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## 4. CUMULATIVE EFFECTS AND OTHER ENVIRONMENTAL CONSIDERATIONS

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### 4.1 CUMULATIVE EFFECTS

#### 4.1.1 Introduction

According to CEQ regulations, the cumulative effects analysis of an EIS should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7).

Cumulative effects may occur when there is a relationship between a proposed action or alternative and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. The effects may then be incremental and may result in cumulative impacts. Actions overlapping with or in close proximity to the Proposed Action or alternatives can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide in the same timeframe tend to offer a higher potential for cumulative effects.

In this LEIS, the Air Force has made an effort to identify actions on or near the proposed withdrawal areas that are under consideration and in the planning stage at this time. These actions are included in the cumulative effects analysis to the extent that details regarding such actions exist and the actions have a potential to interact with the proposed alternatives outlined in this LEIS. Although the level of detail available for those future actions varies, this approach provides Congress with the most current information to evaluate the consequences of the alternatives. The LEIS addresses cumulative impacts to assess the incremental contribution of the alternatives to impacts on affected resources from all factors.

The analysis first discusses past actions, events, and circumstances that are relevant to the environments associated with the NTTR land withdrawal alternatives. Following is a discussion of other actions that, when combined with military test and training actions and conceptual construction activities, may result in incremental impacts.

#### 4.1.2 Relevant Past and Present Actions

The relevant past and present actions associated with the impacts of the Proposed Action include continued use of the NTTR for military test and training activities, plus nearby development and infrastructure improvements such as roads, pipelines, and power transmission lines. Past and present actions in and around the action areas associated with these activities may have cumulative effects on the local environment.

**Nellis Nevada Test and Training Range Wildland Fire Management Plan Final Report.** A Wildland Fire Management Plan was prepared for unimproved lands that present a wildfire hazard on the NTTR. Wildland fires pose a significant threat to training missions, weapons testing, structures, infrastructure, and natural and cultural resources on USAFWC lands on the NTTR. In addition, wildfires that start on the NTTR could spread to neighboring private and public lands, threatening homes in the wildland urban interface/intermix and causing damage to natural and cultural resources. Conversely, wildfires occurring outside the NTTR could burn onto the NTTR and threaten safety, the military mission, and natural and cultural resources. Flares used during aerial training activities within the MOAs have the potential for unintentionally igniting a wildland fire on lands within and outside of the NTTR.

The Wildland Fire Management Plan guides the full range of fire management-related activities for the NTTR. As a component of the NTTR INRMP, the Wildland Fire Management Plan provides the framework for fire management, wildland fire suppression, burned area emergency rehabilitation, emergency stabilization, and fuel treatment activities to support the military mission and safely accomplish the resource protection and ecosystem management objectives of the INRMP.

Management of the NTTR is the responsibility of the 99th Air Base Wing (99 ABW) and NTTR personnel working through the USAFWC, which do not have trained or qualified personnel to protect the NTTR from damage or loss by wildland fires. The USAFWC has established an agreement with the DOE that allows each agency to share personnel and assets in fighting wildfires. While this agreement is a positive step forward, it must be understood that both agencies have severe limitations on the type and level of support that each can offer at any given time. Nellis AFB and the BLM have signed a Memorandum of Agreement to address each agency's roles and responsibilities for brush and range fires on the NTTR. However, BLM is the primary force for fighting wildland fires on the NTTR. Currently, the BLM (Nevada) and the Air Force's 99 ABW have a draft MOU under review that will replace the 2010 Memorandum of Agreement. Further, AFCEC and BLM (National Fire and Aviation Directorate) have established a 2017 interagency agreement for the Conservation of Natural Resources on Air Force Controlled Lands. This agreement establishes a cooperative conservation relationship between all parties to support the management of natural resources on Air Force-controlled lands.

**Fire Management for the Cedar Peak Area on the Nevada Test and Training Range Final Environmental Assessment.** Nellis AFB prepared an Environmental Assessment (EA) that authorized the NTTR Wildland Fire Management Plan and the Cedar Peak fuels reduction project. An important military communications asset is located at the summit of Cedar Peak. To protect this asset from wildland fire, a 300-foot radius (6-acre area) around the asset would be clear-cut and an additional 900-foot radius (96-acre area) would be thinned of trees. Trees would be felled by hand, piled, and burned on-site under winter conditions to limit potential impacts to on-site soils, the canopies of nearby trees, and the military asset of concern.

In addition to outlining fire suppression, fuels management, and rehabilitation techniques, the Wildland Fire Management Plan also discusses routine safety practices, training, and maintenance measures that are currently implemented at the NTTR and consistent with operation and maintenance requirements covered under existing NEPA documentation. Wildland fire suppression activities could impact military operations and cultural and natural resources. However, by implementing measures and additional administrative components of the Wildland Fire Management Plan, suppression impacts are either avoidable or mitigatable. Adhering to these measures also would reduce the potential likelihood of a devastating wildland fire, decrease the adverse effects caused by a potential wildland fire, and serve as BMPs to reduce potential significant adverse effects, as defined by NEPA.

The Cedar Peak Project has been completed, and the project's goals and objectives have been met. The project was successful in reducing fuels and wildfire risk to the asset at Cedar Peak.

**F-35 Force Development Evaluation and Weapons School Beddown, Nellis Air Force Base, Nevada, Final Environmental Impact Statement.** In 2011, the Air Force signed a Record of Decision for the F-35 Force Development Evaluation and Weapons School Beddown at Nellis, AFB (U.S. Air Force, 2011) (the "F-35 beddown EIS"). The proposed action involved basing 36 F-35 aircraft at Nellis AFB with 12 aircraft for the Force Development Evaluation program and an additional 24 for Weapons School training.

Arrival of aircraft was based on a phased approach contingent on manufacturing progress and other elements of F-35 deployment; the first aircraft arrived in 2012 and the last is scheduled for 2020. It was anticipated that the additional aircraft would conduct an additional 17,280 annual airfield operations at Nellis AFB by 2020 and an additional 51,840 annual sortie-operations in NTTR. In addition, F-35 pilots would practice ordnance delivery on approved targets and release of flares in approved airspace.

In addition to the planned operations, there will be construction, demolition, or modification of a variety of base facilities to support the F-35 programs, particularly along the flightline. Table 4-1 provides a list of the proposed construction and demolition activities.

**Table 4-1. Proposed Construction and Demolition Actions for the F-35 Beddown**

| Project  | Area (square feet) | Base Area | Start Date Fiscal Year (FY) | Demolish Building # |
|--|--------------------|-----------|-----------------------------|---------------------|
| A-10 Thunder Aircraft Maintenance Unit (AMU)         | 11,000             | B         | FY11                        |                     |
| 6-Bay F-35 Hangar/AMU                                | 80,988             | B         | FY11                        | 265, 268, 269       |
| Aircraft Washrack Addition, 1-bay to Building 271    | 9,551              | B         | FY11                        |                     |
| B10425 Munitions Facility Addition at Building 10425 | 3,000              | MSA       | FY11                        |                     |
| 25-mm Munitions Storage Facility Addition at M81     | 3,000              | MSA       | FY11                        |                     |
| Munitions Trailer Facility                           | 10,000             | MSA       | FY11                        |                     |
| 2 Munitions Storage Area (MSA) Loading Docks         | 1,000              | MSA       | FY11                        |                     |
| Precision-Guided Missile Bay Addition at Building    | 3,000              | MSA       | FY11                        |                     |

**Table 4-1. Proposed Construction and Demolition Actions for the F-35 Beddown**

| Project  | Area (square feet) | Base Area | Start Date Fiscal Year (FY) | Demolish Building # |
|--|--------------------|-----------|-----------------------------|---------------------|
| 10439  |                    |           |                             |                     |
| Parking/landscape Areas                          | 15,656             | B         | FY11                        |                     |
| Flight Test Instrumentation Facility             | 4,650              | B         | FY11                        |                     |
| 422 Test Evaluation Squadron Operations Facility | 20,300             | B         | FY11                        |                     |
| Flight Simulator Facility                        | 20,000             | B         | FY11                        |                     |
| <b>Fiscal Year 2011 (FY11) Subtotal</b>          | <b>182,145</b>     |           |                             |                     |
| Aerospace Ground Equipment (AGE) Complex         | 45,000             | A         | FY12                        |                     |
| Engine Shop Addition                             | 9,000              | C         | FY12                        |                     |
| 53rd Wing Test Squadron Operations Building      | 20,000             | C         | FY12                        |                     |
| <b>FY12 Subtotal</b>                             | <b>74,000</b>      |           |                             |                     |
| Parking/landscape Areas                          | 190,301            | B         | FY13                        |                     |
| Weapons School Addition at Building 282          | 10,000             | B         | FY13                        |                     |
| Alternate Mission Equipment Storage Facility     | 25,285             | A         | FY13                        |                     |
| Fuel Cell Hangar Addition                        | 16,300             | B         | FY13                        |                     |
| Munitions Maintenance Facility Addition          | 6,000              | MSA       | FY13                        |                     |
| <b>FY13 Subtotal</b>                             | <b>247,886</b>     |           |                             |                     |
| Weapons Release Building                         | 15,000             | B         | FY14                        | 441                 |
| Parts Store                                      | 40,000             | B         | FY14                        | 413, 415            |
| East Ramp/Airfield Pavement                      | 495,140            | D         | FY14                        |                     |
| Live Ordnance Loading Area (LOLA) Expansion      | 167,322            | D         | FY14                        |                     |
| Bomb Build-Up Pad                                | 30,000             | MSA       | FY14                        |                     |
| Low Observables (L/O) Composite Addition         | 11,018             | B         | FY14                        |                     |
| 4-Bay F-35 Hangar/Strike AMU                     | 31,000             | B         | FY14                        | 258                 |
| L/O Corrosion/Wash 3-Bay Hangar                  | 15,800             | B         | FY14                        | 250                 |
| Parking/landscape Areas                          | 96,486             | B         | FY14                        |                     |
| Fuel Cell Hangar                                 | 50,250             | B         | FY14                        |                     |
| <b>FY14 Subtotal</b>                             | <b>952,016</b>     |           |                             |                     |
| <b>Total</b>                                     | <b>1,572,829</b>   |           |                             |                     |

**Goldfield Historic District.** The Goldfield Historic District was designated a Historic District and listed in 1982 on the NRHP. It is located in the center of Goldfield, Nevada, in Esmeralda County. The description of the designation includes an area bounded by 5th Street and Miner, Spring, Crystal, and Elliott Avenues. The District contains roughly 200 acres of the unincorporated area and approximately 120 buildings, most dating from the time of Goldfield's initial mining boom from 1904 to 1909. During this timeframe, Goldfield became a regional epicenter during Nevada's 20th century mining boom.

**SolarReserve Crescent Dunes Solar Energy Facility.** SolarReserve's Crescent Dunes Solar Energy Facility located in Tonopah, Nevada, is a utility-scale facility that offers advanced molten salt power tower energy storage capabilities. The project delivers enough electricity from solar energy to power 75,000 homes in Nevada during peak demand periods, around the clock regardless of weather conditions. The project,

which entered into commercial operation in late 2015 and delivers 110 megawatts (MW) of electricity plus 1,100 megawatt-hours of energy storage.

The Crescent Dunes plant is a success story for U.S.-developed technology. The plant produces more than 500,000 megawatt-hours of electricity per year, twice the generation of an equivalent-sized photovoltaics or direct steam solar thermal facility. It also utilizes dry cooling technology in a hybrid design to minimize water use well below conventional power projects. The storage technology developed by SolarReserve also eliminates the need for any backup fossil fuels, such as natural gas, which are needed with other solar technologies to keep the system operating during times of reduced solar resource.

During the construction of the plant, the Crescent Dunes project created over 4,300 direct, indirect, and induced jobs, with more than 1,000 construction workers on-site during peak construction. Sixty percent of the project subcontractors were Nevada-based, and 40 full-time, permanent jobs for operations and maintenance were created. The project also generated in excess of \$750 million in capital investment in Nevada. Tax revenues are forecasted to be more than \$73 million in local and state tax revenues over first 20 years of operation. During the 30-year operating life, the project will expend more than \$10 million per year in salaries and operating costs, much of this spent in the region.

