead air*. There is only so much living air that surrounds the world. If you kill the energy, it is gone forever and cannot be restored.

Dead air lacks the spirituality and life necessary to support other life forms. Aircraft mishaps occur when they hit *dead air*. During a previous CGTO evaluation of the area, one member of the CGTO compared this Indian view of killing air with what happens when a jet flies through the air and consumes all of the oxygen, producing a condition where another jet cannot fly through it.

As one tribal elder noted, "The spiritual journey of the Southern Paiute Salt Songs are affected as the air quality is not the same as in the days of old. This Salt Singer

wonders what is going to happen if the situation isn't corrected. Southern Paiutes need this spiritual journey to ascend their deceased to the next life."

As people are emitting things into the air that are unnatural, such as past radiative tests, climatic changes such as droughts are occurring because the air is being disrespected. As the air continues to be disrespected, it perpetuates and intensifies imbalance throughout the environment. This impacts many resources, including the land, soil, water, plants, and animals.

Dust devils in various forms and sizes are culturally significant to Indian people and known to bring harm. The CGTO knows the frequency and intensity of dust devils have increased within the NNSS and the surrounding area. Dust devils contain negative energy, and can disperse hazardous and radioactive contaminants from the soil at the NTTR. Their spirits can bring harm if the air is disrespected and if you watch it or allow them to come near or pass through you. If this occurs, a person will become ill and must seek cultural intervention to heal.

Native Americans who were present during past above ground nuclear tests at the nearby Nevada National Security Site (formerly the Nevada Test Site) that is adjacent to the NTTR, believe that the sickness many illnesses may have been derived from radiation. To some, the effects of the radiation was in addition to what happened when the air itself was killed. Some tribal elders believe that even when the plants survived the initial effects of radiation or other sicknesses, the *dead air* altered or killed many of them or made some lose their spiritual power to heal things.

As noted by tribal elders, "*Sheep and other animals are being born out of season, which places them at greater risk from predators and inhibits living full lives. Consequently, their loss adversely impacts our cultural survival, as many of our stories and traditions surround these animals. Weather is out of balance. For example, when it snows, one can also hear thunder. Native people observe the changed nature of the vegetation and blame the atmospheric change on the air quality derived from the bomb testing on the NNSS."*

The CGTO recognizes that climatic change is occurring and will continue to impact the natural resources of the NNSS and the surrounding region. When rain gauge (anemometer) data are averaged over a decade they can mask the reality that plants and animals are adjusted to regular cycles of rain and snow. Isolated heavy rain events can increase the annual rainfall amounts, but are largely not useful for sustaining life. Plants and animals need the climate to return to its historic, normal annual rainfall, which is more evenly dispersed by season.

The CGTO knows that ceremonies have historically helped manage the climate in the NTTR region. Unfortunately, we have not been able to perform these ceremonies at the frequency needed as our holy land continues to suffer. To facilitate the healing of this area, the Air Force must make provisions for the CGTO to access the land and perform these rituals, which are further described below.

3.4 LAND USE, RECREATION, AND VISUAL RESOURCES

3.4.1 Affected Environment

Lands within the current NTTR boundary have primarily been used for military testing and training since the 1940s. Historical uses included mining and grazing; however, all mineral and grazing rights were eliminated between 1949 and 1965 except in limited areas that were authorized at the time of the 1986 withdrawal. Lands within the proposed expansion areas include BLM and DNWR land, which are primarily used for wildlife management and recreational activities. However, some of the activities that occur on BLM-managed land are different from the DNWR. For example OHV use occurs on BLM land but is not allowed on the DNWR. BLM land also contains areas with grazing allotments and mining claims. The DNWR is protected and managed for wildlife while still providing opportunities for visitors to experience a variety of wildlife-dependent and outdoor activities.

The following sections describe the existing conditions related to NTTR land use and land uses within the proposed expansion areas and summarize applicable material presented from the *Land Use Study of the Nevada Test and Training Range* (U.S. Air Force, 2017a).

The Land Use Study includes a general description of current land uses at the NTTR and the authorization for each land use per the MLWA of 1999; a legal description of the NTTR and changes in withdrawn lands since the 1999 withdrawal; MOUs and rights-of-way, including land uses and agency or government jurisdiction; land users and their primary jurisdictions within the NTTR; areas that qualify for special land status, such as possible Wilderness Areas, cultural resource/protection areas, biological habitat areas, etc.; and land rights and/or uses that have been eliminated or bought out or that need to be acquired by the Air Force. It also provides a resource for integration into the land use portion of the LEIS; describes land management practices within the NTTR; and maps land uses as an overlay to the NTTR.

3.4.1.1 Description of Resource

For the Native American perspective on information in this section, please see Section 3.4.4.1 and Appendix K, paragraph 3.4.1.1.1.

Land use generally refers to the management and use of land by people, often for residential or economic purposes. Components of land use include general land use patterns, land ownership, land management plans, and special use areas. General land use patterns characterize the types of uses within a particular area. Human land uses typically include residential, commercial, industrial, agricultural (open rangeland livestock grazing), utilities and transportation, recreation, and in the case of the NTTR, military activities. Land use also includes areas set aside for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features, while some natural features are protected under designations such as national parks, national forests, national wildlife refuges,

Wilderness Areas, or other designated areas, including areas/corridors designated for energy-related transmission purposes.

Public scoping comments identified recreational concerns as a major issue; therefore, recreation is a focus of land use impacts analysis. Recreational resources, for the purpose of this analysis, include primarily outdoor recreational activities that occur away from an individual's place of residence. This also includes natural resources and man-made facilities that are designed or available for public recreational use in remote areas. The setting, activity, and other resources that influence affected recreation resources enable assessment of potential impacts to this resource. Recreation on public lands is generally only limited by state and federal laws, as well as public use restrictions put into place when an activity may be hazardous to a protected area or a nearby population. Common restrictions are associated with target shooting and OHV usage.

3.4.1.2 Region of Influence

The ROI for Alternative 1 includes all of the existing areas within the North and South Ranges as well as the existing airspace boundaries. The ROI for Alternative 2 would be the same since the existing NTTR boundary would not change. Under Alternative 3, the ROI would include the areas within the current NTTR boundary as outlined in Alternative 1, plus various options for additional land withdrawals as described in Sections 2.3.3.1 (Alternative 3A) through 2.3.3.4 (Alternative 3C). There is no specific ROI associated with Alternative 4 because it would need to be implemented with one or more of the other alternatives or subalternatives and only would affect the period of withdrawal.

3.4.1.3 General Land Use, Ownership, and Management Plans

Existing NTTR Boundary (Alternatives 1 and 2)

An overview and general description of the NTTR, including the current boundary, primary uses and missions, NTTR airspace, other land users, and primary jurisdictions is presented in Section 1.2 (Background). The NTTR Land Use Study (U.S. Air Force, 2017a) includes more detailed information on the general land use, ownership, and management plans for the existing NTTR withdrawal, as described in Section 3.4.1.1.

Section 3.10 (Earth Resources) contains additional information on the mineral resources within the NTTR and surrounding area. There are no active mining claims or oil and gas leases located within the NTTR. All of the unpatented mining claims and all of the oil and gas leases have either expired or were acquired by the United States. Existing rights-of-way within the NTTR occur in two principal areas/locations. The first includes three power transmission lines and a telephone line associated with Creech AFB. The second is existing grazing rights in the Groom Mountain area, known as the Bald Mountain Allotment. Owners of these grazing rights are able to access this allotment in order to graze cattle between March 1 and February 28 (U.S. Air Force, 2017a).

With the exception of a few private land uses, public lands adjacent to the NTTR fall within the jurisdiction of the DOE, the USFWS, or the BLM. Aside from the Las Vegas

metropolitan area, these private land uses include the cities of Beatty and Tonopah and the unincorporated communities of Amargosa Valley, Goldfield, and Indian Springs.

The BLM maintains the primary jurisdiction of the NTTR lands and has responsibility for the Nevada Wild Horse Range located on the NTTR. The USFWS maintains primary jurisdiction of the majority of the South Range that overlays the DNWR.

The DOE and the NNSA Nevada Field Office have several land uses within the NTTR. These include the Pahute Mesa area, the Tonopah Test Range, and Yucca Mountain area. In 1952, land was withdrawn between the NTTR North and South Ranges for the Nevada Test Site. Formerly known as the Nevada Proving Grounds, the site was established for the testing of nuclear devices. Now known as the Nevada National Security Site (i.e., the NNSS), it safely conducts high-hazard operations, testing, and training in support of the NNSA, DoD, and other agencies.

The USFWS is responsible for the administration and management of the DNWR. Primary jurisdiction of the DNWR, including the joint-use area shared with the Air Force, also rests with the USFWS, while the Air Force has secondary jurisdiction, with the exception of the impact areas associated with the 60-series ranges in which the Air Force has primary jurisdiction and USFWS has secondary. Within those impact areas, the military conducts several training activities, including bombing and targeting areas (see Section 1.2.2, South Range). The way in which the Air Force can use this area is defined in both the MOU between the Air Force and the USFWS (updated December 1997) and within the MLWA of 1999 (U.S. Air Force, 2017a).

Alternative 3A – Range 77 – EC South Withdrawal (and Amended Alternative 3A-1)

The proposed Range 77 – EC South withdrawal areas associated with Alternatives 3A and 3A-1 are located adjacent to the southwest portion of the NTTR North Range, north of the town of Beatty (see Figure 2-11, Alternative 3A, 3B, and 3C Locations and Acreages and Figure 2-12, Alternative 3A-1 Location and Acreage). The existing EC South area was previously used for live-fire exercises but now is an electronic range. Currently EC South contains a limited number of electronic threat simulators, which provide a separate area for tactics threats. The use of live ordnance on this range was terminated when the range was re-designated as an electronic warfare range. The area proposed for withdrawal is public land managed by the BLM's Tonopah Field Office, Battle Mountain District.

One active mining claim is located within the proposed withdrawal area (U.S. Air Force, 2017a) for Alternatives 3A and 3A-1. This claim is for lode mining, as opposed to placer mining. There are no mineral leases or oil and gas leases in the proposed withdrawal areas.

Portions of two BLM grazing allotments (Figure 3-5) are located within the proposed withdrawal area for Alternatives 3A and 3A-1, one of which is unallocated or closed to grazing and the other is active (Razorback).

Alternatives 3A and 3A-1 proposed expansion area includes portions of energy Corridor 18-224 north of the town of Beatty. See Section 3.6 (Socioeconomics) for a discussion of impacts associated with energy corridors.

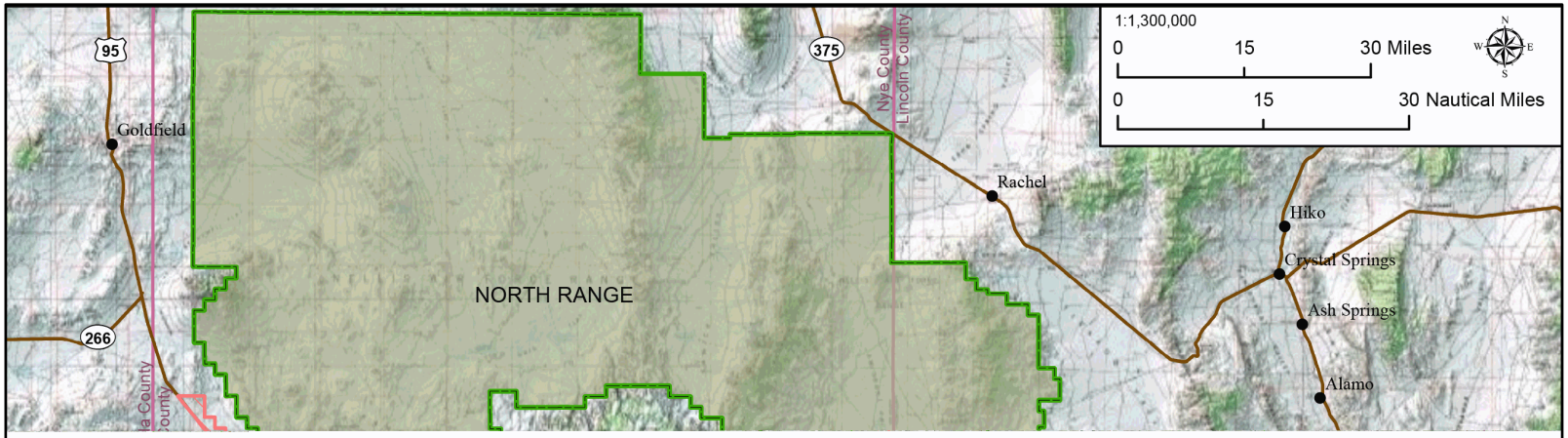

Figure 3-5. BLM Grazing Allotments Within the Range 77 – EC South Withdrawal Area

Alternative 3B – 64C/D and 65D Withdrawal and Administrative Incorporation

The proposed withdrawal area associated with Alternative 3B consists of two areas (see Figure 2-11). The larger portion is located along the southwest edge of the NTTR South Range (areas designated as Range 64C/D and Range 65D). The western and southern portions of the area are managed by BLM's Southern Nevada District and the rest is DNWR land managed by the USFWS. The other smaller area is parallel to the current NTTR boundary and U.S. Route 95. The portion immediately adjacent to U.S. Route 95 is Nevada Department of Transportation right-of-way while the remainder is BLM-managed land.

Creech AFB is located adjacent to the larger part of the proposed withdrawal area near the town of Indian Springs along U.S. Route 95. Air Force facilities are found on both sides of the highway, with the majority of assets located to the north (e.g., runways; hangars; and maintenance, administrative, and operational facilities). The Point Bravo and Silver Flag Alpha Range Complex areas are located just east of Creech AFB along the highway and adjacent to the southern portion of the proposed withdrawal area.

Approximately 240 acres of the existing withdrawal (Point Bravo) bisects energy Corridor 223-224 and a locally designated transportation and utility corridor (US95-Crater Flat). There is no corridor designation within the existing NTTR withdrawal. However, consistent with the *Record of Decision for the Approved Nevada Test and Training Range Resource Management Plan and Final Environmental Impact Statement* (BLM, 2004), the BLM may issue a lease, easement, right-of-way, or other authorization with respect to the nonmilitary use of the withdrawn land but only with the concurrence of the Air Force. See Section 3.6 (Socioeconomics) for a discussion of impacts associated with energy corridors.

South of U.S. Route 95 and Point Bravo are two State of Nevada Department of Corrections facilities: Southern Desert Correctional Center and the adjacent High Desert State Prison.

There are no mining claims, mineral leases, or other oil and gas leases or grazing allotments in the proposed withdrawal area for Alternative 3B.

Alternative 3C – Alamo Withdrawal

The proposed withdrawal area for Alternative 3C is located within the DNWR to the east of the shared use area (see Figure 2-11). Restricted airspace exists above the three Alamo areas even though the areas have not been withdrawn.

The public mineral estate within the proposed withdrawal area was withdrawn from location and entry under the U.S. mining laws by Public Land Order (PLO) 7070. PLO 7828 extended PLO 7070 through August 3, 2034. Even though the lands remain open to mineral leasing, including oil and gas, there are no active mining claims, mineral leases, or other oil and gas leases in the proposed withdrawal area.

3.4.1.4 Recreation and Special Use Areas

For the Native American perspective on information in this section, please see Section 3.4.4.2 and Appendix K, paragraph 3.4.1.4.1.

Existing NTTR Boundary (Alternatives 1 and 2)

Access restrictions on the NTTR preclude all unrestricted recreational opportunities in the area, including hunting (U.S. Air Force, 2017a). This restriction is established through NAC 504.340, which prohibits all hunting and trapping within the NTTR, except that hunting bighorn sheep is authorized in certain portions of the DNWR and NTTR. A controlled hunt for bighorn sheep is conducted each year between December 17 and January 1 in these portions of the DNWR. The shared use area of the DNWR is contained with NDOW-designated hunting units 280, 281, and 282. Bighorn sheep hunting is permitted within the Stonewall Mountain area of the NTTR and is included as a part of Unit 252. These hunting units are only open to permit holders. Anyone wishing to hunt on the NTTR must pass a background check and attend a mandatory safety briefing. Also, party size is limited to a maximum of five people within the NTTR portion of Unit 252 at any given time. No other recreational activities are allowed within the boundaries of the NTTR.

The DNWR (see Figure 1-5, South Range Overlap with DNWR) was established in 1936 for the conservation and development of natural wildlife resources, especially the protection and preservation of desert bighorn sheep. The refuge currently includes 1,614,554 acres, with 845,787 acres concurrently withdrawn by the Air Force. Of this withdrawn area, the MLWA of 1999 transferred primary jurisdiction of 112,000 acres of bombing impact areas from the USFWS to the Air Force, though the USFWS retains secondary jurisdiction over these lands. The DNWR/NTTR shared use area is currently being administered under a joint-use MOU (U.S. Air Force, 2017a).

The Nevada Wild Horse Range is a special management area located within the North Range of the NTTR (Figure 3-6). The Southern Nevada District of the BLM has administrative responsibilities for all land and management activities within the Nevada Wild Horse Range. The 2008 Nevada Wild Horse Range Herd Management Area Plan and the 1974 Wild Horse Management Area MOU provide management guidance for the wild horse population on the NTTR.

Alternative 3A – Range 77 – EC South Withdrawal (and Amended Alternative 3A-1)

Recreational activities within the proposed withdrawal area for Alternatives 3A and 3A-1 include but are not limited to hunting, hiking, camping, bird-watching, target shooting, and OHV activities. There are currently no restrictions on target shooting, with the exception of the standard guidelines (no glass targets, 1,000 feet from roads and houses, etc.).

Public lands not closed to OHV usage are commonly limited to existing roads, trails and dry washes, with the exception of dry lakes, which are open to all OHV activities (U.S. Air Force, 2017a). The Oasis Valley and Oasis Mountain areas northeast of Beatty and directly adjacent to the NTTR are popular areas for hiking, mountain biking, and OHV activities and have recently experienced an increase in outdoor recreation users and events (Figure 3-7). A few of the primary users and events include:

- Trails-OV (www.trails-ov.org), which helps to develop, promote and maintain a series of trail systems for mountain biking, trail running, equestrian use and rock climbing including the Spicer Ranch Trail System and Transvaal Flats Trail System.
- Beatty VFW (www.beattyvfw.com), which holds Jeep/4-wheel drive vehicle events like the "Run Through the Desert" Fun Day and the Annual Bullfrog Historical Mining District Poker Run.
- Best in the Desert Racing Association (www.bitd.com), which hosts the annual "Vegas to Reno" off-road race.

The proposed withdrawal areas for Alternatives 3A and 3A-1 overlap with the Bullfrog HMA (Figure 3-6), managed by the BLM. This HMA provides suitable habitat for wild burros, but not for wild horses. The overlap area is 2,877 acres (U.S. Air Force, 2017a).

The proposed withdrawal area for Alternative 3A includes portions of NDOW-designated hunting units 252 and 253. These units allow for the hunting of mule deer and desert bighorn sheep (U.S. Air Force, 2017a). (A smaller portion of the Bullfrog HMA and hunting unit 253 would be impacted by Alternative 3A-1.)

Alternative 3B – 64C/D and 65D Withdrawal and Administrative Incorporation

Recreational activities within the portion of the proposed Alternative 3B withdrawal area that is managed by the BLM Southern Nevada District include but are not limited to hunting, hiking, camping, bird watching, target shooting, and OHV activities.

There are currently no restrictions on target shooting, with the exception of the standard guidelines (no glass targets, 1,000 feet from roads and houses, etc.). Public lands not closed to OHV usage are commonly limited to existing roads, trails, and dry washes, with the exception of dry lakes, which are open to all OHV activities (U.S. Air Force, 2017a).

Public access in the approximately 33,000 acres of the proposed withdrawal area for Alternative 3B within the DNWR is restricted for safety and security. No recreational activities occur in this area except for limited hunting of desert bighorn sheep.

Within the administrative incorporation area (eastern edge of range areas 63B and 63C) no off-road vehicle use is allowed per the BLM Southern Nevada District. The portion of the proposed withdrawal area that overlaps the DNWR is shown as a restricted area by the USFWS due to the close proximity to the NTTR.

A very small portion (114 acres) of the proposed withdrawal area for Alternative 3B overlaps with the Wheeler Pass HMA (Figure 3-6), which is managed by the BLM for wild horses and wild burros. However, the HMA dataset has an undefined and potentially low level of precision that could create the impression of an overlap of this size, where one may not exist (U.S. Air Force, 2017a).

The proposed withdrawal area for Alternative 3B includes portions of NDOW-designated hunting units 280, 281, and 282 (U.S. Air Force, 2017a). These units only allow for the hunting of desert bighorn sheep.

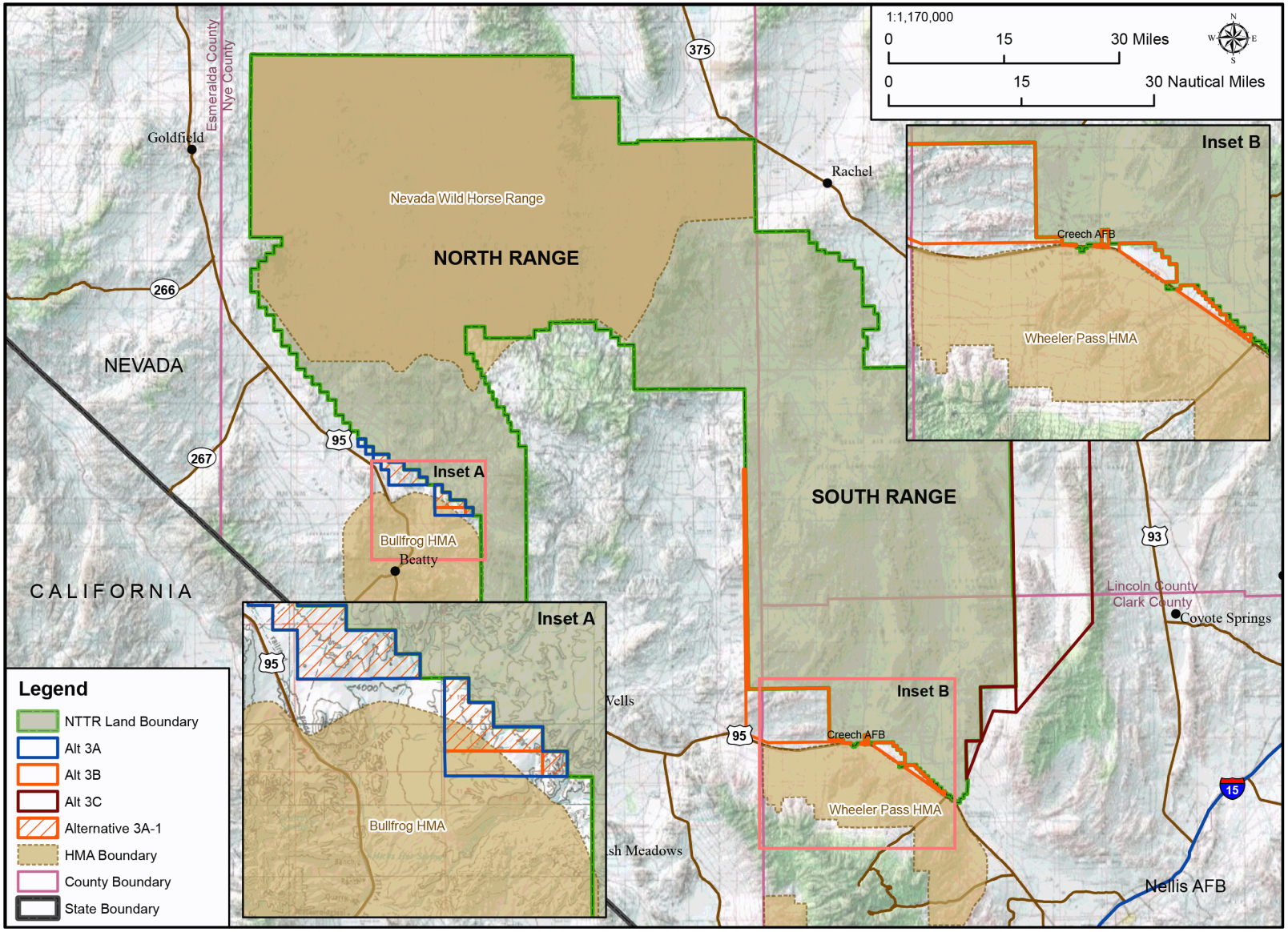

Figure 3-6. Nevada Wild Horse Range and Herd Management Areas

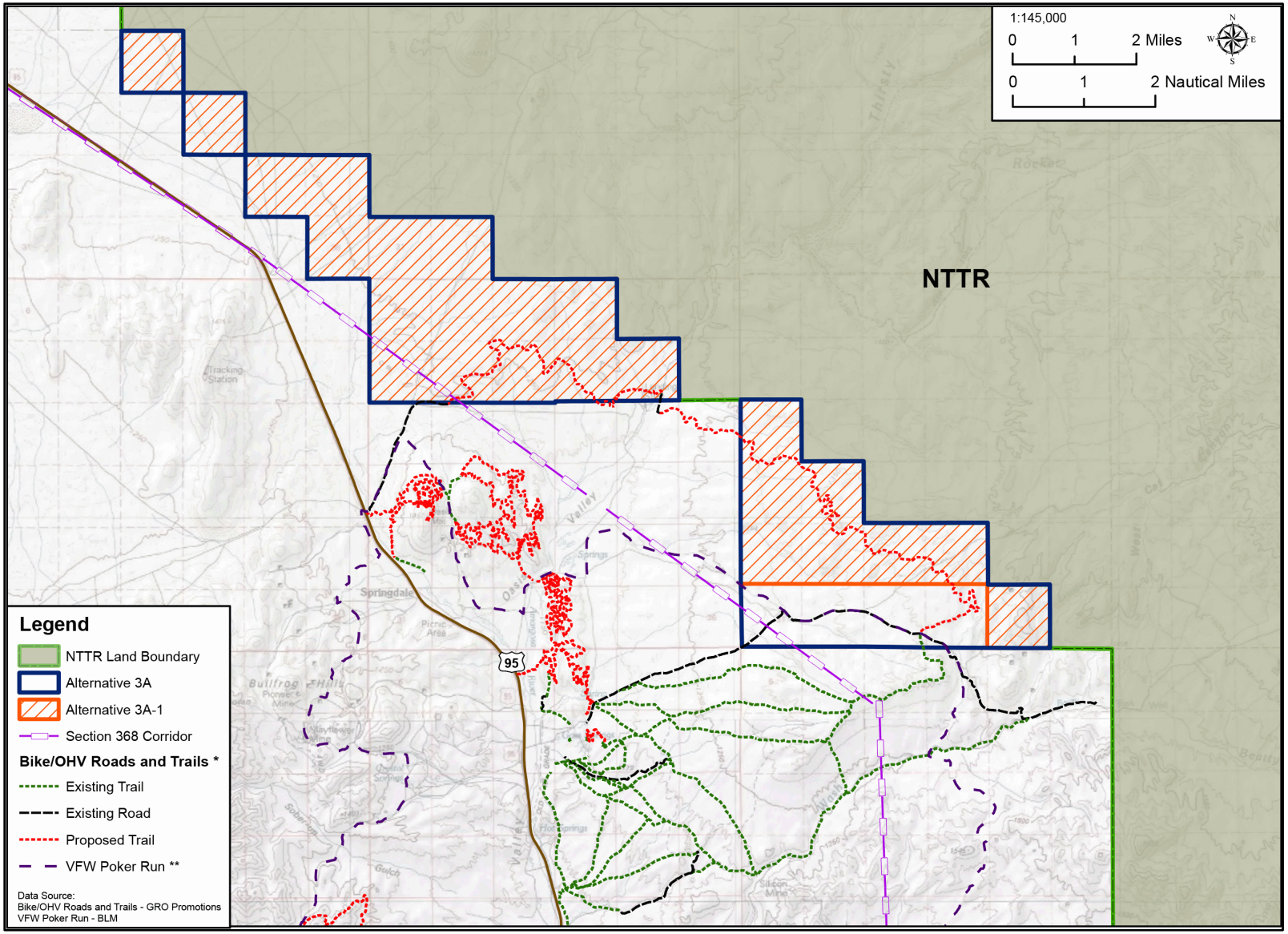

Figure 3-7. Range 77 – EC South Withdrawal Area Bike and OHV Roads and Trails

Alternative 3C – Alamo Withdrawal

The proposed withdrawal area associated with Alternative 3C is entirely within the DNWR. Recreational activities allowed within the proposed withdrawal portion of the DNWR include camping, hunting, backpacking, hiking, horseback riding, wildlife viewing/photography, and traveling on primitive scenic byways.

Operation of OHVs, including but not limited to all-terrain cycles and quads, is not permitted on the DNWR and only street legal vehicles are allowed. There are several roads, parking areas, and trails within the proposed Alternative 3C boundary (Figure 3-8). These include Alamo Road north of Hidden Forest Road, Pine Canyon Road and Pine Canyon Trail, White Rock Road (White Rock Canyon), Dead Horse Road and Dead Horse Trailhead, Saddle Mountain, Sheep Pass, Cabin Springs Road, Desert Lake, and Old Corn Creek Road.

In unrestricted areas (i.e., outside of the NTTR South Range portion of the DNWR), car campers are allowed to set up campsites anywhere that falls within 50 feet of a road. Backcountry camping is also allowed throughout the unrestricted portion of the refuge, but must be at least a quarter mile away from water development or springs (U.S. Air Force, 2017a).

The proposed withdrawal area for Alternative 3C contains portions of NDOW-designated hunting units 282, 283, and 284. These units only allow for the hunting of desert bighorn sheep.

3.4.1.5 Visual Resources

For the Native American perspective on information in this section, please see Section 3.4.4.3 and Appendix K, paragraph 3.4.1.5.1.

Visual resources include both natural and man-made features of the landscape visible from public viewpoints. Topography, water, vegetation, man-made features, as well as the degree of panoramic views available are examples of visual characteristics. Public concern over adverse visual impacts can be a major source of opposition to a project. The level of public concern depends on both viewer exposure and viewer sensitivity. The combination of exposure and sensitivity helps predict how the public might react to visual changes brought about by an action.

Viewer exposure refers to the number of people experiencing potential changes in their visual environment. Exposure also includes the duration of view, the speed at which the viewer is traveling, and the resulting perspective of the viewer relative to proposed changes.

Viewer sensitivity is defined as both the viewers' concern for scenic quality and their response to change in the visual quality. The public is generally concerned about areas possessing a high degree of visual character or quality, and these views typically contain highly visible or memorable landscape elements. Often people specifically seek out publicly accessible views from or within recreational areas. Urbanized locations are usually considered to have less visual sensitivity than recreational areas, since the use of urban locations is primary and their view is not integral to their purpose.

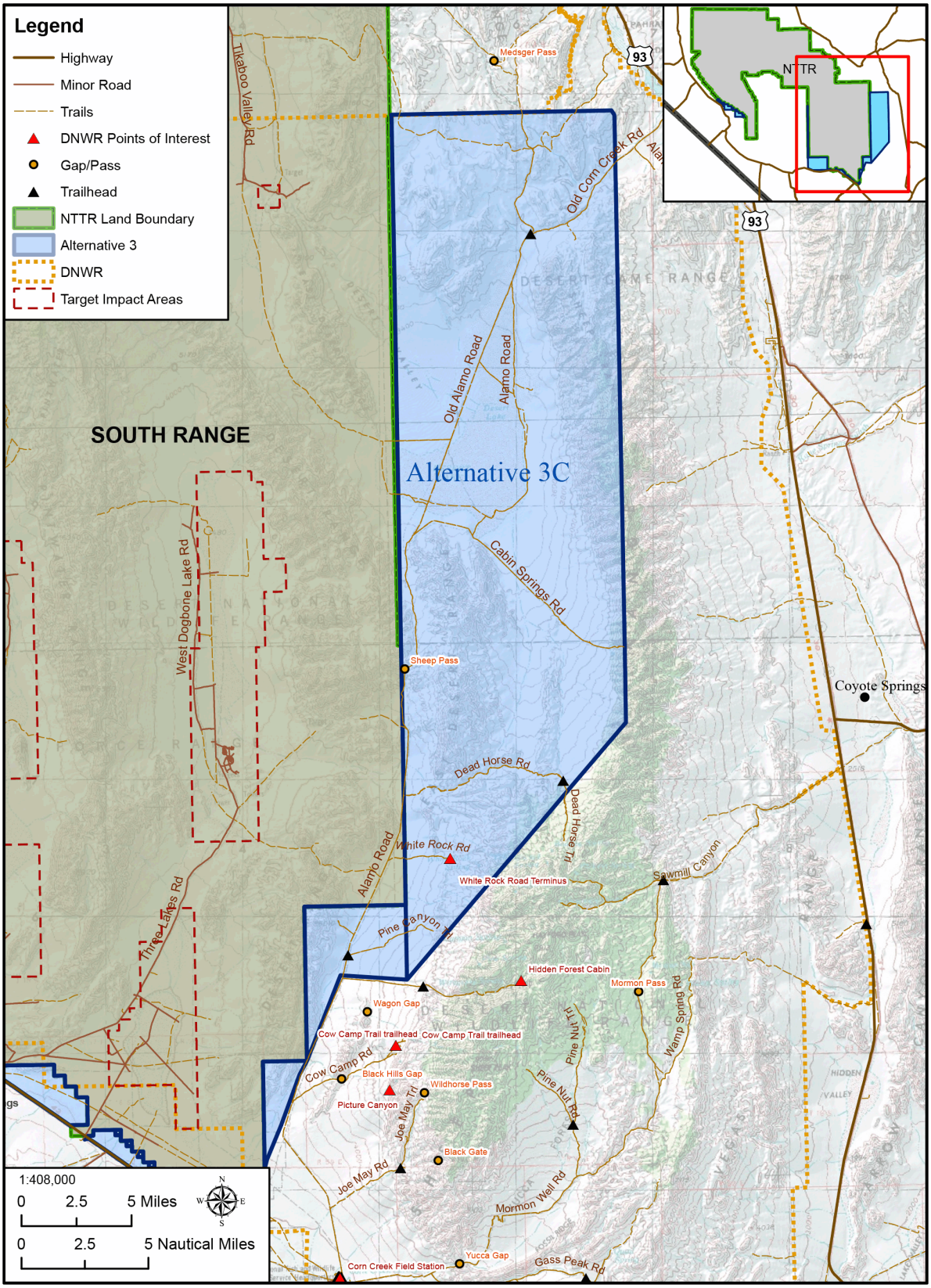

Figure 3-8. Roads, Parking Areas, and Trails Within Alternative 3C Boundary

The mission of the National Wildlife Refuge System, per the *National Wildlife Refuge System Improvement Act of 1997*, is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (105th Congress, 1997). The foundation of USFWS policy and management for Congressionally designated wilderness and areas proposed for wilderness is defined in the USFWS's *Part 610: General Overview of Wilderness Stewardship Policy* (USFWS, 2008a).

Part 610 describes "wilderness character" as the natural, scenic condition of the land; natural night skies; and the untrammeled, primeval character of and influence on the land. In the *Wilderness Act of 1964*, the term "untrammeled" refers to the freedom of a landscape from the human intent to permanently intervene, alter, control, or manipulate natural conditions or processes (USFWS, 2008a). These elements of wilderness character are also part of the visual quality of an area.

