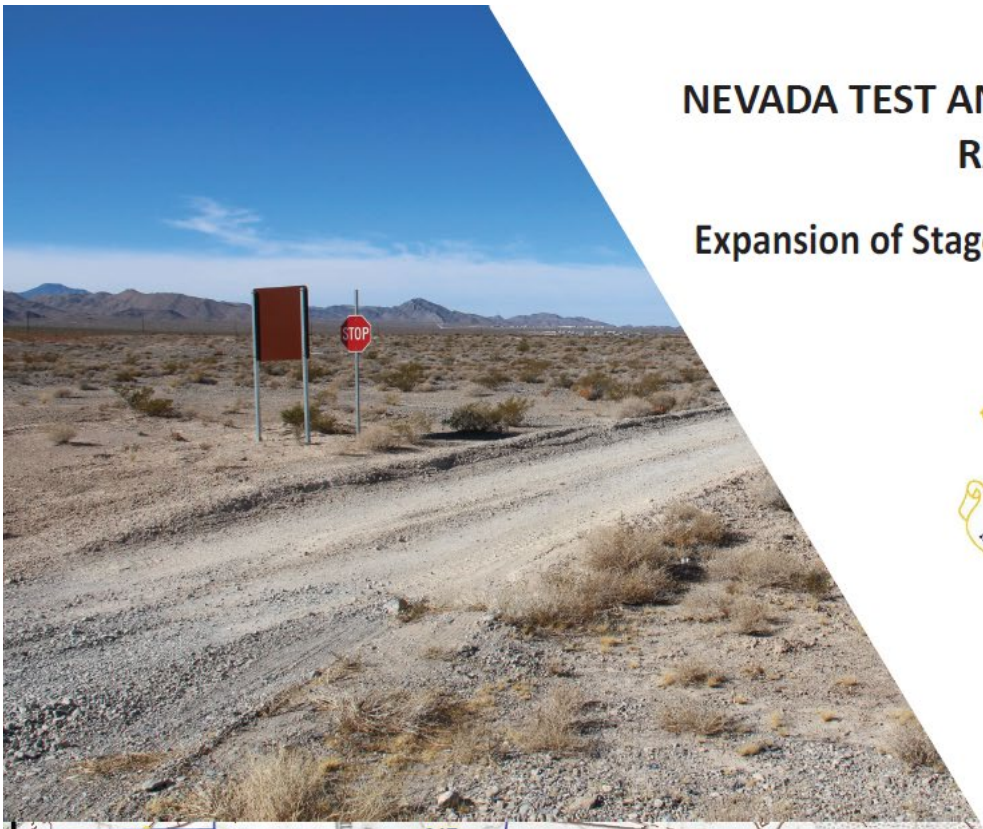
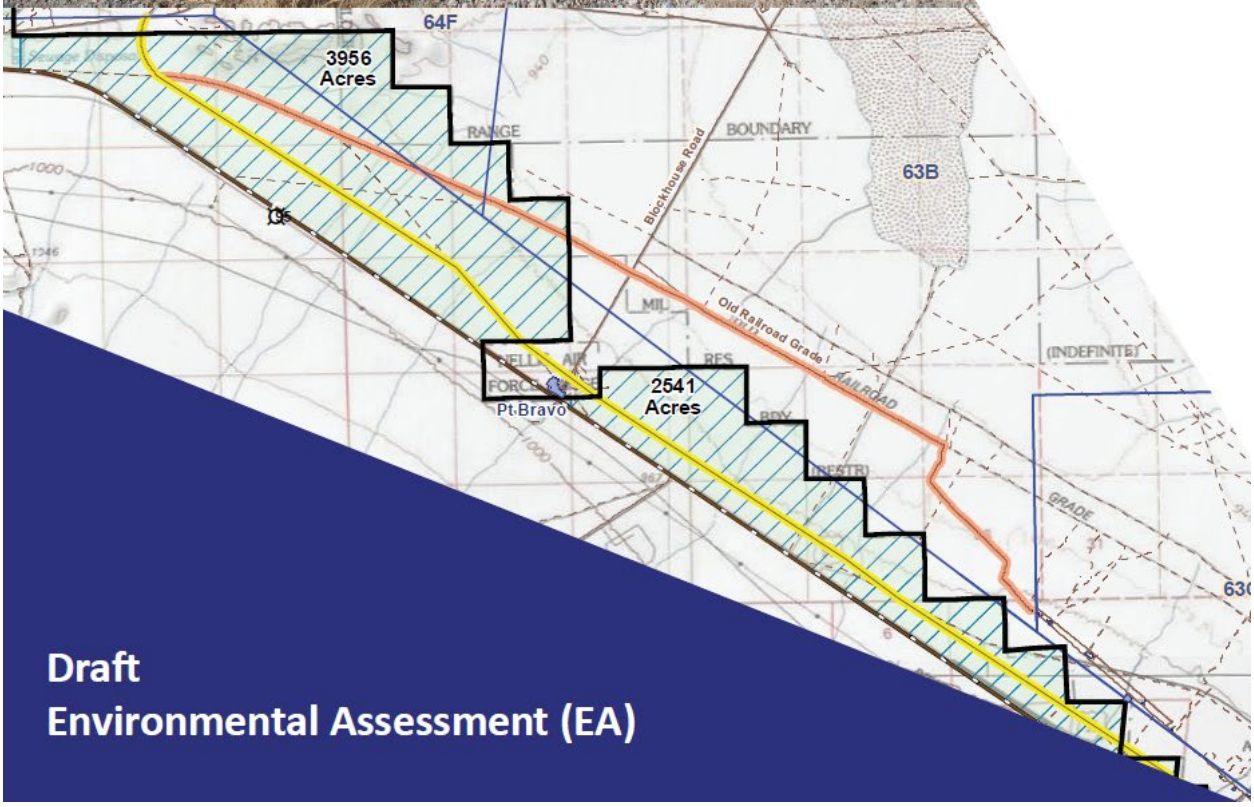


NEVADA TEST AND TRAINING RANGE (NTTR)

Expansion of Stagecoach Road in Range 63

March 2021



Draft
Environmental Assessment (EA)

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

1.0 NAME OF THE PROPOSED ACTION

Nevada Test and Training Range Stagecoach Road Expansion Environmental Assessment.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The Nevada Test and Training Range (NTTR) proposes to expand or construct a road in the South Range from Range 63C Complex to the Box Canyon Target Residue Area. The road would connect the target areas at Range 63C Complex to Box Canyon. The purpose of the Proposed Action is to address inefficient access to Box Canyon and Range 63C Complex. The proposed road would improve movement of personnel and equipment reducing operational and manpower costs by eliminating work losses due to a lack of access across an active bombing range. The Proposed Action is needed to provide secure and safe access for range maintenance activities between Range 63C Complex and Box Canyon by staying on NTTR controlled property and by providing an access road that does not traverse onto active bombing ranges, as well as providing safer access to U.S. 95 for truck traffic.

Two action alternatives are considered and analyzed: the first would be to expand the existing Stagecoach Road which was built on the original Las Vegas to Tonopah Railroad line (Alternative 1); and the second would be to build a new road ("Frontage Road") parallel to United States Highway 95 (U.S. 95) on land currently managed by the Bureau of Land Management (BLM) (Alternative 2). The Frontage Road would be built on undisturbed land approximately one-half mile to the north and east of U.S. 95. The No Action Alternative is also analyzed to provide a benchmark to compare effects of the action alternatives.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) implementing the National Environmental Policy Act (NEPA), and Air Force regulations implementing NEPA (32 CFR Part 989) specify that an Environmental Assessment (EA) should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

Resources carried forward for detailed analysis in this EA include the following resource areas: biological resources; cultural resources; air quality; land use; earth resources; and health and safety. This EA does not carry forward the following resource areas for detailed analysis because potential impacts would be non-existent or negligible: airspace management and use; noise; recreation and visual resources; transportation; hazardous materials and solid waste; socioeconomics; environmental justice and protection of children; water resources; and wildland fire risk and management.

Biological Resources. The main types of environmental consequences that were considered for the Proposed Action are: 1. Disturbance from construction of roadway; 2. Local habitat fragmentation; 3. Negative traffic and wildlife interaction; and 4. Habitat loss. Under Alternative 1, road construction

would convert approximately 242 acres of undeveloped land to impervious roadway and associated right-of-way under Alternative 1 and approximately 286 acres under Alternative 2.

Under Alternatives 1 and 2, one federally listed species (Mojave desert tortoise [MDT]) is found. An MDT presence/absence survey was conducted within both Alternative 1 and 2 action areas. The results of the survey effort suggest suitable habitat is present within project boundaries, but individuals and their burrows are present. By following the Endangered Species Act Section 7 consultation process with USFWS, the U.S. Air Force would put into practice measures to minimize impacts due to the installation of fencing or construction of the roadway. By putting these measures into practice, such as the use of biological monitors, survey and relocation methods, and exclusionary fencing during active construction, impact is expected to be minimized, but would not be lowered to negligible levels. However, Alternatives 1 and 2 is not expected to jeopardize the continued survival and future recovery of the MDT. Therefore, implementation of Alternatives 1 and 2 would not result in significant impacts to biological resources.

Under Alternatives 1 and 2, direct impacts to wildlife during construction would be experienced, but would not negatively affect long-term population viability due to the relatively linear nature and short duration of construction presence in one concentrated area. Direct impacts from roadway construction for Alternatives 1 and 2 are considered to be low but not discountable. For local habitat fragmentation, impact minimization measures would be applied under Alternatives 1 and 2. For negative traffic and wildlife interaction under Alternatives 1 and 2, the introduction of a new roadway to undisturbed habitat would increase negative wildlife traffic interactions and impact minimization measures would be implemented. Impacts from habitat loss associated with Alternatives 1 and 2 are comparable. However, due to the close proximity of the U.S. 95 corridor, the existing habitat within Alternative 2 could be considered further degraded as road avoidance by a number of native species is most likely. Further due to the short duration of active construction and avoidance measures, Alternatives 1 and 2 would not result in significant impacts to special status plant species, migratory birds or burrowing owls. Therefore, the Air Force concludes that implementation of minimization measures, Alternatives 1 and 2 would not result in significant impacts to biological resources. [*Note to reviewers: USFWS consultation will be complete before the Final FONSI is issued.*]

Cultural Resources. According to the cultural inventory reports generated in 2020, 14 sites (12 historical and 2 prehistorical) were observed within the Alternative 1 direct area of potential effect (APE); however, none of these sites are recommended as eligible for the National Register of Historic Places (NRHP); State Historic of Preservation Office (SHPO) concurrence on this determination is pending. [*Note to reviewers: SHPO consultation will be complete before the Final FONSI is issued.*] The majority of these sites consist of refuse scatter most likely associated with historic military sites, historical debris scatter, and historical roads and railroads. The sites, 26CK1649, 26CK8519, 26CK10837, 26CK10838, 26CK10842, 26CK10843, 26CK10844, 26CK10850, 26CK10851, 26CK10852, 26CK5716, 26CK10984, 26CK10985, and 26CK10997 are generally small in size and there is no evidence that any of the sites are associated with events that have made a significant contribution to the development of historic transportation routes or connect these sites with any significant persons. Further, the sites do not contain any distinctive

constructed or engineering features (U.S. Air Force, 2020a; U.S. Air Force, 2020c). Prehistoric sites observed within the Alternative 1 APE consisted of unassociated lithic scatter and crypto crystalline silicate artifacts (U.S. Air Force, 2020c). A total of 32 sites (31 historical and one prehistorical) were observed within the Alternative 2 direct APE; however, none of these sites are recommended as eligible for the NRHP; SHPO concurrence on this determination is pending. The sites similarly to Alternative 1, consist of refuse scatter and debris scatter and show no association with events that have made a significant contribution to the development of historic transportation routes or connect these sites with any significant persons. Nor do the sites contain any distinctive constructed or engineering features. The prehistoric site observed within the Alternative 2 APE is an unassociated prehistoric artifact scatter consisting of two mottled gray and white tertiary cryptocrystalline silicate flakes. No recommended NRHP eligible historic or prehistoric sites or properties were located within the Alternative 2 APE, therefore, implementation of Alternative 2 would not result in significant impacts to cultural resources. [*Note to reviewers: SHPO consultation will be complete before the Final FONSI is issued.]*

Air Quality. Air emissions would be less than *de minimis* levels and not be considered significant under Alternative 1. Similarly, Alternative 2 air quality emissions would also be under *de minimis* levels and considered less than significant. Under the No Action Alternative, there would be no change to existing conditions; therefore, no impacts would occur.

Land Use. Expanding the existing Stagecoach Road would be wider and paved but not alter existing land use under Alternative 1. Alternative 2 would be constructed on land currently managed by the Bureau of Land Management. This land was included in the expansion areas of the renewal of the Military Lands Withdrawal Act, however that alternative was not selected by Congress. A separate right-of-way or withdrawal may be considered by the Air Force. All findings in the NTTR Land Withdrawal Legislative Environmental Impact Statement would be valid for a separate withdrawal and would be incorporated by reference. Under the No Action Alternative, there would be no change to existing conditions; therefore, no impacts would occur.

Earth Resources. No impacts to soils would result from Alternative 1. Similarly, Alternative 2 would not have impacts to soils and earth resources. Under either alternative, stormwater control procedures would be implemented to reduce stormwater runoff and erosion. Under the No Action Alternative, there would be no change to existing conditions; therefore, no impacts would occur.

Health and Safety. Current health and safety procedures would be utilized, and no additional health and safety impacts would result from Alternatives 1 or 2. From a transportation/traffic perspective, Alternatives 1 or 2 would alleviate potentially risky access to U.S. 95 for the target maintenance vehicles (trucks). Under the No Action Alternative, there would be no change to existing conditions; therefore, no impacts would occur.

4.0 CONCLUSION

On the basis of the findings of the EA, no significant impact to human health or the natural environment would be expected from implementation of Alternative 1, Alternative 2, or the No Action Alternative.

Therefore, issuance of a Finding of No Significant Impact (FONSI) is warranted, and preparation of an Environmental Impact Statement, pursuant to the NEPA of 1969 (Public Law 91-190) is not required for this action.

_____ _____

TBD

Privacy Advisory

This Environmental Assessment (EA) is provided for public comment in accordance with the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality NEPA Regulations (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR 989, Environmental Impact Analysis Process (EIAP).

The EIAP provides an opportunity for public input on Air Force decision making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

Public commenting allows the Air Force to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion of any public meetings or hearings or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of EA; however, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

Cover Sheet

Designation:	Draft Environmental Assessment (EA)
Title of Proposed Action:	Stagecoach Road Expansion
Project Location:	Nevada Test and Training Range (NTTR)
Lead Agency for the EA:	Nellis Air Force Base (AFB)
Affected Region:	Clark County, Nevada
Action Proponent:	Nevada Test and Training Range
Point of Contact:	Nellis AFB Environmental Assessment Project Manager Mr. Tod Oppenborn 6020 Beale Avenue, Nellis AFB, NV, 89191 Telephone: (702) 652--9366 and E-mail: tod.oppenborn@us.af.mil
Date:	March 2021

Nellis AFB has prepared this EA in accordance with the National Environmental Policy Act (NEPA) (42 United States Code Sections 4321-4370h), as implemented by the Council on Environmental Quality Regulations (CEQ) (40 Code of Federal Regulations [CFR] parts 1500-1508) and Air Force regulations for implementing NEPA (32 CFR part 989). The NTTR proposes to expand or construct a road in the South Range from Range 63C Complex to the Box Canyon Target Residue Area. The road would connect the target areas at Range 63C Complex to Box Canyon. The purpose of the Proposed Action is to address inefficient access to Box Canyon and Range 63C Complex. The Proposed Action will improve movement of personnel and equipment reducing operational and manpower costs by eliminating work losses due to a lack of access across an active bombing range. The Proposed Action is needed to provide secure and safe access for range maintenance activities between Range 63C Complex and Box Canyon by staying on NTTR controlled property and by providing an access road that does not traverse onto active bombing ranges, as well as providing safer access to United States Highway 95 (U.S. 95) for truck traffic. This EA evaluates the potential environmental impacts associated with Alternatives 1 and 2, as well as the No Action Alternative. Two action alternatives are considered: the first would be to expand the existing Stagecoach Road which was built on the original Las Vegas to Tonopah Railroad line; the second would be to build a new road ("Frontage Road") parallel to U.S. 95 on land currently managed by the Bureau of Land Management (BLM). The Frontage Road would be built on undisturbed land approximately one-half mile to the north and east of U.S. 95.

Because of the ongoing COVID-19 pandemic impacts on the usual methods of access to information and ability to communicate, such as the mass closure of local public libraries, comments on the Draft EA may be submitted in writing or by e-mail to the Nellis AFB contact identified above. Currently the Las Vegas Library system has reopened, and a hard copy of the EA can be found at the Centennial Hills Branch located at 6711 N. Buffalo Drive, Las Vegas NV 89131, Phone: (702) 507-6100. In case another closure is warranted due to COVID-19, a hard copy may not be available at the local library. The document is available for public review on the Nellis AFB website: https://www.nellis.af.mil/About/Environment/.

Executive Summary

Proposed Action

The Nevada Test and Training Range (NTTR) proposes to expand or construct a road in the South Range from Range 63C Complex to the Box Canyon Target Residue Area. The road would connect the target areas at Range 63C Complex to Box Canyon. Two action alternatives are considered: the first would be to expand the existing Stagecoach Road which was built on the original Las Vegas to Tonopah Railroad line; and the second would be to build a new road ("Frontage Road") parallel to United States Highway 95 (U.S. 95) on land currently managed by the Bureau of Land Management (BLM). The Frontage Road would be built on undisturbed land approximately one-half mile to the north and east of U.S. 95.

Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to address inefficient access to Box Canyon and Range 63C Complex. The proposed road will improve movement of personnel and equipment reducing operational and manpower costs by eliminating work losses due to a lack of access across an active bombing range.

The Proposed Action is needed to provide secure and safe access for range maintenance activities between Range 63C Complex and Box Canyon by staying on NTTR controlled property and by providing an access road that does not traverse onto active bombing ranges, as well as providing safer access to U.S. 95 for truck traffic.

There are only two access points for range maintenance workers in government vehicles or commercial operators to travel to 60 series ranges and Box Canyon: 1. Creech Air Force Base (AFB) Bypass Road; and 2. Point Bravo.

The mission at Creech AFB has grown and will likely continue to grow forcing NTTR personnel to access the NTTR including Box Canyon through either the Creech AFB Bypass Road Gate or the Point Bravo Gate. However, commercial vehicles cannot use the Bypass Road Gate and are required to use the gate at Point Bravo only because the Bypass Road cannot handle large commercial vehicles. In addition, the distance from the existing gate at Range 63C Complex to Creech AFB is approximately 13 miles, plus an additional 3 miles to Box Canyon.

Point Bravo allows access to workers and commercial vehicles, but the road to the ranges from Point Bravo extends into the NTTR and is closed to traffic when the NTTR is active. When the range is active, the travel distance from Point Bravo to Box Canyon requires access through Creech AFB Bypass Road which totals about nine miles and takes about a half hour travel time. Because commercial traffic cannot use the Creech AFB Bypass Road Gate, they must wait at Point Bravo and wait times could be a minimum of two hours or possibly be in effect all day.

Range maintenance and clearance is required to extend the lifecycle of the ranges and it minimizes the ultimate clean up requirements if and when a range is no longer needed (U.S. Air Force, 2018a). On very active ranges, clearance can occur frequently on an as needed basis. After every major exercise or large-scale test, a team conducts bomb damage assessments on each target, identifies what actions are required to bring that target back to meet operational requirements, and is then scheduled to be cleared and rebuilt. Unexploded ordnance is first cleared by qualified personnel then range contractors remove all the damaged/destroyed debris to Box Canyon for follow-on certification of being munitions

residue free. The majority of material is recycled. Less than 10 percent of material removed from the range goes into a landfill.

Target materials transported between Box Canyon and Range 63C Complex currently pass through Range 63B on Cine 5 Road to Blockhouse Road, then south to Point Bravo, ending up on U.S. 95. Material transported directly on NTTR without having to go through either Range 63B or Point Bravo and on U.S. 95 would enhance productivity, freeing hours for maintenance work from transportation time. In addition, most of the target debris would be steel and wood but some of the items would be inert casings and other scrap ordnance items generally composed of steel and brass. Special management procedures have been established by Nellis AFB for ordnance debris. These procedures are similar to those for managing hazardous wastes, but debris is transported directly to a smelter. Having a secure road for target debris would ensure safe transport to Box Canyon.

Alternatives Considered

Two action alternatives and the No Action Alternative are carried forward for analysis. Alternative 1 proposes to expand the existing Stagecoach Road along the former Las Vegas to Tonopah Railroad grade. Alternative 2 proposes to construct a "Frontage Road" that would parallel U.S. 95 and the NTTR airspace boundary. Stagecoach Road does not intersect Box Canyon Road and at the northwest end of the proposed road on the railroad grade, about a half-mile of new road would be constructed connecting Stagecoach Road to Box Canyon Road. A security fence would be constructed within the right-of-way on the south and west side adjacent to BLM lands and Highway U.S. 95. For the action alternatives, this section provides the description of the road alignment and follows with the description of construction details and operations. The No Action Alternative is also analyzed as it provides a benchmark with which to compare effects of the action alternatives.

Summary of Environmental Resources Evaluated in this Environmental Assessment

Council on Environmental Quality regulations, the National Environmental Policy Act (NEPA), and Air Force instructions for implementing NEPA specify that an Environmental Assessment (EA) should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

Resources carried forward for detailed analysis in this EA include the following resource areas: biological resources, cultural resources, air quality, land use, earth resources, and health and safety. This EA does not carry forward the following resource areas for detailed analysis because potential impacts would be non-existent or negligible: airspace management and use; noise; recreation and visual resources; transportation; hazardous materials and solid waste; socioeconomics; environmental justice; water resources; and wildland fire risk and management.

Summary of Potential Environmental Consequences of the Action Alternatives

Table ES-1 provides a tabular summary of potential impacts to resources associated with each alternative action analyzed.

Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	Alternative 1	Alternative 2	No Action Alternative
Biological Resources	No Significant Impact. One federally listed species (Mojave desert tortoise) is found within the Alternative 1 boundary. Native vegetation would be removed or disturbed within the project area. Wildlife would be temporarily displaced or disturbed by construction actions. Some habitat fragmentation and degradation would occur. Impacts to 242 acres of Mojave desert tortoise habitat would occur. U.S. Fish and Wildlife Service (USFWS) concurrence of this determination is pending.	No Significant Impact. Impacts to plants and wildlife from Alternative 2 would be similar to Alternative 1. Impacts to 286 acres would occur. USFWS concurrence of this determination is pending.	No Impact. Existing natural resource plans would continue to manage and protect Mojave desert tortoise. Habitat would not be modified. Native vegetation would remain intact with no transplantation. The current level of habitat fragmentation would remain due to the close proximity of U.S. 95 and the NTTR boundary.
Cultural Resources	No Significant Impact. Twelve historical sites and two prehistoric sites identified within the Direct Area of Potential Effect Alternative 1. All sites are recommended not eligible for inclusion in the NRHP under any criteria. State Historic Preservation Office (SHPO) concurrence of this determination is pending.	No Significant Impact. Thirty-one historical sites and one prehistoric site identified within the Direct Area of Potential Effect of Alternative 2. All sites are recommended not eligible for inclusion in the NRHP under any criteria. SHPO concurrence of this determination is pending.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.
Air Quality	No Significant Impact. Air emissions would be less than *de minimis* levels and not be considered significant under Alternative 1.	No Significant Impact. Similar emissions to Alternative 1 would be emitted under Alternative 2 and would be less than significant.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.
Land Use	No Significant Impact. Expanding the existing Stagecoach Road would be wider and paved but not alter existing land use under Alternative 1.	No Significant Impact. Alternative 2 would be constructed on land currently managed by the Bureau of Land Management. This land was included in the expansion areas of the renewal of the Military Lands Withdrawal Act, however that alternative was not selected by Congress. A separate right-	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.

Resource Area	Alternative 1	Alternative 2	No Action Alternative
		of-way or withdrawal may be considered by the Air Force. All findings in the NTTR Land Withdrawal Legislative Environmental Impact Statement would be valid for a separate withdrawal and would be incorporated by reference.	
Earth Resources	No Significant Impact. No impacts to soils would result from Alternative 1. Stormwater control procedures would be implemented to reduce stormwater runoff and erosion.	No Significant Impact. No impacts to soils would result from Alternative 2. Stormwater control procedures would be implemented to reduce stormwater runoff and erosion.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.
Health and Safety	No Significant Impact. No additional health and safety impacts would result from Alternative 1.	No Significant Impact. Impacts from the Alternative 2 would be similar to Alternative 1.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.

DRAFT
ENVIRONMENTAL ASSESSMENT
FOR THE
EXPANSION OF STAGECOACH ROAD IN RANGE 63
NEVADA TEST AND TRAINING RANGE, NEVADA

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Abbreviations and Acronyms

Acronym	Definition	Acronym	Definition
ACAM	Air Conformity Applicability Model	NAAQS	National Ambient Air Quality Standards
AFB	Air Force Base	NAC	Nevada Administrative Code
AFI	Air Force Instruction	NDF	Nevada Division of Forestry
APE	Area of Potential Effect	NDOW	Nevada Department of Wildlife
BLM	Bureau of Land Management	NEPA	National Environmental Policy Act
CAA	Clean Air Act		
CEQ	Council of Environmental Quality	NNHP	Nevada Natural Heritage Program
CFR	Code of Federal Regulations		
CH_4	Methane	NO_2	Nitrogen dioxide
CO	Carbon monoxide	NO_x	Nitrogen oxides
CO_2	Carbon dioxide	NRHP	National Register of Historic Places
CO_2e	CO_2-equivalents		
DoD	Department of Defense	NTTR	Nevada Test and Training Range
EA	Environmental Assessment	O_3	Ozone
EIAP	Environmental Impact Analysis Process	Pb	Lead
		PBO	Programmatic Biological Opinion
EIS	Environmental Impact Statement	PFCs	Perfluorocarbons
EO	Executive Order	PM_{10}	Particulate Matter up to 10 micrometers in size
GHG	Greenhouse Gas Emissions		
HAPs	Hazardous air pollutants	$PM_{2.5}$	Particulate Matter less than 2.5 micrometers in size
HFCs	Hydrofluorocarbons		
I-11	Interstate 11	SF_6	Sulfur hexafluoride
IPaC	Information for Planning and Consultation	SHPO	State Historic Preservation Office
		SO_2	Sulfur dioxide
LEIS	Legislative Environmental Impact Statement	TBD	To Be Determined
		U.S.	United States
LVAB	Las Vegas Air Basin	USC	United States Code
LVBP	Las Vegas Bearpoppy	USEPA	United States Environmental Protection Agency
MBTA	Migratory Bird Treaty Act		
MDT	Mojave desert tortoise	USFWS	United States Fish and Wildlife Service
MSL	Mean Sea Level		
N_2O	Nitrogen dioxide	U.S. 95	United States Highway 95
NAA	Nonattainment Area	VOC	Volatile organic compounds
		WOTUS	Waters of the United States

1 Purpose of and Need for the Proposed Action

1.1 Introduction

The Nevada Test and Training Range (NTTR) proposes to expand or construct a road in the South Range from Range 63C Complex to the Box Canyon Target Residue Area. The road would connect the target areas at Range 63C Complex to Box Canyon. Two action alternatives are considered: the first would be to expand the existing Stagecoach Road which was built on the original Las Vegas to Tonopah Railroad line; and the second would be to build a new road ("Frontage Road") parallel to United States Highway 95 (U.S. 95) on land currently managed by the Bureau of Land Management (BLM). The Frontage Road would be built on undisturbed land approximately one-half mile to the north and east of U.S. 95.

This Environmental Assessment (EA) has been prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321 *et seq.*), Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Part 1500-1508), and Air Force Instruction (AFI) 32-1015, *The Environmental Impact Analysis Process* (EIAP), as codified in 32 CFR Part 989. This EA analyzes the potential environmental consequences of implementing the Proposed Action alternatives and No Action Alternative. Under the No Action Alternative, NTTR would not construct a road at this time.

1.2 Background

Located in southern Nevada, NTTR encompasses approximately 3 million acres in Clark, Lincoln, and Nye Counties and 12,000 square miles (approximately 2.9 million acres) of airspace making NTTR the "Crown Jewel" of all the Department of Defense (DoD) test and training ranges. The NTTR consists of two major parts, the North and South Ranges separated by the Department of Energy, Nevada National Security Site (Figure 1-1). Range 63C is a subrange in Range 63 in the southern portion of NTTR with Subrange 63C situated on the east and Box Canyon on the west. The Subrange 63C is also called the Range 63C Complex describing the firing ranges and facilities located on Range 63C.

The proposed road would be located in the extreme southern part of the South Range between Range 63C, passing Point Bravo and then northwest to the Box Canyon Target Residue Area. Stagecoach Road lies just outside the live target areas and the proposed upgrade would connect Range 63C Complex to Box Canyon. Figure 1-2 shows the regional location of the Proposed Action alternatives on NTTR.

1.3 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to address inefficient access to Box Canyon and Range 63C Complex. The Proposed Action will improve movement of personnel and equipment reducing operational and manpower costs by eliminating work losses due to a lack of access across an active bombing range.

There are only two access points for range maintenance workers in government vehicles or commercial operators to travel to 60 series ranges and Box Canyon: 1. Creech Air Force Base (AFB) Bypass Road; and 2. Point Bravo. Large trucks are not allowed on the Creech Bypass Road and can only use Point Bravo for entering and exiting the NTTR.

The Proposed Action is needed to provide secure and safe access for range maintenance activities between Range 63C Complex and Box Canyon by staying on NTTR controlled property and by providing an access road that does not traverse onto active bombing ranges, as well as providing safer access to U.S. 95 for truck traffic.

The mission at Creech AFB has grown and will likely continue to grow forcing NTTR personnel to relocate range operations such as, target maintenance, threat system maintenance, and civil engineering functions to other locations. The logical placement of those NTTR functions is to relocate them to Range 63C Complex where some facilities and infrastructure currently exist. In addition, the combat training mission at Range 63C Complex has drawn down and there are available existing facilities at Range 63C Complex that the NTTR uses. Range maintenance personnel can access the NTTR including Box Canyon through either the Creech AFB Bypass Road Gate or the Point Bravo Gate. However, commercial vehicles cannot use the Bypass Road Gate because the bypass road cannot handle large commercial vehicles; therefore, these vehicles must use the gate at Point Bravo. The distance from the existing gate at Range 63C Complex to Creech AFB is approximately 13 miles, plus an additional 3 miles to Box Canyon.

Point Bravo allows access to workers and commercial vehicles, but the road to the ranges from Point Bravo extends into the NTTR and is closed to traffic when the NTTR is active. When the range is active, the travel distance from Point Bravo to Box Canyon requires access through Creech AFB Bypass Road which totals about nine miles and takes about a half hour travel time. Because commercial traffic cannot use the Creech AFB Bypass Road Gate, they must wait at Point Bravo and wait times could be a minimum of two hours or possibly be in effect all day.

At the Point Bravo intersection, there is little room for a deceleration lane for turning off U.S. 95. Turning left from Point Bravo onto U.S. 95 has a median that must be crossed but no acceleration lane on eastbound U.S. 95. The speed limit on U.S. 95 is 70 miles per hour, and with no acceleration and deceleration lanes, these conditions pose a safety risk to the general public and the NTTR truck operators. The Proposed Action is needed to alleviate some of these transportation safety risks.

Range maintenance and clearance is required to extend the lifecycle of the ranges and it minimizes the ultimate clean up requirements if and when a range is no longer needed (United States [U.S.] Air Force, 2018a). On very active ranges, clearance can occur frequently on an as needed basis. After every major exercise or large-scale test, a team conducts bomb damage assessments on each target, identifies what actions are required to bring that target back to meet operational requirements and is then scheduled to be cleared and rebuilt. Unexploded ordnance is first cleared by qualified personnel then range contractors remove all the damaged/destroyed debris to Box Canyon for follow-on certification of being munitions residue free. The majority of material is recycled. Less than 10 percent of material removed from the range goes into a landfill.

Target materials transported between Box Canyon and Range 63C Complex currently pass through Range 63B on Cine 5 Road, to Blockhouse Road, then south to Point Bravo ending up on U.S. 95. Material transported directly on NTTR without having to go through either Range 63B or Point Bravo and on U.S. 95 would enhance productivity freeing hours for maintenance work from transportation time. In addition, most of the target debris is steel and wood but some of the items are inert casings and other scrap ordnance items generally composed of steel and brass. Special management procedures have been established by Nellis AFB for ordnance debris. These procedures are similar to those for

managing hazardous wastes, but debris is transported directly to a smelter. Having a secure road for target debris would ensure safe transport to Box Canyon.