#### 4.1.3 Reasonably Foreseeable Future Actions

In addition to future Air Force actions, some reasonably foreseeable actions are outside of the control of the Air Force, such as regional development projects that may contribute incrementally to impacts associated with Air Force alternatives addressed in the LEIS. Projects that the Air Force considers of limited scope (e.g., building of a courthouse annex, improvements to roadways for pedestrians) are not considered cumulatively significant and, therefore, were not included in the cumulative impacts analysis.

**Nellis AFB Capital Improvements Program Environmental Assessment.** Nellis AFB proposes to initiate updates to the Capital Improvements Program (CIP) that would include construction, demolition, renovation, and maintenance activities at the base. By taking a comprehensive approach to planning and implementing facilities and infrastructure improvements over a multi-year period, Nellis AFB would ensure that limited funds, energy conservation, and operational goals are maximized. Proposed improvements would comply with the DoD's direction to design and build Leadership in Energy & Environmental Design (LEED<sup>®</sup>) certified facilities and decrease energy consumption on military installations.

The projects described in the CIP are derived from the Base Comprehensive Asset Management Plan (BCAMP). The BCAMP lists all of the proposed projects that have been identified as a true need by the individual proponents of each action. These projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99 ABW Commander based upon factors including mission requirements, quality of

life, degradation of existing facilities, etc. While the CIP includes hundreds of projects, funding for all of the projects to be completed in the next five years is not feasible because of the limited amount of funds available. These funding limitations are due to worldwide deployments and contingency operations, competing funding requests from every other military installation, new missions such as the F-35A beddown, and general budget reductions for civil engineering projects. As a result, only a small percentage of the projects can be funded within one fiscal year. In addition to the proposed action, the Air Force analyzed the no-action alternative.

Since the overall funding amount available to execute CIP projects is unknown, two construction scenarios were developed to place reasonable limits on the analysis. Scenario 1 involves light construction and describes demolition of an unspecified 2,000-square-foot existing building and construction of representative 30,000-square-foot facility, including parking up to 3 acres. The vast majority of the CIP projects combined together would be an aggregate size less than that described for Scenario 1. Scenario 2 triples the size of the demolition and construction up to 10 acres; only the largest or combination of several smaller new construction projects would reach this limit. Other large projects could be implemented if aspects of Scenario 2 would not be implemented, such as roadway projects where there would be no demolition or facility construction, but would be looked at on a case-by-case basis.

**Creech AFB Capital Improvements Program Environmental Assessment.** Creech AFB has proposed to formally update their CIP, which continually evolves, but the last formal proposal that resulted in NEPA documentation was during the 2008 update of the Creech AFB General Plan. The mission changes at Creech AFB are substantive enough to require an update of the CIP projects list. Restoration/Modernization and Sustainment projects would provide the base with up-to-date facilities by repairing, remodeling, or replacing older facilities to modern standards. Also, these outdated facilities demand considerable energy, and replacing them with new energy-efficient, updated facilities would yield considerable savings for the base and would conform to DoD guidelines for LEED<sup>®</sup> facilities.

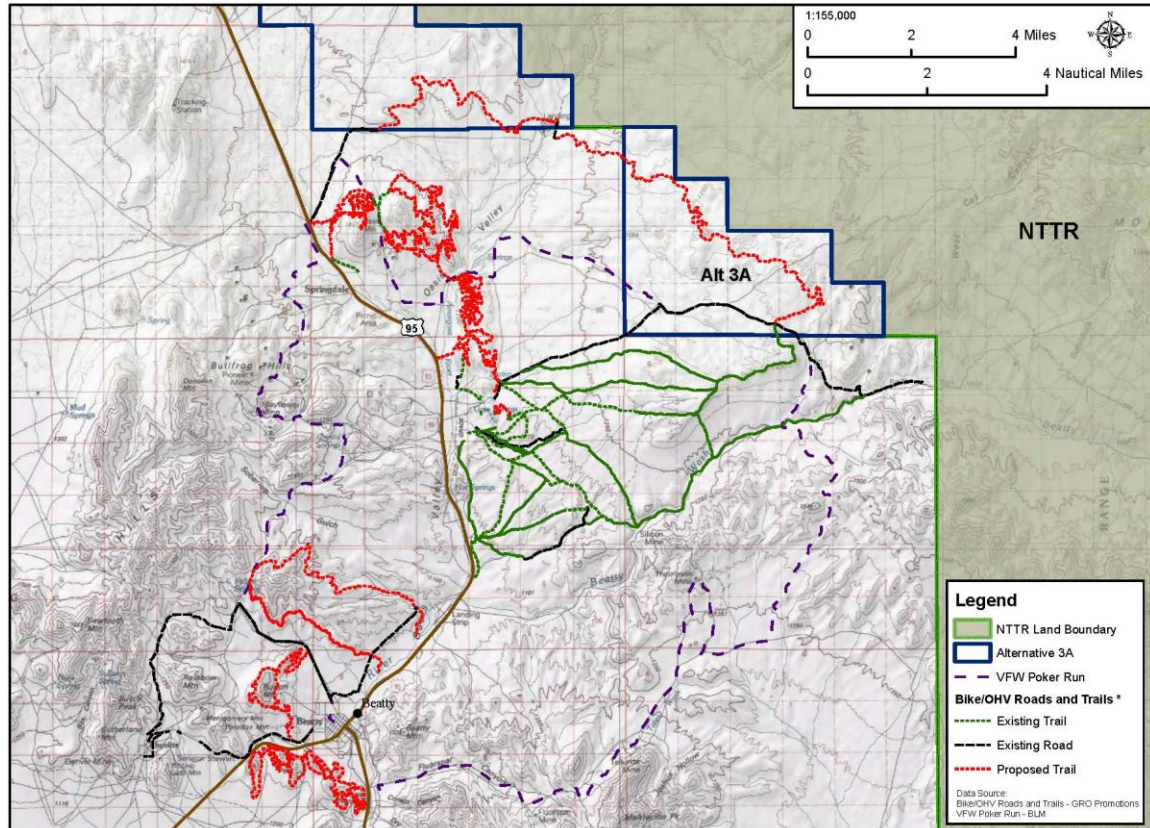
The projects described in the CIP are derived from Creech AFB's BCAMP, which lists all of the proposed projects that have been identified as a true need by the individual proponents of each action. Like the Nellis AFB CIP projects, these projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99 ABW Commander based upon factors including mission requirements, quality of life, degradation of existing facilities, etc. Due to the funding uncertainties that drove the analysis in the previously described Nellis AFB CIP EA, the Creech AFB CIP EA also evaluated two Scenarios: Scenario 1 includes light construction plus demolition of an unspecified 2,000-square-foot existing building and construction of representative 30,000-square-foot facility, including parking up to 3 acres, and Scenario 2 triples the size of the demolition and construction up to 10 acres.

The Air Force also analyzed the no-action alternative. Baseline conditions as reflected by the no-action alternative provide a comparison to the environmental impacts of the proposed action.

During the development of the LEIS, additional construction plans were proposed for Creech though not approved at the HQ Air Force level. Although details are not known at this time, the Air Force believes it is appropriate to include these construction activities as part of the reasonably foreseeable future actions. The following facilities are being planned but are not funded at this point in time:

- Fitness Training Center
- Community Support Complex
- Commercial Vehicle Gate
- Deployment Center and Ramp
- Network Control Center
- Base Command and Control Facility
- North Side Electrical Loop
- Antenna Complex
- Hangar for Weapons Loading Training
- Munitions Storage Igloos
- Structural Repair Facility
- AGE Storage Facility
- Operations Equipment Storage Facility
- Heavy Vehicle Maintenance Facility
- Repair POL Complex
- Operations Facility
- Operations Equipment Storage Facility

**Mountain Bike Trails, City of Beatty, Nye County.** Mountain biking activities continue to be developed north and west of Beatty, Nevada, which lies to the southwest of the NTTR. Figure 4-1 displays some of the existing (shown as green lines) and proposed trails (red lines). A non-profit corporation, STORM-OV (Saving Toads thru Off-Road Racing, Ranching and Mining in Oasis Valley) was formed to create 300 to 500 miles of off-road, multi-use trails for mountain biking, hiking running and horseback. 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).



**Figure 4-1. Existing and Proposed Mountain Bike Trails in the Beatty, Nevada, Area, 2016**

Source: (GRO Trails and Race Consulting, 2016)

**Off-Highway Vehicle Trails, Nye County.** Recreational activities within the proposed withdrawal area associated with Alternative 3A include but are not limited to hunting, hiking, camping, bird-watching, target shooting, and OHV activities. As of April 2017, there are 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. Recreation areas are further limited to designated roads and trails (U.S. Air Force, 2017b). 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. A few of the primary users include: Trails-OV ([www.trails-ov.org](http://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.beattylvfw.com](http://www.beattylvfw.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; and Best in the Desert Racing Association ([www.bitd.com](http://www.bitd.com)) “Vegas to Reno” off-road race.

Proposed bike trails are in the early stages of planning with the BLM office in Tonopah.

**Coyote Springs Nevada LLC, Lincoln County.** Coyote Springs Nevada LLC (CSN) acquired the former Aerojet Nevada lands on the Clark County line along U.S.



Highway 93. CSN owns an estimated 42,000 acres in the area. A development agreement and planned development code was approved by Lincoln County in June 2005 for these lands. A density of 5 units per acre was approved by the county. Development has commenced on the Clark County side of this project. CSN is proposing to develop a “new community” to include various forms of housing, golf courses, commercial centers and industrial sites. This “new community” would include 42,000 acres and has completed their Multi-Habitat Species Plan in both Clark and Lincoln Counties. CSN is competing construction on a wastewater treatment plant as well as a water treatment plant. This proposal will be implemented through a planned unit development of 159,600 units. Offsite flood control detention basins will be completed in 2017 and homes are anticipated for sale in early 2018.

**Lincoln County Industrial Park.** In the Alamo, Nevada, area, Lincoln County received public lands from BLM for 217 acres to develop an industrial park along U.S. Highway 93 south of Alamo. A production well has been drilled on the site and pump-tested. Ample water of high quality is available at the site.

**Solar Reserves Sandstone Project.** The Sandstone project will be a solar power plant complex with up to 10 solar thermal towers, with a 24-hours-per-day, seven-days-per-week baseload solar technology. Each tower will be 150 to 200 MW, with storage and fully dispatchable, each producing about 700,000 megawatt-hours per year. Multiplying the 10 towers’ baseload will provide up to 2,000 MW of total power capacity and 7,000,000 megawatt-hours of annual output. Each tower will have approximately 10 hours of full-load energy storage, totaling 20,000 megawatt-hours of energy storage capability for the entire project. Sandstone will be built in Nye County, Nevada.

**Pahrump Valley Desert Tortoise Habitat Conservation Plan.** Nye County is proposing a Pahrump Valley Desert Tortoise Habitat Conservation Plan (HCP) to address the urban development of land within the limits of the Town of Pahrump and adjacent lands designated for disposal and sale by the BLM (Nye County Planning Department, 2009). The scope, or Permit Area, of this plan is 92,489 acres and includes the private land in Pahrump and 6,022 acres of public land administered by BLM and identified for disposal. The HCP estimates that up to 1,000 acres of desert tortoise habitat may be lost as a result of urban development within the Permit Area over the next 10 years. The HCP has been prepared to support an application for a Section 10(a)(1)(B) Incidental Take Permit (Permit) under the federal ESA for the incidental take of the desert tortoise, a species listed as threatened under the ESA on 1,000 acres of private land or BLM disposal lands, upon transfer of ownership to a non-federal entity, in the Pahrump Regional Planning District (i.e., the Planning Area). The request for the incidental take of desert tortoises is based on tortoise surveys conducted by the BLM, Nye County, private land owners and others that indicate tortoises occur in relatively low densities in the Planning Area. The HCP is intended to support the issuance, by the USFWS of a Section 10(a)(1)(B) incidental take permit under the ESA, which would allow the “take” of the threatened desert tortoise resulting from otherwise lawful activities on non-federal property within the Planning Area. Subsequent to the issuance of a permit, the Pahrump Valley Desert Tortoise HCP will be implemented to minimize, mitigate, and monitor the impacts of incidental take of desert tortoise.