The BLM manages lands to achieve some level of visual or scenic quality. The BLM uses a visual resource management (VRM) system to identify and manage scenic values on federal lands administered by that agency. BLM Handbook H-8410-1, *Visual Resource Inventory*, explains how the four Visual Resource Inventory (VRI) classifications are determined. BLM VRM classes are determined through the land use planning process. The VRI classes are different from the VRM classes. The VRI assigns a visual value, while VRM directs management through the designation of objectives. VRM classes and their objectives are summarized in Table 3-26.

Table 3-26. BLM Visual Resource Management Classes

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

Source: (BLM, 1986)

Natural darkness (darkness undiminished by artificial light) is recognized as an important and increasingly rare natural resource. While there is light pollution from all

developed areas in Nevada, most famously Las Vegas, the state retains some of the darkest night skies left in the nation (Pesek, 2012).

Federal land management agencies promote the retention of natural night skies through participation in the "Dark Skies Initiative." The BLM has specific guidance related to the mitigation of light pollution, such as its "Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands." Based on the USFWS's 2008 Stewardship Policy as well as legislative language of the *Wilderness Act*, the USFWS manages wilderness areas in its jurisdiction (including areas they proposed for wilderness on the DNWR) to ensure natural night skies. Further information on natural darkness and light pollution can be found in Appendix E, Visual Resources.

Existing NTTR Boundary (Alternatives 1 and 2)

While the NTTR is a tapestry of lands maintained by various federal agencies, over half of the current military withdrawal area is managed by the BLM, which has provided management guidance to NTTR personnel in the *Record of Decision for the Approved Nevada Test and Training Range Resource Management Plan and Final Environmental Impact Statement* (BLM, 2004). The BLM maintains primary jurisdiction over the NTTR lands in the North Range, whereas the USFWS manages a majority of the South Range because the NTTR overlaps with the DNWR (which is managed by the USFWS). Pursuant to P.L. 106-65, the Secretary of the Interior is required to manage the lands during the withdrawal pursuant to FLPMA. This does not apply to areas under the National Wildlife Refuge System, i.e., the DNWR. Lands within the DNWR, such as those in the South Range, shall be managed pursuant to the *National Wildlife Refuge System Improvement Act of 1997.* The USFWS's 2008 Stewardship Policy, as well as legislative language of the *Wilderness Act*, also guides the USFWS to manage areas proposed for wilderness to ensure natural night skies.

The BLM has established two primary visual resource management objectives at the NTTR: (1) to maintain the integrity of visual resources in natural areas by directing that all actions initiated or authorized by the BLM comply with VRM guidelines; (2) to protect the visual resources in the planning area by managing the Groom Mountain Range addition for VRM Class III and IV values, the Timber Mountain Caldera National Natural Landmark as VRM Interim Class II, and the remainder of the planning area as VRM Interim Class IV. The established VRM categories allow the Air Force to develop infrastructure in the planning area and to conduct its training and testing mission, without violating management guidelines (BLM, 2003). A review of the 2016 Land Use Study (U.S. Air Force, 2017a) indicates that no changes to the baseline visual resource conditions have occurred since the previous LEIS or the *Record of Decision for the Approved Nevada Test and Training Range Resource Management Plan and Final Environmental Impact Statement* (BLM, 2004).

Figure 3-9 depicts the persistent sources of light pollution on the NTTR, primarily from runways and towers (National Oceanic and Atmospheric Administration [NOAA], 2013). Some sky glow persists around these sources, while towns in the vicinity (such as Beatty), Creech AFB, and High Desert Prison contribute to sky glow in the southern

portion of the NTTR (Falchi et al., 2016). Sky glow from Las Vegas affects the southeast region.

Alternative 3A – Range 77 – EC South Withdrawal (and Amended Alternative 3A-1)

The areas proposed for withdrawal under Alternatives 3A and 3A-1 are within the BLM Tonopah Field Office, Battle Mountain District Office. Objectives for this District Office planning area were established in the 1997 *Tonopah Resource Management Plan,* which established VRM Class IV values for the land within these parcels. The area is of moderate sensitivity, due to viewer traffic along U.S. Route 95, ranching and recreation use, and proximity to the town of Beatty.

The areas proposed for withdrawal are north of Sarcobatus Flat, which is a long, wide valley that runs from Slate Ridge south to the Bullfrog Mountains. In profile, the valley appears flat, sloping upward to the Amargosa Range (locally known as the Grapevine Mountains) to the west. The adjacent mountains have a minor influence on the visual quality. Human uses, such as OHV roads, and developments are present in this area at Springdale and U.S. Route 95. The westernmost parcel is on the flat slope of the valley, with small shrubs clustered on the valley floor in the foreground and midground. In the background, Tolicha Peak, Quartz Mountain, and Black Mountain are notable geographic features.

The mouth of Thirsty Canyon, which empties southward into Oasis Valley, runs between the two areas proposed for withdrawal. The eastern areas proposed for withdrawal includes features such as abandoned mines and OHV roads. Low-profile, rolling hills of low contrast, which are common in this region, display indistinct vegetation in the foreground and midground of this area proposed for withdrawal. Timber Mountain is visible to the east in the background (BLM, 2011).

NOAA satellite data of average annual night-time radiance from persistent lighting exhibits no sources of light pollution within the areas proposed for withdrawal (Figure 3-9), and the naturally dark skies are only subjected to low amounts of sky glow from the town of Beatty.

Alternative 3B – 64C/D and 65D Withdrawal and Administrative Incorporation

The USFWS-managed DNWR land that is part of the proposed withdrawal expansion area for Alternative 3B is a portion of the Spotted Range Proposed Wilderness Unit and is currently restricted access (USFWS, 2009). Parts of the northern and eastern borders of the area considered for withdrawal abut to DoD impact areas.

The BLM-managed land in the proposed withdrawal for Alternative 3B offers public access and has been designated VRM Class III by the BLM Pahrump and Las Vegas Field Offices (BLM, 2014). Scenic quality in the area is classified as nearly equally medium and low.

The region is composed of four small mountain ranges that vary from common landforms of foothills, to higher and more complex areas with pyramidal peaks, color contrast in rock banding, bold blocks, and escarpments. Smaller enclosed valleys are not remarkable, characterized by flat bajada-type desert country with creosote bush communities (BLM, 2014).

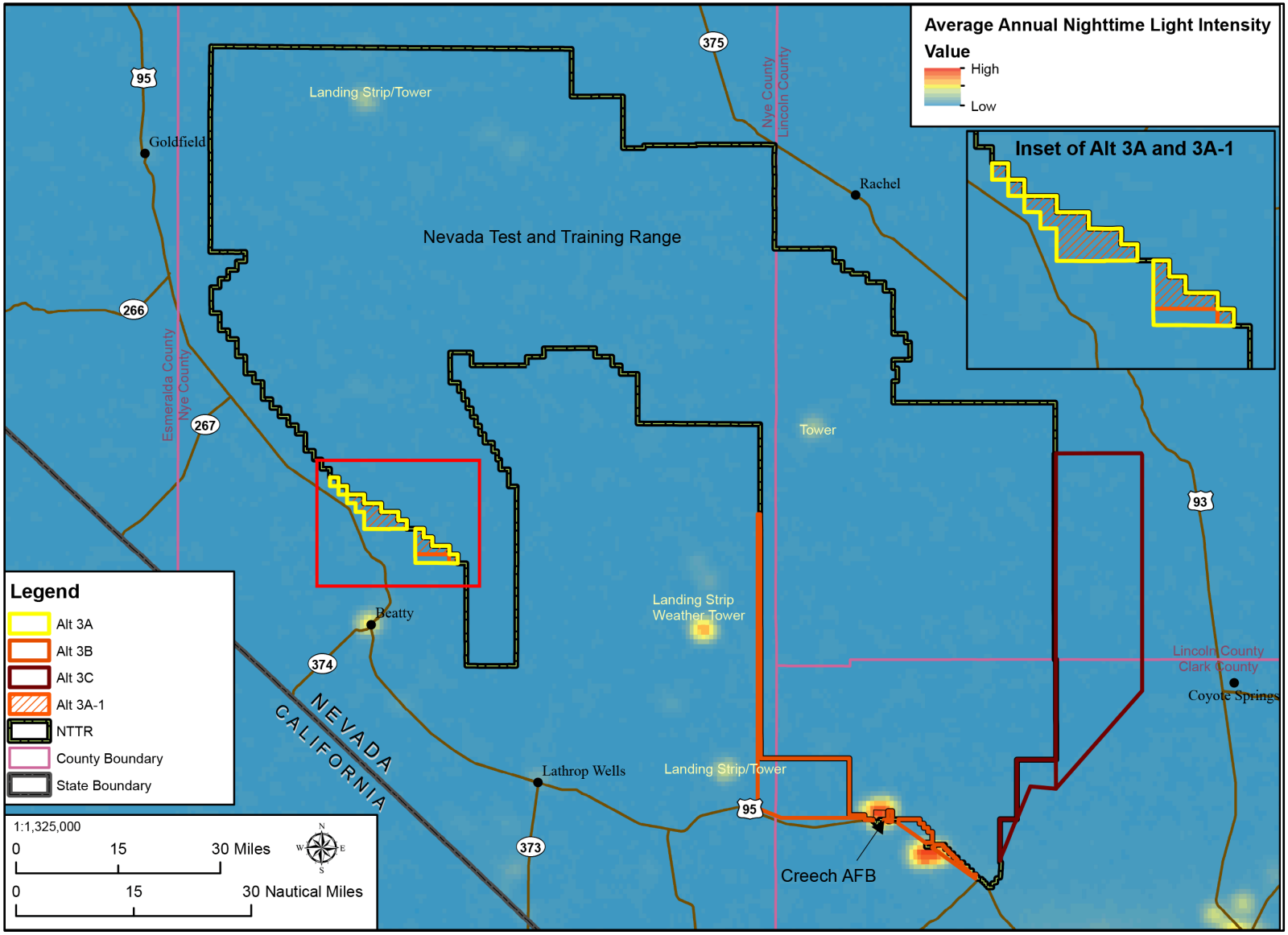

Figure 3-9. Average Annual Night-time Light Intensity

The South Ridge of the Spotted Range runs east-west in the mid-ground northern view from U.S. Route 95 in the westernmost area proposed for withdrawal. The broad valley between the highway and the South Ridge is dotted uniformly by small shrubs. Where Niavi Wash bisects the valley, some larger vegetation and erosional features add variety to the landforms.

The smallest area proposed for withdrawal associated with Alternative 3B is adjacent to the town of Indian Springs and Creech AFB. Infrastructure such as transmissions lines, ground clearing, and a variety of facilities dominate the midground and foreground views. This parcel lies within the Three Lakes Valley, and extends northward into the background view. The valley is bordered on the west by the Spotted Range and on the east by the Pintwater Range, which are distantly visible in the background.

The eastern two areas proposed for withdrawal lie within the Three Lakes Valley, and the areas themselves are in the unconsolidated fill of the alluvial fan, regularly dotted by smaller shrubs and occasionally punctuated by larger Joshua trees or agaves. In the midground, the hard white pan of the valley floor is of limited visibility, while the Desert Range mountains are in the background.

Cultural modifications to the area landscape include the mines, OHV routes, power lines, transmission lines, fence, an abandoned railroad grade, and a man-made water catchment. U.S. Route 95 runs along the southern edge of these parcels. The towns of Cactus Springs and Indian Springs, Creech AFB, and High Desert State Prison are major features adjacent to the parcels.

Sensitivity in the areas proposed for withdrawal is moderate, due to OHV recreation and scenic values, presence of small rural communities, major transportation and infrastructure corridors with infrastructure along the length, sightseers, private mines, adjacent NNSS, and the NTTR.

NOAA satellite data exhibits no sources of light pollution within the parcels (Figure 3-9); however, high levels of sky glow are present due to proximity to Creech AFB, High Desert State Prison, and the city of Las Vegas. The presence of skyglow in these areas proposed for withdrawal is substantially greater than the light pollution in parcels considered under other alternatives.

Alternative 3C – Alamo Withdrawal

The Desert National Wildlife Refuge is located immediately north of the city boundaries of North Las Vegas and Las Vegas and encompasses 1.6 million acres of rugged mountain ranges and panoramic valleys in Clark and Lincoln Counties. It is the largest refuge in the continental United States and the largest protected area in Nevada. Over 80 percent of the land area was proposed for wilderness designation in 1971, and while Congress has yet to act on the proposal, the area is managed to protect its wilderness values. As indicated in Chapter 1, the Desert National Wildlife Refuge Complex is made up of three geographically separated refuges and the Desert National Wildlife Range (i.e., the DNWR). The three separated refuges are Ash Meadows NWR, Moapa Valley NWR, and Pahranagat NWR. About half of the DNWR (approximately

826,000 acres) is overlapped by the lands withdrawn for military purposes on the South Range of the NTTR.

Based on the USFWS's 2008 Stewardship Policy as well as legislative language of the *Wilderness Act*, development and uses such as motor vehicles, motorized equipment, mechanical transport, structures, and installations are generally prohibited uses for protected wilderness areas. Visitors and visitor use structures are not excluded, but their presence is managed to maintain the biological integrity and provide high-quality wildlife-dependent recreational uses (USFWS, 2009). It is important to note that the DNWR is an area that was proposed for wilderness designation and is currently managed in a manner similar to designated wilderness as a matter of agency policy. The DNWR is substantively different than parcels considered under other alternatives because, as a whole, it has a high scenic quality due to a wide swath of largely undisturbed terrain, impressive natural vistas, and a high sensitivity due to a large volume of visitors attracted to recreational opportunities and the diversity of wildlife and vegetation.

The rugged and rapidly varying topography in the areas proposed for withdrawal for Alternative 3C contributes to diverse vegetation types, as barren playas give way to scrub covered bajadas that are bounded by color-banded mountains with high jagged peaks.

Alamo Road runs north-south through the area proposed for withdrawal, with several other public access roads and trails branching throughout. The rugged western foothills of Sheep Range form the east border, where barren cliffs and outcrops gradually give way to conifer woodlands near the upper elevations. The peaks of Sheep Range form the midground view, averaging 5,000 feet elevation in the northern range to over 9,000 feet elevation in the southern range, and over 4,000 feet above Tikaboo Valley to the west. A large closed-basin playa named Desert Lake, in Desert Valley, is in the north of the area proposed for withdrawal, and sand dunes are located nearby. Tikaboo Valley widens to over 8 miles across, offering panoramic views of the Sheep Range, the Desert Range to the west on the NTTR, and the East Desert Range south of Desert Lake. East Desert Range is barren on the exposed faces on the west side, but otherwise mixed desert scrub with an overstory of Joshua trees and Mojave yucca predominate. Some pinyon-juniper woodlands are found here, particularly on the east side of Saddle Mountain.

Natural springs, including Sheep Spring and White Rock Spring, can be found in this area, along with several man-made water catchments constructed to provide valuable water to sheep and other wildlife (see Section 3.11, Water Resources). Human uses and development in the area are restricted to the backcountry roads and trails, as well as the water catchments. Due to the limited development and infrastructure, there are few sources of light pollution in the areas proposed for withdrawal; however, sky glow from the Las Vegas urban area is especially present towards the south of the proposed withdrawal area and affects the night sky over nearly all of the area.

3.4.2 Environmental Consequences

3.4.2.1 Analysis Methodology

The methodology to assess impacts on individual land uses requires identifying the uses and determining the degree to which they would be affected by each alternative. Potential impacts on land use can result from actions that (1) change the suitability of a location for its current or planned use (e.g., noise exposure in residential areas); (2) cause conditions that are unsafe for the public welfare; (3) conflict with the current and planned use of the area based on current zoning, amendments, agreements, regulatory restrictions, management, and land use plans; or (4) displace a current use with a use that does not meet the goals, objectives, and desired use for an area based on public plans or resolutions. The degree of land use effects (negligible, minor, moderate, or significant) is based on the level of land use sensitivity in areas affected by the alternatives, the magnitude of change, and the compatibility of a proposed action with existing or planned land uses. The assessment considers multiple contextual factors that are both quantitative and qualitative.

Evaluation of recreational resources considers whether proposed changes would preclude, displace, or alter the suitability of an area or facility for ongoing or planned recreational uses. This could be triggered by changes in noise, access, visual context, availability of recreational sites, or change in desired qualities of an area that contribute to recreational opportunity. The analysis also considers the relative importance of the affected resource. This is a qualitative assessment of its value based on popularity/visitation, management goals, and availability of similar recreational opportunities.

The analysis of visual resources is largely subjective and depends upon the visual character of the surroundings, the individual viewer's perception and experiences, the public value or role of the affected landscape, as well as a variety of other contextual factors (such as angle of observation, distance, time of day, cloud cover, etc.). Land management agencies (such as the BLM) use a systematic process to evaluate landscapes and to describe and estimate visual impacts of proposed projects. The basic principle of the process is to assess the visual contrast created between a proposed project and the existing landscape (BLM, 1986). The basic design elements of form, line, color, and texture are used to make the comparison and to describe the visual contrast created by the project (BLM, 1986). Other key physical factors include the distance of the changes from viewers, frequency of viewing (such as viewers on roadways commuting to work), unobstructed line of sight to the site from specific locations (visual access), and the value of the altered landscape or viewshed.

The methodology to assess impacts on visual resources requires identifying the affected resources and determining the degree to which they would be affected by each alternative. The analysis:

- Assesses the noticeability (degree of change) of these elements at the selected locations based on contrast with the existing visual context (considering size, forms, color, texture of the new feature and the surrounding visual resources and/or visual character in the study area).
- Considers and identifies applicable state and local regulations, policies, and zoning ordinances that protect against light and visual annoyances.
- Identifies areas with designated or locally recognized visual resource value (based on public input) and the overlap with the visually impacted areas.
- Determines the significance of visual effects based on the degree of change and the value of the affected visual resource. *Visual value* considers the sensitivity of representative viewsheds based on the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; ecological and cultural sensitivity; regulatory directive and management plans (such as ordinances, special land designations, and resource management goals); agency-designated visual resource values; and agency and public input expressed during scoping and comment periods.
- Evaluates the effect of light emissions from the project on "dark skies" and sky glow in the affected region. This evaluation focuses on current conditions of dark skies in the surrounding region. It identifies any specific dark sky initiatives, and management policies and objectives of federal, state, and local agencies to manage and maintain dark skies in the region.

If an impact is identified by the analysis, the assessment considers the level of significance using a subjective scale based on the value of the resource and degree of change and degree of interference with current activities and management standards.

Analysis considers the extent to which a proposed action may affect visual character based on importance, uniqueness, and value, as well as contrast with the existing visual character or resources. Input from agencies and the public during scoping is considered in evaluating the value of visual resources and light impact. Loss of wilderness characteristics due to permanent development was the primary issue of concern for the public. Both the BLM and the National Park Service (NPS) noted the potential effect of light pollution associated with new development in areas with natural dark skies.

3.4.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of NTTR (North and South Range) – Status Quo

Land use, land status, and existing land management plans would remain unchanged under Alternative 1, and existing military activities would continue on the withdrawn lands. Overlapping withdrawals of the NTTR and DNWR lands would remain, and special use areas would continue to be managed under the appropriate land management plan. Access to the NTTR would also continue at or near current levels.

The BLM visual resource management designations would remain unchanged. The established VRM categories allow the Air Force to develop infrastructure in the planning

area and conduct its training and testing mission (including munitions uses and ground-disturbance from construction, troop movement, or threat emitter use) without violating management guidelines. These activities align with the expectations of viewers and with the existing landscape character, and, therefore, are of low sensitivity and impact. Aircraft operations, projectile firings, and rocket launches are transient visual intrusions, and consequently cause no permanent visual impacts. Any infrastructure development has the potential to introduce new lighting sources that could create lasting light pollution and contribute to sky glow.

3.4.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

Some portions of the South Range that overlap with the DNWR are not currently used to support military activities. These areas do not provide unrestricted public access, as public access is restricted for safety and security. As a result, when considering the context of allowing ready access within the South Range, the programmatic analysis, and public, tribal, and agency comments, the Air Force recognizes that it is difficult to determine significance at the programmatic level. In consideration of any potential for significant impacts to land use, the Air Force has committed to mitigations to minimize the potential for significant impacts evaluated at a programmatic level (see Section 1.1, Introduction, and Section 2.9, Mitigation) and determined these mitigations would reduce impacts programmatically to a less than significant level. Should ready access in the South Range be allowed, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made.

Land use under Alternative 2 would remain relatively unchanged in the North Range, but would change significantly in the South Range as the Air Force would have ready access. Ready access in the South Range would mean that the areas proposed for wilderness may no longer be managed as wilderness per Congressionally directed changes in land management and the Air Force may have primary jurisdiction as a result of reallocation (see Section 2.3.2, Alternative 2).

Ready access in the South Range would provide greater flexibility for placement of potential IADS locations. For example, this could include the movement of threat emitters into previously unavailable areas as well as the placement of new threat emitter locations to enhance MCO operations. It could also include enhanced IW test/training capabilities such as new landing zones and IW objectives (see Figure 2-10, Composite of the Urban Operations Complex and the Conceptual Insertion Sites). Due to the existing DNWR MOU, the MLWA of 1999 and NDOW regulations, desert bighorn sheep hunting is the only recreational use allowed within the DNWR/NTTR shared use area in the South Range (see Section 3.4.1.4, Recreation and Special Use Areas). The Air Force plans to continue to allow limited bighorn sheep hunting within the affected units 280, 281, and 282 during the currently designated hunting season (December 17 through January 1).

Ready access in the North Range would not impact existing grazing rights within the Bald Mountain Allotment (see Section 3.4.1.3, General Land Use, Ownership, and Management Plans).

Changing land management in the South Range under Alternative 2 to provide ready access would mean that the South Range may no longer be managed to provide an "untrammeled landscape," and that human development could occur in such a way to attract attention and alter the existing natural character of the landscape. The ready access provided under this alternative has the potential to introduce the movement of threat emitters into previously unavailable areas and the placement of new threat emitter locations to enhance MCO operations and enhanced IW test/training capabilities such as new landing zones and IW objectives. Depending on the scope of any infrastructure development, munitions use, or ground disturbance associated with construction or troop movement, these activities may significantly depart from the existing visual context of an "untrammeled" natural environment free of human modification, as well as introduce new lighting sources that could permanently affect the natural night skies through the creation of light pollution and sky glow.

3.4.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

As with Alternative 2, the Air Force acknowledges that it is challenging to determine significance at the programmatic level. Should the areas associated with Alternative 3 be withdrawn for military use, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts, and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made. Specifically, the Alternative 3C area is currently accessible to the public and is not currently used to support military activities. As a result, when considering the context of implementing Alternative 3C within the DNWR, the programmatic analysis, and public, tribal and agency comments, the Air Force recognizes that there is a potential for significant impacts associated with restricted access. The Air Force has committed to mitigations to minimize the potential for significant impacts evaluated at a programmatic level (see Sections 1.1, Introduction, and 2.9, Mitigation).

Potential land use impacts associated with Alternatives 3A, 3A-1, 3B, and 3C include those discussed under Alternative 2 associated with ready access in the North and South Ranges and additional impacts specific to the proposed Range 77 – EC South expansion area, Range 64C/D and 65D expansion area, and the Alamo expansion area, respectively.

Specific land use impacts associated with Alternative 3A or 3A-1 would result from the need to restrict access in order to provide an additional safety buffer for live weapons deployment on the interior of Range 77 and to enhance operational security and safety buffers for Range 64C/D and Range 65D. With the exception of installation of fencing, there would be no construction disturbance in the proposed expansion area for Alternatives 3A, 3A-1, and 3B, and no munitions use in the proposed expansion areas for Alternatives 3A, 3A-1, or 3B.

Specific land use impacts associated with Alternative 3C could be considered to be significant because of the major changes that would occur within the proposed expansion area. The primary change to the existing land use would be that the area would go from an area used by the visiting public to a military training area and jurisdiction would pass from the USFWS to the Air Force. The areas proposed for wilderness may also no longer be managed as wilderness (see Section 2.3.2, Alternative 2). Additional safety buffers would be created for the target areas in the South Range (Range 62A), but no new target impact areas are proposed for the proposed expansion area for Alternative 3C under this withdrawal proposal. Potential future uses also include the establishment of radar emitter sites, unimproved runways, and use of the area for ground training to enhance and support additional MCO and IW activities within the NTTR. Perimeter fencing would also be constructed under Alternative 3C.

Limited access to the proposed Alternative 3 withdrawal areas would continue. Access would include but not be limited to service personnel (e.g., BLM, USFWS, and NDOW) for the purpose of wildlife inventory, law enforcement, cultural resource inventory and management, water development, and facility maintenance; individuals or representatives of associations for any purpose related to the protection, management, and control of wild free-roaming horses and burros; hunters, researchers, and Native American visits to cultural resources (i.e., religious and sacred sites). In order to mitigate these concerns, an Access Management Plan would be developed as outlined in Sections 2.9.2 and 3.4.3 (Proposed Resource-Specific Mitigations and Management Actions).

Mining and Grazing

For Alternatives 3A and 3A-1, there is one active mining claim (see Section 3.4.1.3, General Land Use, Ownership, and Management Plans). To address access to the mining claim, the Air Force would develop an agreement with the claimant to allow continued access. No mineral leases or oil and gas leases are located within the proposed expansion areas for Alternative 3A or 3A-1.

For Alternative 3A, two BLM grazing allotments would be affected by the proposed expansion area, one of which is unallocated or closed to grazing, and the other is active. The unallocated grazing unit is 49,356 acres in size, and 3,244 acres would be affected by the proposed expansion area (approximately 7 percent). The active grazing allotment (Razorback) is 266,329 acres in size, and only 14,650 acres (approximately 6 percent) are within the proposed expansion area (U.S. Air Force, 2017a).

The affected acreage of the unallocated grazing area and Razorback grazing allotment would be reduced by a total of approximately 2,600 acres with Alternative 3A-1.

Recreational Use

The proposed withdrawal for Alternative 3A would eliminate existing recreational uses within the proposed expansion area (see Section 3.4.1.4, Recreation and Special Use Areas) due to the need to restrict access because of Range 77 safety issues. This would be a minor adverse impact on dispersed recreational uses such as hiking since it would only restrict a relatively small portion of the surrounding BLM land, which would remain open.

The Oasis Valley area northeast of Beatty is heavily used for OHV and mountain biking activities. The proposed expansion area for Alternative 3A would restrict access to a 4.2-mile section of the Trails-OV Transvaal Flats Trail system (Windmill Road), 0.24-mile of the Ridgeline Trail, and about 4 miles of the road/trail system that is used for the Beatty VFW Bullfrog Poker Run, Best in the Desert Vegas to Reno off-road race, and other OHV activities. Trails-OV has also proposed a future section of the Transvaal Trail System, a 14.7-mile section of which is located within the proposed expansion area (Figure 3-7) for Alternative 3A.

Alternative 3A-1 would eliminate the impact to the existing 4.2-mile section of the Trails-OV Transvaal Flats Trail System (Windmill Road) and 0.24-mile of the Ridgeline Trail. It would also eliminate the impact to about 4 miles of the road/trail system that is used for the Beatty VFW Bullfrog Poker Run, Best in the Desert Vegas to Reno off-road race, and other OHV events.

The proposed expansion area for Alternative 3A also includes approximately 17,900 acres located within NDOW hunting units, including 5,700 acres in Unit 252 and 12,200 acres in Unit 253. These units allow for hunting of mule deer and desert bighorn sheep (U.S. Air Force, 2017a). For Alternative 3A-1, less acreage would also be affected in the NDOW hunting unit 253. The Air Force plans to continue to allow limited hunting within the affected units during the currently designated hunting season (December 17 through January 1).

Although recreational activities are allowed within the BLM-managed portion of the proposed expansion area for Alternative 3B (see Section 3.4.1.4, Recreation and Special Use Areas), use is relatively limited because of the lack of designated roads and trails. Within the administrative incorporation area (eastern edge of range areas 63B and 63C) no off-road vehicle use is allowed per the BLM Las Vegas Field Office. The portion of the proposed expansion area for Alternative 3B that overlaps the DNWR is shown as a restricted area by the USFWS and public access is not allowed, except for limited bighorn sheep hunting.

The proposed expansion area for Alternative 3B includes approximately 54,400 acres located within NDOW hunting units, including 47,200 acres in Unit 280, 200 acres in Unit 281, and 7,000 acres in Unit 282 (U.S. Air Force, 2017a). These units only allow for the hunting of desert bighorn sheep. The Air Force plans to continue to allow limited bighorn sheep hunting within the affected units during the currently designated hunting

season (December 17 through January 1). However, the current NDOW MOU would be modified and new language will be incorporated into the MOU to address continued hunting while avoiding potential conflicts with hunting activities during certain military training activities.

The proposed expansion area for Alternative 3C is currently within the DNWR; as a result, the greatest adverse impacts would be on the existing recreational activities that occur within the area because it would become closed to the public for safety and security reasons. Existing recreational activities on the DNWR include wildlife observation, photography, hiking, camping, bird-watching, backpacking, horseback riding, hunting, and traveling on primitive scenic byways (see Section 3.4.1.4, Recreation and Special Use Areas). Although the DNWR is closed to OHV activities, there are several roads that lead to undeveloped backcountry campsites and trailheads. Alamo Road is the primary access road within the proposed expansion area for Alternative 3C. Alamo Road is a connector road from Corn Creek in the south to Pahranagat NWR and the town of Alamo to the north. The road provides access to the west side of the Sheep Range for the length of the refuge. Side roads off of Alamo Road run to the east to various trailheads and provide recreational users and hunters access to additional backcountry areas within the Sheep Range (Figure 3-8).

The affected roads and trails within the proposed expansion area for Alternative 3C include:

- Alamo Road north of Hidden Forest Road
- Pine Canyon Road
- White Rock Road (White Rock Canyon)
- Dead Horse Road and Dead Horse Trailhead
- Saddle Mountain and Sheep Pass
- Cabin Springs Road
- Desert Dry Lake, Dunes South and Dunes North
- Section of Old Corn Creek Road from intersection with Alamo Road

However, many of the recreation areas and trails within the eastern portion of the DNWR would remain open and would not be affected by the proposed Alternative 3C withdrawal area. These include but are not limited to the Corn Creek Field Station area, Cow Camp Road and Wagon Wheel Trail, Joe May Road and trail, Gass Peak Road and trail, Mormon Well Road and Desert Pass Campground, Hidden Forest Road and trail, Sawmill Canyon Trail, and Hayford Peak.

Although these areas would not be directly affected, the closure of the proposed Alternative 3C withdrawal area to public access could have indirect impacts. Indirect impacts could occur if closure of roads and trails in the affected area results in greater visitation and use of the unaffected recreation sites than presently occurs. This could negatively affect user experience and satisfaction and result in overuse of certain areas. However, the extent of potential impact on adjacent recreational areas from any shift of recreational activity is indeterminable at this time and would be highly speculative

without a thorough understanding of the seasonal usage of the Alamo portion of the DNWR.

The proposed expansion area for Alternative 3C is located entirely within the DNWR and also falls entirely within NDOW-designated bighorn sheep hunting units. This includes approximately 11,400 acres in Unit 282, 132,400 acres in Unit 283, and 83,100 acres in Unit 284. The Air Force plans to continue to allow limited bighorn sheep hunting within these affected units during the currently designated hunting season. However, the current 30-day hunting season would be reduced by two weeks. As would be the case with Alternative 3B, the current NDOW MOU would be revised and language will be incorporated into a new MOU to address continued hunting while averting potential conflicts between hunting activities and military training activities.

Herd Management Areas

A small portion of the proposed expansion area (2,877 acres) for Alternative 3A overlaps with the Bullfrog HMA, managed by the BLM. This HMA provides suitable habitat for wild burros, but not for wild horses. A smaller portion of the Bullfrog HMA would be impacted with Alternative 3A-1. With the exception of fencing installation there would be no construction, nor would there be munition use within the area. As a result, no adverse impacts would be expected.

For Alternative 3B, there would be no adverse impacts to the Wheeler Pass HMA because only a very small portion (114 acres) overlaps with the proposed expansion area.

Because fencing locations are not known at this time the Air Force will need to perform site-specific NEPA in situations where fencing might overlap an HMA for Alternative 3A, 3A-1, or 3B to ensure that segmentation issues are addressed.

Visual Resources

Potential impacts to visual resources associated with Alternatives 3A, 3A-1, 3B, and 3C include those discussed under Alternative 2 associated with ready access in the North and South Ranges and additional impacts specific to the proposed Range 77 – EC South expansion area, Range 64C/D and 65D expansion area, and Alamo expansion areas, respectively.

For Alternative 3A or 3A-1, the need to restrict access in order to provide an additional safety buffer for live weapons deployment on the interior of Range 77 may cause additional fencing to be installed (approximately 25 miles). The fence itself uses materials, described in Section 2.3.3 (Alternative 3), that are designed to create low visual contrast with the surrounding landscape, but would nonetheless add long-term human development in a previously undisturbed area. In the areas managed by the BLM, the fencing is consistent with the established visual resources objectives. There would be no other construction disturbance, munitions use, or emitter use in the proposed expansion area for Alternatives 3A or 3A-1.

For Alternative 3B, there would be no munitions use or emitter use in the proposed expansion area. The need to restrict access will cause approximately 30 miles of

additional fencing to be installed, which would contribute a minor, weakly-contrasting, but long-term human development on previously undisturbed areas. In the areas managed by the BLM, the fencing is consistent with the established visual resources objectives. Permanent human development already characterizes the area for Alternative 3B, so limited additional disturbance would be consistent with the visual landscape. The introduction of fencing and restriction of munitions and emitter uses would create similar impacts to visual resources as discussed under Alternative 3A.

Visual resource impacts associated with Alternative 3C could be considered to be significant because of the major changes that would occur within the proposed expansion area due to changing the land management status (as discussed in Section 2.3.2, Alternative 2) and the subsequent change to military training activities that would be allowed in the area. Permanent alterations such as establishment of radar emitter sites, unimproved runways, and surface disturbance caused by ground training to enhance and support additional MCO and IW activities would modify the natural landscape from untrammeled (as described in the *Wilderness Act of 1964*) with limited development to one with extensive human intervention. The need to restrict access will cause approximately 65 miles of additional fencing to be installed, which would contribute a long-term but visually low-contrast human development on previously undisturbed areas. Infrastructure development associated with military training and support would introduce light sources into an area where none had existed, therefore generating light emissions in an area with natural night skies and very low nighttime radiance. New development would create illuminated surfaces reflecting up into the atmosphere, generating additional sky glow in an area already affected by the Las Vegas urban area.

3.4.2.5 Alternative 4 – Establish the Period of Withdrawal

The proposed withdrawal periods associated with Alternative 4—Alternative 4A (20-year withdrawal period), Alternative 4B (50-year withdrawal period), and Alternative 4C (indefinite)—must be implemented in conjunction with one or more of the other alternatives or subalternatives. Because Alternative 4 reflects periods of time, which do not in and of themselves affect land use, there are no specific impacts associated with Alternative 4, except to provide a point in time at which impacts from other chosen alternatives may end. Thus, there are no specific land use, recreational, or visual impacts associated with Alternative 4.

3.4.2.6 No Action Alternative

Under the No Action Alternative, military activities on the NTTR and prohibitions previously placed in effect by P.L. 106-65 would expire. With the expiration of these prohibitions, land uses such as mining, mineral leasing, or livestock grazing could potentially be reintroduced into previously restricted areas. It is expected that many areas will continue to have restricted access due to the nature of historical activities and for the safety and security of current operations. Management of the former NTTR

lands would continue as currently directed until new management planning under FLPMA and NEPA regulations could be completed. Not extending the land withdrawal would not affect the existing airspace; however, without control of ground areas, the airspace could not be used to support live-fire exercises and related military high-hazard activities.