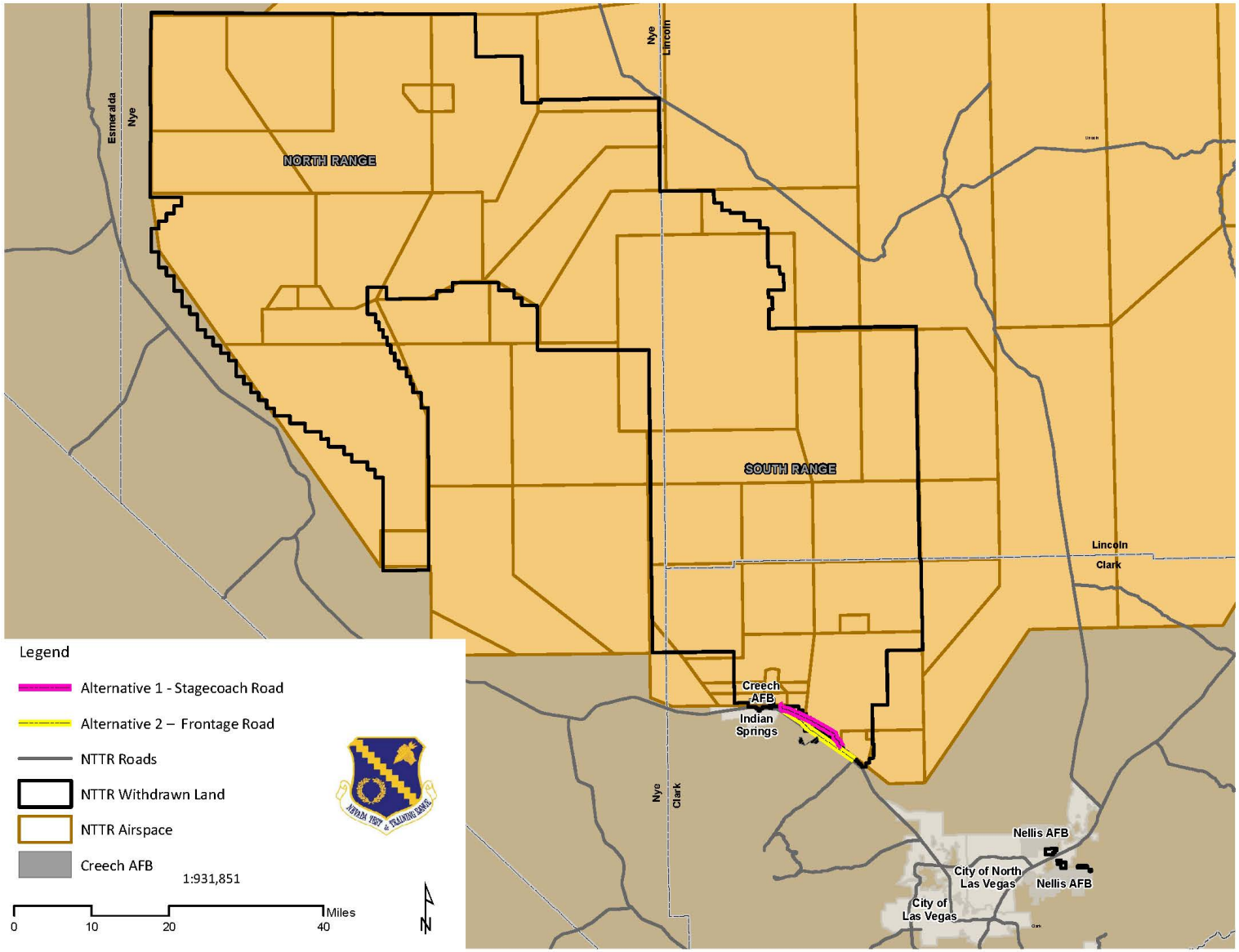

Figure 1-1 Nevada Test and Training Range Map

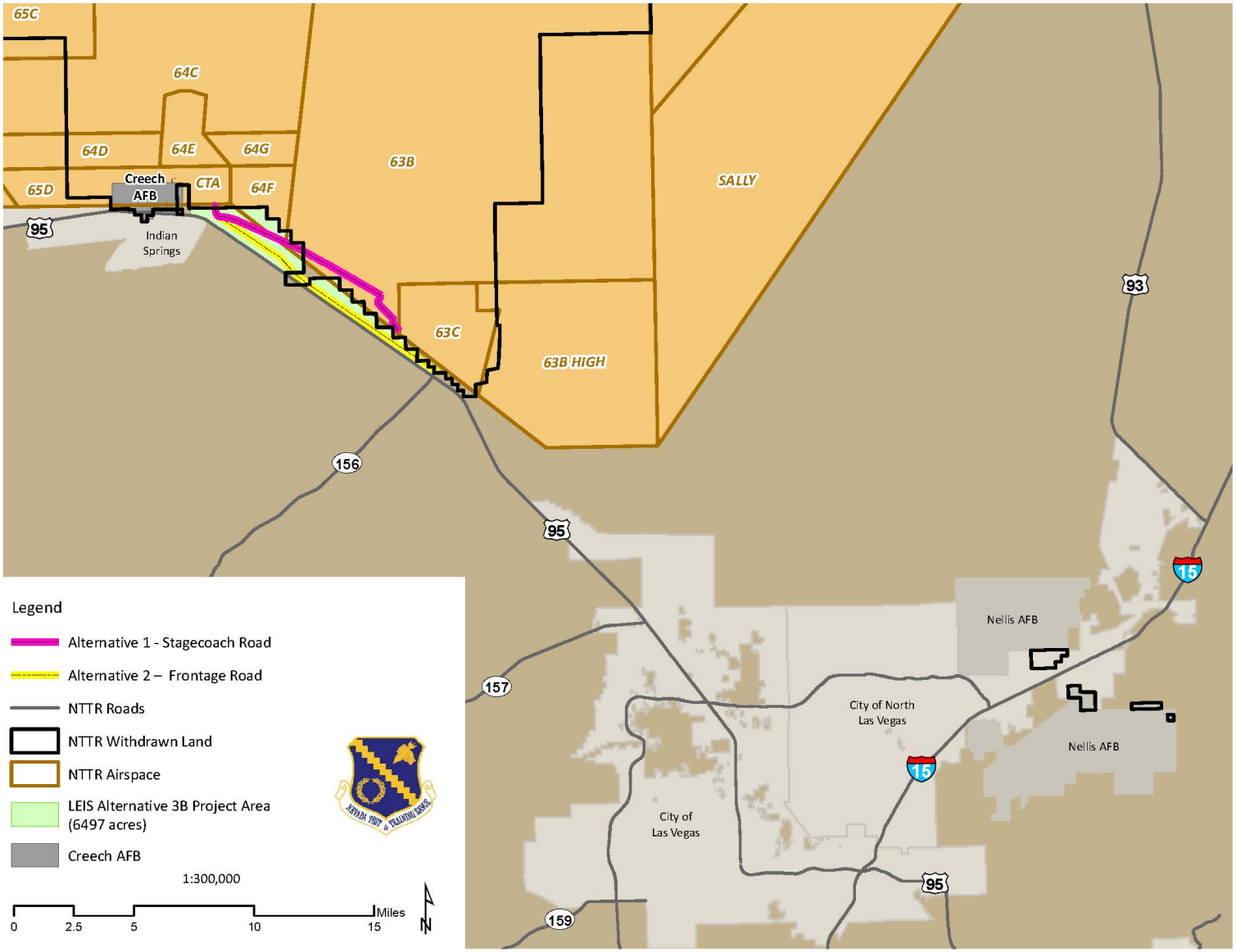

Figure 1-2 Regional Location of Proposed Action Alternatives

1.4 Scope of Environmental Analysis

1.4.1 Requirements

This EA examines the potential for impacts to the environment resulting from the construction of a new road on NTTR. This environmental analysis has been prepared in accordance with NEPA (42 USC sections 4321-4370h), as implemented by CEQ Regulations (40 CFR parts 1500-1508) and Air Force regulations for implementing NEPA (32 CFR Part 989, *Environmental Impact Analysis Process*).

1.4.2 Public and Agency Review

Interagency and Intergovernmental Coordination/Consultations

Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions were notified and consulted during the development of this EA. See Appendix A for the list of agencies and copies of example letters.

Government to Government Consultations

Section 106 of the National Historic Preservation Act, and its implementing regulations at 36 CFR Part 800, require federal agencies to consult with Native American tribal governments where a federal agency undertaking may have the potential to affect a tribe's traditional cultural properties. The federal nexus for the Proposed Action is the proposed expansion of NTTR Stagecoach Road.

The tribal coordination process is distinct from NEPA consultation or the interagency intergovernmental coordination for environmental planning processes and requires separate notification of all federally recognized tribes. The timelines for tribal consultation are also distinct from those of intergovernmental consultations. The NTTR point-of-contact for Native American tribes is the Nellis AFB Installation Commander, while the point-of-contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Nellis AFB Cultural Resources Manager. The Installation Commander maintained coordination regarding Nellis AFB and NTTR actions including the Proposed Action during semi-annual meetings with the consulted tribes.

Tribal consultation to date includes the Air Force sending letters delivered to individual tribes, introduction and discussion of the proposed action during the 2019 Fall semi-annual tribal meeting and the 2020 Fall semi-annual tribal meeting, and area of potential effect (APE) request letters sent to individual tribes dated June 30, 2020. No written responses have been received by the U.S. Air Force. Tribal consultation will be ongoing through the public review period.

Public Review

NEPA and the Air Force's implementing regulations require the lead agency to seek public participation throughout the EIAP.

In April 2020, NTTR/Nellis AFB mailed letters to the local, state, federal, and tribal agencies to inform them of the Proposed Action and the EA development. See Appendix A for the list of agencies and copies of example letters.

The Air Force published a Notice of Availability of the Public Draft EA and Draft Finding of No Significant Impact in the Las Vegas Review-Journal announcing the availability of the EA for review on March 9, 2021. The Notice of Availability invites the public to review and comment on the Draft EA. The public and agency review period ends on April 8, 2021. One copy of the Draft EA and Draft Finding of No Significant Impact are also made available for review at the Las Vegas Centennial Hills Library, Reference Department, 6711 North Buffalo Drive, Las Vegas, NV 89131. In case another closure is warranted due to COVID-19, a hard copy may not be available at the local library. The document is available for public review on the Nellis AFB website: https://www.nellis.af.mil/About/Environment/.

The Air Force is aware of the potential impact of the ongoing COVID-19 pandemic on the usual methods of access to information and ability to communicate, such as the mass closure of local public libraries and challenges with the sufficiency of an increasingly overburdened internet. The Air Force seeks to implement appropriate additional measures to ensure that the public and all interested stakeholders have the opportunity to participate fully in this EA process. Accordingly, please contact us directly at the email address or telephone number provided in the cover sheet; we are available to discuss and help resolve issues involving access to the Draft EA or the ability to comment.

2 Proposed Action and Alternatives

2.1 Proposed Action

This section provides a description of the Proposed Action and alternatives to the Proposed Action. The Proposed Action would be to provide safe and secure access between Range 63C Complex and Box Canyon for NTTR personnel and contractors. The first alternative would be to expand Stagecoach Road following the no longer used Las Vegas to Tonopah Railroad grade. While considering the first alternative, other alternatives were considered. During this process, some alternatives did not fulfill the purpose and need, however, the second alternative not only met all the selection criteria but was also deemed to be the preferred alternative. The second alternative would be to construct a new road paralleling U.S. 95 and the NTTR range boundary.

2.2 Selection Criteria

NEPA's implementing regulations provide guidance on the consideration of alternatives to a federally Proposed Action and require rigorous exploration and objective evaluation of reasonable alternatives. Only those alternatives determined to be reasonable and meeting the purpose and need require detailed analysis. This EA has evaluated potential alternatives against the following selection criteria:

1. Efficient access to Box Canyon and Range 63C Complex without having to go through Range 63B Ordnance Impact Area.
2. Safe access through the range without travel restrictions posed by the active bombing range. Range access in the South Range is monitored and approved by a Range Control Office.
3. Safe transportation route such that munitions, target debris, and other materials from Range 63C does not pose a risk to the public travelling on U.S. 95 or personnel working on the range.

2.3 Alternatives

Two action alternatives and the No Action Alternative are carried forward for analysis. Alternative 1 proposes to expand the existing Stagecoach Road along the former Las Vegas to Tonopah Railroad grade. Alternative 2 proposes to construct a "Frontage Road" that would parallel U.S. 95 and the current NTTR withdrawn land boundary. Neither Stagecoach Road nor Frontage Road intersect Box Canyon Road at the northwest end of either alternative. Approximately 2,500 feet of new road would be constructed connecting the proposed roads to Box Canyon Road. For the action alternatives, this section provides the description of the road alignment and follows with the description of construction details and operations. The No Action Alternative is also analyzed as it provides a benchmark with which to compare effects of the action alternatives.

2.3.1 No Action Alternative

Under the No Action Alternative, an access road would not be constructed. NTTR personnel and contractors would still need to travel to Creech AFB Bypass Road for work and travel back towards Box Canyon on range roads or back to Range 63C Complex on U.S. 95 adding miles and time before being able to start working. Commercial vehicles have no alternative route to access Box Canyon if Range 63B is active with military testing and training operations and would continue to access at Point Bravo

enduring potentially long wait times to access the range. Range target debris and munition materials would continue to be transported on U.S. 95.

2.3.2 Alternative 1: Expand Stagecoach Road on Old Railroad Grade

Alternative 1 proposes to expand the current Stagecoach Road from Range 63C Complex to Box Canyon through the southern end of Range 63B. The current road is a one-lane dirt trail that is rarely used. Under this alternative, the main target road would be widened and extended approximately two miles to meet with the Stagecoach Road. The existing Stagecoach Road would be widened to two lanes, one lane each way, and paved. At the northwest end, a section of new road would be constructed to connect Stagecoach Road to Box Canyon Road. This section would be approximately one-half mile long. Figure 2-1 shows a photo of the existing Stagecoach Road near Range 63C Complex.

Figure 2-1 Photo of Stagecoach Road

The alternative meets Selection Criteria 1 by providing a direct route from the target area at Range 63C Complex to Box Canyon without the need to travel on U.S. 95 and through Creech AFB Bypass Road Gate. It partially meets Selection Criteria 2, but because it skirts the edge of the active NTTR, travel on this road would require clearance from the Range Control Office, assuring safe transit through Range 63B. Clearance would be allowed when the range is not being used, however, when closed to traffic, sometimes wait times onto Range 63B could last from a few hours to an entire day. This alternative meets Selection Criteria 3 except when Range 63B is closed to traffic.

2.3.3 Alternative 2: Construct Frontage Road Parallel to U.S. 95

Alternative 2 proposes to construct a road, titled Frontage Road, between the boundary of the NTTR and U.S. 95. Alternative 2 is on land proposed as a Public Land Withdrawal by Congress in 2020. The Frontage Road would be constructed on lands described under the NTTR Land Withdrawal Legislative Environmental Impact Statement (LEIS). This land was proposed and analyzed as one of the alternatives for the recent Military Lands Withdrawal for NTTR but was not selected by Congress. A separate real property action such as a withdrawal or right-of-way incorporating by reference all pertinent data from the Military Lands Withdrawal will be completed prior to implementation of this action. The distance between the live-range boundary and U.S. 95 averages about one-mile in width. The Frontage Road would be located roughly halfway between the two providing a safety buffer from both the range and separation from the public highway.

Starting at Range 63C access road, near the 63C Main Gate and Complex, the Frontage Road would proceed northwest passing near the Point Bravo complex and then slightly veering north along a pre-existing two-track dirt trail, then ultimately merging with Stagecoach Road and following the same alignment as Alternative 1 until terminating at Box Canyon. A security fence would be constructed

within the right-of-way on the south and west side adjacent to BLM lands and U.S. 95. Alternative 2 met all three of the selection criteria.

Figure 2-2 illustrates Alternatives 1 and 2 locations.

2.3.4 Construction and Operations Common to Both Alternatives

Road Construction and Materials

Typical road construction features such as shoulders, culverts, and lane markings, would be installed as necessary and according to standard road design principles. The road would be crowned such that rainwater would drain off to the side of the roadway. The terrain within this alignment is mostly flat. Cross drainage would either be on-grade or spanned using a culvert. On-grade crossings would follow the terrain and be reinforced to prevent erosion. Deeper and narrower channels would require the use of culverts to allow stormwater to pass underneath the roadway. Gravel used for the roadbed would be sourced nearby. The closest gravel pit authorized for NTTR use is within Range 63B, approximately six miles north of Point Bravo. A rock-crusher would be used to break up rock to ¾-inch or less, which is the typical size for road course gravel. This size packs well and provides excellent drainage when compacted. Although construction can start anywhere along the road alignment, the most logical place to start construction would be at the Box Canyon end nearest the gravel pit, allowing for the road to be used during construction.

All applicable impact minimization measures would be incorporated into the Proposed Action alternative designs due to the potential of sensitive species habitat being present within and adjacent to the Proposed Action boundary. The more notable measures include temporary and permanent exclusionary fencing and installation of culverts to allow Mojave desert tortoise (MDT) to cross under the road and are discussed below. In addition, the roadway corridor was designed with extra width to allow flexibility to shift the road to avoid as many tortoise burrows as practicable. A desert tortoise monitor would be present when performing planning and preconstruction surveys to facilitate this process. Other measures such as temporary exclusionary fencing during construction, vegetation management, predation control, water management, and reporting can be found in greater detail within Appendix B - Proposed Minimization Measures for Mojave Desert Tortoise.

Permanent Exclusionary Fencing

Permanent exclusionary fencing will be installed on both sides of the Frontage Road right of way. Fencing standards and specifications for all permanent exclusionary fencing used will be in accordance with Chapter 8 of the 2009 USFWS Desert Tortoise Field Manual (USFWS, 2009). This fencing will be monitored on a quarterly basis to ensure no breaches exist and the structural integrity of fencing is sufficient to exclude MDT from the roadway.

Culverts

Where culverts or other drainage structures are needed, only those that allow safe passage of desert tortoises will be used. Permanent exclusionary fencing will tie into drainage culverts for use by tortoises to move to either side of the roadway. Deep plunge pools will be avoided in designs in order to minimize inadvertent desert tortoise entrapment and mortality. Design of the culvert entrance will incorporate a

sandy substrate and be easily accessible with low stature natural vegetation surrounding the approach and culvert entrance. Large rip rap will be avoided in the design to the greatest extent possible, instead utilizing uniformly gradated rock. If large rip rap must be used, a ramp or incline allowing desert tortoise passage through rip rap will be incorporated into the design.

Operations

Operations personnel working at Box Canyon and Point Bravo would use existing facilities located at Range 63C Complex. Most of the facilities at Range 63C Complex were built for security force training in the early 2000's and are relatively new. Personnel accessing Range 63C Complex facilities would utilize government vehicles while on-range. From the existing unmanned gate, workers would enter and travel on the new access road or if working on Range 63C Complex, would report directly to the work site.

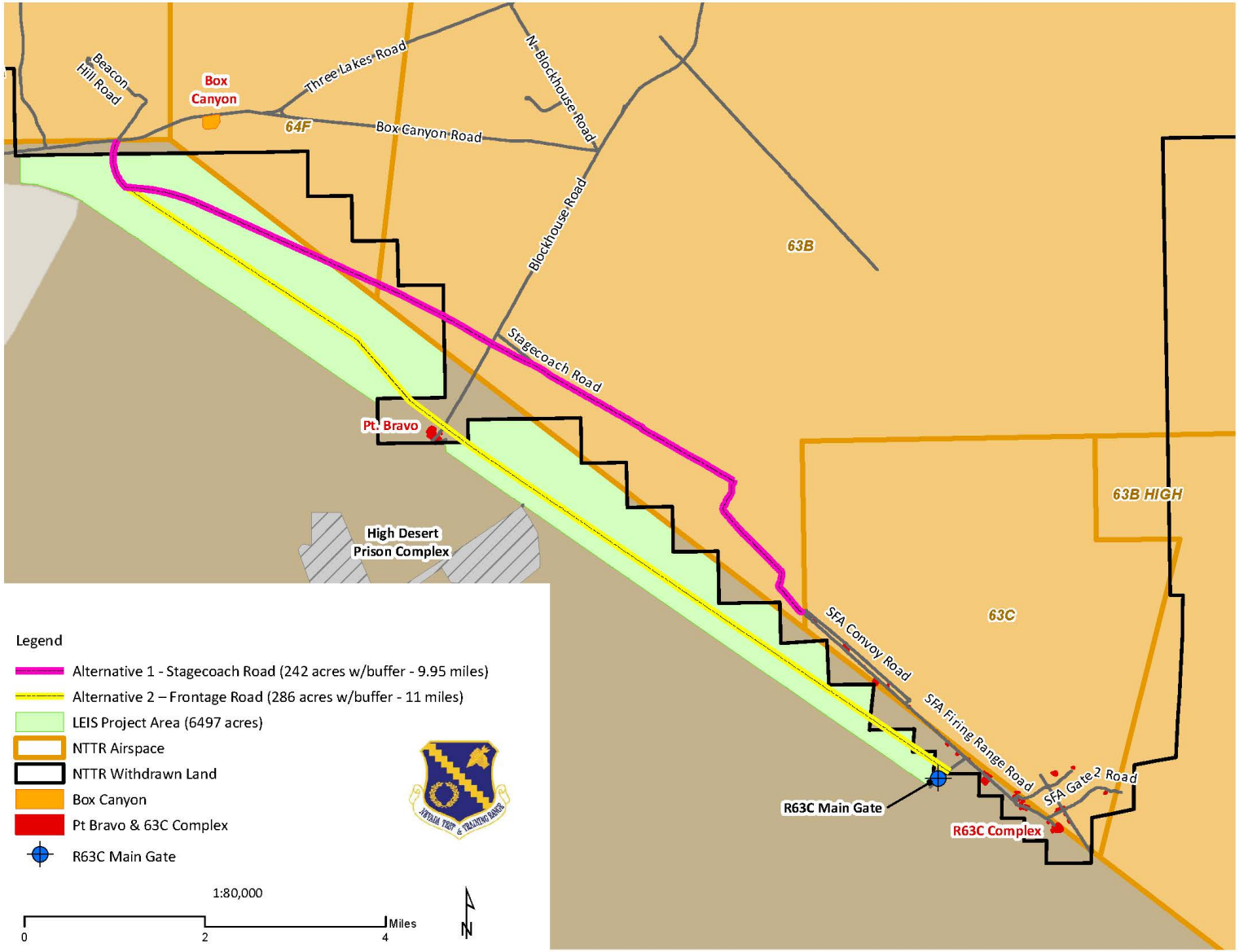

Figure 2-2 Stagecoach Road and Frontage Road: Alternatives 1 and 2

2.4 Alternatives Eliminated from Further Consideration

2.4.1 Construct a Partial Road

One alternative considered was the use of U.S. 95 from Range 63C Complex to Point Bravo, then access the range and build a new road or use the existing roads to Box Canyon. Using a new road alternative meets Selection Criteria 1, but not Selection Criteria 2 because it requires transit across active bombing ranges, and Selection Criteria 3 because it would use U.S. 95. Similarly, using existing roads would not meet Selection Criteria 3, but would only partially meet Selection Criteria 2 because range access would need to be approved pending whether the range would be active.

2.5 Screening of Alternatives

The following potential alternatives were considered viable to meet the purpose and need for the Stagecoach Road:

1. Alternative 1 proposes to expand the existing Stagecoach Road along the former Las Vegas to Tonopah Railroad grade. This alternative meets Selection Criteria 2, but only partially meets the other two selection criteria when the range is active and closed to vehicular traffic.
2. Alternative 2 proposes to construct "Frontage Road" that would parallel U.S. 95 and the current NTTR withdrawn land boundary. The alternative meets all of the selection criteria.
3. A partial alternative would use U.S. 95 from Range 63C Complex to Point Bravo and then use existing or newly constructed roads from Point Bravo to Box Canyon. This alternative meets Selection Criteria 1, partially meets Criteria 2, but does not meet Criteria 3.

The selection criteria described in Section 2.2 were applied to these alternatives to determine which could support the Stagecoach Road requirements and fulfill the purpose and need for the Proposed Action. The alternatives considered above are compared in Table 2.5-1 (Comparison of Alternatives).

Table 2.5-1 Comparison of Alternatives

Alternative Actions	Selection Criteria			Meets Purpose and Need
	1. Efficient Access	2. Safe/secure on-range access	3. Safe off public highway transportation route	
Existing Stagecoach Road	Fully	Partially	Partially	Meets
Frontage Road	Fully	Fully	Fully	Meets
Partial Road	Fully	Partially	Does not meet	Does not meet

Notes: Cells with yellow coloring partially meet the selection criteria for the following reasons:
1. Requires range clearance.
2. Meets selection criteria unless Range 63 is closed to vehicular traffic.

3 Affected Environment and Environmental Consequences

3.1 Scope of the Analysis

This chapter presents a description of the environmental resources and baseline conditions that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect effects of each alternative.

All potentially relevant environmental resource areas were initially considered for analysis in this EA. In compliance with NEPA, CEQ, and 32 CFR Part 989 guidelines, the discussion of the affected environment (i.e., existing conditions) focuses only on those resource areas potentially subject to impacts. In addition, the level of detail used in describing a resource is commensurate with the anticipated level of potential environmental impact.

This EA was initiated prior to recent changes to NEPA regulations (effective September 2020). Per Air Force direction, this EA is consistent with NEPA regulations prior to September 2020 accordingly. "Significantly," as used in NEPA, requires considerations of both context and intensity. *Context* means that the significance of an action must be analyzed in several contexts such as society as a whole (e.g., human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of a Proposed Action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant (40 CFR part 1508.27). *Intensity* refers to the severity or extent of the potential environmental impact, which can be thought of in terms of the potential amount of the likely change. In general, the more sensitive the context, the less intense a potential impact needs to be in order to be considered significant. Likewise, the less sensitive the context, the more intense a potential impact would be expected to be significant.

This EA includes an analysis of potential environmental impacts associated with the implementation of Alternatives 1 and 2, and the No Action Alternative.

This section includes the detailed analysis of resources because potential impacts to them are the primary relevant ones for the Proposed Action.

Potential impacts to the following resource areas are considered to be negligible or non-existent so they were not carried forward for detailed analysis in this EA as explained below: airspace management and use; noise; recreation and visual resources; transportation; hazardous materials and solid waste; socioeconomics; environmental justice and protection of children; water resources; and wildland fire risk and management.

- **Airspace Management and Use**: Airspace management would not be affected by the Proposed Action alternatives. No part of the action employs or influences airspace operations or air traffic management; all action elements would occur on the ground, so they would not impact either the management or use of airspace. Accordingly, airspace management and use are not carried forward for detailed analysis in this EA.
- **Noise:** Noise generated from construction activities associated with the Proposed Action alternatives remain confined to the area adjacent to Stagecoach Road or the Frontage Road. No increased operations would be involved, and the area is already affected by louder, more

consistent noise from aircraft operations overhead. No new noise sources would be introduced to new areas. Accordingly, noise is not carried forward for detailed analysis in this EA.

- **Recreation and Visual Resources:** Recreation resources would not be affected by the Proposed Action alternatives since recreational use of these lands is restricted and would continue in the same manner that is currently practiced. Visual resources would not be affected since sensitive visual resources are not located near the Proposed Action location. Accordingly, recreation and visual resources are not carried forward for detailed analysis in this EA.
- **Transportation:** Construction-related traffic would be short-term and temporary and take place off U.S. 95. No change to the current road system that already accommodates the anticipated level of traffic associated with construction equipment and employees. Transportation onto the range by approved personnel for use and maintenance through the existing Range 63C unmanned entry gate would increase; however, this increase would not adversely impact transportation resources; effects of the Proposed Action alternatives on existing transportation resources would not be measurable or noticeable. Accordingly, transportation resources are not carried forward for detailed analysis in this EA.
- **Hazardous Materials and Solid Waste:** Effects from hazardous materials and waste associated with construction as well as operation and maintenance of facilities and infrastructure related to the construction and use of the proposed road would be negligible to nonexistent. During construction, use of hazardous substances (e.g., gasoline) for fueling and equipment maintenance would be handled using existing AFIs, policies, and procedures. Existing spill and pollution prevention plans would be adhered to in accordance with Air Force regulations. Given the enforced requirement to ensure safe handling of materials and the minimal amounts of materials likely to be used, the probability of an effect on the environment would be negligible. During road construction, it is not anticipated that hazardous materials or wastes will be encountered, but construction practices include procedures to stop work and handle in accordance with all state and federal regulations. Accordingly, hazardous materials and solid waste resources are not carried forward for detailed analysis in this EA.
- **Socioeconomics:** Socioeconomics focuses on the general features of the local economy that could be affected by the Proposed Action. No new jobs would be created or eliminated by implementation of the Proposed Action, nor would the affected area experience any economic growth or loss through implementation of the proposed road project on NTTR. Accordingly, socioeconomics is not carried forward for detailed analysis in this EA.
- **Environmental Justice and Protection of Children:** Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. The nearest populated areas to Range 63C would be a cluster of homes at the Las Vegas Paiute Tribe adjacent to U.S. 95, approximately ten miles from Range 63C Complex and would not be affected. At this distance, the Proposed Action alternatives would not pose a risk to any communities or population centers and thus would not disproportionately impact low income or minority populations. In addition, the Proposed Action alternatives would not pose environmental and safety risks to children due to the fact that construction would be limited to NTTR. No minority, low-income groups, or children would be affected disproportionately or placed at risk, thus environmental justice and evaluation of the protection of children is not carried forward for detailed analysis in this EA.

- **Water Resources:** The NTTR Land Withdrawal LEIS (U.S. Air Force, 2018b) analysis states that there are no potentially jurisdictional surface waters of the United States (WOTUS) identified within the NTTR Land Withdrawal LEIS Alternative 3B site which includes the Proposed Action areas; therefore, no impacts to jurisdictional WOTUS would result from the Proposed Action alternatives. United States Environmental Protection Agency (USEPA) regulations 40 CFR 122.26(b)(14) require stormwater discharge permits for certain activities that discharge stormwater into WOTUS. The National Pollutant Discharge Elimination System permit program, including stormwater permitting, has been delegated to several states including Nevada (except for Indian lands) from USEPA. As such, the Nevada Division of Environmental Protection is the delegated authority for any regulated stormwater discharges associated with construction activity. Both of the Proposed Action alternatives would meet the USEPA definition of a Phase 1 construction site – any construction site disturbing more than five acres. As part of the construction stormwater permit, the U.S. Air Force determined that a Stormwater Pollution Prevention Plan would be required. While it is not believed that WOTUS are located on site, alluvial fans do exist within the boundaries. Some of these fans may exhibit an ordinary high-water mark with a defined bed and bank, meeting the ephemeral definition of tributary as listed in the Clean Water Act. The Ordinary High Water Mark is a defining element for identifying the lateral limits of non-wetland waters. Ordinary High Water Mark is displayed as the line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, or the presence of litter and debris (Lichvar and McColley, 2008). The Proposed Action alternatives are not located within any floodplain, nor do they contain any wetlands, known springs or seeps within the boundaries (U.S. Air Force, 2018b). Accordingly, water resources are not carried forward for detailed analysis in this EA.
- **Wildland Fire Risk and Management:** The Air Force and BLM would continue to coordinate to implement appropriate joint fire management policies that would be consistent with guiding principles, policies, and implementation actions for wildland fire management on DoD lands, as described in AFI 32-7064, Integrated Natural Resources Management Plan, Chapter 13, Wildland Fire Management (U.S. Air Force, 2019b). The BLM addresses fire suppression response on a case-by-case basis. As such, the Stagecoach Road expansion would not change current wildland fire risks, plans, or policies. Accordingly, wildland fire risk and management is not carried forward for detailed analysis in this EA.

3.2 Biological Resources

Biological Resources Potential Impacts:

- Insignificant effect to Mojave desert tortoise and habitat with implemented minimization measures.
- Insignificant effect to Native plant species with implemented minimization measures.

3.2.1 Definition of Resource

Biological resources are defined as the resource consisting of native vegetation and wildlife species. Habitat in which vegetative and wildlife species rely on in order to occupy or potentially occupy the study area of the Proposed Action are also included in the definition. Specific species defined under Biological resources, for the purposes of this EA, will be focused on listed species. Listed species are those species that are listed as threatened, endangered, candidate, or species of

concern under the Endangered Species Act by the U.S. Fish and Wildlife Service (USFWS) and species listed under state designations by the State of Nevada.

The Nevada Natural Heritage Program (NNHP) maintains current data on all species and subspecies in the state listed as threatened, endangered, candidate, or sensitive by any federal, state, or private organization, or otherwise considered at-risk by NNHP.

3.2.2 Affected Environment

The affected environment section concisely describes the existing biological resources of the action area that would be affected if Alternative 1 or 2 were implemented. This section describes only those biological resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the No Action Alternative, forms the existing conditions for determining the biological resource impacts of the Proposed Action alternatives.

3.2.2.1 Vegetation Classification

The NTTR South Range vegetative communities were assessed and categorized in 2016 using the Maxent model. According to results of this model, the project boundaries consist solely of Sonora-Mojave Creosotebush-White Bursage Desert Scrub with a sub-categorization of Ambrosia dumosa Desert Dwarf Scrub Alliance (U.S. Air Force, 2018b). Local landforms consist of bajadas or collections of alluvial fans which drain adjacent mountain ranges. These bajadas are often dominated by creosote bush (*Larrea tridentata*) and bursage (*Ambrosia dumosa*) in the lower bajadas and blackbrush (*Coleogyne ramosissima*) and Joshua tree (*Yucca brevifolia*) in the upper bajadas (U.S. Air Force, 2019a).

3.2.2.2 Native Vegetation

The native vegetative community of the action area is found to be consistent with that of the northeastern Mojave Desert Scrub setting and consists of species that typically occupy a vegetation classification of Sonora-Mojave Creosotebush-White Bursage Desert Scrub (Figure 3-1). The U.S. National Vegetation Classification Alliances describe this classification as having dominant vegetation consisting of creosote bush, white bursage, Nevada Jointfir *(Ephedra nevadensis),* and beavertail cactus (*Opuntia basilaris*). According to the South Range Vegetation Classification Report for 2016, the shrubland class was the most commonly observed in the South Range, comprising over 93 percent of land cover (Auxilio et al., 2017).

While higher elevation habitats are present within the South Range of the NTTR, they are not present within the study area. As such, pinyon-juniper woodland communities and blackbrush and sagebrush and other species that rely on mountainous settings are presumed not to be present. Saltbush species, ephedra, brittlebush (*Encelia virginensis*), desert globemallow (*Sphaeralcea ambigua*), succulents (especially prickly pears and chollas [*Opuntia* and *Cylindropuntia spp*.]), and Mojave yucca (*Yucca shidigera*) also occur in this community (U.S. Air Force, 2019b). Other native plant species observed during a MDT survey, conducted May 2020, include Mormon tea, buckwheat (*Eriogonum sp.*), desert trumpet (*Eriogonum inflatum*), Joshua tree (*Yucca brevifolia*), and lilac sunbonnet (*Langloisia setosi*ssima).

3.2.2.3 Invasive Vegetation

Executive Order (EO) 13751 amending EO 13112, Invasive Species, requires prevention of the introduction and spread of invasive plant and animal species on federally managed lands, and control of invasive species is a primary natural resources management issue on military installations. Cheatgrass (*Bromus tectorum*), red brome (*Bromus madritensis ssp. rubens*), halogeton (*Halogeton spp.*), Russian thistle (*Salsola kali*), and salt cedar (*Tamarix ramosissima*) are invasive species that currently inhabit the NTTR. Red brome is mostly restricted to valley bottoms and alluvial fans in the South Range. Russian thistle appears to be restricted to areas that are regularly or severely disturbed, such as roadsides, or sites with sandy soils and a low density of perennial plants (U.S. Air Force, 2018b).

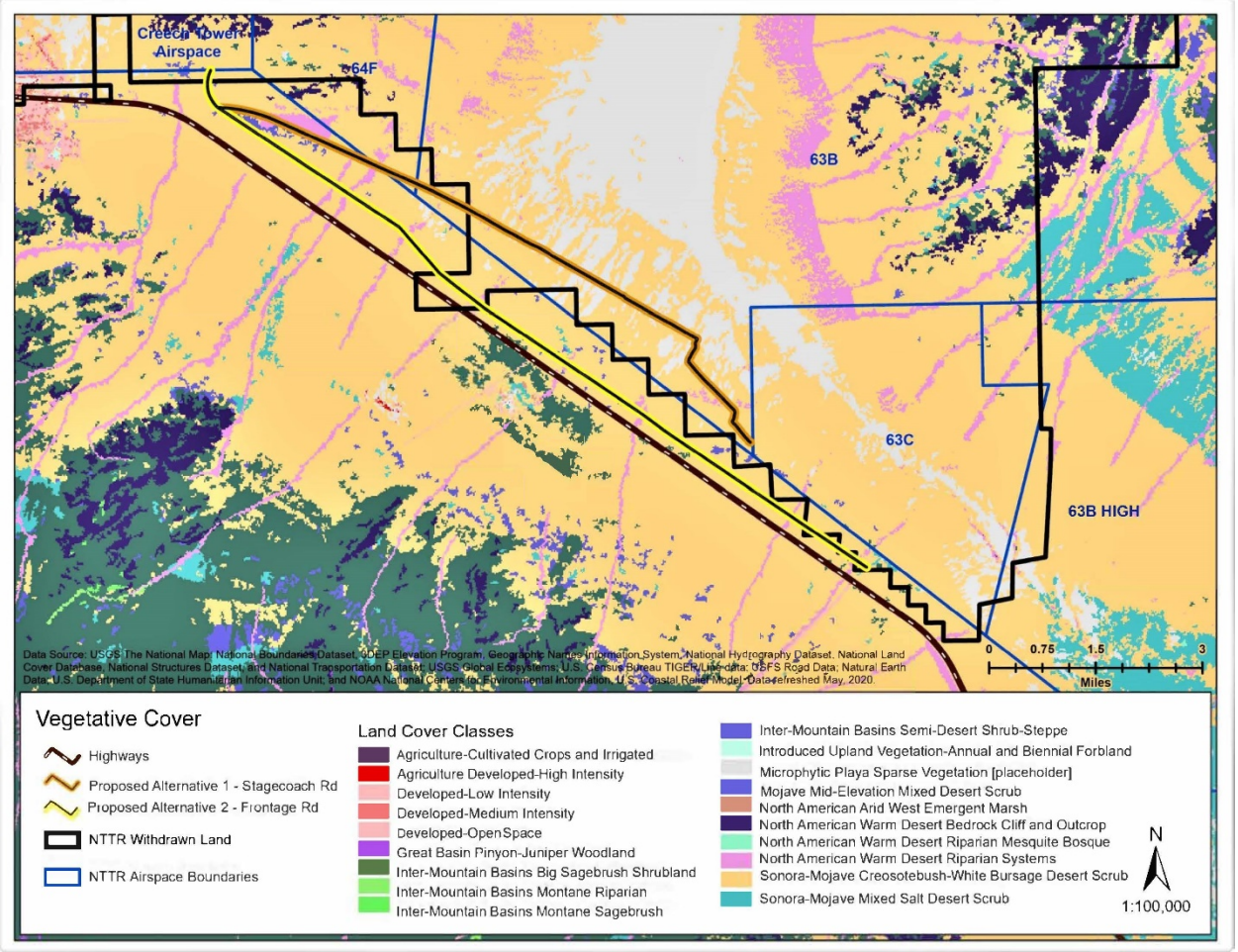

Figure 3-1 Vegetative Cover South Range

3.2.2.4 Water

Natural sources of water are scarce across most of the project boundaries. Regional annual precipitation ranges from 3 to 5 inches in the basins and as high as 16 inches in upper elevations of mountains. However, precipitation within the local area of study is recorded at 2.91 inches annually (Western Region Climate Center [WRCC], 2020). Vegetation composition is strongly influenced by the levels of precipitation. Most of the active springs are found in the North Range, especially in the Kawich, Belted, and Cactus mountain ranges and Stonewall Mountain. Only five springs are found in the South Range.

