

**DRAFT**

**ENVIRONMENTAL ASSESSMENT  
FOR THE  
CONSTRUCTION AND TRAINING USE OF  
SACRAMENTO MOUNTAIN VILLAGES,  
MCGREGOR RANGE, FORT BLISS, NEW MEXICO**

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**US Army Corps  
of Engineers®**



**Prepared for:**

**U.S. Army Forces Command (FORSCOM)  
Fort Bliss, Texas**

**Prepared by:**

**U.S. Army Corps of Engineers, Tulsa District  
Tulsa, Oklahoma**


**July 2012**



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**FOR THE**  
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**MCGREGOR RANGE, FORT BLISS, NEW MEXICO**


**PREPARED FOR:**

**Team Bliss, G3, FORSCOM, Fort Bliss**

  
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Commanding

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Date



1 **DRAFT FINDING OF NO SIGNIFICANT IMPACT**

2  
3 **1.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

4  
5 **Proposed Action:** Fort Bliss proposes to construct, operate, and maintain mountain village  
6 training facilities within Fort Bliss on northern McGregor Range. Two suitable locations for the  
7 construction and operation of mountain village training facilities on northern McGregor Range  
8 have been tentatively selected based on siting criteria. These criteria include favorable terrain  
9 that is similar to that found in the Afghanistan theater. Such terrain will provide tactical  
10 difficulty; allow for observation by the training units; provide natural obstacles, cover, and  
11 concealment; and provide avenues for both high-speed and dismounted approach. The siting  
12 criteria also require that the mountain village site(s) be located in an area that provides ease of  
13 construction; the ability to avoid or mitigate impacts on eligible cultural resources sites; and the  
14 ability to avoid or mitigate impacts on protected faunal or floral species and their habitat.

15  
16 The purpose of the Proposed Action is to provide realistic mountain village training facilities  
17 (adobe mountain villages) on northern McGregor Range. This would provide troop training  
18 capabilities that would mimic the current and future operating environment found in  
19 Afghanistan. The need for the Proposed Action is to ensure that troops are trained in a realistic  
20 manner and are acclimated to village scenarios before they are deployed. The troops need to be  
21 trained for tactical situations that deal with the local populace in a realistic setting; in  
22 approaching, attacking, and occupying a realistic village; and in encountering opposing forces  
23 within a realistic setting with live-fire exercise. According to United States (U.S.) doctrine (*FM*  
24 *3-0 Operations*), Soldiers are sometimes required to operate in an environment of persistent  
25 conflict where enemy forces attempt to blend into complex operational terrain and use mountain  
26 villages to disguise and conceal their activities. Soldiers need training in mountain villages that  
27 mimic, to the greatest extent possible, the dynamic real-world, social, and cultural conditions in  
28 which they will be placed, so they may learn how best to interact with the local populace.

29  
30 **Alternative 1 – No Action Alternative**

31 Under the No Action Alternative, the land use designation within the project areas would not be  
32 modified and neither of the proposed mountain villages would be constructed at Fort Bliss for  
33 Soldier training. Selection of this alternative would necessarily eliminate any potential  
34 environmental effects associated with construction and training use of the proposed villages.  
35 None of the training exercises, including on- and off-road vehicle maneuvering, live-fire military  
36 activities, and training scenarios, would occur. The immediate areas around the village sites  
37 would likewise be left undisturbed. However, this alternative would not satisfy the need for  
38 additional training infrastructure on Fort Bliss, which is critical in preparing Soldiers for service  
39 in present combat theaters.

40  
41 **Alternative 2 – Construction and Operation of Mountain Village in Training Area 12**  
42 **(Preferred Alternative)**

43 Under Alternative 2, a mountain village would be constructed in Training Area (TA)-12 of  
44 McGregor Range to facilitate training at the Company level and below. The land use designation  
45 would be modified within an approximately 1-kilometer off-road zone around the mountain  
46 village site to allow for realistic training use of the proposed mountain village and provide for

1 more intensive use than currently allowed. This is the Preferred Alternative for the Proposed  
2 Action. The proposed mountain village (tentatively named Dabra Kowt) layout would have  
3 features typical of an Afghanistan village, including approximately 30 buildings, some of which  
4 would be one story and some two stories. The buildings would be spaced into two clusters, with  
5 a main street between them that would be the “market area”. The buildings would also have  
6 courtyards that leave small “alleys” between buildings beyond the main street. The total area for  
7 the village would cover approximately 0.4 acre, with an additional acre of probable construction  
8 disturbance anticipated around the village. Light, medium, and heavy, wheeled military vehicles  
9 (including Strykers) would be allowed to operate off-road within the mountain village off-road  
10 zone in order to approach the mountain village from any direction. Tracked vehicles would be  
11 prohibited within the mountain village off-road zone. Approximately 868 acres within the  
12 mountain village off-road zone could be impacted during training exercises.

### 13 14 **Alternative 3 – Construction and Operation of Mountain Village in Training Area 13**

15 Under Alternative 3, a mountain village would be constructed in TA-13 of McGregor Range to  
16 facilitate training at the Company level and below. The land use designation would be modified  
17 within the approximately 1-kilometer off-road zone to allow for realistic training use of the  
18 proposed mountain village and provide for more intensive use than currently allowed. The  
19 proposed mountain village in TA-13 (tentatively named Saron) would have approximately 30  
20 total buildings, some of which would be multi-storied. The buildings would be spaced into two  
21 major clusters. The total area for the village would cover approximately 0.6 acre, with an  
22 additional acre of probable construction disturbance anticipated around the village.  
23 Approximately 780 acres within the 1-kilometer off-road zone around the proposed mountain  
24 village site could be impacted during training exercises.

### 25 26 **Alternative 4 – Construction and Operation of Mountain Villages in Training Areas 12 27 and 13**

28 Alternative 4 includes both Alternatives 2 and 3 such that two proposed mountain villages would  
29 be built in both TAs 12 and 13. The total impacted area due to construction would be  
30 approximately 1 acre for the two villages, with up to 2 acres of probable disturbance around the  
31 village sites and 4 acres for the access road in TA-12 for a total of 7 acres. Approximately 1,648  
32 acres total within the off-road zones around the village sites could be impacted during training  
33 exercises. This alternative would provide more flexibility in scheduling training for units at  
34 either site, and the potential for more complex training scenarios that may involve both villages  
35 simultaneously.

## 36 37 **2.0 SUMMARY OF ENVIRONMENTAL RESOURCES AND IMPACTS**

38  
39 Implementation of the Proposed Action with the incorporated design, construction, operation,  
40 and safety measures would have no significant impacts on land use, soils, biological resources,  
41 cultural resources, water resources, air quality, hazardous materials and waste, airspace,  
42 transportation and infrastructure, health and safety, and noise on Fort Bliss or the surrounding  
43 area. Mitigation measures and best management practices (BMP) would reduce or eliminate the  
44 potential short-term effects on the environment caused by construction and training activities.  
45 The cumulative impacts from the construction of training facilities and support infrastructure  
46 have been addressed in the *Fort Bliss, Texas and New Mexico Mission and Master Plan Final*

1 *Supplemental Programmatic Environmental Impact Statement* for which a Record of Decision  
2 (ROD) was signed 30 April 2007 and the *Fort Bliss Army Growth and Force Structure*  
3 *Realignment Final Environmental Impact Statement* for which a ROD was signed 8 June 2010.  
4 This Environmental Assessment (EA) is tiered to these documents. The Proposed Action will  
5 not materially change the analysis in these documents.  
6

7 **3.0 CONCLUSION**  
8

9 Based on the analysis of the Proposed Action and the design, construction, operation, and safety  
10 measures presented in the EA, I conclude that the impacts of the Proposed Action will not  
11 significantly affect the human or natural environment of Fort Bliss or the surrounding area. I  
12 further conclude that the Proposed Action will impose no direct or indirect effects that cannot be  
13 mitigated or that could contribute to cumulative effects requiring preparation of an  
14 Environmental Impact Statement, pursuant to the National Environmental Policy Act of 1969  
15 (Public Law 91-190). Therefore a Finding of No Significant Impact (FNSI) is warranted.  
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3 **EXECUTIVE SUMMARY**

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18 manner and are acclimated to village scenarios before they are deployed. The troops need to be  
19 trained for tactical situations that deal with the local populace in a realistic setting; in  
20 approaching, attacking, and occupying a realistic village; and in encountering opposing forces  
21 within a realistic setting with live-fire exercise. According to United States (U.S.) Army  
22 doctrine (*FM 3-0 Operations*), Soldiers are sometimes required to operate in an environment of  
23 persistent conflict where enemy forces attempt to blend into complex operational terrain and use  
24 mountain villages to disguise and conceal their activities. Soldiers need training in mountain  
25 villages that mimic, to the greatest extent possible, the dynamic real-world, social, and cultural  
26 conditions in which they will be placed so they may learn how best to interact with the local  
27 populace.

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32 Soldier training. Selection of this alternative would necessarily eliminate any potential  
33 environmental effects associated with construction and training use of the proposed villages.  
34 None of the training exercises, including on- and off-road vehicle maneuvering, live-fire military  
35 activities, and training scenarios, would occur. The immediate areas around the village sites  
36 would likewise be left undisturbed. However, this alternative would not satisfy the need for  
37 additional training infrastructure on Fort Bliss, which is critical in preparing Soldiers for service  
38 in present combat theaters.