BLM-administered public land would be subject to the multiple resource management objectives of the FLPMA. Surface management of the DNWR would continue to reside with the USFWS. Current land use management objectives of BLM lands on the perimeter or the vicinity of the NTTR would continue and no changes in the land status of these adjacent lands would be expected.

Visual Resources

Efforts to remediate potential contamination hazards and minimize the extent of past military activities could result in additional ground disturbance in the affected areas; however, this would be consistent with the visual character of the military activities, resulting in little to no change in the visual character of the affected areas. Remediation could have a positive effect on visual resources if a more "natural" appearance is obtained through the removal of anthropogenic elements such as buildings, the restoration of disturbed ground with native vegetation, or the elimination of light-pollution sources. BLM-administered public land would be subject to the visual resource management objectives of the *Record of Decision for the Approved Nevada Test and Training Range Resource Management Plan and Final Environmental Impact Statement* (BLM, 2004). Surface management of the DNWR would continue to reside with the USFWS, and therefore the visual resource management would be consistent with refuge management.

3.4.3 Proposed Resource-Specific Mitigations and Management Actions

Identified resource-specific mitigations and/or management actions for land use, recreation, and visual resources that would be implemented across all action alternatives unless stated otherwise include the following:

- Measures to minimize visual impacts and light emissions, as practical, include the following (see Sections 3.4.2.3 and 3.4.2.4):
    - The Air Force would continue to site and design future facilities as described in UFC 3-530-01, *Interior and Exterior Lighting Systems and Controls*, in order to minimize night-sky effects and reduce light trespass and glare. Examples include: design all lighting to provide the minimum illumination of an appropriate color needed to achieve safety and security objectives; be directed downward and shielded to focus illumination on the desired areas; be controlled with timers, sensors, and dimmers; be vehicle-mounted for nighttime maintenance work rather than permanently mounted; and use anti-glare light fixtures.

- In order to minimize landscape scarring where surface disturbance may occur by such actions as construction, troop movement, or training structure emplacement, the Air Force would evaluate the following: treatments such as thinning and feathering vegetation at project edges to smooth the transition between natural and built areas; salvaging landscape materials such as rock, soil, and vegetation for reuse; contouring soil borrow areas and other features to approximate natural slopes; using native vegetation to establish form, line, color, and texture consistent with the surrounding undisturbed landscape; distributing stockpiled topsoil to disturbed areas and replanting; removing or burying gravel or other surface treatments; and controlling noxious and invasive weeds.
- The Air Force will consider developing a Facilities Design Plan for Reduced Visual Dominance. This may increase the visual harmony of new facilities with the natural landscape through:
  - Selecting appropriate materials and surface treatments for structures to reduce visual contrast, such as coloring the concrete to match the predominant color in the surrounding landform and using nonreflective materials.
  - Painting facilities a suitable color to reduce the contrast of the structures on the landscape.
  - Selecting the most appropriate color to as closely as possible match the predominant background colors of the immediate area for natural shadows, normal fading, and weathering.
  - Using topography and vegetation on the landscape to screen the view of new development and avoiding locating facilities near visually prominent landscape features.

- Under Alternatives 2 and 3, in order to address access issues for the South Range and the proposed expansion areas, the Air Force will develop an Access Management Plan, in coordination with stakeholders determined by the Intergovernmental Executive Committee (stakeholders could consist of the USFWS, USGS, tribes, etc.). The Access Management Plan would evaluate and establish mechanisms and procedures for allowing access to withdrawn areas in support of scientific research, natural and cultural resources management programs (including the INRMP and ICRMP, respectively), and public affairs programs. Many of these mechanisms and procedures are currently in place, but the Access Management Plan would formalize the process so individual access requests would be submitted as outlined in the NTTR AFI 13-212 Supplement and evaluated based on each request's purpose and need. Criteria for legitimate purpose and need(s) would be developed and codified within the Access Management Plan. The

Plan would be periodically reviewed by the Intergovernmental Executive Committee and associated Plan stakeholders to determine the efficacy of the Plan and identify any access-related issues and revisions/adjustments to established procedures and mechanisms for access.

- Examples of criteria for access could include but not be limited to:
    - Scientific Research Purposes – Access for purposes of natural or cultural resources studies. Examples of scientific research access could include gathering of sensitive species and migratory bird data, habitat data, archaeological and historic resource data, and other science-based data collection efforts.
    - Cultural/Religious Need – Access associated with cultural or religious need. As an example, some areas within the proposed withdrawal areas hold cultural and religious significance to Native American tribes and some members of the public who have historical ties to land areas and features (e.g., homesteads, mines, and gravesites). Tribes and other stakeholders need access to these sites in some fashion to support their cultural and religious heritage. For example, tribes will continue to conduct traditional ceremonies associated with pine nut gathering.
    - Natural Resource Management – Access for purposes of natural resources management activities conducted by groups not affiliated with the Air Force. The USFWS, USGS, NDOW, Fraternity of the Desert Bighorn, and others require access to land areas in support of natural resource management activities (e.g., maintenance of guzzlers, habitat restoration, etc.).
    - Public Affairs – Access in support of public and community relations. Examples include tours to ecologically or culturally significant areas, demonstrations of training activities on the withdrawal areas, and production of public communication materials such as videos.
- If the request for access is approved, the appropriate level of access would be determined based on the purpose and need for the request and access allowances would be based on the following “access tiers,” or combination of access tiers, as appropriate:
    - Direct Physical Access – Direct physical access means actual access to the land areas in question. Direct access is currently granted on a case-by-case basis in accordance with the NTTR AFI 13-212 Supplement. This would continue under withdrawal renewal and/or expansion, with consideration of purpose and need of the individual request as described above and as the mission schedule allows. Examples of opportunities for direct physical access may include conducting bird surveys, vegetation/habitat surveys, access to

culturally significant sites, access to guzzlers, access for hunting (e.g., annual bighorn sheep hunt), and access for cultural representative tours. The Access Management Plan would further identify and codify duration and frequency of opportunities for direct access. As an example, potential training downtimes (e.g., range decontamination and holidays, where bombing ranges are closed for a period of time) could be leveraged to provide opportunities for direct access.

- Virtual Access – Virtual access includes access to data, imagery, and other information-related aspects associated with the land areas in question. As an example, virtual access could include game camera shots available online, reports and data derived from NTTR natural resource management efforts, and other data/information useful in informing the aforementioned criteria.
- Compensatory Access – Compensatory access includes compensating the loss of access to one area by establishing mechanisms for access to other areas that are currently difficult to access or inaccessible. As an example, because the withdrawal may result in loss of access to existing recreational areas in the DNWR such as the Sheep Mountain Range due to closure of Alamo Road, the Air Force could provide resources for road improvements or trail development/improvements in other areas of the DNWR Complex where access is currently difficult or non-existent due to existing conditions. For example, this could include improvements to Mormon Well Road, the area around Moapa Wildlife Refuge, or opportunities on other federal lands. This may require additional Congressional appropriations.

3.4.4 Native American Perspective on Land Use, Recreation, and Visual Resources

3.4.4.1 Native American Perspective: Land Use, Recreation, and Visual Resources Description of Resource

The CGTO considers access issues (including the ability to visit, view or recreate) to have two key aspects that have significant cultural implications:

- Increased access to cultural resource locations may increase for contractors and/or military personnel identified under all of the proposed Alternatives. These individuals have the potential to disturb cultural resources or intrude on ceremonies without proper coordination/consultation.
- Access by Indian people to culturally important locations when requested will be limited under any action alternative.

The CGTO recognizes there are conflicting aspects with this issue; the desire for unlimited access by Indian people and the protection that is provided by restricting access for recreationalists.

Under each alternative, visual intrusions or scheduling will adversely impact resources important to Native Americans. According to the CGTO all landforms, mountain ranges and playas within the NTTR have high cultural sensitivity levels for Native Americans. The ability to see the land without obstruction or the distraction of aircraft, buildings, towers, cables, roads, and other objects related to military activities is essential for sustaining the spiritual connection between Indian people and their traditional homelands. Landscape modifications should be done in consultation with Native Americans.

3.4.4.2 Native American Perspective: Land Use

The Nevada Test and Training Range is within the traditional Holy Lands of the Western Shoshone, Southern Paiute, and Owens Valley Paiute/Shoshone and Mojave people. These ethnic groups rely on these lands for medicinal purposes, religious activities and ceremonies, food, recreational use, and other integral places described in traditional narratives and religious ceremonies.

Indian people know these lands not only contain important archaeological remains left by our ancestors but natural resources and geologic formations, such as plants, animals, water sources and minerals; Natural landforms that mark or identify important locations necessary for keeping our history alive and are necessary for teaching our children about our culture. We use traditional knowledge about sites in the NTTR region that are embedded in tribal stories and songs. Many locations or resources on the NTTR are needed for making tools, stone artifacts, and creating ceremonial objects associated with traditional healing ceremonies and power places.

For thousands of years throughout contemporary times, the area that encompasses the NTTR and the surrounding region has been a central place in the lives of American Indian tribes. NTTR has been continuously used by our people until encroachment occurred in the late 1800s up until the mid-1900s when Indian people were not permitted to access the area. In 1863, the United States entered into the Treaty of Ruby Valley of 1863 with the Western Shoshone giving certain rights to the United States in the Nevada Territory. The Western Shoshone did not cede land under this treaty but agreed to allow the US the "right to traverse the area, maintain existing telegraph and stage lines, construct one railroad and engage in specified economic activities. The Treaty would continue to be contested for decades and remaining unresolved by many Western Shoshone. (See Treaty of Ruby Valley 1863 in Appendix K Native American Assessments: Nevada Test and Training Range Legislative Environmental Impact Statement - October 2017)

Throughout our existence, traditional festivals involving religious and secular activities attracted American Indian people to the area from as far as northern Nevada and San

Bernardino, California. Similarly, groups came to the area from a broad region during the hunting season and used animal and plant resources that were crucial for their survival and cultural practices.

Several areas within the NTTR region are recognized as traditionally or spiritually important locations including: Black Mountain, Stonewall Mountain, Mount Helen, Pillar Springs, Kawich Range, Belted Range, Airfield Canyon, and Pintwater Cave.

Thirsty Canyon is an equally important crossroad where trails from such distant places as Owens Valley, Death Valley, Ash Meadows, southern Nevada and the Avawatz Mountain come together. Black Cone, located in Crater Flats is a significant religious site that is considered to be a portal to the underworld (AIWS 2005). Due to the religious significance of these culturally sensitive areas, tribal representatives recommend the Air Force avoid affecting this area (Stoffle et al. 1988). Oasis Valley was historically an important area for trade as well as ceremonial use that still continues. Other areas throughout the NTTR are considered important because of the abundance of artifacts, traditional-use plants and animals, rock writings (petroglyphs/pictographs), and possible burial sites. Despite the current physical separation of tribes from the NTTR and neighboring lands, we continue to recognize the meaningful role of these lands in our culture and continued survival.

The CGTO maintains we have Creation-based rights to protect, use, and have access to lands within the NTTR and the immediate area. These rights were established at Creation and persist forever. Despite the loss of many traditional lands on the NTTR to cultural pollution and reduced access, Indian people have neither lost our ancestral ties nor have we forgotten our responsibilities to care for it. As one elder noted, "*Land is to be respected. It sustains us economically, spiritually, and socially.*"

During the past two decades, CGTO representatives have visited selected portions of the NTTR and continue to identify places, spiritual trails, and cultural landscapes of traditional and contemporary cultural significance. Because this is a public document, the exact locations of these areas will not be revealed; however, they do include culturally significant and sensitive resources that are addressed in the American Indian Religious Freedom Act (AIRFA); Native American Graves Protection and Repatriation Act (NAGPRA); Access to Sacred Sites; and Air Force Instruction 90-2002 Air Force Interactions with Federally Recognized Tribes. The Air Force continues to take positive steps towards facilitating co-stewardship arrangements with the CGTO to help co-manage important tribal resources found on the NTTR and regain cultural, ecological and spiritual balance

One elder from Nevada responded to the potential impacts of his traditional land as follows: "Non-Indians can move if you pollute or change the land on which you live, but we were created for this place, so we must face whatever happens here. We cannot move and continue to be tribal people-this is our land-we are this land" (Stoffle and Arnold 2003). This view is shared by other culturally affiliated tribes within the CGTO who believe we have Creation-based rights to protect, use, and have access to land.

3.4.4.3 Native American Perspective: Visual Resources

Unobstructed views from locations to and from the NTTR are an important cultural resource that contributes to the significance and performance of traditional ceremonialism. Views combined with other cultural resources produce special places where power is sought for medicine and other types of ceremony. Views can be of or from any landscape, but more central viewscapes are experienced from high places, which are often the tops of mountains and the edges of mesas. Indian viewscapes tend to be panoramic and are made special when they contain highly diverse topography. These viewscapes or panoramas are further enhanced by the presence of volcanic cones and lava flows.

Viewscapes are tied with songscapes and storyscapes especially when the vantage point has a panorama composed of multiple locations described by traditional songs or stories. Our traditional songscapes and storyscapes can be compromised if projects like geothermal or solar energy development are pursued. If geothermal resources are altered on or near NTTR, our songs and stories will be impacted and will no longer accurately reflect key traditional aspects of the viewscape.

Central to the Indian experience of viewscapes is isolation and serenity in an uncompromised landscape. If construction and operation of the proposed activities proceed in a culturally inappropriate manner, then visual resources within the NTTR will be adversely impacted, further perpetuating an unbalanced environment. To restore balance to the environment and its visual resources, the Air Force must provide access for Native Americans to conduct religious and cultural ceremonies to fulfill traditional obligations. In this manner, we can restore and preserve our spiritual harmony as a whole.

The CGTO recognizes the cultural significance of viewscapes and has identified a number of these associated with the NTTR. The Kawich, Belted, Spotted, Desert, and Pahranagat Ranges along with Black Mountain and Mount Helen contain a number of significant vantage points with different panoramas including other nearby areas but not limited to Mount Charleston, Scrugham Peak, White Mountains, Telescope Peak and Buckboard and Pahute Mesas. The CGTO feels revisiting sites within the viewscapes are essential for Indian people to interact with the land, communicate with the spirits who watch over the land, conduct religious ceremonies with prayers and songs, and monitor the condition of each site. Special considerations should be given to tribal elders and youth to provide an educational experience and reinforce positive connections with our culture.

The CGTO knows many of the activities described in this LEIS including facility construction and environmental restoration, will adversely impact visual resources. For Native Americans, the adverse impact to visual resources will most certainly impact the spiritual harmony of the environment as a whole. Facility construction and operation will impede visual resources and affect the solitude and cultural integrity of the land.

In particular, visual resources may be negatively impacted if proposed solar and geothermal projects are pursued on or near the NTTR. The CGTO must be part of any additional future discussions of these projects at a minimum as these may impact visual resources and may degrade traditional and cultural ceremonies.

Although the Air Force proposes to mitigate visual resource impacts by painting structures to reduce visibility, the CGTO knows additional mitigation measures are necessary. The CGTO recommends that landscape modifications, including those associated with environmental restoration activities, be done in consultation with tribal representatives. Specifically, Air Force should make provisions for Indian people to participate in regular monitoring of land-disturbing activities through the duration of the project. Finally, the CGTO recommends that the Air Force make provisions for Indian people to conduct ceremonies and offer prayers and songs in an effort to re-balance this adversely impacted resource.

3.5 WILDERNESS AND WILDERNESS STUDY AREAS

This section addresses Wilderness Areas and WSAs that occur in the NTTR study area. The subsections below describe characteristics of these areas, summarize management practices, and analyze potential impacts from the Proposed Action.

3.5.1 Affected Environment

For the Native American perspective on information in this section, please see Section 3.5.4 and Appendix K, paragraph 3.5.1.1.1.

3.5.1.1 Description of Resource

The *Wilderness Act of 1964* (P.L. 88-57) was passed "to assure that an increasing population accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition." Through this act, the National Wilderness Preservation System (NWPS) was established to be composed of federally owned areas that are identified and potentially designated as Wilderness Areas based on specific criteria. The NWPS also provides guidance on managing and preserving Wilderness Areas. The *Wilderness Act* also mandated that the U.S. Forest Service (USFS), NPS, BLM, and USFWS review their lands against the criteria described below to determine their suitability as wilderness, then manage those areas in accordance with the NWPS guidance. There are currently 762 designated Wilderness Areas in the United States, totaling approximately 109 million acres.

Wilderness Area is defined in P.L. 88-57 (16 USC 1131–1136) as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain" and "an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habituation, which is protected and managed so as to preserve its natural conditions." Based on this legal definition, five qualities of wilderness character have been identified and defined as:

- Untrammeled – Wilderness is essentially unhindered and free from the actions of modern human control or manipulation.
- Natural – Wilderness ecological systems are substantially free from the effects of modern civilization.
- Undeveloped – Wilderness is essentially without permanent improvements or the sights and sounds of modern human occupation.
- Solitude or primitive and unconfined recreation – Wilderness provides opportunities for people to experience natural sights and sounds, solitude, freedom, risk, and physical and emotional challenges of self-discovery and self-reliance. This quality focuses on the tangible aspects of the setting that affect the opportunity for people to directly experience wilderness.
- Other features of value – This quality captures ecological, geological, or other features of scientific, educational, scenic, or historical value that are not covered by the other four qualities but may not occur in all wilderness areas (Landres et al., 2015).

All five of these qualities are equally important, and none is held in higher or lower regard than the others. Therefore, the following conditions that satisfy these quality criteria must be present for an area to be considered for wilderness designation:

- The land is under federal ownership and management.
- The area consists of at least 5,000 acres of land.
- Human influence is substantially unnoticeable.
- There are outstanding opportunities for solitude or a primitive and unconfined type of recreation.
- The area may possess ecological, geological, or other features of scientific, educational, scenic, or historical value. Though these values are not required of any wilderness, if they are present they are considered part of that area's wilderness character and must be protected accordingly.

Considering the range of factors identified above, the *Wilderness Act* lends to both a quantitative and qualitative assessment of wilderness characteristics of an area (Dawson & Hendee, 2009). The land area, human influence, and ecological, geological, or other features requirements are features that can be quantified with field surveys and other data-gathering techniques. However, determining whether an area provides outstanding opportunities for solitude or primitive and unconfined recreation relies on a qualitative analysis. The *Wilderness Act* does not provide a definition of key terms, such as "outstanding opportunities" or "unconfined types of recreation," and agency policies do not provide clear guidance on what conditions are necessary to provide outstanding opportunities for wilderness experiences (Carlson et al., 2010). Therefore, the responsible agency must use its expertise to define criteria and assess these characteristics qualitatively.

If a land area meets all requirements based on a quantitative and qualitative analysis, the requesting agency (the USFWS, USFS, or NPS) submits a recommendation to the President for review. The President may then make a recommendation to Congress to designate the area as wilderness. A wilderness designation can only become effective through an act of Congress. Once the Secretary of the Interior transmits the recommendation to the President, the area is considered "proposed for wilderness." Lands included within areas that are proposed for wilderness are managed as a matter of USFWS policy as de facto wilderness and provided with the same level of protection as Congressionally designated wilderness, until Congress acts on the request.

The FLPMA of 1976 (P.L. 94-579) governs the way in which public lands administered by BLM are managed and, among other objectives, mandates that the BLM conduct studies of areas under their jurisdiction to determine suitability for wilderness designation. If the area contains sufficient wilderness characteristics, BLM inventories and classifies these areas as WSAs. These recommendations are submitted to Congress for potential designation as Wilderness Areas. Even though WSAs are not official Wilderness Areas, similar to areas proposed for wilderness, they are managed as de facto wilderness to protect their wilderness values until Congress decides to either designate the area as wilderness or release the area for nonwilderness uses. WSAs that are released for nonwilderness uses are managed in accordance with land management plans adopted under Section 202 of the FLPMA.

Management of Wilderness Areas, areas proposed for wilderness, and WSAs within the NTTR study area is discussed in Section 3.5.1.4 (Management Practices).

3.5.1.2 Region of Influence

The ROI includes Wilderness Areas, areas proposed for wilderness, and WSAs that occur within the NTTR airspace boundaries, as shown in Figure 3-10.

3.5.1.3 Wilderness and Wilderness Study Areas

Existing NTTR Boundary (Alternatives 1 and 2)

There are 14 Wilderness Areas and four WSAs that underlie the NTTR airspace boundaries. In addition, there are six Wilderness Areas and five WSAs that are located in close proximity to NTTR airspace boundaries. These areas are listed in Table 3-27 and Table 3-28. Refer to Appendix F (Wilderness and Wilderness Study Areas) for more detailed information.

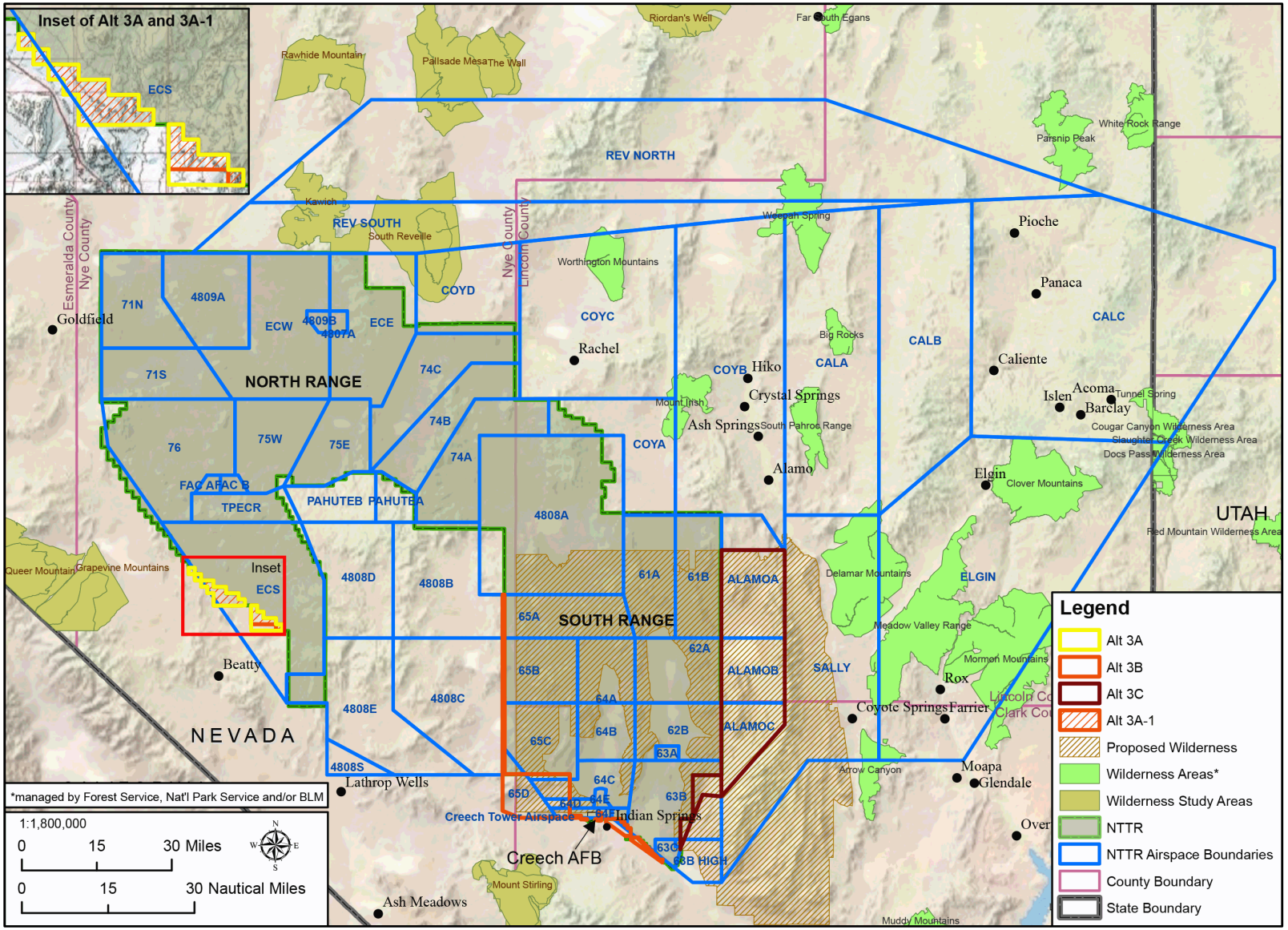

Figure 3-10. Wilderness Areas, Wilderness Study Areas, and Proposed Wilderness Areas in the Region of Influence

Table 3-27. Wilderness Areas and WSAs Within NTTR Airspace Boundaries

Wilderness Areas	Airspace Unit	Legislation
Parsnip Peak	Reveille	P.L. 108-424[a]
Weepah Springs	Coyote	P.L. 107-282[b]
Worthington Mountains	Coyote	P.L. 107-282
Big Rocks	Coyote	P.L. 108-424
Mount Irish	Coyote	P.L. 108-424
South Pahroc Range	Coyote	P.L. 107-282
Tunnel Springs (Cougar Canyon)	Caliente	P.L. 107-282
Slaughter Creek	Caliente	P.L. 111-11[c]
Docs Pass	Caliente	P.L. 111-11
Delamar Mountains	Elgin	P.L. 107-282
Clover Mountains	Elgin	P.L. 107-282
Meadow Valley Range	Elgin	P.L. 107-282
Mormon Mountains	Elgin	P.L. 107-282
Arrow Canyon	Sally	P.L. 107-282

Wilderness Study Areas[d]	Airspace Unit	Total Acres	Acres Recommended for Wilderness	Acres Recommended for Nonwilderness
The Wall[e]	Reveille	38,000	30,320	7,680
Palisade Mesa[f]	Reveille	99,550	66,110	33,440
Kawich[g]	Reveille	54,320	0	54,320
South Reveille[h]	Reveille	106,200	33,000	73,200

P.L. = Public Law; WSA = Wilderness Study Area
a. *Lincoln County Conservation, Recreation, and Development Act of 2004*
b. P.L. 107-282 = *Clark County Conservation of Public Land and Natural Resources Act of 2002*
c. P.L. 111-11 = *Omnibus Public Land Management Act of 2009*
d. (BLM, 2016a); e. (BLM, 2016b); f. (BLM, 2016c); g. (BLM, 2016d); h. (BLM, 2016e)

Table 3-28. Wilderness Areas and WSAs in Close Proximity to NTTR Airspace Boundaries

Wilderness Areas	Legislation
White Rock Range	P.L. 108-424[a]
Red Mountain	P.L. 111-11[b]
Beaver Dam Mountain	P.L. 98-406[c]
Lime Canyon	P.L. 107-282[d]
Muddy Mountain	P.L. 107-282
La Madre Mountains	P.L. 107-282

Wilderness Study Areas	Total Acres	Acres Recommended for Wilderness	Acres Recommended for Nonwilderness
Riordan's Well[e]	57,002	Not available	Not available
Rawhide Mountain[f]	64,360	0	64,360
Grapevine Mountains[g]	66,800	23,150	43,650
Mount Stirling[h]	9,650	50,682	19,050
Resting Springs[i]	3,850	0	3,850

P.L. = Public Law; WSA = Wilderness Study Area
a. *Lincoln County Conservation, Recreation, and Development Act of 2004*
b. *Omnibus Public Land Management Act of 2009*
c. *Arizona Wilderness Act of 1984*
d. *Clark County Conservation of Public Land and Natural Resources Act of 2002*
e. (BLM, 2016a); f. (BLM, 2016f); g. (BLM, 2016g); h. (BLM, 2016h); i. (BLM, 2016i)

The 1991 Nevada BLM *Statewide Wilderness Report* (BLM, 1991) evaluated 110 WSAs identified in Nevada by BLM, provided descriptions of each area, and recommended areas for either wilderness designation or nonwilderness uses. The WSAs listed in this report were presented to Congress for consideration to either be included in the NWPS or released for uses other than wilderness. For example, P.L. 107-282 designated 18 Wilderness Areas to be included in the NWPS and released three WSAs and portions of six WSAs for nonwilderness uses. Comparing current WSAs identified by BLM (BLM, 2016a) with WSAs identified in the 1991 BLM report and those areas released by legislation passed by Congress, a total of eight WSAs have been released for uses other than wilderness. It is assumed the recommendations in the 1991 BLM report provided Congress with the rationale for not designating these areas as wilderness. Reasons for areas not being recommended for wilderness include the following:

- Area was less than 5,000 acres
- Conflicts with ongoing or projected uses of the area such as off-road vehicle use, utility/energy corridors, and rights-of-way
- Little to no outstanding opportunities for solitude resulting from:
    - Minimal topographic screening
    - Lack of vegetative screening
    - Narrow configuration of the land
    - Proximity to and influence of outside sights and sounds associated with nonwilderness-related activities
- Lack of unique intrinsic values or focal points of interest for primitive recreation
- Wilderness values not considered high enough quality in comparison with:
    - Wilderness values of other wilderness areas in the vicinity
    - Resource values from potential development of future activities, such as mining

Appendix F, Wilderness and Wilderness Study Areas, contains a list of WSAs released for uses other than wilderness, along with the rationale based on the 1991 Nevada BLM *Statewide Wilderness Report* (BLM, 1991).

In addition to Wilderness Areas and WSAs discussed above, about half (826,000 acres) of the DNWR overlaps the South Range of the NTTR. Approximately 90 percent of the DNWR (1.4 million acres) comprise areas proposed for wilderness. The area proposed for wilderness consists of seven separate units: Spotted Range, Desert-Pintwater Range, Hole-in-the-Rock, East Desert Range, Sheep Range, Gass Peak, and Las Vegas Range. Within the total acreage of areas proposed for wilderness in the DNWR, 590,000 acres occur in the South Range, including the Spotted Range, Desert-Pintwater Range, and Hole-in-the-Rock. Refer to Figure 1-5 (South Range Overlap with DNWR). All discussion in this document of areas proposed for wilderness in the DNWR includes these sub-units. Elevations in the areas proposed for wilderness range from

2,600 feet to nearly 10,000 feet, with the highest peaks occurring in the Sheep Range (USFWS, 1971). This wide range of elevation, topography, and climate conditions creates a diverse setting for plant communities, habitat areas that support a variety of wildlife species, and other physical resources. Refer to Sections 3.8.1 (Biological Resources) for a discussion of vegetation and wildlife that occur in the area. In addition, Sections 3.4.1 (Land Use, Recreation, and Visual Resources), 3.9.1 (Cultural Resources), 3.10.1 (Earth Resources), and 3.11.1 (Water Resources) describe the associated resources that are found within the areas that are proposed for wilderness in the DNWR.

As previously stated, an assessment of wilderness characteristics of an area incorporates both a quantitative and qualitative approach. To address the quantitative approach, in accordance with Section 603(a) of the FLPMA, a special study was conducted to identify roadless areas in the existing NTTR withdrawal area and the proposed expansion areas that may support wilderness characteristics consistent with the requirements stated in Section 3.5.1.1 (Description of Resource) (U.S. Air Force, 2017b). During the study, an inventory of roadless areas was developed based on guidelines provided in BLM Manual 6310, *Conducting Wilderness Characteristic Inventory on BLM Lands* (BLM, 2012a). In addition, multiple sources of high-resolution satellite imagery and GIS layers from various databases were used to characterize the existing road networks and determine whether the land areas around the roads would meet the minimum size criteria of 5,000 acres for Wilderness Areas. The study also identified areas with visible human impacts, which were included in the area calculations. Visible evidence of human impacts by definition would not satisfy untrammeled, natural, and undeveloped qualities of wilderness. The results of the study are summarized in Table 3-29. Figure 3-11 shows roadless areas identified in the study.

Table 3-29. Areas of Land Categories Identified in the Roadless Areas Special Study

Category	Area (acres)	Percent of Mapped Area
Roadless areas greater than 5,000 acres	2,230,191	79.86%
Roadless areas less than 5,000 acres	59,679	2.14%
Areas impacted by humans	491,475	17.60%
Roads or road networks	13,895	0.50%

*Total area of the report study area includes only the area mapped for roads (2,792,681 acres)
Source: (U.S. Air Force, 2017b)

While the roadless areas special study identified large contiguous land areas that are absent of roads, road networks, or visible human impacts, it did not fully characterize all wilderness qualities, specifically, outstanding opportunities for solitude or primitive and unconfined types of recreation. For example, Figure 3-11 depicts roadless areas that meet the size requirement within the North Range; however, no Wilderness Areas have been designated in this part of the NTTR land withdrawal. On the other hand, roadless areas identified by the Air Force consistently overlap with areas proposed for wilderness in the South Range (U.S. Air Force, 2017b). For both the North and South Ranges, untrammeled, natural, and undeveloped wilderness qualities are inferred in the "roadless areas" category based on the assumptions made in the GIS analysis; however, a more detailed ground-truthing analysis would need to be conducted to confirm this information.

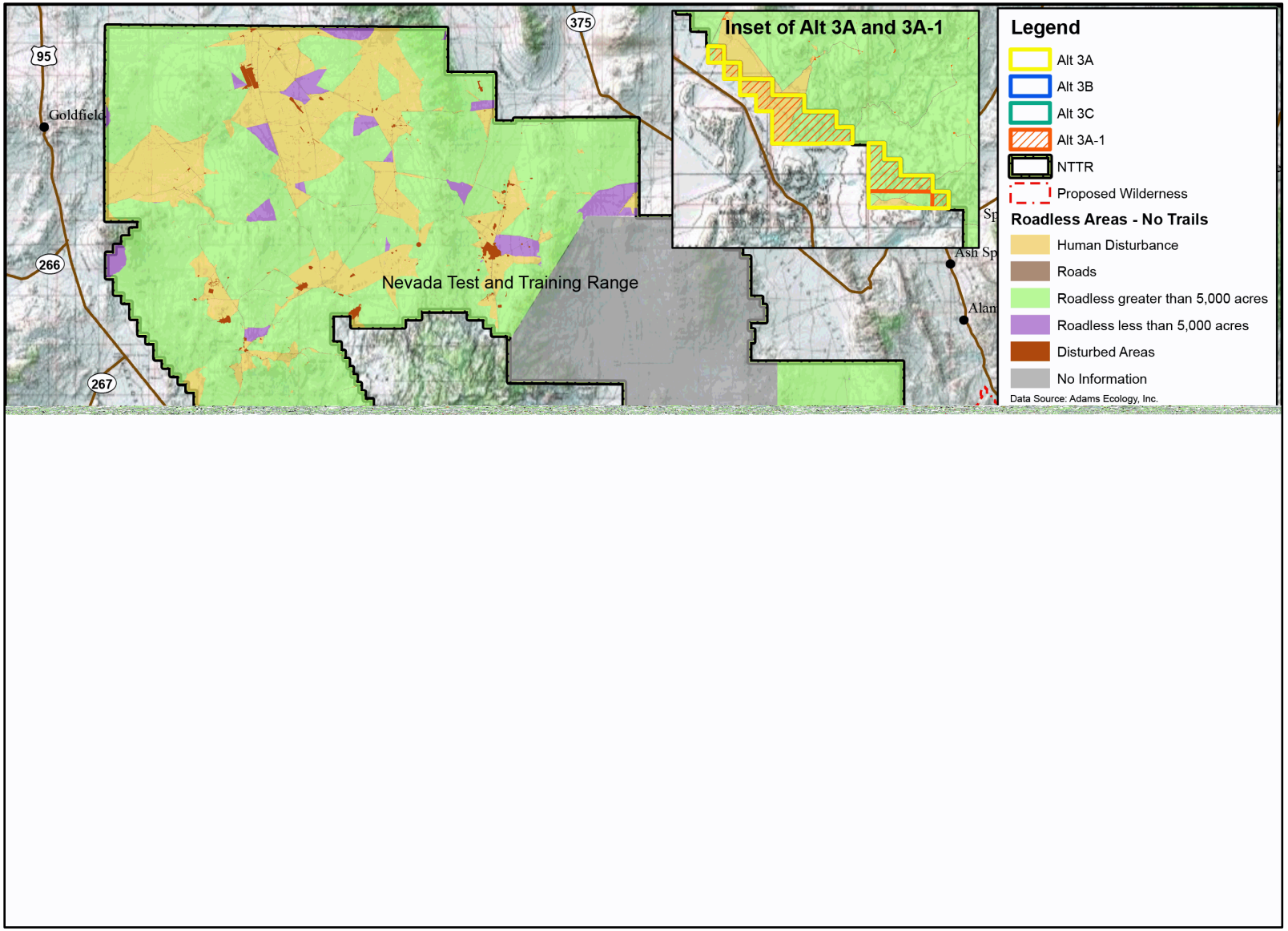

Figure 3-11. Roadless Areas Identified in the Existing NTTR Land Withdrawal and Proposed Expansion Areas

Outstanding opportunities for solitude or primitive and unconfined recreation cannot be adequately assessed using GIS and satellite imagery because, as previously indicated, these characteristics require a qualitative assessment. There is no record in the legislative history of the *Wilderness Act* as to what the framers meant by the phrase "outstanding opportunities for solitude or a primitive and unconfined type of recreation" (Landres et al., 2008). Meanings for the term "solitude" range from a lack of seeing other people to freedom from societal constraints and management regulations. Holistic views of "solitude" involve providing inspiration for an awakening of the senses, connection with the beauty of nature, and allowing one to let go of everyday obligations and to go at one's own pace (Landres et al., 2015). Similarly, meanings for "primitive" and "unconfined" recreation are wide-ranging.