Most water sources for wildlife in the South Range are provided by wildlife water developments, which are collected water from storm events and stored in water tanks (U.S. Air Force, 2017a). No wetlands or WOTUS are located within the study area.

The Proposed Action is located within the Hydrologic Great Basin and northern Mojave Desert. Most of the surface water on the NTTR occurs as ephemeral streams and washes that drain to many playas found nearby, where water collects and eventually evaporates (U.S. Air Force, 2010, as cited in U.S. Air Force, 2018b). These ephemeral features are not connected to WOTUS and would likely be considered isolated features (not traditional navigable waters). Areas that have surface water for a sufficient amount of time to support wetland vegetation, such as seeps, springs, or other surface water features, would also be considered isolated and not be considered jurisdictional unless they have a significant nexus to traditional navigable waters (U.S. Air Force, 2018a).

3.2.2.5 Migratory Birds

The Migratory Bird Treaty Act of 1918 (MBTA) (16 USC §§ 703-712) prohibits the taking of any migratory bird and any part, nest, or egg of any such bird, without a permit issued by the USFWS. "Take" under the MBTA is defined as the action or attempt to "pursue, hunt, shoot, capture, collect, or kill." Some migratory birds may migrate through the affected environment as it lies within the Pacific Flyway. However, no designated critical habitat occurs within the project boundaries for migratory or species protected under the federal MBTA, and EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.

Bald and golden eagles receive additional federal protection under the Bald and Golden Eagle Protection Act (16 USC § 668–668d). This act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald and golden eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

Migratory birds that are likely to be found within the study area are as follows:

- Bendire's Thrasher (*Toxostoma bendirei*)
- Western Burrowing Owl (*Athene cunicularia*)
- Costa's Hummingbird (*Calypte costae*)
- Golden Eagle (Aquila chysaetos)
- Le Conte's Thrasher (*toxostoma lecontei*)
- Rufous Hummingbird (*selasphorus rufus*)

3.2.2.6 Special Status Species

Special status species include species, both flora and fauna, listed as threatened or endangered under the federal Endangered Species Act, species listed by the State of Nevada or with a NNHP ranking of S1 to S4, and those identified as sensitive (S) by BLM.

Queries were conducted with the NNHP and the USFWS (USFWS, 2020) to determine potential federal and state species of concern or habitats critical to these species that may be found within the project boundaries. An on-line USFWS Information for Planning and Consultation (IPaC) review was conducted on April 18, 2020 and a response was received by the NNHP on April 22, 2020 in conjunction with a data query of the NNHP species list (NNHP, 2020). These species and status are listed in Table 3.2-1.

In addition, during the preliminary project review, Nevada Division of Forestry (NDF) has expressed concern regarding the possible presence of listed flora species within the project boundary. Specifically, it has been conveyed that modeled habitat suitable for the Las Vegas bearpoppy (LVBP) (*Arctomecon californica*), a plant species on the state's list of fully protected species (Nevada Revised Statutes 527.050) could be present. As such, the LVBP has been added to the analysis. The NDF, under Nevada Revised Statutes 527.060-.120, protects and regulates the harvest of all cacti, yuccas, and evergreen trees, most taxa of which are not tracked by NNHP (NDF, 2020) and will need to be consulted if these species are expected to be impacted by the final construction design.

No flora species identified as federally listed or as critically endangered by the State of Nevada have been recorded to occur within the project boundaries. Species with a heritage rank of S2 (indicating their distribution in Nevada is imperiled due to rarity or other demonstrable factors) and S3 (indicating their distribution in Nevada is vulnerable to decline because they are rare and local throughout the range or have a very restricted range) have the potential to occur within the project boundaries and have been mapped as observed adjacent to the project boundaries as found in the Rare Plants Report (U.S. Air Force, 2017a).

The following table includes special status species which have the potential to occur within the project boundaries either because they occur in areas adjacent to the action area or the species preferred habitat exists within the action area. Any listed species which are likely to occur within or near the study area will be discussed in greater detail below.

Table 3.2-1 Special Status Species Description, and Occurrence (U.S. Air Force, 2017b)

Common Name/ Scientific Name	Status USFWS/State of Nevada/NNHP/BLM	Range/Habitat	Occurrence Adjacent to Project Boundaries
Clokey buckwheat *(Eriogonum heermannii)*	None/--/S2/S	Carbonate outcrops, talus, scree, and gravelly washes and banks in the creosote-bursage, shadscale, and blackbrush zones (NNHP, 2020) prefers elevations of 3,608 – 8,038 feet mean sea level (MSL) (Reveal J., 2003, as cited in U.S. Air Force, 2017a).	Historical observation recorded by NNHP in area adjacent to project boundaries.
Nye milkvetch *(Astragalus nyensis)*	None/--/S3/C	Located at the foothills of desert mountains, calcareous outwash fans and gravelly flats, and sometimes in sandy, gravelly, slightly alkaline soils in the Mojave Desert Scrub (California Native Plant Society, Rare Plant Program, 2016, as cited in U.S. Air Force, 2017a).	Historical observation recorded by NNHP in area adjacent to project boundaries.
Las Vegas bearpoppy (*Arctomecon californica*)	None/--/S3/S	Open, dry, spongy or powdery, often dissected ("badland") or hummocked soils with high gypsum content, often with well-developed soil crust, in areas of generally low relief on all aspects and slopes,	Modeled habitat present according to Nevada Department of Forestry.

Common Name/ Scientific Name	Status USFWS/State of Nevada/NNHP/BLM	Range/Habitat	Occurrence Adjacent to Project Boundaries
		with a sparse cover of other gypsum-tolerant species.	
White bearpoppy ***(Arctomecon merriamii)***	None/--/S3/S	Known vegetative communities for this species include creosote-bursage, blackbrush, and mixed-shrub (NNHP, 2001).	Observations recorded by NNHP in area adjacent to project boundaries.
Hermit cactus ***(Sclerocactus polyancistrus)***	--/--/S2S3/--	Grows in rocky, alluvial, often alkaline soils, within the Mojave Desert Scrub community between 1,640 – 8,200 feet MSL (Flora of North America, 2016, as cited in U.S. Air Force, 2017a).	Observations by NNHP adjacent to project boundaries recorded in 2012 and 2015.
Mojave desert tortoise ***(Gopherus agassizii)***	T/TR/S2S3/S	Found in a variety of habitats from sandy flats to rocky foothills, including alluvial fans, washes, and canyons where suitable soils for den construction might be found (USFWS, 2019).	Observations made of species and signs within project boundaries during May 2020 survey.
Banded Gila monster ***(Heloderma suspectum cinctum)***	--/PR/S2/S	Found primarily in the eastern and northern Mojave Deserts of southern California, southern Nevada, northwest Arizona, and extreme southwest Utah (U.S. Air Force, 2019b) prefer rocky hillsides, canyons, and areas with large rocks.	No observations recorded within project boundaries. Nearest observation – Pintwater Range Mountains (U.S. Air Force, 2019d).
Chuckwalla ***(Sauromalus ater)***	--/--/S3/S	Desert regions of southeastern California, western Arizona, southern Nevada, southern Utah, and adjacent portions of Mexico (Shaw, 1945). Typical habitat is marked primarily by large boulder piles, lava flows, and outcrops in the Mojave Desert (NNHP, 2020).	Observations made adjacent to project boundaries recorded in 2011.
Loggerhead shrike ***(Lanius ludovicianus)***	--/SB/S4/S	Winters throughout the southern tier of the United States, with northern limits in California, Nevada, Utah, Colorado (primarily west and south), southern Kansas, Arkansas, Tennessee, and Virginia (Wiggins, 2005).	Observation made adjacent to project boundaries recorded in 2015.
Brewer's sparrow ***(Spizella breweri)***	--/SB/S4B/S	Spring and summer habitat preference of shrubland, winters in shrublands and brushy deserts dominated by sagebrush, saltbush, and creosote (Rotenberry, Patten, and Preston, 1999).	No observations recorded within or adjacent to project boundaries.

Common Name/ Scientific Name	Status USFWS/State of Nevada/NNHP/BLM	Range/Habitat	Occurrence Adjacent to Project Boundaries
Southwestern willow flycatcher *(Empidonax traillii extrimus)*	E/--/S1B/S	Breeds only in dense riparian habitats in parts of six Southwestern states (Arizona, New Mexico, southern California, extreme southern Nevada, southern Utah, and southwestern Colorado) (Durst, et al., 2008).	No observations recorded within or adjacent to project boundaries.
Western burrowing owl (*Athene cunicularia hypugia)*	--/--/S3B/S	Prefer annual and perennial grasslands, deserts, and shrublands characterized by low-growing vegetation having less than 30 percent ground cover allowing the owls to easily observe prey (Zam, 1974, as cited in U.S. Air Force 2017b).	No observations recorded within or adjacent to project boundaries.
Pallid bat *(Antrozous pallidus)*	--/PM/S3/S	Generally found in elevations below 6,000 feet MSL. Geographically, it is found from British Columbia to Mexico, especially in canyon landscapes, rugged terrain, and deserts and grasslands of the southwest. It is usually found in the vicinity of rocky outcrops and dry canyonlands (Orr R., 1954).	Observations recorded by NNHP adjacent to project boundaries.
Big brown bat *(Eptesicus fuscus)*	--/--/S3S4/S	Found from southern Canada through the United States to extreme northern South America (Whitiker, J., et al., 1998). Occurs in a variety of habitats including pinyon-juniper, blackbrush, creosote, sagebrush, agriculture, and urban habitats. Better adapted to human habitation than most species (Altenbach, et al., 2002).	Observations recorded by NNHP adjacent to project boundaries.
Mexican free-tailed bat *(Tadarida brasiliensis)*	--/--/S4/S	Found in dry, lower elevations, but may be found as high as 9,800 feet MSL in the western mountain ranges of the U.S. They are most often associated with desert scrub plant communities within Nevada (U.S. Air Force, 2017b).	Observations recorded by NNHP adjacent to project boundaries.
California myotis *(Myotis califonicus)*	--/--/S4/S	Has a high tolerance for different habitats, including coasts, desert scrub, wood-lands, forests, meadows, canyons, rural areas, and grasslands (Barbour R. W., 1969).	Observations recorded by NNHP adjacent to project boundaries.

Common Name/ Scientific Name	Status USFWS/State of Nevada/NNHP/BLM	Range/Habitat	Occurrence Adjacent to Project Boundaries
Canyon bat *(Parastrellus hesperus)*	--/--/S4/S	One of the most common North American bats found in deserts but may also be found at higher elevations in arid brush lands, grasslands, and even some forests (Arroyo-Cabrales and Ticul Alvarez Castaneda, 2008, as cited in U.S. Air Force, 2017b).	Observations recorded by NNHP adjacent to project boundaries.

Notes:

USFWS Status:
E - Endangered - A species in danger of extinction throughout all or a significant portion of its range.
T - Threatened - A species likely to be classified as Endangered in the foreseeable future if threats continue.
C - A species under consideration for official listing for which there is sufficient information to support listing.
BLM Status:
S - Nevada Special Status Species, USFWS listed, proposed, candidate species or otherwise protected by Nevada state law
State of Nevada Status:
PA - Protected Amphibian (Nevada Administrative Code [NAC] 503.075.2)
PR - Protected Reptile (NAC 503.080.1)
TR - Threatened Reptile (NAC 503.080.2)
PB - Protected Birds (NAC 503.050.1)
SB - Sensitive Birds (NAC 503.050.3)
PM - Protected Mammal (NAC 503.030.1)
SM - Sensitive Mammal (NAC 503.030.3)
State Rank (NNHP):
S - State rank indicator, based on distribution within Nevada at the lowest taxonomic level
1 - Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity threats, or other factors
2 - Imperiled due to rarity or other demonstrable factors
3 - Vulnerable to decline because rare and local throughout range, or with very restricted range
4 - Long term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
5 - Secure - At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats
B - Breeding - Conservation status refers to the breeding population of the element in the nation or state/province
Nevada Department of Wildlife Action Plan:
SOCP - Species of Conservation Priority

Clokey Buckwheat (*Eriogonum heermannii var. clokeyi*)

The sole recorded observation of Clokey buckwheat according to NNHP was in 1976. A specimen was located on a ridge below Lee Canyon at an elevation of approximately 1,500 meters. No observations of Clokey buckwheat were recorded during the May 2020 MDT survey for this project and no other recent recorded occurrence exists.

Nye Milkvetch (*Astragalus nyensis*)

Nye milkvetch is typically located at the foothills of desert mountains, calcareous outwash fans and gravelly flats, and sometimes in sandy, gravelly, slightly alkaline soils in the Mojave Desert Scrub (California Native Plant Society, Rare Plant Program, 2016, as cited in U.S. Air Force, 2017a). A historical observation made in 1906 by R.C. Barneby is recorded by NNHP as occurring at Indian Springs in the eastern foothills of the Spring Mountains. No recent observations have been recorded; this is confirmed

in the NTTR Rare Plants Report (U.S. Air Force, 2017a). No observations of Nye milkvetch were made within the project boundaries during the 2020 MDT survey (see Appendix C).

Las Vegas Bearpoppy (*Arctomecon californica*)

In accordance with Nevada Administrative Code (NAC) 527.010 the LVBP is fully protected by the State of Nevada. This species occurs on Nellis AFB, 33 miles south of the NTTR. Rare plant surveys conducted on Nellis AFB and NTTR found two major LVBP populations and one minor LVBP population. All LVBP populations occur on Nellis AFB lands. Furthermore, no populations of LVBP have been found within the project boundaries (U.S. Air Force, 2018b). In addition, no plants were observed during the 2020 MDT surveys. This is consistent with LVBPs preference for gypsum soils, as no Gypsiferous soils occur within the project boundaries (NRCS, USDA, 2020).

White Bearpoppy (*Arctomecon merriamii*)

Known vegetative communities for this species include creosote-bursage, blackbrush, and mixed-shrub (NNHP, 2001). White bearpoppy grows on a wide variety of soils, including dry to moist-basic alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops. The plant is native to Nevada and has been observed in Clark and Lincoln Counties (NNHP, 2001). The NNHP list five separate observations made adjacent to the project boundaries - four separate observations in 1994, approximately three miles east of Indian Springs and one observation in 1954 in the northern Charleston Mountains.

The NTTR Rare Plant Report indicates numerous observations within the bajadas and valley bottoms of the Spotted Range, the central Pintwater Range, and Desert Range (U.S. Air Force, 2017a).

Hermit Cactus (*Sclerocactus polyancistrus*)

This cactus often grows in rocky, alluvial, often alkaline soils, within the Mojave Desert Scrub community between 1,640 – 8,200 feet mean sea level (MSL) (Flora of North America, 2016, as cited in U.S. Air Force, 2017a). Hermit cactus is widely distributed across the North Range of the NTTR as well as a few locations in the central and southern portions of the NTTR (U.S. Air Force, 2017a). Hermit cactus has been observed adjacent to the project boundaries during multiple survey events according to NNHP records.

Mojave Desert Tortoise (*Gopherus agassizii*)

The MDT is protected under NAC 503.080, wherein the species is listed as a state-protected reptile further classified as federally threatened. It is also the only federally listed species to occur on the NTTR (U.S. Air Force, 2018b).

According to helicopter survey and mapping results conducted and finalized in 2009 with assistance and concurrence of USFWS, it is determined that the study area lies within MDT habitat as depicted in Figure 3-2. However, ground surveys have been conducted in the South Range of approximately 68 percent of the range. Survey results show that population density is one MDT per 467 acres, indicating the South Range supports a low density of MDTs (U.S. Air Force, 2019c).

As the action area was not captured during previous ground surveys for the NTTR South Range, linear project surveys for MDTs were performed in May 2020 for analysis within this EA. Three MDTs, one MDT

carcass, and 134 MDT burrows, were observed within the study area during the survey effort. Additional details can be found in the survey report as part of Appendix C.

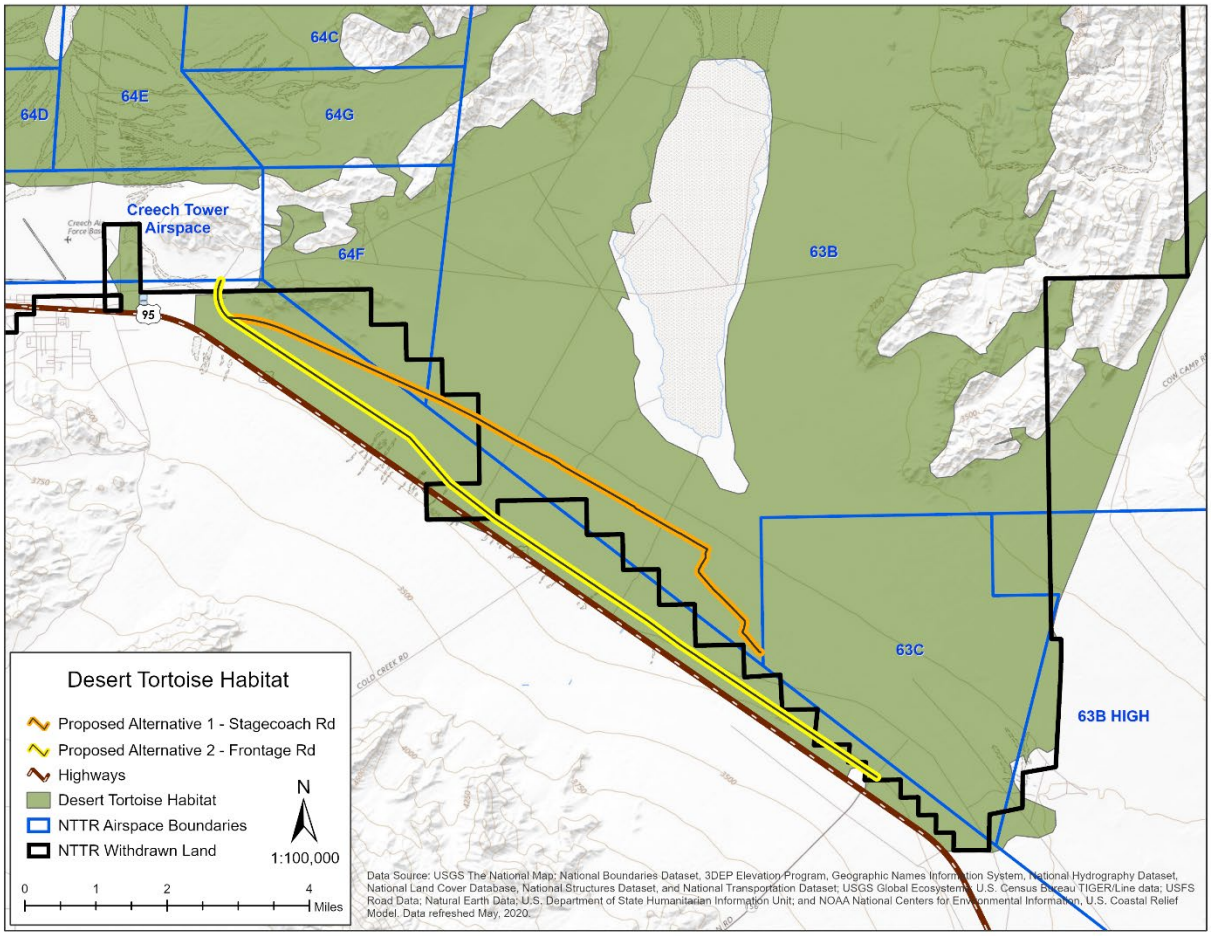

Figure 3-2 Desert Tortoise Habitat

Banded Gila Monster (*Heloderma suspectum cinctum*)

Banded Gila monster are found primarily in Mojave Desert Scrub, where they appear to prefer canyons, adjacent rocky hillsides, and areas with large rocks, and occasionally, open valleys and bajadas (Beck, 2005, as cited in U.S. Air Force, 2017b). Due to the lack of rocky features and canyons, banded Gila monster are not expected to occur within the project boundaries as its preferred habitat is not present. As further justification of this habitat bias, a species distribution model for banded Gila monster within the NTTR South and North Range was generated as part of a 2018 Candidate Species Report for Nellis AFB, Creech AFB, and the NTTR. Results of this study showed high quality banded Gila monster habitat tends to occur in the rocky mountain habitat of the South Range (the Desert Range, Pintwater Range, and Spotted Range), and some marginal quality habitat occurs in the North Range in Fleur de Lis Canyon (U.S. Air Force, 2019d). None of these habitat attributes are found within the project boundaries.

The Nevada Department of Wildlife (NDOW) *Gila Monster Status, Identification and Reporting Protocol for Observations* (NDOW, 2007) will be implemented if banded Gila monster are encountered during construction.

Chuckwalla (*Sauromalus ater*)

Typical habitat is marked primarily by rock outcrops and boulders, which provide cover and basking sites (Prieto and Ryan, 1978; Tanner and Jorgensen, 1963, as cited in U.S. Air Force, 2017b). Chuckwallas have been observed on both the North and South Ranges. They have been identified as far north as Alkali Canyon, just south of Stonewall Mountain (U.S. Air Force, 2017b). The Nevada Natural Resources Plan lists a 2011 record of incidental observation occurring to the north of the project boundaries. However, no observations have been recorded within the project boundaries.

Loggerhead Shrike (*Lanius ludovicianus*)

The loggerhead shrike has been observed in key NTTR South Range habitats including Creosote Bush – White Bursage Scrub vegetative communities (U.S. Air Force, 2017b). No historical observations of the loggerhead shrike have been recorded within the project boundaries. However, in 2015 multiple loggerhead shrike observations were made adjacent to the boundary (U.S. Air Force, 2017b).

Brewer's Sparrow (*Spizella breweri*)

The Brewer's sparrow has a spring and summer habitat preference of shrublands usually associated with significant stands of sagebrush (U.S. Air Force, 2017b). They typically build their nests in dense foliage one to 20 inches above the ground (Petersen and Best, 1985, as cited in U.S. Air Force, 2017b) in a plant community with a canopy height of less than five feet (Rotenberry, Patten, and Preston, 1999; Knick and Rotenberry, 1995, as cited in U.S. Air Force 2017b). These birds are known to need a significant water source within zero to six miles of roosting/nesting habitat. However, birds were also found in salt desert scrub, but to a lesser extent (Great Basin Bird Observatory, 2010, as cited in U.S. Air Force 2017b). No Brewer's sparrows have been recorded within the project boundaries to date.

Southwestern Willow Flycatcher (*Empidonax traillii extrimus*)

No observations of the southwestern willow flycatcher have been recorded on the NTTR. This subspecies of the willow flycatcher can occur in southern Nevada during breeding season, it prefers riparian habitats found more in the extreme southern portions of Nevada. The project boundaries are void of such riparian habitat; therefore, it is not likely to occur.

Western Burrowing Owl (*Athene cunicularia*)

The burrowing owl is listed by the USFWS as a Bird of Conservation Concern (USFWS, 2020), as a Sensitive Species by the BLM, and as a species of conservation concern at the state level.

As listed in the NTTR 2018 Candidate Species Report, no burrowing owls were detected in the course of call-playback surveys on the NTTR in 2018. While no surveys were conducted within the project boundaries, survey locations in the South Range consisted of similar vegetative communities, habitat, and elevation.

Observations were made for burrowing owl nests in conjunction with the MDT survey conducted in 2020. Investigations were made for burrowing owl nests in conjunction with the MDT survey conducted in 2020 which indicated no occupancy of burrowing owls within the project boundaries.

Pallid Bat (*Antrozous pallidus*)

Throughout its range, the pallid bat is generally found in elevations below 6,000 feet MSL. It commonly roosts in rock crevices, caves, mines, attics of houses, as well as hollow trees (U.S. Air Force, 2018b).

Roosting grounds for this species are not found within the project boundaries, however, some foraging ground may exist containing shrubs typically found in pallid bat habitat including Antelope bitterbrush (*Purshia tridentata*), sagebrush (*Artemisia spp.*), rabbit-brush (*Chrysothamnus spp.*), and forest cover types including ponderosa pine (*Pinus ponderosa*), along lower slopes and riparian forests (van Zyll de Jong, 1985, as cited in U.S. Air Force, 2017b). NNHP has historical records of species collection near Indian Springs dating since 1929. No other observations have been made within the project boundaries.

Big Brown Bat (*Eptesicus fuscus*)

The big brown bat has a wide distribution and has adapted well to increased human anthropogenic development (U.S. Air Force, 2017b). The NNHP has records of one observation made near Indian Springs pre-1934. No other observations have been made in the South Range, although there have been multiple mist-net captures in parts of the North Range.

Mexican Free-Tailed Bat (*Tadarida brasiliensis*)

This species is found in a variety of habitats, from low desert to high mountains and roosts in a variety of sites including cliff faces, mines, caves, buildings, bridges, and hollow trees. The NNHP has a record of one observation made near Indian Springs pre-1934. No other observations have been made adjacent to the project boundaries.

California Myotis (*Myotis califonicus*)

Habitat for this species can be highly variable as they have been known to use desert scrub, forest land canyons, and grasslands for foraging while their roosting preference is in rock crevasses and caves. Three acoustic recordings of the California myotis were made in the South Range during studies conducted on the NTTR to date. Two were captured in mist nets in 1929 and 1988 in the Sheep Range and one in 1929 in Indian Springs (U.S. Air Force, 2017b).

Canyon Bat (*Parastrellus hesperus*)

The canyon bat is considered one of the most common North American bats found in deserts but may also be found at higher elevations in arid brush lands, grasslands, and even some forests (Arroyo-Cabrales and Ticul Alvarez Castaneda, 2008, as cited in U.S. Air Force, 2017b). The NNHP has one record of an individual being captured near Indian Springs dating 1928. Additionally, four sightings have more recently been recorded within the South Range (U.S. Air Force, 2017b).

3.2.3 Environmental Consequences

The following describes types of environmental consequences that may need consideration.

Beneficial – The alternative would provide a benefit to the native environment and special status species, either allowing for additional protections or contributing to its habitat.

Adverse – The alternative would result in an adverse effect to the native environment and or special status species by removing any protections, creating a hazard, or degrading available habitat. The adverse effect can be further analyzed by determining action variables such as the intensity and duration of the impact.

Significant Unavoidable – This would include an action that cannot be avoided or mitigated against to reduce the level of irreversible impact below significant. These actions would occur over a long period of time and affect the resource on a regional level at a high intensity.

Significant Avoidable/Mitigatable – These actions have the potential to significantly affect the resource as described above but can be mitigated against or the adverse effect can be avoided.

Insignificant – These impacts occur over a short period of time or at a low intensity. As such impacts can be recoverable over a short amount of time through impact minimization measures and mitigation procedures.

Neutral or No effect – These actions result in no impact to the resources either due to the low intensity or short duration of the action. Impacts are recoverable in the short term.

The main types of environmental consequences that are being considered for the Proposed Action are: 1. Disturbance from construction of roadway; 2. Local habitat fragmentation; 3. Negative traffic and wildlife interaction; and 4. Habitat loss.

3.2.3.1 Alternative 1

Disturbance from Construction of Roadway

Road construction of Alternative 1 would convert approximately 242 acres of undeveloped land to impervious roadway and associated right-of-way. Direct impacts to wildlife during construction would be experienced but would not negatively affect long-term population viability due to the relatively linear nature and short duration of construction presence in one concentrated area. Construction disturbance will not be stagnant and will constantly be mobile as road construction progresses allowing wildlife respite in the majority of Alternative 1 during construction. It is possible that small mammals and reptiles would be displaced and potentially taken during construction. Other animals, such as birds and large mammals, would be temporarily displaced by the construction and would relocate to nearby expansive habitats. These animals may return to the general area once construction is completed as a relatively small proportion of range will be converted. Noise effects from road construction would be localized and would not be deemed to have a hazing affect to migratory birds as roosting/bathing/loafing areas are not present within Alternative 1 project boundary. Furthermore, due to the routine disturbance generated by training activities and normal range use with a combination of roadway noise from adjacent U.S. 95, wildlife on the NTTR South Range are likely acclimated to higher noise levels. Direct impacts from roadway construction for Alternative 1 would be low but not entirely discountable.

Local Habitat Fragmentation

The nature of road systems as network structures renders vast areas of the landscape as road-affected, with small patches of isolated habitat remaining beyond the ecological influence of roads (Coffin, 2006). Habitat fragmentation disconnects populations into smaller units that are more prone to local extinction and it genetically isolates tortoise populations. Isolation is a risk to long-term viability as it may reduce the genetic diversity within the species.

Fragmentation of habitat and constriction of movement corridors may occur from implementation of Alternative 1. The local MDT population is expected to traverse Stagecoach Road area and utilize habitat on either side of the proposed road.

The installation of security fencing has the potential to negatively affect native wildlife and plant species through fragmentation by creating barriers for wildlife movement. Further, permanent exclusionary fencing on both sides of the road will be used to eliminate desert tortoise vehicle collisions. Data suggest exclusionary fences to prevent desert tortoise from entering roads may reduce their mortality as well as the mortality of other wildlife species (Boarman et al., 1997). Culverting will be incorporated into the construction design as tortoises have been documented to use culverts to cross beneath roadways (Boarman et al., 1997), although the degree to which this use limits population-fragmenting effects has not been investigated.

Both permanent exclusionary fencing and associated culverts will be components of the construction design and will be put into place in an effort to minimize habitat fragmentation.

Negative Traffic and Wildlife Interaction

Highways are direct sources of mortality when animals are struck by motor vehicles while moving within their home ranges or while dispersing (Boarman, et. al., 1997). Alternative 1 would introduce increased traffic volume on NTTR and increase the potential for wildlife vehicle collisions.

Small mammals and reptiles, including the MDT, are shown to lack road avoidance behavior; therefore, these species are more prone to impact and mortality from vehicle collisions. Further, four species types are predicted to respond negatively to roads: (i) species that are attracted to roads and are unable to avoid individual cars; (ii) species with large movement ranges, low reproductive rates, and low natural densities; and (iii and iv) small animals whose populations are not limited by road-affected predators and either (a) avoid habitat near roads due to traffic disturbance or (b) show no avoidance of roads or traffic disturbance and are unable to avoid oncoming cars (Fahrig and Rytwinski, 2009). MDT possess most if not all these listed behaviors and physiological traits, thus local MDT populations are expected to be impacted by Alternative 1.

In the central Mojave Desert, Boarman and Sazaki (1996) estimated at least one tortoise killed per 3.3 kilometers of road per year along a heavily traveled road. During a separate study, the remains of 39 dead tortoises along a 24-kilometer section of highway in the western Mojave Desert were found (Boarman, 1993, as cited in Boarman, 2002). Boarman goes on to state that this source of desert tortoise mortality primarily affects subadults and adults, although the results are partially skewed by the difficulty of finding smaller carcasses and their quicker loss to scavengers and decay.

In a road effects literature review published in the *Journal of Ecology and Society* it was determined amphibians and reptiles tended to show negative effects to roadways. Birds showed mainly negative or no effects, with a few positive effects for some small birds and for vultures. Small mammals generally showed either positive effects or no effect, mid-sized mammals showed either negative effects or no effect, and large mammals showed predominantly negative effects (Fahrig and Rytwinski, 2009), where negative effect mainly refers to mortality by collision and positive effect mainly refers to increased prey densities.

Habitat Loss

Through the destruction of occupied habitat or potential of habitat utilization, habitat loss is considered a direct impact by transforming usable habitat to unusable impervious roadway and right-of-way disturbance. Impacts to native vegetation would include disturbance, damage, and removal of plant materials during road construction. Direct habitat loss experienced by the construction of Alternative 1 Road is calculated to be 242 acres.

Special Status Flora Species

Special status plant species such as Clokey buckwheat, Nye milkvetch, LVBP, white bearpoppy, and hermit cactus have the potential to occur in the Alternative 1 project boundary. In order to avoid significant adverse impacts, Alternative 1 roadway design may be modified to the greatest extent possible if these species are encountered during the final design phases. If the plant populations cannot be avoided, these individuals would be transplanted to the nearest suitable habitat in which this action and future action impacts will avoid the species population. Pre-construction surveys for any special status plant species will be conducted to minimize direct impact. The Air Force concludes that with implementation of minimization measures, as necessary, Alternative 1 would not result in significant impacts to special status plant species.

Migratory Birds

There is potential for migratory birds to be present during construction dependent upon the season. Both alternatives are located within the Pacific Flyway in which species will migrate between nesting and wintering areas. Temporary avoidance during construction by these species is likely.

As a general rule and as feasible, construction will occur outside of nesting season. If construction must occur during nesting season, an onsite biological monitor will survey the impacted area for nests prior to construction. If nests are encountered before or during construction, they would be avoided until the birds fledge. If owl-occupied burrows are found during the nesting season, they would be avoided until the nestlings leave the nest or nest is deemed failed. Due to the short duration of active construction and avoidance measures, implementation of Alternative 1 would not result in significant impacts to migratory birds or Western burrowing owls.

Mojave Desert Tortoise (*Gopherus agassizii*)

MDT may be present within Alternative 1 project boundaries and potentially impacted. As such, an MDT presence/absence survey was conducted within both Alternative 1 and 2 action areas. The details of the survey findings can be found in the MDT Survey Report (Appendix C). The results of the survey effort suggest not only is suitable habitat present within project boundaries, but individuals and their burrows are present. One MDT carcass and 76 MDT burrows were observed in Alternative 1 project boundary. However, no live MDTs were observed at the time of the survey.

By following the Endangered Species Act Section 7 consultation process with USFWS, the U.S. Air Force will put into practice measures to minimize impacts due to the installation of fencing or construction of the roadway. See Appendix B for construction design measures to minimize impacts to MDT. The full list of these measures can be found in Section 9.1 of the Programmatic Biological Opinion (PBO) for Activities and Expansion of the Nevada Test and Training Range (USFWS, 2018). By putting these measures into practice such as the use of biological monitors, survey and relocation methods, and

exclusionary fencing during active construction, impact is expected to be minimized, but will not be lowered to negligible levels. However, Alternative 1 is not expected to jeopardize the continued survival and future recovery of the MDT. Additional detailed analysis as to the effects of Alternative 1 and impacts on MDT are addressed in the Biological Assessment provided to the USFWS. MDT was the only listed species recorded as being present within the Proposed Action alternatives boundary, all other listed species are defined as potentially occurring.

Therefore, implementation of Alternative 1 would not result in significant impacts to biological resources.

3.2.3.2 Alternative 2

Disturbance from Construction of Roadway

Road construction under Alternative 2 would convert approximately 286 acres of undeveloped land to impervious roadway and associated right-of-way. Similar to Alternative 1, direct impacts to wildlife during construction would be experienced, but would not negatively affect long-term population viability due to the relatively linear nature and short duration of construction presence in one concentrated area. Direct impacts from roadway construction for Alternative 2 are considered to be low but not discountable.

Local Habitat Fragmentation

As the design of this alternative closely resembles Alternative 1, the level of environmental impact will be similar for Alternative 2. Impact minimization measures described for Alternative 1 would be applied in a similar fashion to Alternative 2.