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43 McGregor Range to facilitate training at the Company level and below. The land use designation  
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2 features typical of an Afghanistan village, including approximately 30 buildings, some of which  
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5 courtyards that leave small “alleys” between buildings beyond the main street. The total area for  
6 the village would cover approximately 0.4 acre, with an additional acre of probable construction  
7 disturbance anticipated around the village. Light, medium, and heavy, wheeled military vehicles  
8 (including Strykers) would be allowed to operate off-road within the mountain village off-road  
9 zone in order to approach the mountain village from any direction. Tracked vehicles would be  
10 prohibited within the mountain village off-road zone. Approximately 868 acres within the  
11 mountain village off-road zone could be impacted during training exercises.  
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### 13 **Alternative 3 – Construction and Operation of Mountain Village in Training Area 13**

14 Under Alternative 3, a mountain village would be constructed in TA-13 of McGregor Range to  
15 facilitate training at the Company level and below. The land use designation would be modified  
16 within the approximately 1-kilometer off-road zone to allow for realistic training use of the  
17 proposed mountain village and provide for more intensive use than currently allowed. The  
18 proposed mountain village in TA-13 (tentatively named Saron) would have approximately 30  
19 total buildings, some of which would be multi-storied. The buildings would be spaced into two  
20 major clusters. The total area for the village would cover approximately 0.6 acre, with an  
21 additional acre of probable construction disturbance anticipated around the village.  
22 Approximately 780 acres within the mountain village off-road zone around the proposed  
23 mountain village site could be impacted during training exercises.  
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### 25 **Alternative 4 – Construction and Operation of Mountain Villages in Training Areas 12 26 and 13**

27 Alternative 4 includes both Alternatives 2 and 3 such that two proposed mountain villages would  
28 be built in both TAs 12 and 13. The total impacted area due to construction would be  
29 approximately 1 acre for the two villages, with up to 2 acres of probable disturbance around the  
30 village sites and 4 acres for the access road in TA-12 for a total of 7 acres. Approximately 1,648  
31 acres total within the off-road zones around the village sites could be impacted during training  
32 exercises. This alternative would provide more flexibility in scheduling training for units, and  
33 the potential for more complex training scenarios that may involve both villages simultaneously.  
34

### 35 **Environmental Consequences**

36 The Proposed Action with specified design, construction, operation, and safety measures would  
37 have no long-term, negative impacts on the environment. Table ES-1 describes the potential  
38 effects of the Proposed Action. Mitigation measures and best management practices (BMP)  
39 would reduce or eliminate the potential short-term effects on the environment caused by  
40 construction and training activities. Cumulative impacts of recent U.S. Army initiatives for  
41 mandated expansion and construction activities at Fort Bliss are discussed in the *Fort Bliss,  
42 Texas and New Mexico Mission and Master Plan Final Supplemental Programmatic  
43 Environmental Impact Statement* for which a Record of Decision (ROD) was signed 30 April  
44 2007 and the *Fort Bliss Army Growth and Force Structure Realignment Final Environmental  
45 Impact Statement* for which a ROD was signed 8 June 2010. This Environmental Assessment  
46 (EA) is tiered to those documents.

**Table ES-1. Potential Effects of the Proposed Action**

<b>Resource</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Preferred Alternative)</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
<b>Land Use and Aesthetics</b>	No additional impacts on land use or aesthetics would occur.	The existing land use designation for the proposed mountain village site and off-road zone in TA-12 would need to be modified to a proposed land use that allows for on-road and off-road vehicle maneuvering for light, medium, and heavy, wheeled vehicles which would allow for Stryker usage. Tracked vehicles would be prohibited from using the area within the mountain village off-road zone. The proposed mountain village is located within a Limited Use Area (LUA). The LUA designation would be removed and reclassified to allow for the construction and training use of the mountain village. The proposed mountain village is located in a Bureau of Land Management (BLM) designated grazing area, recreational area, and BLM visual resource management (VRM) area with a Class IV designation, which would have minimal impacts as result of the Preferred Alternative. A small portion of the village site would be located within the Culp Canyon Wilderness Study Area (WSA) viewshed. Since the mountain village would be within a mountainous area, it would not be very visible and, therefore, would not dominate the view corridor. There would be minimal land use and visual aesthetics impacts from the Preferred Alternative.	Impacts on land use and aesthetics would be similar to those under Alternative 2. There would be minimal land use and visual aesthetics impacts as a result of the implementation of Alternative 3.	Impacts on land use and aesthetics would be similar to those under Alternatives 2 and 3. There would be minimal land use and visual aesthetics impacts as a result of the construction and use of both proposed mountain villages.
<b>Soils</b>	No additional impacts on soils or geologic resources would occur.	Approximately 5.4 acres of soils would be disturbed by the mountain village and access road footprint. In addition, up to approximately 868 acres could be impacted within the mountain village off-road zone during training. The Preferred Alternative would result in moderate impacts on soils as a result of training activities.	Approximately 1.6 acres of soils would be permanently disturbed by the mountain village. In addition, up to 780 acres of soils could be impacted within the mountain village off-road zone area during training. Impacts on soils would be similar to those under Alternative 2 and would result in moderate impacts on soils as a result of training activities.	Approximately 7 acres of soils would be permanently disturbed by the mountain villages within TA-12 and TA-13 and up to 1,648 acres of soil could be impacted within the mountain villages' off-road zones during training. Impacts on soils would be similar to those listed under Alternatives 2 and 3. There would be moderate impacts on soils as a result of the construction and use of both proposed mountain villages.
<b>Surface Water</b>	No additional impacts on surface water would occur.	An arroyo near the proposed mountain village would be minimally impacted by the access road, but the road would be designed with culverts or low-water crossings to allow continued water flow. The construction of the proposed access road along and within the arroyo could result in increased sedimentation within the arroyo. A Stormwater Pollution Prevention Plan (SWPPP) would be required. Best Management Practices (BMP) per the SWPPP would be utilized to control temporary fugitive dust and erosion during clearing and construction. There would be minimal impacts on surface water from the Preferred Alternative.	Impacts on surface water would be similar to, but less than, those under Alternative 2 because the proposed site is located further away from existing arroyos and no arroyo under Alternative 3 would be directly impacted by project construction.	Impacts on surface water would be similar to those under Alternatives 2 and 3. There would be minimal impacts on surface water as a result of the construction and use of both proposed mountain villages.
<b>Groundwater</b>	No additional impacts on groundwater would occur.	Indirect impacts on groundwater quality could occur from compaction of soils and decreased percolation to groundwater related to construction activities and maneuver training. Impacts on groundwater would be negligible as a result of the Preferred Alternative.	Impacts would be similar to those under Alternative 2. Impacts would be negligible.	Impacts on groundwater would be similar to those under Alternatives 2 and 3. There would be negligible impacts on groundwater as a result of the construction and use of both proposed mountain villages.

**Draft Environmental Assessment for the Construction and Training Use of  
Sacramento Mountain Villages, McGregor Range, Fort Bliss, New Mexico**

Table ES-1, continued

Resource	Alternative 1 (No Action)	Alternative 2 (Preferred Alternative)	Alternative 3	Alternative 4
<b>Biological Resources</b>	No additional impacts on vegetation or wildlife would occur.	Under Alternative 2, approximately 5.4 acres of regionally common vegetation would be removed. BMPs per Fort Bliss SWPPP guidance would be utilized during clearing activities. There would be minimal impacts on vegetation under the Preferred Alternative. The Kuenzler hedgehog cactus, which is Federally listed as endangered under the Endangered Species Act (ESA) and also considered endangered by the state of New Mexico, has potential habitat in the region, but no individuals of the species were detected during a summer 2012 survey, therefore, it is not likely to be adversely affected. No other species listed under the ESA would be impacted. The Preferred Alternative could occur in habitat that is utilized by the gray vireo and other bird species protected under the Migratory Bird Treaty Act (MBTA). However, any impacts on migratory birds would be minimal because construction work would be carried out in the fall and winter months to coincide with the non-breeding season for these species, or if construction occurs during the spring, a preconstruction survey for bird activity or nesting colonies would be conducted and active nests would be avoided, if discovered.	Under Alternative 3, approximately 1.6 acres of regionally common vegetation would be removed as a result of construction of the proposed mountain village. Impacts on biological resources under Alternative 3 would be similar to those under Alternative 2.	Under Alternative 4, approximately 7 acres of regionally common vegetation would be removed as a result of the construction of both proposed mountain villages. Impacts on biological resources under Alternative 4 would be similar to those under Alternatives 2 and 3.
<b>Cultural Resources</b>	No additional impacts on cultural resources would occur.	According to surveys conducted by Fort Bliss personnel, there are no cultural resources located within the footprint of the proposed mountain village or access road. Two archaeological sites are located outside of the proposed 1.4-acre village site footprint, but within the 868 acre mountain village off-road zone. One archaeological site is recommended not eligible for inclusion in the National Register of Historic Places (NRHP) and implementation of the Preferred Alternative would not result in an adverse effect. The second archaeological site is of undetermined NRHP eligibility and would require further testing to determine whether adverse effects would occur as a result of implementation of the Preferred Alternative. During the implementation of the Preferred Alternative, the site of undetermined eligibility would be delineated with Seibert stakes and avoided by all actions associated with the off-road zone, thereby negating any yet-to-be-determined adverse effects. The Preferred Alternative site is not within the viewshed of a historic district. No adverse effects on cultural resources are expected as a result of the implementation of the Preferred Alternative.	Surveys have determined that no surface archaeological sites eligible for inclusion in the NRHP would be located within the 1.6-acre mountain village footprint and disturbance area. Survey coverage of the 780-acre off-road zone surrounding the proposed village site was limited to 96 percent of the area. Within the area surveyed, 22 archaeological sites were reported, with 18 being ineligible and requiring no further consideration. The four remaining previously reported archaeological sites consist of two recommended eligible for the NRHP and two of undermined eligibility. If Alternative 3 is implemented, these four sites would be delineated using Seibert stakes and avoided by all actions associated with the off-road zone. If avoidance is not possible, a mitigation plan for their treatment would be developed per the Programmatic Agreement. No adverse effects on cultural resources are expected as a result of the implementation of Alternative 3.	Impacts on cultural resources would be similar to those under Alternatives 2 and 3. No adverse effects on cultural resources are expected.
<b>Air Quality</b>	No additional air quality impacts would occur.	Temporary and minor increases in air pollution would occur from the use of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during construction of the access road and proposed mountain village. The air emissions from the proposed construction and operational activities do not exceed Federal <i>de minimis</i> thresholds. The impacts on air quality in Otero County from the implementation of Alternative 2 would be negligible.	Impacts on air quality would be similar to those under Alternative 2. The impacts on air quality in Otero County from the implementation of Alternative 3 would be negligible.	Impacts on air quality would be similar to those under Alternatives 2 and 3. The impacts on air quality in Otero County from the implementation of Alternative 4 would be negligible.
<b>Noise</b>	No additional noise impacts would occur.	Neither the noise emissions from the construction activities nor the proposed training activities would impact the Culp Canyon WSA. There is potential that aircraft flying an off-post approach to the mountain village site may annoy those living near the flight tracks. The addition of the proposed mountain village and training use would have little to no noise impact beyond the Fort Bliss boundary. The noise levels from proposed training would be compatible with U.S. Army guidelines, and impacts on the noise environment in the region would be minimal.	Noise emissions associated with Alternative 3 would be similar to those described in Alternative 2. The distances to the sensitive noise receptors are far enough away that noise emissions would only have minimal impacts. Similar to Alternative 2, there is potential that aircraft flying an off-post approach to the proposed mountain village site may annoy those living near the flight tracks. Noise emissions associated with construction and military training would attenuate to levels below significant thresholds before entering areas with sensitive noise receptors; therefore, impacts on the noise environment in the region would be minimal.	Noise impacts would be similar to those under Alternatives 2 and 3. The implementation of Alternative 4 would result in minimal impacts on the noise environment.