The term *primitive recreation* implies traveling by nonmotorized and nonmechanical means and relying on personal skills rather than facilities or outside help (Roggenbuck, 2004). "Unconfined" refers to attributes including self-discovery, exploration, and freedom from societal or managerial controls (Dawson & Hendee, 2009). Combined together, this wilderness quality provides opportunities for physical and mental challenges associated with adventure, real consequences of mistakes, and personal growth resulting from encountering and overcoming obstacles (Landres et al., 2015).

Agencies do not provide specific policies on how to assess whether opportunities for solitude or primitive and unconfined recreation are considered "outstanding," nor is there consensus on thresholds between acceptable and unacceptable wilderness experience opportunities (Carlson et al., 2010). Researchers and managers have discussed and debated the meanings of these concepts, however, no national standards for what is an acceptable degree of solitude or primitive and unconfined recreation have been developed, because each wilderness is unique in its legislative, administrative, social, and biophysical setting (Landres et al., 2005). As discussed in Section 3.5.1.4 (Management Practices), the USFWS provides some guidance in *610 FW 4 Wilderness Review and Evaluation* (USFWS, 2008b) on how outstanding opportunities are assessed; however, the policy only suggests evaluating each area based on its own merits, without comparison to other areas, and does not use any type of rating system or scale in making the assessment. Therefore, characterizing an opportunity as "outstanding" appears to require a subjective interpretation.

Dawson (2004) suggests that outstanding opportunities for solitude require some degree of separation in sight, sound, and distance between visitors in the wilderness from people and activities occurring outside the wilderness. In fact, one indicator used in monitoring solitude or primitive and unconfined recreation is remoteness of wilderness from sights and sounds of human activities originating from outside the wilderness. Signs of human activity and development outside wilderness include (1) automobile and off-road vehicles, (2) aircraft overflights, (3) development and use of inholdings, (4) air and light pollution, and (5) urbanization from high ridges and peaks (Landres et al., 2015).

Aircraft overflights have been found to degrade the solitude and primitive recreation aspects of wilderness, based on an examination of wilderness visitor experiences when

exposed to aircraft overflights (Tarrant, Haas, & Manfredo, 1995). Kelson and Lilieholm (1997) surveyed wilderness managers representing USFS, the USFWS, NPS, and BLM across 30 states on the perceived impacts of land activities adjacent to wilderness resources. Military overflights received the second-highest impact rating based on manager consensus, preceded by fire management activities (Kelson & Lilieholm, 1997). In addition, three WSAs within the NTTR ROI were not recommended for wilderness designation, due in part to the proximity and influence of outside sights and sounds associated with utility corridors, abandoned sand and gravel operations, and Highway 93 (BLM, 1991).

Noise produced within the NTTR ROI is primarily dominated by aircraft use and munitions activities. Aircraft are authorized to operate in airspace units above Wilderness Areas, and supersonic flight is authorized above 5,000 feet mean sea level. In 2015, there were a total of 59,347 aircraft operations in the R-4809 and R-4807 airspace units that overlie the North Range, and there were 23,109 aircraft operations in the R-4806 airspace that overlies nearly the entire South Range. These would average approximately 162 and 63 operations each day in the North Range and South Range, respectively. As described in Section 3.2 (Noise), subsonic noise generated from this level of aircraft operations ranges between 61 dBA (A-weighted decibels) in the South Range up to 69 dBA in the North Range, measured as the onset-rate adjusted monthly day-night average sound level (i.e., L_{dnmr}). Section 3.2 (Noise) also analyzed supersonic noise generated from sonic booms and blast noise from munitions use in the ROI. For airspace units R-4809, R-4807, and R-4806, baseline numbers of sonic booms per day are one, two, and one, respectively. Noise generated from baseline levels of sonic booms measured as L_{dnmr} ranges between 58 dBC in the South Range and up to 60 dBC in the North Range. As a comparison, noise levels just above 50 dBA would be considered “quiet urban daytime” levels, and noise levels between 60 dBA and 70 dBA would be equivalent to a vacuum cleaner operating 10 feet away or an automobile driving by a person standing 100 feet away (refer to Appendix C, Noise, for more detailed information). Even for indoor noise receptors, if an aircraft noise event’s loudest noise level (expressed as L_{max}) exceeds 50 dB, then disruption to activity/speech is expected.

No noise thresholds have been established for wilderness. However, provided that Wilderness Areas should be free from human presence in both sight and sound, it is possible that even “quiet urban daytime” noise levels may be too loud and would detract from solitude. Based on the baseline NTTR operations and associated noise levels, the higher frequency and intensity of military operations in the North Range may contribute to factors preventing the roadless areas from ever becoming wilderness. Similarly, baseline aircraft operations and associated noise in the South Range may impact the solitude quality in areas proposed for wilderness. Figure 3-12 shows the composite baseline noise levels from all noise sources associated with baseline NTTR operations.

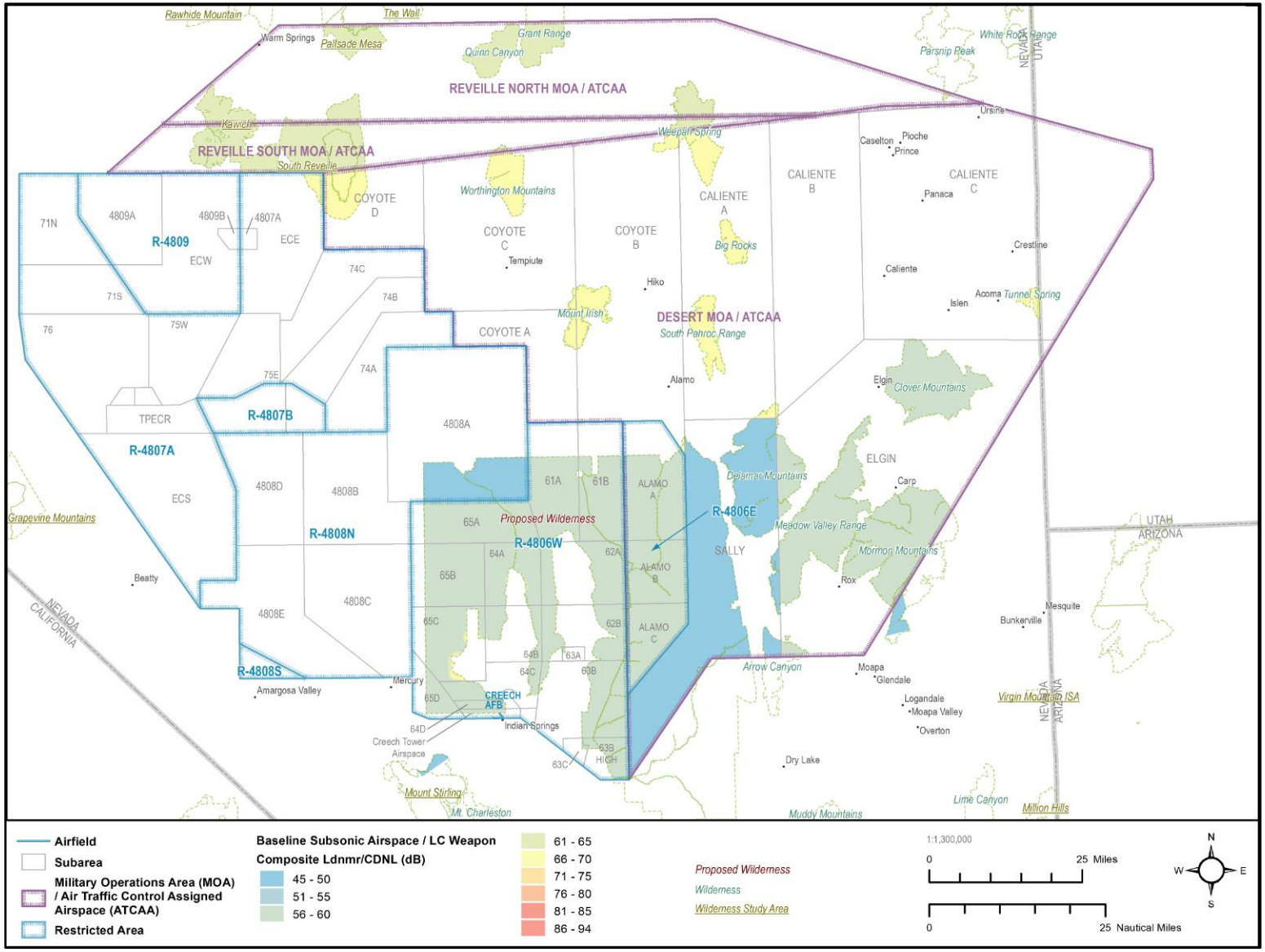

Figure 3-12. Composite Noise Levels in Wilderness Under Baseline Conditions

The entire NTTR land area, including areas that were proposed for wilderness in the South Range, is generally closed to the public due to ongoing military operations. The Air Force provides hunting opportunities for bighorn sheep, but these events are limited to certain times of the year. When public access to an area is restricted, the primitive quality of an area is reduced, and these types of controlled activities may not be considered unconfined. This access restriction, combined with baseline military operation considerations mentioned above, adds to the unsuitability of the roadless areas in the North Range as wilderness. Specifically for the DNWR and areas proposed for wilderness in the South Range, the opportunity for a "truly unique desert wilderness experience" was considered to be one of the "very special values of the area," as stated in the 1971 DNWR Wilderness Proposal (USFWS, 1971). While the public can enjoy this type of wilderness experience in the DNWR outside the NTTR boundaries, public access to areas that were proposed for wilderness within the NTTR boundaries was already restricted when it was proposed for wilderness in 1971 because the area was being used since the 1940s as an aerial bombing and gunnery range for Air Force training activities (USFWS, 1971). Therefore, areas that were proposed for wilderness in the South Range currently provide limited opportunities for primitive recreation, but these opportunities may not qualify as unconfined recreation.

Alternative 3A – Range 77 – EC South Withdrawal (and Amended Alternative 3A-1)

As shown in Figure 3-10, there are no Wilderness Areas or WSAs in the 18,000 acres or 15,000 acres of the proposed expansion area for Alternative 3A or Alternative 3A-1, respectively.

Alternative 3B – 64C/D and 65D Withdrawal and Administrative Incorporation

The proposed 64C/D and 65D expansion area is approximately 61,000 acres; areas proposed for wilderness (approximately 33,000 acres) overlap approximately 54 percent of the area, primarily within Ranges 64C/D and 65D. Results from the roadless areas special study confirm that the majority of this portion of the proposed expansion area is categorized as roadless areas greater than 5,000 acres (U.S. Air Force, 2017b). Ranges 64C/D and 65D fall under airspace unit R-4806, where baseline L_{dnmr} noise levels for subsonic and supersonic aircraft operations are measured as 61 dBA and 58 dBC, respectively. Wilderness Areas, WSAs, and areas proposed for wilderness do not occur in the 7,000 acres that encompass the area parallel to the current NTTR boundary and U.S. Route 95 right-of-way and the Administrative Incorporation area.

Alternative 3C – Alamo Withdrawal

Approximately 227,000 acres are included in this proposed expansion for NTTR land withdrawal, with areas that were proposed for wilderness overlapping the entire Alamo area (approximately 99 percent). Aside from the small areas consisting of existing roads (e.g., Alamo Road, Sheep Pass, Cabin Spring Road, Hidden Forrest Road, Cow Camp Road, Joe May Road, and Pine Nut Road) and associated buffer areas, the proposed Alamo expansion areas meet the size requirement and naturalness criterion for wilderness designation (U.S. Air Force, 2017b). However, the proposed Alamo

expansion areas also fall under airspace unit R-4806, where baseline L_{dnmr} noise levels for subsonic and supersonic aircraft operations are measured as 61 dBA and 58 dBC, respectively.

3.5.1.4 Management Practices

This section summarizes current management practices and responsible agencies for Wilderness Areas and WSAs within the ROI. There are multiple management considerations to address due to the overlap of NTTR land and airspace boundaries with Wilderness Areas, WSAs, and areas proposed for wilderness within the DNWR.

Wilderness Areas

Management of Wilderness Areas is implemented through published regulations for Wilderness Preservation and Management (50 CFR 35), agency-specific guides, and national policy for wilderness management (Dawson & Hendee, 2009). There are specific management restrictions associated with all Wilderness Areas. Human activities are limited to nonmotorized recreation, such as backpacking, hunting, fishing, horseback riding, and scientific research. The *Wilderness Act* prohibits commercial activities, mechanized vehicles, including bicycles, road building, aircraft landing and launching, logging, and mining, aside from mining claims and grazing ranges that have been grandfathered into the designation.

An interagency strategy was developed to provide a framework that monitors tangible attributes of wilderness qualities, as defined in Section 3.5.1.1 (Description of Resource), and it provides a foundation for the four federal agencies (BLM, NPS, the USFWS, and USFS) to develop a nationally consistent approach to wilderness character monitoring (Landres et al., 2015; Landres et al., 2008; USFWS, 2012). This framework identifies general guidelines to manage for wilderness quality preservation:

- Untrammeled – This quality is preserved when actions to intentionally control or manipulate the components or processes of ecological systems inside wilderness are not taken.
- Natural – This quality is preserved when there are only indigenous species and natural ecological conditions and processes.
- Undeveloped – This quality is preserved when nonconforming uses are prohibited.
- Solitude or primitive and unconfined recreation – This is preserved by management actions that reduce visitor encounters, reduce signs of modern civilization inside wilderness, remove agency-provided recreation facilities, or reduce management restrictions on visitor behavior.
- Other features of value – This quality is preserved when these “other features of value” are preserved.

The framework also identifies monitoring questions and indicators for wilderness managers to assess during monitoring activities. Full implementation of the interagency strategy across all agencies for all Wilderness Areas is not known, and the

effectiveness of accurately assessing trends in wilderness qualities remains to be seen. However, this approach provides recommendations to resolve issues in quantifying intangible aspects of wilderness character.

The following discussion summarizes agency-specific management practices for Wilderness Areas and WSAs in the NTTR ROI that have been in place before the interagency strategy was developed. It is assumed these management activities are being consistently implemented across all Wilderness Areas and WSAs nationwide.

USFWS-Managed Areas

The USFWS manages Wilderness Areas through two levels of planning: refuge Comprehensive Conservation Plans and individual Wilderness Management Plans. Within the NTTR boundaries, USFWS has primary jurisdiction of the areas proposed for wilderness in the South Range (approximately 590,000 acres). The USFWS Service Manual (Part 610) *USFWS Wilderness Stewardship Policy* is the guidance document for managing Wilderness Areas and areas proposed for wilderness within the National Wildlife Refuge System (USFWS, 2008a). As a hierarchy, the USFWS determines the needs to be accomplished to meet refuge purposes first, then ensures the activities comply with the *Wilderness Act*. In other words, National Wildlife Refuge purposes instruct the USFWS on what needs to be accomplished, but the provisions of the *Wilderness Act* may affect how those objectives are accomplished. In some cases, the guidance does allow for some limited activities that would otherwise be prohibited in Wilderness Areas, strictly for refuge management purposes. The process to approve these activities is called a minimum requirement analysis to determine if proposed refuge management activities conducted in Wilderness Areas are necessary to administer that area as wilderness and accomplish the purposes of the refuge. The minimum requirement analysis also analyzes how to minimize resultant impacts. Additionally, area-specific wilderness legislation could authorize uses that the *Wilderness Act* generally prohibits (USFWS, 2008c).

In *610 FW 4: Wilderness Review and Evaluation* of the USFWS Service Manual (Part 610), the USFWS establishes policy for conducting wilderness reviews and managing WSAs and areas recommended and proposed for wilderness (USFWS, 2008b). Wilderness reviews are conducted to identify and recommend Refuge System lands and waters for congressional designation and inclusion in the NWPS. These lands are evaluated based on the size, naturalness, opportunities for solitude or primitive recreation, and supplemental values. Lands that meet these minimum requirements are then called WSAs. Each WSA is then evaluated to determine whether they are suitable for wilderness designation. The findings of that evaluation are used if the area is recommended as wilderness for approval by the Secretary of the Interior and the President. Approved lands are then considered as areas proposed for wilderness, until official designation by Congress. As an area proposed for wilderness, the USFWS has already completed the wilderness review process and evaluated the area for wilderness suitability and is therefore managed in accordance with *610 FW 1: General Overview of Wilderness Stewardship Policy* (USFWS, 2008a); *610 FW 2: Wilderness Administration*

and Resource Stewardship (USFWS, 2008d); and *610 FW 3: Wilderness Stewardship Planning* (USFWS, 2008e).

In the South Range, the DNWR, with accompanying areas proposed for wilderness, is jointly managed by the Air Force and the USFWS based on an MOU between both agencies. This MOU allows the use of the western portion of the DNWR as part of the military mission and ensures that the INRMP for Nellis AFB is developed to be consistent with management guidelines presented in the USFWS Comprehensive Conservation Plan for the DNWR. Ongoing management activities as part of the natural resources management program on the NTTR promote the preservation of the untrammeled, natural, and other features of value qualities of wilderness, because the goal is to maintain ecosystem integrity by protecting biodiversity while sustaining the mission environment. Restrictions on activities within areas proposed for wilderness—resulting from the requirement to preserve the undeveloped and solitude or primitive and unconfined recreation qualities of wilderness—affect testing and training, range management, and environmental management components of range operations. While low-level overflights, flight testing and evaluation, and designation of special use airspace are allowed over Wilderness Areas, potential operational limitations resulting from land management policies for areas proposed for wilderness that are related to appropriate use and compatibility of uses (as stated in the 2009 NTTR Comprehensive Range Plan) include the following:

- Placement of new communication sites
- Establishment of new rights-of-way for aircraft tracking/scoring systems
- Placement of new mobile threats or targets
- Emergency response to aircraft crashes
- Recovery activities related to dropped objects or aircraft crashes

BLM-Managed Areas

BLM Manual 6340, *Management of Designated Wilderness Areas*, provides the general policies and management of BLM Wilderness Areas (BLM, 2012b). Once a Wilderness Area has been designated, the BLM must develop a Wilderness Management Plan to include implementation-level guidance for either each specific Wilderness Area or for areas in close proximity containing similar wilderness characteristics and issues in accordance with provisions outlined in BLM Manual 8561, *Wilderness Management Plans*. Appendix F, Wilderness and Wilderness Study Areas, contains a list of Wilderness Management Plans for Wilderness Areas within or in proximity to NTTR airspace boundaries. For new activities that may impact a Wilderness Area, the BLM uses a Minimum Requirements Decision Guide and subsequent NEPA analyses to determine whether the proposed activity is the minimum necessary to preserve the wilderness character of the area.

Aircraft are authorized to operate in the airspace above Wilderness Areas at and above 100 feet AGL. Supersonic flight is also authorized in these areas at and above

30,000 feet mean sea level. While there is no specific prohibition of aircraft overflights of wilderness, low-altitude flights are discouraged, except in emergencies, essential military missions, and wildlife operations. Nonemergency military actions may be approved on a case-by-case basis following Minimum Requirements Decision Guide and NEPA analyses and authorization from the managing BLM Field Office Manager. The BLM does not manage overflights conducted by other agencies, but coordination is recommended to minimize disturbance of visitors and wildlife.

Wilderness Study Areas

WSAs are managed under BLM Manual 6330, *Management of Wilderness Study Areas* (BLM, 2012c). The management of WSAs is pursuant to the FLPMA and mandates that the BLM not impair the suitability of areas identified as having wilderness characteristics. Generally, BLM does not allow actions or impacts that would preclude Congress's prerogatives in either designating the areas as wilderness or releasing them for nonwilderness uses. The Interim Management Policy also outlines the implementation process for evaluating proposed actions within a WSA. If Congress designates a WSA as a Wilderness Area, then it will be managed in accordance with BLM Manual 6340, *Management of Designated Wilderness Areas*. If a WSA is not designated as wilderness, the land will then be managed under general BLM management policies and applicable land use plans.

Similar to Wilderness Areas managed by BLM, aircraft are authorized to operate in the airspace above WSAs at and above 100 feet AGL. Supersonic flight is also authorized in these areas at and above 30,000 feet mean sea level. Generally, management of WSAs is less restrictive than Wilderness Areas, in that some activities prohibited in Wilderness Areas may be permitted in a WSA if they are temporary, do not create new surface disturbance, or do not involve placement of permanent structures.

3.5.2 Environmental Consequences

3.5.2.1 Analysis Methodology

Impacts to Wilderness Areas, areas proposed for wilderness (including sub-units that occur within the area), and WSAs are assessed based on how the proposed action will affect wilderness qualities, specifically untrammeled, natural, undeveloped, solitude or primitive and unconfined recreation, and other features of value. No Wilderness Areas or WSAs occur within the North Range; therefore, the analysis primarily focuses on the areas that were proposed for wilderness in the South Range and proposed expansion areas, as well as Wilderness Areas and WSAs that occur under NTTR airspace boundaries (Table 3-27). Each alternative is analyzed based on categories of activities that would potentially occur in the future and are expected to change across all alternatives. These categories include aircraft operations, munitions use, ground disturbance, and emitter operations. As indicated in Section 2.3.3.4 (Alternative 3C), details on specific locations and associated activities included in these categories are not ready for decision or fully developed for site-specific NEPA-related environmental

analysis. Therefore, the analysis for each alternative discusses potential impacts primarily from a conceptual and qualitative perspective. Site-specific NEPA analyses will be completed in the future for specific locations and routes once a decision on withdrawal has been made and plans have been finalized.

Using this approach, categories of activities associated with the Proposed Action would generate four types of impacts, or stressors, to wilderness criteria: noise, physical disturbance of the land, evidence of human activities, and public access restrictions. Noise associated with aircraft operations and munitions use may occur at levels that would harass or annoy potential users of the wilderness and would detract from the solitude or primitive and unconfined recreation quality. Physical disturbance of the land refers to permanent alterations to the landscape resulting primarily from construction activities. Evidence of human activities would be in the form of tracks left from troop and vehicle movements and new construction. Physical disturbance of the land and evidence of human activities would primarily have a negative impact on the undeveloped qualities of an area. Public access restrictions result when areas are closed to the public due to human safety concerns during military operations that involve munitions use or emitter operations. Restricting the public from an area prohibits all recreational opportunities during that time period, which would affect the solitude or primitive and unconfined recreation quality. As stated in Section 3.5.1.4 (Management Practices), it is assumed that the untrammeled, natural, and other features of value qualities of wilderness would be maintained through natural resource management actions currently being implemented as part of the NTTR natural resources management program; therefore, these qualities are not discussed further.

Aside from the definitions of wilderness qualities provided in Section 3.5.1.4 (Management Practices), there is no regulatory consensus on identifying specific thresholds for adverse impacts to each wilderness quality. Interpretation of wilderness terminology has been a subject of debate for many years with no clear resolution. Based on this lack of regulatory guidance, this analysis considers impacts consistent with basic definitions of wilderness qualities.

3.5.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of NTTR (North and South Range) – Status Quo

For Alternative 1, there would be no change to the existing NTTR land boundary. Management responsibilities over areas that were proposed for wilderness in the South Range, including Spotted Range, Desert-Pintwater Range, and Hole-in-the-Rock, would remain with the USFWS, aside from the designated target areas where the Air Force maintains primary jurisdiction. If the areas that were proposed for wilderness in the South Range continue to be managed as wilderness during the next land withdrawal period, there would be no change in management responsibilities or activities in these areas.

For Alternative 1, aircraft operations over the South Range would remain at the same level as described in Section 3.5.1.3 (Wilderness and Wilderness Study Areas). Based

on the noise analysis presented in Section 3.2.2.2 (Alternative 1), aircraft operations for Alternative 1 are expected to continue to generate noise levels that may result in annoyance of potential visitors to areas that were proposed for wilderness, Wilderness Areas, and WSAs within and adjacent to the NTTR. This level of noise would continue to detract from solitude or primitive and unconfined recreation qualities of wilderness, because signs of human activities within and outside these areas would be detectable on a regular basis.

For Alternative 1, munitions use would not change from baseline conditions. Based on the noise analysis presented in Section 3.2.2.2 (Alternative 1), noise levels associated with munitions use would be concentrated around the target areas in the South Range, with noise exposures primarily occurring within areas that were proposed for wilderness. This level of noise would only be detectable in a small portion of the areas proposed for wilderness adjacent to the South Range of the NTTR, and impacts to solitude or primitive and unconfined recreation qualities would be minimal. Other Wilderness Areas and WSAs occurring outside and not adjacent to the NTTR land boundary would not be impacted by noise from munitions use.

There would continue to be public access restrictions associated with munitions use operations, resulting in limited recreational opportunities for the public in areas proposed for wilderness in the South Range. As a result, munitions use for Alternative 1 would continue to have an adverse impact on solitude or primitive and unconfined recreation qualities in areas proposed for wilderness, because public access would continue to be restricted during certain times of the year and visitors would not be able to experience unconfined recreation.

For Alternative 1, there would be no change in ground disturbance activities from baseline conditions, and ground disturbance would continue to be restricted in areas that were proposed for wilderness on the NTTR. As a result, there would be no significant impacts to the undeveloped quality of wilderness.

For Alternative 1, emitter operations would not change from existing conditions. No new areas would be restricted from public access, however, there would continue to be limited opportunities for recreational activities.

Table 3-30 lists wilderness qualities impacted by each activity and associated stressor under Alternative 1. Continuation of baseline conditions would not impact untrammeled, natural, or undeveloped qualities of wilderness, because activities that would affect these qualities would continue to be unauthorized in areas that were proposed for wilderness, Wilderness Areas, and WSAs. Adverse impacts to solitude or primitive and unconfined recreation qualities are anticipated for the areas that were proposed for wilderness in the South Range; however, these impacts would not increase from the baseline conditions described in Section 3.5.1.3 (Wilderness and Wilderness Study Areas).

Table 3-30. Impacts to Wilderness Qualities for Alternative 1

Proposed Activity	Stressor(s)	Wilderness Quality Potentially Impacted			
		Untrammeled	Natural	Undeveloped	Solitude or Primitive & Unconfined Recreation
Aircraft operations	Noise	n/a	n/a	n/a	X
Munitions use	Noise	n/a	n/a	n/a	X
	Public access restrictions	n/a	n/a	n/a	X
Ground disturbance	Physical disturbance of the land	n/a	n/a	n/a	n/a
	Evidence of human activities	n/a	n/a	n/a	n/a
Emitter operations	Public access restrictions	n/a	n/a	n/a	X

3.5.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

Some portions of the South Range that overlap with the DNWR are not currently used to support military activities and are managed as wilderness. While these areas do not provide unrestricted public access, as public access is restricted for safety and security, the areas are currently managed to maintain wilderness qualities as described previously. As a result, when considering the context of allowing ready access within the South Range and associated areas proposed as wilderness, the programmatic analysis, and public, tribal, and agency comments, the Air Force recognizes that it is difficult to determine significance at the programmatic level. Should ready access in the South Range be allowed, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts, and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made.

Under Alternative 2, ready access may be implemented through Congressionally directed changes in land management within overlapping portions of the DNWR. These changes would effectively reduce areas currently managed by USFWS as wilderness. Therefore, the total acreage of areas and sub-units proposed for wilderness that are managed as wilderness would be reduced by different amounts, depending on the combination of alternatives selected. The areas that were proposed for wilderness in the current withdrawal boundary of the South Range total approximately 590,000 acres. Therefore, if Alternative 2 is selected, the total area of lands managed as wilderness within the DNWR would be reduced by 590,000 acres. This would include Spotted Range, Desert-Pintwater Range, and portions of Hole-in-the-Rock. Under this scenario, approximately 42 percent of area proposed as wilderness within the DNWR would no longer be managed as wilderness.

Based on information presented in Appendix F, Wilderness and Wilderness Study Areas, there are over 1.4 million acres of land that contain wilderness qualities within the ROI, consisting of both Wilderness Areas and WSAs. Combining this acreage with the areas proposed as wilderness in the DNWR, there are approximately 2.8 million acres of land in the ROI that contain wilderness qualities (Wilderness Areas, WSAs, and areas proposed as wilderness) and are managed accordingly. Within the state of Nevada, including the ROI and areas proposed for wilderness, there are over 5.3 million acres of land that contain wilderness qualities. Implementing Alternative 2 would reduce the areas managed as wilderness by 21 percent in the ROI and by 11 percent in the state of Nevada. There would still be over 4.7 million acres of land that possess wilderness qualities within the state of Nevada available to the public. Given this large area of land remaining that contains wilderness qualities and would be managed accordingly, combined with the existing access restrictions to areas proposed as wilderness within the current NTTR land boundaries, ceasing to manage proposed wilderness areas as wilderness in the South Range would not significantly reduce the opportunity for people to experience wilderness in southern Nevada.

As previously indicated, ready access may be achieved through a Congressionally directed change in the land management practices within the NTTR withdrawal boundary. Impacts to areas proposed for wilderness are typically assessed on the potential effects to wilderness qualities, which are only affected by the conduct of certain actions or activities taking place within or around an area either designated or managed as wilderness. Under ready access conditions, impacts to the land and associated resources within areas that were proposed for wilderness in the South Range would occur because usage restrictions associated with wilderness management practices would be removed. However, impacts to areas that were proposed for wilderness in the South Range are not assessed within the context of potential effects to wilderness qualities because those standards would no longer apply under Alternative 2. This section, instead, focuses on potential impacts to areas that were proposed for wilderness that would remain outside the withdrawal area and considers the reduction in the amount of land area within the southern Nevada region that would be managed as wilderness. Potential impacts to the land and other resources that occur within the withdrawal area, including areas that were proposed for wilderness in the South Range, are discussed in other sections throughout this LEIS. Refer to Sections 3.4 (Land Use, Recreation, and Visual Resources), 3.8 (Biological Resources), 3.9 (Cultural Resources), 3.10 (Earth Resources), and 3.11 (Water Resources). The discussions in those sections include management actions that could be carried forward under ready access, which are expected to result in the conservation and protection of certain resources. Even though preserving wilderness qualities would no longer be the primary objective, other resources would benefit from implementing the new land management practices because there would be less restriction on the land, providing better opportunities to manage the area. For example, managing areas proposed for wilderness as wilderness restricts some access by motorized vehicles, which affects the ability to conduct timely wildlife monitoring and surveys of key plant, animal, and other species by Nellis AFB biologists (Lachman et al., 2016). In addition, the protection of threatened and endangered species may require mechanical manipulation of the area,

such as man-made water structures. However, implementing these actions in areas managed as wilderness requires managers to use the minimum necessary tools and to justify the potential intrusion on other wilderness values (Hendee & Dawson, 2001). As a result, other resources that occur within areas proposed for wilderness may not be managed in the most efficient and beneficial manner. Therefore, the overall conditions of other resources in the South Range may potentially improve under ready access.

Aircraft operations are proposed to increase by 30 percent for Alternative 2. Based on the noise analysis presented in Section 3.2.2.3 (Alternative 2), noise associated with aircraft operations may result in annoyance of potential visitors to Wilderness Areas, WSAs, and remaining areas proposed for wilderness adjacent to the NTTR. Similar to baseline conditions analyzed for Alternative 1, this level of noise would continue to affect solitude or primitive and unconfined recreation qualities of wilderness, because signs of human activities within and outside these areas would be detectable on a regular basis.

For Alternative 2, live munitions use would increase by 30 percent on the existing target impact areas within the South Range, and blank firing activities may be conducted outside the impact areas. Therefore, impacts would primarily result from noise. Based on the noise analysis presented in Section 3.2.2.3 (Alternative 2), noise levels resulting from weapon firing activities would be concentrated within the South Range, with noise exposures primarily occurring within and adjacent to the NTTR South Range boundary. This level of noise would be similar to baseline noise levels, and, as discussed for Alternative 1, would only be detectable in a small portion of areas proposed for wilderness outside of the NTTR South Range boundary; therefore, impacts to solitude or primitive and unconfined recreation qualities to this small area would be minimal.

Access restrictions associated with munitions use for Alternative 2 would not change over baseline conditions because public access to areas that were proposed for wilderness within the NTTR is currently limited to certain times of year, including bighorn sheep hunts. Under ready access, public access would continue to be restricted during certain times of the year and visitors would not be able to experience unconfined recreation within the NTTR withdrawal boundary. Therefore, opportunities for primitive recreation would not be available year-round, and these controlled activities may not be considered unconfined recreation.

Ready access achieved for Alternative 2 would allow new emitters and insertion points to be constructed and developed throughout the South Range. Ground troop movements would also become available throughout the South Range. No ground disturbance activities would occur in the Wilderness Areas, WSAs, and remaining areas proposed for wilderness outside the NTTR land boundaries; therefore, no impacts to wilderness qualities from ground disturbance would occur in these areas.

Emitter operations may be expanded in the South Range, which would increase area restrictions in the South Range and result in similar impacts as Alternative 1. None of these area restrictions would occur in the Wilderness Areas, WSAs, or remaining areas proposed for wilderness outside the NTTR land boundaries; therefore no impacts to wilderness qualities in these areas would occur.

Table 3-31 lists wilderness qualities impacted by each activity and associated stressor. Direct adverse impacts to the land area are anticipated if usage restrictions associated with the management of areas proposed for wilderness are removed; these potential impacts as they relate to other affected resources are discussed in other sections throughout this LEIS. The remaining areas proposed for wilderness within the DNWR outside the NTTR land boundaries would continue to be affected as described under Alternative 1. Aircraft operations proposed under Alternative 2 would impact solitude or primitive and unconfined recreation qualities in Wilderness Areas, WSAs, and remaining areas proposed for wilderness outside the NTTR land boundary; however, there would be no impacts to the undeveloped quality of these areas.