Negative Traffic and Wildlife Interaction

Similar to Alternative 1, the introduction of a new roadway to undisturbed habitat will increase negative wildlife traffic interactions. However, due to the proximity of the U.S. 95 corridor, existing road avoidance behavior for larger mammals and birds may be presently displayed by some species within the area. Mechanisms causing road avoidance (e.g., noise, light, pollution) may extend beyond the roadside, causing wildlife to avoid habitats from a few meters to several kilometers from the road itself (Benítez-López, Alkemade, and Verweij, 2010).

As the footprint of Alternative 2 is situated closer to the U.S. 95 corridor and the existing NTTR border than the location of Alternative 1, wildlife and traffic interactions would be expected to be less when compared to Alternative 1 due to existing road avoidance conditions for larger mammal and bird species.

However, similar to Alternative 1, small mammals and reptiles, including MDT, are shown to lack road avoidance behavior and are therefore susceptible to increased road mortality if impact minimization measures are not implemented.

Habitat Loss

Impacts from habitat loss associated with Alternative 2 can be comparable to impacts listed under Alternative 1. However, due to the close proximity of the U.S. 95 corridor, the existing habitat within Alternative 2 could be considered further degraded as road avoidance by a number of native species is

most likely present. Direct habitat loss experienced by the construction of roadway is calculated to be 286 acres.

Loss of MDT habitat will be experienced as all 286 acres of Alternative 2 are considered MDT habitat. This loss of habitat coupled with the adjacent U.S. 95 corridor has the potential to impact the local MDT population. Information gathered from the Nevada Department of Transportation biologist during a phone conversation occurring on July 27, 2020 indicated that MDT movement in the area by way of culverts is moderate (K. Holcomb, phone conversation, Nevada Department of Transportation, July 29, 2020). It has been observed by Nevada Department of Transportation staff that local MDT populations mainly traverse the area west to east during the summer and fall months and east to west during the winter and spring months. It is expected that this movement of MDT also occurs within habitat present within the Alternative 2 project boundary.

Special Status Flora Species

Similar to Alternative 1, special status plant species such as Clokey buckwheat, Nye milkvetch, LVBP, white bearpoppy, and hermit cactus have the potential to occur within Alternative 2 project boundaries. Pre-construction surveys for any special status plant species would be conducted to minimize risk of direct impact. The Air Force concludes that with implementation of minimization measures, as necessary, Alternative 2 would not result in significant impacts to special status plant species.

Migratory Birds

There is potential for migratory birds to be present during construction dependent upon the season. Alternative 2 is located within the Pacific Flyway in which species migrate between nesting and wintering areas. Temporary avoidance during construction by these species is likely.

As a general rule and as feasible, construction will occur outside of nesting season. If construction must occur during nesting season, an onsite biological monitor will survey the impacted area for nests prior to construction. If nests are encountered before or during construction, they will be avoided until the birds fledge. If owl-occupied burrows are found during the nesting season, they will be avoided until the nestlings leave the nest or nest is deemed failed. Due to the short duration of active construction and avoidance measures, implementation of Alternative 2 would not result in significant impacts to migratory birds and burrowing owls.

Mojave Desert Tortoise (*Gopherus agassizii*)

Similar to Alternative 1, the Alternative 2 study area was surveyed for MDTs due to the presence of MDT habitat. The results of the survey observations indicated 3 live MDTs and 58 tortoise burrows within Alternative 2 project boundaries.

By following Section 7 consultation with USFWS, the U.S. Air Force will put into practice measures to minimize impacts due to the installation of fencing or construction of the roadway. See Appendix B for construction design measures to minimize impacts to MDT. The full list of these measures can be found in Section 9.1 of the PBO for Activities and Expansion of the Nevada Test and Training Range (USFWS, 2018). By putting these measures into practice, such as the use of biological monitors, survey and relocation methods, and exclusionary fencing during active construction, impact is expected to be minimized, but will not be lowered to negligible levels. However, Alternative 2 is not expected to jeopardize the continued survival and future recovery of the MDT. Additional detailed analysis as to the

effects of Alternative 2 and impacts on MDT are addressed in the September 2020 Biological Assessment provided to the USFWS as part of the formal Section 7 consultation. MDT was the only listed species recorded as being present within the Proposed Action alternatives boundary, all others listed species are defined as potentially occurring.

Therefore, implementation of Alternative 2 would not result in significant impacts to biological resources. This determination is pending ongoing USFWS Section 7 consultation decisions. Section 3.2.4 lays out all USFWS Section 7 consultation for the NTTR South Range to date.

3.2.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing conditions. Therefore, no significant impacts to biological resources would occur with implementation of the No Action Alternative.

3.2.4 USFWS Consultation History

The following historic consultation events have been obtained directly from consultation history listed in the 2018 PBO for Activities and Expansion of the Nevada Test and Training Range (08ENVS00-2018-F-0028). Current and pending USFWS Section 7 consultations are also included in this section.

On June 12, 2003, the PBO for Activities on the South Range of Nellis Air Force Base, Nevada Test and Training Range, and the Nevada Training Initiative, Clark and Lincoln Counties, Nevada was submitted. The consultation history for the NTTR activities prior to June 17, 2003 is provided in the 2003 PBO for consultation File No. 1-5-02-F-0522. Based on the U.S. Air Force's biological assessments, this consultation and a previous one in 1994 (1-5-94-F-162), analyzed disturbance for only 971 acres of the current target impact areas within the NTTR South Range; the 971 acres were only the discrete targets and did not include the additional disturbance created beyond the discrete target (i.e., the entire target impact area).

On May 10, 2004, U.S. Air Force submitted a request to USFWS to amend the 2003 PBO to modify Term and Condition 1 of the PBO and Condition 1 with desert tortoise monitoring and clearing in lieu of exclusionary fencing. On June 30, 2004, USFWS issued amendment 1-5-02-F-522.AMD1.

On July 20, 2009, U.S. Air Force submitted a letter requesting USFWS concurrence with a delineation of desert tortoise habitat on the NTTR provided on a May 12, 2009 map that accompanied the request. On August 27, 2009, USFWS concurred that the habitat map, at that time, provided the best information to represent desert tortoise habitat at NTTR, however because habitat delineations can only provide an estimate of such areas, it is likely that areas mapped as potential habitat are not occupied at this time by desert tortoises and tortoises may occur outside areas identified as potential desert tortoise habitat on the map.

On August 3, 2010, U.S. Air Force requested to append the 2003 PBO (File No. 1-5-02-F-0522) with the Expedition Readiness Training Course Expansion. On August 18, 2010, USFWS issued an append (84320-2010-F-0422).

On December 5, 2011, USFWS contacted the U.S. Air Force for a reporting request of take under the 2003 PBO. The U.S. Air Force reported take as H1, M=0, and acreage=640 (H is harm or harass, M is mortality and acreage is the area of disturbed habitat).

On January 26, 2012, USFWS requested (File No. 1-5-96-F-278) a take report for Weapons Testing/Training on the Weapons and Tactics Center Range Complex (Re-initiation of Biological Opinion 1-5-94-F-162). On March 1, 2012, it was reported by the U.S. Air Force that there was no information available on desert tortoise take. Consultation File No. 1-5-96-F-278 is a re-initiation for 1-5-94-F-162. Due to the lack of information on the action USFWS assigned take as the maximum allowable over the 9-year activity period of this biological opinion: H90, M-l=18, and 971 acres.

On November 30, 2017, the U.S. Air Force requested formal consultation as part of the LEIS for the NTTR land withdrawal.

On August 16, 2018, the USFWS submitted the PBO for Activities and Expansion of the Nevada Test and Training Range (08ENVS00-2018-F-0028) to the U.S. Air Force. This PBO was prepared to address potential adverse effects to the MDT as a result of programs described in the U.S. Air Forces' Biological Assessment and 2017 draft NTTR LEIS. The PBO analyzes the potential effects of implementing U.S. Air Force actions, or actions funded or authorized by the U.S. Air Force. This biological opinion addresses mixed programmatic actions which means, for purposes of an incidental take statement, a Federal action that approves action(s) that will not be subject to further Section 7 consultation (hereafter, referred to as mixed programmatic), and also approves a framework for the development of future action(s) that are authorized, funded, or carried out at a later time and any take of a listed species would not occur unless and until those future action(s) are authorized, funded, or carried out and subject to further Section 7 consultation.

On October 29, 2020 U.S. Air Force submitted a Biological Assessment to USFWS for the Expansion of Stagecoach Road in Range 63 proposed action alternatives. In line with the 2018 PBO for Activities and Expansion of the Nevada Test and Training Range, in which the USFWS evaluated potential effects on the federally threatened MDT, the USFWS Ecological Services at the Las Vegas Office of the USFWS is formally consulted. It was determined that the proposed action does not meet the project considerations as listed in the 2018 PBO, therefore this action was not considered for an append to the 2018 PBO, therefor reinitiating USFWS consultation.

The 2020 BA is currently under review during ongoing consultation and a USFWS Biological Opinion is pending.

3.3 Cultural Resources

Cultural Resources Potential Impacts:

- Historical and prehistorical sites were observed within the direct and indirect APE. All sites determined not eligible for the NHRP.

3.3.1 Definition of Resource

In accordance with Title 54 USC 306108 *et seq.,* also known as Section 106 of the *National Historic Preservation Act* of 1966, Federal agencies are required to consider the effects on historic properties older than 50 years. The National Historic Preservation Act sets forth government policy and procedures regarding "historic properties" — that is, districts, sites, buildings, structures, and objects included in or eligible for the *National Register of Historic Places (NRHP)*. Resources and locations that meet one or more criteria in 36 CFR 60.4 are determined by the Air Force as eligible for nomination to the NRHP.

AFMAN 32-7003 (U.S. Air Force, 2020) defines Cultural Resources as:

- Historic properties as defined by 36 CFR 800
- Cultural items as defined in Native American Graves Protection and Repatriation Act
- American Indian, Eskimo, Aleut, or Native Hawaiian sacred sites as defined in EO 13007, *Indian Sacred Sites* (24 May 1996)
- Archaeological resources as defined by the Archaeological Resources Protection Act in 16 USC 470aa-470mm
- Archaeological Artifact Collections and Associated Records as defined in 36 CFR 79, Curation of Federally owned and Administered Archaeological Collections

As stated in the *U.S. Air Force Integrated Cultural Resources Management Plan for Nellis, Creech, and NTTR*, a historic property is a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP, whether or not such eligibility has been formally determined (ACHP, 2004; DoD, 2008). This term includes artifacts, records, and remains that are related to and located within such properties as well as properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (U.S. Congress, 1966a, as cited in U.S. Air Force, 2017c). A traditional cultural property is considered a historic property if it is eligible for the NRHP because it is associated with cultural practices and beliefs rooted in the history of a community. It is eligible if it is considered important to the maintenance of a community's traditional beliefs and practices (U.S. Air Force, 2017c).

Since the creation of the Native American Program in 1996, Nellis AFB has actively consulted with the local tribal affiliates on all projects having the potential to impact cultural resources between the culture groups of the Mojaves, the Owens Valley Paiutes, the Southern Paiutes, and the Western Shoshone. There are 16 tribes with cultural ties to the Nellis AFB and NTTR.

3.3.2 Affected Environment

The affected environment is defined as the APE for any cultural resources present that are eligible for the NRHP. The APE for a particular resource includes the area within the Proposed Action alternative right-of-way for the roadway and associated buffer. The total acreage for the direct APE is 606.2 acres. The proposed depth of ground disturbance will be one meter for the direct APE. The indirect APE encompasses a one-mile radius surrounding both of the action alternatives and totals approximately 22,519.8 acres. Both the direct and indirect APEs are considered to be within the southwestern archaeological subarea of the larger Great Basin culture area. State Historic Preservation Office (SHPO) concurrence for this defined direct and indirect APE was granted on July 30, 2020.

3.3.3 Environmental Consequences

To identify potential cultural resources within the APE, and the effective management and protection of cultural resources, two cultural resources inventories were conducted by Nellis AFB in the Fall of 2019 and a third cultural resources inventory was conducted in the Fall of 2020: *Cultural Resources Inventory for 32 Miles of Roads at Nellis Air Force Base, Nevada Test and Training Range, Clark and Nye Counties, Nevada*; *Cultural Resources Inventory of 2,000 Acres for Fiber Optic Cable Installation, Nellis Air Force Base, Nevada Test and Training Range, Clark County, Nevada; and Cultural Resources Inventory for 10 Miles of Roads at Nellis Air Force Base, Nevada Test and Training Range, Clark County, Nevada*. The

reports collectively documented a total of 36 sites within the direct APE, in which, all 36 sites are recommended not eligible for the NRHP (U.S. Air Force, 2020a; U.S. Air Force, 2020b; U.S. Air Force, 2020c). Initiation of SHPO consultation occurred on July 9, 2020 with a concurrence of the direct and indirect APE occurring on July 30, 2020.

Within the APE concurrence letter, dated July 30, 2020, information regarding two identified sites (26CK5602 and 26CK5716) was requested by SHPO. NRHP eligibility information regarding these sites is as follows:

Site 26CK5716 is a historic railroad construction camp associated with the historic Las Vegas Tonopah Railroad. Although the previous site recorders noted the site has some potential to be considered a contributing element to the railroad grade, they determined the site was ineligible due to a lack of integrity and lack of research potential (Myhrer and Harper 1997, as cited in U.S. Air Force 2020c).

Site 26CK5602 is a large multicomponent historic railroad construction camp and lithic scatter, the majority of which falls outside of the project area. Based on the site sketch map, a small portion of the site overlaps with the current project area; however, no artifacts or features were observed within the APE boundary (U.S. Air Force, 2020c).

Environmental consequences in relation to cultural resources can include the disturbance or destroying of significant artifacts, buildings, plants, or land of importance to recognized tribes. According to a review of both cultural resource inventory reports, no historic properties were identified within the APE; however, this determination is pending SHPO concurrence.

3.3.3.1 Alternative 1

The historic Las Vegas and Tonopah Railroad grade is located within the Alternative 1 APE. Wooden culverts associated with the railroad do meet some criteria for eligibility for inclusion into the NRHP; however, the Nellis AFB 2020 Cultural Inventory for 32 Miles of Roads report agrees with a previous Intermountain Antiquities Computer System site form completed by J. Robertson in 2017 stating that there is no evidence the site is associated with events that have made a significant contribution to the development of historic transportation routes.

There is no evidence the short-lived railroad is associated with any events that have made a significant contribution to the broad patterns of history. In addition, no evidence was observed that would connect this site with any significant persons. No constructed features with unique engineered characteristics or design that would qualify for eligibility under Criterion C were observed. The grade does not contain significant data potential required for NRHP eligibility under Criterion D. The railroad has been completely dismantled and lacks integrity. Therefore, the site is recommended ineligible for the NRHP under Criterion A, B, C, or D (U.S. Air Force, 2020a).

According to the referenced Cultural Inventories reports generated in 2020, 14 sites (12 historical and 2 prehistorical) were observed within the Alternative 1 direct APE; however, none of these sites are recommended as eligible for the NRHP; SHPO concurrence on this determination is pending. The majority of these sites consist of refuse scatter most likely associated with historic military sites, historical debris scatter, and historical roads and railroads. The sites, 26CK1649, 26CK8519, 26CK10837, 26CK10838, 26CK10842, 26CK10843, 26CK10844, 26CK10850, 26CK10851, 26CK10852, 26CK5716, 26CK10984, 26CK10985, and 26CK10997 are generally small in size and there is no evidence that any of

the sites are associated with events that have made a significant contribution to the development of historic transportation routes or connect these sites with any significant persons. Further, the sites do not contain any distinctive constructed or engineering features (U.S. Air Force, 2020a; U.S. Air Force, 2020c). Prehistoric sites observed within the Alternative 1 APE consisted of unassociated lithic scatter and crypto crystalline silicate artifacts (U.S. Air Force, 2020c).

No recommended NRHP eligible historic or prehistorical sites or properties were located within the Alternative 1 APE, therefore, implementation of Alternative 1 would not result in significant impacts to cultural resources. In the event that consultation with the SHPO and affected tribes results in a finding of eligibility of a site, the site will be avoided and a treatment plan will be executed prior to any disturbance.

3.3.3.2 Alternative 2

A total of 32 sites (31 historical and one prehistorical) were observed within the Alternative 2 direct APE; however, none of these sites are recommended as eligible for the NRHP; SHPO concurrence on this determination is pending.

The sites, 26CK1649, 26CK8519, 26CK10376, 26CK10377, 26CK10837, 26CK10838, 26CK10839, 26CK10840, 26CK10841, 26Ck10842, 26CK10843, 26CK10844, 26CK10845, 26CK10846, 26CK10847, 26CK10848, 26CK10849, 26CK10850, 26CK10851, 26CK10852, 26CK10986, 26CK10987, 26CK10988, 26CK10989, 26CK10990, 26CK10991, 26CK10992, 26CK10993, 26CK10994, 26CK10995, 26CK10996, 26CK10998, similarly to Alternative 1, consist of refuse scatter and debris scatter and show no association with events that have made a significant contribution to the development of historic transportation routes or connect these sites with any significant persons. Nor do the sites contain any distinctive constructed or engineering features (U.S. Air Force, 2020a; U.S. Air Force, 2020c). The prehistoric site observed within the Alternative 2 APE is an unassociated prehistoric artifact scatter consisting of two mottled gray and white tertiary cryptocrystalline silicate flakes (U.S. Air Force, 2020a).

No recommended NRHP eligible historic or prehistoric sites or properties were located within the Alternative 2 APE, therefore, implementation of Alternative 2 would not result in significant impacts to cultural resources.

3.3.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing conditions. Therefore, no significant impacts to cultural resources would occur with implementation of the No Action Alternative.

3.4 Air Quality

Air Quality Potential Impacts:

- Less than significant impacts to air quality as construction emissions would be well below the *de minimis* thresholds.

3.4.1 Definition of Resource

Air quality is the presence in the atmosphere of one or more contaminants (e.g., dust, fumes, gas, mist, odor, smoke, and vapor) such as to be injurious to human, plant, or animal life. Air quality as a resource incorporates several components that describe the

levels of overall air pollution within a region, sources of air emissions, and regulations covering air emissions. The following sections include a discussion of the existing conditions and the environmental consequences of the Proposed Action alternatives and No Action Alternative.

The region of influence for the Proposed Action is the immediate area and associated air basins for the project area as presented in Appendix D, on Figure D-1. The associated air basins are Las Vegas Air Basin (LVAB) and Clark County. The Clark County Department of Environment and Sustainability, Division of Air Quality utilizes hydrographic basins to further break the LVAB into distinct areas for attainment and nonattainment status.

3.4.2 Affected Environment

The Clean Air Act (CAA) of 1970, 42 USC Section 7401 et seq. amended in 1977 and 1990, is the primary federal statute governing air pollution. The CAA establishes national ambient air quality standards (NAAQS) for criteria pollutants and classifies areas as to their attainment status relative to NAAQS. The six criteria pollutants with promulgated federal NAAQS are: particulate matter (PM_{10} and $PM_{2.5}$), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and ozone (O_3). Federal regulations designate air quality control regions in violation of the NAAQS as nonattainment areas (NAA) and areas that meet the NAAQS as attainment areas. An area's attainment status is determined for each NAAQS and provides information to evaluate the level of air quality impairment. The Nevada Department of Environmental Protection has adopted the NAAQS with a few additions. The additions address sulfur dioxide standards, specific standards for CO above 5,000 feet, additional standards for visibility, and hydrogen sulfide concentrations. Clark County Department of Environment and Sustainability, Division of Air Quality manages and issues air permits for Clark County, Nevada.

The General Conformity Rule (40 CFR Part 93, Subpart B) requires any federal agency responsible for an action in a nonattainment area or maintenance area to determine that the action conforms to the appropriate State Implementation Plan or that the action is exempt from the General Conformity Rule requirements. NTTR is partially within the hydrographic basin 212 portion of the LVAB along the southeast corner of the NTTR. Specifically, the area including and to the east of where Range 63C Complex access off of U.S. 95 is located within the hydrographic basin 212 Marginal NAA for the 2015 O_3 standard and a maintenance area for a prior CO nonattainment designation (USEPA, 2018; USEPA, 2019; USEPA, 2020). The remainder of the Proposed Action project boundaries are within Indian Spring Valley, hydrographic basin 161. The affected environment is entirely within Clark County and is subject to provisions of maintenance plans for PM_{10} due to a prior designation as a NAA (USEPA, 2018; USEPA, 2019; USEPA 2020). Section 93.153 of this rule sets the applicability requirements for projects subject to it through the establishment of *de minimis* levels for annual criteria air pollutant emissions. Projects with emissions below the *de minimis* levels are not subject to the rule. The *de minimis* threshold for O_3 is based on the precursors of O_3 in the atmosphere, nitrogen oxides (NO_x) and volatile organic compounds (VOC).

Hazardous air pollutants (HAPs) are chemicals that are known or suspected of causing serious health effects. There are no national or state standards for HAP emissions. Some VOCs are HAPs.

The NTTR operates currently under multiple air quality permits issued by the Clark County Department of Environment and Sustainability, Division of Air Quality and Nevada Division of Environmental Protection. Portions of the South Range are incorporated into the Creech AFB Title V Part 70 Air

Operating Permit for Source 473 issued on 20 February 2020 with a minor revision issued on 30 April 2020. This permit includes the NTTR's Aggregate Plant portable self-contained mineral processing unit, stackers, and material transfer as well as other various emergency generators, heaters, and other stationary emissions units. Also considered in the Title V permit is the usage of unpaved haul roads. The permit requires all reasonable precautions to be taken to control dust from becoming airborne during the use of haul roads and aggregate processing units (Clark County, 2020). Table 3.4-1 summarizes the source potential to emit for each regulated air pollutant from emission units addressed by the Part 70 Operating Permit (U.S. Air Force, 2020d).

Table 3.4-1 Annual Potential to Emit, Creech AFB and NTTR Stationary Sources

Pollutant	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_2	VOC	HAPs	GHG (in CO_2e)
Tons/Year	25.07	10.62	197.25	49.95	0.91	39.73	9.60	37,084.19

Greenhouse gases (GHGs) are generated by both naturally occurring and man-made activities such as normal atmospheric activity, vehicle use, building heating and cooling, electricity generation, and other sources of combustion. Naturally occurring GHGs include carbon dioxide (CO_2), methane (CH_4), and nitrogen dioxide (N_2O). Man-made gases in addition to CO_2, CH_4, and N_2O include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Each GHG has an estimated global warming potential value that equates the specific GHG to the global warming potential of CO_2, known as CO_2-equivalents (CO_2e). The CO_2e can be added to review the cumulative GHG emissions.

In June 2019, the CEQ issued draft guidance for Consideration of GHG Emissions in NEPA Analysis. This guidance is a replacement for the prior Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change on National Environmental Policy Act Reviews which was withdrawn in April 2017. The June 2019 draft guidance recommends Agencies provide a quantitative estimate of GHG emissions when resources are reasonably available, and that the Agency may compare the quantitative estimates to local, regional, national, or sector wide GHG emissions to evaluate for significance. The newest published GHG emissions inventory for comparison is for Creech AFB and Clark County and is shown in Table 3.4-2 (U.S. Air Force, 2018b; Southern Nevada Regional Planning Coalition, 2014).

Table 3.4-2 Local and Regional GHG Emissions

Location	Year	CO_2e in Metric Tons
Creech AFB	2019	3,257
Creech AFB	2018	2,218
Clark County	2014	30,588,113
Clark County	2013	29,866,284

3.4.3 Environmental Consequences

The construction activities for Alternative 1 and Alternative 2 are short-term temporary sources of emissions. No long-term increase in activity is the result of either alternative; therefore, operational emissions are considered to remain at or near baseline levels.

The analysis of criteria pollutant emissions from construction activities were calculated using the U.S. Air Force's Air Conformity Applicability Model (ACAM) Version 5.0. The estimates represent maximum emissions without mitigation measures. A general conformity applicability analysis was conducted for the portion of action alternatives in the NAA and maintenance areas as described in Section 3.4.2 and as

presented in Appendix D. Any GHG analysis was prepared in accordance with the Air Force Air Quality EIAP guidance.

The ACAM full analysis results and Record of Conformity Analysis is provided in Appendix D. The affected environment for the alternatives is subject to general conformity applicability analysis because of the maintenance area designation for PM_{10}. Only the portions near the U.S. 95 interchange that fall under the hydrographic basin 212 boundary are subject to general conformity applicability analysis for the O_3 NAA designation and the CO maintenance designation. The general conformity analysis is completed within ACAM by selecting the appropriate local area designation for the portions of the project inside and outside hydrographic basin 212. The estimated emissions were compared to *de minimis* thresholds applicable to the Proposed Action alternatives, 100 tons per year of PM_{10} and 100 tons per year of CO and the O_3 precursors of NO_x and VOC within hydrographic basin 212.

Under either alternative, the project would require Dust Control Operating Permits from the Clark County Department of Environment and Sustainability, Division of Air Quality prior to starting construction and/or modification of existing permits held by Creech AFB. Under these permits, dust control will be required for the Proposed Action construction and a detailed supplemental dust mitigation plan will be required. Best Available Control Measures for dust control would be employed during construction at all times, including but not limited to a Dust Mitigation Plan. The ACAM model does not consider all possible dust mitigation control measures; therefore, the particulate matter emissions are likely to be lower during actual construction than as modeled.

3.4.3.1 Alternative 1

As presented in detail in Appendix D and summarized here, implementation of Alternative 1 would result in less than significant impacts to air quality as construction emissions would be well below the *de minimis* thresholds. Construction emissions include the regrading of the existing road, grading and constructing road base for the road extension, utility extension, paving, and local rock crushing with an already permitted and operating aggregate processing unit. Operational emissions are similar to baseline and are not considered an increase to existing air emissions due to the existing operations of security staff at other locations at the base and the paved road reduces any operational particulate matter emissions to negligible.

Construction was assumed to take one year, starting in January 2022 and completed by December 2022 for purposes of the emissions estimating. This represents the most conservative approach, that all emissions occur within a single calendar year. Rock crushing will occur within Range 63C Complex and will be used to supply the road subbase for the road extension. The rock crushing is already included as a permitted stationary source in Creech AFB's Title V air permit and will not require emissions estimates as part of this alternative because it is an already existing and operating source regardless of the implementation of Alternative 1 or not.

Emissions from Alternative 1 are presented in Table 3.4-3 below and are compared to thresholds.

Table 3.4-3 Alternative 1 Summary of Emissions Estimates

Description	Pollutant in tons per year						
	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC	GHG (in CO_2e) (metric tons)
Activities in Nonattainment Area (NAA for Ozone 2015 Standard, Maintenance for CO)							1,049 metric tons Value is 32 percent of Creech AFB 2019 but only 0.003 percent of Clark County Emissions
Construction Year 2022	6.454	0.037	0.870	0.843	0.002	0.154	
Thresholds	NA	NA	100	100	NA	100	
Activities Not in Nonattainment Area (Maintenance for PM_{10})							
Construction Year 2022	88.811*	0.222	5.187	4.478	0.012	0.864	
Thresholds	100	100	NA	NA	NA	NA	

***** PM_{10} emissions are estimated as "uncontrolled." The actual construction will have to follow dust suppression requirements of the construction permit and/or existing Title V Air Permits, which will considerably reduce the emissions of PM_{10} (also known as fugitive dust).

Therefore, implementing Alternative 1 would not result in significant impacts to air quality.

3.4.3.2 Alternative 2

Alternative 2 is very similar to Alternative 1 with respect to the construction activities proposed and estimated air emissions. The Alternative 2 road follows a different route and would be slightly longer compared to Alternative 1. As presented in Appendix D and summarized here, implementation of Alternative 2 would result in less than significant impacts to air quality as both construction and operational emissions would be well below the *de minimis* thresholds. Operational emissions are similar to baseline and are not considered an increase to existing air emissions due to the existing operations of security staff at other locations at the base and the paved road reduces any operational particulate matter emissions to negligible.

Emissions from Alternative 2 are presented in Table 3.4-4 below and are compared to thresholds.

Table 3.4-4 Alternative 2 Summary of Emissions Estimates

Description	Pollutant in tons per year						
	PM_{10}	$PM_{2.5}$	NO_x	CO	SO_x	VOC	GHG (in CO_2e) (metric tons)
Activities in Nonattainment Area (NAA for Ozone 2015 Standard, Maintenance for CO)							1,038 metric tons Value is 31 percent of Creech AFB 2019 but only 0.003 percent of Clark County Emissions
Construction Year 2022	6.453	0.036	0.852	0.814	0.002	0.151	
Thresholds	NA	NA	100	100	NA	100	
Activities Not in Nonattainment Area (Maintenance for PM_{10})							
Construction Year 2022	94.777*	0.219	5.128	4.369	0.012	0.849	
Thresholds	100	100	NA	NA	NA	NA	

* PM_{10} emissions are estimated as "uncontrolled." The actual construction will have to follow dust suppression requirements of the construction permit and/or existing Title V Air Permits, which will considerably reduce the emissions of PM10 (also known as fugitive dust).

In summary, implementation of Alternative 2 would not result in significant impacts to air quality.

3.4.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to baseline air quality. Therefore, no significant impacts to air quality would occur with implementation of the No Action Alternative.

3.5 Land Use

3.5.1 Definition of Resource

Land Use Potential Impacts:

- Current land use would not change; therefore, no significant impacts would result.

Land use generally refers to human management of land for conservation, residential or economic purposes. Conservation includes the use of land for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features. Human land uses include residential, commercial, industrial, agricultural, or recreational uses; natural features are protected under designations such as national parks, national forests, wilderness areas, or other designated areas. The attributes of land use include general land use and ownership, land management plans, and special land use management areas. Land ownership is a categorization of land according to the type of owner; the major land ownership categories include federal, state, and private. Land uses are frequently regulated by management plans, policies, and ordinances that determine the types of uses that are allowable or protect specially-designated or environmentally-sensitive attributes. Special land use management areas are identified by agencies as being worthy of more rigorous management. Federal land managing agencies in the general vicinity of the NTTR include BLM, U.S. Forest Service, and USFWS.

The BLM, under the Department of Interior, administers much of the nation's public lands with a multiple use tenet. Land uses on BLM land can include mining, recreation, grazing, agriculture, hunting, hiking, and others. Depending upon the severity of land disturbance from the land use, the BLM may require land users to apply for permission to use the land. Short-term, non-intrusive land uses could be granted a temporary land use permit, such as a permit for an off-road race that occurs for only a day or two at a time. Longer-term uses such as mining and grazing would require a right-of-way or a grazing permit that can have multiyear durations. When another federal agency, like the Department of Defense, wishes to use a substantial portion of BLM land for exclusive long-term use, then a right-of-way or a separate land withdrawal is necessary. The Federal Land Policy and Management Act of 1976 (43 USC 1701) and 43 CFR Part 2300 sets forth the requirements for land withdrawals.

3.5.2 Affected Environment

NTTR is withdrawn from public uses in accordance with the Federal Land Policy and Management Act but other federal land laws also apply. Because the area is greater than 5,000 acres, the Engle Act applies which state that Congress must approve the withdrawal. The NTTR has been withdrawn for many years and has been renewed on a regular basis, the last Congressional approval occurred during passage of the National Defense Authorization Act of 1999 as the Military Lands Withdrawal Act of 1999 (Public Law 106-65). Public Law 106-65 established a termination date of 6 November 2021 and sets forth the requirements if the Air Force wishes to renew the withdrawal. One of the requirements is to prepare a new land withdrawal package and adjustments to the withdrawn lands occur during the renewal process and preparation of the NTTR Land Withdrawal LEIS.

The NTTR Land Withdrawal LEIS was completed in October 2018 and included boundary adjustments totaling over 250,000 acres for three alternatives (U.S. Air Force, 2018b). The NTTR Land Withdrawal LEIS Alternative 3B describes portions of new lands proposed for withdrawal in the vicinity of the Proposed Action.

Under current conditions, lands between U.S. 95 and the NTTR boundary are managed by the BLM as open space and land uses such as recreation, hunting, and bird watching are allowed. There are no exclusive rights-of-way, withdrawals, consumptive use permits (mining or grazing), or conservation easements for these lands.

3.5.3 Environmental Consequences

Land use changes and/or management activities inconsistent with current plans could create significant impacts depending upon the severity of the proposed changes. In this case, land management would have changed from the BLM to the Air Force upon selection of Alternative 3B in the NTTR Land Withdrawal LEIS. The renewal of NTTR Land Withdrawal passed in the 2021 National Defense Authorization Act but Alternative 3B was not selected by Congress and not included in the legislation. The withdrawal would not include encumbrances that would preclude road construction and create land use changes inconsistent with current management practices except the area would be fenced and recreation activities would no longer be allowed, but these changes would not be considered significant. Land management changes are described in detail in the NTTR Land Withdrawal LEIS (U.S. Air Force, 2018b).

3.5.3.1 Alternative 1

Under Alternative 1, the southern two-thirds of the road would be on existing NTTR lands withdrawn from public use and development of a road on an existing railroad bed would be consistent with current land use. The northern portion of the proposed Stagecoach Road would be on BLM lands and be considered inconsistent with BLM land management. Other than BLM lands, no other local, state, or federal land managing agency lands would intersect the proposed Alternative 1 road alignment. Therefore, implementation of Alternative 1 would not create a land use change nor would it create conflicting land management and would not result in significant impacts to land use.

3.5.3.2 Alternative 2

The road alignment under Alternative 2 would mostly be within lands currently managed by BLM. Only a portion near Point Bravo and very short sections of road at either end would lie on currently withdrawn lands (See Figure 1-2). The lands proposed for the Alternative 2 road alignment was proposed and analyzed as Alternative 3B for the recent Military Lands Withdrawal for NTTR, but the alternative was not selected and Congress passed the 2021 National Defense Authorization Act without inclusion of Alternative 3B. A separate real property action such as a withdrawal or right-of-way incorporating by reference all pertinent data from the Military Lands Withdrawal will be completed prior to implementation of this action. Other than BLM lands, no other local, state, or federal land managing agency lands would intersect the proposed Alternative 2 road alignment. Therefore, implementation of Alternative 2 would not create a land use change nor would it create conflicting land management and would not result in significant impacts to land use.

3.5.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing conditions. Therefore, no significant impacts to land uses would occur with implementation of the No Action Alternative.

3.6 Earth Resources

3.6.1 Definition of Resource

Earth resources associated with the study area include the following: geologic resources, soil, minerals, and landforms. For general purposes, this EA defines "soil" as unconsolidated material from the earth's crust and "rock" as consolidated material that makes up part of the earth's crust.

Earth Resources Potential Impacts:

- Insignificant effect from soil erosion and stormwater runoff with the implementation of construction best management practices.

3.6.2 Affected Environment

The Proposed Action is located within the Hydrographic Great Basin and northern Mojave Desert, which is generally characterized by north-south trending mountain ranges that are separated by internally draining alluvial basins or playas (U.S. Air Force, 2018b).

The Proposed Action lies within the southeastern portion of the Hydrologic Great Basin area which is primarily made up of sedimentary rocks that date back to 250 to 540 million years ago (Paleozoic Era). Rock types within the southern mountain ranges are mainly carbonate class rocks, along with trace amounts of quartzite (metamorphic rock), sandstone (clastic sedimentary rock), and shale (soft clastic sedimentary rock).

The soils within the Proposed Action affected environment are made up of various types from Weiser series to Birdspring series soils, with the Threelakes-Weiser association, found in fan piedmont landscapes making up roughly 55 percent of the area. Concreek-Badland-Pahrump association found in fan piedmont landscapes makes up approximately 16 percent of the affected environment, and Birdspring-Birdspring, warm Rock outcrop association, found in mountainous landscapes makes up just one percent. The remaining one percent is made up of gravel pits and Concreek-Haymont associations (NRCS, USDA, 2020). The majority of the associations consist of well drained soils that have originated from the parent materials of limestone and dolomite rock.

Paleontological Resources

The Antiquities Act (54 USC §§ 320301-320303) establishes policies governing the management, collection, and removal of paleontological resources on lands controlled by NTTR. The Proposed Action is adjacent to alluvium-filled valleys, which contain thick deposits of tertiary material originating from erosion of the adjacent mountain ranges and faulting activities that uplifted the underlying Paleozoic bedrock (U.S. Air Force, 2017c).