**Clark, Lincoln, and White Pine Counties Groundwater Development Project.** The Southern Nevada Water Authority submitted a right-of-way application to the BLM for construction and operation of a groundwater development project that would allow them to develop and transport water from Clark, Lincoln, and White Pine Counties to southern Nevada. The proposed project consists of approximately 306 miles of buried pipelines, five pumping stations, six regulating tanks, three pressure reducing stations, one buried storage reservoir, one water treatment facility, and approximately 323 miles of power lines with seven electrical substations. Construction is anticipated to take place between 2011 and 2022, depending on approvals and phasing.

**Lincoln County Land Act Groundwater and Utility Right-of-Way Project.** The Lincoln County Water District submitted a right-of-way application to the BLM for construction and operation of a groundwater development project. The right-of-way would authorize the Lincoln County Water District to construct infrastructure required to pump and convey groundwater resources in the Tule Desert and Clover Valley to help meet future municipal water needs in newly urbanizing areas. The proposed project consists of a 47-mile main transmission pipeline and 54 miles of collection/lateral pipelines, up to 30 production wells, water storage tanks, booster stations, access roads, 138-kilovolt (kV), 22.8-kV, and 4.16-kV transmission lines, a power substation, a natural gas pipeline, underground telephone lines and a telemetry system utilizing a fiber optic line. Construction would begin upon acquisition of necessary permits, approvals, and grants.

**Kane Springs Valley Groundwater Development Project.** The Lincoln County Water District submitted a right-of-way application to the BLM for construction and operation of a groundwater development project that would authorize the District to construct infrastructure required to pump and convey groundwater resources in the Kane Springs Valley. The proposed project consists of groundwater production and monitoring wells, water collection pipelines, one main water transmission pipeline, one terminal storage tank, one forebay storage tank, electrical distribution lines, electrical substations, and a telemetry system using fiber optic lines. Project construction would occur in three phases with one to three years between phases. Construction of Phase 1 would begin upon acquisition of necessary permits, approvals, and grants.

**Section 368 Energy Corridor 18-224.** On August 8, 2005, the President signed the *Energy Policy Act of 2005* (P.L. 109-58) into law. Section 368 directed the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior to designate corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on federal lands in the 11 contiguous western states. Congress also directed the agencies to perform any environmental reviews that may be required to complete the designation of the corridors and incorporate the corridors into land use plans.

On January 14, 2009, the DOI approved a Record of Decision to designate approximately 5,000 miles of corridors which included amendments to 92 land use plans in 11 western states. The USFS issued a Record of Decision on January 14, 2009, which amended 38 national forest land management plans and designated approximately 990 miles of corridors in 10 states. The Decisions included Interagency Operating Procedures, or BMPs, for the Section 368 energy corridors. The Interagency Operating Procedures can be found on BLM's website. The BLM and USFS decisions relied upon the analysis in the *Final Programmatic Environmental Impact Statement, Designation of Energy Corridors on Federal Land in the 11 Western States* (DOE/EIS-0386) (PEIS), issued by the DOE, BLM, USFS, and DoD in 2008.

There are two Section 368 energy corridors adjacent to and/or overlapped by the proposed expansion under Alternatives 3A and 3B. Alternative 3A includes energy Corridor 18-224 north of the town of Beatty. Energy Corridor 18-224 extends northwest-southeast from east of Carson City to northwest of the Town of Pahrump in southern Nye County, Nevada (Figure 4-2). Alternative 3B includes energy Corridor 223-224 southeast of Indian Springs and Creech AFB.

Federally designated portions of this energy corridor are entirely on BLM-administered land, with a 10,560-foot-wide section from Milepost (MP) 0 to MP 89.0 for 83.6 miles and a 3,500-foot-wide section for 161.8 miles from MP 89.0 to MP 256.2. It is designated as a multi-modal corridor that can accommodate both electrical transmission and pipeline projects. The corridor spans a 256.2-mile distance, with 244.2 designated centerline miles. The designated area is 171,986 acres (269 square miles). This corridor is within Mineral, Esmerelda, and Nye Counties in Nevada and within the jurisdiction of BLM's Battle Mountain, Carson City, and Southern Nevada District Offices.

The Section 368 energy Corridor 223-224 is shown in Figure 4-3.

**Standup and Beddown of a Tactical Air Support Squadron, Nellis Air Force Base, Nevada.** The Air Force has proposed stand up the Tactical Air Support Squadron (TASS) at Nellis AFB (U.S. Air Force, 2017p). The new TASS would be an integral element of the CAS Integration Group (CIG), and would be integrated into the existing 57th Operations Group at Nellis AFB. The action would transfer/assign up to 16 Fourth Generation F-16C aircraft (14 Primary Aircraft Inventory and two Backup Aircraft Inventory) to the TASS.

Personnel at Nellis AFB would increase by a total of 123 Air Force and government support positions and 170 contract maintenance positions. The 123 positions include billets for the TASS, minor additions to the CIG Staff, munitions personnel, and base operating support personnel. All contract maintenance personnel would arrive by the end of fiscal year 2018; of the 123 government personnel, 57 would be expected to arrive in fiscal year 2018 and the remainder the following year. Several military construction (MILCON) and operations and maintenance (O&M) projects would be required to support the beddown.