Table 3-31. Impacts to Wilderness Qualities for Alternative 2

Proposed Activity	Stressor(s)	Wilderness Quality Potentially Impacted			
		Untrammeled	Natural	Undeveloped	Solitude or Primitive & Unconfined Recreation
Aircraft operations	Noise	n/a	n/a	n/a	X[1]
Munitions use	Noise	n/a	n/a	n/a	X
	Public access restrictions	n/a	n/a	n/a	X
Ground disturbance	Physical disturbance of the land	n/a	n/a	X	n/a
	Evidence of human activities	n/a	n/a	X	n/a
Emitter operations	Public access restrictions	n/a	n/a	n/a	X

1. Also applies to Wilderness Areas and WSAs outside the NTTR land boundaries.

3.5.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

As with Alternative 2, the Air Force recognizes that it is difficult to determine significance at the programmatic level; however, direct adverse impacts to the land area are anticipated if usage restrictions associated with the management of areas proposed for wilderness are removed; these potential impacts are discussed in other sections throughout this LEIS. Therefore, this section focuses on potential impacts to areas proposed for wilderness that would remain outside the proposed expansion areas.

There are no Wilderness Areas or WSAs in or adjacent to the proposed Range 77 expansion area for Alternative 3A or 3A-1; therefore, there would be no impacts to wilderness for Alternative 3A or 3A-1.

Aircraft operations for Alternative 3B would increase by 30 percent in restricted airspace above the Range 64C/D and 65D areas. Based on the noise analysis presented for Alternatives 3A, 3A-1, 3B, and 3C in Section 3.2.2.4 (Alternative 3), noise levels associated with aircraft operations for Alternative 3B may result in annoyance and harassment of potential visitors to areas proposed for wilderness outside the NTTR boundary. Similar to baseline conditions analyzed for Alternative 1, this level of noise would continue to affect solitude and/or primitive and unconfined recreation qualities of wilderness, because signs of human activities within and outside these areas would be detectable on a regular basis.

For Alternative 3C, aircraft operations would increase by 30 percent the restricted airspace units above the Alamo areas. Based on the noise analysis presented in Section 3.2.2.4 (Alternative 3), aircraft overflights and associated noise levels generated by NTTR operations proposed for Alternative 3C may result in annoyance and harassment of potential visitors of areas proposed for wilderness within and outside the NTTR land withdrawal boundary. Similar to baseline conditions, this level of noise would continue to affect the solitude quality of Wilderness Areas, WSA, and remaining areas proposed for wilderness outside the NTTR, because signs of human activities within and outside these areas would be detectable on a regular basis.

For Alternative 3B, the proposed Range 64C/D and 65D expansion would support increased safety footprints from munitions use within the current NTTR boundary. (No munitions use would occur within the proposed expansion area.) Based on the noise analysis presented for Alternatives 3A, 3A-1, 3B, and 3C in Section 3.2.2.4 (Alternative 3), noise levels resulting from weapon firing activities would be concentrated within the South Range, with noise exposures primarily occurring within the South Range and to some degree the remaining areas proposed for wilderness bordering the NTTR withdrawal boundary, including the Alamo areas. This level of noise would not be detectable within the proposed Range 64C/D and 65D expansion area. Wilderness Areas and WSAs occurring outside and not adjacent to the NTTR land boundary would not be impacted by noise from munitions use associated with Alternative 3B.

Munitions use within the target impact areas associated with the 60-series ranges that exist within the current NTTR boundary would require expanded safety footprints that would overlap with the Alamo areas associated with Alternative 3C. IW training could conceptually include weapon firing activities (blanks) in these areas. Based on the noise analysis presented for Alternative 3A, 3A-1, 3B, and 3C in Section 3.2.2.4 (Alternative 3), noise levels resulting from use of existing target areas for live firing activities would be concentrated within the existing South Range boundary with noise exposures primarily occurring within the South Range and to a limited extent within the Alamo areas. However, the level of noise associated with Alternative 3C would not be detectable within Wilderness Areas, WSA, and other remaining areas proposed for wilderness areas outside and not adjacent to the NTTR; therefore no impacts to wilderness qualities in these areas would occur.

Public access restrictions resulting from larger safety footprints associated with Alternative 3C would be expanded to the Alamo areas, which would prohibit the public from entering these areas and limit recreational opportunities to select times of year. Some recreational opportunities would be provided, consisting of Air Force-approved activities, such as bighorn sheep hunts. As a result, munitions use within the current NTTR boundary would reduce recreation opportunities within the Alamo areas. As shown in Figure 2-14 and Figure 2-15, specific recreational areas impacted by the access restriction include Lower Lake Spring, Sheep Mountain Spring, Holly Spring, Dry Lake Spring, Cabin Spring, Underground Spring, Deadman Spring, and White Rock Spring. In addition, Section 3.4.2.4 (Alternative 3) lists roads and trails affected under Alternative 3C, which would no longer be readily accessible to the public. It is expected that recreational users would be displaced to other key recreational areas within the remaining areas proposed for wilderness outside the NTTR land boundary containing characteristics similar to those found in the Alamo areas. For example, the public would continue to have access to Hidden Forest Cabin, Corn Creek Field Station, Cow Camp trailhead, and Joe May trailhead, as well as numerous springs, peaks, and other points of interest within the DNWR. These areas could be accessed on foot or horseback.

DNWR visitor records are kept via a non-mandatory guest registration at the Corn Creek visitor center. As a result, there is not a clear understanding on the current usage of the Alamo areas for recreational activities. The actual number of people potentially displaced under Alternative 3C is not known and difficult to predict; however, it is assumed the displaced recreational users would be evenly distributed across these other recreational areas in the NTTR region. Without data on current usage of the Alamo areas, impacts to surrounding recreational areas are indeterminable.

Ground disturbance activities may occur within the proposed expansion areas for Alternative 3B from 30 miles of fencing around the perimeter. Wilderness Areas and WSAs outside the NTTR land expansion boundaries would not be impacted by Alternative 3B. Impacts to remaining areas proposed for wilderness outside the NTTR boundary would include a reduction in the undeveloped qualities of the area, because there would be increased evidence of modern human occupation with the construction of the perimeter fencing. Results from the roadless areas special study indicate that a portion of the areas that were proposed for wilderness in the proposed 64C/D and 65D expansion area is already disturbed (see Figure 3-11) and would not be considered suitable wilderness (U.S. Air Force, 2017b). Impacts from additional ground disturbance activities in the Alternative 3B proposed expansion area would not be significant compared with baseline conditions.

For Alternative 3C, ground disturbance activities may include troop movements, road improvements, and the construction of two runways, emitter sites, and all other supporting infrastructure, such as a refueling station, munitions loading, and equipment storage to facilitate activities, as well as 65 miles of fencing around the perimeter. In addition, training activities would include FARRPs for refueling and munitions loading of aircraft within a dry lake bed area. Potential impacts from ground disturbance activities to the land and other resources that occur within the Alamo areas are discussed in Sections 3.4 (Land Use, Recreation, and Visual Resources), 3.8 (Biological Resources),

3.10 (Earth Resources), and 3.11 (Water Resources). Wilderness Areas and WSAs outside the NTTR land expansion boundaries would not be impacted by ground disturbance associated with Alternative 3C. Impacts to the remaining areas proposed for wilderness outside and adjacent to the NTTR boundary would include a reduction in the undeveloped quality of the area, because there would be increased evidence of modern human occupation with the construction of the fencing and all other infrastructure needed to support the runways, emitter sites, refueling, and munitions loading. Therefore, ground disturbance activities for Alternative 3C would have an adverse impact to the undeveloped quality of areas proposed for wilderness bordering the NTTR withdrawal boundary.

Emitter operations would occur under Alternative 3C, and would have similar impacts to wilderness qualities as discussed previously under Alternative 2. However, emitter operations would not be expected to impact any Wilderness Areas, WSAs, or areas proposed for wilderness areas outside the NTTR boundary.

Summary of Wilderness Impacts Associated with Alternatives 3A, 3A-1, 3B, and 3C

Alternative 3A or 3A-1 would have no impact to Wilderness Areas, WSA, or areas proposed for wilderness areas due to the lack of such lands in or adjacent to the land proposed for withdrawal for Alternative 3A or 3A-1. For Alternative 3B, aircraft operations would impact solitude and/or primitive and unconfined recreation in the remaining areas proposed for wilderness outside NTTR, because these activities adversely impact the potential for solitude. Installation of fencing under Alternative 3B would eliminate unconfined recreation opportunities in this area and would impact the undeveloped quality of surrounding areas proposed for wilderness outside the NTTR boundary because these activities would leave evidence of human occupation. However, portions of Alternative 3B's proposed expansion area already have visible human impacts; therefore, impacts to the undeveloped quality of the area would not substantially increase over baseline conditions. Table 3-32 lists wilderness qualities impacted by each activity and associated stressor for Alternative 3B.

Table 3-32. Impacts to Wilderness Qualities for Alternative 3B

Proposed Activity	Stressor(s)	Wilderness Quality Potentially Impacted			
		Untrammeled	Natural	Undeveloped	Solitude or Primitive & Unconfined Recreation
Aircraft operations	Noise	n/a	n/a	n/a	X
Munitions use	Noise	n/a	n/a	n/a	n/a
	Public access restrictions	n/a	n/a	n/a	X
Ground disturbance	Physical disturbance of the land	n/a	n/a	X	n/a
	Evidence of human activities	n/a	n/a	X	n/a
Emitter operations	Public access restrictions	n/a	n/a	n/a	X

If Alternative 3B is selected, approximately 33,000 acres of areas proposed for wilderness would be impacted by the expansion. When combined with ready access for the entire South Range, approximately 623,000 acres of areas that were proposed for wilderness would no longer be managed as wilderness, which accounts for nearly 45 percent of the entire area that was proposed for wilderness within the DNWR.

Based on information presented in Appendix F, Wilderness and Wilderness Study Areas, there are over 1.4 million acres of land that contain wilderness qualities within and surrounding the NTTR ROI, consisting of both Wilderness Areas and WSAs that occur under or immeadiately adjacent to NTTR airspace units. Combining this acreage with the areas proposed as wilderness in the DNWR, there are approximately 2.8 million acres of land in the ROI that contain wilderness qualities (Wilderness Areas, WSAs, and areas proposed as wilderness) and are managed accordingly. This would include the Spotted Range, Desert-Pintwater Range, and portions of Hole-in-the-Rock units within areas proposed as wilderness. Within the state of Nevada, including the ROI and areas proposed for wilderness, there are over 5.3 million acres of land that contain wilderness qualities. Implementing Alternative 3B would reduce areas managed as wilderness in the region by 22 percent in the ROI and by 12 percent in the state of Nevada. There would still be nearly 4.7 million acres of land managed as wilderness in the state. Therefore, Alternative 3B would not significantly reduce opportunities to experience wilderness in Nevada.

For Alternative 3C, aircraft operations would impact the solitude or primitive and unconfined recreation quality in Wilderness Areas, WSAs, and the remaining areas proposed for wilderness outside the NTTR, because these activities adversely impact the potential for solitude. Munitions use and emitter operations associated with Alternative 3C would impose access restrictions within the Alamo areas, reducing recreation opportunities there. In addition, proposed ground disturbance activities associated with Alternative 3C would impact the undeveloped quality of the remaining areas proposed for wilderness that occur along the NTTR withdrawal boundary and within the Alamo areas because construction of a perimeter fence and additional infrastructure associated with activities would leave evidence of human occupation. Table 3-33 lists wilderness qualities impacted by each activity and associated stressor for Alternative 3C.

If Alternative 3C is selected, approximately 227,000 acres of areas proposed for wilderness would be impacted by the expansion. When combined with ready access for the entire South Range, approximately 817,000 acres of areas proposed for wilderness would no longer be managed as wilderness, which accounts for approximately 58 percent of the total area proposed for wilderness within the DNWR.

Based on information presented in Appendix F, Wilderness and Wilderness Study Areas, there are over 1.4 million acres of land that contain wilderness qualities within the ROI, consisting of both Wilderness Areas and WSAs. Combining this acreage with the areas proposed as wilderness in the DNWR, there are approximately 2.8 million acres of land in the ROI that contain wilderness qualities (Wilderness Areas, WSAs, and areas proposed as wilderness) and are managed accordingly. This would include the

Spotted Range, Desert-Pintwater Range, Hole-in-the-Rock, East Desert Range, and a portion of Sheep Range units within areas proposed as wilderness. Within the state of Nevada, including the ROI and areas proposed for wilderness, there are over 5.3 million acres of land that contain wilderness qualities. Implementing Alternative 3C would reduce areas managed as wilderness in the region by 29 percent in the ROI and 15 percent in the state of Nevada. There would still be nearly 4.5 million acres of land containing wilderness qualities, and managed as such, remaining in the state. Therefore, Alternative 3C would not significantly reduce opportunities to experience wilderness in Nevada.

Table 3-33. Impacts to Wilderness Qualities for Alternative 3C

Proposed Activity	Stressor(s)	Wilderness Quality Potentially Impacted			
		Untrammeled	Natural	Undeveloped	Solitude or Primitive & Unconfined Recreation
Aircraft operations	Noise	n/a	n/a	n/a	X
Munitions use	Noise	n/a	n/a	n/a	n/a
	Public access restrictions	n/a	n/a	n/a	X
Ground disturbance	Physical disturbance of the land	n/a	n/a	X	n/a
	Evidence of human activities	n/a	n/a	X	n/a
Emitter operations	Public access restrictions	n/a	n/a	n/a	X

As previously indicated, subalternatives proposed under Alternative 3 may be selected individually, or as a combination of one or more. Alternative 3A or 3A-1 would have no potential impacts to wilderness qualities within Wilderness Areas, WSAs, and areas proposed for wilderness that occur outside the NTTR withdrawal boundary. Potential impacts associated with Alternative 3B and Alternative 3C would be similar regardless of which subalternative or combination thereof that is selected. However, the total acreage of areas proposed for wilderness potentially impacted by expanding the withdrawal boundary would vary depending on the subalternative that is selected. As previously stated, approximately 33,000 acres of areas proposed for wilderness occur in the Alternative 3B expansion area and approximately 227,000 acres of areas proposed for wilderness occur in the Alternative 3C expansion area. If both of these subalternatives are selected, the NTTR withdrawal expansion would impact 260,000 acres of areas proposed for wilderness. When combined with ready access for the entire South Range, approximately 850,000 acres (61 percent) of areas proposed as wilderness within the DNWR would no longer be managed as wilderness. Implementing Alternative 3B and 3C would reduce areas managed as wilderness by 30 percent in the ROI and by 16 percent in the state, leaving nearly 4.5 million acres of land within the state that contain wilderness qualities and are managed accordingly. Therefore, combining Alternatives 3B and 3C would not significantly reduce opportunities to experience wilderness in Nevada overall; however, within southern Nevada, this could be considered a significant impact.

Although the Air Force is requesting that lands that are proposed for wilderness be withdrawn to meet mission needs as outlined in Section 2.3.2 (Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges), this should not diminish the Air Force's commitment to support other areas that have been designated as Wilderness or WSAs throughout Nevada.

3.5.2.5 Alternative 4 – Establish the Period of Withdrawal

Impacts to wilderness from the withdrawal periods proposed in the following subalternatives are dependent on the combination of the above-mentioned alternatives and subalternatives that are selected. Selection of Alternative 1 would not result in any changes to the management of areas that were proposed for wilderness in the South Range. In this scenario, the length of the withdrawal period may result in an improvement of wilderness characteristics. With respect to wilderness characteristics within the NTTR boundary, selection of Alternative 3A or 3A-1 would not affect wilderness. Selection and implementation of Alternative 2, Alternative 3B, and/or Alternative 3C would reduce the total area managed as wilderness in southern Nevada. Under those alternatives, the length of the withdrawal period is not relevant, because wilderness characteristics within the NTTR land boundary would no longer need to be considered with the implementation of new management practices. As a result, there would be no impacts to wilderness within the NTTR land boundaries for Alternatives 4A, 4B, or 4C if Alternative 2, 3A, 3A-1, 3B, or 3C is selected. Potential impacts from the length of the withdrawal period to the land and other resources within the NTTR withdrawal area if Alternative 2, 3A, 3A-1, 3B, or 3C is selected are discussed in Sections 3.4 (Land Use, Recreation, and Visual Resources), 3.8 (Biological Resources), 3.10 (Earth Resources), and 3.11 (Water Resources).

Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR boundaries will continue to be impacted by noise associated with aircraft operations and munitions use. Under Alternative 1, there would be no change in the level of operations. Under Alternatives 2, 3A, 3A-1, 3B, and 3C, a 30 percent increase has been analyzed; however, resulting noise levels would not substantially increase. In addition, the construction of perimeter fencing along the boundaries of the expansion alternatives would impact small areas only around the boundary of the NTTR withdrawal. The subsections below address impacts to wilderness characteristics of areas proposed for wilderness if Alternative 1 is selected and impacts to Wilderness Areas, WSAs, and areas proposed for wilderness surrounding the NTTR land boundaries under all alternatives.

Alternative 4A – 20-Year Withdrawal Period

Wilderness characteristics of areas that were proposed for wilderness in the South Range are expected to marginally improve under a 20-year withdrawal period if Alternative 1 is selected, because management of the area and activity restrictions would remain the same. It is reasonable to assume that noise levels would increase over time as more testing and training operations are conducted, which may continue to impact solitude qualities of these areas. However, other wilderness characteristics, such

as untrammeled, natural, and undeveloped qualities, are not impacted by noise. Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR land boundaries would continue to be managed under current practices, which are expected to conserve most wilderness characteristics. Therefore, it is likely that there would be a marginal improvement of wilderness qualities of Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR land boundaries over a 20-year withdrawal period.

Alternative 4B – 50-Year Withdrawal Period

Wilderness characteristics of areas that were proposed for wilderness in the South Range are expected to improve under a 50-year withdrawal period if Alternative 1 is selected because the current land management practices would continue over a longer period of time, providing better opportunities for improvement. It is reasonable to assume that noise levels would increase over time as more testing and training operations are conducted, which may continue to impact solitude qualities of these areas. However, other wilderness characteristics, such as untrammeled, natural, and undeveloped qualities, are not impacted by noise. Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR land boundaries would continue to be managed under current practices, which are expected to conserve most wilderness characteristics. Therefore, it is likely that wilderness qualities of Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR land boundaries would improve over a 50-year withdrawal period.

Alternative 4C – Indefinite Withdrawal Period

Wilderness characteristics of areas that were proposed for wilderness in the South Range are expected to substantially improve under an indefinite withdrawal period if Alternative 1 is selected because current land management practices would be implemented indefinitely, providing maximum opportunities for improvement. It is reasonable to assume that noise levels would increase over time as more testing and training operations are conducted, which may continue to impact solitude qualities of these areas. However, other wilderness characteristics, such as untrammeled, natural, and undeveloped qualities, are not impacted by noise. Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR land boundaries would continue to be managed under current practices, which are expected to conserve most wilderness characteristics. Therefore, it is likely that wilderness qualities of Wilderness Areas, WSAs, and areas proposed for wilderness outside the NTTR land boundaries would substantially improve with an indefinite withdrawal period.

3.5.2.6 No Action Alternative

Under the No Action Alternative, Congress would not renew the land withdrawal for the Air Force. The absence of military operations at NTTR would allow for other land uses to be reintroduced to these areas, such as mining, livestock grazing, or mineral leasing. As stated in Section 2.4 (No Action Alternative), without control of ground areas, the airspace could not be used to support live-fire exercises and related military high-hazard

activities. Thus, aircraft operations would be decreased and noise impacts that affect solitude or primitive and unconfined recreation would be reduced. While the former NTTR lands could be opened for recreational use, many areas may not be considered safe due to potential contamination hazards associated with past military activities. The land areas would also be subject to BLM and USFWS management objectives, which would likely increase wilderness characteristics of areas proposed for wilderness in the former South Range.

3.5.3 Proposed Resource-Specific Mitigations and Management Actions

No mitigations have been identified for Wilderness and WSAs.

3.5.4 Native American Perspective on Wilderness and Wilderness Study Areas

The CGTO remains concerned about the expansion of public lands for inclusion in the NTTR into wilderness areas including the Desert National Wildlife Refuge. Tribal representatives would no longer be afforded the necessary opportunity to use culturally sensitive areas when needed without restriction or involvement from the Air Force. Solitude is an essential component to preventing intrusion during tribal ceremonies in sacred areas. The CGTO has stated the potential for cultural discord from visual or audible intrusion of aircraft or associated activities that could impact wilderness resources important to Indian people. The CGTO will struggle with limited access to important resource locations within Wilderness or Wilderness Study Areas.

Both tribal and non-tribal recreationalists will be challenged by limited or denied access to previously visited locations. Biological and botanical resources used or needed by the CGTO will be unavailable and affect the cultural and ecological balance of withdrawn lands.

3.6 SOCIOECONOMICS

3.6.1 Affected Environment

For the Native American perspective on information in this section, please see Section 3.6.4 and Appendix K, paragraph 3.6.1.1.1.

3.6.1.1 Description of Resource

Socioeconomics refers to features or characteristics of the social and economic environment. The socioeconomics assessment typically includes employment, earnings, population, housing, and community and public services and varies according to factors that could be affected by a proposed action or an alternative. Data published by the Bureau of Labor Statistics, the U.S. Census Bureau, the Bureau of Justice, and Nellis AFB, among others, were used to determine the affected environment.

3.6.1.2 Region of Influence

The ROI for socioeconomics comprises Clark, Lincoln, and Nye Counties, where the majority of impacts would be anticipated to occur from the Proposed Action and alternatives.

3.6.1.3 Economics

Employment

Full- and part-time employment growth in the State of Nevada has been on par with national levels, while growth in Clark and Lincoln Counties has outpaced both the state and nation. Employment growth in Nye County has consistently remained below both the state and national levels.

Total employment in Nevada increased at an average annual growth rate of 1.1 percent from 1,446,547 jobs in 2004 to 1,614,814 jobs in 2014 (11.7 percent total growth) (See Appendix G, Socioeconomics, Figure G-1, Total Employment in Nevada, Clark County, Lincoln County and Nye County, 2004–2014). Sectors with the largest employment growth statewide over this same time frame are: management of companies and enterprises at 7.1 percent average annual growth; mining, oil and gas extraction (5.3 percent); educational services (5.9 percent); and health care and social assistance (3.3 percent). A few sectors experienced considerable declines over the same period. Construction jobs decreased at an average annual rate of 5.3 percent and utilities at 2.4 percent. These declines could be attributed to the housing market crash in 2008–2009.

Clark County held 69.9 percent of the state's total employment in 2004, 71.3 percent in 2009, and 72.2 percent in 2014. From 2004 to 2014, employment in Clark County increased from 1,011,193 to 1,166,051 at an average annual rate of 1.4 percent. Many sectors grew substantially in Clark County from 2004 to 2014 with the most rapid increases seen in: management of companies and enterprises (at an annual average rate of 7.6 percent); mining, oil and gas extraction (7.5 percent); educational services (6.2 percent); and state and local government (6.5 percent). Other industries saw considerable declines over the same period: construction jobs decreased at a 5.7 percent average annual rate and utilities at 2.9 percent, primarily attributable to the housing market crash of 2008–2009. There were 15,709 military jobs in Clark County in 2014.

The economies of both Lincoln and Nye Counties are smaller than Clark County's. Lincoln County is the smallest in both population and employment (see Appendix G, Socioeconomics, Figure G-2, Total Employment in Lincoln County and Nye County, 2004–2014). Employment in Lincoln County increased from 1,968 in 2004 to 2,494 in 2014, at an average annual rate of 2.4 percent. Between 2009 and 2014, employment increased by 305 jobs to 2,038. There were 14 military jobs in Lincoln County in 2014.

The number of jobs in Nye County decreased from 16,048 in 2004 to 15,784 in 2014 at an average annual loss of 0.2 percent over 10 years. Between 2009 and 2014, 42 jobs were added, bringing the number of jobs in the county to 15,784 (an average annual increase of 0.03 percent over those five years). The persons associated with DoD employment in Nye County was estimated at 121 in 2014.

In 2014, the accommodation and food services sector contributed 19.6 percent of total employment in Nevada, followed by retail trade at 10.4 percent, state and local government with 8.1 percent, and health care and social assistance at 7.0 percent (see Appendix G, Socioeconomics, Table G-1, Employment by Sector in Nevada, Clark County, Lincoln County, and Nye County, 2014). Military employment accounted for only 1.2 percent of total employment in Nevada. The large combined contributions of the accommodation and food services sector and the retail trade sector (approximately 30 percent of the total state workforce in 2014) can be attributed to the gaming industry in Las Vegas, Reno, and other parts of the state.

In Clark County, the accommodation and food services sector provided 22.8 percent of the total employment in 2014, followed by retail trade (10.5 percent), state and local government (8.1 percent), and health care and social assistance (7.5 percent). The large combined contributions of the accommodation and food services sector and retail trade sector (just over 33 percent of the total workforce in Clark County) can be attributed to the dominance of Las Vegas on the economy of Clark County and Nevada overall. The military, with 15,709 jobs, accounted for 1.4 percent of the total employment in the county.

For Lincoln County, the largest sector in 2014 was government and government enterprises. State (5.7 percent) and local government (17.2 percent), federal (1.6 percent), and 14 military jobs represented 0.56 percent of the 25.0 percent of total government employment in Lincoln County. Professional, scientific, and technical services were 11.2 percent of total county employment.

In 2014, in Nye County, the most important sectors in terms of employment were government and government enterprises (11.9 percent), including state and local government jobs (10.4 percent); retail (11.6 percent); professional, scientific, and technical services (10.4 percent); and accommodation and food services (10.2 percent). There were 121 military jobs in Nye County in 2014.

Nellis AFB, Creech AFB, and the NTTR are an important contributor to the local economy through employment of military and civilian personnel and expenditures for goods and services. The total economic impact of the bases and the range on the surrounding communities for fiscal year 2015 was more than $5.5 billion (Nellis AFB, 2015). The two bases along with the NTTR employed 9,103 active-duty military, 620 Reserve/Air National Guard, and 3,548 civilians with a combined payroll of $1,134.6 million (Nellis AFB, 2015). Over a thousand temporary-duty (TDY) personnel conduct business at Nellis AFB, Creech AFB, or the NTTR on any given day. Approximately 5,783 indirect jobs are created as a result of activities associated with the

base and the NTTR with combined salaries of approximately $242.6 million (Nellis AFB, 2015).

Earnings

Employee compensation in the State of Nevada topped $71.9 billion in 2014, an increase of $16.1 billion from 10 years prior in 2004 ($55.8 billion total). The largest shares of total compensation were found in government and government enterprises (18.7 percent of total; 10.8 percent of which was state government employment); accommodation and food services (17.8 percent); and retail trade (7.0 percent). The U.S. Bureau of Economic Analysis (BEA) reported that on average, annual compensation per job in the state of Nevada in 2014 was $57,412. Average compensation per job peaked at $133,431 per year in the utilities sector and $119,827 in the management of companies and enterprises sector (BEA, 2015).

For Clark County, compensation totaled over $52.1 billion in 2014, accounting for approximately 72.6 percent of the state total. The greatest share of this was contributed by the accommodation and food services (21.7 percent of the county total); government and government enterprises (17.4 percent, 13.0 percent of which was state government employment); and retail trade (7.1 percent). On average in 2014, annual compensation per job was $56,981, on par with the state average of $57,412. Average compensation per job in Clark County saw highs of $137,712 in the utilities sector and $120,914 in the management of companies and enterprises sector (BEA, 2015).

Total compensation in Lincoln County was just under $84 million in 2014, which represents only 0.1 percent of compensation in the state. Of the compensation in Lincoln County, approximately 49 percent was contributed by the government and government enterprises sector, and about 32 percent of the total county earnings was in state and local government. Professional, scientific, and technical services contributed approximately 19 percent of the county total. Average compensation for Lincoln County was $55,024 in 2014, slightly below the state average of $57,412 per year. Of the values reported by the BEA for Lincoln County (some data was withheld to avoid confidential information disclosure), the highest average compensation is in the federal and civilian government sector at $83,950 per year (BEA, 2015).

In Nye County, the greatest share of total compensation (which stood at $688.4 million in 2014) was contributed by the professional, scientific, and technical service sector, which represented 19.8 percent of total county earnings, followed by government and government enterprises (18.3 percent, with 14.4 percent contributed by state government employment), and mining, quarrying, and oil and gas extraction with a share of 16.6 percent. Total compensation in Nye County accounted for just under 1.0 percent of the total earnings in Nevada. In 2014, average compensation per year was $59,950, with the highest average accrued to the professional, scientific, and technical services sector ($136,566) followed by workers in government and government enterprises ($125,763) (BEA, 2015).

Agriculture

Agriculture, an important sector in the Nevada economy, significantly contributes to the rural counties' economies. Cattle and calf production is the leading agriculture activity. Irrigation allows for crop growth, with alfalfa hay as the leading cash crop in the state. In 2014, Nevada's food and agricultural sector[1] resulted in an estimated $4.4 billion in total direct value sales (equivalent to about 1.9 percent of Nevada's total output), generated 14,491 jobs, and paid $687 million in total income. Food and agriculture production in Nevada, including direct effects and "ripple effects," generated an estimated $2.7 billion in additional value added, including 6,239 jobs, $323 million in labor income, and $1.3 billion in combined industrial output. Industries and activities supporting the food and agricultural sector contributed 2,551 jobs, $138 million to labor income (wages, salaries, and proprietor income), and $406 million to industrial output, with $345 million value added. Annual cash receipts from all agricultural commodities in Nevada in 2012 were $716 million; 60 percent of which was from livestock and products, and the remaining 40 percent was derived from crops.

As of 2012, the date of the most recent comprehensive U.S. Department of Agriculture (USDA) Census of Agriculture for Nevada, there were 4,137 farms[2] statewide, encompassing a total of 5,913,761 acres, with an average farm size of 1,429 acres. Of these farms, 185 were in Lincoln County, 198 were in Nye County, and 252 were in Clark County (see Appendix G, Socioeconomics, Table G-2, Farm Statistics, State of Nevada and Affected Counties, 2012).

Due in part to continuing urbanization and other economic considerations, the general trend for farms in Nevada is a greater number of smaller farms. That is, from 2002 to 2012, farm sizes declined but the total number of farm operations increased. The total number of farmland acres in the state of Nevada dropped from 6,330,622 to 5,913,761 and the size of the average farm decreased from 2,118 to 1,429 acres while the total number of farms increased from 2,989 to 4,137 over that same period. The number of farm workers in Nevada increased from 4,810 in 2002 to 5,759 in 2014, an average annual increase of 1.97 percent, and the total number of farm proprietors increased over that period from 2,912 to 3,653, an average annual increase of 2.54 percent.

In Clark County from 2002 to 2012, the total number of farmland acres dropped considerably from 68,925 to 15,620, having reached its peak in 2007 of 88,381 acres. The size of the average farm decreased from 272 to 62 acres, while the total number of farms only decreased from 253 to 252 over that same period, dropping to 193 in 2007 (USDA, 2004; 2014). The number of farm workers in Clark County increased from 406 to 464, an average annual increase of 1.43 percent, and the total number of farm

[1] Includes farm, food processor, and wholesale and retail levels of the food and agriculture supply chain.

[2] The U.S. Department of Agriculture defines a "farm" as any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. The current definition was first used in the 1974 USDA Census of Agriculture and has been used in each subsequent agriculture census. This definition is consistent with the definition used for current USDA surveys (USDA, 2014).

proprietors decreased over that period from 249 to 210, an average annual decrease of 1.57 percent (BEA, 2016).

Nye County saw a significant drop in total number of farmland acres declining from a total of 97,604 in 2002 to 65,115 in 2012. The majority of this reduction occurred after 2007, considering there were 90,868 farmland acres in 2007 in Nye County. The total number of farms increased from 172 to 198 between 2002 and 2012. The number of farm workers in Nye County decreased from 302 in 2002 to 211 in 2014, an average annual decrease of 3.01 percent, and the total number of farm proprietors decreased over that period from 168 to 163, an average annual decrease of 0.3 percent.

Data for farmland acres for Lincoln County in 2002 and 2012 was withheld by the USDA to avoid disclosing data for individual farms, but was reported in 2007. In 2007, there were 98 farms encompassing a total of 46,271 acres for an average farm size of 472 acres. The number of farm workers in Lincoln County increased from 147 in 2002 to 257 in 2014, an average annual increase of 7.48 percent, and the total number of farm proprietors increased over that period from 106 to 166, an average annual increase of 5.66 percent.

Property taxes are taxes collected on the possessory interest of property, which is for any reason exempt from taxation, but which is leased to or available for use by the taxpayer. Federally owned grazing lands generally fall into this category. The possessory interest is taxable in the same manner as if the user owned the property. The withdrawal of the additional lands would only be anticipated to have a minor impact on such taxes and therefore, are not further discussed.

Mining

In 2014, there were 110 active mines in Nevada, of which 4 were located in Clark County, 21 in Nye County, and 1 in Lincoln County. In 2004, there were a total of 96 mining operations in Nevada; in the period from 2004–2014, the number of mining operations fluctuated from a low of 94 in 2007 to a high of 126 in 2012 (Nevada Mining Association, 2016).

Clark County had four actively producing mines in 2014, which employed a total of 455. Primary materials mined included limestone, gypsum, dolomite, and silica sands. In total, 7.3 million metric tons of commodities were mined in 2014, and 5.8 million metric tons of commodities were produced (Nevada Mining Association, 2016).

Although Lincoln County has an extensive mining history, in 2014, there was only one mine in active production, with a total of eight direct employees. In 2014, the mine produced 1,981.3 metric tons of perlite, up 22.4 percent from 2013 production of 1,618.4 metric tons (Nevada Mining Association, 2016).

In 2014, Nye County had 21 mines actively producing, which, in total, employed 1,202. Nye County had the greatest number of active mines in Nevada (Churchill County was second with 14 mines). Primary mining products include clays (smectite, bentonite, saponite, and sepiolite), gold, silver, and magnesium. In total, 519.9 thousand metric

tons of commodities were mined in Nye County with 119.8 metric tons produced (Nevada Mining Association, 2016). Of note, 10.0 metric tons of gold were produced in 2013 and 10.5 metric tons in 2014, with approximate market values of $453.7 million and $427.5 million, respectively, based on year-end gold prices.

Currently, there are no active mining claims nor oil and gas leases located within the NTTR. All of the unpatented mining claims and all of the oil and gas leases have either expired or were acquired by the United States. Section 3.10 (Earth Resources) contains additional information on the mineral resources within the NTTR and surrounding area.

Recreation

Because the lands on the NTTR are withdrawn from public use by the MLWA (P.L. 106-65), public recreational activities are prohibited with some exception for certain limited hunting activities, the majority of the NTTR has not been developed for residences or recreation, and other human uses and are strictly controlled, with the exception of some mining and ranching activities that were in place prior to the initial land withdrawal.

Recreational activities on BLM-administered lands are generally divided into "quiet" and "non-quiet" categories. Quiet recreation would include those activities not involving significant use of motorized equipment other than transportation to and from the recreation site (e.g., hiking, camping, hunting, or wildlife viewing). Non-quiet recreation would include those activities that primarily involve the use of motorized equipment (e.g., boating, OHV riding, or snowmobiling).

Appendix G, Socioeconomics, outlines the most popular recreational uses of BLM-administered lands. On all of the BLM-administered lands in the United States, quiet recreation users spent approximately $1.8 billion within 50 miles of recreation sites in 2014, resulting in overall economic contributions of $800 million in personal income, $1.5 billion in value added, economic output of over $2.8 billion, and approximately 25,000 jobs.

In 2014, there were 7,219,759 total visits to BLM-administered areas in Nevada, 3,909,908 of which were considered quiet recreation visits. The total visits resulted in 5,188,722 visitor days, 2,724,866 of which were spent in quiet recreation activities. Direct spending within 50 miles of BLM recreation sites in Nevada in 2014 was estimated at $168.8 million. Overall economic contribution from quiet recreation visits on BLM-administered lands in Nevada included $58.8 million in labor income, $106.2 million in value added, $171.5 million in output, and the addition of 1,611 jobs[3] (ECONorthwest, 2016).