Fossil outcrops located in the NTTR South Range are predominantly Paleozoic in age formed in sedimentary and metamorphic bedrock layers (U.S. Air Force, 2018b). The NTTR South Range contains both tertiary and quaternary materials (Sinnock, 1982). These materials are known to typically have a high potential to contain fossils. This coupled with the close proximity of high fossil content within the adjacent Tule Springs Fossil Beds National Monument suggests a likelihood of fossil discovery through ground disturbance.

No paleontological resources have been discovered to date within the Proposed Action affected environment; however, if paleontological resources are discovered during construction, all activities in

the immediate vicinity would be halted and a qualified paleontologist would be consulted and if necessary, consultation with the Department of Interior would be initiated. Construction activities would comply with the U.S Air Force Integrated Cultural Resources Management Plan for Nellis AFB, Creech AFB, and NTTR (U.S. Air Force, 2017c).

3.6.3 Environmental Consequences

Environmental consequences from the Alternatives 1 and 2 involve the construction of a roadway which includes soil disturbances, grading, and placement of impervious material. Construction would also involve landform conversions that may impact natural draining flow patterns.

3.6.3.1 Alternative 1

The potential for erosion and soil loss within the limits of construction exist for 242 acres due to the need for grading and increased impervious roadway. However, it is believed that this effect will be greatly reduced due to the generally flat topography of the site, contributing to a low runoff potential where the Proposed Action lies. In order to minimize any negative effects, standard construction practices and stormwater and erosion best management practices would be put into place, such as the installation and maintenance of silt fencing or preservation of existing vegetation as applicable, limiting the potential for soil erosion and transport.

The conversion of permeable ground to impervious road could result in less area available for groundwater recharge; however, due to the low precipitation experienced in this area which is recorded to be approximately 2.91 inches annually (WRCC, 2020), the decrease in groundwater recharge is insignificant. When putting into place soil and erosion control protocols during construction, impacts are considered insignificant and able to be minimized using control measures. In addition, there are no known unique geologic features or mineral resources with Alternative 1 and no impact to these types of resources are anticipated.

Soils occurring with Alternative 1 project boundaries are considered to be friable, as such, potential for substantial dust transport and deposition exist. At very high concentrations these fine dust particulates have the ability to degrade local air quality and could be considered harmful substances to human health. As such, a dust control permit will be obtained through Clark County Department of Environment and Sustainability and best available control measures will be put into practice during active construction. With these measures in place, impact from dust migration during construction is considered to be insignificant. Therefore, implementation of Alternative 1 would not result in significant impacts to earth resources.

3.6.3.2 Alternative 2

A maximum of 286 acres of ground disturbance is proposed for Alternative 2. However, due to similar soil structure, uniform topography, and similar annual precipitation amounts within both alternatives, earth resource impacts for Alternative 2 are considered to be similar to Alternative 1 impacts and insignificant when implementing construction control measures. The same construction methods and dust control measures are proposed for both alternatives. Therefore, implementation of Alternative 2 would not result in significant impacts to earth resources.

3.6.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing conditions. Therefore, no significant impacts to earth resources would occur with implementation of the No Action Alternative.

3.7 Health and Safety

Health and Safety Potential Impacts:

- Ground, Munitions, and Flight Safety – Beneficial effect by alleviating safety risks.
- Transportation Safety – Beneficial improvement for traffic safety.

3.7.1 Definition of Resource

For the purposes of this EA health and safety will be defined in terms of ground, flight, and munitions safety for activities conducted within the Proposed Action right-of-way. As use will be limited to ground vehicular travel, no changes in air operation or space use are proposed and flight safety would not be applicable. Munitions safety will be discussed in terms of transport and handling of the ordnances within the Proposed Action affected environment.

3.7.2 Affected Environment

The Nellis AFB Safety Office ensures operations on Nellis AFB, Creech AFB, and NTTR are conducted in the safest manner practicable. There are three divisions within the safety office which follow the three broad categories of operations at the base and range: ground activities, ordnance or explosive activities, and flight operations. Ground safety administers the safety requirements from ground activities including office work, construction, driving, warehouse, maintenance, and hosts of other ground-based activities. Weapons Safety deals with the safety aspects of the storage, use, and disposal of ordnance and explosives. Flight Safety involves the safety aspects of the base's flying mission. In addition to the Safety Office, the Bioenvironmental Engineering office administers the industrial hygiene requirements, and the Civil Engineering Explosives Ordnance Disposal Unit is tasked with the disposition of ordnance items recovered during range clean-ups and any suspected ordnance items found in unsuspected locations.

Currently, access to NTTR for trucks and heavy vehicles turn at Point Bravo generally coming from or going to Las Vegas to the east. At this intersection, there is little room for a deceleration lane for turning off of U.S. 95. Turning left from Point Bravo onto U.S. 95 has a median that must be crossed but no acceleration lane on eastbound U.S. 95. The speed limit on U.S. 95 is 70 miles per hour and with no acceleration and deceleration lanes, these conditions pose a safety risk to the general public and the NTTR truck operators.

3.7.3 Environmental Consequences

A significant impact to safety would be an action resulting in elevating the safety risk of an operation to unacceptable levels.

3.7.3.1 Alternative 1

Under Alternative 1, the establishment of the road would not cause elevated safety risks. In fact, one of the stated purposes of the action is to alleviate safety risks. This would be accomplished by providing a buffer from civilian traffic on U.S. 95 to the transport operations of moving target materials and debris between Box Canyon and Range 63C Complex having both ground and explosive safety concerns. In addition, this alternative saves several miles of transit distance, reducing the transportation risks.

Transportation safety risks would be lessened by moving commercial truck access to the intersection at Range 63C. This intersection is part of the larger intersection for Route 156 at U.S. 95 with wider and longer deceleration and acceleration lanes and signage alerting drivers of cross traffic. Furthermore, discussions between NTTR and Nevada Department of Transportation indicate that the planned Interstate 11 (I-11) project will provide a flyover intersection at this location. The I-11 improvements could also eliminate eastbound access to U.S. 95 from Point Bravo exacerbating the safety risks by forcing the truck westbound and then having to make a U-turn on U.S 95. As such, there would be a beneficial impact to safety be implementing Alternative 1.

The portion of Stagecoach Road north of Point Bravo would be out from underneath the Restricted Airspace. Within the Restricted Airspace, low flying aircraft and ordnance delivery operations are allowed posing concerns and oversight by ground, explosive, and flight safety offices. By establishing the road out of restricted airspace alleviates the explosive and flight safety concerns. There would be a slight beneficial impact to ground and explosive safety due to implementing Alternative 1 by containing all safety risks within the range boundaries. Therefore, implementation of Alternative 1 would not result in significant impacts to health and safety.

3.7.3.2 Alternative 2

Similar to Alternative 1, Alternative 2 would also alleviate safety risks due to transportation of target materials and debris and also reduce the overall distance traveled by several miles. Also, like Alternative 1, Alternative 2 would enhance transportation safety by moving access points to U.S. 95 to a safer location on the highway. Unlike Alternative 1, Alternative 2 places the entire roadway on range property and out of restricted airspace alleviating the ground and safety issues associated with travel on an active training range and eliminating the use of public roads for target materials and debris. There would be a beneficial improvement to safety by implementing Alternative 2. Therefore, implementation of Alternative 2 would not result in significant impacts to health and safety.

3.7.3.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not occur and there would be no change to existing conditions. Therefore, no significant impacts to health and safety would occur with implementation of the No Action Alternative.

3.8 Summary of Potential Impacts

Table 3.8-1 presents a summary of the potential impacts associated with Alternative 1 and 2, and the No Action Alternative.

Table 3.8-1 Summary of Potential Impacts to Resource Areas

Resource Area	Alternative 1	Alternative 2	No Action Alternative
Biological Resources	No Significant Impact. One federally listed species, MDT, is found within the Alternative 1 boundary. Native vegetation would be removed or disturbed within the project area. Wildlife would be temporarily displaced or disturbed by construction actions. Some habitat fragmentation and degradation would occur. Impacts to 242 acres of MDT habitat would occur. USFWS concurrence of this determination is pending.	No Significant Impact. Impacts to plants and wildlife from Alternative 2 would be similar to Alternative 1. Impacts to 286 acres would occur. USFWS concurrence of this determination is pending.	No Impact. Existing natural resource plans would continue to manage and protect MDT. Habitat would not be modified. Native vegetation would remain intact with no transplantation. The current level of habitat fragmentation would remain due to the close proximity of U.S. 95 and the NTTR boundary.
Cultural Resources	No Significant Impact. Twelve historical sites and two prehistoric sites identified within the Direct APE Alternative 1. All sites are recommended not eligible for inclusion in the NRHP under any criteria. SHPO concurrence of this determination is pending.	No Significant Impact. Thirty-one historical sites and one prehistoric site identified within the Direct APE of Alternative 2. All sites are recommended not eligible for inclusion in the NRHP under any criteria. SHPO concurrence of this determination is pending.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.
Air Quality	No Significant Impact. Air emissions would be less than *de minimis* levels and not be considered significant under Alternative 1.	No Significant Impact. Similar emissions to Alternative 1 would be emitted under Alternative 2 and would be less than significant.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.
Land Use	No Significant Impact. Expanding the existing Stagecoach Road would be wider and paved but not alter existing land use under Alternative 1.	No Significant Impact. Alternative 2 would be constructed on land currently managed by BLM. This land was included in the expansion areas of the renewal of the Military Lands Withdrawal Act, however that alternative was not selected by Congress. A separate right-of-way or withdrawal may be considered by the Air Force. All findings in the NTTR LEIS would be valid for a separate withdrawal and would be incorporated by reference.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.

Resource Area	Alternative 1	Alternative 2	No Action Alternative
Earth Resources	No Significant Impact. No impacts to soils would result from Alternative 1. Stormwater control procedures would be implemented to reduce stormwater runoff and erosion.	No Significant Impact. No impacts to soils would result from Alternative 2. Stormwater control procedures would be implemented to reduce stormwater runoff and erosion.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.
Health and Safety	No Significant Impact. No additional health and safety impacts would result from Alternative 1.	No Significant Impact. Impacts from the Alternative 2 would be similar to Alternative 1.	No Impact. There would be no change to existing conditions; therefore, no impacts would occur.

4 Cumulative Effects and Other Environmental Considerations

4.1 Cumulative Effects

4.1.1 Introduction

The approach taken in the analysis of cumulative impacts follows the objectives of NEPA, CEQ regulations as of the time this EA was initiated in 2019, and CEQ guidance. In 40 CFR section 1508.7, *cumulative impacts* are defined as:

The impact on the environment that results from the incremental impact of the action when added to the other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In addition, CEQ has published guidance addressing implementation of cumulative impact analyses—*Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (CEQ, 2005). CEQ guidance entitled *Considering Cumulative Impacts Under NEPA* (CEQ, 1997) states that cumulative impact analyses should:

"…determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the proposed action have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

1. Does a relationship exist such that affected resource areas of the proposed action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
2. If one or more of the affected resource areas of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

4.1.2 Relevant Past and Present Actions

The scope of the cumulative impacts analysis involves both the geographic extent of the effects and the time frame in which the effects could occur. For this EA, the study area delimits the geographic extent of the cumulative impacts analysis. In general, the study area includes those areas previously identified in Chapter 3 (Affected Environment) for the respective resource areas. The time frame for cumulative impacts centers on the timing of the Proposed Action.

4.1.3 Reasonably Foreseeable Future Actions

This section focuses on past, present, and reasonably foreseeable future projects at and near NTTR. Using the first fundamental question presented in Section 4.1, this analysis first determined if a relationship exists such that the affected resource areas (as addressed in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, then the analysis did not carry the project forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ, 2005), this analysis does not catalogue these actions considered but excluded from further cumulative effects analysis as the intent is to focus the analysis on the meaningful actions relevant to inform decision-making. Table 4.1-1 presents those projects included in this cumulative impact analysis and the following subsections describe these projects.

Table 4.1-1 Cumulative Action Evaluation

Past Actions	
Action	**Level of NEPA Analysis Completed and Project Start Date (year)**
F-35 Force Development Evaluation and Weapons School Beddown, Nellis Air Force Base, Nevada The Proposed Action involved basing 36 F-35 Aircraft at Nellis AFB. In addition to the aircraft, there was construction, demolition, or modification to a variety of base facilities to support the F-35 programs.	Final Environmental Impact Statement (EIS) Project Start Date: FY11
Present and Reasonably Foreseeable Future Actions	
Action	**Estimated Project Start Date**
Section 368 Energy Corridor 18-224 There are section 368 energy corridors adjacent to NTTR. Federally designated portions of this energy corridor are on BLM-administered land. The land is designated as a multi-modal corridor that can accommodate both electrical and pipeline projects.	A Preliminary EIS was completed in November of 2008, the region 5 (region which includes 18-224) review was completed in May 2019.
Nevada Test and Training Range Military Land Withdrawal LEIS The Air Force proposes to continue military operations on the NTTR's existing 2,949,603 acres of land. In addition to extending the existing land withdrawal, the Air Force proposed to withdraw up to an additional 301,507 acres to improve the range's capacity to support military testing and training, however the additional acreage was not included in the Land Withdrawal Legislation 202 (part of the National Defense Authorization Act of 2021).	Final LEIS, October 2018 Project Start Date: 2021
Interstate 11 The Nevada Department of Transportation is initiating an Alternatives Analysis effort for the I-11 Corridor between the northwestern edge of Las Vegas and Interstate 80 in western Nevada. This will lead to the recommendation of one or more corridor alternatives to advance into future NEPA studies. The planning and outreach process, analysis, and findings will be documented in a Planning and Environmental Linkages document. In Northern Nevada, a high level of analysis was completed to recommend that I-11 make a connection from Las Vegas to points north along the western side of the state. Construction of the roughly 450-mile long future I-11 could be phased over future decades as environmental impact reviews are completed and funding is prioritized. I-11 is currently being analyzed as a limited access four-lane divided highway designed to accommodate future traffic projections.	I-11 has a completed Draft Tier 1 EIS, final is expected by 2021. A record of decision will be signed and a Tier 2 EIS will be done to determine the specific route of the interstate. The project start date will be determined after the Tier 2 EIS.

4.1.4 Future Facilities at NTTR

As previously discussed, a comprehensive range plan is in development to determine current and future mission requirements. Included in the future range planning efforts would be to determine whether there is a need for a manned gate and parking at or near the vicinity of the Range 63C existing unmanned gate. Specific locations and dimensions for the potential manned gate and parking area have not been identified. Results of these plans would require NEPA documentation. Completion of the comprehensive range plan is expected in early 2021. The Air Force anticipates preparation of a subsequent, separate NEPA document when the proposal is ready for specific analysis and regulatory consultations.

4.1.5 Cumulative Effects Analysis

Where feasible, this analysis assessed the cumulative impacts using quantifiable data; however, for many of the resources included for analysis, quantifiable data is not available, and this analysis uses a qualitative approach. The following cumulative impact analysis uses the same analytical methodology as presented in Chapter 3.

Biological Resources

The F-35 Force Development Evaluation and Weapons School Beddown action consisted of construction of new facilities, demolition of old facilities, and improvements to infrastructure. All of these actions were conducted on areas that have been previously disturbed and are located on Nellis AFB, outside of the Proposed Action affected environment. However, as a result of this project, increased F-35 training activities are conducted within NTTR target areas. Since all target areas used are pre-existing and lie outside the project boundaries, impacts resulting from target disturbance is not expected. Thus, this action will not contribute to the cumulative impact on biological resources within the study area.

Alternative A of the I-11 Northern Nevada Alternatives Analysis Project lies mostly within the existing U.S. 95 corridor; however, additional ground disturbance adjacent to the Proposed Action alternatives study area may occur with the expansion of the U.S. 95 right-of-way for this project. Existing habitat fragmentation is apparent due to the existing U.S. 95 corridor. Minor habitat loss may occur from the right-of-way expansion. All other proposed alternatives associated with the I-11 corridor expansion project do not occur in proximity to the Proposed Action area.

Cumulative impacts associated with the NTTR Military Land withdrawal are considered to be negligible as no ground disturbance within the adjacent areas are proposed at this time. If these types of disturbances or development are proposed in the future, NEPA analysis and any considerations regarding biological resources would be made.

Cultural Resources

According to a review of Nellis AFB 2020 Cultural Resources Inventory Reports as referenced in section 3.3.3 no historic properties eligible for the NRHP were identified within both the direct and indirect APE; therefore, there are no cumulative impacts considered in relation to cultural resources to date. SHPO concurrence for this determination is pending. Initiation of SHPO consultation occurred on July 9, 2020 with a concurrence of the APE occurring on July 30, 2020.

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 and Section 4.1.3. Emissions caused by the proposed construction/expansion would be below any NAAQS or GHG thresholds; therefore, the addition of emissions from other construction projects would likely result in minimal cumulative effects. All projects subject to NEPA would utilize the individual project thresholds similar to those presented for this action. Projects that exceed the *de minimis* threshold complete a more detailed general conformity review to ensure that the project does not contribute to worsening air quality and is in alignment with the local air quality plans for regional development.

Land Use

Implementation of the NTTR Land Withdrawal would result in the addition of proposed project area described in this EA to be included in the NTTR range boundaries. The I-11 project may develop freeway exits or exchanges at Range 63C and/or at Point Bravo. This project would be designed to allow sufficient room for the possible exits. Neither the F-35 Beddown nor the proposed energy corridor would interfere with the establishment of Stagecoach Road nor would the construction of the road affect the F-35 Beddown and energy corridor.

Earth Resources

This analysis focuses on adjacent activities past, present, and future, that has the potential to affect earth resources, such as soils or geographic landforms in the general region through increased soil erosion or stormwater runoff in particular.

The F-35 Force Development Evaluation and Weapons School Beddown action did not involve any ground disturbance on the NTTR. As such, no impacts to soils or increased erosion occurred as a result of the action and does not contribute to earth resource impacts.

Impacts associated with the I-11 Northern Nevada Alternatives Analysis Project could affect the Proposed Action by introducing increased stormwater runoff and soil erosion as Alternative A lies adjacent to the Proposed Action. However, this design would occur within the U.S. 95 corridor which consists of pre-existing stormwater management system features. Any impacts originating from increased demand on the existing system would have to be reduced by fulfilling any stormwater construction permit requirements, National Pollutant Discharge Elimination System requirements and by performing soil and erosion control procedures in accordance with the construction permits to appropriately mitigate against any impacts generated.

Cumulative impacts associated with the NTTR Military Land withdrawal are considered to be negligible as no ground disturbance within the adjacent areas are proposed at this time. If these types of disturbances or development is proposed in the future, a NEPA analysis and any considerations regarding earth resources would be made.

Health and Safety

As Alternative A of the I-11 Northern Nevada Alternatives Analysis Project lies within the existing U.S. 95 corridor no additional impacts originating from this project are expected in regard to health and safety.

Cumulative impacts associated with the NTTR Military Land withdrawal are considered to be negligible as no ground disturbance within the adjacent areas are proposed at this time. If these types of disturbances or development is proposed in the future, further analysis will be made.

4.2 Other Environmental Considerations

4.2.1 Unavoidable Adverse Effects

Unavoidable adverse impacts are the effects on natural and human resources that would remain after minimization measures have been applied. Unavoidable adverse effects associated with the Proposed Action include native vegetation/wildlife habitats. Clearing and grading of native vegetation would result in the permanent removal of a long-narrow strip of vegetation following the roadway within the habitat of the study area.

Adverse effects to MDT and their burrows would be expected to occur during construction of the roadway for both alternatives and installation of security fencing for Alternative 2. Capture and translocation of the MDT, as well as, burrow excavation, may be necessary and conducted under the recommendations of the Desert Tortoise Field Manual (USFWS, 2009). However, commitment to construction design measures such as permanent exclusionary fencing and culvert placement is expected to decrease adverse effects to insignificant levels. All effects determinations are pending an ongoing USFWS Section 7 consultation in which the culmination will include a USFWS issued BO.

4.2.2 Relationship Between Short-Term Uses and Long-Term Productivity

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one area reduces future flexibility in pursuing other options, or that using a parcel of land or other resources often eliminates the possibility of other uses at that site.

In the short-term, effects on the human environment with implementation of the Proposed Action would primarily relate to the expansion or construction of the proposed road. This expansion or construction of a range road would affect biological resources, cultural resources, air quality, land use, earth resources, and health and safety in the short term. All alternatives would have minor short-term effects related to construction through the use of construction-related materials, etc. The significant economic benefits created during construction in the form of jobs, and the direct and indirect demand for goods and services, would offset the short-term use of the environment.

The proposed expansion or construction may significantly affect the long-term natural resource productivity of the local area and may result in impacts that would significantly reduce environmental productivity by lessening habitat connectivity for MDT. As such, if committed construction design measures such as exclusionary fencing and culvert placement in addition to proposed conservation and

impact minimization measures listed within the associated Biological Assessment are properly and comprehensively administered, the Proposed Action is not expected to jeopardize the continued survival and future recovery of the MDT or permanently narrow the range of beneficial uses of the environment.

In addition, the range road expansion or construction would not pose long-term risks to the health, safety, or the general welfare of the public. In fact, the long-term beneficial impacts on productivity would include the following:

- Improved efficiency by reducing labor-hours taken to transport to/from NTTR.
- Improved NTTR range maintenance.
- Improved safety.
- Continued military mission.

4.2.3 Irreversible and Irretrievable Commitment of Resources

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel, and natural or cultural resources. These resources are irreversibly or irretrievably committed in that they would be used for this project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. Another impact that falls under this category is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment. The loss of a cultural resource (e.g., through demolition) is also considered irretrievably committed to a project.

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6 List of Preparers

U.S. Air Force

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Tara Jacob, NTTR/XP *Action Proponent*

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Years of Experience: 22

Kari McCollum, *Junior Environmental Planner*
B.A., Environmental Sustainability, San Diego State University, 2019
Years of Experience: 1

Appendix A
Public Involvement, Agency Consultation and Coordination

As part of the environmental impact analysis process (EIAP), consultation and coordination were performed with federal, state, and local agencies. See Table A-1 for the distribution list of agencies contacted. Copies of a sample federal, state, and local agency correspondence are included in this Appendix, as well as a tribal agency sample letter. In addition, agency response letters from Nevada Division of Forestry, Clark County Department of Environmental and Sustainability, and the State Historic Preservation Office are included.

Table A-1 Persons and Agencies Consulted/Coordinated

Federal Agencies	
U.S. Fish and Wildlife Service – Southern Nevada Fish and Wildlife Office Mr. Glen Knowles, Field Supervisor 4701 North Torey Pines Drive Las Vegas, NV 89130	**U.S. Fish and Wildlife Service - Nevada Fish and Wildlife Office** 1340 Financial Boulevard, Suite 234 Reno, NV 89502
U.S. Fish and Wildlife Service – Desert National Wildlife Refuge Complex Mr. Kevin DesRoberts 4701 North Torrey Pines Drive Las Vegas, NV 89130	**BLM – Las Vegas Field Office** Ms. Shonna Dooman, Field Manager 4701 North Torrey Pines Drive Las Vegas, NV 89130
BLM – Pahrump Field Office Mr. Nicholas Pay, Acting Field Manager 4701 North Torrey Pines Drive Las Vegas, NV 89130	**BLM – Battle Mountain District Office** Mr. Douglas Furtado, District Manager 50 Bastian Road Battle Mountain, NV 89820
Humboldt-Toiyabe National Forest Ms. Deborah MacNeil, Area Manager 4701 North Torrey Pines Drive Las Vegas, NV 89130	**US Army Corps of Engineers – Sacramento District** 533 West 2600 South, Suite 150 Bountiful, UT 84010
US Army Corps of Engineers - Los Angeles District 915 Wilshire Boulevard, Suite 1101 Los Angeles, CA 90017	**US Army Corps of Engineers – Arizona/Nevada Area Office** 3636 N. Central Avenue, Suite 900 Phoenix, AZ 85012
USDA Natural Resource Conservation Service - Nevada State Office Mr. Bruce Peterson, State Conservationist 1365 Corporate Boulevard Reno, NV 89502	**USDA Natural Resource Conservation Service - Las Vegas Service Center** Mr. Jarrod Edmunds, Special Projects Office Leader Parc Place Professional Complex, 5820 South Pecos Road, Building A, Suite 400 Las Vegas, NV 89120
USDA Natural Resource Conservation Service – Utah State Office Ms. Elise Anne Boeke, State Resource Conservationist 125 S. State Street, Room 4010 Salt Lake City, UT 84138	

Federal Agencies	
State Agencies	
Nevada Division of State Lands Mr. Andre Emme, Nevada State Clearinghouse 901 S. Stewart Street, Suite 5003 Carson City, NV 89701	**Nevada Department of Wildlife – Headquarters** Mr. George Tsukamoto, Interim Director 1100 Valley Road Reno, NV 89512
Nevada Department of Wildlife – Southern Region Mr. D. Bradford Hardenbrook, Supervisory Habitat Biologist 4747 Vegas Drive Las Vegas, NV 89108	**Nevada Department of Wildlife – Southern Region, Henderson Office** 744 South Racetrack Road Henderson, NV 89015
Nevada Department of Forestry – State Office Mr. Pete Anderson, State Forester 2478 Fairview Drive Carson City, NV 89701	**Nevada Department of Forestry – Las Vegas Office** Ms. Adria DeCorte, Resource Management Officer 4747 Vegas Drive Las Vegas, NV 89108
Nevada Department of Forestry – Las Vegas Office Mr. Mark Blankensop, Forestry Program Manager – Regional Forester 4747 Vegas Drive Las Vegas, NV 89108	**Nevada State Historic Preservation Office** Ms. Rebecca Palmer, Administrator/State Historic Preservation Officer Department of Conservation and Natural Resources 901 S. Stewart Street, Suite 5004 Carson City, NV 89701
Nevada Department of Conservation and Natural Resources Mr. Bradley Crowell, Director 901 S. Stewart Street, Suite 1003 Carson City, NV 89701	
Local Agencies	
Clark County Commission Chairperson Marilyn Kirkpatrick 500 Grand Central Parkway Las Vegas, NV 89109	**Regional Transportation Commission of Southern Nevada** Mr. Jacob Snow, General Manager 600 S. Grand Central Parkway, Suite 350 Las Vegas, NV 89106
Regional Transportation Commission of Southern Nevada Mr. Martyn James, Director of Planning Services 600 S. grand Central Parkway, Suite 350 Las Vegas, NV 89106	**City of Las Vegas – Community Development, Planning & Zoning Division** Mr. Gregory Blackburn, Director 2200 Civic Center Drive Las Vegas, NV 89030
Southern Nevada Regional Planning Coalition Ms. Jennifer Olsen 240 Water Street, Mail Stop 115 Henderson, NV 89009	**Clark County Department of Air Quality & Environmental Management** Mr. John Mendoza, Senior Planner 500 S. Grand Central Parkway, P.O. Box 555210 Las Vegas, NV 89155
Clark County Department of Comprehensive Manager Mr. Mario Bermudez, Planning Manager 500 S. Grand Central Parkway, First Floor Las Vegas, NV 89155	**Clark County Department of Air Quality & Environmental Management** Mr. Al Leskys, Senior Air Quality Specialist 4701 West Russell Road, Suite 200 Las Vegas, NV 89118-2231

Federal Agencies	
Tribal Agencies	
Big Pine Paiute Tribe Mr. James Rambeau Sr., Chairperson P.O. Box 700 825 South Main Street Big Pine, CA 93513	**Bishop Paiute Tribe** Mr. Allen Summers, Chairperson 50 Tusu Lane Bishop, CA 93514
Ft. Independence Paiute Tribe Mr. Carl Dahlberg, Chairperson P.O. Box 67 131 North Hwy 395 Independence, CA 93526	**Lone Pine Paiute-Shoshone Tribe** Mr. Richard Button, Chairperson P.O. Box 747 975 Teya Road Lone Pine, CA 93545
Timbisha Shoshone Tribe Ms. White Dove Kennedy, Tribal Chairperson 621 West Line St. Suite 109 Bishop, CA 93515	**Benton Paiute Tribe** Shane Saulque, Chairperson Utu Gwaitu Paiute Tribe 25669 Highway 6, PMB I Benton, CA 93512
Duckwater Shoshone Tribe Rodney Mike, Chairperson 511 Duckwater Falls, P.O. Box 140068 Duckwater, NV 89314-0068	**Yomba Shoshone Tribe** Ronnie Snooks, Chairperson Daryl Brady, Vice-Chairperson HC 61, Box 6275 Austin, NV 89310
Ely Shoshone Tribe Diana Buckner, Chairperson 250 Heritage Drive #B Ely, NV 89301	**Chemehuevi Indian Tribe** Charles Wood, Chairperson P.O. Box 1976 Havasu Lake, CA 92363
Kaibab Band of Southern Paiutes Ona Segundo, Chairperson HC 65 Box 2 Fredonia, AZ 86022	**Las Vegas Paiute Tribe** Mr. Curtis Anderson, Chairperson #1 Paiute Drive Las Vegas, NV 89106
Moapa Band of Paiutes Laura Watters, Chairperson P.O. Box 340 Moapa, NV 89025	**Native American Coordinator for Nellis AFB** Richard Arnold P.O. Box 3411 Pahrump, NV 89041
Paiute Indian Tribes of Utah Tamra Borchardt-Slayton, Chairperson 440 North Paiute Drive Cedar City, UT 84721	**Colorado River Indian Tribes** Dennis Patch, Chairperson 26600 Mohave Road Parker, AZ 85344
Ft. Mojave Tribe Timothy Williams, Chairperson 500 Merriman Avenue Needles, CA 92363	

Exhibit 1. Air Force Agency Sample Letter

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA

99 CES/CENP
6020 Beale Ave.
Nellis AFB, NV 89191-6520

SHIPPED APR 0 3 2020

Pete Anderson
State Forester
Nevada Department of Forestry
State Office
2478 Fairview Drive
Carson City, NV 89701

Dear Mr. Anderson:

The United States Air Force (USAF) is preparing an Environmental Assessment (EA) for the Proposed Expansion of Stagecoach Road on Nevada Test and Training Range (NTTR), Nevada (NV). To take into account possible environmental concerns, the USAF is engaging early with the appropriate resource and regulatory agencies as it formulates the undertaking. Accordingly, the USAF seeks consultation with your office.

Proposed Action
The EA will, as required by law and regulations, consider the potential impacts resulting from expanding Stagecoach Road and any alternatives on the NTTR South Range, NV. As an alternative to expanding the existing Stagecoach Road, the USAF is considering the construction of a frontage road between US Highway 95 (US-95) and Stagecoach Road. The frontage road is considered to be the preferred alternative because it allows safe transit from Range 63C to Box Canyon while both avoiding US-95 and remaining outside the bombing range safety limits. All other alternatives have been eliminated from further consideration using established criteria as permitted by 36 C.F.R. §989.8.

Recently, Creech Air Force Base (AFB) has been expanding to accommodate the unmanned aerial vehicle mission. Some NTTR personnel work on target fabrication and target debris processing at Box Canyon and restoring and maintaining targets at Box Canyon or Range 63. This proposed action would:

1. eliminate transit through Creech AFB;
2. alleviate traffic on the base;
3. provide a safe and secure route for transporting target debris; and
4. save an average of six miles of transit each-way for NTTR personnel.

Purpose and Need
The proposed action would meet the purpose and need for the action by providing a safe and

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secure road from Range 63C and Box Canyon at NTTR. The proposed action alternatives would allow access for NTTR personnel to their destinations without the need to travel through Creech AFB. In addition, trucks carrying ordnance and target debris from Range 63C would no longer need to travel on public highways to transit to the processing activity area at Box Canyon.

Project Location
The attached figure illustrates the proposed alternatives locations. The proposed road construction would consist of a paved two-lane road approximately 11 miles long. Stagecoach Road (Alternative 1) would begin within Range 63C with the proposed action starting from the northwest terminus of the paved target road and Frontage Road (Alternative 2) would start near the existing security gate. Both alternatives would pass on the range side of Point Bravo, continue parallel to US-95 and terminate at Box Canyon Road. The major difference between the alternatives would be that the Stagecoach Road would be constructed on the Las Vegas and Tonopah Railroad grade and Frontage Road would be a new road traversing mostly undisturbed area.

Environmental Assessment
The EA will assess the potential environmental consequences associated with the proposed action alternatives and the no action alternative. Potential impacts identified during the initial planning stages include effects on land use, air quality, traffic/transportation, biological and cultural resources, and socioeconomic conditions. In support of this process, we request your input in identifying general or specific issues or areas of concern you believe should be addressed in the EA.

We intend to provide your agency with a copy of the Draft EA once the document is completed. Please inform us if additional copies are needed or if someone else within your agency other than you should receive the Draft EA.

The USAF point of contact for Environmental Planning is Mr. Tod Oppenborn. Please send him your comments and concerns at 6020 Beale Ave, Nellis AFB, NV, 89191-6520, or by email at tod.oppenborn@us.af.mil, or by telephone at (702) 652-9366. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

Sincerely,

ROWLAND.CHARLES.W.JR.1073438124
Digitally signed by ROWLAND.CHARLES.W.JR.1073438124
Date: 2020.04.01 09:47:58 -07'00'

CHARLES W. ROWLAND JR.
Chief, Portfolio Optimization

Attachment:
Figure 1. Project Location Map

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Exhibit 2. Air Force Tribal Agency Sample Letter

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE NEVADA

Lt Col Christopher J. Wedewer
Commander, 99 CES
6020 Beale Ave.
Nellis AFB NV 89191

Mr. James Rambeau Sr.
Chairperson
Big Pine Paiute Tribe
P.O.Box 700
825 South Main Street
Big Pine, CA 93513

Dear Mr. James Rambeau Sr.:

The United States Air Force (USAF) is preparing an Environmental Assessment (EA) for the Proposed Expansion of Stagecoach Road on Nevada Test and Training Range (NTTR), Nevada (NV). To take into account possible environmental concerns, the USAF is engaging early with all potentially affected Native American Tribes as it formulates the undertaking. Accordingly, the USAF seeks consultation with the Big Pine Paiute Tribe.

Proposed Action

The EA will, as required by law and regulations, consider the potential impacts resulting from expanding Stagecoach Road and any alternatives on the NTTR South Range, NV. As an alternative to expanding the existing Stagecoach Road, the USAF is considering the construction of a frontage road between US Highway 95 (US-95) and Stagecoach Road. The frontage road alternative would be considered the preferred alternative because it allows safe transit from Range 63C to Box Canyon while both avoiding US-95 and remaining outside the bombing range safety limits. All other alternatives have been eliminated from further consideration using established criteria as permitted by 36 C.F.R. §989.8.

Recently, Creech Air Force Base (AFB) has been expanding to accommodate the unmanned aerial vehicle mission. Some NTTR personnel work on target fabrication and target debris processing at Box Canyon and restoring and maintaining targets at Box Canyon or Range 63. This proposed action would:

1. eliminate transit through Creech AFB;
2. alleviate traffic on the base;
3. provide safe and secure route for transporting target debris; and
4. save an average of six miles of transit each-way for NTTR personnel.

Purpose and Need

The proposed action would meet the purpose and need for the action by providing a safe and secure road from Range 63C and Box Canyon at NTTR. The proposed action alternatives would allow access for NTTR personnel to their destinations without the need to travel through Creech AFB. In addition, trucks

Enable Success Through Innovative Base Support

carrying ordnance and target debris from Range 63C would no longer need to travel on public highways to transit to the processing activity area at Box Canyon.

Project Location

The attached figure illustrates the proposed alternatives locations. The proposed road construction would consist of a paved two-lane road approximately 11 miles long. Stagecoach Road (Alternative 1) would begin within Range 63C with the proposed action starting from the northwest terminus of the paved target road and Frontage Road (Alternative 2) would start near the existing security gate. Both alternatives would pass on the range side of Point Bravo, continue parallel to US-95 and terminate at Box Canyon Road. The major difference between the alternatives would be that the Stagecoach Road would be constructed on the Las Vegas and Tonopah Railroad grade and the Frontage Road would be a new road traversing mostly undisturbed area.