**Draft Environmental Assessment for the Construction and Training Use of  
Sacramento Mountain Villages, McGregor Range, Fort Bliss, New Mexico**

**Table ES-1, continued**

<b>Resource</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Preferred Alternative)</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
<b>Transportation and Infrastructure</b>	No additional impacts on transportation and infrastructure would occur.	Temporary disruptions to traffic would occur during construction. There would be increased traffic loads in the area during construction and training and possible increases in road maintenance activities. There would be minimal impacts on transportation and supporting infrastructure as a result of the implementation of the Preferred Alternative.	Impacts would be similar to those under Alternative 2 and considered minimal.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. While there would be a potential for more military vehicles to use the roadways during training exercises at both village sites, there would still be minimal impacts on transportation and supporting infrastructure as a result of the construction and use of both proposed mountain villages.
<b>Health and Safety</b>	No additional impacts on health and safety would occur.	Live-fire military activities would be scheduled and would occur under controlled conditions. Public recreation use is controlled through access permits by Fort Bliss Range Operations to ensure safety and use compatibility with military activities, and areas designated for recreational use, including the Culp Canyon WSA, would be closed when in use for military training. Minimal impacts on health and safety would be expected as a result of the Preferred Alternative.	Impacts under Alternative 3 would be similar to those under Alternative 2. Minimal impacts on health and safety would be expected as a result of the implementation of Alternative 3.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal impacts on health and safety would be expected as a result of the construction and use of both proposed mountain villages.
<b>Hazardous Materials and Waste</b>	No additional hazardous materials and waste impacts would occur.	A limited amount of hazardous materials and waste would be used or generated at the proposed mountain village site from maintenance and operational activities, including petroleum, oil, and lubricants (POL). All hazardous wastes would be disposed of according to the Installation Hazardous Waste Management Plan. Minimal hazardous materials and waste impacts would occur as a result of the Preferred Alternative.	Impacts under Alternative 3 would be similar to those under Alternative 2. Minimal hazardous materials and waste impacts would occur as a result of the implementation of Alternative 3.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal hazardous materials and waste impacts would occur as a result of the construction and use of both proposed mountain villages.
<b>Airspace Operations</b>	No additional impacts on airspace operations would occur.	There would be no change in the airspace designation. To minimize airspace conflicts during training exercises, especially during .50-caliber weapon firing, scheduling would be done through Range Operations - Flight Control. There would be no effect on public airspace since all airspace within McGregor Range is classified as military airspace. The impacts on airspace operations would be minimal.	Impacts would be similar to those under Alternative 2. The impacts on airspace operations would be minimal.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal impacts on airspace operations would occur as a result of the construction and use of both proposed mountain villages.
<b>Wildland Fire</b>	No additional wildland fire impacts would occur.	All land within the footprint of the mountain village will be cleared and grubbed. Therefore, the risk of wildland fire at the proposed mountain village site on TA-12 would be low. In addition, the type and amount of vegetation that is found near the site would have little potential to be a fuel source for a wildland fire. The wildland fire impacts would be negligible.	The amount of vegetation located at the proposed mountain village site in TA-13 is greater than in TA-12; therefore, a fuel reduction thinning project would be required for the area around the proposed mountain village. After the implementation of this procedure, the wildland fire impacts under Alternative 3 would be negligible.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Negligible wildland fire impacts would occur as a result of the construction and use of both proposed mountain villages.

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**SECTION 1.0**  
**PURPOSE AND NEED FOR THE PROPOSED ACTION**





1 **1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION**

2  
3 **1.1 Introduction**

4  
5 Fort Bliss Army Reservation is an active training facility located in El Paso, Texas, and the  
6 south-central area of New Mexico. Fort Bliss is approximately 1.2 million acres in size and  
7 consists of a cantonment area, Biggs Army Airfield, and the Fort Bliss Training Complex  
8 (FBTC). The FBTC is separated into three geographic areas: the South Training Area in El  
9 Paso, Texas; the Doña Ana Range-North Training Area in Doña Ana and Otero counties, New  
10 Mexico; and McGregor Range in Otero County, New Mexico. The FBTC is further divided into  
11 numbered training areas (TA) in order to manage and schedule the different training missions  
12 (Figure 1-1). Fort Bliss has been the home of the United States (U.S.) Army Air Defense  
13 Artillery Center.

14  
15 Fort Bliss has recently been expanding its mission due to Base Closure and Realignment  
16 (BRAC) mandates and Army Transformation and Army Growth Initiatives, and its mission is  
17 transitioning from supporting the Army's Air Defense Artillery training to a major mounted  
18 training facility that supports Brigade Combat Teams (BCTs) under Forces Command  
19 (FORSCOM). Fort Bliss is now the home of the U.S. Army 1<sup>st</sup> Armored Division. Fort Bliss  
20 has become a training platform for multiple units deploying to Afghanistan and is a focal point  
21 for the U.S. Army as a major installation for training Soldiers for combat readiness.

22  
23 As part of its transition to supporting BCTs under BRAC, Fort Bliss has constructed or plans to  
24 build several realistic urban villages that mimic those found in Afghanistan to be used for  
25 training of Soldiers for deployment. These villages are located in desert, dune-land areas where  
26 such land use has been programmatically analyzed in the *Fort Bliss, Texas and New Mexico*  
27 *Mission and Master Plan Final Supplemental Programmatic Environmental Impact Statement*  
28 (SEIS), for which a Record of Decision (ROD) was signed 30 April 2007, and the *Fort Bliss*  
29 *Army Growth and Force Structure Realignment Final Environmental Impact Statement* (GFS  
30 EIS), for which a ROD was signed 8 June 2010. These documents analyzed the potential and  
31 cumulative impacts of BRAC mission expansion and associated land use changes at Fort Bliss.

32  
33 Fort Bliss presently does not have any realistic mountain village training facilities; however,  
34 northern McGregor Range (north of New Mexico (NM) Highway 506) contains mountainous  
35 areas similar to those found in Afghanistan. The previously mentioned EISs approved land use  
36 changes on northern McGregor Range that allow for on-road vehicle maneuvering, off-road  
37 vehicle maneuvering with wheeled vehicles within 500 meters of each side of existing roads and  
38 within less than 30 percent grade topography, dismounted (foot) maneuvering, aircraft  
39 operations, and live-fire exercises with small arms fire to include .50-caliber sniper and machine  
40 gun firing. An environmental assessment (EA) is required to accommodate a change in the land  
41 use designation to allow for the construction and training use of mountain village training  
42 facilities. The analysis within the EA will focus on impacts additional to the existing  
43 environment which includes the military mission and its environmental impact as described in  
44 the GFS EIS. Hence, this EA would be tiered to the two previous EISs.