[3] **Labor income**, equivalent to employee compensation, is a subset of output, and includes workers' wages and salary, benefits (health, disability, and life insurance, retirement payments, and non-cash payments. **Value added** is output minus intermediate consumption and is a measure of the contribution to gross domestic product made by and individual producer, industry, or sector. **Output** is the value of goods and services produced; the

…continued on the next page

Identified recreational activities on BLM-administered lands adjacent to the NTTR include motorcycle and OHV riding, horseback riding and backpack trips, mountain bicycling, camping, driving for pleasure, hiking, hunting, photography, rock climbing, rock collecting, nature study, wildlife/wild horse/burro viewing, picnicking, cross country skiing, snowmobiling, and four-wheel driving.

Mountain biking activities continue to be developed north and west of Beatty, Nevada, which lies to the southwest of the NTTR. Figure G-4, Land Impacts on Bike Trails from Alternative 3A, in Appendix G, Socioeconomics, displays some of the existing (shown as green lines) and proposed trails (red lines). A non-profit corporation, Saving Toads thru Off-Road Racing, Ranching and Mining in Oasis Valley (STORM-OV) was formed to create 300 to 500 miles of off-road, multi-use trails for mountain biking, hiking, running, and horseback riding. Its plans are for the trails to eventually link Beatty to Death Valley, Rhyolite, and other regional trails. The trails would run through federal lands and private lands whose owners are willing to grant permission for its use for the trails. According to the Regional Director of the International Mountain Biking Association, the trails could bring $25 million to $42 million to the Beatty area (Pahrump Valley Times, 2015).

Portions of some NDOW Boundary Hunt Units are located within the NTTR; hunters are allowed in these areas only after complying with NTTR safety and security requirements, including a background check and a hunter safety briefing (NDOW, 2016a). Big game animal species hunted in Nevada include antelope, bear, bighorn sheep (desert Rocky Mountain and California), mule deer, pronghorn antelope, mountain goats, and elk. In the Wildlife Boundary Units that are adjacent to (and cross into) the NTTR, only pronghorn Antelope, mule deer, and desert bighorn sheep hunting is allowed (NDOW, 2016b).

On the portions of the DNWR managed only by the USFWS, non-wildlife-dependent recreational opportunities include primitive camping, picnicking, backpacking, and hiking. Wildlife-dependent recreational opportunities include wildlife watching, photography, and hunting (USFWS, 2009).

The *USFWS National Survey of Fishing, Hunting, and Wildlife-Associated Recreation for Nevada* indicates that approximately 734,000 Nevada residents and non-residents over the age of 16 fished, hunted, or watched wildlife in 2011, resulting in an overall spending of $1.2 billion. Of this total, expenditures related to trips were $284 million, equipment expenditures were $512 million, and $387 million were spent on licenses, contributions, and land ownership and leasing. Anglers spent $139 million in Nevada in 2011, hunters spent $205 million, and wildlife watchers spent $682 million (USFWS, 2013).

broadest measure of economic activity. **Jobs** are measured in terms of full-year equivalents and equals 12 months of work in a given industry (ECONorthwest, 2016).

Grazing

In 2014, the cattle and calf production in Nevada was valued at $298 million (Nevada Department of Agriculture, 2016). BLM estimated that the socioeconomic impact of grazing in Nevada from the management of its public lands amounted to $127.5 million in 2014 (BLM, 2015).

Energy Corridor

Complying with Section 368(a) of the *Energy Policy Act of 2005*, the DOE, DOI, and the USFS identified energy corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities. In 2009, BLM and the USFS designated 600 miles of Section 368 corridors on federal lands. As a result of a lawsuit, a Corridor Study was completed. An interagency MOU was then reached to explain how the agencies will review the Section 368 energy corridors on a regional basis to assess the need for corridor revisions, deletions, or additions.

A Corridor Study was conducted to evaluate whether the Section 368 energy corridors are achieving their purpose to promote environmentally responsible corridor-siting decisions and reduce the proliferation of dispersed right-of-ways crossing federal lands. In May 2016, the Section 368 Energy Corridor Study was completed, which establishes baseline data and identifies considerations and areas that should be explored in more detail during future Regional Reviews to be conducted by the BLM and USFS.

The Section 368 energy corridors are divided into six Regional Reviews. Region 1 includes Section 368 energy corridors within the BLM Southern Nevada District (such as energy Corridor 223-224), and Region 5 includes Section 368 energy corridors within the Battle Mountain District (such as energy Corridor 18-224). The purpose of the Regional Reviews is to examine new relevant information and stakeholder input on the Section 368 energy corridors, including corridors of concern, and, based on this information, identify potential revisions, deletions, or additions to the corridors and identify possible changes to the Section 368 energy corridor Interagency Operating Procedures. Any potential revisions, deletions, and additions to the energy corridors identified through the Regional Reviews will be considered by the BLM and USFS during subsequent land-use planning and environmental review processes. In 2017, Region 1 Review was completed and a report is being finalized based on stakeholder/industry input for consideration by the BLM and USFS during land use planning amendment/revision processes. The Region 1 Review report is targeted for completion by autumn of 2018.

The BLM Southern Nevada District energy Corridor 18-224 does not lie within the existing NTTR withdrawal area, but it would transect proposed expansion areas associated with Alternative 3A and 3A-1.

Energy corridor 18-224 will be evaluated in the Region 5 Review energy Corridor 223-224 lies within the southern portion of the proposed NTTR expansion area within Alternative 3B (Range 64C/D-65D). The BLM Southern Nevada District is currently processing a land use plan revision.

3.6.1.4 Land Use and Ownership

Public scoping comments identified recreational concerns as a major issue; therefore, recreation is a focus for land use and is discussed above in Section 3.6.1.3 (Economics). Federal entitlement lands include lands within the National Forests and National Parks systems, lands managed by BLM, those affected by the USACE and the Bureau of Reclamation, and other federal lands. Federal land ownership in Clark, Lincoln, and Nye Counties total approximately 23.6 million acres (see Appendix G, Socioeconomics, Table G-4, Land Ownership Clark County, Lincoln County, Nye County, and Nevada 2012).

3.6.1.5 Population

Clark County is the largest county in Nevada. Several major cities are within the county including Las Vegas, North Las Vegas, Henderson, Boulder City, and Mesquite. The total population in Clark County is estimated at 2,114,801 (USCB, 2016). The county has experienced an annual growth rate of 2.9 percent since the 2000 census. Las Vegas, the most populous city in the county and the state of Nevada, is the county seat. The total population in Las Vegas is estimated at 623,747 (USCB, 2016).

The population in Lincoln County is currently estimated at 5,036 (USCB, 2016). The county has experienced an annual growth rate of 1.3 percent since the 2000 census; however, the population has declined by 4.1 percent since 2010 according to population estimates. The county seat of Lincoln County is Pioche. Pioche is an unincorporated community and census-designated place with a recent population estimate of 909 (USCB, 2014a).

The most recent population estimate for Nye County is 47,319 (Nye County Planning Department, 2015). There are no incorporated areas in Nye County; however, there are four census-designated places including Beatty, Gabbs, Pahrump, and Tonopah, the county seat. The largest census-designated place in the county in terms of population is Pahrump with a recent population estimate of 39,312. The total population in Nye County has experienced an annual growth rate of 2.5 percent since 2000 (see Appendix G, Socioeconomics, Table G-5, Population in the ROI).

Approximately 36,669 people residing in the area are associated with Nellis AFB, Creech AFB, and the NTTR which includes 9,103 active-duty military and 23,398 dependents. In addition, there are approximately 28,375 military retirees among the residents in the Las Vegas metropolitan area (Nellis AFB, 2015).

3.6.1.6 Housing

There are almost 876,000 housing units throughout the three-county ROI, with the majority (over 97 percent) of homes in Clark County. High costs for land and limited availability in the Las Vegas Valley often result in developers looking outside of Clark County and provide a basis for growth in southern Lincoln County. While the recession

in 2008 caused housing prices to drop in the Las Vegas area, housing prices have recovered a good portion of their loss over the last several years, which has helped to improve housing demand in Lincoln County. Table G-6, Housing in the ROI, in Appendix G, Socioeconomics, presents census-derived housing data for Clark County, Lincoln County, and Nye County and the state of Nevada.

Approximately 84 percent of the total appropriated-fund military members associated with Nellis AFB, Creech AFB, and the NTTR live off-base (Nellis AFB, 2015).

3.6.1.7 Public Services and Facilities

Health Care

There are approximately 17 hospitals throughout the ROI including 14 in Clark County, 2 in Lincoln County, and 1 in Nye County. The majority of hospitals in Clark County are located in Las Vegas, while in Lincoln County the two hospitals are located in Caliente. The one hospital in Nye County, the Desert View Hospital, is located in the Town of Pahrump. The number of people per every one physician in Clark County, Lincoln County, and Nye County was 1,830, 2,620, and 2,350, respectively. All three counties in the ROI had a greater number of persons per physician than the state, which had a person-to-physician ratio of 1,750 to 1 (County Health Rankings, 2015).

Public Schools

Each county in the three-county ROI has one public school district. During the 2015-2016 school year, the Clark County School District had a total of 319,713 students enrolled throughout its 357 schools, with an average student-teacher ratio of approximately 22 students per teacher. During the same year, the Lincoln County School District had a total of 996 students enrolled throughout its nine schools with an average student-teacher ratio of 16.5 students per teacher. Nye County had a total of 5,071 students enrolled throughout its 22 schools. The student-to-teacher ratio in each county in the ROI is shown in Appendix G, Socioeconomics, Table G-7, Public School District Information for the ROI, 2015-2016.

Law Enforcement

Several law enforcement agencies exist throughout the ROI, including the Clark County Sheriff's Department, the Las-Vegas Metropolitan Police Department, the Lincoln County Sheriff's Department, and the Nye County Sheriff's Department. According to the most recent U.S. Department of Justice Census of State and Local Law Enforcement Agencies, there were 10,097 personnel and 6,643 sworn officers throughout the 76 state and local law enforcement agencies in the state of Nevada (see Appendix G, Socioeconomics, Table G-8, Law Enforcement in the ROI, 2008). The state had a higher number of state and local law enforcement agency employees per 100,000 residents compared to the national average. The Las Vegas Metropolitan Police ranked 18th in the 50 largest state and local law enforcement agencies by number of full-time sworn personnel. The Las Vegas Metropolitan Police had 2,942 full-

time sworn personnel for an average of 216 per 100,000 residents (Bureau of Justice Statistics, 2011).

Fire Protection

There are approximately 59 fire stations with 729 full-time employee firefighters, 325 volunteer fire fighters, and 59 support staff throughout the ROI. The Clark County Fire Department is the largest fire department in Nevada, providing fire protection and emergency medical services to the unincorporated areas of Clark County. There are fire departments located in Las Vegas, Boulder City, North Las Vegas, Henderson, and Mesquite, which serve the cities they are located in. There are five fire departments in Lincoln County including one in Caliente, Alamo, Panaca, and two in Pioche. There are 12 fire stations throughout Nye County. The Nevada Test Site Fire Department is the only career-type fire department in the county with three stations, 59 career firefighters, and 4 support personnel (Fire Department.net, 2016). (See Appendix G, Socioeconomics, Table G-9, Fire Protection in the ROI.)

3.6.1.8 Public Finance

An important source of funding to counties that have a large proportion of their land managed by the federal government is the Payment in Lieu of Taxes (i.e., PILT) funding allocated to the counties by Congress. The PILT program began in 1976 following the enactment of P.L. 94-565. Federal PILT payments were designed to supplement other federal land receipt sharing payments and are made to local government units who are allowed to spend it for any governmental purpose. The DOI's Office of the Secretary has administrative authority over the PILT program. There are three sections in P.L. 94-565 that prescribe the distribution of money to the states: Section 6902, Section 6904, and Section 6905.

The PILT payment amount is based on the number of acres of federal land within the county, the population of the county, and the Congressionally allocated funding for payments to the local government and for the administration of the program under Section 6902 of the *Payments in Lieu of Taxes Act*.

The PILT payment is important to the counties, particularly those with only a relatively small population and a high proportion of federal land for which no property taxes are paid. The funds are used to provide important community services by the local governments such as fire and police protection, hospital and public school facilities, road construction, and search and rescue operations.

Section 6902 payments are calculated using one of two formulas based on "entitlement lands" within the respective county. Entitlement lands refer to lands owned by the United States Government and include lands in the National Park System, the National Forest System, lands administered by the BLM, or lands involved in Government water resource development projects. Other lands included are: semi-active Army installations used for non-industrial purposes, dredge disposal areas under the jurisdiction of the Secretary of the Army, National Wildlife Reserve areas withdrawn from the public

domain, and some lands donated to the United States Government by state and local governments.

Formula A multiplies a legislatively established value per acre by the entitlement land acreage in the county and then subtracts the payment made last year (University of Nevada, 1995). A University of Nevada (1995) report clarifies that: "only the amount of Federal land payments actually received by units of government in the prior fiscal year are deducted. If a unit of government receives a Federal land payment, but is required by State law to pass all or part of this payment to financially and politically independent school districts, or other single or special purpose district, such redistributed payments are considered to have not been received by the unit of local government and are not deducted from the in-lieu payment. The amounts to be deducted are reported to the Bureau of Land Management each year by the Governor of each State or his delegate."

The formula value is restricted by a population payment ceiling figured by multiplying the county's population by the appropriate figure. Populations are based on the most recent census figures. A government may not be credited with a population greater than 50,000 and populations between 5,000 and 50,000 are rounded to the nearest 1,000.

If the calculated value established by Congressional funding multiplied by the number of entitlement acres exceeds the ceiling, the ceiling value minus last year's payment is the result of Formula A. Formula B is much simpler and is figured by taking an established legislatively established value and multiplying it by the number of entitlement acres. As with Formula A, the population payment ceiling is binding.

Section 6902 payments are computed using one of two computation methodologies. For 2016, the legislative established value is $2.64 per acre of federal land (DOI, 2016). Therefore, each of the counties using Formula A multiplies the number of qualified acres by $2.64, then subtracts the amount of funds received by the county[4] in the prior fiscal year under certain federal programs. The second computation methodology (Formula B) uses a flat $0.37 per acre of qualified federal land in the county.

The number of acres of entitlement land and the amount of payment in 2016 for Clark, Lincoln, and Nye Counties are presented in Appendix G, Socioeconomics, Table G-10, Payments in Lieu of Taxes to Clark, Lincoln, and Nye Counties, 2016. It should be noted that the maximum payment made to each county is limited based on the population in the county. The payment is prorated depending on the amount of appropriated funding for the year. The Unit Population is used to determine the population funding limit.

3.6.2 Environmental Consequences

The Air Force realizes that it is challenging to determine significance at the programmatic level. If the areas associated with the Proposed Action and alternatives

[4] If a unit of government is required by law to pass part of this payment to financially and politically independent districts, such redistributed payments are not deducted from the in-lieu payment (University of Nevada, 1995).

are withdrawn for military use, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made. However, at a programmatic level, the Air Force has determined that there would be minimal to less than significant impacts connected with the Proposed Action and alternatives related to socioeconomics.

3.6.2.1 Analysis Methodology

The primary goal of the Economic Impact Analysis is to place an economic value on the Proposed Action. A commonly-used technique for conducting Economic Impact Analysis is through the application of input-output (I-O) models. I-O models track the flow of income through the economy to measure the impacts on different industries. The I-O model estimates the change in expenditures and in employment that result from a proposed change in economic activity (such as not extending the NTTR land withdrawal) and then applies the changes in employment and expenditures to estimate total changes for each industry.

The Nellis AFB Economic Impact Analysis model takes into effect that purchases from one industry may result in that industry purchasing services, parts, or other inputs from a different industry. In estimating these ripple effects from the change in NTTR activities on the region, the I-O models incorporate multipliers that reflect the total economic impact changes resulting from the change in the direct purchases and expenditures from the changes in activities at NTTR. The multipliers used in the Economic Impact Analysis model determine the amount that each industrial category spends within each industrial category. This relationship between all industries is referred to as an I-O table, which can then be applied to estimate the impacts on other industries when expenditures have changed within the regional economy.

The three types of economic impacts from changes in the utilization of the NTTR can be summarized as:

- **Direct Impacts**. The economic changes in the impacted industry, i.e., the employment, income (payroll) paid and economic output related to the changes in the use of the NTTR and proposed expansion areas.
- **Indirect Impacts**. The changes in the local business sector as a result of the changes in demand from the directly affected industry. In this case, indirect impacts relate to the employment, income, and economic output related to the purchases of goods and services by the activities related to the NTTR and adjacent lands.
- **Induced Impacts**. Changes in employment, income, and economic output related to the changes in spending of the incomes earned through the direct and indirect expenditures.

The Economic Impact Analysis for Nellis AFB, Creech AFB, and the NTTR estimates the total impact from its current operations by establishing a baseline that represents the proposed Status Quo alternative (Alternative 1). Using the Status Quo as the baseline allows a comparison of the impact from the changes in economic activity that would potentially result from the proposed action alternatives and the No Action Alternative.

3.6.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of NTTR (North and South Range) – Status Quo

The economic impact of the Nellis AFB, Creech AFB, and NTTR activities is the sum of the total payroll plus the annual base expenditures and the estimated value of the jobs created as a result of the expenditures by the installations as well as those of the military members and civilian employees directly and indirectly employed. Clark County receives the majority of economic impact from NTTR activities, while Lincoln and Nye Counties receive a substantially lesser amount.

For 2015 the total economic impact of the Nellis AFB, Creech AFB, and NTTR activities is estimated at $5.549 billion (see Appendix G, Socioeconomics, Table G-11, Nellis AFB, Creech AFB, and NTTR Total Economic Impact (Baseline), Fiscal Year 2015). For comparison, the Total Gross Regional Product for Nevada, which is the total value of all goods and services produced in Nevada, is $134.5 billion. The Nellis AFB Economic Impact Assessment model estimates that the number of indirect and induced jobs is 5,783 for 2015 with a total indirect/induced payroll of $242.6 million (Nellis AFB, 2015) (see Appendix G, Socioeconomics, Table G-12, Annual Indirect/Induced Jobs and Pay, Fiscal Year 2015).

Continuing the current land withdrawal and training activities (i.e., Alternative 1) would have no further impact on the region than the baseline economic impact because payrolls and expenditures would be expected to continue at typical levels though they may change as new technologies, aircraft, and military strategies are introduced.

3.6.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

Alternative 2 would extend the current land withdrawal and require Congressionally directed changes in land management to provide the Air Force with ready access in the South Range so the Air Force would have the lead role in management of withdrawn lands, which gives the Air Force greater flexibility to meet current and future NTTR mission requirements. The intent of the action under this alternative is to provide equal capabilities for training and testing in the North Range and South Range, relieving scheduling challenges and increasing throughput. Alternative 2's economic impacts would likely include increased expenditures associated with the increased use of the NTTR but primarily in Clark County.

If Alternative 2 is chosen, it is anticipated that there would be a 30 percent increase in aircraft operations; a significant portion would be associated with TDY activities related to Red Flag exercises. The annual cost of lodging and per diem for TDY personnel ranged from a low of $118.9 million to a high of $332.0 million over the period from 2009 to 2015. Assuming TDY activities would increase by 30 percent over the median of 2009–2015, which is $225 million, the estimated economic increase would be $67 million, predominantly in Clark County.

3.6.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

Under Alternative 3A or 3A-1, the EC South area would be re-designated as "Range 77" to allow full air-to-ground operations. Alternative 3A or 3A-1 would be used to add buffer to the safety footprint of Range 77 – EC South. There would be no construction disturbance (except for fencing installation) or munitions use in this area. It would only serve as a safety buffer for live weapons deployment on the interior of Range 77. The current agricultural activities such as grazing that may be taking place on those lands would likely be eliminated or available to the public on a limited basis or through specific agreements.

Alternative 3B would withdraw areas designated as 64C/D and 65D and the Administrative Incorporation area. Withdrawing these areas would support the NTTR with operational security and safety buffers. These areas must be controlled for safety purposes and would not be used for target impact areas.

For Alternative 3C, the proposed land withdrawal would provide the opportunity to alter the configuration of the training missions on the South Range. The current recreational uses of the land that may be taking place on those lands would likely be eliminated or available to the public on a limited basis or through specific agreements. Additional expenditures from the new training configurations potentially could offset some of the resulting economic losses as well as the 30 percent increase in aircraft operations associated with Alternative 3 as was discussed in Section 2.3.3 (Alternative 3).

The land withdrawal under Alternatives 3A, 3A-1, 3B, and 3C (a total of 301,507 acres) would include about 227,027 acres currently managed by the USFWS as part of the DNWR and more than 35,361 acres managed by BLM, some of which is grazing land.

Impacts on Payment in Lieu of Taxes

The withdrawal of the additional acreage may have a potential impact on the PILT for each county. This is particularly case with Nye County since all of Alternative 3A (and Alternative 3A-1) is located in Nye County. Nye County's total PILT for 2016 (Appendix G, Socioeconomics, Table G-10, Payments in Lieu of Taxes to Clark, Lincoln, and Nye Counties, 2016) provides revenue of $3,108,497 based on 8,546,257 acres (a value of about $0.36 per acre was funded in 2016). The withdrawal of the additional land from Nye County under Alternative 3A and Alternative 3B (estimated at about 28,000 acres) may reduce its annual PILT allocation by about $10,000, which amounts to about 0.3 percent of the county's total allocation for 2016. Alternative 3A accounts for $6,400, while the remaining $3,600 is associated with Alternative 3B. No acres in Nye County are affected by Alternative 3C, and so no PILT reduction would occur for that subalternative. Since less land area would be withdrawn (2,592 acres) under Alternative 3A-1, the estimated reduction in PILT would be $933.12 when compared to Alternative 3A. Therefore, impacts to PILT allocation would be less for Nye County with Alternative 3A-1. The impact for Alternative 3A-1 would be approximately $5,500.

The allocations to both Clark and Lincoln County are currently based on population limitation such that the reduction in federal entitlement acres should not have a significant impact, if any, on their PILT allocation regardless of any subalternative.

Impacts on Recreational Activities

Recreational activities in the area include OHV riding, camping, hunting, viewing wildlife, hiking, and mountain biking. Some access points to wildlife areas, such as trails or parts of trails, may be closed as a result of the proposed expansion of the NTTR. The impact on the local economy would depend on the availability of alternative trails of similar categories or alternative access points to trails that are cut off by the expansions.

A value of $8.77 per acre was extrapolated using BLM's estimated economic impact of recreation activities on BLM lands throughout Nevada (roughly 47.5 million acres), valued at $416.6 million for 2014 (BLM, 2015). This factor was used to evaluate the impact to BLM lands. Because there are no formal procedures to identify the number of guests that visit the DNWR or to quantify the amount of revenue generated by the use of these particular federal lands for recreational use, the BLM factor was applied to USFWS lands already available to public access.

Biking Trails

Mountain biking trails are being developed in the Beatty, Nevada, area. The NTTR expansion proposed under Alternative 3A would impact 4.88 miles of existing bike trails on the western side of the NTTR near Beatty (Appendix G, Socioeconomics, Table G-12, Annual Indirect/Induced Jobs and Pay, Fiscal Year 2015) without impacting the rest of the trails in the immediate area.

Bike trails have been developed on the Spicer Ranch and connect with trails to the east on BLM land in the Transvaal region. Biking events are held on the ranch. Current trail

use estimates are at about 100 or more user days during the months of September to June. A proposal to expand the bike trails in the Beatty area would incorporate some 36 miles of existing roads, 23 miles of existing trails for horseback riding and biking, and 32 miles of new single tract trails for biking and other activities. The new routes would not be impacted by the proposed expansion under Alternative 3A. While existing bike trails would not be impacted under Alternative 3A-1, one of the new proposed bike trails would be impacted by the proposed expansion for Alternative 3A-1.

Hiking Trails

There are approximately 26,000 acres of BLM lands that are included in Alternative 3B that could be used for hiking and recreational activities. Using the factor of $8.77 per acre described previously, the impact to BLM lands would be $228,020.

The DNWR has a number of trails on its eastern portion that is currently outside of the NTTR. Alternative 3C proposes to extend the NTTR boundary by about 227,000 acres along its eastern border, which potentially blocks access to several hiking trails. The extension would close portions of Alamo Road and block access to Dunes North and South hiking trails (see Appendix G, Socioeconomics, Figure G-5, Land Impacts on Hiking Trails from Alternative 3C).

The economic impacts associated with reduced utilization of these hiking trails has been difficult to estimate since the USFWS does not maintain census information regarding the usage of the DNWR. Limited data is associated with the visitors' registration process at the Corn Creek Visitors' Center. Because data was not available specifically for the DNWR, a value of $8.77 per acre was extrapolated from BLM estimates and used to approximate the economic value for recreational use of acres that are associated with the proposed expansion under Alternative 3C. The estimated recreational-use economic impact based on these extrapolated estimates would be $1,990,780 for Alternative 3C (227,000 acres). The area of Alternative 3C associated with Lincoln County is 74,025 acres or approximately 33 percent of the total area of Alternative 3C, and thus the impact to Lincoln County would be $649,190. The acreage of Clark County associated with Alternative 3C is 152,975 acres or 67 percent of the total area of Alternative 3C, and the economic impact to Clark County would be $1,341,590.

Off-Road Racing

Off-road car and all terrain races, such as the "Best in The Desert" race between Las Vegas and Reno, the "Pahrump Nugget 250," and the Beatty VFW Poker Run are held each year in Nye county and are economic driver for the Beatty community. The Best in the Desert and the Pahrump Nugget 250 are competitive events while the Beatty VFW Poker Run is a non-competitive race. The competitive events have a considerable fan following with large sponsorships comparable to professional stock car events in the southeastern United States.

Previously published race routes for the Pahrump Nugget 250 appear to be sufficiently south of the NTTR such that the proposed land expansion associated with Alternative 3A or 3A-1 will not impact the race route. In 2016, the Best in the Desert race was approximately 650 miles long, starting from Alamo, Nevada, and finishing at Reno, Nevada. The race lasts about 10 to 12 hours, with visitors staying one to two days. Total related spending is estimated between $714,000 to $2,142,000 over the entire race course with larger proportions being spent near the beginning and the end of the course.

Portions of the race routes such as the Best in The Desert's Vegas to Reno route are close to the NTTR boundary and may be impacted by the additional land withdrawal for Alternative 3A but not for Alternative 3A-1 (BLM, 2016j). The 2016 route would not have been impacted by any of the proposed Alternative 3 actions. In any event, the race routes may vary between years, so it is likely that the routes could be altered as needed to avoid the expansion areas or the Air Force might be able to adjust mission-related activities to accommodate these races. It is important to note that these races have been occurring for over 20 years in some cases and are an essential element of the local culture and economy of Beatty.

Impact on Grazing

The Alternative 3A proposed expansion area would overlap areas of grazing allotments (see Appendix G, Socioeconomics, Figure G-6, Rangeland Allotments Impacted by Alternative 3A) and reduce grazing in Nye County by about 17,000 acres. The Alternative 3A-1 proposed expansion area would overlap areas of grazing allotments and reduce grazing in Nye County by about 15,000 acres. The permit or lease holders are protected from loss of any improvement that they made to the grazing land. The FLPMA provides that whenever a permit or lease for grazing domestic livestock is cancelled in whole or in part, in order to devote the lands covered to another public purpose, including disposal, the permittee or leasee would receive reasonable compensation for the adjusted value for any improvements that were made to the land. The impact to the grazing activity would also depend on the grazing capacity of the withdrawn land.

The BLM Razorback grazing allotment, which would be impacted by Alternative 3A, consists of 266,329 acres and has an allotment of 1,926 animal unit months (AUM[5]). Currently, there are 386 AUM suspended. Assuming uniform forage production within the allotment and an 18,000-acre reduction in the allotment due to Alternative 3A (or a 15,000-acre reduction in the allotment due to Alternative 3A-1), the allotment capacity would be reduced by about 6 percent. With the total active AUM managed by BLM currently at 1,525,738 AUM, this loss of the grazing allotments would represent a potential reduction of economic impact of about $128,000 for the BLM managed lands for Alternative 3A or 3A-1. However, it should be noted that this would be an 83 percent

[5] The AUM provides sufficient forage for one cow and calf for a month.

reduction in available grazing area to the rancher leasing the AUM and would be a significant impact. The Air Force plans to work directly with the rancher to address this impact. In addition, to minimize potential conflicts between NTTR operations and population, housing, and economic activity in the region (to include grazing and mining), the Air Force would continue coordination between the military, other adjacent federal land management agencies as well as local and regional planning departments.

Impact on Section 368 Energy Corridor

Energy Corridor 18-224 would be impacted by both Alternatives 3A and 3A-1 in the northern land area. This may be mitigated through coordination with NTTR to gain access or by construction of the proposed boundary fence along the eastern boundary of energy Corridor 18-224 within the proposed safety buffer area.

Energy Corridor 223-224 lies within the southern portion of the proposed NTTR expansion area within Alternative 3B (Range 64C/D-65D). The BLM Southern Nevada District is currently processing a land use plan revision. Federally designated portions of this corridor are entirely on BLM-administered land, with a 3,500-foot width for the majority of the corridor and a reduced 2,000-foot width between the NTTR and Red Rock Canyon National Conservation Area. The corridor is designated as a multi-modal corridor that can accommodate both electrical transmission and pipeline projects. Existing rights-of-way include a federal-aid highway (U.S. Route 95), power transmission lines, and fiber optic and communication lines.

Although there is no overlap, a 400-foot-wide Renewable Energy Transmission Corridor (RETC) is adjacent to and south of the proposed expansion area (Alternative 3B). The RETC was established pursuant to Section 3092(a)(4) of the *National Defense Authorization Act for Fiscal Year 2015* (P.L. 113-291). The RETC is for the construction and maintenance of high-voltage transmission facilities. Also adjacent to and south of Alternative 3B is a locally designated transportation and utility corridor labeled US95-Crater Flat that was designated pursuant to Section 503 of the FLPMA through the 1998 Las Vegas Resource Management Plan. Utility Corridor US95-Crater Flat ranges up to 2,640 feet wide, extending parallel east-west, south of U.S. Route 95 and Section 368 energy Corridors 223-224 and 18-224; the utility corridor then crosses U.S. Route 95 north along the east side of energy Corridor 18-224, ending at the BLM field office boundaries of Pahrump and Tonopah near the town of Beatty in Nye County, Nevada.

In September 2016, during the Section 368 Energy Corridor Region 1 Review, stakeholder and industry input indicated that energy Corridor 223-224 was a jurisdictional concern and recommended moving the corridor south of U.S. Route 95 (DOE, 2016a). Shifting of the energy corridor out of the impacted area may be possible, but would have to be assessed for its environmental aspects at that time. BLM is in the process of revising their resource management plan, at which time energy corridor revisions would be considered. Any modifications to the legislatively designated RETC may only occur by Congressional action.

3.6.2.5 Alternative 4 – Establish the Period of Withdrawal

Alternative 4 establishes the period of withdrawal. This alternative will be paired with one or more of the other alternatives. Alternatives 4A, 4B, and 4C propose a 20-year, 50-year, and an indefinite withdrawal period, respectively.

With each alternative, there is the assumption that economic indicators would increase at the national average of 2.2 percent annually, which has been the national average based on the last 17 years.

3.6.2.6 No Action Alternative

With the land withdrawal not extended, prohibitions placed in effect under the public law would expire. Appropriative land uses such as mining, mineral leasing, and livestock grazing could potentially be reintroduced after the Secretary of Interior opens the land to such uses. Facilities on the NTTR may need to be removed and Creech AFB closed. Decontamination of the land where it is practicable and economically feasible would be undertaken if funded by Congress. Detailed evaluations and characterization are not included in this analysis since the full scope of the No Action Alternative would be determined in coordination with the Secretary of the Interior. Further NEPA analyses would be conducted, as appropriate, at that time.

The No Action Alternative would result in the removal of Air Force and DOE/NNSA activities from the NTTR. The initial impact would be a $500.8 million reduction in economic impact including a $138 million reduction in payroll, a $340 million reduction in expenditures, and a $21 million reduction due to the loss of jobs (see Appendix G, Socioeconomics, Table G-14, Reduction in Economic Impact from Not Extending the NTTR Land Withdrawal, based on Fiscal Year 2015).

While there would be a reduction in the annual economic impact for the closing of the NTTR, the cost to return the NTTR to public use may be significant. The removal of all facilities and buildings from the NTTR and Creech AFB is estimated to cost $213 million. Secondly, the cost for full decontamination of the NTTR is estimated at about $2.5 billion. These actions would delay opening some of the NTTR land to public use by up to 18 years, particularly land where decontamination is necessary.

No alternative location has been identified for a training range of sufficient size, topography, and airspace access to meet the need for testing and training new generations of equipment and technologies. A range meeting the Air Force criteria would be costly if such land could be located and acquired. The replacement costs of facilities on the NTTR are estimated at $122 million and $1.1 billion at Creech AFB. A new range location may also require moving the aggressor squadrons and facilities from Nellis AFB to the new location.

If the land withdrawal is not extended and the control of the land is returned to its originating federal agency, the land may again become part of the entitlement acres considered in determining the PILT for Clark, Lincoln, and Nye Counties. The

1,808,244 acres in Nye County and 1,141,359 acres total in Clark and Lincoln Counties are managed by the Air Force in the NTTR. The acres in Nye County eligible for PILT payments would increase, at 2016 rates, an estimated $682,000 to the Nye County PILT payments. Clark and Lincoln County payments are estimated with population limitations and would not necessarily experience such direct impacts on the magnitude of their PILT payments.

3.6.3 Proposed Resource-Specific Mitigations and Management Actions

The identified resource-specific mitigations and/or management actions for socioeconomics that would be implemented include the following:

- Under all action alternatives, in order to minimize potential conflicts between NTTR operations and population, housing, and economic activity in the region (to include grazing and mining, OHV recreation, and dispersed recreation), the Air Force would continue coordination between the military and federal land management agencies as well as local and regional planning departments. (See Sections 3.6.2.3 and 3.6.2.4.)
- Under Alternatives 3A/3A-1 and 3B, impacts to the energy Corridor 18-224 may be mitigated through coordination with NTTR to gain access or by construction of the proposed boundary fence along the eastern boundary of energy Corridor 18-224 within the proposed safety buffer area.
- Under Alternatives 3A/3A-1 and 3B, if construction within the Section 368 energy corridor occurs, then the Interagency Operating Procedures from the Record of Decision for the *Final Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE, 2009) will be evaluated for potential implementation.

3.6.4 Native American Perspective on Socioeconomics

The CGTO knows the socio-economic conditions addressed in the NTTR LEIS are inadequate in revealing the true impact upon Native people. The LEIS does not provide a full understanding of the tribal values, which are different and unique for sustaining tribal lifeways. Consideration must be given to examining tribal impacts on employment, earnings, agriculture, mining, recreation, grazing and energy corridors. Tribes have influence on these conditions however, the measure of meaning may not always be monetarily driven.

The CGTO knows value or significance is based on tribal identity and their spiritual relation to places used for sustaining traditional lifeways. For example, tribes have the ability to use a natural area for ceremonial activities to sustain balance within the cultural landscape. The CGTO believes generations upon generations of tribal people have sustained a way of life that relies upon the natural resources provided by the Creator. Rather than depleting resources, tribal practices promote active conservation to return balance to our natural world. Tribes place high value on the health and pristine nature of the land and prefer the least intrusive approach to minimize environmental

change. We are the stewards who serve as the voices of the land, water, air and other living things. Thus, tribal governments are mindful of the importance of our own pursuit of economic development in culturally compatible ways that are in the best interest of the health and welfare of our people.