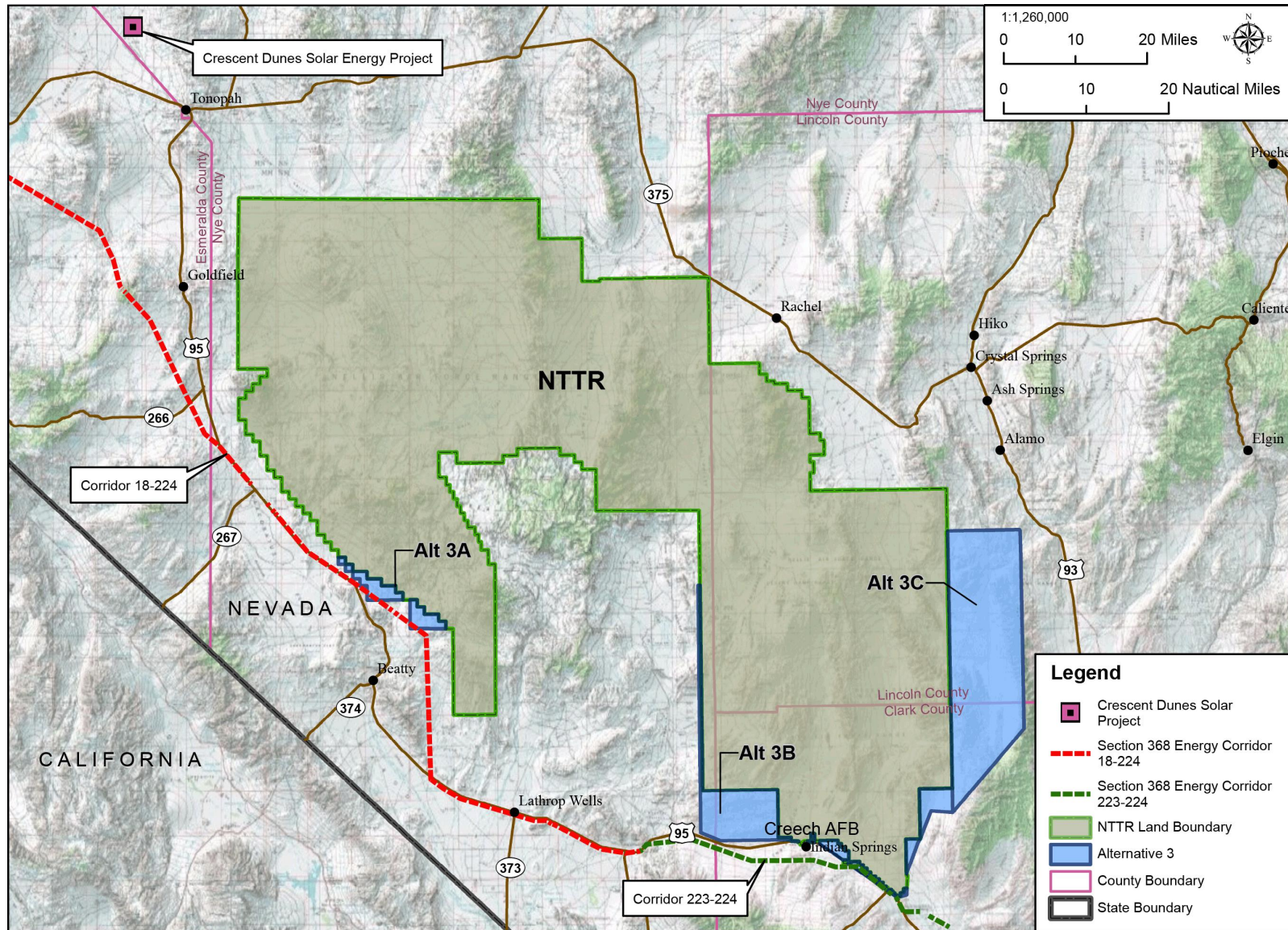


Figure 4-2. Section 368 Energy Corridor 18-224

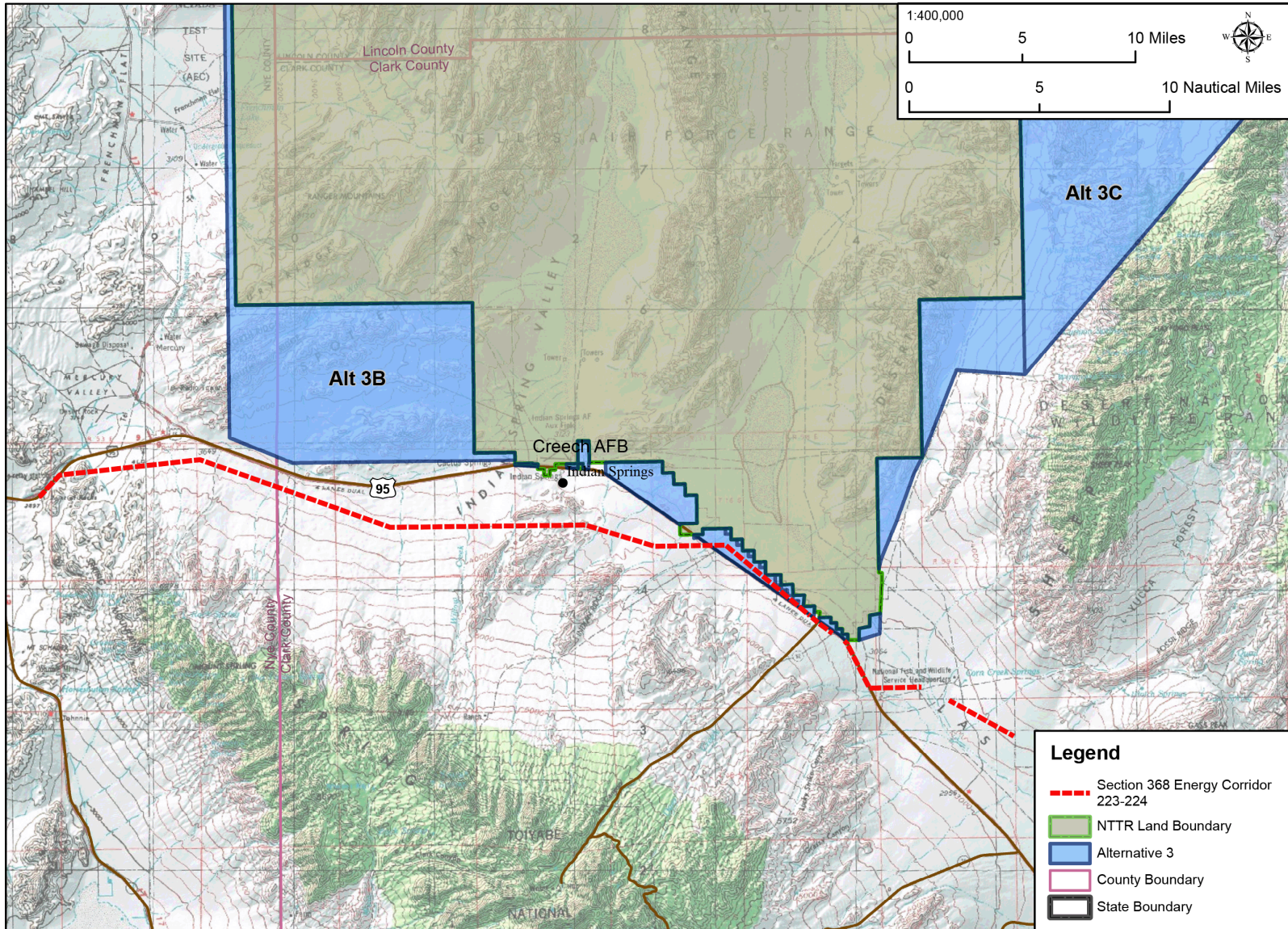


Figure 4-3. Section 368 Energy Corridor 223-224

The east side of the existing ramp space would be expanded by approximately 11.5 acres to accommodate aircraft displaced by the 16 F-16s, which will be parked on the west ramp. The live ordnance loading area (LOLA) would also be expanded by approximately 7 acres. A new 9,225-square-foot support facility at the LOLA would be constructed. These actions would also require that the existing O'Bannon Road be relocated to accommodate the apron and LOLA expansions. The TASS/CIG HQ would be a new 27,300-square-foot building and would be constructed adjacent to Freedom Park on the west side of the airfield. A new maintenance hangar and Aircraft Maintenance Unit (AMU) facility would require demolition of Building 295 and new construction on-site. The new Maintenance Hangar/AMU would be 55,000 square feet. Nellis AFB recognizes that there may be a need to establish additional capacity for future, as of yet unidentified missions. Nellis AFB is conducting preliminary planning to evaluate how this capacity could be established. Plans may include establishment of additional hangars, maintenance facilities, and other infrastructure along the east side of the existing ramp. Projects are not funded or reasonably foreseeable at this time. Once proposals are better defined, the Air Force would evaluate any future mission and facilities impacts to address these needs, including range and airspace use.

These projects would be expected to require 12 to 18 months to complete and would be phased over a four-year period beginning with the O&M projects in late calendar year 2017. Approximately 20 to 50 construction personnel would be on-site during the construction period, particularly during the peak construction action when concrete is being delivered.

The TASS, when fully operational, would be expected to fly approximately 2,700 annual sorties as part of the CAS training mission. Of these, about 300 (or approximately 11 percent) are expected to be flown at night between 10:00 PM and 7:00 AM. The aircraft would depart Nellis AFB and transit to the NTTR using restricted airspace (R-2508) and the NTTR MOAs.

Aircraft carrying live munitions always depart to the north, away from downtown Las Vegas. Use of the NTTR is accomplished by an internal scheduling and prioritization of requests within Nellis AFB and Creech AFB user groups; numerous requests for range time result in intense competition for NTTR land and airspace. NTTR test and training schedule blocks are managed to 15-minute intervals for each airspace and range area to ensure efficiency. TASS operations would represent only a negligible increase, but would exacerbate the existing conditions, requiring even further coordination.

**Fallon Range Training Complex Modernization.** The Navy is proposing the following as part of the Fallon Range Training Complex Modernization: (1) Congressional renewal of the 1999 Public Land Withdrawal of 201,933 acres, which is scheduled to expire in November 2021, (2) withdrawal and reservation by Congress for military use of approximately 618,727 acres of additional federal land for military use, (3) acquisition of approximately 65,153 acres of private or state-owned (non-federal) land, (4) expansion of associated SUA and reconfiguration of existing airspace, and (5) modification of range infrastructure to support modernization. These elements would allow the Navy to

redistribute training activities across the expanded ranges to allow training to occur at the same time on multiple ranges.

#### 4.1.4 Cumulative Effects Analysis

Cumulative effects are assessed for each of the resources presented in Chapter 3. For this analysis, the past, present, and future actions would be the sum of all the activities associated with the Proposed Action, the No Action Alternative, and the other actions described in this chapter.

*For the Native American perspective on information in this section, please see Section 4.1.5 and Appendix K, paragraph 4.1.4.*

##### 4.1.4.1 Airspace Use and Management

With the exception of the addition of the F-35 to Nellis AFB, none of the past, present, or reasonably foreseeable projects identified in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions) would affect airspace utilization. For any of the proposed alternatives, there are no proposed physical changes (external boundaries, dimensions, altitudes, etc.) to any airspace currently controlled by the NATCF. As such, any changes will be limited to how the airspace is used, particularly with introduction of the F-35. 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 the noise levels, patterns, and dispersal over how it is currently used. (See Section 4.1.4.2, Noise, for more details on potential cumulative noise impacts.) Changes in utilization of the airspace could potentially change the air quality within the affected airspace. (See Section 4.1.4.3, Air Quality, for more details on potential cumulative air quality impacts.)

##### 4.1.4.2 Noise

Cumulative noise impacts consist of the combined potential effects resulting from the Proposed Action and applicable past, present, and reasonably foreseeable future projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions). Potential cumulative effects of noise on the surrounding communities, wildlife, and cultural resources would be associated with construction and other noise-generating activities, operation of new facilities, and increased aircraft, munitions, and vehicle use.

Several projects would involve construction of Air Force facilities, housing, industrial facilities, and recreational areas. In addition, noise could be generated during fire management activities, installation of a solar energy project, and placement of pipeline and other infrastructure related to groundwater and utility projects (including energy Corridors 18-224 and 223-224).

The majority of the relevant past and present actions considered as part of the cumulative impacts in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions) involve construction of a new facility or

demolition or renovation of an existing facility. Construction noise is temporary, lasting only for the duration of the construction project, and is typically limited to normal working hours (7:00 AM to 5:00 PM). However, construction noise would be noticeable to persons living and working nearby and may cause additional annoyance. Noise impacts associated with these projects are expected to be limited to the immediate areas surrounding the individual projects and would be insignificant both separately and cumulatively.

For Alternative 1, operations and, therefore, noise levels would remain at existing baseline levels, which have existed for many years or even decades. For Alternatives 2 and 3, subsonic and supersonic aircraft noise levels, as well as munitions use, troop movement, and emitter functions, would increase very slightly (typically less than 1 dB), and these levels are not likely to be considered by the public to be adverse. Cumulative impacts would occur wherever noise impacts from proposed increased NTTR activities overlap with noise impacts resulting from other reasonably foreseeable actions planned to occur in the NTTR region.

Other past, present, and reasonably foreseeable projects may also have associated long-term noise, such as operational noise from an industrial facility, aircraft, munitions, or increased transportation. For capital improvement projects and other military projects at Nellis AFB, Creech AFB, and NTTR, the Air Installations Compatible Use Zones (AICUZ) program would influence project planning and implementation by providing data and land use recommendations to ensure public safety, health and welfare, while still supporting the Air Force's mission of national defense. These data are also intended for use by local citizens and governmental officials involved in land use planning and community development and would help guide appropriate implementation of other regional projects in order to ensure land use compatibility and minimize cumulative effects on sensitive receptors and the surrounding communities overall. Because of the incremental nature of the noise impacts associated with the Proposed Action and through application of appropriate planning measures, implementation of the Proposed Action and other past, present, and future actions is unlikely to result in significant noise impacts.

#### **4.1.4.3 Air Quality**

Cumulative effects to air quality consist of the combined potential effects resulting from the Proposed Action and applicable past, present, and reasonably foreseeable future projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions). These projects would result in direct emissions of criteria pollutants and GHGs. Potential cumulative effects to air quality would be associated with combustion of fossil fuels during construction, transportation, operation of new facilities, and increased groundwater use.

Several projects including those in the Nellis AFB and Creech AFB CIPs would involve construction of Air Force facilities, housing, industrial facilities, and recreational areas. In addition, air emissions would result from fire management activities, installation of a solar energy project, and placement of pipeline and other infrastructure. For some of



these projects, air emissions would cease once the initial construction phase is complete, such as the groundwater and energy corridor projects. Others, such as housing development projects, would result in minimal increased long-term emissions, such as those associated with residential heating and transportation. Projects such as the solar energy projects would have a large beneficial impact on regional air quality through reduction in the need for fossil fuel combustion and other electricity-generating processes associated with criteria pollutant and GHG emissions. Likewise, many of the Air Force capital improvement program projects at Nellis AFB and Creech AFB would replace outdated, inefficient facilities with modern LEED<sup>®</sup>-certified facilities, which would also likely have a net beneficial impact in the long term. Further, any projects that would include larger emissions-generating sources would be subject to permitting requirements under NSR/PSD and/or Title V Air Construction or Air Operation permits. With implementation of permit requirements and appropriate management practices, the cumulative amount of emissions resulting from the Proposed Action and other past, present, and future actions is unlikely to significantly affect regional air quality.

Table 4-2 provides estimated annual air emissions for projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions) for which such quantitative estimates were available. For other projects described in those sections, analysis in the appropriate NEPA documentation was qualitative in nature or otherwise unavailable.

**Table 4-2. Cumulative Air Emissions**

| Source   | Pollutant (tons/year) |                 |                  |                   |                 |        |                  |
|--|-----------------------|-----------------|------------------|-------------------|-----------------|--------|------------------|
|  | CO                    | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> | SO <sub>x</sub> | VOC    | CO <sub>2e</sub> |
| NTTR Land Withdrawal (Alts 1, 2, and 3)                | 1,493.63              | 4,013.61        | 1,068.16         | 824.26            | 196.94          | 247.55 | 767,193          |
| Nellis CIG TASS EA (2019)                              | 19.99                 | -25.04          | -3.26            | -3.65             | 0.01            | -3.68  | 225              |
| Creech CIP EA (Scenario 2)                             | 8.5                   | 20.8            | 66.53            | 7.53              | 0.35            | 1.35   | 1,844            |
| Nellis CIP EA (Scenario 2)                             | 8.5                   | 20.8            | 66.53            | 7.53              | 0.35            | 1.35   | 1,844            |
| F-35 Force Development EIS (2019)                      | 114.83                | 164.09          | 45.34            | 43.99             | 8.41            | 8.86   | 107,929          |
| Coyote Springs Initiative Vehicle Traffic (year 10)    | 2,084.00              | 275.00          | 453.00           | 90.00             | 3.00            | 201.00 | -                |
| Crescent Dunes Solar Energy Project EIS (Construction) | 38.30                 | 44.50           | 39.00            | 39.00             | 1.45            | 7.10   | 9,496            |
| Crescent Dunes Solar Energy Project EIS (Operation)    | 3.26                  | 2.97            | 7.57             | 7.57              | 0.01            | 0.22   | 942              |

**Table 4-2. Cumulative Air Emissions**

| Source   | Pollutant (tons/year) |                 |                  |                   |                 |                |                   |
|--|-----------------------|-----------------|------------------|-------------------|-----------------|----------------|-------------------|
|  | CO                    | NO <sub>x</sub> | PM <sub>10</sub> | PM <sub>2.5</sub> | SO <sub>x</sub> | VOC            | CO <sub>2e</sub>  |
| <b>TOTAL (Proposed Action plus past, present, and foreseeable project emissions)</b> | <b>3,771.01</b>       | <b>4,516.73</b> | <b>1,742.87</b>  | <b>1,016.23</b>   | <b>210.52</b>   | <b>463.75</b>  | <b>889,473</b>    |
| <b>ROI Baseline</b>  | <b>398,567</b>        | <b>53,433</b>   | <b>69,705</b>    | <b>17,576</b>     | <b>7,417</b>    | <b>501,115</b> | <b>12,179,548</b> |
| <b>Percent of ROI</b>  | <b>0.95%</b>          | <b>8.45%</b>    | <b>2.50%</b>     | <b>5.78%</b>      | <b>2.84%</b>    | <b>0.09%</b>   | <b>7.30%</b>      |

In totaling all of these projects along with implementation of the NTTR land withdrawal extension or expansion to include Alternatives 1, 2, and 3 such that all potential areas are withdrawn and a 30 percent increase in operational intensity is implemented, annual air emissions are still not shown to exceed 10 percent of the annual ROI emissions. It should be noted that these emissions are not cumulative in this manner in reality. Emissions are affected by many climatological forces such that pollutants are dispersed and broken down by natural processes. However, any quantitative regional air quality dispersion and concentration study to include all federal, state, municipal, and private activities that contribute to regional air quality would be a multi-year, multi-million dollar effort and is well beyond the intent of the NEPA regulation and the scope of this document.