Environmental Assessment

The EA will assess the potential environmental consequences associated with the proposed action alternatives and the no action alternative. Potential impacts identified during the initial planning stages include effects on land use, air quality, traffic/transportation, biological and cultural resources, and socioeconomic conditions. In support of this process, we request your input in identifying general or specific issues or areas of concern you believe should be addressed in the EA.

As a Government to Government consultation, we would appreciate any input regarding concerns of potential effects of the proposed action on significant cultural resources. We also intend to provide your agency with a copy of the Draft EA once the document is completed and welcome comments and input at that time as well. Please inform us if additional copies are needed or if someone else within your organization other than you should receive the Draft EA.

Should you or your staff have any questions about the project, please contact our tribal liaison/archaeologist, Ms. Kish La Pierre, 99 CES/CEIEA, at (702) 652-5813 or at kish.lapierre@us.af.mil.

Sincerely

WEDEWER.CHRISTOPHER.J.1243584767 Digitally signed by WEDEWER.CHRISTOPHER.J.1243584767 Date: 2020.04.22 13:37:59 -07'00'

CHRISTOPHER J. WEDEWER, Lt Col, USAF
Commander

Attachment:
Project Location Map

2

Exhibit 3. Agency response letters from Nevada Division of Forestry, Clark County Department of Environmental and Sustainability, and the State Historic Preservation Office

BRADLEY CROWELL, *Director*
Department of Conservation and Natural Resources

STEVE SISOLAK
Governor

KACEY KC
State Forester/Firewarden

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
NEVADA DIVISION OF FORESTRY
4747 Vegas Drive
Las Vegas, Nevada 89108
Phone (702) 486-5123 Fax (702) 486-5186

May 12, 2020

Mr. Tod Oppenborn
Environmental Planning
Nellis Air Force Base

Nevada Division of Forestry preliminary review of the proposed Stagecoach Road expansion

NDF has reviewed the proposed road realignment paths submitted for the EA evaluation process for the expansion of Stagecoach Road on the NTTR. Alternative 1, Stagecoach Road on the east side of highway 95, intersects habitat that is modelled as suitable for the Las Vegas bearpoppy, a plant species on the state's list of fully protected species (NRS 527.050).

Critically endangered native flora has been declared threatened with extinction by the State Forester Firewarden. No person or entity may "cut, destroy, mutilate, pick or remove" any member of its kind at any time, by any means, except under special permit issued by the State Forester Firewarden (NRS 527.260 to 527.300). All activities conducted on or beneath the surface of land that would, or has the potential to, negatively impact listed critically endangered native flora or its habitat, must obtain a permit prior to project initiation.

We encourage Nellis to conduct complete surveys (at a biologically appropriate time of year) in habitats with the potential to support any species on the state's fully protected list. If individuals are located or suspected to be present in area where disturbance is proposed and no other suitable alternative location can accommodate the disturbance needs, then a permit application must be submitted. Permit application requirements are listed in NAC 527.280 (https://www.leg.state.nv.us/NAC/NAC-527.html#NAC527Sec280). The permit application process includes a thorough analysis of the impacts of the project, followed by evaluation of all avoidance opportunities and lastly mitigation proposals when avoidance is impossible.

If you discover there may be risks to critically endangered plant species as you progress with project evaluation, please reach out to us and we will provide more detailed guidance for permit application.

Thank you,

Cayenne Engel
Resource Management Officer

DES
DEPARTMENT OF ENVIRONMENT AND SUSTAINABILITY
air quality desert conservation PROGRAM sustainability

4701 W. Russell Road 2nd Floor
Las Vegas, NV 89118-2231
Phone: (702) 455-5942 • Fax: (702) 383-9994
Marci Henson, Director

May 18, 2020

Mr. Tod Oppenborn
Nellis Air Force Base
6020 Beale Avenue
Nellis AFB, NV 89191-6520

E-mail: tod.oppenborn@us.af.mil

Re: Environmental Assessment (EA) for the proposed expansion of Stagecoach Road on Nevada Test and Training Range (NTTR) Nevada.

Dear Mr. Oppenborn:

Thank you for the opportunity to review and comment on the Environmental Assessment (EA) letter for Creech Air Force Base's proposed Expansion of Stagecoach Road on Nevada Test and Training Range (NTTR), Nevada (NV). The proposal is to construct a frontage road between U.S. Highway 95 (US-95) and Stagecoach Road. The construction will consist of a paved two lane road approximately 11 miles long. The Department of Environment and Sustainability (DES) has reviewed the proposed EA letter and provides the following comments for your consideration.

The proposed construction project is located within Indian Spring Valley, Hydrographic Area 161 (HA161), which is currently in attainment or unclassifiable for $PM_{2.5}$, carbon monoxide, lead, ozone, and PM_{10} pollutants. PM_{10} is the pollutant primarily associated with construction activities and there are several provisions of the Clark County Air Quality Regulations that regulate proposed construction in Clark County. In particular, the following regulatory requirements may apply depending upon the type of activities taking place at the construction site.

Section 94 of the AQRs requires that a dust control permit be obtained prior to: (i) soil disturbance or construction activities that impact 0.25 acres or greater, (ii) mechanized trenching 100 feet or greater in length, or (iii) mechanical demolition of any structure 1,000 square feet or greater. Construction activities include, but are not limited to, land clearing; soil and rock excavation, removal, hauling, crushing, or screening; initial landscaping; staging and material storage areas; parking; and access roads. Additionally, Best Available Control Measures must be employed during construction activities at all times. These measures are described in the Construction Activities Dust Control Handbook, which is available online at:

http://www.clarkcountynv.gov/airquality/compliance/Pages/Compliance_DustForms.aspx

In addition, a detailed supplemental to a Dust Mitigation Plan (DMP) is required if there is a construction project of ten (10) acres or more, trenching activities of one mile or more, or structure demolition using implosive or explosive blasting techniques. If applicable, the

DES
DEPARTMENT OF ENVIRONMENT AND SUSTAINABILITY
air quality desert conservation PROGRAM sustainability

4701 W. Russell Road 2nd Floor
Las Vegas, NV 89118-2231
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Marci Henson, Director

supplement must be in the form of a written report and must, at a minimum, detail the project description, the area and schedule of the phases of land disturbance, the control measures and the contingency measures to be used for all construction activities. The supplemental will become part of the dust control permit as an enforceable permit condition.

Any construction project having more than 50 acres of actively disturbed soil at any given time is required to have a Dust Control Monitor as described in Section 94.7.5 of the AQRs. In addition, an application for a Dust Control Permit for a project of 50 acres or more shall contain an actual soils analysis of the entire project.

If you have questions, please contact Brenda Whitfield at (702) 455-1665, or Small Business at (702) 455-1524.

Sincerely,

Brenda Whitfield
Department of Air Quality
Planning Division
4701 W. Russell Road, Suite 200
Las Vegas, NV 89118
702-455-1665

NEVADA
STATE HISTORIC PRESERVATION OFFICE

Department of Conservation and Natural Resources

Steve Sisolak, Governor
Bradley Crowell, Director
Rebecca L. Palmer, Administrator, SHPO

July 30, 2020

Douglas C. Fitzpatrick
Deputy Base Civil Engineer, 99 CES
6020 Beale Ave.
Nellis AFB, NV 89191

RE: Area of Potential Effect (APE) Consultation Regarding Alternative 1: Stagecoach Road and Alternative 2: Frontage Road for Nevada Test and Training Range (NTTR) personnel to access the South Ranges from Range 63C Complex (UT 2020-6351; 26988)

Dear Mr. Fitzpatrick:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents received July 9, 2020 in accordance with Section 106 of the National Historic Preservation Act (NRHP) of 1966, as amended.

Project Description
Nellis Air Force Base (NAFB) proposes to construct a bypass route for the NTTER personnel to access South Ranges from Range 63C Complex. Two alternative routes have been proposed, Alternative 1: Stagecoach Road and Alternative 2: Frontage Road. One of which will be selected as the bypass route. Both routes will be paved two-lane roads and associated ground disturbance for construction will be one meter deep. Alternative 1: Stagecoach Road will be 70-meters wide and include 277.6 acres. Alternative 1 involves existing one-lane dirt road segments that parallel portions of the historic Las Vegas to Tonopah Railroad (LVTRR) grade. Alternative 2 aligns with U.S. Highway 95 and is 70-meters wide and includes 328.6 acres.

Area of Potential Effect (APE)
NAFB has determined the physical (direct) APE to include both Alternative 1 and 2 for a total of 606.2-acres. The visual, auditory, and cumulative (indirect) APE includes a one-mile buffer surrounding the physical APE for a total of 22,519.8-acres.

The SHPO **concurs** with NAFB's determination that this APE accounts for all effects that may result from this undertaking.

Identification and Evaluation of Historic Properties
NAFB has identified that approximately 52 previous cultural resource inventories have been conducted and 24 previously recorded sites are present within the visual, auditory, and cumulative APE. Most of the 24 previously recorded sites are unevaluated for listing in the National Register of Historic Places (NRHP).

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www.shpo.nv.gov

NAFB has also identified two sites (26CK5602 and 26CK5716) present within the physical APE. The SHPO has identified that these two resources were recorded in 1997 and 2009 respectively. Please provide our office with documentation of SHPO National Register concurrence as recording dates exceed the State of Nevada records retention schedule.

The SHPO notes that Alternative 1: Stagecoach Road parallels existing one-lane dirt road segments and portions of the LVTRR grade. During survey efforts please include archival records review of historic maps and GLO documents to aid in establishing the dates of all roads and railroad grades within the APE. Also, during survey efforts and subsequent reporting the authors may find the following resources helpful in developing an adequate historic context and research design regarding the LVTRR: Myrick (1992) and Serpico (2017).

Native American Consultation
The SHPO notes that consultation with the affected Native American tribes has been initiated per 36 CFR §800.3(f)(2). If this consultation results in the identification of properties of religious and/or cultural significance that could be affected by the undertaking, the SHPO looks forward to consulting with the NAFB on the National Register eligibility of historic properties and possible effects of the undertaking per 36 CFR §800.4(c) and 36 CFR §800.4(d). In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Consultation with Interested Parties
The SHPO reminds NAFB that the agency must consult with the public and representatives of organizations that have a demonstrated interest in historic properties per 36 CFR §800.2(c)(5). What efforts have been made to provide the public and interested parties with an opportunity to comment on this undertaking? Please forward a brief narrative summary of the results of this consultation to our office so this may be included in the administrative record for this undertaking.

Finding of Effect
The SHPO looks forward to receipt of the forthcoming technical report and finding of effect.

Should you have questions concerning this correspondence, please contact SHPO staff archaeologist Ashley Wiley at (775) 684-3450 or email awiley@shpo.nv.gov.

Sincerely,

Robin K. Reed
Deputy State Historic Preservation Officer
26988

Appendix B
Proposed Design Measures and Processes to Minimize Impact to Mojave Desert Tortoise

The U.S. Fish and Wildlife Service (USFWS) and U.S. Air Force have coordinated to develop measures to minimize potential effect as applied to mixed programmatic and framework programmatic actions as part of the Programmatic Biological Opinion (PBO) for Activities and Expansion of the Nevada Test and Training Range (NTTR) (USFWS, 2018). The previously developed minimization measures will apply as appropriate to NTTR Stagecoach Road Expansion project and are discussed as follows. These minimization measures are based upon reasonable and prudent measures found under the Incidental Take Statement of the 2018 issued PBO for Activities and Expansion of the NTTR. The measures included are specific to infrastructure construction and maintenance program activities. Additional measures are expected to be agreed upon once formal Section 7 consultation on this proposed action has ended and a project specific BO has been issued.

The following measures are proposed to be put in place in order to decrease adverse impact on the Mojave desert tortoise (MDT) population and habitat within the Proposed Action alternatives. The preferred alternative will be designed and constructed in such a manner as to avoid direct impact to MDT, their burrows, and their nests and eggs to the greatest extent possible. Current flexibility in the roadway footprint and design will allow this.

Construction Design Feature - Permanent Exclusionary Fencing

Permanent exclusionary fencing will be installed on both sides of the Frontage Road right of way. Fencing standards and specifications for all permanent exclusionary fencing used will be in accordance with Chapter 8 of the 2009 USFWS Desert Tortoise Field Manual (USFWS, 2009). This fencing will be monitored on a quarterly basis to ensure no breaches exist and the structural integrity of fencing is sufficient to exclude MDT from the roadway.

Shade structures will be placed at regular intervals along the fence line to provide shade for MDT in order to allow cooling and prevent hyperthermia (USFWS, 2020). Placement and construction of shade structures will incorporate design specifications found in the USFWS *Shade Structures for Desert Tortoise Exclusion Fence: Design Guidance* document.

Measures to decrease use of fences for perching of predators will be implemented where required (U.S. Air Force, 2017).

The project area will be surveyed for presence of MDT or using 100 percent coverage techniques. Any identified MDT burrow will be inspected to determine occupancy. The project area will be surveyed a total of three times unless the results of the second survey determine conclusively that MDT are not present within the project area. Immediately following relocation of any tortoises captured within the project area temporary exclusionary fencing (i.e., silt fence) will be erected until permanent exclusionary fencing is installed.

Tortoise-proof fencing will be installed around the boundary of permanent aboveground facilities that are regularly accessed by vehicles or equipment. Tortoise guards will be placed at all road access points where desert tortoise-proof fencing is interrupted, to exclude desert tortoises from the facility. Gates

will provide minimal ground clearance and deter entry by desert tortoises. Permanent tortoise-proof fencing along the project area will be appropriately constructed, monitored, and maintained. Fencing will be inspected in accordance with the table below and inspection reports will be included in annual reporting. Monitoring and maintenance will include regular removal of trash and sediment accumulation and restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the bent portion of the fence if not buried (USFWS, 2018).

Table B-1 Desert Tortoise Exclusion Fence Inspection Schedule

Condition	Minimum Requirement
Quarterly	Inspect fence perimeter, tortoise guards, and gates once per quarter.
Breach in fence observed, tortoise guard or gate requires maintenance, during tortoise less active season	Repair within 1 week of breach occurrence.
Following major storm event, tortoise more active season	Inspect fence perimeter, tortoise guards, and gates within 72 hours.
Breach in fence observed, tortoise guard or gate requires maintenance, tortoises more active season	Repair within 48 hours of breach occurrence.

Source: USFWS, 2018.

Construction Design Feature - Culverts

Any ditch slopes and berm slopes used in road shoulder design will, to the greatest extent possible, not exceed 30 percent in order to minimize erosion as well as tortoise overturn. Where culverts or other drainage structures are needed, only those that allow safe passage of tortoises will be used.

Desert tortoises have been documented to use culverts to cross beneath roadways, although the degree to which this use mitigates population-fragmenting effects has not been investigated (Boarman et al. 1997). As such, where culverts or other drainage structures are needed, only those that allow safe passage of tortoises will be used. Where MDT exclusionary fencing exists, it will tie into drainage culverts which can be used by tortoises to move to either side of the roadway. Deep plunge pools will be avoided in designs in order to minimize inadvertent MDT entrapment and mortality. Design of the culvert entrance will incorporate a sandy substrate and be easily accessible with low stature natural vegetation surrounding the approach and culvert entrance. Large rip rap will be avoided in the design to the greatest extent possible, instead utilizing uniformly gradated rock. If large rip rap must be used, a ramp or incline allowing tortoise passage through rip rap will be incorporated into the design.

Pre-construction Surveys

Clearance surveys will be conducted according to the protocol set forth in Chapter 6 of the Desert Tortoise (Mojave Population) Field Manual (*Gopherus agassizii*) (USFWS, 2009). During the more-active season, clearance surveys will be conducted either the day prior to, or the day of, any surface-disturbing activity. During the less-active season, clearance surveys will be conducted within 7 days prior to any surface-disturbing activity. No surface-disturbing activities will begin until two consecutive surveys yield no individuals. Clearance surveys will be coordinated with the Nellis AFB Natural Resources Manager well in advance of any project. In addition, a perimeter around the project area will be cleared, as determined by the Nellis AFB Natural Resources Manager and USFWS. The determination to conduct perimeter clearance and the width of the perimeter will be made by the Nellis AFB Natural Resources Manager and will be based on the location of the project in MDT habitat according to the current MDT

habitat map. An MDT monitor will be present on the project sites during all project construction and earth-moving activities until the project is completed.

Immediately prior to moving any project-associated vehicle/equipment parked in MDT habitat drivers must look underneath the vehicle/equipment and around all tires to ensure MDT are not resting under the vehicle. If an MDT is found under a vehicle and does not leave on its own within 15 minutes, then an authorized biologist may be called to relocate the animal out of harm's way.

Handling and Translocation

The U.S. Air Force activities that may endanger an MDT will cease if an MDT is found in harm's way as a result of the Proposed Action. Project activities will resume after the Nellis Air Force Base (AFB) Natural Resources Manager has been contacted and an authorized biologist removes the MDT from danger. Translocation and handling of live MDT will be conducted according to the recommendations found in the most current version of the Desert Tortoise Field Manual (USFWS, 2009) and the Translocation of Mojave Desert Tortoises from Project Sites: Plan Development Guidance (USFWS, 2020).

Further, the following protocol as listed in the PBO will be conducted:

- No MDT will be handled by more than one person. Unless in imminent danger, MDT will only be moved by an authorized desert tortoise biologist or desert tortoise monitor solely for the purpose of moving the MDT out of harm's way.
- MDT located in the project area sheltering in a burrow during the less active season may be temporarily penned at the discretion of an authorized desert tortoise biologist. MDT will not be penned in areas of moderate to heavy use, rather they will be moved from harm's way in accordance with the 2009 USFWS guidance.
- If an MDT is encountered and appears to be experiencing heat stress, it will be placed in a tub, by an authorized desert tortoise biologist, with one inch of water in an environment with an ambient temperature between 76°F and 95°F for several hours, until heat stress symptoms are no longer evident.

Temporary Exclusionary Fencing (During Construction)

All state and federally listed plant species are to be avoided during installation of fencing. In areas with heavy vegetation, irregularly shaped fence line clearings will be used rather than fence lines with uniform clearing widths. Mechanical clearing can be used if accompanied by actions that minimize soil loss and allow restoration of native vegetation (USFWS, 2018).

All construction areas in MDT habitat, including open trenches or areas with significant changes in grade will be fenced with temporary tortoise-proof fencing (e.g., silt fencing) or inspected by an authorized desert tortoise biologist periodically throughout and at the end of the day and immediately the next morning (USFWS, 2018).

Temporary fencing will be designed in a manner that reduces the potential for MDT and hatchlings to access the construction areas. Thus, the lower 6 to 12 inches of fencing will be folded outward (i.e., away from the construction area and towards the direction a tortoise would approach the work area), and covered with sufficient amount of soil, rocks, and staking to maintain zero ground clearance and

secure the bottom section of material. The fencing must remain closed during any construction activities (USFWS, 2018).

An authorized desert tortoise biologist will check the integrity of the fencing every two hours and ensure that there are no breaches in the fencing and no MDTs pacing the fence (USFWS, 2018).

Relocation and handling of live MDT will be conducted according to the recommendations found in the Desert Tortoise (Mojave Population) Field Manual (USFWS, 2009).

Vegetation Management

All fence lines and the road shoulder will be monitored for invasive plant species and appropriate invasive plant control measures will be implemented when required. Invasive species will be managed and removed by mechanical, hand, or chemical methods in accordance with the Nellis AFB Pest Management Plan.

Vegetation treatments will be conducted during the tortoise less active season. Those treatments that need to be conducted during the active season (e.g., response to new non-native plant infestation) will be coordinated with the Service. Any vegetation temporarily impacted by excavation, maintenance, training, and other activities will be returned to original contours and allowed to recover naturally. Native plants may be seeded for germination following the first storm event after project completion. Natural recovery of areas is preferred to seeding and planting (USFWS, 2018).

Encroachment of invasive plants in disturbed or restored areas will be prevented, and any invasive plants that become established will be removed either mechanically or through herbicide application. Herbicides will be used in accordance with all product label requirements and restrictions. If conducting manual spot applications of herbicides to vegetation in upland habitats occupied by MDT, the U.S. Air Force will utilize the typical, rather than the maximum, application rate. All individuals applying herbicides will be given education and instruction on what to do if a tortoise is located in treatment area. If a tortoise is found to have been sprayed with herbicide, the tortoise will be immediately rinsed with fresh water while still on the ground. If the tortoise voids its bladder, the U.S. Air Force will immediately be contacted for further guidance. If a tortoise is found in a proposed treatment area, the area will be avoided, and treatment will move 500 feet ahead. Treatment will be completed the following day as long as the tortoise is no longer in the immediate area (USFWS, 2018).

Vehicular Traffic

The U.S. Air Force, contractors, and other personnel will check under their vehicles prior to moving if the vehicle has been parked for more than a few minutes in desert tortoise habitat. Additionally, signs in parking areas of projects or facilities located within desert tortoise habitat will be posted to remind personnel to check under their vehicles prior to moving them. Relocation of a live desert tortoise found by personnel will be conducted by a qualified desert tortoise biologist according to the recommendations found in the most current version of the Desert Tortoise Field Manual (Service 2009). Speed limit of 35 mph will be maintained on paved roads in desert tortoise habitat. Speed limits of 25 mph will be maintained for all regular vehicle travel on gravel roads in desert tortoise habitat. Speed limit of 15 mph will be maintained on two-track roads and trails. Signage will be posted to clearly delineate areas within potential or known desert tortoise habitat where off-road vehicle use is prohibited. If necessary, fences with appropriate signage will be implemented in problem areas. Signs

will be posted no further than 300 feet apart and facing outward from restricted areas. Off-road vehicle use in desert tortoise habitat will be minimized or avoided where allowed by military operations and constraints. Although desert tortoise activity at night is rare, convoys and other night vehicular traffic planned for the action area will be made aware to watch for desert tortoise on roads. The day after convoys are conducted, the routes will be inspected for mortalities and those reported immediately to the Nellis AFB Natural Resources Program Manager.

Water

Minimization of dust production in and around construction sites and some military activities often involve application of water via water trucks and other methods. Water can accumulate in depressions and potholes on roads and construction areas from those activities as well as following storm events. Accumulation of water can result in attraction of desert tortoise to those areas. The U.S. Air Force, contractors, and visiting personnel will be made aware of this potential and to be more cognizant of the occurrence of desert tortoise in these areas to avoid impacts. The U.S. Air Force will periodically maintain roads and parking areas to remove these depressions and potholes. Water applied for dust control on construction projects will not be allowed to pool outside desert tortoise-fenced areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water. If pooling water does occur outside desert tortoise-fenced areas on construction projects where construction vehicles or equipment are in use, an authorized desert tortoise biologist will be assigned to patrol each area being watered immediately after the water is applied and at approximate 60-minute intervals until the ground is no longer wet enough to attract tortoises if conditions favor tortoise activity.

Predation

To minimize elevated perches for predators, signage, fencing, power poles, and antennas will only be installed where required. Projects that provide elevated perches for aerial predators such as towers, threat emitters, facility structures, or other aerial line support structures will be designed to discourage their use by ravens for perching or nesting (e.g., by use of anti-perching devices) in accordance with the most current Avian Power Line Interaction Committee. If sign of desert tortoise predation is observed below raven nests in desert tortoise habitat, the appropriate permits will be acquired to remove the nest. A summary of all raven nests that are removed and sign of desert tortoise predation will be included in the U.S. Air Force's annual report to the Service. All trash and debris will be regularly collected and contained in covered containers to minimize attracting potential predators of the desert tortoise (ravens). This program will include the use of covered, predator-proof trash receptacles and proper disposal of trash in a designated solid waste disposal facility. Vehicles hauling trash to the landfill and leaving the landfill must be secured to prevent litter from being released along the road. Landfills will be properly managed and maintained to reduce the potential for scavengers such as ravens, dogs, and coyotes to congregate in areas used by desert tortoise. Appropriate fencing maintained around these facilities would reduce the potential for terrestrial animals to access these facilities, and best management practices such as sorting trash with high organic matter (i.e., foodstuffs) and burying it immediately with sufficient cover will reduce the occurrence of potential predators of desert tortoise. At the present time, no municipal or hazardous waste landfills (as opposed to construction and demolition landfills) are located in desert tortoise habitat and none are planned to be constructed.

Awareness Training

Contractors, military personnel, and any visitors on site will be provided a U.S. Air Force-approved desert tortoise awareness training to recognize desert tortoise and desert tortoise sign. The program will be presented by an authorized desert tortoise biologist for projects causing the greatest potential for destruction of desert tortoise habitat. A video or fact sheet, as approved by the Service, may be presented or provided in lieu of a presentation for projects with low-impact potential as determined by the Nellis AFB Natural Resources Manager. Records of training provided to each individual will be signed upon completion of training by each individual, and those records will be maintained by the Nellis AFB Natural Resources Manager. Contact information for the Nellis AFB Natural Resources Manager will be included on any fact sheets or handout materials. Environmental staff will conduct awareness briefings for all personnel working in desert tortoise habitat. These briefings will be conducted either in person or via a video presentation of the briefing. At a minimum, the briefings will include discussions of the following:

- General provisions of the Endangered Species Act
- Necessity for adhering to the provisions of the Act
- Potential for civil and criminal penalties associated with violating the provisions of the Act
- Measures of this PBO and terms and conditions of the incidental take statement that are applicable to the activity
- The definition of “take”
- The exact boundaries of the site within which the project activities may be accomplished
- Distribution of desert tortoises within the NTTR
- General behavior and ecology of the desert tortoise and its sensitivity to human activities
- Threats to the desert tortoise including risk from vehicles and equipment, non-native plants, and human-subsidized predators.
- Measures to protect desert tortoise including desert-specific Leave-No-Trace guidelines
- Proper disposal of food and trash to avoid attracting predators of MDT
- Personal measures employees can take to promote the conservation of MDT
- Specific and detailed instructions will be provided on the proper techniques (preferably by a qualified biologist, if practicable) to capture and move a desert tortoise that may be in imminent danger (on a heavily traveled road, on an active project site, or under a vehicle) in accordance with the Service-approved protocol.

Litter Control

A litter-control program will include the use of covered, raven-proof trash containers (bins and dumpsters). Trash and debris will be contained in the covered containers. All containers will be emptied daily, removed from the action area, and disposed of properly in an approved landfill and waste site.

Reporting

The cause of any death or injury to MDT will be fully investigated as appropriate. All appropriate state and federal wildlife agencies will be notified of any MDT injury or death immediately by phone/email and within five days in writing.

An annual report specific to this action will be submitted by the U.S. Air Force to the USFWS for all effects (death, illness, injury, relocations, observations) to the MDT caused by this action. Included in the reporting will be GIS shape files indicating all loss of MDT habitat associated with this action, and a summary of any exclusionary fence inspections, if applicable (USFWS, 2018).

References

Boarman, W.I., Sazaki, M., Jennings, B. (1997). The Effects of Roads, Barrier Fences and Culverts on Desert Tortoise Populations in California, USA. In Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles — An International Conference, Pages 54-58.

U.S. Air Force. (2017). Integrated Cultural Resources Management Plan. Nellis, Creech, and NTTR. November.

USFWS. (2009). Desert Tortoise (Mojave Population) field manual: (Gopherus agassizii). Region 8, Sacramento, California.

USFWS. (2018). Programmatic Biological Opinion for Activities and Expansion of the Nevada Test and Training Range. U.S. Fish and Wildlife Service, Southern Nevada Fish and Wildlife Office, Las Vegas, Nevada.

USFWS. (2020). Translocation of Mojave Desert Tortoises from Project Sites: Plan Development Guidance. U.S. Fish and Wildlife Service, Las Vegas, Nevada.

Appendix C
Mojave Desert Tortoise Survey Report

Garcia and Associates

Natural and Cultural Resources Consultants
3990 Old Town Avenue, Suite A-105
San Diego, California 92110
Phone: (619) 295-2110

To: Brandon Faustini

From: Chip Cochran and Katie Gray, Garcia and Associates

Date: May 11, 2020

RE: Protocol-level desert tortoise survey on Nevada Test and Training Range at Nellis Air Force Base (AFB)

Brandon,

This memo includes results from a protocol-level desert tortoise survey conducted by Garcia and Associates (GANDA) on May 4-8, 2020 at the Nevada Test and Training Range (NTTR), in the southeastern portion of the Nellis Air Force Range. See Figure 1 for the project and survey areas locations.

Introduction

Due to the presence of Mojave Desert Tortoise habitat within the proposed action boundaries, a presence/absence survey has been requested to assist in the subsequent analysis of possible adverse impacts arising from the proposed action. Linear Project survey methods detailed in United States Fish and Wildlife Service (USFWS) Mojave Desert Tortoise Survey Protocol were conducted along the two proposed access roads each approximately 10 miles long and their buffer located on NTTR and Bureau of Land Management (BLM) land (USFWS 2019).

Project Description

The 528-acre (with buffer) Project area includes construction of one of two proposed access roads; Stagecoach Road and Frontage Road. Stagecoach Road consists of 242 acres with buffer and is 9.95 miles long and exists on both NTTR and BLM land. Frontage Road consist of 286 acres and is approximately 11 miles long and exists mostly on BLM land, with a small piece occurring on NTTR withdrawn land.

Site Description

The project site is located in northwestern Clark County, Nevada just east of the Creech AFB and Indian Springs, and just northeast of Highway 95 (Figure 1). The survey area consisted of six 10-meter wide belt transects 100 meters apart with three transects for each proposed access road. One transect was located along the centerline of each proposed road and the other two transects located 100 meters apart on either side of the road transect.

The project site is situated in an area ranging from flat to gently sloping, consisting of gravely to sandy/loamy soils with moderately vegetated areas (Photo 1, Photo 2, Photo 3, Photo 4). The elevation ranges from approximately 923 to 983 meters above sea level.

The survey area vegetation type consisted of Mohave Desertscrub (Turner, 1994), dominated by creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*). Other plants observed included saltbush (*Atriplex* sp.), mormon-tea (*Ephedra* sp.), globe-mallow (*Sphaeralcea sp*.), buckwheat (*Eriogonum* sp.), desert trumpet (*Eriogonum inflatum*), Joshua tree (*Yucca brevifolia*), yucca (*Yucca* sp.), lilac sunbonnet (*Langloisia setosissima*), and prickly Russian thistle (*Salsola tragus*).

Animal species detected by either direct observation or their sign included; tiger whiptail (*Aspidoscelis tigris*), side-blotched lizard (*Uta stansburiana*), desert tortoise (*Gopherus agassizii*), common raven (*Corvus corax*), lesser nighthawk (*Chordeiles acutipennis*), kangaroo rat (*Dipodomys* sp.), black-tailed jackrabbit (*Lepus californicus*), and coyote (*Canis latrans*).

Methods

GANDA biologists Miranda Castillo and Chip Cochran conducted a protocol-level desert tortoise survey on May 4-8, 2020. The weather during the survey consisted of clear skies with temperature ranging from 17.2 to 37.9 degrees Celsius with winds ranging from 1 to 10 miles per hour.

Six, 10-meter belt transects spanning the length of the project area were walked by the surveyors to search for special-status species and their sign (e.g., burrows, scat, carcasses, courtship rings, drinking depressions), in accordance with the USFWS linear project survey field method protocol (USFWS 2019). Particular emphasis was placed on searching around the bases of shrubs and along uneven ground. Three belt transects were established on both proposed access roads; with one surveyor surveying each transect line. Transect lines on each road were spaced 100 meters apart. One transect was located along the centerline of the road and the other two transects were located 100 meters part on either side of the road transect. Surveyors walked a straight path on the centerline of each transect, investigating potential burrows within the 10-m corridor. Burrows found while surveying were examined to determine if a desert tortoise was present at or near the entrance. A hand-held mirror or light was used to examine the burrow.

Ms. Castillo and Mr. Cochran noted wildlife species and signs of wildlife, as well as common and characteristic plants present in the survey area. The survey focused on searching for burrows that could be used by desert tortoise. Burrows were described using the Classes defined in the USFWS Desert Tortoise Field Manual (USFWS 2009):

Condition Class:

1. currently active, with desert tortoise or recent desert tortoise sign
2. good condition, definitely desert tortoise; no evidence of recent use
3. deteriorated condition which includes collapsed burrows; definitely desert tortoise
4. good condition; possibly desert tortoise
5. deteriorated condition which includes collapsed burrows; possibly desert tortoise

Results

Three desert tortoises were observed (Table 1; Photos 5, 6, and 7; Figure 2; Appendix 1) along the western half of the Frontage Road. Two of the tortoises were along the northern transect and one was found along

the center transect. Only one tortoise had an MCL ≥ 180 mm (Photo 5). One tortoise carcass was also detected along the north transect of the proposed Stagecoach Road (Photo 8; Figure 2).

134 tortoise burrows (Photos 9, 10, and 11; Figure 2; Appendix 1) were detected along the project survey transect area. 76 tortoise burrows were detected along the three transects of the proposed Stagecoach Road and 58 tortoise burrows were detected along the three transects along the proposed Frontage Road (Table 2). Of the 76 burrows detected on Stagecoach road, approximately 49 (64%) were considered to be Class 1-2 (definitely desert tortoise and in good condition), 11 (15%) were considered to be Class 3 (definitely desert tortoise and in deteriorated condition), and 16 (21%) were considered to be Class 4-5 (potentially desert tortoise). Of the 58 burrows detected on Frontage road, approximately 36 (62%) were considered to be Class 1-2, 8 (14%) were considered to be Class 3, and 14 (24%) were considered to be Class 4-5. (Table 3).

* * * * * * *

Please call me at (520) 904-2181 if you have questions or comments.

Regards,

Chip Cochran
Wildlife Biologist.

Photo 1. Mohave Desertscrub dominated by creosote bush (*Larrea tridentata*) along the western portion of the proposed Frontage Road.

Photo 2. Mohave Desertscrub dominated by creosote bush (*Larrea tridentata*) with Joshua trees (*Yucca brevifolia*) along the eastern portion of the proposed Frontage Road.

Photo 3. Mohave Desertscrub dominated by creosote bush (*Larrea tridentata*) along the western portion of the proposed Stagecoach Road.

Photo 4. Mohave Desertscrub dominated by creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*) along the eastern portion of the proposed Stagecoach Road.

Photo 5. Adult male Desert Tortoise (*Gopherus agassizii*) with an MCL ≥ 180 mm found along the north transect of the Frontage Road.

Photo 6. Juvenile Desert Tortoise (*Gopherus agassizii*) with an MCL ≤ 180 mm found along the north transect of Frontage Road.

Photo 7. Female Desert Tortoise (*Gopherus agassizii*) with an MCL ≤ 180 mm found along the center transect of the Frontage Road.

Photo 8. Desert tortoise (*Gopherus agassizii*) carcass discovered along the north transect of the Stagecoach Road.

Photo 9. Class 2 desert tortoise (*Gopherus agassizii*) burrow.

Photo 10. Class 3 desert tortoise (*Gopherus agassizii*) burrow.

Photo 11. Class 1 desert tortoise (*Gopherus agassizii*) burrow.

Photo 12. Unknown bird nest discovered along the north transect of the Frontage Road.

References

Turner, R.M. (1994). Mohave Desertscrub. In D.E Brown (Eds.) *Biotic Communities of the Southwestern United States and Northwestern Mexico* (pp. 157-168). Salt Lake City, Utah: University of Utah Press.

United States Fish and Wildlife Service. (December 2009). Desert Tortoise (Mojave Population) Field Manual (*Gopherus agassizii*).

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Tables and Figures

Table 1. Live Desert Tortoise (*Gopherus agassizii*) detected during surveys.