Native Americans prefer to live or use locations within our traditional homelands because of our special ties to the land and the unique relationship that can be severed or adversely impacted if a disconnection occurs. When Native Americans receive employment near their reservation, tribal people can reside on the reservation while commuting to work. This pattern of employment tends to have positive benefits for both the tribal communities and/or tribal enterprises like housing, health coverage and other tribal programming. The tribal community has increased participation from the individual and their financial contribution. The individual payment for tribal housing is tied to income level; when a person earns more from a job, rent is adjusted accordingly and revenues increase for housing programs; resulting in making tribally supported housing more economically sustainable and attractive for tribal governments.

Conversely, when employment opportunities decline on the reservation, Native American families must relocate from the tribal community to seek employment elsewhere. As tribal members move away, Native American culture is threatened because the number of families living on the reservation declines. Tribal members who move from their reservations impact reservation economies, schools, housing and emergency services. Both schools and tribal economies are impacted because federal funding for tribes is based on population statistics.

When local employment opportunities are offered through the Air Force for eligible tribal representatives to support land expansion activities, prices of tribal housing rise and tribal economies benefit, because of the increased revenue stream. If a positive balance occurs between increased income and increased cost of living in tribal communities is achieved, both the individual tribal member and their family including the tribe benefit from employment opportunities.

Tribal housing programs become jeopardized if vacancies occur in rental properties and dwellings remain unoccupied. If vacancies occur, tribal revenues diminish and federal funding is adversely impacted, making it more difficult to expand housing programs in future years.

Vacant units require more maintenance and security at tribal expense. If tribal members are unavailable to occupy a tribal housing unit, then tribes make units available to non-Indians, and potentially impact Native American culture. The increased presence of non-Indians on a reservation or within the tribal community reduces the privacy needed to conduct certain ceremonies and traditional practices. When non-Indian children are in constant interaction with tribal children, it creates a disruption in cultural continuity by minimizing cultural learning opportunities that occur in everyday life.

When Native Americans move away from the reservation several dilemmas occur. Typically, Native Americans experience a feeling of isolation from their tribe, culture, and family. When an Native American relocates to an off-reservation area, the individual

finds that there are fewer people of their tribe and culture to which they can connect. As a result, Native Americans must decide on the appropriateness of practicing traditional ceremonies in the presence of non-Indian people. Native Americans are continually torn between the decision to stay in the city or return to the reservation to participate in traditional ceremonies and interact with other tribal members. This dilemma occurs on a regular basis and potentially impacts the livelihood and cultural well-being of off-reservation employees and their families. When off-reservation individuals choose to return to their homelands to participate in traditional ceremonies or renew familial ties, they risk losing their jobs or being subjected to disciplinary actions against their children who attend public schools due to excessive absenteeism.

Under federal and tribal law, Native American children can be educated in tribally controlled and federally certified schools located on Indian reservations (also known as Indian Trust Land). Federal funds are available through Title VII Indian, Native Hawaiian and Alaskan Native Elementary and Secondary Education, which focuses on tribal communities with Indian special education and cultural needs for the Indian children. Compensation from the federal government is provided to any school district that has eligible students and has entered into a cooperative agreement with federally-recognized tribe(s), whether at a public, private, or an Indian-controlled school.

In addition to these potential impacts to housing and education, small rural Indian reservations must have a sufficient number of people to generate emergency management capability. The need for emergency services will decline as people move away from the reservation. Tribal members employed in these emergency services occupations may move away because of their marketable skills or that availability of increased income. Tribal revenues for administration, school, housing, and emergency services are reduced accordingly, due to a decline in eligible population.

Indian reservations within the CGTO region of influence are primarily located in remote areas with limited access by standard and substandard roads. Should an emergency situation occur resulting from NTTR related activities, including the transportation of munitions or hazardous materials, closure of the main or only transportation artery to our land could occur. If a major transportation corridor into a reservation closes, numerous adverse social and economic impacts could occur. For example, Indian students who have to travel an unusually high number of miles to or from school could suffer substantial delays. Delays also could occur for regular or essential deliveries of necessary supplies for inventories needed by medical services, tribal enterprises or personal use. The ability to deliver emergency medical services in route to or from the reservation, as well as purchases by patrons of tribal enterprises could be dramatically affected. Potential investors interested in expanding tribal enterprises and other ongoing considerations for future tribal enterprises, may significantly diminish because of the real and perceived risks related to access or the transportation of hazardous materials associated with NTTR related activities.

3.7 ENVIRONMENTAL JUSTICE

For the Native American perspective on information in this section, please see Section 3.7.4 and Appendix K, paragraph 3.7.1.1.1.

3.7.1 Affected Environment

3.7.1.1 Description of Resource

Environmental Justice is defined by the EPA and reported in the Air Force EIAP guidelines 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" (U.S. Air Force, 2014d). EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, is designed to ensure that disproportionately high and adverse human health or environmental effects on citizens in either of these categories are identified and addressed, as appropriate.

For purposes of this analysis, the terms "minority" and "low income" are defined below:

- *Minority*: Those individuals who have identified themselves as having one of the following origins: "Hispanic," "Asian-American," "Native Hawaiian and other Pacific Islander," "Black or African-American," "American Indian or Alaskan Native," or "Some Other Race" (which does not include "White," "Black or African-American," "American Indian or Alaska Native," "Asian," and "Native Hawaiian or Other Pacific Islander" race categories) (U.S. Air Force, 2014d).
- *Low-Income*: A family and each individual in the family is considered in poverty if the total family income is less than the family's threshold or the dollar amount calculated by the U.S. Census to determine poverty status.

Although children and elderly are not specifically included as environmental justice populations, they are identified as sensitive receptors in the most recent Air Force EIAP guidelines (2014d). Children are vulnerable to environmental exposure, and potential health and safety effects to children are considered in this LEIS under the guidelines established by EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. For purposes of this analysis, the term "children" refers to any person under 18 years of age. The EPA and the Air Force EIAP guidelines identify the importance of considering an elderly person as a sensitive receptor to potential environmental impacts. The term "elderly" refers to any person age 65 and older.

3.7.1.2 Region of Influence

Clark, Lincoln, and Nye Counties in Nevada and Washington County and Iron County in Utah represent the community of comparison (COC) for evaluating disproportionate effects on populations of concern for environmental justice since noise associated with activities on the NTTR extend into portions of these counties. These counties also represent the COC for children and elderly populations. Estimates of the populations were developed using the most recent census tract level data from the American Community Survey (ACS) five-year estimates (2010–2014) and are displayed in Table 3-34 and Table 3-35.

Table 3-34. Youth and Elderly Populations

Geographic Unit	Youth (Under 18 years)		Elderly (65 Years and Older)	
	Number	Percent	Number	Percent
Clark County, NV	487,714	24.3%	247,087	12.3%
Lincoln County, NV	1,399	26.5%	929	17.5%
Nye County, NV	8,232	19.2%	11,214	26.1%
Iron County, UT	13,916	29.8%	4,966	10.6%
Washington County, UT	42,378	29.2%	26,611	18.4%
Utah	888,945	31.1%	271671	9.5%
Nevada	661,100	23.9%	362,183	13.1%
United States	73,777,658	23.5%	43,177,961	13.7%

Source: (USCB, 2014a)

Table 3-35. Environmental Justice Populations

Geographic Unit	Total Population	Minority Populations										Low-Income Populations*	
		Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Two or More Races	Some other Race	Hispanic and Latino (of any race)	White alone, Not Hispanic or Latino	Total Minority	% Total Minority	Total Low-Income	% Low-Income
Clark County, NV	2,003,613	206,624	8,301	177,047	13,406	66,639	3,313	596,587	931,696	1,071,917	53.5	314,567	15.7
Lincoln County, NV	5,282	128	209	2	0	52	16	472	4,403	879	16.6	856	16.2
Nye County, NV	42,938	1,127	870	719	129	537	61	6,026	33,469	9,469	22.1	7,986	18.6
Iron County, UT	46,725	283	917	230	259	710	25	3,719	40,582	6,143	13.1	10,422	22.8
Washington County, UT	144,844	659	1,587	983	1,286	2,255	81	14,272	123,721	21,123	14.6	22,131	15.5
Nevada	2,761,584	220,503	24,304	203,924	16,552	84,950	4,110	752,049	1,455,192	1,306,392	47.3	430,807	15.6
Utah	2,858,111	28,719	28,134	59,852	25,754	51,766	4,531	379,454	2,279,901	578,210	20.2	358,682	12.8
United States	314,107,084	38,460,598	2,082,768	15,536,209	493,155	6,692,885	611,881	53,070,096	197,159,492	116,947,592	37.2	49,000,705	15.6

Sources: (USCB, 2014a; 2014b)
Note * = population for whom poverty status is determined, which may differ from the total population.

Five Native American settlements are in the three counties in Nevada: the Duckwater Indian Reservation, Ft. Mojave Indian Reservation, Las Vegas Indian Reservation, Las Vegas Indian Colony, and the Moapa River Indian Reservation. The Paiute Indian Tribe of Utah (PITU) consists of five bands, including Cedar Band, Indian Peaks Band, Kanosh Band, Koosharem Band, and the Shivwits Band. Combined, the five bands of the PITU have 918 tribal members (PITU, 2017). The Cedar Band and the Indian Peaks Band are located in Cedar City in Iron County and have 288 and 48 tribal members, respectively. The Shivwits Band of Paiutes is located in Washington County and has approximately 305 tribal members (PITU, 2017). The populations associated with these reservations are included in the county populations.

Under baseline conditions, six census tracts are exposed to 67 dB DNL (see Figure 3-13 and Figure 3-14). Approximately 12 to 22 of the population in an area exposed to 65 to 70 dB DNL is highly annoyed by noise (see Table 3-5) (U.S. Air Force, 2016a). An estimated 4,159 people live within the affected area. Table 3-36 presents the residential populations of concern for environmental justice within the affected area. Table 3-37 presents the children and elderly population data comparable to that provided for the environmental justice populations. Four schools are located within the 65- to 69-dBA or greater noise contours (see Figure 3-14). No Native American settlements are within the 65-dB DNL or greater noise thresholds associated with subsonic noise (see Figure 3-13).

Table 3-36. Environmental Justice Populations in the Baseline Affected Area (65–69 dB DNL)

State	Census Tract	Special Use Airspace (SUA)	Total Population in the Affected Area	Total Minority	Percent Minority	Total Low-Income	Percent Low-Income
Nevada	9501	Caliente	1,915	205	10.7%	300	15.7%
Nevada	9502	Caliente	422	79	18.7%	57	13.5%
Nevada	9502	Coyote	453	46	10.2%	65	14.3%
Nevada	9602	Coyote	128	16	12.5%	20	15.6%
Utah	1103	Caliente	787	89	11.3%	158	20.1%
Utah	2702	Caliente	277	18	6.5%	25	9.0%
Utah	2703	Caliente	177	45	25.4%	36	20.3%

dB = decibel; DNL = day-night average sound level; SUA = Special Use Airspace

Table 3-37. Youth and Elderly Populations in the Baseline Affected Area (65–69 dB DNL)

State	Census Tract	Special Use Airspace (SUA)	Total Population in the Affected Area	Total Youth	Percent Youth	Total Elderly	Percent Elderly
Nevada	9501	Caliente	1,915	431	22.5%	306	16.0%
Nevada	9502	Caliente	422	146	34.6%	75	17.8%
Nevada	9502	Coyote	453	186	41.1%	54	11.9%
Nevada	9602	Coyote	128	29	22.7%	21	16.4%
Utah	1103	Caliente	787	219	27.8%	93	11.8%
Utah	2702	Caliente	277	93	33.6%	40	14.4%
Utah	2703	Caliente	177	51	28.8%	37	20.9%

dB = decibel; DNL = day-night average sound level; SUA = Special Use Airspace

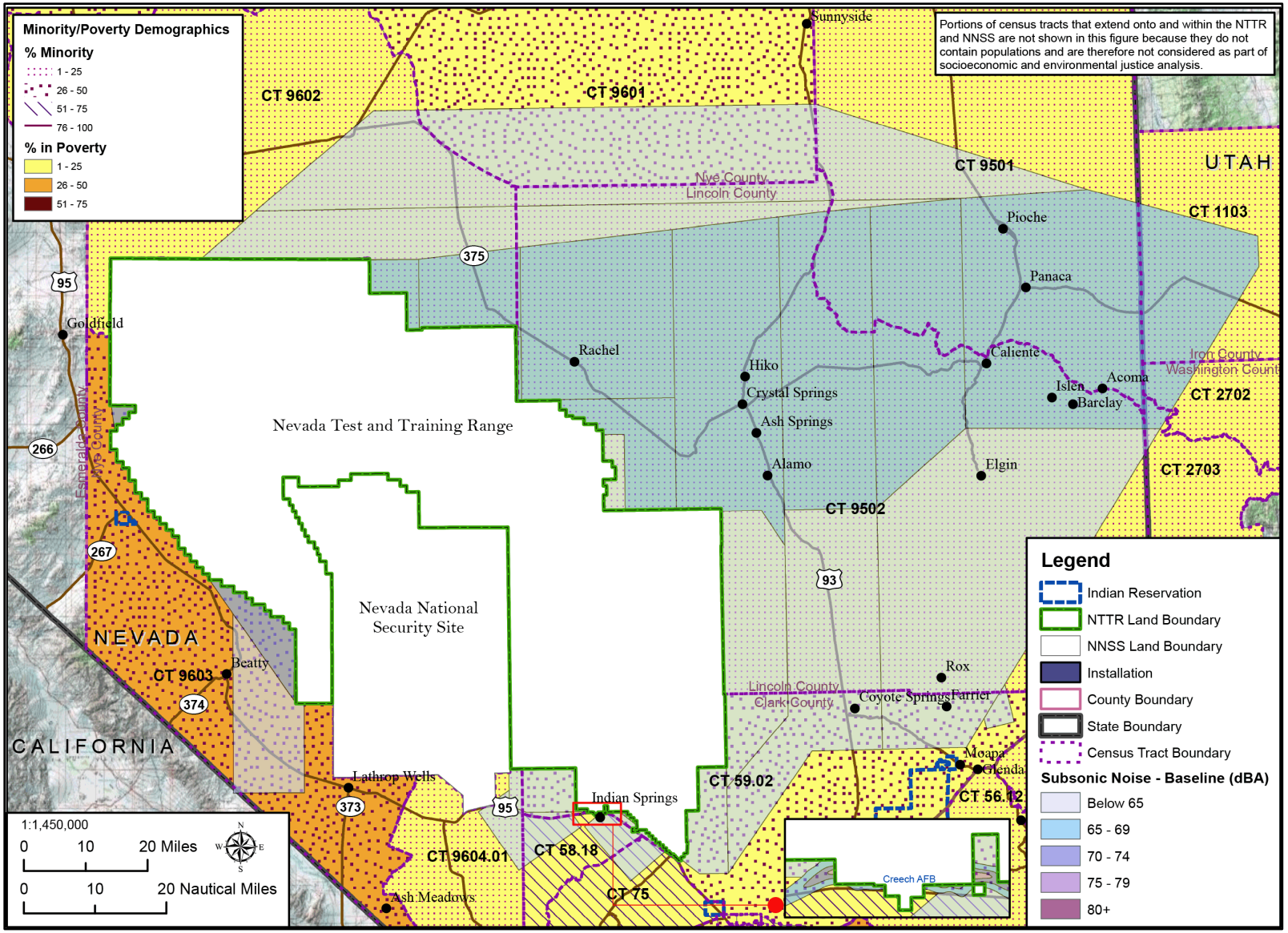

Figure 3-13. Environmental Justice Communities of Concern Exposed to Subsonic Noise

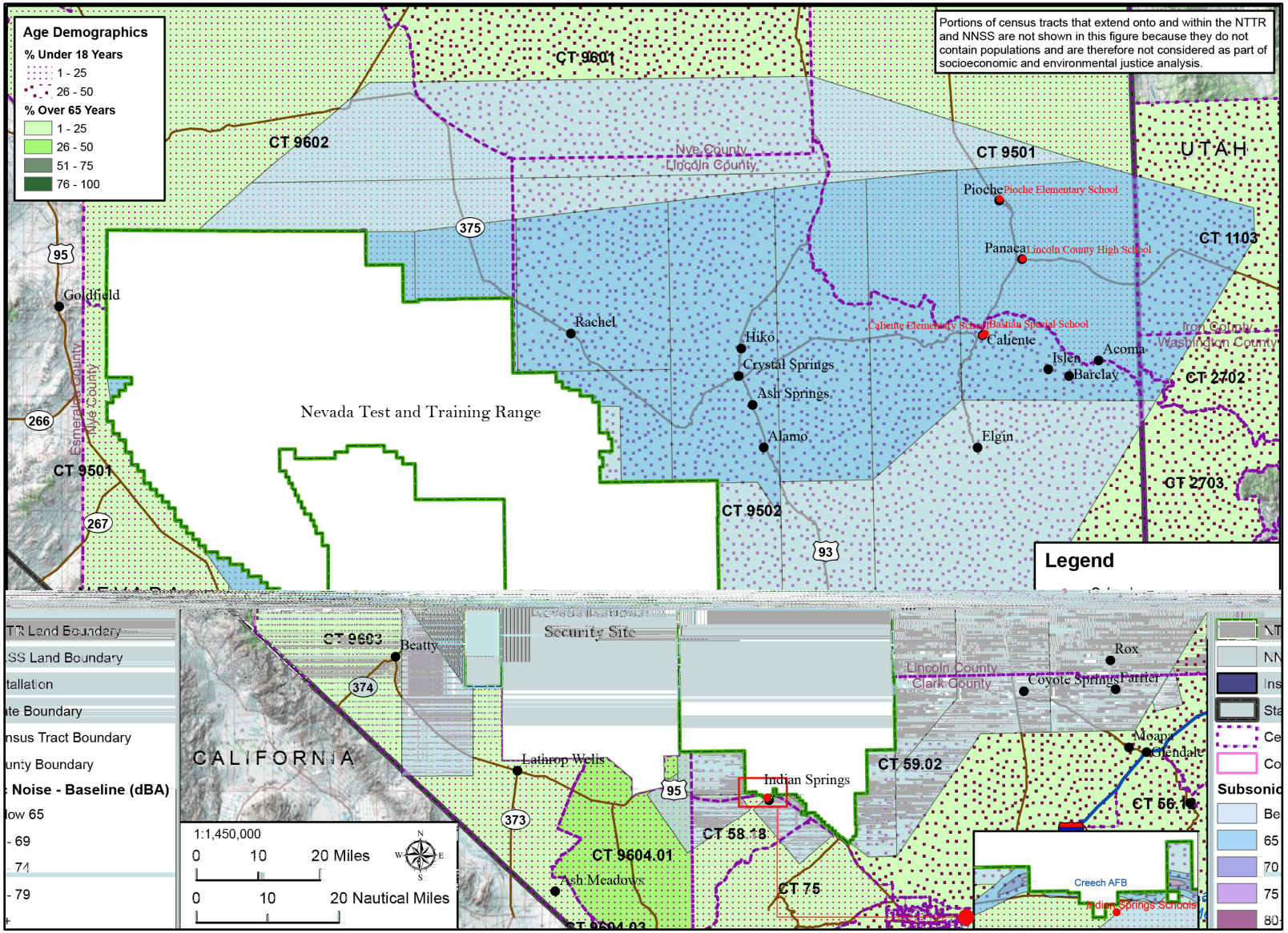

Figure 3-14. Youth and Elderly Populations Exposed to Subsonic Noise

Under baseline conditions, there are no census tracts outside of the NTTR boundary that are exposed to 62 CDNL or greater due to supersonic booms (see Section 3.2, Noise, Table 3-8, Summary of CDNL Values for SUA, and Figure 3-15 and Figure 3-16).

As shown in Figure 3-17 and Figure 3-18, only a portion of Census Tract 59.02 outside the NTTR boundary is exposed to 62 CDNL or greater. A review of satellite image reveals that there are no populations residing within the areas exposed to 62 CDNL or greater under baseline conditions. There are also no noise-sensitive locations such as schools, hospitals, or Indian Reservations within this area.

3.7.2 Environmental Consequences

This section discusses the potential impacts to environmental justice populations and youth and elderly populations under each alternative. For each alternative, any new or additional aircraft operations, munition uses, ground disturbance, or emitter placement proposed for the use on the existing NTTR boundary would require separate NEPA analysis to determine whether environmental justice populations would be disproportionately impacted and whether children or elderly are at a high and adverse risk. Future NEPA analysis would be focused on site-specific information and analysis would be more specific to a local population.

The tribal communities surrounding the NTTR in Clark, Nye, and Lincoln Counties were identified early in the LEIS process as an environmental justice community of concern. Tribal communities have a unique political and cultural perspective of environmental health impacts that might not be captured in a traditional analysis. In order to gain local tribal perspectives, the Native American tribes will be providing input on the LEIS with regard to the potential impacts to Native Americans and their communities associated with the Proposed Action and alternatives. The Air Force continues to engage with the tribal communities regarding the proposal and the LEIS (see Section 3.9, Cultural Resources).

The Air Force acknowledges that it is challenging to determine significance at the programmatic level. Should the areas associated with the Proposed Action or alternatives be withdrawn for military use, more detailed site-specific analysis of proposed future actions and alternatives will be conducted to determine the scope of any potential significant impacts and additional mitigations will be identified and developed at that time, if deemed necessary and feasible, before any decision to implement the action is made. Nonetheless, at a programmatic level, the Air Force has identified minimal to less than significant environmental justice impacts connected with the Proposed Action and alternatives overall.

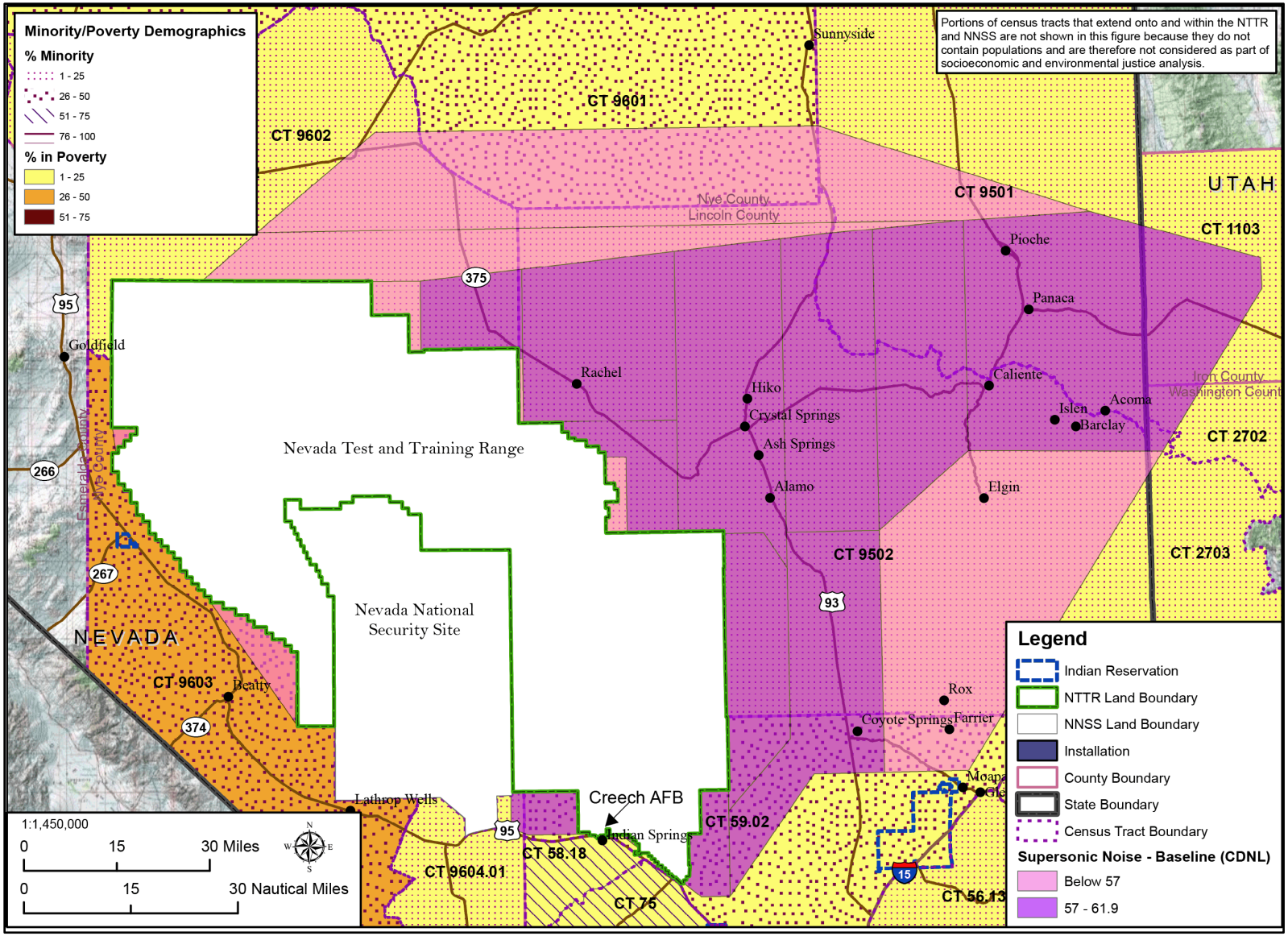

Figure 3-15. Environmental Justice Communities of Concern Exposed to Supersonic Boom Noise

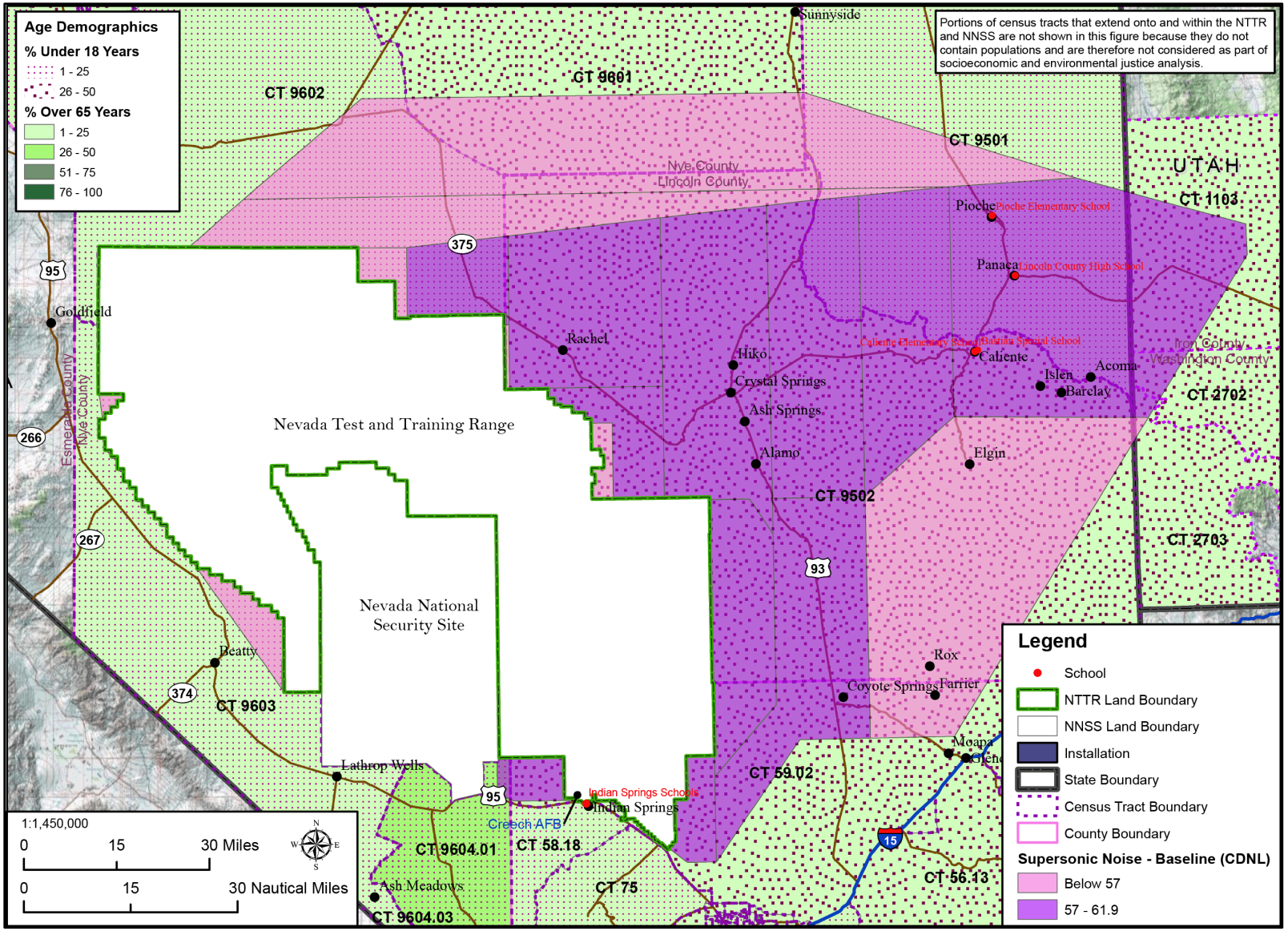

Figure 3-16. Youth and Elderly Populations Exposed to Supersonic Boom Noise

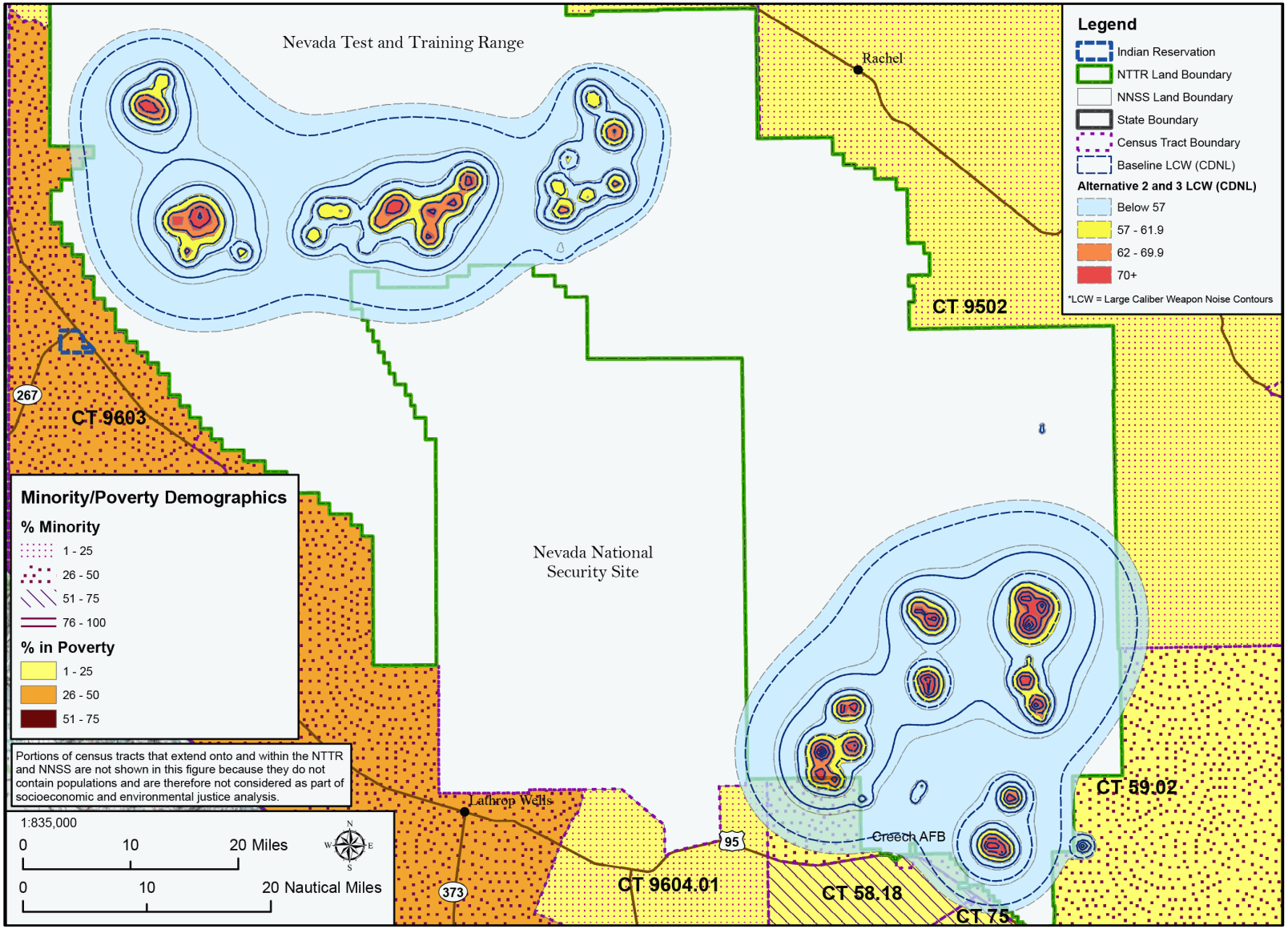

Figure 3-17. Environmental Justice Communities of Concern Exposed to Large-Caliber Weapon Noise

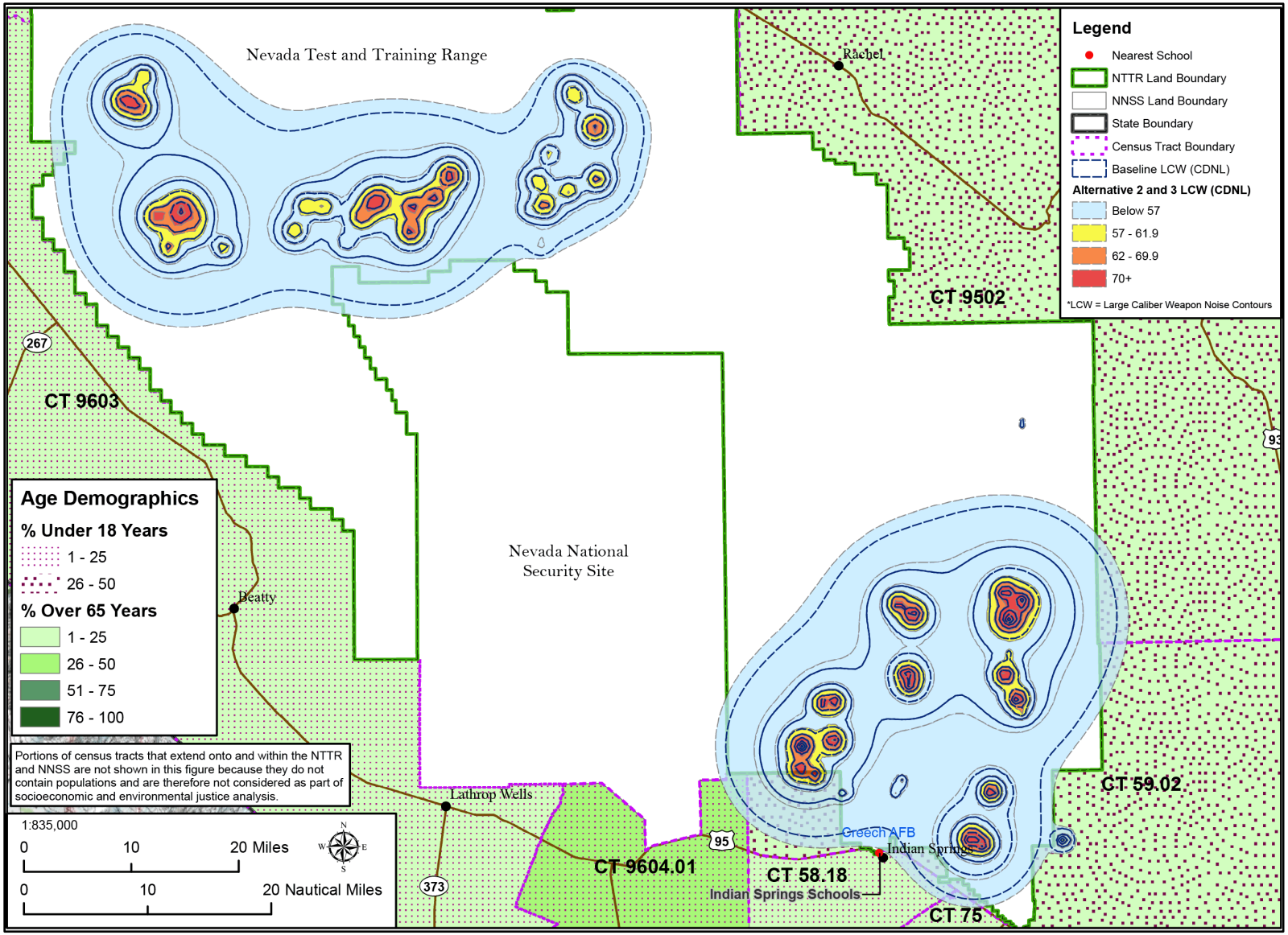

Figure 3-18. Youth and Elderly Populations Exposed to Large-Caliber Weapon Noise

3.7.2.1 Analysis Methodology

Analysis of environmental justice is conducted pursuant to EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, and follows the guidelines outlined in the Air Force EIAP (U.S. Air Force, 2014d). Environmental justice analysis of aircraft operations focuses on the minority and low-income populations in the affected area defined as those areas outside the NTTR boundary that are exposed to noise levels of 65 dB DNL or greater associated with subsonic aircraft noise and noise levels of 62 CDNL or greater associated with supersonic aircraft noise.