For Alternative 1, the Proposed Action would remain at the current operational levels and would, therefore, not contribute to regional cumulative impacts more than current conditions. For Alternatives 2 and 3, the Proposed Action would incrementally contribute air pollution emissions during construction activities and would allow for increased air pollutant emissions thereafter associated with increased aircraft and munitions operations, troop movements, maintenance, and emitter use. This contribution would relate to regional air quality goals and attainment standards. The contribution from the Proposed Action would be negligible on a regional scale, as construction and demolition impacts are very minor and would be short term, ending when the projects are completed. Aircraft, munitions, troop movement, and emitter emissions would be ongoing and would be a permanent change in annual air emissions. However, the air emissions are expected to have a slight net increase from these ongoing sources of emissions. Air emissions associated with the project represent a small percentage of the Clark, Lincoln, and Nye County annual emissions. Project emissions would not contribute to other county emissions in any appreciable manner.

As discussed above, air emissions from the majority of past, present, and reasonably foreseeable projects would be temporary, intermittent, and minor, and some would have a net beneficial effect on the overall regional air quality. As a result, the Air Force does not expect long-term adverse cumulative impacts to regional air quality associated with air emissions from the Proposed Action and the relevant past, present, and reasonably foreseeable regional development and other projects. Therefore, ambient air quality standards would not be exceeded by the cumulative impact of project-related emissions and emissions from other past, present, or reasonably foreseeable projects.

#### 4.1.4.4 Land Use

Cumulative impacts to land use (primarily recreational resources) consist of the combined potential effects resulting from the Proposed Action and applicable past, present, and reasonably foreseeable future projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions). Of these projects, only the mountain bike and OHV trails development in Nye County, and CSN development would impact recreational use and resources in the area surrounding the NTTR. Other foreseeable future actions would be consistent with current activities in the area and would not precipitate changes in land use patterns, ownership, or management practices.

*For the Native American perspective on information in this section, please see Section 4.1.5 and Appendix K, paragraph 4.1.4.4.1.*

The Proposed Action Alternatives 3A, 3B, and 3C (approximately 300,000 acres) would result in additional access restrictions to currently accessible lands and the cumulative loss of recreational opportunities. Recreational activities were reduced when the CSN lands were transferred from public lands to private lands in the 1980s, and additional development could prevent access of OHV vehicles from CSN private lands to adjacent BLM lands to the east. However, existing (golf course) and planned recreational facilities, such as an amusement park, parks, sports fields, and planned trails could open up a limited amount of new recreational space to the public.

The existing and planned mountain biking and OHV trail system being developed in Nye County in the Oasis Valley area also provide additional recreational opportunities on private and BLM-managed lands. However, portions of the existing (about 4.5 miles) and planned (14.7 miles) bike/OHV trail system would be impacted by the Alternative 3A withdrawal. Under Alternative 3A-1 the potential impact to the existing and planned trails would not occur. Also, over the next five years, Trails-OV plans to develop up to 300 miles of trails and usable routes in the Oasis Valley area ([www.trails-ov.org](http://www.trails-ov.org)).

It is possible that the loss of existing recreational opportunities from the Alternative 3A, 3B, and 3C withdrawals could result in the increased use of adjacent and nearby recreational areas, including other wilderness areas. DNWR visitor records are kept via a non-mandatory guest registration. As a result, there is not a clear understanding of the current usage of the area for recreational activities. Many of the recreational areas within the DNWR would remain open and overall visitation would not be expected to substantially increase to the point where adverse impacts would occur. Additionally, it is assumed that displaced recreational users would be evenly distributed across the other recreational areas in the NTTR region. However, the exact extent of the potential impact on nearby recreational areas is indeterminable at this time and would be highly speculative without a thorough understanding of the current usage and the potential shift of recreational activity.

Within a 100-mile radius of the NTTR, there are numerous opportunities for public recreational use, including county and city parks, private OHV parks, and other state and federal lands open to motorized and nonmotorized uses. Also, based on information presented in Appendix F, Wilderness and Wilderness Study Areas, and not including the existing areas proposed for wilderness within the DNWR, 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. Although the Alternative 3A, 3B, and 3C withdrawals would limit recreational access in certain areas and shift recreational activity to other areas, it would not significantly impact recreational opportunities or usage when considered in conjunction with other applicable past, present, and reasonably foreseeable future actions.

### Visual Resources

There are several present actions and reasonably foreseeable future projects within the vicinity of the NTTR that would involve the construction of new facilities, adding anthropogenic elements to the landscape and possibly contributing to light pollution. Projects that occur within areas where man-made elements already dominate the landscape, such as the construction and demolition activities that are a part of the F-35 beddown at Nellis AFB, conform to the visual expectations of viewers and to the existing landscape character and, therefore, are of low sensitivity and impact. Other projects, such as the capital improvements at Nellis AFB and Creech AFB, have the potential to have a positive impact on light pollution through the conformance to LEED<sup>®</sup> design specifications on exterior lighting that minimize light trespass and glare. The projects that do not affect the physical environment will not affect visual resources; these projects are limited to the Pahrump Valley Desert Tortoise HCP and the Goldfield Historic District.

Projects such as the mountain bike trails (City of Beatty, Nye County) and OHV trails (Nye County) have the potential to introduce some new elements to the landscape, such as small signage or fencing. However, as long as trails run along existing roads, new ground disturbance could be minimal, and, therefore, there would be little change to the existing visual environment. There are no large-scale construction elements associated with these projects that would introduce sources of light pollution or obtrusive elements to the landscape. Visually, the trails would be consistent with current management plans of the area and viewer expectations.

The projects that could have the greatest cumulative effects are those that create development in areas with few existing human features. Areas of concentrated development, such as the Lincoln County Industrial Park, and the CSN (Lincoln County), will involve relatively dense construction and development. In contrast, the new elements associated with the Clark, Lincoln, and White Pine Counties Groundwater Development Project or the Lincoln County Land Act Groundwater and Utility Right-of-Way Project would be dispersed throughout the landscape. Where new facilities are more densely concentrated, the viewer would perceive the landscape as more urbanized, whereas dispersed facilities are less visually intrusive but affect a larger area. Both types of projects have the potential to change the regional landscape from one that is relatively untrammled and remote to an increasingly urbanized and human-dominated area. Due to the additive character of light pollution and its propagation over large distances, the radiance footprints from various developments could accumulate and merge, contributing light pollution and sky glow into a region currently noted for natural dark skies.

The No Action Alternative, Alternative 1, and Alternative 4, would not contribute to cumulative impacts to visual resources due to the limited introduction of new development and light sources, as well as their consistency with current visual resource management objectives. Alternatives 2 and 3 have the potential to incrementally change the visual characteristics over the largest region when considered with projects identified in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions), through new development and light sources introduced into previously untrammelled areas. Development on NTTR in any of the alternatives or in projects in the surrounding area may be visible from the remaining publicly accessible proposed wilderness and recreation areas, creating a transboundary issue where the scenic quality of those areas is degraded (Kelson & Lilieholm, 1999).

#### **4.1.4.5 Wilderness and Wilderness Study Areas**

Analysis of cumulative effects to wilderness considers the combined potential impacts from the Proposed Action and applicable past, present, and reasonably foreseeable future projects to the four wilderness qualities defined in Section 3.5.1.1 (Description of Resource). The only past, present, and future actions that may impact wilderness include fire management activities associated with the Nellis AFB Wildland Fire Management Plan and aircraft operations associated with the F-35 beddown and the standup and beddown of the TASS at Nellis AFB. All other projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions) would not occur within Wilderness Areas, areas proposed for wilderness in the South Range, or WSAs associated with the NTTR ROI and, therefore, they are not discussed further in this section.

Implementation of fire management activities from the Nellis AFB Wildland Fire Management Plan would be consistent with ongoing management strategies of the NTTR. These activities would be conducted in concert with other ecological management actions associated with the Nellis AFB INRMP that support natural resource conservation and promote the preservation of the untrammelled and natural qualities of wilderness. Therefore, combining these activities with the Proposed Action would not result in significant cumulative impacts to wilderness qualities within the NTTR ROI.

The F-35 beddown at Nellis AFB increased aircraft operations over Wilderness Areas and WSAs underlying NTTR airspace units. The noise analyses presented in Section 3.2.2.3 for Alternative 2 and Section 3.2.2.4 for Alternative 3 considered the approximate increased aircraft operations planned for the NTTR in future years. Results from these analyses indicated that noise level increases are not expected to be discernible over baseline conditions. In addition, the increased number of annual sorties associated with TASS operations would represent only a negligible increase over baseline conditions. Therefore, incremental impacts from these activities would not be significant. As discussed in Sections 3.5.1.3 (Wilderness and Wilderness Study Areas) and Section 3.5.2.3 (Alternative 2), baseline aircraft operations generate noise levels that may result in annoyance of potential visitors to Wilderness Areas, areas proposed for wilderness, and WSAs within the NTTR ROI. Therefore, noise levels generated by

future F-35 aircraft and TASS operations associated with these beddowns would similarly affect the solitude qualities of wilderness, because signs of human activities within and outside these areas would be detectable on a regular basis. Combining these activities with the Proposed Action may contribute to cumulative impacts to the solitude or primitive and unconfined recreation quality of wilderness, but not to a significant level. There would be no cumulative or incremental effects from aircraft operations to untrammeled, natural, and undeveloped qualities of wilderness.

Adverse impacts to the undeveloped quality of wilderness within the NTTR land boundary are anticipated under Alternatives 2 and 3, and adverse impacts to the solitude and/or primitive and unconfined recreation quality are expected under Alternatives 1, 2, and 3. However, in the absence of any identified past, present, or foreseeable future action that would have a significant impact on wilderness qualities to Wilderness Areas and WSAs in the region, combining these activities with any of the action alternatives associated with the Proposed Action would not result in an associated cumulative or incremental impacts. Furthermore, none of the projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions) would result in a change of land management in the region. Therefore, changing the land use management under Alternatives 2 and/or 3 would not result in an associated cumulative or incremental impact.

#### **4.1.4.6 Socioeconomics**

Cumulative effects to socioeconomic resources consist of the combined potential effects resulting from the Proposed Action and applicable past, present, and reasonably foreseeable future projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions). All of these projects would have a cumulative economic impact. Potential cumulative effects would involve an in- or out-migration of people to the area, which would create a cumulative impact on population, housing, economic activity, recreational use, educational facilities and staffing, and public and base services.

Any reduction in PILT payments associated with the Proposed Action would result in decreased funds for fire and police protection and other services that PILT payments support. Decreased funds for fire/police and emergency services, coupled with activities conducted on the NTTR associated with the Proposed Action, could present cumulative impacts to socioeconomic resources from wildfire hazards on and surrounding the NTTR. Past and present activities, such as implementation of measures in the Nellis AFB Wildland Fire Management Plan and the Fire Management for the Cedar Peak Area EA on the NTTR, could minimize cumulative effects to socioeconomic resources from potential wildfire hazards.

Other relevant past and present actions, such as the TASS beddown and the F-35 beddown at Nellis AFB would provide long-term economic value to the local area, while operation of the SolarReserve Crescent Dunes Solar Energy Facility would provide additional beneficial cumulative impacts as well.

Construction activities typically provide a beneficial economic impact on the area but are short-term, only lasting for the duration of the project. However, many short-term projects occurring throughout the year provide a cumulative beneficial economic impact over the long term, depending on the scope of the project. Employment opportunities in the region would contribute to positive economic growth in the area.