Detection Number	GPS location Easting Latitude	Northing Longitude	Time	Tortoise location	Approx MCL ≥180 mm?	Existing tag # and color, if present
1	36.55229468	-115.58161657	0853	Out of burrow	Yes	N/A
2	36.55195763	-115.58113127	0905	Out of burrow	No	N/A
3	36.54624556	-115.57609857	0934	Out of burrow	No	N/A

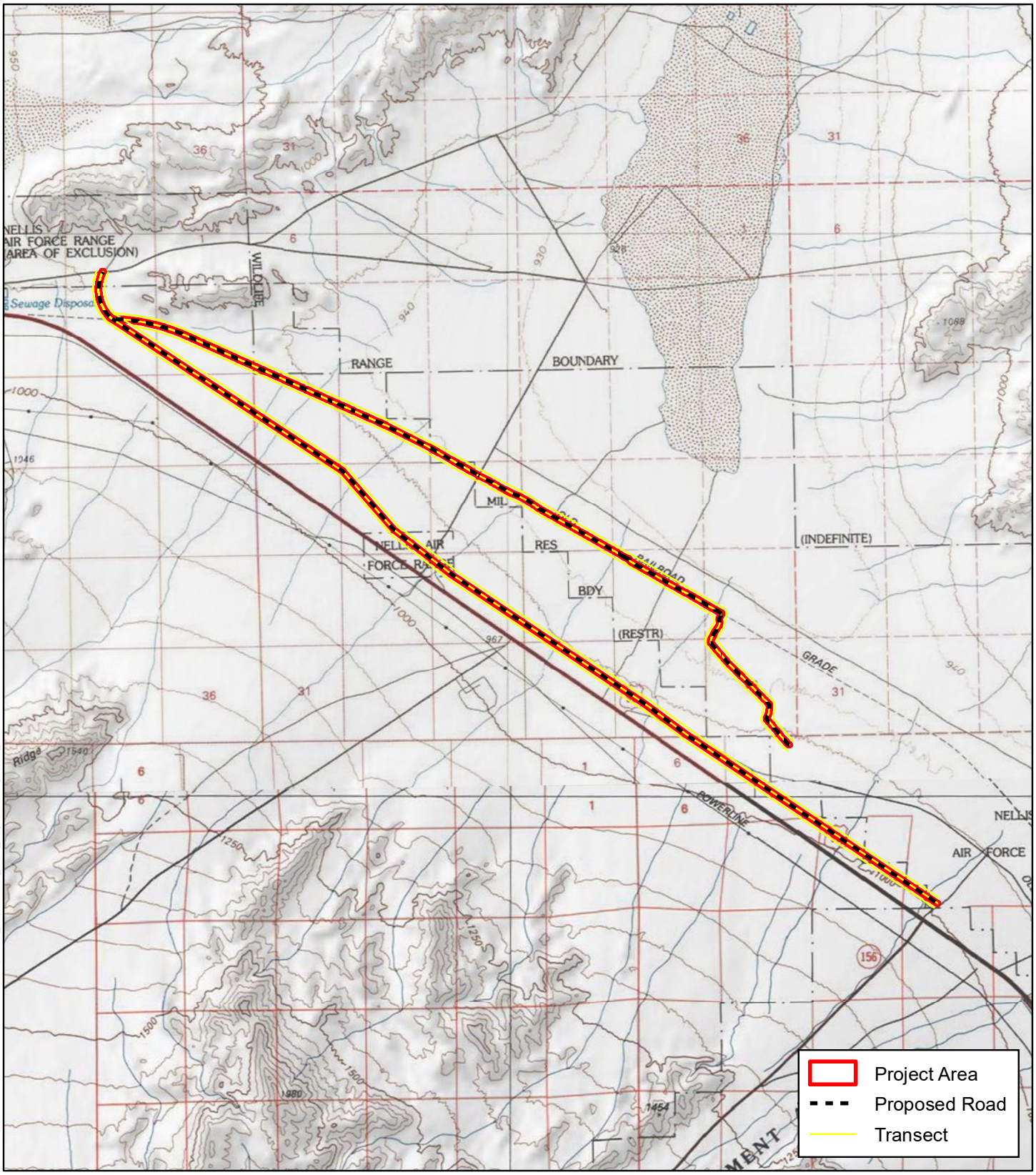
Table 2. Number of Desert Tortoise (*Gopherus agassizii*) burrows by transect.

Transect	Frontage Road	Stagecoach Road
North	22	20
Center	19	36
South	17	20
Total	**58**	**76**

Table 3. Class description** of burrows found along each proposed road.

Class of Burrow	Frontage Road	Stagecoach Road
1-2	36	49
3	8	11
4-5	14	16

****Condition Class:**
1. currently active, with desert tortoise or recent desert tortoise sign
2. good condition, definitely desert tortoise; no evidence of recent use
3. deteriorated condition which includes collapsed burrows; definitely desert tortoise
4. good condition; possibly desert tortoise
5. deteriorated condition which includes collapsed burrows; possibly desert tortoise



USGS 7.5' Quad: Black Hills SW (1991);
Charleston Peak NE (1984); Corn Creek Springs NW (1991);
Indian Springs (1991); Indian Springs SE (1991)
Legal Description: T16S, R56E, SEC 02, 11-13;
T16S, R57E, SEC 05-07, 12, 13, 16-23, 25-29, 34-36;
T17S, R58E, SEC 05, 06, 08-10, 35, 36

0 4,000 8,000 Feet

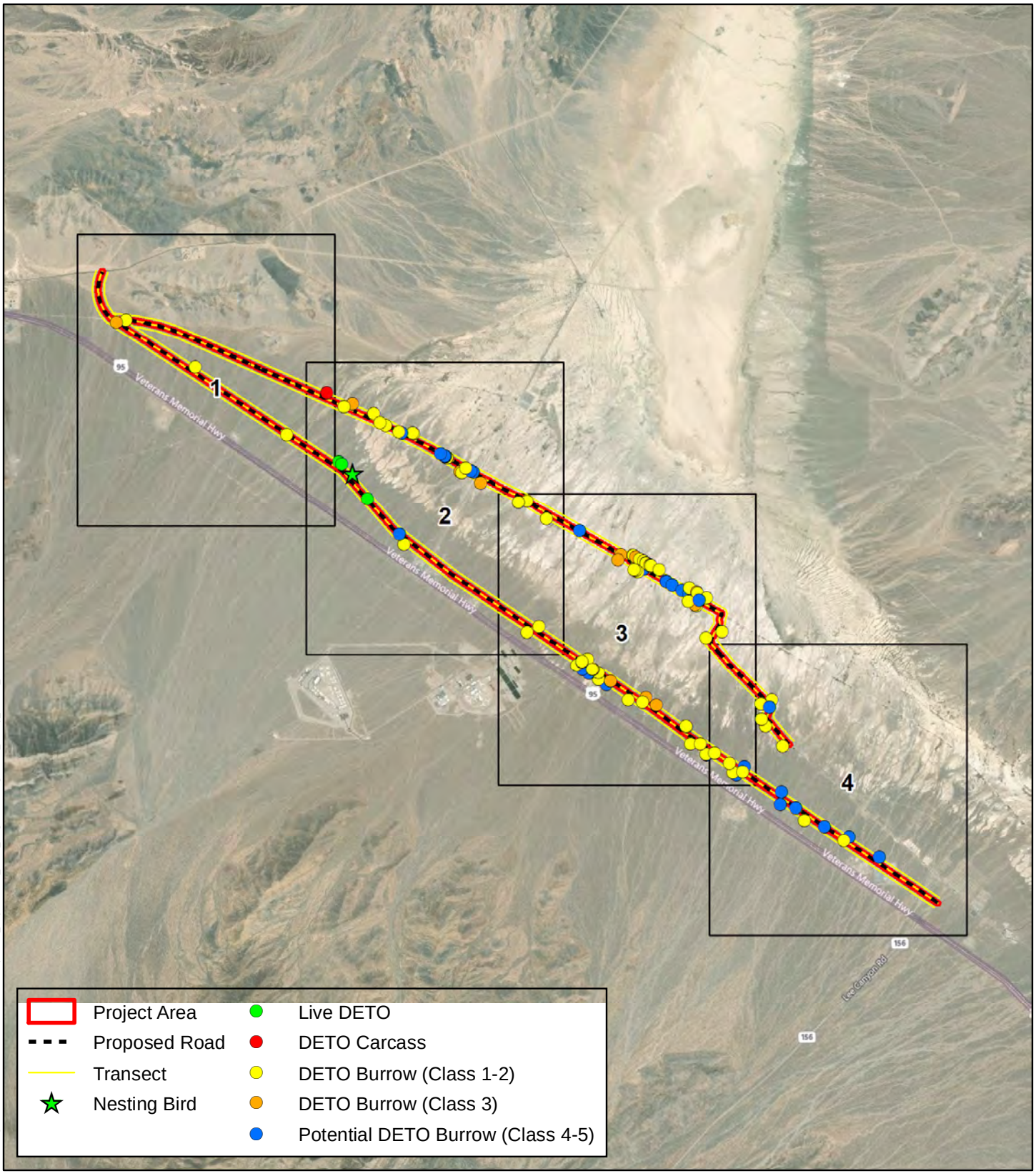
0 1 2 Miles

Figure 1. Project Location
NTTR Stagecoach Desert Tortoise Surveys
at Nellis AFB
Clark County, Nevada

N

Scale 1:96,000
1 Inch = 8,000 Feet

GANDA



Source: Bing Hybrid Imagery

0 4,000 8,000 Feet

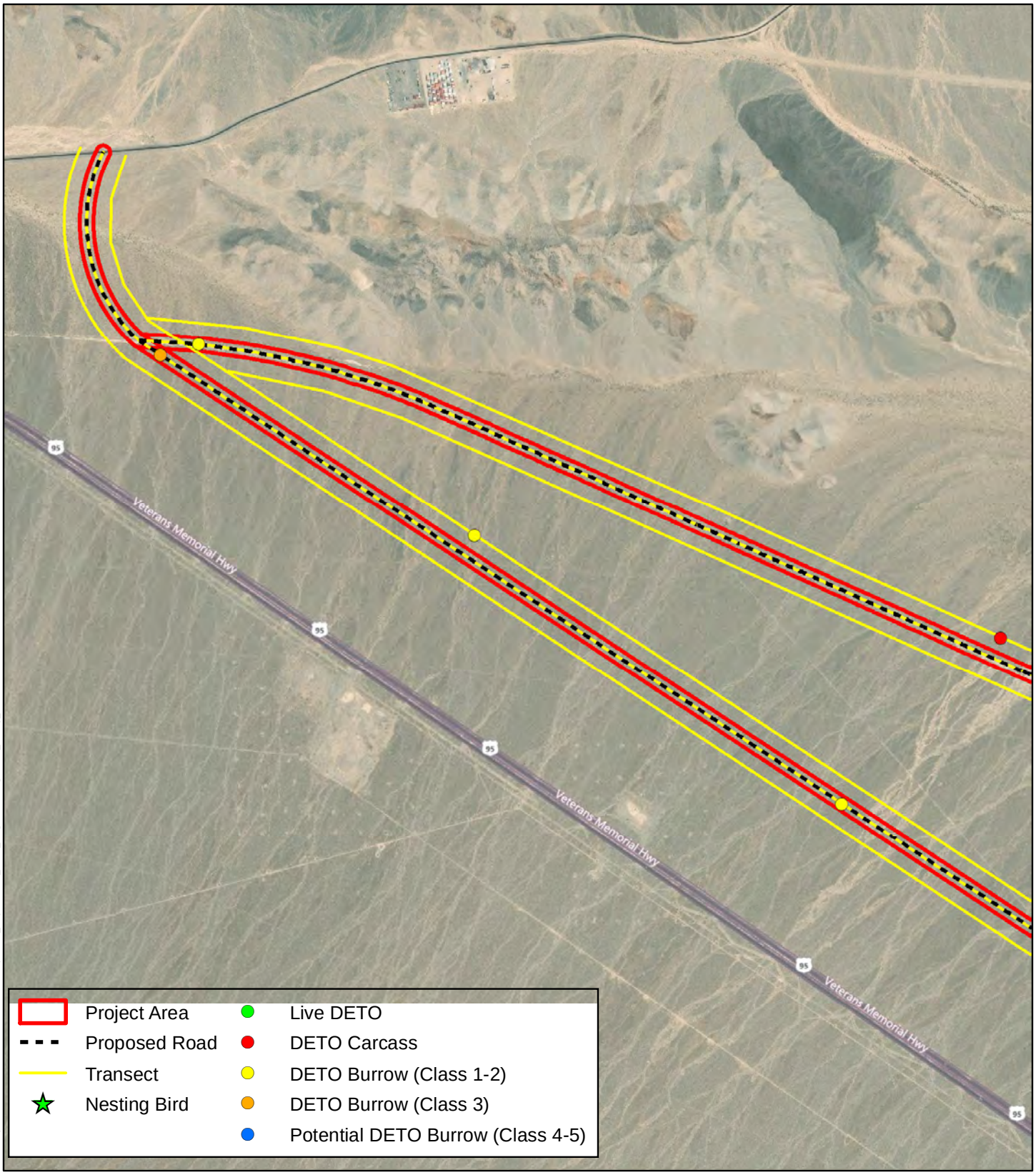
0 1 2 Miles

N

Scale 1:96,000
1 Inch = 8,000 Feet

Figure 2. Survey Results Overview
NTTR Stagecoach Desert Tortoise Surveys
at Nellis AFB
Clark County, Nevada

GANDA



Source: Bing Hybrid Imagery

0 1,000 2,000 Feet

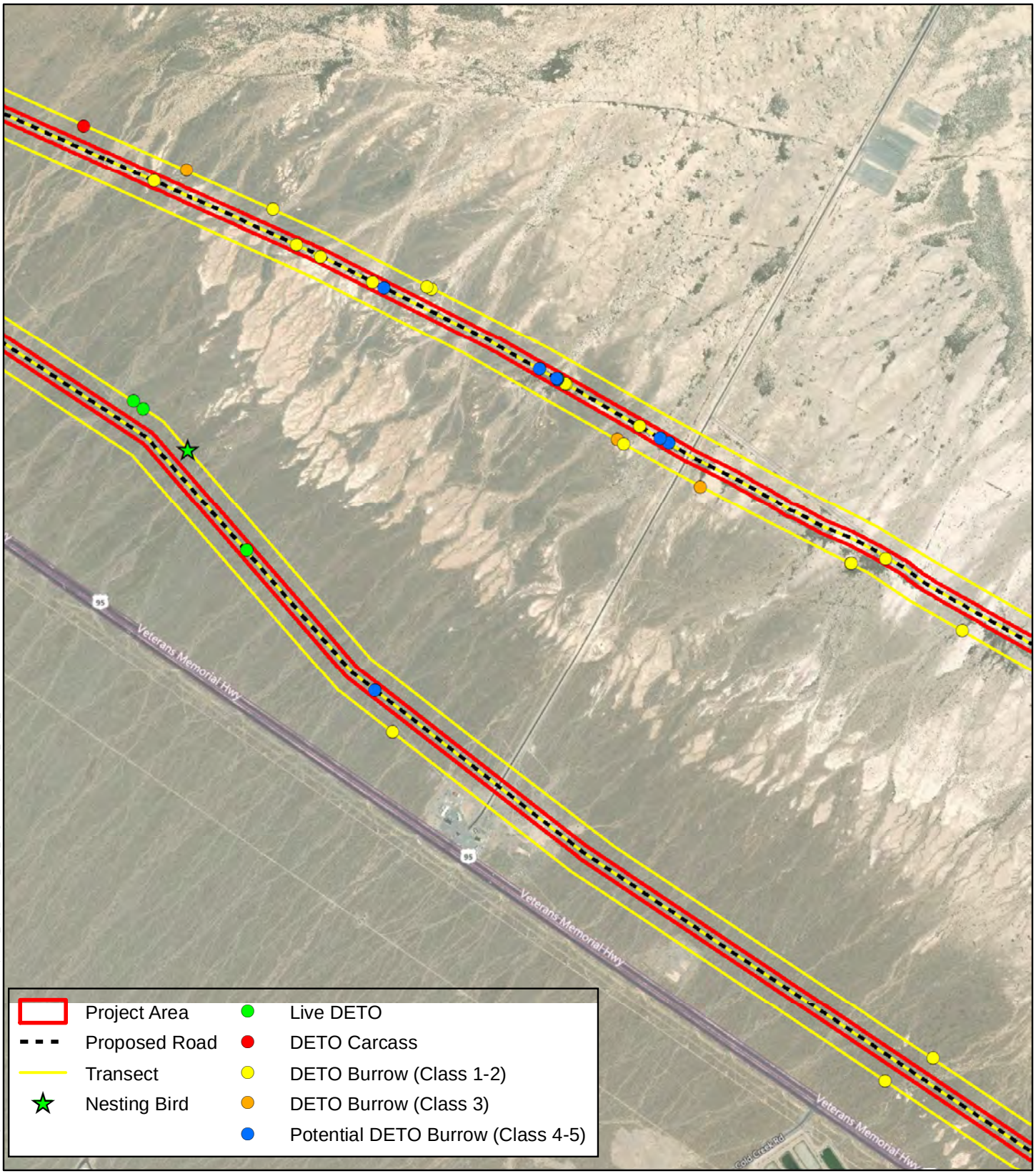
0 300 600 Meters

N

Scale 1:24,000
1 Inch = 2,000 Feet

Figure 2. Survey Results
NTTR Stagecoach Desert Tortoise Surveys
at Nellis AFB
Clark County, Nevada

GANDA



Source: Bing Hybrid Imagery

0 1,000 2,000 Feet

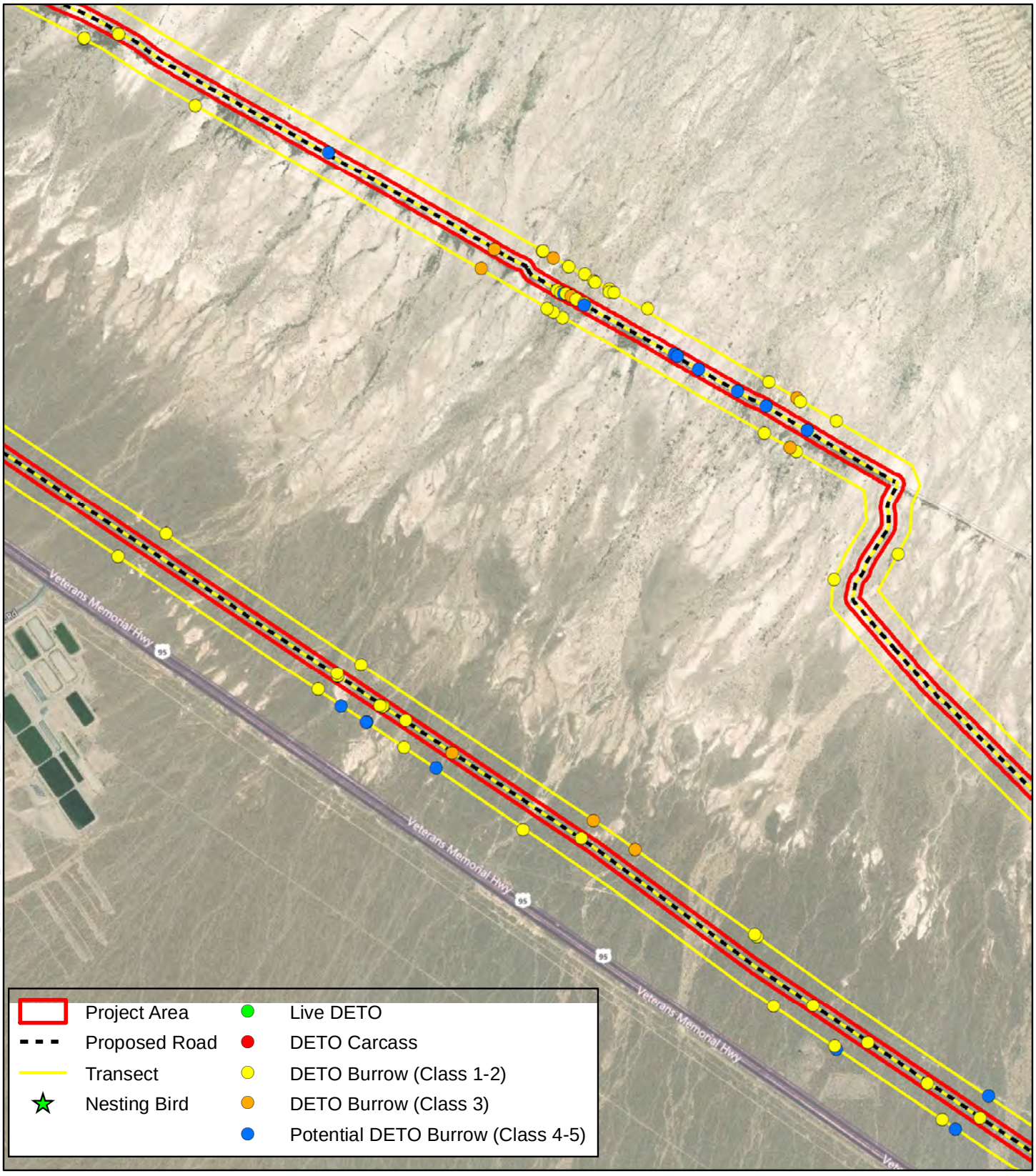
0 300 600 Meters

N

Scale 1:24,000
1 Inch = 2,000 Feet

Figure 2. Survey Results
NTTR Stagecoach Desert Tortoise Surveys
at Nellis AFB
Clark County, Nevada

GANDA



Source: Bing Hybrid Imagery

0 1,000 2,000 Feet

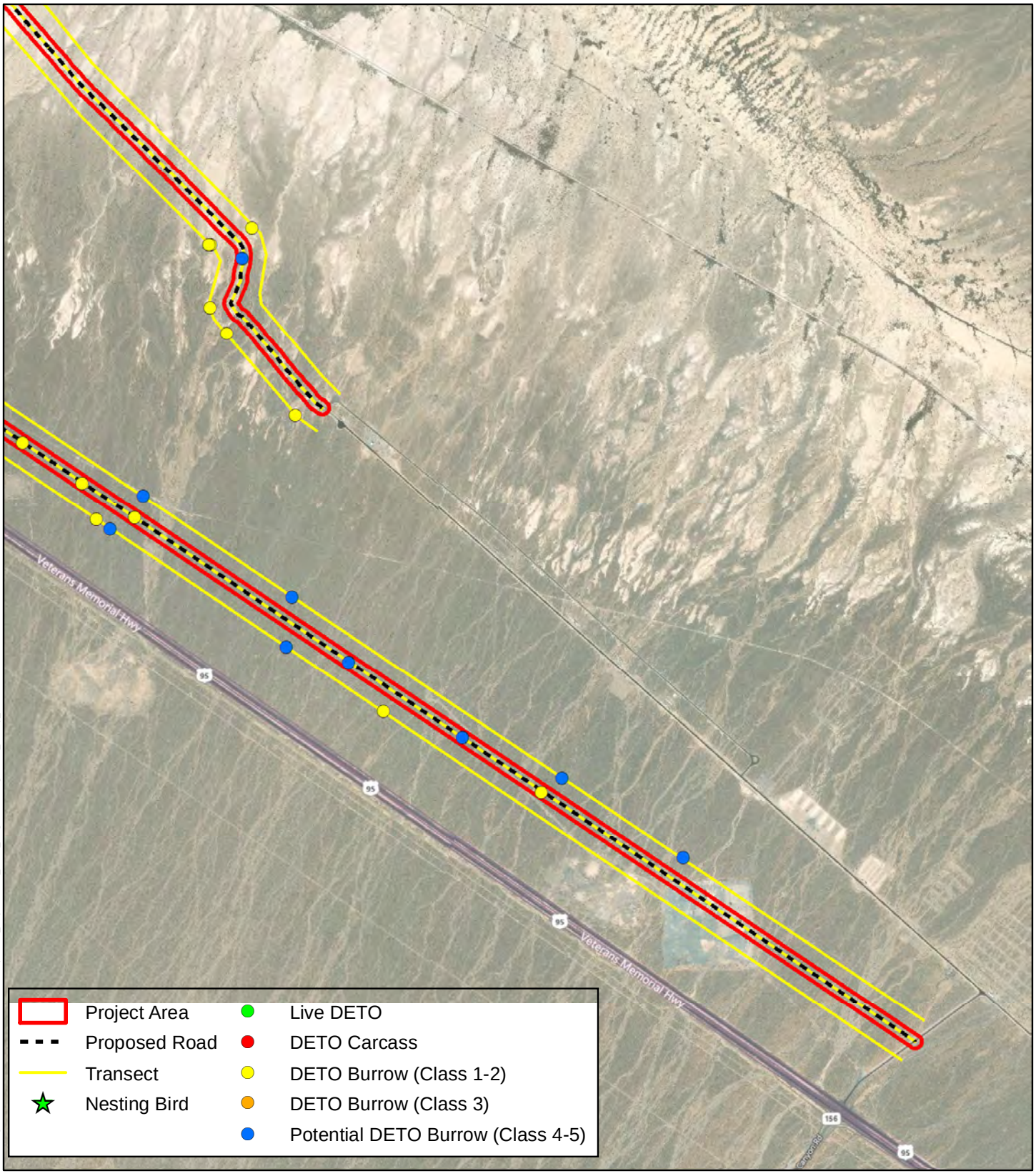
0 300 600 Meters

N

Scale 1:24,000
1 Inch = 2,000 Feet

Figure 2. Survey Results
NTTR Stagecoach Desert Tortoise Surveys
at Nellis AFB
Clark County, Nevada

GANDA



Source: Bing Hybrid Imagery

0 1,000 2,000 Feet

0 300 600 Meters

N

Scale 1:24,000
1 Inch = 2,000 Feet

Figure 2. Survey Results
NTTR Stagecoach Desert Tortoise Surveys
at Nellis AFB
Clark County, Nevada

GANDA

Date of survey: 4/5/2010 (day, month, year) Survey biologist(s): Chip Cochran, Skip C83846@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: NAFB . Stagecoach rd center transect (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 629423 / 4045891 937m (easting, northing, elevation in meters) Start time: 0815 am/pm

GPS End-point: 633312 / 4043701 923 m (easting, northing, elevation in meters) End time: 1:25 am/pm

Start Temp: 23.4 °C End Temp: 36.4 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
9	632285	4044284	burrow	Class 2, ≈ 20 cm deep Photo 26, facing W
10	632316	4044260	burrow	Class 2, ≈ 40 cm deep Photo #27 facing E
11	632349	4044250	Burrow	Class 2, ≈ 45 cm deep Photo #30 facing E
12	632347	4044242	Burrow	Class 4, Can only see 15 cm in Photo #31, facing S
13	632751	4044020	Burrow	Class 4, 20 x 20 cm, depth unk Photo 34 facing W
14	632763	4044013	Burrow	Class 4, 20 wide x 15 high 40 cm deep Photo 35 facing W
15	632859	4043957	Burrow	Class 4, 20 wide, 15 high, 15 deep til turn Photo 36 facing N
16	633028	4043855	Burrow	Class 4, 13 cm wide, 15 cm high, depth unk Photo 37, facing S

Date of survey: 4/5/2020 (day, month, year) Survey biologist(s): Chip Cochran, skycg9384@hotmail.com, 520-404-2181 (name, email, and phone number)

Site description: NAFB Stagecoach rd center transect, Mohave Desert scrub (project name and size; general location) 6313 Ambrosia → creosote Atriplex gravely soil

County: Clark Quad: Location: (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: Transect #: Transect length:

GPS Start-point: 115 629423/4045891 937 m (easting, northing, elevation in meters) Start time: 0815 am/pm

GPS End-point: 633312/4043701 923 m (easting, northing, elevation in meters) End time: 1:25 am/pm

Start Temp: 23.4 °C End Temp: 36.4 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	630283	4045443	burrow	Class 2 Photo 11
2	631215	4044918	burrow	Class 5, In edge of road berm Photo 12, caved in after 10 cm
3	631901	4044509	burrow	Class 5, In edge of road berm Photo 13, caved in after first 15 cm
4	631948	4044482	burrow	Class 3, In edge of road berm Photo 14, caved in after first 20 cm
5	632228	4044305	burrow	Class 2, In where old rail was laid Photo 17, can see burrow end at approx 30 cm
6	632244	4044297	burrow	Class 2, edge of old rail line Photo 20 facing S, can see 45 cm deep
7	632257	4044290	burrow	Class 5, Maybe 15 cm deep Photo 22 facing SE
8	632265	4044296	burrow	Class 2, Approx 25 cm deep Photo 25 facing E

or not in Wrong Photo #

Wrong photo #

17 Burrows total

Date of survey: 5/4/20 (day, month, year) Survey biologist(s): Miranda Castillo, mico526@icloud.com, 801-441-9328 (name, email, and phone number)

Site description: Creosote, Atriplex, Ephedra, Sphaeralcea, Eriogonium inflatum, gravelly soil. (project name and size; general location)

County: _____ Quad: _____ Location: Nellis AFB, Stagecoach, North transect (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 11562948E 4045985N (easting, northing, elevation in meters) Start time: _____am/pm

GPS End-point: 11506333350 (easting, northing, elevation in meters) End time: _____am/pm

Start Temp: _____°C End Temp: _____°C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.53656990	-115.52356835	Burrow	Photo 15, S/E, Burrow is collapsed in back. 11W x 7H x ~15D (in). Class 3.
2	36.53657479	-115.52354944	Burrow	Photo 16, S, 7W x 4.5H x ~20 D. Burrow is cobwebbed. Class 2.
3	36.53627823	-115.52303895	Burrow	Photo 17, S/E, 8W x 4.75H x 9D. Collapsed in back. Class 3.
4	36.53594081	-115.52227131	Burrow	Photo 19, W, 8W x 7H x ~15D. Burrow is Cobwebbed. Class 2.
5	36.53562139	-115.52151083	Burrow	Photo 21, N, 5.5W, 4.75H, 13D. Class 2.
6	36.53534068	-115.52065125	Burrow	Photo 23, S/W, 8W x 5H x 17D. Partially Cobwebbed. Class 2.
7	36.53529131	-115.52048688	Burrow	Photo 24, E, 9.5W x 6H x 24D. Burrow is Cobwebbed. Class 2.
8	36.53502140	-116.52027432	Burrow	Photo 28, N, 4W x 5.6H x 24D. Class 2.

13 Burrows

Date of survey: 4/15/2020 (day, month, year) Survey biologist(s): Chip Cochran, SKipC8384@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: NAFB Stagecoach rd center transect (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 629423/4045891 937m (easting, northing, elevation in meters) Start time: 0815 am/pm

GPS End-point: 633312/4043701 923 m (easting, northing, elevation in meters) End time: 1425 am/pm

Photo 42 face Northing

Start Temp: _____ °C End Temp: 36.4 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
17	633150	4043788	Burrow	Class 4, mouth is 20cm wide x 13cm high Photo 39 facing SW, depth unknown
18				
19				
20				
21				
22				
23				
24				

Date of survey: 5/5/2020 (day, month, year) Survey biologist(s): Chip Cochran SkipC43847@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: NAFB Stage coach road center transect Mohave Desert Scrub 6SB (project name and size; general location)

County: Clark Quad: Location: Ambrosia, creosote, Atriplex, globe-mallow (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: Transect #: Transect length:

GPS Start-point: 634934 / 4041114 951 m (easting, northing, elevation in meters) Start time: 0700 (am)/pm

GPS End-point: 633312 / 4043701 923 m (easting, northing, elevation in meters) End time: 0900 (am)/pm

Start Temp: 18.7 °C End Temp: 26.2 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	634582	4041778	burrow	Class 4, 10 cm wide x 8 cm high Photo 49 depth unknown
2	633341	4043663	burrow	Class 5 15 cm wide x 5 cm tall Photo 50 depth unknown
3				
4				
5				
6				
7				
8				

Start photo #45

2 Burrows total

Date of survey: 5-5-20 (day, month, year) Survey biologist(s): Miranda Castillo (name, email, and phone number)

Site description: Creosote, Atriplex, Ephedra, Sphaeralcea, Eriogonum inflatum, gravelly soil (project name and size; general location)

County: _____ Quad: _____ Location: Nellis AFB, Stagecoach, South Transect (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 36.504966675, -115.49343085 (easting, northing, elevation in meters) Start time: 9:33 (am)/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: 2:11 am/(pm)

Start Temp: 21 °C End Temp: 30 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.5655A873	-115.49450405	Burrow	Photo 2 facing S. 9W x 10H x 33D. Potential tortoise tracks @ entrance. Class 1.
2	36.5686995	-115.49783311	Burrow	Photo 3, west, 8W x 7H x 8D. Class 2.
3	36.5695083	-115.49864022	Burrow	Photo 4, N/W, 6W x 5H x 4D - Class 2
4	36.5712467 50	-115.49856385	Burrow	Photo 5, S/W, 6W x 6H x 15D. Burrow is cobwebbed near back. Class 2.
5	36.5712456 20	-115.49863960	Burrow	Photo 6, N/E, 8W x 9H. Unable to see to back. Class 2
6	36.5723806	-115.50437532	Burrow	Photo 7, N/E, 10W x 7H x 15D. Burrow is cobwebbed. Class 2. There is a class 3 burrow next to burrow (Photo 8)
7	36.5728373 42	-115.5111774	Burrow	Photo 9, N/W, 6W x 10H x 25D. Burrow is cobwebbed. Class 2
8	36.5728566 34	-115.5114987	Burrow	Photo 10, east, 6W x 4H x 10D. Burrow is collapsed at back. Class 3

14 Burrows

Date of survey: 5-5-20 (day, month, year) Survey biologist(s): _____ (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: _____ Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: _____ (easting, northing, elevation in meters) Start time: _____am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: _____am/pm

Start Temp: _____°C End Temp: _____°C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.52911822	-115.51272058	Burrow	Photo 11, West, 12W x 12H. unable to see to back. Soil around burrow appears freshly dug. Class 1.
2	36.53388951	-115.52262912	Burrow	Photo 12, east, 15W x 12H. Unable to see to back. Burrow is cobwebbed. Class 2.
3	36.53414491	-115.52307561	Burrow	Photo 13, South, 6W x 7H x 13D. Class 2.
4	36.53427347	-115.52338338	Burrow	Photo 14, west, 10W x 16H x 22D. Class 2.
5	36.53591203	-115.52662011	Burrow	Photo 15, North, 6W x 4H x 12D. Burrow is cobwebbed & collapsed at back. class 3
6	36.54261136	-115.54067844	Burrow	Photo 16, S/W, 13W x 18H x 30D. Class 2
7				
8				

Date of survey: 5-5-20 (day, month, year) Survey biologist(s): Miranda Castillo (name, email, and phone number)

Site description: Creosote, Atriplex, Ephedra, Sphaeralcea, Eriogonum inflatum; gravelly soil (project name and size; general location)

County: _____ Quad: _____ Location: Nellis AFB, Stagecoach North transect (UTM coordinates, lat-long, and/or TRS, map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 635008 4041178 (easting, northing, elevation in meters) Start time: 7:17 am/pm

GPS End-point: 11506 33350 (easting, northing, elevation in meters) End time: 9:02 am/pm

Start Temp: 18.7 °C End Temp: _____ °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.51309828	-115.49649879	Burrow	Photo 48, S, 16W X 8H X 12D. Partially cobwebbed. Class 2.
2	36.51292916	-115.50617810	Burrow	Photo 49, E, 10 W X 6 H X 15 D. Class 2.
3	36.51295462	-115.50911494	Burrow	Photo 51, S, 7W X 8 H X 20 D. Class 2.
4				
5				
6				
7				
8				

3 Burrows

Date of survey: _____ (day, month, year) Survey biologist(s): _____ (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: _____ Quad: _____ Location: Stagecoach, North Transect (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: _____ (easting, northing, elevation in meters) Start time: _____am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: _____am/pm

Start Temp: _____°C End Temp: _____°C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.53491141	-115.52028906	Burrow	Photo 29, S, 10.5 W x 8 H x 24 D. Burrow is cobwebbed & full of debris. Class 2.
2	36.53186889	-115.52005282	Burrow	Photo 32, S/E. Burrow is in great condition. 11 W x 9 H x 27 D. Class 2.
3	36.53119353	-115.51244970	Burrow	Photo 38, S/W, 8 W x 5 H x 20 D. Class 2.
4	36.53052043	-115.51107504	Burrow	Photo 40, N/W, 8 W x 5 H x 9 D. Burrow is cobwebbed & full of debris. Class 3.
5	36.53039542	-115.51090972	Burrow	Photo 41, S/W, 10 W x 11 H x 30 D. Class 2.
6				
7				
8				

Date of survey: 5/5/20 (day, month, year) Survey biologist(s): Chip Cochran, SKipC8344@hotmail.com, 520-404-2181 (name, email, and phone number)

Site description: Nellis AFB, Frontage Rd N transect, Mohave Desert scrub, creosote, Atriplex, Joshua Tree, Yucca, Ambrosia (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

gravelly/sandy soil

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 637607 / 4038393 983m (easting, northing, elevation in meters) Start time: 945 am/pm

GPS End-point: 628613 / 4044523 959m (easting, northing, elevation in meters) End time: 2:38 am/pm

Start Temp: 28 °C End Temp: 36.4 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	636536	4039139	burrow	Class 4, 15cm wide, 12 cm high Photo 53
2	636002	4039470	burrow x 2	Class 5 Photo 54 both deteriorated 15cm x 10cm
3	634406	4040274	burrow	Class 4, 15cm x 15cm, unknown depth Photo 55
4	634146	4040720	burrow	Class 4, 13cm x 13cm, 25 cm deep Photo 56, facing S
5	633114	4041438	burrow	Class 2, 30cm x 15cm, A few feet deep Photo 57
6	633106	4041435	burrow x 6	Class 2 various sizes some 30 a few feet deep Photo 58 Photo facing S
7	632571	4041619	burrow	Class 3, 15cm x 8cm, at least 30cm deep Photo 59 facing S
8	632386	4041451	burrow x 5	Class 3, various sizes Photo 60 facing N

21 Burrows

Date of survey: 5/5/2020 (day, month, year) Survey biologist(s): Chip Cochran skipC8384@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: Nellis AFB, Frontage Rd N transect (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 637607/4038393 983 m (easting, northing, elevation in meters) Start time: 945 am/pm

GPS End-point: 628613/4044523 959 m (easting, northing, elevation in meters) End time: 2:38 am/pm

Start Temp: 28 °C End Temp: 36.4 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
9	631350	4042642	Burrow x2	Class 2 15 cm x 12 cm, depth ? 2 burrows, Photo #1 facing W
10	630496	4043224	Burrow	Class 2, 20 cm x 15 cm x 3 ft deep Photo 62 facing S
11				
12				
13				
14				
15				
16				

Photo #63 end

Date of survey: 5-6-20 (day, month, year) Survey biologist(s): Miranda Castillo (name, email, and phone number)

Site description: Creosote, Yucca, Joshua trees, Salsola tragus, Ephedra, Ambrosia dumosa, Eriogonum inflatum (project name and size; general location)

County: _____ Quad: _____ Location: Nellis AFB. Frontage. Center transect (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 36.48011289, -115.46433097 (easting, northing, elevation in meters) Start time: 6:43 am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: 1:35 am/pm

Start Temp: 19 °C End Temp: 31 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.49033861	-115.48259545	Burrow	Photo 19, S/W, 4W x 6H, unable to see to back. Burrow appears fresh w/ loose soil. Class 1
2	36.49258439	-115.48646645	Burrow	Photo 20, S/W, 7H x 7W x 15D. Burrow is steep & full of debris. Class 5.
3	36.49567048	-115.49206137	Burrow	Photo 21, North, 10W x 8H x 17D. Round in shape. Fresh digging. Class 5.
4	36.50159122	-115.50253775	Burrow	Photo 22, S/E. 8W x 6H x 21D. Class 2.
5	36.50306467	-115.50513670	Burrow	Photo 25, West. 7W x 4H. unable to see to back. Class 2.
6	36.50466694	-115.50804265	Burrow	Photo 26, North, 10W x 8H x 26D. Class 2.
7	36.50619183	-115.51075441	Burrow	Photo 27, S/E, 15W x 10H. unable to see to back. loose soil inside. Potentially fresh tracks. Class 1.
8	36.51303443	-115.52208840	Burrow	Photo 28, S/E, 4W x 9H Unable to see to back. Class 2.