For munitions use, environmental justice analysis focuses on the minority and low-income populations in the affected area defined as those areas outside the NTTR boundary that are exposed to noise levels of 62 CDNL or greater. As stated in Section 3.2 (Noise), munitions-generated noise of 62 dB CDNL consists of sound at different frequencies and, in terms of human annoyance, is equivalent to aircraft noise at 65 dB DNL and is, therefore, used as the threshold for environmental justice analysis for supersonic and munitions use. These thresholds are based on suggested land use compatibility with residential land use (AFI 32-7063). For this analysis, calculated noise contours of these thresholds would be considered adverse and the affected area, or ROI, represents residential areas that experience annual average noise levels of 65 dB DNL or greater for subsonic aircraft noise and 62 CDNL or greater for supersonic aircraft noise and large-caliber weapons.

In accordance with Air Force EIAP guidelines, the COC in environmental justice analysis is the "smallest set of Census data encompassing the ROI for each resource and is used to establish appropriate threshold for comparison analysis" (U.S. Air Force, 2014d). For minority, low-income, youth, and elderly populations, the most recent ACS 2010–2014 data for census tracts was the data used to calculate the ROI, and the county data that encompasses the affected area is the COC. The affected area (or ROI) was calculated by using GIS to overlap the noise contours onto the census tract data. The proportion of the area covered in each census tract was then applied to the total population in the entire tract to determine the population within the affected area. The percentages for minority, low-income, youth, and elderly provided in the ACS 2010–2014 five-year estimate, were then applied to the population in the affected area for each census tract to determine the number of people in each census tract that would comprise those population categories.

The potential for disproportionate impacts to occur to minority or low-income populations was first assessed by determining the extent of these populations within the ROI. This is done by comparing the percent of each minority and low-income population in the respective ROI against the percent of each associated population in the respective COC. If the ROI percent is less than the COC percent (i.e., there are fewer minority or low-income populations within the ROI than the COC), then there would be no potential for disproportionate impacts. If, however, the ROI percent of these populations is greater than or equal to the respective COC percent there would be the potential for disproportionate effects that may require mitigation (U.S. Air Force, 2014d).

Analysis then focused on the distribution of known impacts within the ROI and the potential to disproportionately impact identified minority and/or low-income populations as compared to other populations within the ROI.

3.7.2.2 Alternative 1 – Extend Existing Land Withdrawal and Management of NTTR (North and South Range) – Status Quo

With Alternative 1, the NTTR boundary would remain as under baseline conditions. Aircraft, operations, munitions use, ground disturbance, and emitter operations would continue as described under baseline conditions.

The noise environment from aircraft operations associated with Alternative 1 would remain similar to existing conditions. No significant noise or safety impacts were identified for Alternative 1 (Section 3.2, Noise, and Section 3.13, Health and Safety), and, therefore, no disproportionately high and adverse impacts to environmental justice communities and no disproportionately high and adverse environmental health and safety impacts to children are anticipated from aircraft operations with this alternative.

With Alternative 1, munitions use would continue as under existing conditions, and noise levels of 62 CDNL outside of the NTTR boundary would not extend into populated areas (see Figure 3-17). Therefore, no disproportionately high and adverse impacts to environmental justice communities and no disproportionately high and adverse environmental health and safety impacts to children are anticipated from munitions use with this alternative.

Any ground disturbance associated with construction or troop movement would occur within the existing NTTR boundary. No adverse noise or safety impacts associated with ground disturbance have been identified that would impact the public (see Section 3.2, Noise, and Section 3.13, Health and Safety). There would be no ground disturbance performed on or in close proximity to cultural or historical sites or other noise-sensitive areas. Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from ground disturbance under this alternative.

No adverse noise or safety impacts associated with existing emitter operations have been identified that would impact the public (see Section 3.2, Noise, and Section 3.13, Health and Safety). Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from emitter operations under this alternative.

3.7.2.3 Alternative 2 – Extend Existing Land Withdrawal and Provide Ready Access in the North and South Ranges

With Alternative 2, the NTTR boundary would be the same as for Alternative 1, but with additional “ready access” in the South Range as well as the North.

The six census tracts and the associated environmental justice and youth/elderly populations residing under the Caliente and Coyote SUAs (shown in Table 3-36 and Table 3-37) that are currently exposed to 65 to 69 dB DNL associated with subsonic aircraft noise would continue to be exposed to this range of noise under Alternative 2 as they are under Alternative 1. Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from aircraft operations resulting in subsonic noise over and above current baseline conditions with Alternative 2.

The portions of census tracts 9501, 9502, 1103, 2702, and 2703 under the Caliente SUA that are currently exposed to noise levels of 61 CDNL due to the five supersonic booms per day would be exposed to noise levels of 62 CDNL due to an increase of one supersonic boom per day for a total of six booms per day. Since the noise change would be experienced across the region equally, there would be no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from aircraft operations resulting in supersonic noise over and above current baseline conditions with Alternative 2.

A comparison of the census tracts in the affected area from supersonic booms to the associated county in which they are located indicates that census tract 9502 has a higher percentage of minority population than Lincoln County (see Table 3-38). Additionally, there are four schools located in census tracts 9501 and 9502 in Lincoln County, Nevada, that would be affected by a CDNL of 62.

Table 3-38. Environmental Justice Populations Under Alternative 2 in the Affected Area (62 or greater CDNL)

State	County	Geographic Unit	Total Minority	Percent Minority	Dispro-portionate	Total Low-Income	Percent Low-Income	Dispro-portionate
Nevada	Lincoln	CT 9501	205	10.7%	N	300	15.7%	N
Nevada	Lincoln	CT 9502	79	18.7%	Y	57	13.5%	N
Nevada	Lincoln	County	879	16.6%	-	856	16.2%	-
Utah	Iron	CT 1103	89	11.3%	N	158	20.1%	N
Utah	Washington	CT 2702	18	6.5%	N	25	9.0%	N
Utah	Washington	CT 2703	45	25.4%	Y	36	20.3%	Y
Utah	Iron	County	6,143	13.1%	-	10,422	22.8%	-
Utah	Washington	County	21,123	14.6%	-	22,131	15.5%	-

CT= census tract; CDNL = C-weighted day-night average sound level; CT= census tract; N = no; Y= yes

As shown in Table 3-38, census tract 2703 in Washington County, Utah, has a higher percent of minority and low-income than Washington County. However, a satellite image review of the portion of census tract 2703 within the 62 and greater CDNL indicates that there are no residential areas located under the 62 and greater CDNL.

Census tracts 9501 and 1103 do not have a higher percent of the population minority or low-income compared to Lincoln and Iron County, respectively, and, therefore, no disproportionate impacts would be anticipated to these areas. As shown in Figure 3-19, the Pine Park Campground is located within the 62 CDNL noise range under Alternative

2. The Pine Park Campground is a primitive campsite with several trails for recreational purposes. Noise associated with supersonic booms (Figure 3-20) would be sporadic and temporary and would likely be moderately disruptive at times but would not add measurably to the overall CDNL and, therefore, would not be significant to recreational users.

Table 3-39 shows which census tracts have a higher percent of youth (under 18 years) and elderly (65 years and older) than the counties they are located within.

Table 3-39. Youth and Elderly Under Alternative 2 in the Affected Area (62 or Greater CDNL)

State	County	Geographic Unit	Total Youth	Percent Youth	ROI>COC	Total Elderly	Percent Elderly	ROI>COC
Nevada	Lincoln	CT 9501	431	22.5%	N	306	16.0%	N
Nevada	Lincoln	CT 9502	146	34.6%	Y	75	17.8%	Y
Nevada	Lincoln	County	1,399	26.5%	-	929	17.5%	-
Utah	Iron	CT 1103	219	27.8%	N	93	11.8%	Y
Utah	Washington	CT 2702	93	33.6%	Y	40	14.4%	N
Utah	Washington	CT 2703	51	28.8%	N	37	20.9%	Y
Utah	Iron	County	13,916	29.8%	-	4,966	10.6%	-
Utah	Washington	County	42,378	29.2%	-	26,611	18.4%	-

> = greater than; CDNL = C-weighted day-night average sound level; COC = community of comparison; CT= census tract; N = no; ROI = region of influence; Y= yes

With Alternative 2, potential impacts to environmental justice communities and youth/elderly populations from munitions use would be similar to those described under Alternative 1. Munitions use would continue as under existing conditions, and noise levels of 62 dB CDNL outside of the NTTR boundary would not extend into populated areas (see Figure 3-17). Therefore, no disproportionately high and adverse environmental health and safety impacts to children would be anticipated from munitions use under this alternative.

Ground disturbance could take place on the South Range with Alternative 2. No adverse noise or safety impacts associated with ground disturbance have been identified that would impact the public (see 3.2, Noise, and Section 3.13, Health and Safety). There would be no ground disturbance performed on or in close proximity to cultural or historical sites or other noise-sensitive areas. Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from ground disturbance with Alternative 2.

Emitter operations could take place on the South Range with Alternative 2. No adverse noise or safety impacts associated with existing emitter operations have been identified that would impact the public (see 3.2, Noise, and Section 3.13, Health and Safety). Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from emitter operations with Alternative 2.

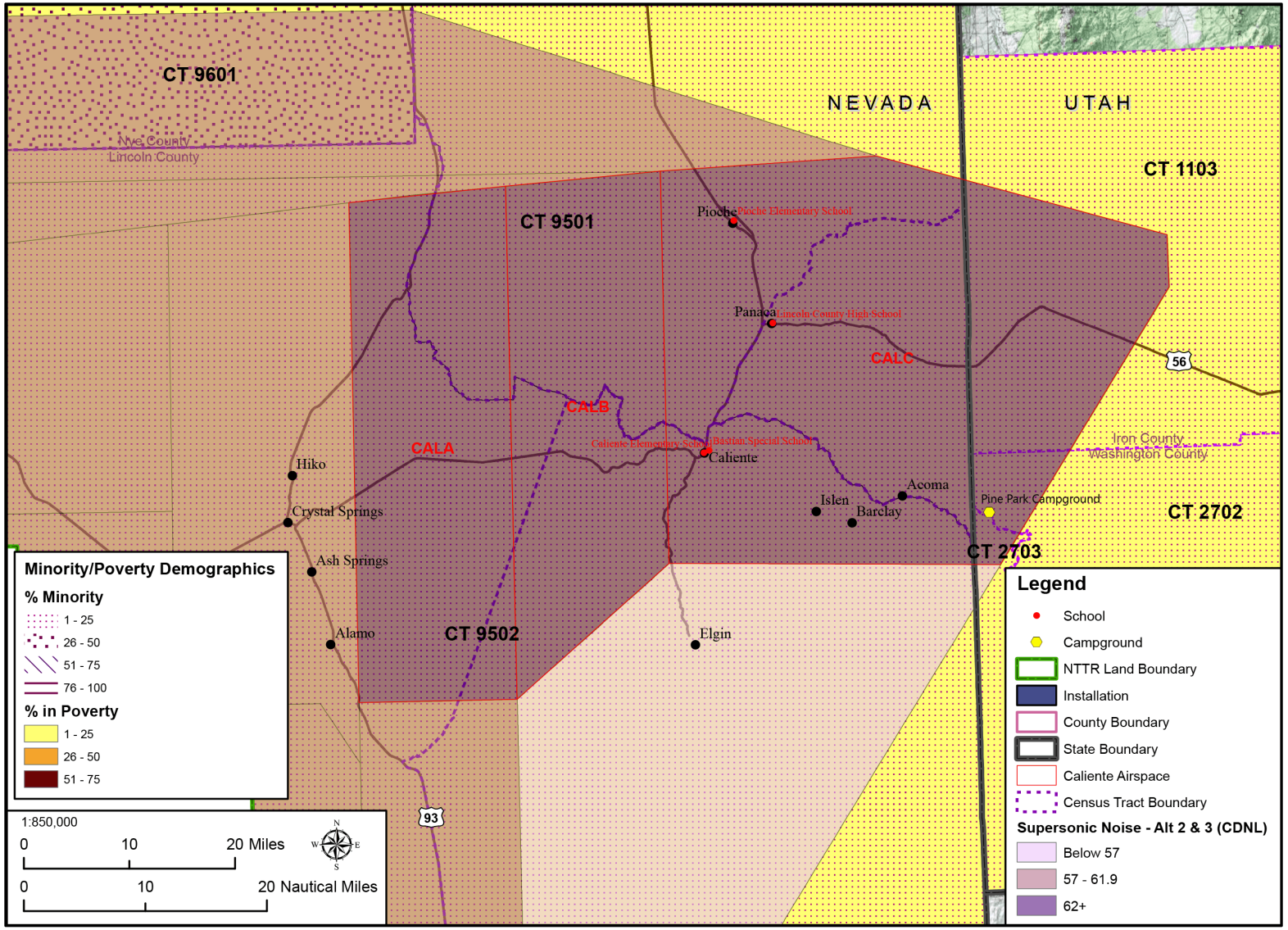

Figure 3-19. Environmental Justice Communities of Concern Exposed to Supersonic Boom Noise Under Alternatives 2 and 3

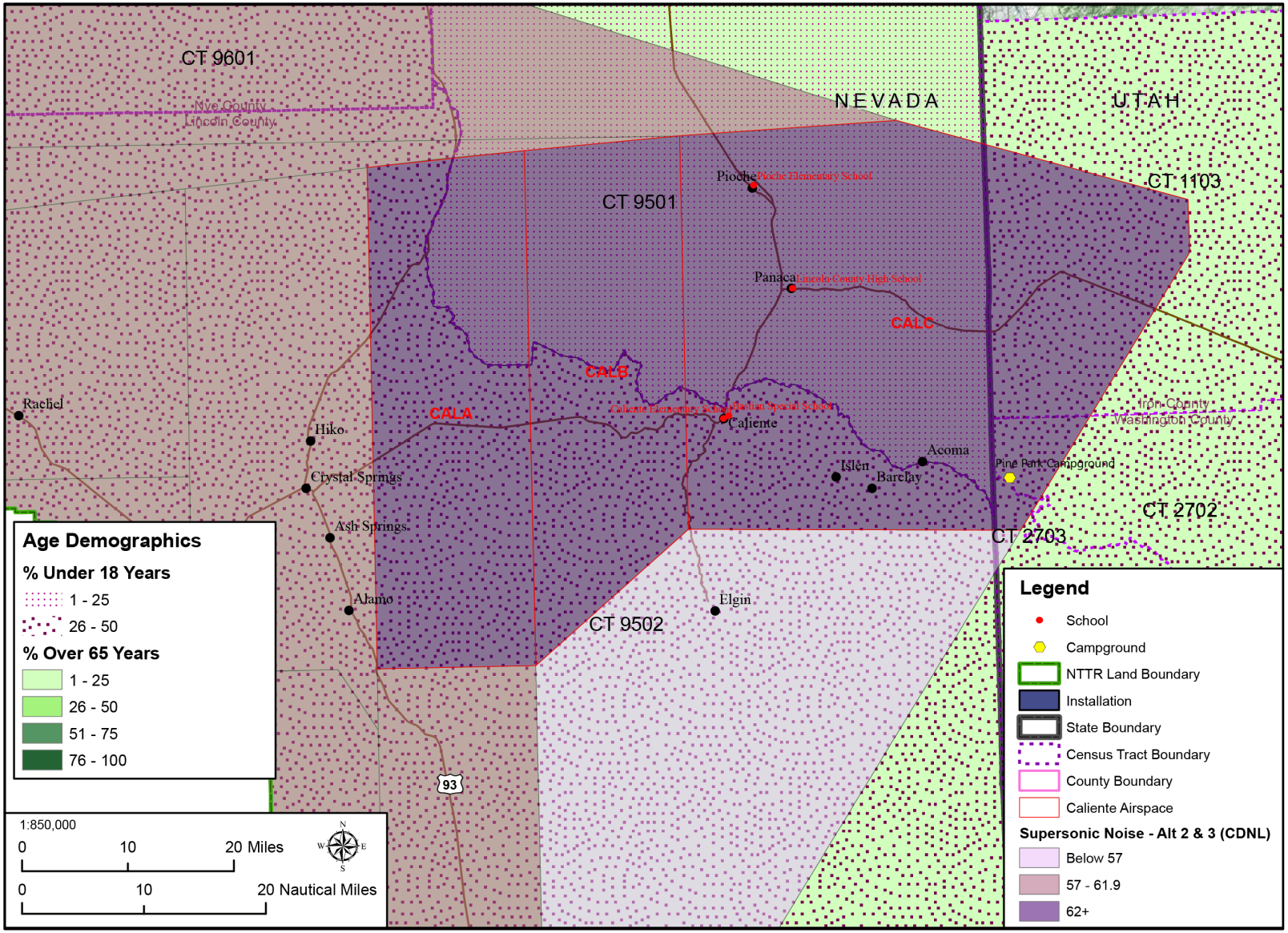

Figure 3-20. Youth and Elderly Populations Exposed to Supersonic Boom Noise Under Alternatives 2 and 3

3.7.2.4 Alternative 3 – Expand Withdrawal of Public Lands for the NTTR

Alternative 3 includes subalternatives, as described in Section 2.3.3:

- Alternative 3A – Range 77 – EC South Withdrawal
- Alternative 3A-1 – Amended Range 77 – EC South Withdrawal
- Alternative 3B – Range 64C/D and 65D Withdrawal and Administrative Incorporation
- Alternative 3C – Alamo Withdrawal

For Alternatives 3A, 3A-1, 3B, and 3C, the potential impacts to environmental justice and youth and elderly populations resulting from supersonic and subsonic aircraft noise, as well as munitions use, would be similar to those described for Alternative 2. Similar to Alternative 2, the six census tracts and the associated environmental justice and youth/elderly populations residing under the Caliente and Coyote SUAs (shown in Table 3-36 and Table 3-37) that are currently exposed to 65 to 69 dB DNL associated with subsonic aircraft noise would continue to be exposed to this range of noise under this alternative. Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from aircraft operations resulting in subsonic noise over and above current baseline conditions with Alternative 3.

The portions of census tracts 9501, 9502, 1103, 2702, and 2703 under the Caliente SUA that are currently exposed to noise levels of 61 dB CDNL due to the five supersonic booms per day would be exposed to noise levels of 62 dB CDNL due to an increase of one supersonic boom per day for a total of six booms per day. Since the noise change would be experienced across the region equally, there would be no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children would be anticipated from aircraft operations resulting in supersonic noise over and above current baseline conditions with Alternative 3.

Munitions use would continue as under existing conditions, and noise levels of 62 dB CDNL outside of the NTTR boundary would not extend into populated areas (see Figure 3-17). Therefore, no disproportionately high and adverse environmental health and safety impacts to children would be anticipated from munitions use under this alternative.

Fencing would be the only ground-disturbing activity that would occur within the proposed Alternative 3A, 3A-1, and 3B expansion areas. The fencing would not create annoying noise levels and would be short term in duration. For Alternative 3C, no adverse noise or safety impacts associated with ground disturbance have been identified that would impact the public (see Section 3.2, Noise, and Section 3.13, Health and Safety), and there would be no ground disturbance performed on or in close proximity to cultural or historical sites or other noise-sensitive areas. Therefore, no disproportionately high and adverse impacts to environmental justice communities or

disproportionately high and adverse environmental health and safety impacts to children from ground disturbance would be anticipated with Alternatives 3A, 3A-1, 3B, or 3C.

No emitter operations would occur within Alternative 3A, 3A-1, or 3B's proposed expansion areas. For Alternative 3C, no adverse noise or safety impacts associated with potential emitter operations have been identified that would impact the public (see 3.2, Noise, and Section 3.13, Health and Safety). Therefore, no disproportionately high and adverse impacts to environmental justice communities or disproportionately high and adverse environmental health and safety impacts to children from emitter operations would be anticipated with Alternatives 3A, 3A-1, 3B, or 3C.

Under Alternative 3C, there would be potential for the FARRP to be used during training activities (refueling and munitions loading of aircraft). While the proposed location would likely be in an "austere" area such as a dry lake bed, the details of such locations are not available at this time. The Air Force would conduct a more detailed NEPA analysis once details would be available. To avoid disproportionately high and adverse impacts to environmental justice populations, it would be suggested that the location of the FARRP area be within the NTTR boundaries or in an area that does not result in adverse noise or environmental impacts to minority and low-income populations and not be near sensitive areas such as schools or recreational areas to avoid posing special health and safety risks to children and elderly populations.

Several recreational areas would be affected under this alternative. Recreational areas affected by Alternative 3C are shown in Figure 2-14 and Figure 2-15. Key recreational areas listed in Section 2.3.3.4 (Alternative 3C) would continue to be accessible to the public. Approximately 57 percent of Nevada residents participate in outdoor recreation each year (Outdoor Industry Association, 2017). Throughout the state of Nevada outdoor recreation generates $14.9 billion in consumer spending, 148,000 direct jobs, one billion dollars in state and local tax revenue, and $4.8 billion in wages and salaries (Outdoor Industry Association, 2017). Data on the number of users and demographics of recreational users is not available for each of the different recreational areas affected; however, since the recreational areas are open to the general public, it would be assumed that any impacts associated with closures or restricted access to recreational areas would impact the general public and would not have a disproportionate impact on environmental justice populations.

3.7.2.5 Alternative 4 – Establish the Period of Withdrawal

The proposed withdrawal periods associated with Alternative 4—Alternative 4A (20-year withdrawal period), Alternative 4B (50-year withdrawal period), and Alternative 4C (indefinite)—must be implemented in conjunction with one or more of the other alternatives or subalternatives. Because Alternative 4 reflects periods of time, which do not in and of themselves affect environmental justice communities, there are no specific impacts associated with Alternative 4, except to provide a point in time at which impacts from other chosen alternatives may end.

3.7.2.6 No Action Alternative

With the No Action Alternative, populations currently exposed to noise levels above 65 dB DNL associated with current activities on the NTTR would continue to be exposed to these levels because the Air Force does not plan to give up the restricted airspace. However, the ground areas beneath the airspace would no longer be used for test and training associated with live munitions. Activities associated with the NTTR are an important economic contributor and with the No Action Alternative, there would be a loss of employment, income, and expenditures throughout Clark, Lincoln, Nye Counties. Adverse socioeconomic impacts would affect the general public and would not only impact minority, low-income, youth, and elderly populations. Therefore, no disproportionate impacts to environmental justice populations are anticipated with this alternative.

3.7.3 Proposed Resource-Specific Mitigations and Management Actions

No mitigations have been identified for environmental justice.

3.7.4 Native American Perspective on Environmental Justice

Environmental Justice concerns identified by the CGTO and members of the public regarding effects on Native Americans include sacred land violations, perceived risks from munitions and electronic training activities, protection of Native American artifacts, cultural survival, access violations, and a request for government-to-government negotiations.

The CGTO has identified to important concerns that result in a disproportionate impact to tribal communities and perpetuate violations to tribal Holy Lands, which are at a critical state. Generations have been subjected to mistreatment and neglect without consideration and true recovery efforts required to sustain tribal religious practices. Future tribal generations must be afforded opportunities to practice native religions including access to key locations without access limitations.

The United Nations Declaration on the Rights of Indigenous Peoples was adopted by the United Nations General Assembly in 2007. The Declaration reflects the affirmation of tribal rights and offers powerful insight into understanding the value of traditional lifeways.

In consideration of the Declaration, the CGTO knows the vast landscape that encompasses the NTTR land withdrawal and proposed expansion areas is comprised of mountains, springs, dry lakes, trails, shrines, and rock writings (petroglyph/pictographs), considered integral to tribal lifeways. These elements are teaching resources upon which we rely upon. The learning and teaching of these resources is what native people uniquely experience as sacred elements. Only through these resources, can one holistically approach the Creator. Removal or relocation from our homelands doesn't mean these places are removed from our heart as believed from past withdrawals; the NTTR land withdrawal will have an increased burden on tribal people. The recurrence of direct, indirect and cumulative impacts on the cultural landscape further diminishes the

integrity of these resources effects are detrimental to tribal communities especially considering that generations upon generations have been continued to be adversely affected in some way or another.

To achieve equity in Environmental Justice, the Air Force must fulfill its trust responsibility and protect the cultural landscape while reducing the burden of sustaining the cultural values of 17 culturally affiliated tribes with ties to this region. The LEIS provides only a broad overview of the potential impacts and discounts the disproportionate affect to Native culture without acknowledging the unknown and potential risk of adversely affecting cultural transmission attributed to the NTTR withdrawal and accompanying alternatives.

Further, the following concerns associated with the intent of Executive Order (E.O.) 12898 Environmental Justice have been raised by the CGTO as noted below:

- Centrality and Continuity. Because the CGTO considers the NTTR to comprise a portion of their traditional lands, the NTTR is central to the functioning of American Indians from the surrounding region.
- Usurpation of All Resources. The CGTO sees the military land withdrawal, including the proposed lands in Alternatives 3 A-C, as a process that resembles what began with moving American Indians onto reservations and off the land, thereby causing a complete disruption of their way of life and a disconnect from important resources and culturally sensitive areas.

According to the CGTO, Air Force activities on the NTTR constitute sacred land violations, derived from perceived risks associated with munitions and electronic training activities that disturb culturally sensitive areas and cultural survival violations.

Although the Air Force and the CGTO are working together through the NAIP to provide access to certain portions of the NTTR that are not dangerous or will not conflict with training exercises, the CGTO has stated that “land disturbance and irreparable damage of cultural landscapes, traditional cultural properties and cultural resources may render certain locations unusable” (AIWS 1997).

The Air Force has initiated formal consultation with the 17 tribes and American Indian organizations through the CGTO and with the Nevada SHPO. The Air Force is working with these groups to identify cultural and traditional resources on the NTTR to co-manage. Increased participation in the LEIS process through the inclusion of tribal text and other ongoing efforts is considered a positive step towards enhancing tribal involvement. The CGTO knows the proposed Alternatives 1 (Extend Existing Land Withdrawal and Management on North and South Range - Status Quo), 2 (Extend Existing Land Withdrawal and Provide Ready Access in the North and South Range), and 3 (Expand Withdrawal of Public Lands for the NTTR) will all restrict access to Native Americans due to scheduling conflicts and other safety or security concerns associated with military training and testing missions.

Access denial will have a disproportionate and adverse effect on the cultural integrity and sacred nature of culturally sensitive areas due to increased land disturbance. Native Americans have stated that land withdrawals, test and training activities, and

land management activities by DOD and Air Force may cause further land disturbance and preclude access by Native Americans. The CGTO believes these activities create a cumulative impact that falls disproportionately upon tribal communities, by imposing access restrictions preventing use and interacting with the land and natural resources of the area that are considered critical to maintaining traditional, cultural and historic practices.

The CGTO knows that federal agencies are directed by Executive Order (EO) 12898, Environmental Justice, to detect and mitigate potentially disproportionately high and adverse human health or environmental effects of its planned programs, policies, and activities to promote nondiscrimination among various populations in the United States.

In the Record of Decision associated with the Final Environmental Impact Statement for the nearby Nevada Test Site and Off-Site Locations in the State of Nevada (1996 NTS EIS), the US Department of Energy (DOE) recognized the need to address Environmental Justice concerns of the CGTO based on disproportionately high and adverse impacts to their member tribes from the nearby DOE Nevada National Security Site (NNSS) activities.

Equally, in the 2002 Supplement Analysis for the Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada (2002 NTS SA), DOE concluded that the selection and implementation of the Preferred Alternative would impact its member tribes at a disproportionately high and adverse level, perpetuating Environmental Justice concerns. The CGTO maintains that Environmental Justice concerns continue to exist. Of special concern to the CGTO is the potential for Holy Land violations, cultural survival-access violations, and disproportionately high and adverse human health and environmental impacts to the Indian population. These Environmental Justice issues need to be addressed in the LEIS.

There is no question that the Native American Holy Lands have been, continue to be, and will be impacted by activities on the NTTR. It is also well known that only Indian people have lost cultural traditions because they have been denied free access to many places on the NTTR where ceremonies need to occur, where plants need to be gathered, and where animals need to be hunted in a traditional way.

Prior to undertaking or approving activities on the NTTR, the CGTO recommends that the Air Force comply with E.O. 12898 by facilitating tribal access to the NTTR, sponsoring an Indian subsistence consumption study, and sponsoring a study to determine perceived health risks and environmental impacts resulting from NTTR activities to CGTO member tribes. The CGTO has concerns that fall within the context of E.O. 12898, such as subsistence consumption. Subsistence consumption requires the Air Force to collect, maintain, and analyze information on consumption patterns such as those of culturally affiliated tribal communities who rely principally on wildlife for existence. Most importantly, the E.O. mandates each federal agency apply equally their Environmental Justice strategy to Native American programs and assume the financial costs necessary for compliance.

To date, Air Force has not shared its design and implementation strategy for Environmental Justice with the CGTO, nor has it identified and analyzed subsistence consumption patterns of natural resources by Indian people within the region of influence. Since the E.O., specifically addresses equity to Indian people and low-income populations, it is critical that the Air Force immediately address the concerns of Indian Tribes and communities by conducting systematic ethnographic studies and eliciting input necessary for administrative compliance and in the spirit of the Air Force Instruction 90-2002. This policy outlines the principles in its decision making and interaction with federally recognized tribal governments. It requests that all departmental and installation elements ensure tribal participation and interaction regarding pertinent decisions that may affect the environmental and cultural resources of tribes. Of particular interest within these guiding principles is Section 1.5. Activities Typically Involving tribes which states:

1.5.1. Air Force planning actions that may affect tribes include, but are not limited to (a) land- disturbing activities, (b) construction, (c) training, (d) over-flights, (e) management and protection of properties of traditional religious and cultural importance including historic properties and sacred sites, (f) activities involving access to sacred sites, (g) disposition of cultural/funerary items in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA), (h) natural resources management activities, (i) educational and public affairs activities linked to tribal topics, and (j) other land use/military airspace operations in general.

In the Record of Decision for the 1996 NTS EIS, nearby DOE recognized the need to address Environmental Justice concerns of the CGTO based on disproportionately high and adverse impacts to their member tribes tied to the adjacent Nevada National Security Site. In 2002 DOE concluded that the selection and implementation of the Preferred Alternative would impact its member tribes at a disproportionately high and adverse level, perpetuating Environmental Justice concerns. Similarly, the CGTO maintains that Environmental Justice concerns continue to exist on the NTTR and will continue with the proposed land withdrawal and expansion areas. These concerns include (1) Holy Land violations, (2) cultural survival-access violations, and (3) disproportionately high and adverse human health and environmental impacts to the Indian population. Similarly, the CGTO knows the same circumstances persist on the NTTR that must be considered as noted below:

Holy Land Violations

The CGTO consider the NTTR lands to be as central to their lives today as they have been since the creation of their people. The NTTR lands are part of the Holy Lands of Western Shoshone, Southern Paiute, Owens Valley Paiute/Shoshone and Fort Mojave people. The CGTO perceives that the past, present, and future cultural pollution of these Holy Lands constitutes both Environmental Justice and equity violations. No other people have had their Holy Lands impacted by NTTR-related activities. Prior to undertaking or approving new activities, the CGTO should be funded to design, conduct, and produce a systematic American Indian Environmental Justice study with qualified ethnographer(s) that have experience with the CGTO.

Cultural Survival-Access Violations

One of the most detrimental consequences to the survival of Native American culture, religion, and society has been the denial of free access to Native people's traditional lands and resources. Loss of access to traditional food sources and medicine has greatly contributed to undermining the cultural well-being of Indian people. These Indian people have experienced, and will continue to experience, breakdowns in the process of cultural transmission due to lack of free access to government-controlled lands and resources such as those in the NTTR area. No other people have experienced similar cultural survival impacts due to lack of free access to the NTTR area.

In 1996, President Clinton signed E.O. 13007, Indian Sacred Sites. The E.O. promotes accommodation of access to American Indian sacred sites by Indian religious practitioners and provides for the protection of the physical integrity of such sites located on federal lands. The CGTO recommends that open access be allowed for Native Americans who must conduct their traditional ceremonies and obtain resources within the NTTR study area. Unfortunately, however, land disturbance and irreparable damage of cultural landscapes, potential Traditional Cultural Properties (TCPs), and cultural resources may render certain locations unusable.

Disproportionately High and Adverse Human Health and Environmental Impacts to the Indian Population

It is widely known that many tribal representatives still collect and use plants and animals that are found within the NTTR region. Many of the plants and animals cannot be gathered or found in other places. Consumption patterns of Indian people who still use plants and animals for food, medicine, and other cultural or ceremonial purposes force the CGTO to question if its member tribes are still being exposed [to] pollution, and potentially hazardous waste located at the NTTR.

3.8 BIOLOGICAL RESOURCES

For the Native American perspective on information in this section, please see Section 3.8.4 and Appendix K, paragraph 3.8.1.1.1 and Appendix K Tables 1 and 2.

3.8.1 Affected Environment

3.8.1.1 Description of Resource

Biological resources include vegetation and wildlife species and their associated habitats, aquatic and wetland habitats, special status species and habitats, and federally listed species. These categories are detailed below in Sections 3.8.1.3 (Vegetation) through 3.8.1.6 (Special Status Species and Habitats).

Additionally, the Air Force reviewed concerns associated with pollinators and electromagnetic radiation. These concerns are generically known as Colony Collapse Disorder (CCD), which is a phenomenon that occurs when the majority of worker bees in a colony disappear and leave behind a queen, plenty of food, and a few nurse bees to care for the remaining immature bees and the queen. Once thought to pose a major long-term threat to bees, reported cases of CCD have declined substantially over the last five years (EPA, 2018).