The combined operations of the F-35 and TASS beddown would increase personnel by 691 and add 53 million in additional earnings (U.S. Air Force, 2011; 2017p). The Crescent Dunes Solar Energy Facility has an operational employment of up to 50 full time employees and an economic impact of more than 22.7 million per year from operations either directly or indirectly (Tonopah Solar Energy, 2010).

Reasonably foreseeable future actions, such as the mountain biking and the OHV trails, would provide beneficial cumulative impacts to socioeconomic resources from tourism and recreational use in the areas adjacent to the NTTR. Any potential restrictions or limitations to recreational areas, such as an OHV race route, or a decrease in the areas available for recreational use would have an adverse cumulative effect on socioeconomic resources. Strategies to minimize adverse cumulative effects to socioeconomic resources could include implementation of comprehensive plans, capital improvement plans, transportation plans, and other plans and coordination efforts that guide future development activities such as the Nellis AFB CIP and the Creech AFB CIP.

Based on preliminary information provided by the Navy, there would be very little change in PILT for Nye County for any of the current alternatives being evaluated as part of the Fallon Range Training Complex Modernization.

Implementation of the Proposed Action would enable the NTTR to continue as an important economic contributor to the region from employment and income associated with training activities. Other reasonably foreseeable future actions that would involve construction and development in the area would have a positive cumulative impact on the area from continued increases in population, housing, and employment and economic activity such as military and general aviation, energy industries, and agriculture in the area. Additional military training in the area would contribute to the local economy through continued employment and earnings. However, additional and continuing military operations could create further conflicts between military users and the general public and land use compatibility. Coordination between the military and local and regional planning departments would minimize potential conflicts. Therefore, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects would not result in significant impacts within the ROI.

#### **4.1.4.7 Environmental Justice**

Cumulative effects to environmental justice populations consist of the combined potential effects resulting from the Proposed Action and applicable past, present, and reasonably foreseeable future projects. Past and present actions that analyzed potential environmental justice impacts include the F-35 beddown EIS (2011) and the Tonopah Solar Energy, LLC Crescent Dunes Solar Energy Project EIS (Tonopah Solar Energy,

2010) (the “Crescent Dunes EIS”). The F-35 beddown EIS determined that there would be an increase in the number of people in the vicinity of Nellis AFB that would be affected by noise levels within 65 dB DNL or greater. The number of minority would increase from 30,257 to 42,272 and the number of those residents identified as low-income would increase from 5,406 to 6,673. However, both the F35 beddown EIS and the Solar Reserve EIS determined that there were no disproportionate impacts as a result of the proposed actions with implementation of such mitigations as noise attenuation features, which are required for all new residential construction in areas affected by noise levels of 65 dB DNL or greater, noise abatement procedures, and consultation between government agencies and Nevada SHPO. Existing residential homes that do not have noise attenuation features would be affected by ongoing and increased noise wherever noise impacts from proposed increased NTTR activities overlap with noise impacts resulting from other reasonably foreseeable actions planned to occur in the NTTR region. Under the Proposed Action, subsonic and supersonic aircraft noise, munition noise, and ground disturbance noise would not add measurably to the overall noise environment and would not only impact a particular segment of the population and, therefore, no disproportionately high and adverse cumulative impacts to environmental justice communities would be anticipated from the proposed action combined with past and present projects.

Reasonably foreseeable actions such as those described in the Nellis CIP EA and the Creech CIP EA would not impact environmental justice communities since the proposed actions would occur in restricted access areas within the boundary of the associated base. Any reasonable foreseeable action that would generate a range of economic and fiscal benefits such as an increase in economic activity, jobs, income, and public services would benefit all members and residents of the community. These benefits also favorably affect minority and low-income populations. Beneficial economic changes can also be coupled with adverse impacts particularly to areas with a growing population, lack of housing, and underfunded public resources, such as the case with the unincorporated town of Alamo in Lincoln County.

Potential community improvements such as those identified in the Lincoln County Master Plan (Lincoln County, 2015), which would result in an increase in affordable housing and an increase in funding for recreational parks, trails, and tourism provide benefits throughout the community for all residents, including environmental justice communities. A greater number of facilities and improved facilities at key recreational areas at such areas as those identified in Section 2.3.3.4 (Alternative 3C) could benefit everyone residing in the region, including environmental justice communities. Improved recreational experiences and opportunities associated with new mountain biking trails and OHV trails described in Section 4.1.3 (Reasonably Foreseeable Future Actions) also off-set any adverse impacts from implementation of Alternative 3 in which public access would be restricted. Closures of recreational areas could result in overcrowding in other key recreational areas or a loss of income associated with any reduction in the number of recreational users from restricted access. Data on the extent of any loss of income associated with recreational closures is not available at this time but may affect residents in the region, including environmental justice communities.



No significant impacts to noise, safety, land use, cultural, air quality, airspace, and water resources would be anticipated as a result of the Proposed Action. Furthermore, any potential impacts from the Proposed Action associated with these and other resource areas considered would equally affect everyone residing in the region and would not be anticipated to disproportionately affect any one group or locality. Since 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 under the Proposed Action, there would be no cumulative impacts to environmental justice anticipated.

#### **4.1.4.8 Biological Resources**

Cumulative impacts consider the effects of past, present, and future actions, described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions), on biological resources on a regional level, specifically those resources that may be considered rare or limited. In addition to projects associated with continued use the NTTR, potential current and future projects in the region include construction of Air Force facilities (including projects on Nellis AFB and Creech AFB), residential development, industrial facilities, installation of a solar energy project, placement of pipeline and other infrastructure related to groundwater and utility projects, and development of recreational areas. In addition, ground disturbance would occur during fire management activities. The total area of ground disturbance associated with projects described in Section 4.1.2 and Section 4.1.3 and for which such information is available is nearly 26,000 acres (most of which is attributed to the planned Coyote Springs LLC development), although quantitative data are not available for some of the projects.

Potential cumulative effects to biological resources would be associated with ground disturbance and long-term loss of desert scrub and other unique desert vegetation in Nevada, as well as long-term loss of individuals and habitat of federally or state-listed endangered, threatened, rare, and otherwise sensitive plant and wildlife species, including the federally listed desert tortoise. Habitat fragmentation or possible effects on regional wildlife movements (wildlife corridors), and loss or degradation of habitat caused by erosion, sedimentation, turbidity, dust, fuel spills or introduction of other pollutants, can also result in direct or indirect loss of vegetation and wildlife habitat, including individuals or habitat for sensitive species. However, as outlined in the Biological Assessment, the Air Force is working with USFWS Ecological Services to develop compensatory mitigation strategies that include “mitigation banking” to offset any loss of habitat. Additionally, the Air Force operates under an incidental take permit issued by USFWS, which is anticipated to continue. Based on consultation with USFWS, the agency believes that none of the alternatives will, even considering cumulative impacts, jeopardize the continued existence of the desert tortoise. Water development projects have the potential to alter surface or groundwater, which can adversely affect aquatic and wetland habitats or limit water availability for wildlife.

Indirect cumulative impacts can occur from the increased potential for invasive species (including landscape plants and domestic pets) and wildland fires associated with

commercial, residential, and recreational development, as well as military activities. Wildland fires that could be ignited by military activities pose a significant threat to native vegetation, wildlife, aquatic and wetland habitats, and special status plant species and their habitats both in and outside the existing or proposed NTTR boundary. A Wildland Fire Management Plan provides a framework for fire management, wildland fire suppression, burned area emergency rehabilitation, emergency stabilization, and fuel treatment activities to support the military mission including resource protection and ecosystem management objectives.

Increased recreational development can also impact biological resources, although to a lesser extent. The potential loss of recreational areas associated with the Alternative 3C expansion area could result in a shift of recreational activities to other locations in the region, and potential direct and indirect impacts to biological resources resulting from recreational activities could occur; however, the extent or scope of potential impacts is indeterminable and would be highly speculative without a thorough understanding of the usage of the Alamo areas (which is unknown at this time) and the potential shift of recreation activity. Any potential impacts that could occur would not be expected to increase to a magnitude or for a duration of time that would cause the loss or degradation of biological resources, and there would be no overall significant effects to biological resources.

Military actions or projects would follow the regulatory requirements (e.g., NEPA, CWA, ESA) and natural resources management requirements, guidelines, and biological constraints currently being implemented on the NTTR. Implementation of the same planning prior to mission and project activities are required to avoid and minimize impacts to biological resources, including an assessment of cumulative impacts (U.S. Air Force, 2010). Potential cumulative effects of federal actions on federally listed endangered species are addressed project by project through the ESA Section 7 consultation process with the USFWS. Through this process, federal agencies and the USFWS jointly assess project-specific effects and develop and implement appropriate measures that reflect current conditions and status of the species. Improvement projects on military lands outside the NTTR, including the F-35 beddown and TASS beddown projects at Nellis AFB and CIPs on Nellis AFB and Creech AFB, may also contribute to the loss or degradation of biological resources, although those effects are likely to be small and localized compared with other past, present, and proposed future actions in the region.

For any of the action alternatives, direct impacts to biological resources are likely to occur as a result of continued military use of the NTTR, including loss of native desert scrub vegetation, wildlife and habitat, aquatic and wetland habitats, and special status species and their habitats. There is also the potential for loss associated with wildfires and spread of invasive species, which is difficult to measure. The length of the withdrawal period is relevant. The longer the withdrawal period (e.g., for Alternative 2 and 3), the more impacts there will be on the land and biological resources). However, based on the size of the NTTR and the surrounding area compared with the amount of acreage that would be used for military training, direct impacts to biological resources would be minimal. Sensitive habitat areas, including aquatic and wetland habitats,

would be avoided to the extent practicable, and impacts on special status plant and wildlife species would be minimized and mitigated if required. Indirect impacts associated with invasive species are minimized by using BMPs (such as inspection and cleaning of construction vehicles and equipment prior to entering or leaving the range) to prevent their establishment, monitor for new establishment, and manage existing populations. The level of the cumulative impacts to biological resources depends on whether the effects of disturbance are significant on a regional level and the sensitivity of the resource. However, for any of the action alternatives, military activities would contribute little to regional cumulative adverse direct or indirect impacts on biological resources on a regional level.

Extension of the existing NTTR withdrawal, as well as the addition of any of the proposed expansion areas, may have beneficial cumulative impacts insofar as it would maintain or increase protection of regional vegetation, wildlife, aquatic habitats and wetlands, and special status species and their habitats from the impacts associated with urbanization and nonmilitary land uses, such as development, recreation, grazing, and mining. The proposed withdrawal effort would also serve to continue, and under expansion increase, natural resource management on Air Force lands, which also results in increased opportunities for resource protection.

Under the No Action Alternative, a percentage of the lands currently restricted may be open to a variety of public and private uses, such as commercial or residential development, recreation, grazing, and mineral extraction. However, no lands within DNWR would be opened to commercial or residential development, mining, or grazing. Only compatible uses would be considered. These uses could result in greater loss or disturbance to biological resources than occurs under current Air Force use.

#### 4.1.4.9 Cultural Resources

Damage to the nature, integrity, and spatial context of cultural resources can have a cumulative impact if the initial act is compounded by other similar losses or impacts. The alteration or demolition of historic structures or the disturbance or removal of cultural artifacts may incrementally and cumulatively impact the cultural and historic setting of an area or region.

*For the Native American perspective on information in this section, please see Section 4.1.5 and Appendix K, paragraph 4.1.4.9.1.*

In general, recreational activities have historically occurred within proposed expansion areas, and military activities have occurred in the existing withdrawal areas under consideration. Activities on the NTTR that involve potentially ground-disturbing activities are guided by the Nellis AFB ICRMP and existing Air Force instructions. Given the required coordination with the Nellis AFB Cultural Resources Office, as well as any measures recommended by the SHPO as part of future Section 106 actions, future mission activities are not expected to cumulatively impact cultural resources. None of the alternatives would involve specifically located construction, demolition, or training activities. Any proposed activities or projects involving ground disturbance could be subject to further consideration under the NHPA as well as NEPA prior to

implementation. Ordnance delivery and other operational activities would occur on existing ranges and target impact areas approved for such activities on the NTTR. As described in this LEIS, flight operations, construction, and munitions use, as well as other activities discussed, are unlikely to result in adverse effects to NRHP-eligible cultural resources.