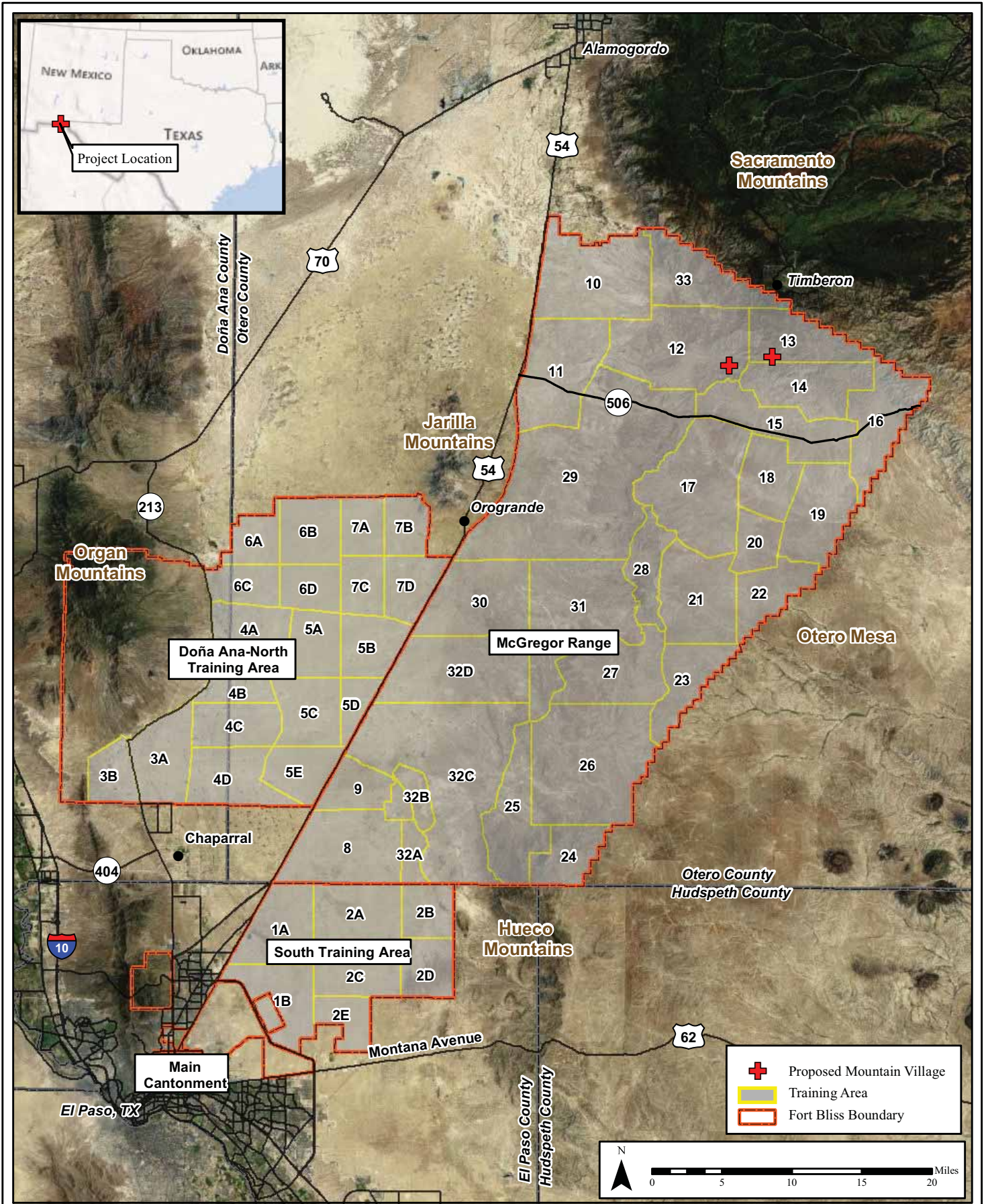


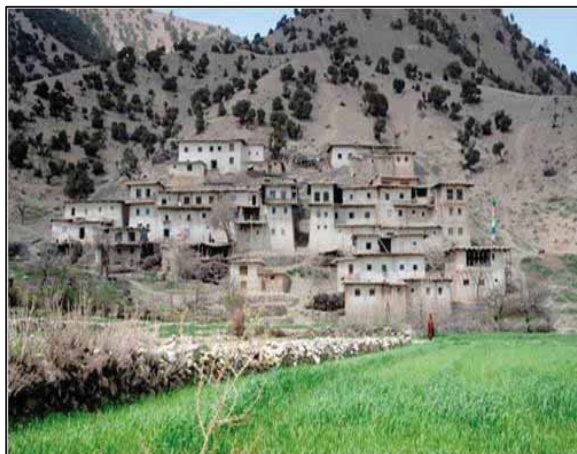
Figure 1-1: Fort Bliss Vicinity Map

1 **1.2 Purpose and Need for the Proposed Action**

2  
3 The purpose of the Proposed Action is to provide realistic mountain village training facilities  
4 (adobe mountain villages) on northern McGregor Range (Photograph 1-1) in order to facilitate  
5 training in a realistic setting. This would provide troop training capabilities that would mimic  
6 the current and future operating environment found in Afghanistan (Photograph 1-2). A  
7 modification of the existing military land use designation is necessary in order to meet the  
8 purpose and need for the Proposed Action.  
9



Photograph 1-1. Example of Mountainous Terrain on Northern McGregor Range



Photograph 1-2. Example of Typical Mountain Village Found within Afghanistan

10  
11 The need for the Proposed Action is to ensure that troops are trained in a realistic manner and are  
12 acclimated to village scenarios before they are deployed. The troops need to be trained for  
13 tactical situations that deal with local populace in a realistic setting; in approaching, attacking,  
14 and occupying a realistic village; and in encountering opposing forces within a realistic setting  
15 with live-fire exercise. According to U.S. Army doctrine (*FM 3-0 Operations*), Soldiers are  
16 sometimes required to operate in an environment of persistent conflict where enemy forces  
17 attempt to blend into complex operational terrain and use mountain villages to disguise and  
18 conceal their activities. Soldiers need training in mountain villages that mimic, to the greatest  
19 extent possible, the dynamic real-world, social, and cultural conditions in which they will be  
20 placed so they may learn how best to interact with the local populace.  
21

22 **1.3 Scope and Content of the Analysis**

23  
24 The EA will identify, document, and evaluate the potential environmental effects of the  
25 construction, training use, and maintenance of mountain village training facilities on McGregor  
26 Range. This analysis will focus on impacts additional to the existing environment. The existing  
27 environment includes the military mission and its environmental impact as noted in the GFS EIS.  
28 It will be prepared in accordance with the requirements of the National Environmental Policy  
29 Act (NEPA) of 1969 (Public Law [PL] 91-190) and the President’s Council on Environmental  
30 Quality (CEQ) Regulations outlined in 40 Code of Federal Regulations (CFR) parts 1500 – 1508  
31 and 32 CFR Part 651 – Environmental Analysis of Army Actions. NEPA is a Federal  
32 environmental law establishing procedural requirements for all Federal agency actions. It directs

1 the U.S. Army to disclose the environmental effects of its proposed activities at Fort Bliss to the  
2 public and officials who must make decisions regarding the proposal.

3  
4 **1.4 Decision(s) To Be Made**

5  
6 The proponent for the action is Team Bliss, G3, FORSCOM, Fort Bliss. The U.S. Army Corps  
7 of Engineers, Tulsa District, and the U.S. Army, G3, FORSCOM, Fort Bliss, are the lead  
8 agencies responsible for the completion of the EA. One or more of the alternatives analyzed in  
9 the EA will be selected for the Proposed Action. If no significant environmental impacts are  
10 determined based on the evaluation of impacts in the EA, a Finding of No Significant Impact  
11 (FNSI) will be signed by the Commanding General. If it is determined that the Proposed Action  
12 will have significant environmental impacts, the action will either not be undertaken, or a Notice  
13 of Intent to prepare an EIS will be published in the *Federal Register*.

14  
15 **1.5 Public Participation**

16  
17 The Army invites public participation in the NEPA process to promote open communication and  
18 enable better decision making. Input and comments will be solicited from the public in  
19 accordance with NEPA. The EA and draft FNSI (if applicable) will be made available to the  
20 public for a 30-day comment period. The distribution of the EA will include local libraries and  
21 any agencies, organizations, and individuals who have expressed interest in the project  
22 (Appendix A). During this time, the Army will consider any comments submitted by agencies,  
23 organizations, or members of the public on the Proposed Action, the EA, or the draft FNSI. At  
24 the conclusion of the comment period, the Army may, if appropriate, execute the FNSI and  
25 proceed with the Proposed Action.



**SECTION 2.0**  
**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**





1 **2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

2  
3 Fort Bliss proposes to modify the land use designation within certain areas on northern  
4 McGregor Range, Fort Bliss, in order to construct, operate, and maintain mountain village  
5 training facilities. Two suitable locations for the construction and training use of mountain  
6 village training facilities on northern McGregor Range have been tentatively selected based on  
7 the following siting criteria:

- 8
- 9 • Favorable terrain that is similar to that found in the Afghanistan theater, which would:
    - 10 ○ Provide tactical difficulty
    - 11 ○ Allow for observation by the training units
    - 12 ○ Provide natural obstacles, cover, and concealment
    - 13 ○ Provide avenues for both high speed and dismounted approach
  - 14 • Located in an area that provides ease of construction
  - 15 • Ability to avoid or mitigate impacts on eligible cultural resources sites
  - 16 • Ability to avoid or mitigate impacts on protected faunal or floral species and their habitat
- 17

18 In accordance with CEQ regulations (40 CFR 1502.14) and 32 CFR Part 651, the EA must  
19 identify and describe all reasonable alternatives to the Proposed Action, including the No Action  
20 Alternative. Besides the No Action Alternative, this EA will discuss three alternative actions  
21 involving two locations for the proposed mountain villages.

22  
23 **2.1 Alternative 1 – No Action Alternative**

24  
25 Under the No Action Alternative, the land use designation within the project areas would not be  
26 modified and neither of the proposed mountain villages would be constructed at Fort Bliss for  
27 Soldier training. Selection of this alternative would necessarily eliminate any potential  
28 environmental effects associated with construction and training use of the proposed villages.  
29 The training exercises including on- and off-road vehicle maneuvering, live-fire military  
30 activities, and all training scenarios would not occur. The immediate areas around the village  
31 sites would likewise be left undisturbed. However, this alternative would not satisfy the need for  
32 additional training infrastructure on Fort Bliss, which is critical in preparing Soldiers for service  
33 in present combat theaters.

34  
35 **2.2 Alternative 2 – Construction and Training**  
36 **Use of Mountain Village in Training**  
37 **Area 12 (Preferred Alternative)**

38  
39 Under Alternative 2, the proposed mountain village  
40 would be constructed in Training Area (TA)-12 of  
41 McGregor Range to facilitate training at the  
42 Company level and below (Photograph 2-1). The  
43 land use designation would be modified within an  
44 approximately 1-kilometer off-road zone around the  
45 mountain village site to allow for realistic training  
46 use of the proposed mountain village and provide for



Photograph 2-1. Location of Proposed Mountain Village Site in TA-12

1 more intensive use than currently allowed. This is the Preferred Alternative for the Proposed  
2 Action. Figure 2-1 shows the location of the site within TA-12.

3  
4 The area for the village would cover approximately 0.4 acre, with an additional acre of probable  
5 construction disturbance anticipated around the village for a total of 1.4 acres. The proposed  
6 mountain village (tentatively named Dabra Kowt) layout would have features typical of  
7 Afghanistan villages, including approximately 30 total buildings, some of which would be one  
8 story and some would be two stories. The buildings would be spaced into two clusters with a  
9 main street between them that would be the “market area”. The buildings would also have  
10 courtyards that leave small “alleys” between buildings beyond the main street. Approximately  
11 868 acres within the mountain village off-road zone could be impacted during training exercises.  
12 Figure 2-2 shows a sketch of the proposed mountain village site in TA-12.

13  
14 A road leading to the village site would be built using a grader or similar equipment, with  
15 possible application of gravel or base course. The road course would follow the existing arroyo  
16 near the proposed TA-12 site and include installation of arroyo crossings or culverts at certain  
17 points where the road would cross the main stream channel. Figure 2-1 shows the proposed  
18 route starting from a point along Culp Canyon Road. This new road would be approximately  
19 0.65 mile long and would permanently disturb approximately 4 acres. This road would facilitate  
20 access for vehicles and heavy equipment during village construction and would be used as a  
21 ground access route for military vehicles during tactical training events. During the construction  
22 phase, construction equipment would be cleaned of all dirt, mud, and plant debris prior to  
23 moving onto or off of the project area to reduce the potential for spreading noxious plants.

24  
25 An opposing force, platoon-sized contingent (approximately 30 personnel) would inhabit the  
26 village acting as combatants and/or villagers. The opposing force personnel may bivouac at the  
27 village up to several nights consecutively. The village would receive electrical power in the  
28 future from portable diesel generators and/or solar panel arrays. Portable latrines would be  
29 installed in support of and only during continuous operations. Live animals, such as cattle,  
30 sheep, goats, pigs, chickens, and dogs may be used as part of the village scene for added realism.  
31 These live animals would be used temporarily during training exercises, but would be confined  
32 and then removed following training. Delineation of mock cultivated fields or berms near the  
33 village would not be part of this alternative.