16 Burrows

Date of survey: 5-6-20 (day, month, year) Survey biologist(s): _____ (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: _____ Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: _____ (easting, northing, elevation in meters) Start time: _____am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: _____am/pm

Start Temp: _____°C End Temp: _____°C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.51653116	-115.52885464	Burrow	Photo 29, South, 8W x 7H x 13D. Burrow is Partially filled & Cobwebbed. class 3.
2	36.51780591	-115.53512136	Burrow	Photo 30, N/E, 14W x 18H. unable to see to back. class 2.
3	36.51843342	-115.53181924	Burrow	Photo 31, N/W, 12W x 10H. unable to see to back. fully Cobwebbed. class 2.
4	36.51843301	-115.53387635	Burrow	Photo 32,33, N/E. 3H S/W, 3 burrows. Unable to see to back. Class 2.
5	36.51897243	-115.53198782	Burrow	Photo 35, west, 15 W x 10 H. unable to see to back. Class 2.
6	36.51916657	-115.53404544	Burrow	Photo 36, 37, N/E, 12 W x 10H. Unable to see to back. Class 2.
7	36.51969081	-115.53464366	Burrow	Photo 38, east, 22W x 12H. Unable to see to back. Class 2.
8	36.51986332	-115.53486850	Burrow	Photo 39, east, 13 W x 11H. Unable to see to back. Class 2.

Date of survey: 6/5/2020 (day, month, year) Survey biologist(s): Chip Cochran, skip c8384@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: Nellis AFB Frontage rd south transect, Mojave Desertscrub, Creosote, Atriplex gravelly to Sandy soil (project name and size; general location) Ambrosia

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 637510 / 4038216 983 m (easting, northing, elevation in meters) Start time: 648 am/pm

GPS End-point: 628512 / 4044347 959m (easting, northing, elevation in meters) End time: 1:35 am/pm

Start Temp: 17.2 °C End Temp: 37.9 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	635521l	4039767	Burrow / class 2	Photo #65 facing east burrow facing west 15cm wide/10cm high/30cm deep
2	634778	4040051	Burrow / class 5	Photo #66 facing west burrow facing east, 10cm wide/5cm high/5cm deep
3	633994	4040578	Burrow / class 5	Photo #67 facing east burrow facing west 10cm wide/5cm high/5cm deep
4	633941	4040616	Burrow / class 2	Photo #68 facing east burrow facing west, 10cm wide/10cm high/20cm deep
5	633468	4040929	Burrow / class 2	Photo #70 facing east burrow facing west 5cm wide/5cm high/10cm d
6	633461	4040945	Burrow / class 2	Photo #71 facing south burrow facing N, 25cm w/12cm h/30cm d
7	633188	4041125	Burrow / class 2	Photo #72 facing east burrow facing west, 15cm w/8cm h/15cm d
8	632078	4041906	Burrow / class 2	Photo #73 facing south burrow facing N, 15cm w/8cm h/15cm d

16 Burrows

Date of survey: 6/5/2020 (day, month, year) Survey biologist(s): Chip Cochran, SkipC8384@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: Nellis AFB Frontage Rd South transect (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 637510 / 4038216 983m (easting, northing, elevation in meters) Start time: 6:48 (am)/pm

GPS End-point: 628512 / 4044347 (easting, northing, elevation in meters) End time: 1:35 am/(pm)

Start Temp: 17.2 °C End Temp: 37.9 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
9	631692	4042180	Burrow / class 4	Photo 74 facing N burrow facing S, 15cm w / 25cm h / 90+cm deep
10	631546	4042272	Burrow / class 2	Photo 75 facing W burrow facing E, 15cm w / 8cm h / 40cm d
11	631383	4042383	Burrow / class 5	Photo 76 facing S burrow facing N 15cm w / 4cm h / caved in
12	631378	4042386	Burrow / class 4	Photo 77 facing W burrow facing E, 15cm w / 15cm h / 25cm d
13	631368	4042457	2 Burrows both class 5	Photo 78 facing W one burrow faces W other E 15cm w / 3cm h / caved in
14	631165	4042533	Burrow / class 2	Photo 79 facing W burrow facing E 15cm w / 8cm h / 30cm d
15	-115.54484473	36.52459837	Burrow / class 2	Photo 80 facing SE Burrow facing N, 15cm w / 10cm h / 15cm d
16				

Date of survey: 7/5/2020 (day, month, year) Survey biologist(s): Chip Cochran, skip6838t@hotmail.com, 520-404-2181 (name, email, and phone number)

Site description: ~~Nellis~~ Nellis AFB Stagecoach rd center transect, Mohave Desert Scrub sandy soil creosote Atriplex Ambrosia (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 629411 / 4045891 942 m (easting, northing, elevation in meters) Start time: 0650 am/pm

GPS End-point: 622738 4049518 953 m (easting, northing, elevation in meters) End time: 1041 am/pm

Start Temp: 19.5 °C End Temp: 29.8 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	629318	4045961	Burrow / class 4	Photo 83, facing south 25 cm x 25 cm x 40 cm
2	629282	4045987	Burrow / class 4	Photo 84, facing south 20 cm x 20 cm x unknown depth it turns
3	629187	4046035	Burrow / class 2	Photo 85, facing north 15 cm x 10 cm x 40 cm
4	628867	4046216	2x Burrow / 2x class 2	Photo 86, facing SE 30 cm x 20 cm x 120 cm, 15 cm x 10 cm x 15 cm
5	628858	4046224	Burrow / class 2	Photo 87 facing west 25 cm x 20 cm x 120 cm
6	628823	4046245	Burrow / class 2	Photo 88 facing west 15 cm x 10 cm x 45 cm
7	628826	4046243	Burrow / class 5	Photo 89 facing N 15 cm x 8 cm x 5 cm
8	628825	4046247	Burrow / class 4	Photo 90 facing N 15 cm x 10 cm x 15 cm

17 Burrows

Date of survey: 7/5/2020 (day, month, year) Survey biologist(s): Chip Cochran (name, email, and phone number)

Site description: Nellis AFB Frontage rd. south transect, Mohave Desertscrub, Ambrosia, Atriplex Creosote, gravelly soil (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 622633 / 4049538 950m (easting, northing, elevation in meters) Start time: 1055 (am)/pm

GPS End-point: 628512 / 4044347 959 (easting, northing, elevation in meters) End time: 130 am/(pm)

Start Temp: 29.8 °C End Temp: 33.6 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	628093	4044674	Burrow (B) - class 2	Photo 102 facing south 20cm x 15cm ø 100+ cm
2				
3				
4				
5				
6				
7				
8				

1 Burrow

Date of survey: 7/5/2020 (day, month, year) Survey biologist(s): Chip Cochran, skipc8384@hotmail.com (name, email, and phone number)

Site description: Nellis AFB Stagecoach rd center transect (project name and size; general location)

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 624411 / 4045891 (easting, northing, elevation in meters) Start time: 0650 am/pm

GPS End-point: 622738 / 4049578 453 m (easting, northing, elevation in meters) End time: 1041 am/pm

Start Temp: 19.5 °C End Temp: 29.8 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
9	628822	4046242	Burrow / class 5	Photo 91 face east 15cm x 8cm x 10cm
10	628744	4046284	Burrow / class 4	Photo 92 face east 15cm x 8cm x 15cm
11	628055	4046649	Burrow / class 5	Photo 93 face west 20cm x 20cm x 30 cm
12	628004	4046671	Burrow / class 2	Photo 94 facing west 15cm x 15 cm x 30 cm
13	627772	4046784	Burrow / class 2	Photo 95 facing south 25 cm x 20 cm x 25 cm
14	627666	4046844	Burrow / class 2	Photo 96 facing south 30cm x 25 cm x 90 cm
15	627035	4047126	Burrow / class 2	Photo 97 facing N 12 cm x 12 cm x 20 cm
16	623162	4048663	Burrow / class 2	Photo 98 facing E 30 cm x 15 cm x 75 cm

Date of survey: 5-7-20 (day, month, year) Survey biologist(s): Miranda Castillo (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: _____ Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 36.5744338 2, -115.622003 60 (easting, northing, elevation in meters) Start time: 11:15 am/pm

GPS End-point: _____ (easting, northing, elevation in meters) End time: 1:56 am/pm

Start Temp: 24 °C End Temp: 26 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.55046777	-115.5576 4134	Burrow	Photo S0, S/W, 9WX6HX20D. mostly filled & cobwebbed - Class 3.
2	36.55629403	-115.55737228	Burrow	Photo S2, NE, 7WX5HX14D Class 2.
3	36.54855161	-115.55355814	Burrow	Photo S2 facing S/W. 8WX6HX12D Mostly filled in. Class 3.
4	36.54536301	-115.54616549	Burrow	Photo S3, east, 10WX6HX12D. Class 2
5	36.54536536	-115.54613245	Burrow	Photo S4/ east, 8WX6H. unable to see to back. 4 class 3 burrows entirely filled.
6				
7				
8				

Date of survey: 5-7-20 (day, month, year) Survey biologist(s): Miranda Castillo (name, email, and phone number)

Site description: Creosote, Ambrosia dumosa, Graiya spinosa (project name and size; general location)

County: _____ Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 36.55056463, -115.55344749 (easting, northing, elevation in meters) Start time: 12:20 am/pm

GPS End-point: 36.58318078, -115.62694258 (easting, northing, elevation in meters) End time: 10:42 am/pm

Start Temp: 12 °C End Temp: 24 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1	~~36.56332458~~	~~-115.58387187~~	~~8:27am~~			
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.55660149	-115.56674236	Burrow	Photo 40, N/W, 12W X HH. unable to see to back of burrow. Burrow is cobwebbed
2	36.55670168	-115.56698702	Burrow	Photo 42, S/W, 12W X 10H. unable to see to back. loose & fresh tracks. Burrow appears active,
3	36.55988912	-115.54755945	Burrow	Photo 43 facing north. 9W x 6H. unable to see to back.
4	36.56450186	-115.57880352	Burrow	Photo 45 facing north. 6W x 7H x 22D. Burrow is partially filled in.
5	~~36.56332458~~	~~-115.58387187~~	~~Burrow~~	~~Photo 46, 47, north. Photo 48, north.~~
6	36.56332458	-115.58387187	Carcass	Photo 46, 47 North, Photo 48, North. Carcass is in fragments. 7L X 7W.
7				
8				

Date of survey: 8/5/20 (day, month, year) Survey biologist(s): Chip Cochran, skipc8784@hotmail.com, 520-904-2181 (name, email, and phone number)

Site description: Nellis AFB Frontage Rd center transect, Mojave Desert Scrub, (project name and size; general location) Ambrosia Atriplex Creosote Gravelly + Sandy Soil

County: Clark Quad: _____ Location: _____ (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 622890/4048684 961 m (easting, northing, elevation in meters) Start time: 718 (am)/pm

GPS End-point: 628564/4044435 964 m (easting, northing, elevation in meters) End time: 1010 (am)/pm

Start Temp: 20.5 °C End Temp: 27.2 °C

Live Tortoises

Detection number	GPS location Easting	Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1	627446	4045474	0934	not in burrow	75 mm	none
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	622990	4048617	Burrow/class 3	Photo 104 face W 10 x 8 x 15+ cm
2	626015	4046620	Burrow/class 2	Photo 105 facing S 25 cm x 15 cm x 45+ cm, can't see end
3	~~627446~~	~~4045474~~	Burrow/class 4	Photo 111 facing east 5 cm x 5 cm x 10+ cm burrow turns ↓
4	626017	4044858	↓	↓
5				
6				
7				
8				

Photo #103 start facing South
Photo #112 end NW

3 Burrow

Date of survey: 5-8-20 (day, month, year) Survey biologist(s): Miranda Castillo (name, email, and phone number)

Site description: _____ (project name and size; general location)

County: _____ Quad: _____ Location: Nellis AFB Frontage (UTM coordinates, lat-long, and/or TRS; map datum)

Circle one: 100% coverage or Sampling Area size to be surveyed: _____ Transect #: ____ Transect length: _____

GPS Start-point: 36.5766705S, -115.62602228 (easting, northing, elevation in meters) Start time: 7:19 am/pm

GPS End-point: 36.53747662, -115.56325794 (easting, northing, elevation in meters) End time: 10:09 am/pm

Start Temp: 19 °C End Temp: 24 °C

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL ≥180 mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1	36.55229468	-115.56161657	8:53	out of burrow	yes	N/A
2	36.55195763	-115.56113127	9:05	out of Burrow	NO	N/A
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows, scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1	36.56772205	-115.60991602	Burrow	Photo 55, N/E, 20wx10tl. Unable to see to back. Class 2
2				
3				
4				
5				
6				
7				
8				

Appendix D
Air Quality

Appendix D consists of two main sections:

1. A figure of the alternatives compared to the hydrographic basin 212 Region for NAA designation for Ozone 2015 standard and maintenance area for CO.
2. The ACAM "Air Conformity Applicability Model Report Record of Conformity Analysis (ROCA)" which is a summary of the ACAM model and a signed ROCA for both Alternative 1 and Alternative 2.

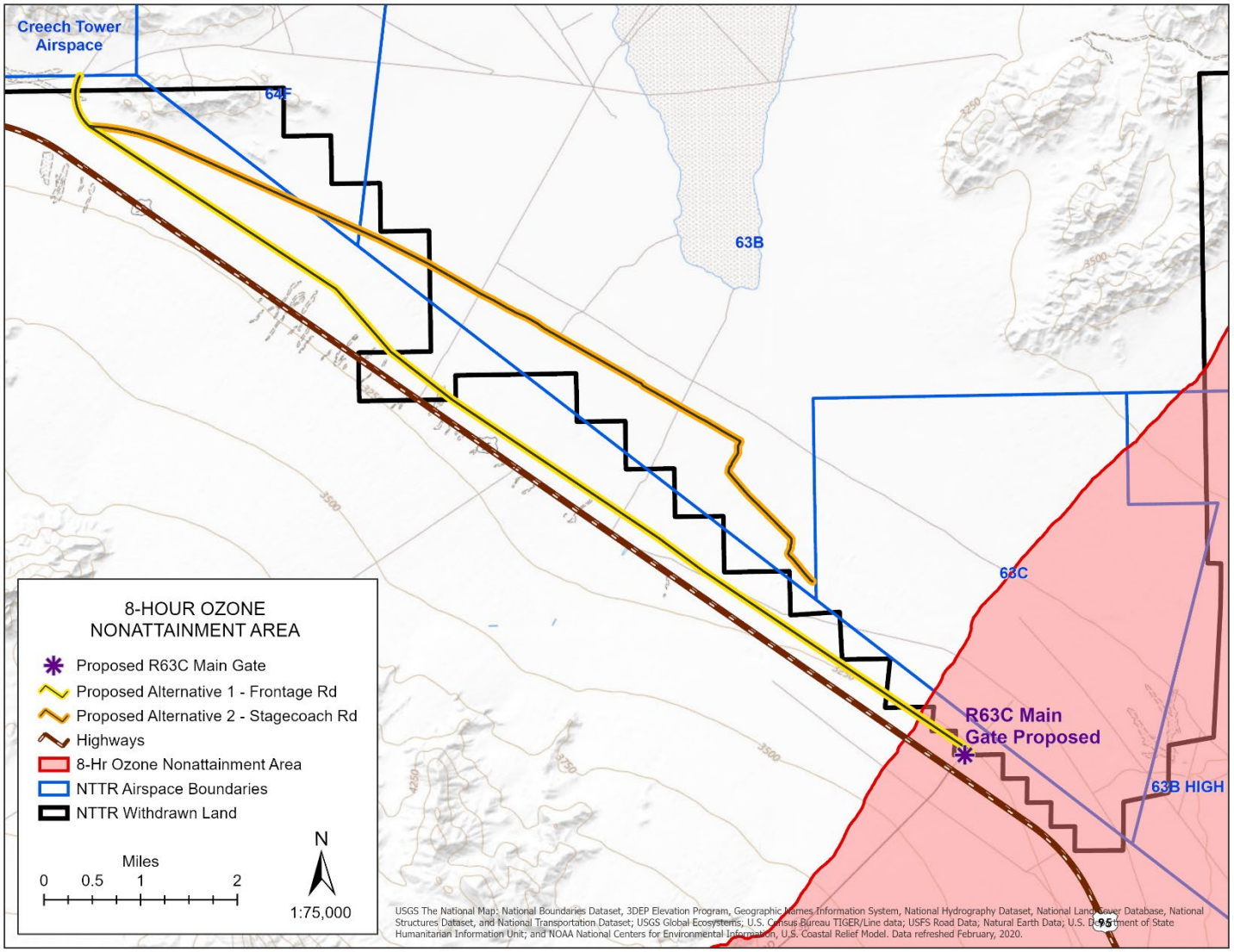


Figure D-1 Proposed Alternatives Versus Designated Las Vegas Air Basin (Nonattainment Area for Ozone 2015 Standard)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location
Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): Las Vegas, NV; Clark Co, NV

- Action Title: Nevada Test and Training Range (NTTR) Expansion of Stagecoach Road in Range 63

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2022

- Action Purpose and Need:
Purpose and need is provided in the accompanying Environmental Assessment, Chapter 1 - 2.

- Action Description:
Alternative 1: Expand the existing Stagecoach Road.
Alternative 2: Build a new road from Box Canyon to Range 63.
Alternative 3: No Action Alternative.

- Point of Contact
Name: Julie Werner
Title: P.E.
Organization: Scout Environmental, INC.
Email: julie.werner@scoutenv.com
Phone Number: 425-785-9533

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Road Construction for Expanding Stagecoach Road on Old Railroad Grade (Outside of NAA)
3.	Construction / Demolition	Construct Road and Gate in Las Vegas Air Basin

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: Clark
Regulatory Area(s): Clark Co, NV

- Activity Title: Road Construction for Expanding Stagecoach Road on Old Railroad Grade (Outside of NAA)

- Activity Description:
See the activity description in the accompanying EA, Section 2.3.2 and 2.3.4. Key activities affecting air quality are: extending and widening existing one-lane dirt road, regrading existing former railroad grade, and paving the entire road.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Assume one year construction with a start date of January 2022 and completion by December 2022.

Area to be graded assumptions:
- Entire existing one lane road will be graded.
- Final driving width is 32 feet, but grading width is 44 feet.
- Estimate additional 6 feet on either side to be graded for ditches and culverts.
- Total grading/regrading to be completed is 9.95 miles by 44 feet wide (approximately 10,000,000 square feet to be graded outside of the NAA Las Vegas Air Basin.)
- Material for road base to be brought from internal resources. Approximately 18 inch thick base for 9.95 miles at approximately 44 feet wide is approximately 110,000 cubic yards of material.
- Pavement will be 32 feet wide for 11 miles (outside of the NAA Las Vegas Air Basin)
- rock crushing for subgrade will be completed on NTTR, but the rock crusher emissions are already captured as an existing feature that is permitted as part of Creech AFB Title V permit.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 10
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.709519
SO_x	0.010232
NO_x	4.316984
CO	3.634447
PM 10	82.357270

Pollutant	Total Emissions (TONs)
PM 2.5	0.185056
Pb	0.000000
NH_3	0.005286
CO_2e	1049.0

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 3
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 2300000
Amount of Material to be Hauled On-Site (yd^3): 110000
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes

Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Crushing/Proc. Equipment Composite	1	4
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	2	8
Scrapers Composite	4	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Crushing/Proc. Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0819	0.0014	0.4910	0.6208	0.0233	0.0233	0.0073	132.49
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Trenching/Excavating Phase

2.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1360000
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Crushing/Proc. Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0819	0.0014	0.4910	0.6208	0.0233	0.0233	0.0073	132.49
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

2.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment

WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Paving Phase

2.3.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 6
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 5
Number of Days: 0

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2.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1900000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Crushing/Proc. Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0819	0.0014	0.4910	0.6208	0.0233	0.0233	0.0073	132.49
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

2.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Clark
Regulatory Area(s): Clark Co, NV; Las Vegas, NV; Las Vegas, NV

- Activity Title: Construct Road and Gate in Las Vegas Air Basin

- Activity Description:
Common to both alternatives. Captures construction of gate as descibed in the EA, Section 2.3.

Assumption for this phase of the project include:

- construction starts in January of 2022.

- approximately 2 miles of road to be graded to a width of 44 feet for 640,000 square feet of grading.

- Because the size of the road/paved surface area is 13% of the full road in the Clark County Air Basin zone, the material to be brought on site is approximately 13% of the other phase, totalling approximately 15,000 cubic feet.

- Paving is approximately 2 miles times 32 feet plus approximately 100 ft by 200 ft parking and gate access for approximately 530,000 square feet of paving.

- Trenching is for utilities for the gate.

- Gate install assumed to be done with minimal equipment - gate would be mostly prefabricated.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 5

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End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.154198
SO_x	0.002253
NO_x	0.869618
CO	0.843232
PM 10	6.453665

Pollutant	Total Emissions (TONs)
PM 2.5	0.036907
Pb	0.000000
NH_3	0.000937
CO_2e	226.2

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 640000
Amount of Material to be Hauled On-Site (yd^3): 15000
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Scrapers Composite	2	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.2 Trenching/Excavating Phase

3.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 2
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

3.2.2 Trenching / Excavating Phase Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- General Trenching/Excavating Information

Area of Site to be Trenched/Excavated (ft^2): 5000
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

3.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.3 Paving Phase

3.3.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

3.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 530000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	8
Paving Equipment Composite	2	6
Rollers Composite	2	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.3.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

3.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)

HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / $acre)^2$ / acre)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)
ALTERNATIVE 1

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance and Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): Las Vegas, NV; Clark Co, NV

b. Action Title: Nevada Test and Training Range (NTTR) Expansion of Stagecoach Road in Range 63

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2022

e. Action Description:

Alternative 1: Expand the existing Stagecoach Road.
Alternative 2: Build a new road from Box Canyon to Range 63.
Alternative 3: No Action Alternative.

f. Point of Contact:

Name: Julie Werner
Title: P.E.
Organization: Scout Environmental, INC.
Email: julie.werner@scoutenv.com
Phone Number: 425-785-9533

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Las Vegas, NV			
VOC	0.154	100	No
NOx	0.870	100	No
CO	0.843		
SOx	0.002		
PM 10	6.454		
PM 2.5	0.037		
Pb	0.000		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)
ALTERNATIVE 1

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
NH3	0.001		
CO2e	226.2		
Clark Co, NV			
VOC	0.864		
NOx	5.187		
CO	4.478		
SOx	0.012		
PM 10	88.811	100	No
PM 2.5	0.222		
Pb	0.000		
NH3	0.006		
CO2e	1275.2		
Las Vegas, NV			
VOC	0.154		
NOx	0.870		
CO	0.843	100	No
SOx	0.002		
PM 10	6.454		
PM 2.5	0.037		
Pb	0.000		
NH3	0.001		
CO2e	226.2		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Las Vegas, NV			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		
Clark Co, NV			
VOC	0.000		
NOx	0.000		
CO	0.000		
SOx	0.000		
PM 10	0.000	100	No
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		
Las Vegas, NV			
VOC	0.000		
NOx	0.000		
CO	0.000	100	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)
ALTERNATIVE 1

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of the estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b). Therefore, the requirements of the General Conformity Rule are not applicable.

Julie Werner, P.E.

February 22, 2021
DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location
Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): Clark Co, NV; Las Vegas, NV

- Action Title: Nevada Test and Training Range (NTTR) Expansion of Stagecoach Road in Range 63

- Project Number/s (if applicable):

- Projected Action Start Date: 1 / 2022

- Action Purpose and Need:
Purpose and need is provided in the accompanying Environmental Assessment, Chapter 1 - 2.

- Action Description:
Alternative 1: Expand the existing Stagecoach Road.
Alternative 2: Build a new road from Box Canyon to Range 63.
Alternative 3: No Action Alternative.

- Point of Contact
Name: Julie Werner
Title: P.E.
Organization: Scout Environmental, INC.
Email: julie.werner@scoutenv.com
Phone Number: 425-785-9533

- Activity List:

Activity Type		Activity Title
2.	Construction / Demolition	Road Construction for Frontage Road Parallel to US95 (Outside of NAA)
3.	Construction / Demolition	Construct Road and Gate in Las Vegas Air Basin

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location
County: Clark
Regulatory Area(s): Clark Co, NV

- Activity Title: Road Construction for Frontage Road Parallel to US95 (Outside of NAA)

- Activity Description:
See the activity description in the accompanying EA, Section 2.3.2 and 2.3.4. Key activities affecting air quality are: grading and paving the entire road.

Assume one year construction with a start date of January 2022 and completion by December 2022.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Area assumptions:
- Final driving width is 32 feet, but grading width is 44 feet.
- Estimate additional 6 feet on either side to be graded for ditches and culverts.
- Total grading/regrading to be completed is 11 miles by 44 feet wide (approximately 2,500,000 square feet to be graded outside of the NAA Las Vegas Air Basin.)
- Material for road base to be brought from internal resources. Approximately 18 inch thick base for 10 miles at approximately 44 feet wide is approximately 115,000 cubic yards of material.
- Pavement will be 32 feet wide for 11 miles (outside of the NAA Las Vegas Air Basin)
- rock crushing for subgrade will be completed on NTTR, but the rock crusher emissions are already captured as an existing feature that is permitted as part of Creech AFB Title V permit.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 10
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.697466
SO_x	0.010104
NO_x	4.275804
CO	3.554841
PM 10	88.323791

Pollutant	Total Emissions (TONs)
PM 2.5	0.182738
Pb	0.000000
NH_3	0.005370
CO_2e	1038.0

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 3
Number of Days: 0

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 2500000
Amount of Material to be Hauled On-Site (yd^3): 115000
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Equipment Name	Number Of Equipment	Hours Per Day
Graders Composite	2	8
Other Construction Equipment Composite	2	8
Rollers Composite	1	8
Rubber Tired Dozers Composite	2	8
Scrapers Composite	4	8
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

Average Hauling Truck Capacity (yd^3): 20 (default)

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139

MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.2 Trenching/Excavating Phase

2.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

2.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 1360000
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

2.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)

$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

2.3 Paving Phase

2.3.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 6
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 5
Number of Days: 0

2.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 1800000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

2.3.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rollers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0499	0.0007	0.3198	0.3798	0.0180	0.0180	0.0045	67.149
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

2.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase
$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)

PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location
County: Clark
Regulatory Area(s): Clark Co, NV; Las Vegas, NV; Las Vegas, NV

- Activity Title: Construct Road and Gate in Las Vegas Air Basin

- Activity Description:
Common to both alternatives. Captures construction of gate as descibed in the EA, Section 2.3.

Assumption for this phase of the project include:

- construction starts in January of 2022.

- approximately 2 miles of road to be graded to a width of 44 feet for 640,000 square feet of grading.

- Because the size of the road/paved surface area is 13% of the full road in the Clark County Air Basin zone, the material to be brought on site is approximately 13% of the other phase, totalling approximately 15,000 cubic feet.

- Paving is approximately 2 miles times 32 feet for approximately 530,000 square feet of paving.

- Trenching is for utilities for the and gate.

- Gate install assumed to be done with minimal equipment - gate would be mostly prefabricated.

- Activity Start Date
Start Month: 1
Start Month: 2022

- Activity End Date
Indefinite: False
End Month: 5
End Month: 2022

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.151104
SO_x	0.002199
NO_x	0.851988
CO	0.813693
PM 10	6.452939

Pollutant	Total Emissions (TONs)
PM 2.5	0.036182
Pb	0.000000
NH_3	0.000923
CO_2e	220.9

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 640000
Amount of Material to be Hauled On-Site (yd^3): 15000
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Scrapers Composite	2	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.2 Trenching/Excavating Phase

3.2.1 Trenching / Excavating Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

3.2.2 Trenching / Excavating Phase Assumptions

- General Trenching/Excavating Information
Area of Site to be Trenched/Excavated (ft^2): 5000
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Trenching Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	2	8
Other General Industrial Equipmen Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.2.3 Trenching / Excavating Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

3.2.4 Trenching / Excavating Phase Formula(s)

- Fugitive Dust Emissions per Phase
$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

3.3 Paving Phase

3.3.1 Paving Phase Timeline Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Phase Start Date
Start Month: 5
Start Quarter: 1
Start Year: 2022

- Phase Duration
Number of Month: 1
Number of Days: 0

3.3.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 530000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	4	6
Pavers Composite	1	8
Paving Equipment Composite	2	6
Rollers Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

3.3.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour) (default)

Excavators Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0648	0.0013	0.3170	0.5103	0.0136	0.0136	0.0058	119.72
Graders Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0806	0.0014	0.4657	0.5731	0.0217	0.0217	0.0072	132.92
Other Construction Equipment Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0507	0.0012	0.2785	0.3488	0.0105	0.0105	0.0045	122.61
Rubber Tired Dozers Composite								

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	CH_4	CO_2e
Emission Factors	0.1919	0.0024	1.3611	0.7352	0.0536	0.0536	0.0173	239.51
Scrapers Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.1723	0.0026	1.1176	0.7579	0.0447	0.0447	0.0155	262.87
Tractors/Loaders/Backhoes Composite								
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**CH_4**	**CO_2e**
Emission Factors	0.0383	0.0007	0.2301	0.3598	0.0095	0.0095	0.0034	66.884

- Vehicle Exhaust & Worker Trips Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3	CO_2e
LDGV	000.282	000.002	000.217	003.152	000.007	000.006		000.023	00333.001
LDGT	000.353	000.003	000.387	004.397	000.009	000.008		000.024	00429.124
HDGV	000.778	000.005	001.126	016.414	000.020	000.018		000.045	00792.406
LDDV	000.104	000.003	000.137	002.597	000.004	000.004		000.008	00323.890
LDDT	000.248	000.004	000.397	004.475	000.007	000.006		000.008	00459.539
HDDV	000.483	000.013	005.163	001.750	000.175	000.161		000.028	01528.139
MC	003.015	000.003	000.828	013.258	000.027	000.023		000.053	00395.795

3.3.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
EF_{POL}: Emission Factor for Pollutant (lb/hour)
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)
ALTERNATIVE 2

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to assess the potential air quality impact/s associated with the action in accordance with the Air Force Instruction 32-7040, Air Quality Compliance and Resource Management; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): Clark Co, NV; Las Vegas, NV

b. Action Title: Nevada Test and Training Range (NTTR) Expansion of Stagecoach Road in Range 63

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2022

e. Action Description:

Alternative 1: Expand the existing Stagecoach Road.
Alternative 2: Build a new road from Box Canyon to Range 63.
Alternative 3: No Action Alternative.

f. Point of Contact:

Name: Julie Werner
Title: P.E.
Organization: Scout Environmental, INC.
Email: julie.werner@scoutenv.com
Phone Number: 425-785-9533

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
__X__ not applicable

Conformity Analysis Summary:

2022

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Clark Co, NV			
VOC	0.849		
NOx	5.128		
CO	4.369		
SOx	0.012		
PM 10	94.777	100	No
PM 2.5	0.219		
Pb	0.000		

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)
ALTERNATIVE 2

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
NH3	0.006		
CO2e	1258.9		
Las Vegas, NV			
VOC	0.151	100	No
NOx	0.852	100	No
CO	0.814		
SOx	0.002		
PM 10	6.453		
PM 2.5	0.036		
Pb	0.000		
NH3	0.001		
CO2e	220.9		
Las Vegas, NV			
VOC	0.151		
NOx	0.852		
CO	0.814	100	No
SOx	0.002		
PM 10	6.453		
PM 2.5	0.036		
Pb	0.000		
NH3	0.001		
CO2e	220.9		

2023 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Clark Co, NV			
VOC	0.000		
NOx	0.000		
CO	0.000		
SOx	0.000		
PM 10	0.000	100	No
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		
Las Vegas, NV			
VOC	0.000	100	No
NOx	0.000	100	No
CO	0.000		
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		
Las Vegas, NV			
VOC	0.000		
NOx	0.000		
CO	0.000	100	No

AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)
ALTERNATIVE 2

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
SOx	0.000		
PM 10	0.000		
PM 2.5	0.000		
Pb	0.000		
NH3	0.000		
CO2e	0.0		

None of the estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b). Therefore, the requirements of the General Conformity Rule are not applicable.

Julie Werner, P.E.

February 22, 2021
DATE