An increase in overflights or sonic boom frequency could potentially adversely affect traditional use locations or sacred sites by creating sonic disturbance to the setting. However, consultation with Native American groups would continue through the Native American Program to identify areas of concern and determine the extent of effects to these resources. No adverse impacts to cultural or traditional resources associated with NTTR operations are anticipated when considered cumulatively with other actions in the same area.

There are 2,889 cultural resource locations (prehistoric, historic and ethnographic) currently identified within the boundaries of the NTTR. There are an additional 2,111 resources located within the NTTR airspace. The total number of resources identified by other past, present and future projects described below is 159. Current cultural resource sites on the NTTR represents the majority of cultural resource sites identified in the region.

All of the projects described in the past, present and future projects within the region either had no historic properties present within the APE, or resulted in no adverse effects to cultural resources or resulted in a resolution of adverse effects thereby completing the Section 106 process. In the projects where historic properties were to be impacted (e.g., Crescent Dunes Solar Energy Project, Coyote Springs Investment Planned Development Project, and the Fire Management for Cedar Peak on NTTR), then data recovery was required, treatment plans were created, or existing agreements led to a resolution of adverse effects.

There are 142 archaeological sites that were identified in the APE of the Crescent Dunes Solar Energy Project (Tonopah Solar Energy, 2010). Of these 13 were identified as historic properties. The Proposed Action impacted four of these properties and required a BLM Historic Property Treatment Plan for each to resolve adverse effects. The Coyote Springs Investment Planned Development Project EIS (Entrix, 2008) (the "Coyote Springs Development EIS") identified four historic roads and 27 prehistoric sites. These sites were recommended for additional Section 106 consultations in cooperation with the BLM and SHPO through an existing MOU. The Fire Management for Cedar Peak on NTTR EA (U.S. Air Force, 2015b) identified two archaeological sites and three isolates. One of the sites is considered eligible for the NRHP and requires a protective buffer as mitigation against forest management activities. The Nellis AFB CIP EA (U.S. Air Force, 2013a) identified one archaeological site considered ineligible to the NRHP and determined that no cultural resources would be impacted by this action. The "Tough Mudder", L.L.C., EA (BLM, 2012d) identified one archaeological site and subsequently modified the APE to avoid this resource. The "Vegas to Reno" Race Event EA 2009 (BLM, 2016j) is utilizing previously identified routes and does not affect any cultural resources.

The F-35 beddown EIS reviewed sites located under the NTTR airspace and determined potential impacts that may be caused by the beddown. In total, 5,000 cultural resources and 50 traditional use properties were identified under the airspace. It was determined that the cultural sites and traditional cultural properties would be unaffected by the proposed action (U.S. Air Force, 2011).

The Desert Tortoise HCP (Nye County Planning Department, 2009), the Oasis Valley Recreation Trails Master Plan (GRO Trails and Race Consulting, 2016), the Lincoln County Master Plan (Lincoln County, 2015), the Creech AFB Capital Improvements Program EA (U.S. Air Force, 2013b) and the TASS EIS (U.S. Air Force, 2017p) did not identify any cultural features or sites considered eligible to the NRHP.

None of the regional development projects discussed have been identified as significantly contributing to cumulative impacts to cultural resources. Most of these projects are subject to Section 106 of the NHPA. If impacts to these resources are anticipated due to proposed activities, plans for the protection or mitigation of these resources must be developed by the proponent in consultation with the SHPO and other consulting parties as appropriate. Future federally funded or permitted undertakings would be required to follow the NHPA Section 106 process, and as a result, any potential adverse effects to cultural resources would be resolved through completion of that process. If proper mitigation or protective measures are undertaken in consultation with the SHPO and other consulting parties for structures, resources, or sites, no significant cumulative impacts to cultural resources are expected when considered in conjunction with other actions.

#### **4.1.4.10 Earth Resources**

Analysis of cumulative impacts to earth resources focused on activities with a discernible potential for the withdrawal or expansions to affect the nature of earth resources at the regional scale. Changes to soils associated with the withdrawal would not substantially alter earth resources in the area. Conceptually, the proposed actions would occur over time and are generally consistent with existing uses of the NTTR and would not be expected to substantially affect earth resources in the NTTR region.

Potential construction-related soil disturbances at multiple adjacent locations can have cumulative impacts. If the actions are concurrent, windborne eroded soil and transport of eroded soil through stormwater runoff can have cumulative impacts on air and water quality. Cumulative impacts from erosion would be negligible on the NTTR and in the general study area due to several factors. In general, these activities would be spread over a large geographic area and would occur over a long period of time, dissipating the overall impacts. Also, although erosion does commonly result from storm events, precipitation in the region is relatively low, reducing risks for water-caused erosion. In addition, the Air Force and state regulations require BMPs to minimize erosion and stormwater runoff.

An extension of the current NTTR would continue to impact earth resources as described under the baseline condition. Expansion under Alternative 3 would involve ground-disturbing activities, but details regarding those activities are only known in a

conceptual framework and amount to less than 100 acres of disturbance. When this number is compared to other past, present, and future projects described below, it represents orders of magnitude less than other regional ground-disturbing activity. Any subsequent development or use would require additional consideration under NEPA and in conjunction with the NDEP.

Proposed future dismounted troop movements could potentially damage earth resources, but that is unlikely given the size and scope of such activities. The continued restriction of access to the NTTR and USFWS-managed DNWR areas in the Alternative 3C proposed withdrawal area, which are currently not open to mining activities, could delay extraction of potentially recoverable resources if safety conditions and economic factors were to make such recovery feasible. A total of 21,060.6 acres of ground disturbance was identified in past, present, and future regional projects. This number is far lower than the probable total disturbance occurring in the area but shows a good overview of effects to earth resources in the area from a variety of projects. The following projects involved some degree of soil disturbance: the Coyote Springs Development EIS, the F-35 beddown EIS, the Oasis Valley Recreation Trails Master Plan, the TASS beddown at Nellis AFB, the Fire Management Plan for Cedar Peak on NTTR EA (U.S. Air Force, 2015b), and the “Tough Mudder” L.L.C., EA (BLM, 2012d). The remaining projects in this section either did not contain adequate information to provide an analysis or did not impact earth resources.

The Coyote Springs Development EIS identified 20,960 acres of disturbance from planned development and a utility corridor (Entrix, 2008). The F-35 beddown EIS would involve 36 acres of ground disturbance that would occur primarily in previously developed areas. The Oasis Valley Recreation Trails Master Plan proposes 32.19 miles of new trails with a rough average width of 9 feet per trail given trail and right-of-way measurements (GRO Trails and Race Consulting, 2016). This is approximately 35 acres of disturbance to previously undeveloped property. The TASS EIS identified 18.5 acres of disturbance owing to construction within previously developed areas (U.S. Air Force, 2017p). The Fire Management Plan for Cedar Peak on NTTR EA (U.S. Air Force, 2015b) identified 6 acres of disturbance within a high slope, high erosion risk area. The BLM estimates that 2.3 acres of the “Tough Mudder” L.L.C., EA (BLM, 2012d) course could potentially be impacted by erosion due to heavy rainfall events, while 2.8 acres of the course are of the proper soil type and slope to resist erosion risk.

The “Vegas to Reno” Race Event EA (BLM, 2016j), the Crescent Dunes Solar Energy Project (Tonopah Solar Energy, 2010) environmental analysis, the Lincoln County Industrial Park study, the Creech AFB CIP EA, and the Nellis AFB CIP (U.S. Air Force, 2013a) did not provide specific details for determining acreage of total disturbance allowing for an adequate analysis of impacts to soils. Lincoln County Industrial Park Master Plan (Lincoln County, 2015) potentially represents thousands of acres of new development but no specific numbers are available at this point given the high order view that the Master Plan provides.

No earth resources would be impacted by the Desert Tortoise HCP (Nye County Planning Department, 2009).

Any potential cumulative impacts to earth resources would be reduced through adequate project planning, fulfillment of NPDES requirements, and implementation of other site-specific BMPs in relation to other past, present, and future actions.

#### **4.1.4.11 Water Resources**

Cumulative effects to water resources consist of the combined potential effects resulting from the Proposed Action and applicable past, present, and reasonably foreseeable future projects described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions). These projects would be unlikely to result in direct impacts to surface waters. Potential cumulative effects to water resources would be associated with construction and other ground-disturbing activities, operation of new facilities, and increased groundwater use.

With the exception of the Goldfield Historic District project and fire management activities, all other projects would involve some level of ground disturbance, including construction of Air Force facilities, housing, industrial facilities, and recreational areas; installation of a solar energy project; and placement of pipeline and other infrastructure related to groundwater and utility projects (including energy Corridor 18-224). Ground disturbance could also potentially occur during fire management activities on the NTTR. Ground disturbance can result in erosion of soil and any associated contaminants due to rainfall runoff and, to a lesser extent, wind. Erosion can lead to sedimentation or introduction of contaminants into surface waters. In sufficient quantity, sediments and contaminants can negatively affect water quality. The total area of ground disturbance associated with projects for which such information is available is nearly 26,000 acres (F-35 beddown at Nellis AFB, TASS beddown at Nellis AFB, off-highway trails and other recreational projects, CSN, and Lincoln County Industrial Park). Of these projects, most of the ground disturbance is attributed to the planned Coyote Springs LLC development (about 21,000 acres). Quantitative data is not available for the remaining projects. It is anticipated that the majority of ground-disturbing activities described in Section 4.1.2 (Relevant Past and Present Actions) and Section 4.1.3 (Reasonably Foreseeable Future Actions) would be subject to NPDES permitting requirements and conducted in accordance with management practices designed to minimize the potential for erosion. A wide range of practices may be implemented, such as employing silt fencing and sediment traps and placing straw bales or sand bags, among other erosion management practices. (For example, when the Cedar Peak Project to reduce fuels and wildfire risk at Cedar Peak was underway, trees were felled by hand to avoid soil impacts.) With implementation of permit requirements and appropriate management practices, the cumulative amount of erosion resulting from the Proposed Action and other past, present, and future actions is unlikely to significantly affect surface waters.

Some of the projects would result in long-term placement of structures such as houses, industrial facilities, and Air Force facilities (F-35 beddown at Nellis AFB, TASS beddown at Nellis AFB, Nellis and Creech AFB CIPs, CSN, Lincoln County Industrial Park, and multiple groundwater and utility projects). The structures and related elements such as parking areas, sidewalks, and roads would increase the amount of impervious surface in the ROI, which would increase the amount of stormwater runoff. In addition,

increased vehicle use would likely result in additional petroleum products (gasoline, oil, etc.) present on some of the impervious surfaces. Increased runoff could result in erosion, downstream flooding, and conveyance of pollutants into surface waters. Although quantitative data are not available for the area of impervious surface or the types and quantities of pollutants potentially conveyed to surface waters, it is expected that stormwater management features would be part of the permitting process and long-term design for each project. With implementation of stormwater management practices, the cumulative effects of stormwater runoff on surface waters resulting from the Proposed Action and other past, present, and future actions is not expected to be significant.

Several of the identified past, present, and reasonably foreseeable future actions would result in increased water use in the ROI. Projects that involve increased population (either military or civilian) would result in additional water demand. New industrial facilities would also require additional water. Although data are not available for all projects, a total of about 22,000 AFY of groundwater withdrawal would occur as a result of implementing projects that have quantitative data available (SolarReserve Crescent Dunes Solar Energy Facility, Coyote Springs LLC development, and Kane Springs Valley Groundwater Development project). In addition, an increase in water use of about 400,000 gallons per day is estimated for the F-35 weapons school beddown at Nellis AFB. The additional water use is anticipated in association with program activities (e.g., aircraft washing) and an increase in on-base personnel. Three of the projects would involve groundwater extraction and transport. Air Force well water appropriations on the NTTR are underutilized, and therefore, there would likely be no requirement for additional surface or groundwater appropriations associated with Air Force activities. Of the 27 hydrographic basins associated with the NTTR, 10 are currently either fully allocated or overallocated. Although groundwater resources are likely sufficient to support other nonmilitary projects in the area, new groundwater rights and appropriation requests would require review and approval by the Nevada State Engineer's Office. State review would also include evaluation of potential effects to migration of groundwater contaminated by historical nuclear device testing.