34  
35 As part of this EA, a modification of the land use designation would occur to allow light,  
36 medium, and heavy, wheeled military vehicles (including Strykers) to operate off-road to  
37 approach the mountain village from any direction within an approximately 1-kilometer off-road  
38 zone around the village. Vehicle weight classifications are based upon soil contact pressure as  
39 follows: light, 2 kg/cm<sup>2</sup> or less; medium, more than 2 and less than 5 kg/cm<sup>2</sup>; heavy, 5 kg/cm<sup>2</sup> or  
40 more (U.S. Army 2010). Driving wheeled or tracked military vehicles on existing roads would  
41 be allowed. Tracked vehicles of any classification, however, would be prohibited from  
42 maneuvering off-road inside the mountain village off-road zone. Also, the Limited Use Area  
43 (LUA) designation would be removed within the mountain village off-road zone to allow for  
44 realistic training use of the proposed mountain village and accommodate more intensive use than  
45 allowed for in the GFS EIS (see Figure 2-1).

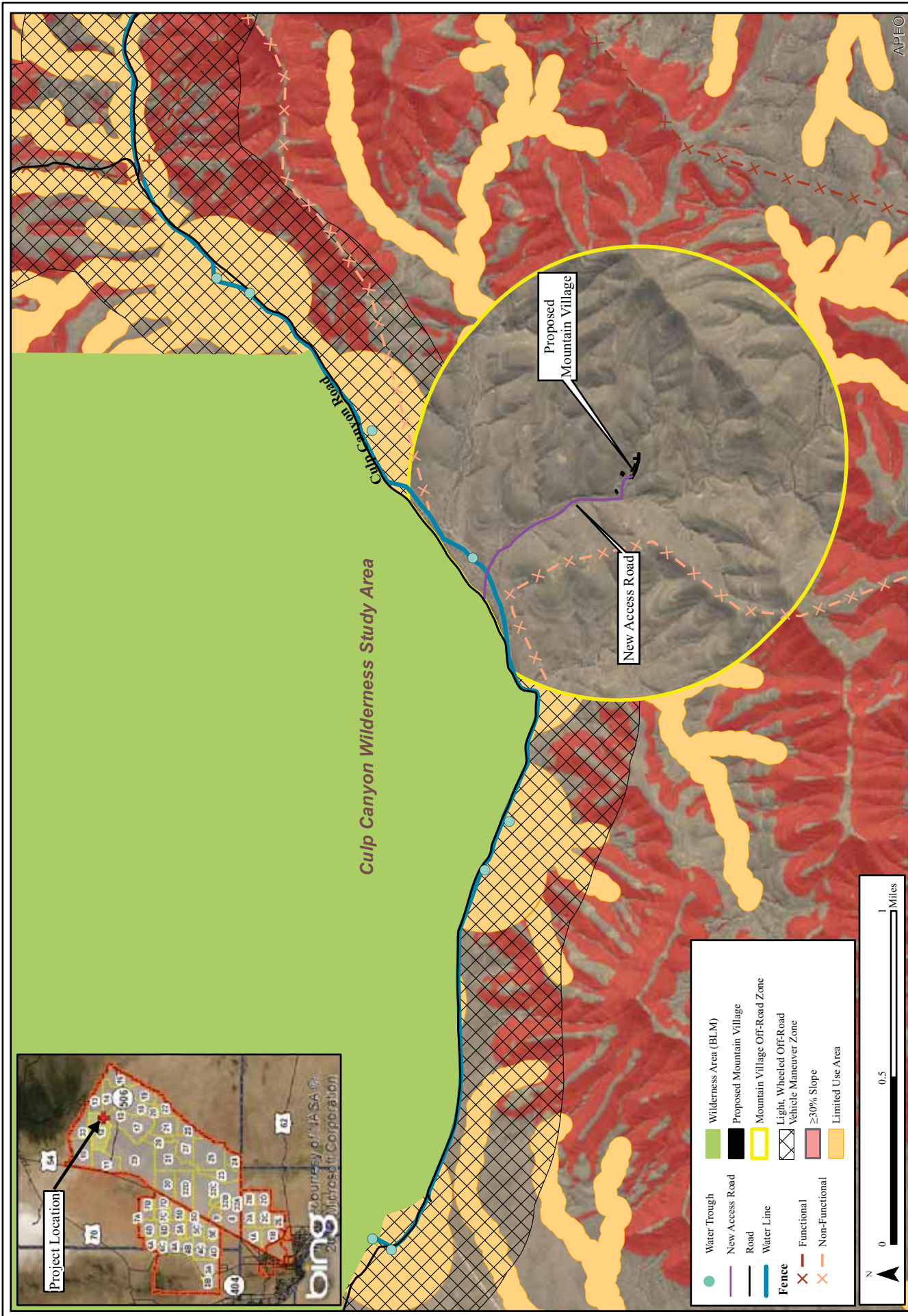


Figure 2-1: Proposed Mountain Village Site in Training Area 12 on McGregor Range

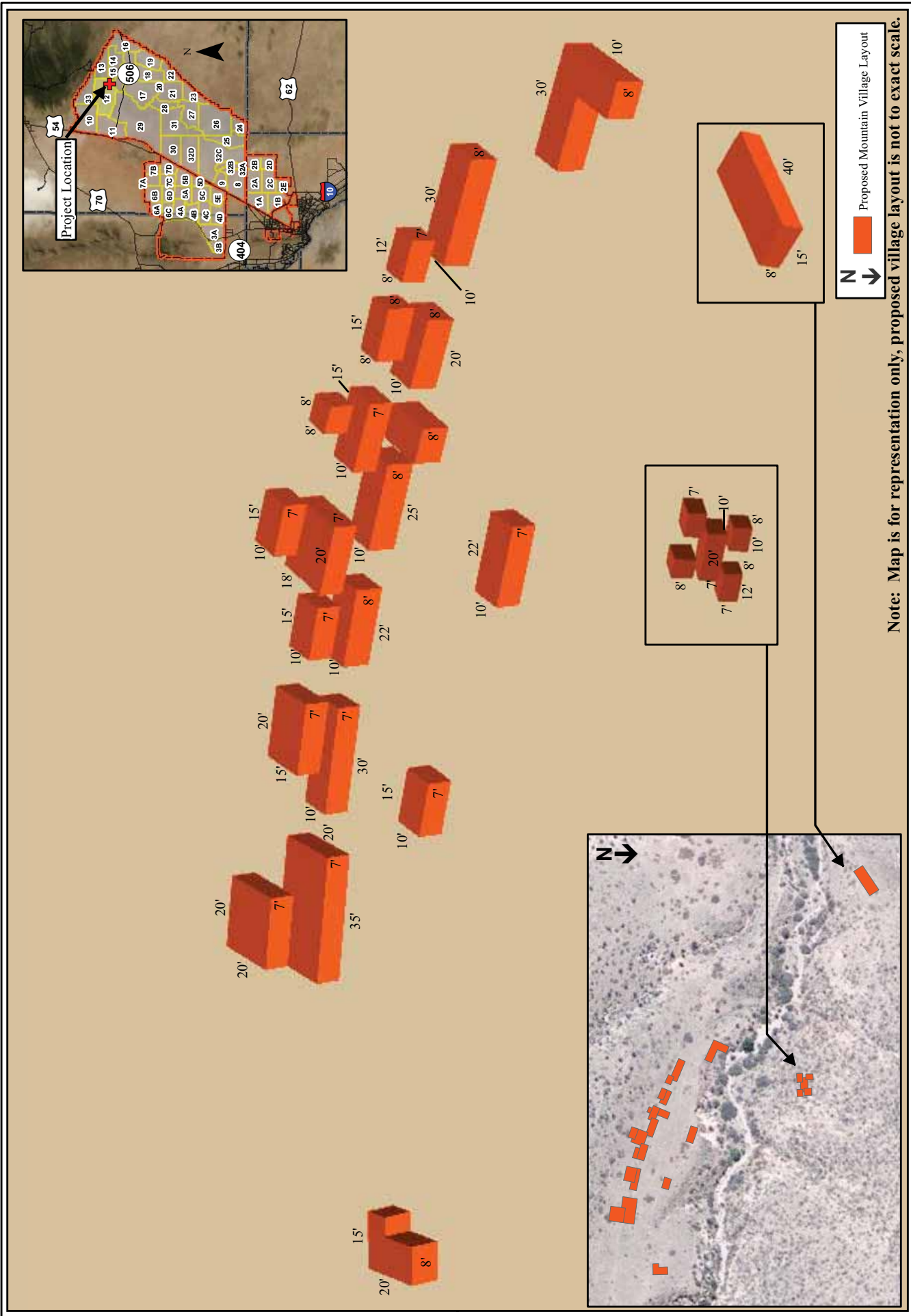


Figure 2-2: Oblique View Sketch of Proposed Mountain Village Site in Training Area 12 on McGregor Range

1 A typical training scenario would involve a company-sized unit (approximately 120 Soldiers)  
2 advancing upon the village along the road using light, medium, and heavy, wheeled vehicles.  
3 Vehicles likely to be used include all-terrain vehicles (ATV), high-mobility, multipurpose  
4 wheeled vehicles (HMMWV), mine-resistant ambush-protected (MRAP) vehicles, MRAP ATVs  
5 (MATV), and Strykers (a heavy, wheeled vehicle). There would typically be a total of 7 to 12  
6 Strykers utilized by a unit, of which approximately 2 to 3 would be used for off-road advance to  
7 the village. Off-road driving of light, wheeled vehicles (for example, HMMWVs) within 500  
8 meters on either side of existing roads on slopes less than 30 percent, was approved for  
9 McGregor Range north of Highway 506 in the GFS EIS and would continue under this EA (see  
10 Figure 2-1).

11  
12 The training exercises would not exceed 250 total training days per year, with activities  
13 occurring during the day and at night. The company-sized unit would advance along the existing  
14 road, where military vehicles would park and establish a position. Mock improvised explosive  
15 device (IED) kits may be placed along the entry route roadsides, requiring minor excavations.  
16 Live-fire at targets in and around the village would include small-arms weapons no larger than  
17 .50-caliber. All rounds would be non-dud-producing. Snipers with rifles up to .50-caliber would  
18 fire upon targets from high ground in the area. Door-side gunnery would also be employed from  
19 the helicopters using up to .50-caliber rounds. Blanks, ultimate training munitions (paintball  
20 rounds), and pyrotechnics would also be used in the vicinity of the mountain village. Certain  
21 weapons would be equipped with laser sights, and various obscurants and pyrotechnics such as  
22 smoke grenades and flares would be deployed as required during the engagement of the opposing  
23 force. White phosphorus would not be used.

24  
25 Air support would include unmanned aircraft systems (UAS), helicopters for transport and  
26 overwatch, and fixed-wing aircraft that would provide air support (dry-fire only) in the case of  
27 joint operations. There would be two types of helicopter landing zones – one for fast landing and  
28 one for fast-roping, where the helicopter doesn't actually land. Fast-rope zone locations are  
29 variable based upon a large flat area being available and the number of rotary-winged assets  
30 employed during a particular mission. A 100- by 100-foot (0.23 acre) reinforced concrete  
31 helipad would be constructed adjacent to the Culp Canyon Road, within the mountain village  
32 off-road zone to allow for helicopter landings. There would be no more than four UH-60s and  
33 two CH-47s on the ground at any one time with company-sized air assaults.

### 34 35 **2.3 Alternative 3 – Construction and** 36 **Training Use of Mountain Village in** 37 **Training Area 13**

38  
39 Under Alternative 3, the proposed mountain village  
40 would be constructed in TA-13 of McGregor Range  
41 to facilitate training at the Company level and  
42 below (Photograph 2-2). The land use designation  
43 would be modified within the approximately 1-  
44 kilometer off-road zone to allow for realistic  
45 training use of the proposed mountain village and



Photograph 2-2. Location of Proposed Mountain  
Village Site in TA-13

1 provide for more intensive use than currently allowed. Figure 2-3 shows the location of the site  
2 within TA-13.

3  
4 The proposed mountain village in TA-13 (tentatively named Saron) would have approximately  
5 30 total buildings, some of which would be multi-storied. The buildings would be spaced into  
6 two major clusters. The area for the village would cover approximately 0.6 acre, with an  
7 additional acre of probable construction disturbance anticipated around the village for a total of  
8 1.6 acres. Approximately 780 acres within the mountain village off-road zone around the village  
9 site could be impacted during training exercises. Figure 2-4 shows a sketch of the proposed  
10 mountain village site in TA-13.

11  
12 A 100- by 100-foot (0.23 acre) reinforced concrete helipad would be constructed adjacent to  
13 Culp Canyon Road, similar to Alternative 2. As part of a larger battalion-level exercise, a typical  
14 scenario would involve a company-sized unit (approximately 120 Soldiers) advancing upon the  
15 village along the existing road to a tactical “choke point” where maneuver operations are limited.  
16 All other features would be similar to Alternative 2.

17  
18 **2.4 Alternative 4 – Construction and Training Use of Mountain Villages in Training**  
19 **Areas 12 and 13**

20  
21 Alternative 4 includes both Alternatives 2 and 3 such that both proposed mountain villages  
22 would be built. The total impacted area due to construction would be approximately 1 acre for  
23 the two villages, with up to 2 acres of probable disturbance around the village sites and 4 acres  
24 for the access road in TA-12, for a total of 7 acres. Approximately 1,648 acres total within the  
25 off-road zones around the village sites could be impacted during training exercises. This  
26 alternative would provide more flexibility in scheduling training for units and the potential for  
27 more complex training scenarios that may involve both villages simultaneously.

28  
29 Table 2-1 is a summary of acres that will be impacted by each alternative. It includes a  
30 breakdown of each project component (mountain village footprint, off-road area, etc.) and the  
31 size in acres that would be impacted by each alternative.

32  
33 **Table 2-1. Summary of Acres Impacted by each Alternative**

	<b>Alternative 2 – Mountain Village in TA-12 (Preferred Alternative)</b>	<b>Alternative 3 – Mountain Village in TA- 13</b>	<b>Alternative 4 – Mountain Villages in TA-12 and TA-13 Combined</b>
Mountain Village Footprint (Acres)	0.4	0.6	1.0
Construction Disturbance around the Mountain Village Footprint (Acres)	1.0	1.0	2.0
Total Area for Mountain Village Site Construction including Footprint and Construction Disturbance (Acres)	1.4	1.6	3.0
Access Road (Acres)	4.0	-	4.0
Helipad (Acres)	0.23	0.23	0.23*
Mountain Village Off-road Zone (Acres)	868	780	1,648

34 \*The same helipad would be used for both mountain villages



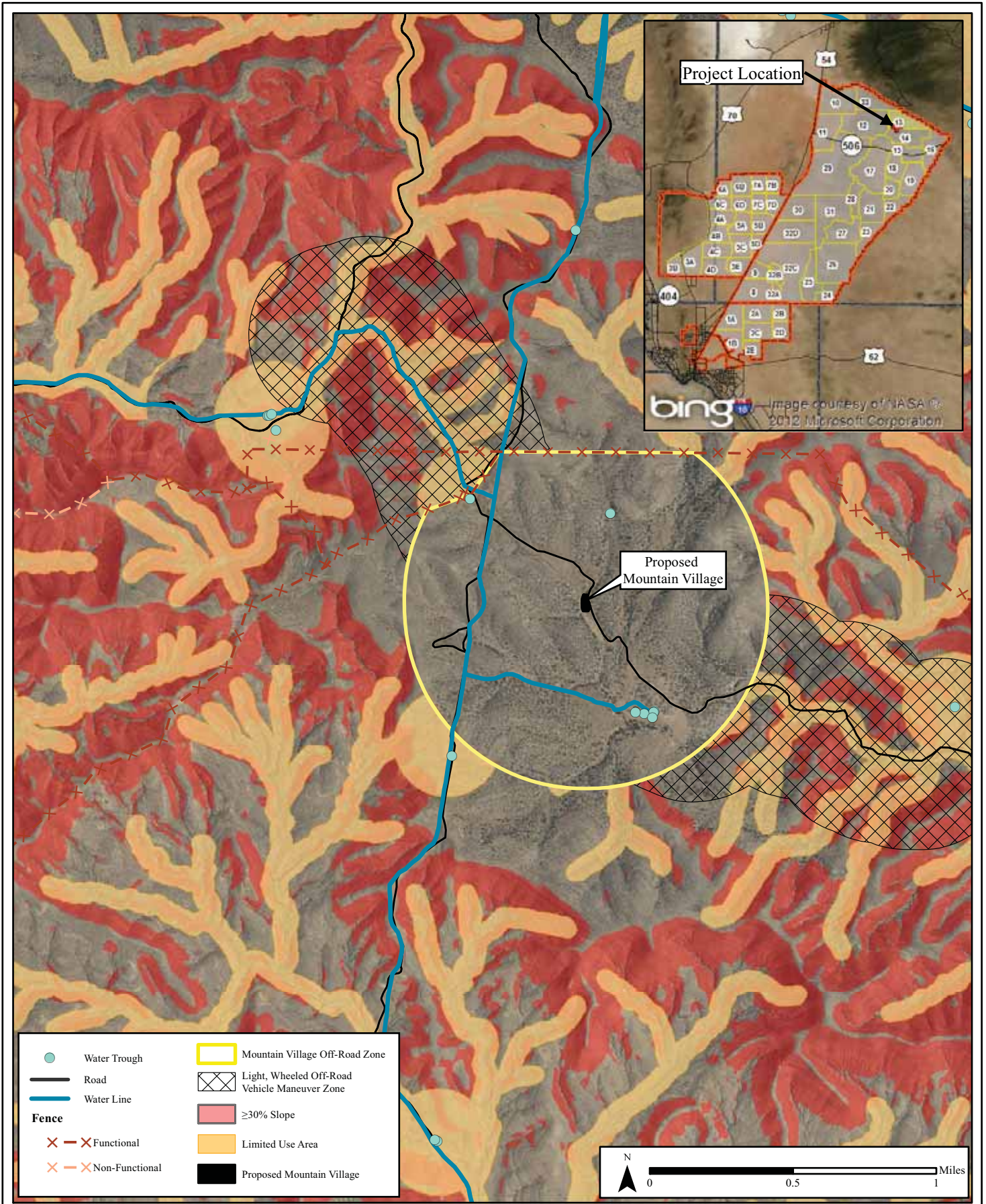
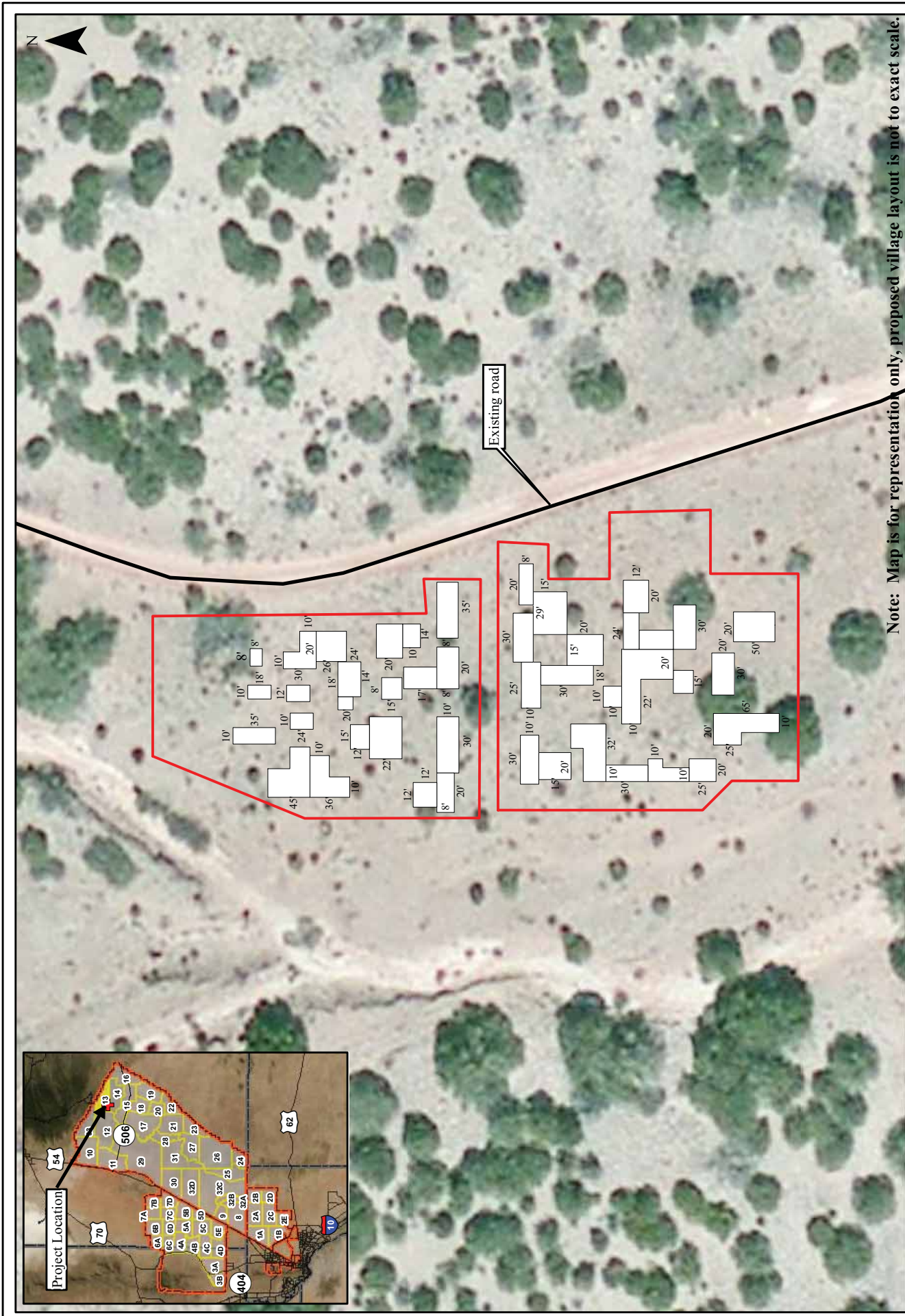


Figure 2-3: Proposed Mountain Village Site in Training Area 13 on McGregor Range



Note: Map is for representation only, proposed village layout is not to exact scale.