#### **4.1.4.12 Hazardous Materials and Solid Wastes**

Maintenance operations associated with two reasonably foreseeable future actions (i.e., the TASS beddown and the F-35 beddown) identified in Section 4.1.3 (Reasonably Foreseeable Future Actions) would likely result in an increase in the quantity of hazardous materials used and hazardous wastes generated at Nellis AFB. These materials and wastes would continue to be managed according to established procedures and disposal practices. Additionally, these materials and waste would not adversely impact the existing management system or the regional disposal capacity. Consequently, implementation of the Proposed Action combined with past, present, and reasonably foreseeable future projects would not result in significant cumulative impacts associated with increases in the quantity of hazardous materials used, the quantity of wastes generated, or off-site impacts related to regional disposal capacity.



It would also be anticipated that the estimated increase in training from the standup of an F-16 TASS and the F-35 beddown, when combined with Alternatives 1, 2, or 3, would result in an associated, proportional increase in the quantity of chemicals released from munitions training. The Air Force currently complies with TRI reporting requirements and would continue to track ordnance use associated with these future actions. Based on the type of munitions that would likely be used, no new chemical thresholds would be exceeded and no additional reporting would be required. Additionally, the Air Force would continue to implement established range cleanup procedures. Consequently, implementation of the Proposed Action combined with past, present, and reasonably foreseeable future projects would not result in significant cumulative impacts associated with increases in the quantity of hazardous materials released during training.

#### **4.1.4.13 Health and Safety**

An increase in flight operations associated with two reasonably foreseeable future actions (i.e., the TASS and the F-35 beddown) identified in Section 4.1.3 (Reasonably Foreseeable Future Actions) would result in an associated increase in the cumulative potential for mishaps or bird strike, especially during periods of migration. Many bird species use mountain ranges as migration corridors and the Sheep Range attracts various bird species because of the elevation, habitat diversity, and presence of water. As with Alternatives 1, 2, and 3, implementation of procedures discussed in Section 3.13.2.2 (Alternative 1) would ensure that the potential adverse impacts from mishaps and bird strikes would remain low.

The increase in training activities also has the potential to increase munitions-related fires. For Alternative 3C, ground disturbance has the potential to result in an expansion of invasive annual grass that could result in increased wildfire risk. Resulting wildfire smoke can also impact aviation and ground personnel safety, as well as nearby communities and sensitive populations. An increase in flight operations may also require additional airspace de-confliction where a wildfire response would include civilian firefighting aircraft.

Adherence to established safety protocols for any wildland fire management activity would continue, including the use of appropriate personal protective equipment and communications links between all parties. Therefore, implementation of the Proposed Action combined with past, present, and reasonably foreseeable future projects would not result in significant impacts to the safety environment within the ROI.

#### **4.1.4.14 Transportation**

Increased growth in the Las Vegas area is expected to continue to have an impact on regional traffic flow. The proposed withdrawal effort would primarily impact only existing roads within the DNWR Alamo areas and would not disrupt local traffic flow. Therefore, there is minimal potential for cumulative impacts to local transportation associated with the proposed withdrawal efforts, because the proposed withdrawal extension/expansion would not have an impact on any major public roadways.

One of the alternative routes being considered for the I-11 and Intermountain West Study Corridor would utilize the U.S. Route 95 federal-aid highway right-of-way west of Las Vegas that borders the South and North Ranges of the NTTR. The project is an effort by Arizona, Nevada, and other Intermountain West states and the federal government to develop a transportation corridor between the Rocky Mountains and the Cascade Range/Sierra Nevada Mountains linking Mexico and Canada. One of the potential study area segments is the Northern Nevada Future Connectivity Corridor. U.S. Route 95 also is adjacent to the proposed withdrawal areas for Alternatives 3A and 3B. Section 368 energy Corridor 223-224 lies within the southern portion of the proposed expansion area associated with Alternative 3B (Range 64C/D-65D). Withdrawal of any of these areas could potentially limit the possible alignments of the proposed I-11 and Intermountain West Study Corridor because of the restricted access associated with the withdrawal area. Although this might result in the need for additional planning and design to avoid conflicts, it should not result in significant adverse transportation impacts.

#### **4.1.5 Native American Perspective on Cumulative Effects**

The CGTO believes the Cumulative Effects Analysis does not adequately address nor represent the tribal perspectives with respect to effects of impacts on the traditional homelands or impacts to the cultural landscape encompassing the NTTR. No cultural consideration is applied to: Airspace Use and Management Section 4.4.1; Noise Section 4.1.4.2; Air Quality Section 4.1.4.3; Land Use Section 4.1.4.4 (including Visual Resources); Wilderness and Wilderness Study Area Section 4.1.4.5; Socioeconomics Section 4.1.4.6; Environmental Justice Section 4.1.4.7; Biological Resources Section 4.1.4.8; Cultural Resources Section 4.1.4.9; Earth Resources Section 4.1.4.10; Water Resources Section 4.1.4.11; Hazardous Materials and Solid Wastes Section 4.1.4.12; Health and Safety Section 4.1.4.13; and Transportation Section 4.1.4.14. The CGTO believes that systematic ethnographic studies should be conducted on the aforementioned section to more accurately assess the cultural cumulative effects to these resources.

#### **Native American Perspective: Land Use – Cumulative Effects Analysis**

The CGTO is aware of tribal initiatives within the proposed Region of Influence near the NTTR and proposed land expansion areas that are omitted from consideration. The LEIS fails to mention the Moapa Tribal Enterprises Travel Plaza and Retail Store in addition to the Moapa Southern Paiute Solar Project that lies near Interstate 15 and the proposed Alamos Land Expansion Area within the traditional homelands of the Moapa Band of Paiutes. Further, there is no mention of the Las Vegas Paiute Tribe-Snow Mountain Reservation, which currently operates three 18-hole championship golf courses, a gas station and a retail smoke shop and is planning an 800-acre solar project located on the southwest corner of the tribal lands nearby US 95 and within close proximity to Creech Air Force Base. The Las Vegas Paiute Tribe-Snow Mountain Reservation is adjacent to the Desert National Wildlife Refuge encompassing the proposed Alternative 3C Alamo land expansion areas.

### **Native American Perspective: Cultural Resources – Cumulative Effects Analysis**

The LEIS indicates there are 2,889 cultural resource locations (prehistoric, historic and ethnographic) currently on the NTTR. The CGTO believes this universal definition of cultural resources applies only to the following: *prehistoric and historic sites, structures, artifacts and any other physical or traditional evidence of human activity considered relevant to a particular culture or community for scientific, traditional, religious or other reasons to the evaluation.* This interpretation does not account for intangible traditional and religious areas or culturally sensitive resources that are integral to Native American epistemology but not understood by archaeologists. Equally, geologic formations may be embedded in traditional or religious activities that are often overlooked and consequently not considered in any analysis.

Lastly, no systematic ethnographic studies have been conducted that are designed to identify, document and understand culturally sensitive resources or locations within the proposed land expansion of Alternatives 3 A near Beatty, NV or 3C in the Alamos. In an attempt to gain a better understanding, the University of Arizona initiated scoping meetings in September 2017 as part of expanded ethnographic studies to document tribal perspectives that can contribute to baseline data for analyzing perceived impacts within the proposed land expansion areas. While the study is underway and will not be completed to fully understand the cultural impacts, the Native American Writers are unable to provide a systematic review and analysis of the findings of the study.

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## **4.2 OTHER ENVIRONMENTAL CONSIDERATIONS**

### **4.2.1 Relationship Between Short-Term Uses and Long-Term Productivity**

Military training activities that could include future munitions use or construction of threat emitters or roads would result in a short-term use of resources. Long-term productivity impacts are determined by comparing the project's impacts against long-term regional and local planning objectives. Impacts are associated with land use changes, population increases, and the related traffic and socioeconomic factors. The short- and long-term effects of the Proposed Action and alternatives are summarized below.

#### **4.2.2 Short-Term Uses**

All alternatives would have minor short-term effects related to conceptual construction and military activities through the use of construction-related materials, munitions, fuels, etc. The significant economic benefits created during construction and military activities in the form of jobs, and the direct and indirect demand for goods and services, would offset the short-term use of the environment.

#### **4.2.3 Long-Term Productivity**

Long-term adverse impacts on productivity as a result of unmitigated short-term impacts and uses would include the following:

- Increased noise levels associated with the additional aircraft operations in the Alamo airspace
- Reduced public access to USFWS lands

Long-term beneficial impacts on productivity would include the following:

- Overall support of the region's continued economic development through:
  - Creation of more jobs locally
  - Increased tax base
  - Increased revenues for local businesses
  - Increased revenues for local utilities
  - Continued military mission

#### 4.2.4 Short-Term Uses Versus Long-Term Productivity

Many of the potential adverse impacts on long-term productivity are the result of short-term factors, which are often mitigated through planning aspects when implementing a proposed action and/or alternatives; public access is one example. The Proposed Action and alternatives analyzed in this document would have immediate short-term impacts on public access with long-term implications.

Public access to a large area of the DNWR would be curtailed. The reduction in public access will result in both short- and long-term impacts for those that would like year-round access to all areas of the DNWR. In addition, the reduced public access will have short-term impacts since the public will not have access for some seasonal activities such as bird watching.

#### 4.2.5 Irreversible and Irretrievable Commitment of Resources

NEPA requires environmental analysis to identify any irreversible and irretrievable commitments of resources involved in the implementation of the Proposed Action or alternatives. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. *Irreversible* effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable timeframe. *Irretrievable* resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site).

Implementing the Proposed Action through any of the alternatives would require a commitment of natural, physical, human, and fiscal resources. In all of these categories, irreversible and irretrievable commitments of resources would occur. Land required for military operations would be irreversibly committed during the withdrawal period; in some cases, land uses would change. Although it is possible for land to revert to its former state where land withdrawal was not renewed, the likelihood of such an occurrence for the NTTR would be low.

Public access to lands that have biological resources would be irreversibly and irretrievably lost with the proposed project, and some areas of wildlife habitat would be lost as well. This loss could create habitat fragmentation impacts, which would be a concern for certain wildlife such as the bighorn sheep. However, based on the size of the surrounding area compared with the amount of acreage that would be used for military training, the loss would be minimal; sensitive habitat areas would be avoided to the extent practicable and impacts on sensitive species would be mitigated as described in Section 2.9 (Mitigation).

The proposed commitment of natural, physical, human, and fiscal resources is based on the requirements mandated by Congress. It is anticipated that businesses, employees, and residents of the local area would benefit from improved economics resulting from implementation of the Proposed Action.

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University of Nevada, Las Vegas Library  
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Las Vegas, NV 89154

University of Nevada, Reno Library  
Mathewson-IGT Knowledge Center  
1664 N. Virginia Street  
Mailstop 322  
Reno, NV 89557

Indian Springs Library  
715 Gretta Lane  
Indian Springs, NV 89018

Reno Downtown Library  
301 S. Center Street  
Reno, NV 89501

Caliente Branch Library  
100 Depot Avenue  
P.O. Box 306  
Caliente, NV 89008

Carson City Hall  
201 N. Carson Street  
Carson City, NV 89701

Las Vegas-Clark County Library District  
833 Las Vegas Blvd. North  
Las Vegas, NV 89101

Beatty Library District  
400 N. 4th Street  
Beatty, NV 89003

Pahrump Community Library  
701 East Street  
Pahrump, NV 89048

Lincoln County Library  
63 Main Street  
Pioche, NV 89043

Amargosa Valley Library  
829 E. Farm Road  
HC 69 Box 401T  
Amargosa Valley, NV 89020

Tonopah Library  
167 South Central Street  
Tonopah, NV 89049

Alamo Branch Library  
100 South First West  
PO Box 239  
Alamo, NV 89001

State Bureau of Land Management  
1340 Financial Blvd.  
Reno, NV 89502

Nye County Commissioners Office  
101 Radar Road  
P.O. Box 153  
Tonopah, NV 89049

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