Figure 2-4: Aerial View of Sketch of Proposed Mountain Village Site in Training Area 13 on McGregor Range

1 **2.5 Alternatives Eliminated from Further Consideration**

2  
3 Two additional areas were considered for the location of the mountain village, but were rejected  
4 due to environmental constraints (biological and/or cultural), accessibility (lacking sufficient  
5 rugged or remote conditions), or undesirable terrain (lacking correct micro-terrain). Figure 2-5  
6 shows the two proposed mountain village sites in TA-12 and TA-13 along with the two  
7 alternative location sites that were deemed unsuitable after early reconnaissance and thus were  
8 eliminated from further consideration.

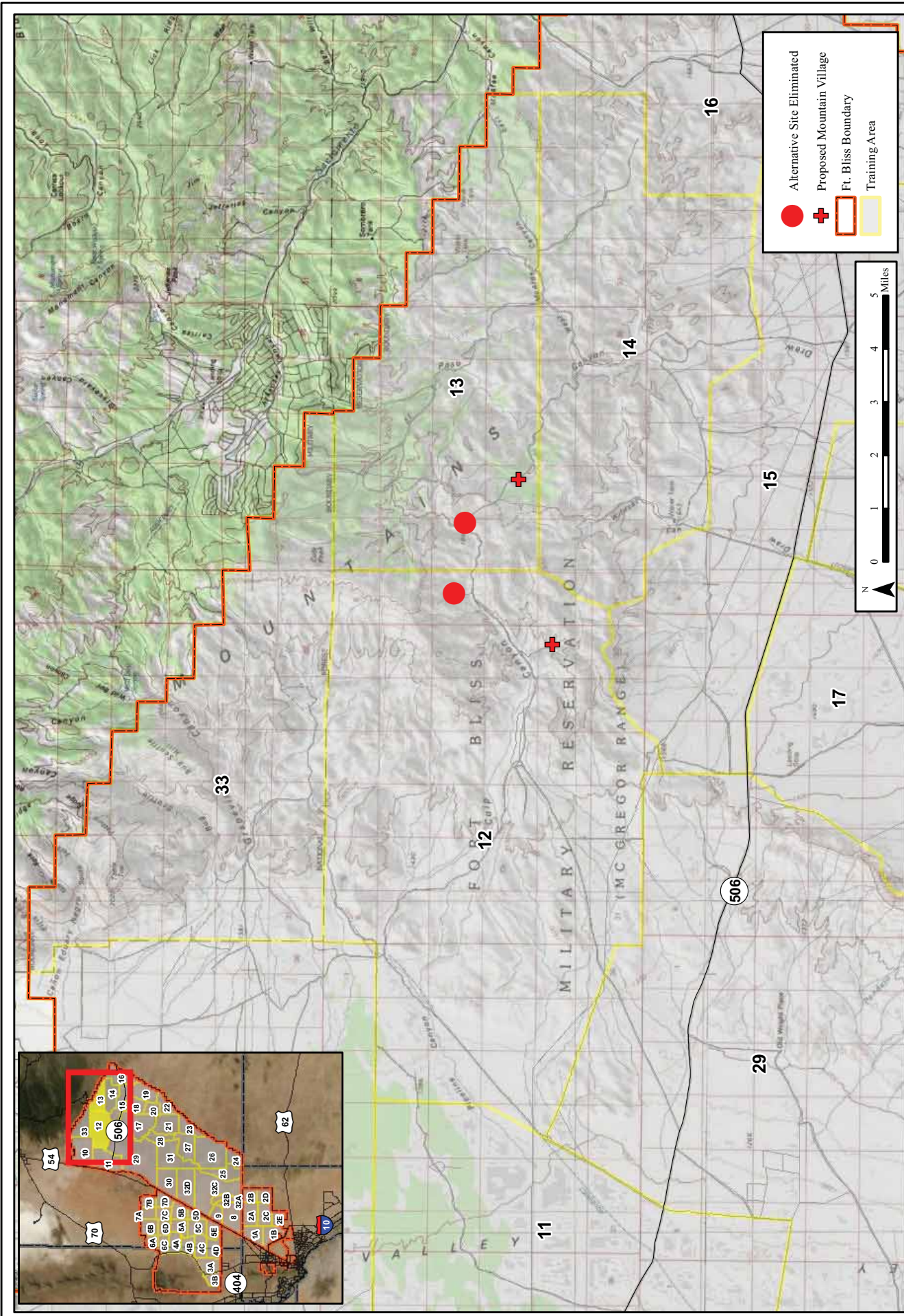


Figure 2-5: Location of the Two Proposed Mountain Village Sites and Two Alternative Mountain Village Sites Eliminated from Further Consideration

**SECTION 3.0**  
**AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**





1 **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**  
2

3 This section of the EA describes the natural and human environment that exists within the  
4 project area and the potential impacts of the Proposed Action and alternatives as outlined in  
5 Section 2.0 of this document. Only those resources that have the potential to be affected by any  
6 of the alternatives considered are described, as per CEQ guidance (40 CFR 1501.7[3]).  
7 Locations and resources with no potential to be affected need not be analyzed. The effects from  
8 the Proposed Action include impacts from construction, training use, and maintenance of the  
9 mountain village facilities. This includes all areas and lands that might be affected and may  
10 change depending on how the natural, cultural, and socioeconomic resources they contain or  
11 support are affected.  
12

13 Valued Environmental Components (VEC) were analyzed for each action alternative to  
14 determine which resources would potentially be affected (Table 3-1). VECs are those  
15 components that are considered to be important by society and potentially at risk from human  
16 activity or natural hazards. These include land use and aesthetics, soils and geologic resources,  
17 biological resources, cultural resources, surface water, groundwater, air quality, hazardous  
18 materials, airspace, noise, transportation and infrastructure, and construction and safety.  
19

20 Additionally, some topics are limited in scope due to the lack of direct effect from the proposed  
21 project on the resource or because that particular resource is not located within the project area.  
22 There would be no potential impacts on socioeconomics and environmental justice due to the  
23 remote location of the project. The nearest inhabited area is the rural town of Timberon with  
24 approximately 350 residences, located approximately 5 miles north of the project area, adjacent  
25 to the northern border of McGregor Range. Therefore, these resources will not be evaluated  
26 further in this analysis.  
27

28 Radiation and electromagnetic spectrum, as well as energy demand from the construction of  
29 training ranges and facilities on McGregor Range, were programmatically evaluated in the SEIS  
30 and the GFS EIS and are herein incorporated by reference. These documents can be found at  
31 <https://www.bliss.army.mil>. The impact of the Proposed Action on these resources will not  
32 significantly vary from that analysis, so these resources were excluded from further analysis.  
33

34 In accordance with NEPA and the CEQ regulations implementing NEPA, the analysis of  
35 environmental conditions only addresses those areas and environmental resources with the  
36 potential to be affected by any of the alternatives considered, including Alternative 1 (No  
37 Action), Alternative 2 (Preferred Alternative), Alternative 3, and Alternative 4. More  
38 specifically, the EA will examine the potential for direct, indirect, adverse, or beneficial impacts.  
39 The EA will also assess whether such impacts are likely to be long-term, short-term, permanent,  
40 or cumulative.

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**Table 3-1. Summary of Valued Environmental Components Analysis**

<b>Resource</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Preferred Alternative)</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
<b>Land Use and Aesthetics</b>	No additional impacts on land use or aesthetics would occur.	The existing land use designation for the proposed mountain village site and off-road zone in TA-12 would need to be modified to a proposed land use designation that allows for on-road and off-road vehicle maneuvering for light, medium, and heavy, wheeled vehicles, which would allow for Stryker usage. Tracked vehicles would be prohibited from using the area within the mountain village off-road zone. The proposed mountain village is located within a LUA. The LUA designation would be removed and reclassified to allow for the construction and training use of the mountain village. The proposed mountain village is located in a BLM-designated grazing area impacting approximately 5.4 acres out of the 270,000 acres (< 0.01 percent) of available grazing area on McGregor Range. The proposed mountain village is located in a designated recreational use area, impacting approximately 5.4 acres out of 420,000 acres (< 0.01 percent) of recreational area on McGregor Range. Recreational use areas are closed when used by Fort Bliss for training. Additionally, the proposed mountain village is located in a BLM visual resource management (VRM) area with a Class IV designation; the Preferred Alternative would comply with the classification. Only a very small portion of the village site would be within the viewshed of the Culp Canyon Wilderness Study Area (WSA). Since the mountain village would be within a mountainous area, it would not be very visible and, therefore, would not dominate the view corridor. There would be minimal land use and visual aesthetics impacts from the Preferred Alternative.	The existing land use designation for the proposed mountain village site and off-road zone in TA-13 would need to be modified to a proposed land use designation that allows for on-road and off-road vehicle maneuvering for light, medium, and heavy, wheeled vehicles, which would allow for Stryker usage. Tracked vehicles would be prohibited from using the area within the mountain village off-road zone. The proposed mountain village is located within a LUA, which would be removed and reclassified to allow for the construction and training use of the mountain village. The proposed mountain village is located in a BLM- designated grazing area impacting approximately 1.6 acres out of the 270,000 acres (< 0.01 percent) of available grazing area on McGregor Range. The proposed mountain village is located in a designated recreational use area, impacting approximately 1.6 acres out of 420,000 acres (< 0.01 percent) of recreational area on McGregor Range. Recreational use areas are closed when used by Fort Bliss for training. Additionally, the proposed mountain village is located in a BLM VRM area with a Class IV designation; Alternative 3 would comply with the classification. There would be minimal land use and visual aesthetics impacts from the Preferred Alternative.	Impacts on land use and aesthetics would be similar to those under Alternatives 2 and 3. There would be minimal land use and visual aesthetics impacts as a result of the construction and use of both proposed mountain villages.
<b>Soils</b>	No additional impacts on soils or geologic resources would occur.	Approximately 5.4 acres of soils would be disturbed by the mountain village and access road footprint. Up to approximately 868 acres could be impacted within the mountain village off-road zone during training activities. This could cause the disruption of soil processes and result in accelerated erosion, increased soil compaction, loss of protective vegetation, and loss of soil productivity. Impacts would depend on the frequency, intensity, total area of disturbance, and amount of bare ground created. No impacts on prime or unique farmland would occur. Best management practices (BMP) per Fort Bliss Stormwater Pollution Prevention Plan (SWPPP) guidance would be utilized to control fugitive dust and erosion during construction. The Preferred Alternative would result in moderate impacts on soils as a result of training activities.	Approximately 1.6 acres of soils would be disturbed by the mountain village footprint. In addition, up to approximately 780 acres could be impacted within the mountain village off-road zone during training activities. Impacts would be similar to those under Alternative 2 and would result in moderate impacts on soils as a result of training activities.	Approximately 7 acres of soils would be permanently disturbed by the mountain village within TA-12 and TA-13 of the McGregor Range and up to 1,648 acres of soil could be impacted within the mountain village off-road zones during training. Impacts on soils would be similar to those listed under Alternatives 2 and 3. There would be moderate impacts on soils as a result of the construction and use of both proposed mountain villages.
<b>Surface Water</b>	No additional impacts on surface water would occur.	An arroyo near the proposed mountain village would be minimally impacted by the access road, by increasing erosion and sedimentation due to construction within and near the arroyo; however, the road would be designed with culverts or low-water crossings to allow continued water flow. A SWPPP would be required and BMPs per the SWPPP would be utilized to control temporary fugitive dust and erosion during clearing and construction. There would be minimal impacts on surface water from the Preferred Alternative.	Impacts on surface water would be similar to, but less than, those under Alternative 2 because the proposed site is located further away from existing arroyos and no arroyo under Alternative 3 would be directly impacted by project construction.	Impacts on surface water would be similar to those under Alternatives 2 and 3. There would be minimal impacts on surface water as a result of the construction and use of both proposed mountain villages.
<b>Groundwater</b>	No additional impacts on groundwater would occur.	Indirect impacts on groundwater quality could occur from compaction of soils and decreased percolation to groundwater related to construction activities and maneuver training. Impacts on groundwater would be negligible as a result of Alternative 2.	Impacts would be similar to those under Alternative 2 and negligible.	Impacts on groundwater would be similar to those under Alternatives 2 and 3. There would be negligible impacts on groundwater as a result of the construction and use of both proposed mountain villages.

**Draft Environmental Assessment for the Construction and Training Use of  
Sacramento Mountain Villages, McGregor Range, Fort Bliss, New Mexico**

**Table 3-1, continued**

<b>Resource</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Preferred Alternative)</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
<b>Biological Resources</b>	No additional impacts on vegetation or wildlife would occur.	Under Alternative 2, approximately 5.4 acres of regionally common vegetation would be removed. BMPs per Fort Bliss SWPPP guidance would be utilized during clearing activities. There would be minimal impacts on vegetation under the Preferred Alternative. The Kuenzler hedgehog cactus, which is Federally listed as endangered under the Endangered Species Act (ESA) and also considered endangered by the state of New Mexico, has potential habitat in the region, but no individuals of the species were detected during a summer 2012 survey, therefore, it is not likely to be adversely affected. No other species listed under the ESA would be impacted. The Preferred Alternative could occur in habitat that is utilized by the gray vireo and other bird species protected under the Migratory Bird Treaty Act (MBTA). However, any impacts on migratory birds would be minimal because construction work would be carried out in the fall and winter months to coincide with the non-breeding season for these species, or if construction occurs during the spring, a preconstruction survey for bird activity or nesting colonies would be conducted and active nests would be avoided, if discovered.	Under Alternative 3, approximately 1.6 acres of regionally common vegetation would be removed as a result of construction of the proposed mountain village. Impacts on biological resources under Alternative 3 would be similar to those under Alternative 2.	Under Alternative 4, approximately 7 acres of regionally common vegetation would be removed as a result of the construction of both proposed mountain villages. Impacts on biological resources under Alternative 4 would be similar to those under Alternatives 2 and 3.
<b>Cultural Resources</b>	No additional impacts on cultural resources would occur.	According to surveys conducted by Fort Bliss personnel, no cultural resources are located within the footprint of the proposed mountain village or access road. Two archaeological sites are located outside of the proposed 1.4-acre village site footprint, but within the 868-acre mountain village off-road zone. One archaeological site is recommended not eligible for inclusion in the National Register of Historic Places (NRHP) and implementation of the Preferred Alternative would not result in an adverse effect. The second archaeological site is of undetermined NRHP eligibility and would require further testing to determine whether adverse effects would occur as a result of implementation of the Preferred Alternative. During the implementation of the Preferred Alternative, the site of undetermined eligibility would be delineated with Seibert stakes and avoided by all actions associated with the off-road zone, thereby negating any yet-to-be-determined adverse effects. The Preferred Alternative site is not within the viewshed of a historic district. No adverse effects on cultural resources are expected as a result of the implementation of the Preferred Alternative.	Surveys have determined that no surface archeological sites eligible for inclusion in the NRHP are located within the 1.6-acre mountain village footprint and disturbance area. Survey coverage of the 780-acre off-road zone surrounding the proposed village site was limited to 96 percent of the area. Within the area surveyed, 22 archaeological sites were reported, with 18 being ineligible and requiring no further consideration. The four remaining previously reported archaeological sites consist of two recommended eligible for the NRHP and two of undermined eligibility. If Alternative 3 is implemented, these four sites would be delineated with Seibert stakes and avoided by all actions associated with the off-road zone. If avoidance is not possible, a mitigation plan for their treatment would be developed per the Programmatic Agreement. No adverse effects on cultural resources are expected as a result of the implementation of Alternative 3.	Impacts on cultural resources would be similar to those under Alternatives 2 and 3. No adverse effects on cultural resources are expected.
<b>Air Quality</b>	No additional air quality impacts would occur.	Temporary and minor increases in air pollution would occur from the use of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during construction of the access road and the proposed mountain village. The air emissions from the proposed construction and operational activities do not exceed Federal <i>de minimis</i> thresholds. The impacts on air quality in Otero County from the implementation of Alternative 2 would be negligible.	Impacts would be similar to those under Alternative 2. The impacts on air quality in Otero County from the implementation of Alternative 3 would be negligible.	Impacts on air quality would be similar to those under Alternatives 2 and 3. The impacts on air quality in Otero County from the implementation of Alternative 4 would be negligible.
<b>Noise</b>	No additional noise impacts would occur.	Neither the noise emissions from the construction activities nor the proposed training activities would impact the Culp Canyon WSA. There is potential that aircraft flying an off-post approach to the mountain village site may annoy those living near the flight tracks. The addition of the proposed mountain village and training use would have little to no noise impact beyond the Fort Bliss boundary. The noise levels from proposed training would be compatible with U.S. Army guidelines and impacts on the noise environment in the region would be minimal.	Noise emissions associated with Alternative 3 would be similar to those described in Alternative 2. The distances to the sensitive noise receptors are far enough away that noise emissions would only have minimal impacts. Similar to Alternative 2, there is potential that aircraft flying an off-post approach to the proposed mountain village site may annoy those living near the flight tracks. Noise emissions associated with construction and military training would attenuate to levels below significant thresholds before entering areas with sensitive noise receptors; therefore, impacts on the noise environment in the region would be minimal.	Noise impacts would be similar to those under Alternatives 2 and 3. The implementation of Alternative 4 would result in minimal impacts on the noise environment.

**Draft Environmental Assessment for the Construction and Training Use of  
Sacramento Mountain Villages, McGregor Range, Fort Bliss, New Mexico**

**Table 3-1, continued**

<b>Resource</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Preferred Alternative)</b>	<b>Alternative 3</b>	<b>Alternative 4</b>
<b>Transportation and Infrastructure</b>	No additional impacts on transportation and infrastructure would occur.	Temporary disruptions to traffic would occur during construction. There would be increased traffic loads in the area during construction and training and possible increases in road maintenance activities as a result of increased traffic during construction and training. The water lines and water troughs located in the area would need to be protected or buried sufficiently deep to avoid damage from off-road maneuver. There would be minimal impacts on transportation and supporting infrastructure as a result of the Preferred Alternative.	Impacts would be similar to those under Alternative 2 and considered minimal.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. While there would be a potential for more military vehicles to use the roadways during training exercises at both village sites, there would still be minimal impacts on transportation and supporting infrastructure as a result of the construction and use of both proposed mountain villages.
<b>Health and Safety</b>	No additional impacts on health and safety would occur.	Live-fire military activities would be scheduled and occur under controlled conditions. Public recreation use is controlled through access permits by Fort Bliss Range Operations to ensure safety and use compatibility with military activities, and areas designated for recreational use, including the Culp Canyon WSA, would be closed when in use for military training. Minimal impacts on health and safety would be expected as a result of the Preferred Alternative.	Impacts would be similar to those under Alternative 2. Minimal impacts on health and safety would be expected as a result of Alternative 3.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal impacts on health and safety would be expected as a result of the construction and use of both proposed mountain villages.
<b>Hazardous Materials and Waste</b>	No additional hazardous materials and waste impacts would occur.	A limited amount of hazardous materials and waste would be used or generated at the proposed mountain village site from maintenance and operational activities, including petroleum, oil, and lubricants (POL). Secondary containment for parking and using the fuel trucks for construction and training equipment would be utilized. Drip pans would be provided for stationary equipment to capture any POL accidentally spilled during construction and operation activities or leaks from the equipment.  During live-fire training exercises, additional ammunition and explosives of concern would be generated. Current Army protocols for the protection of Army personnel and the public would reduce the safety risks associated with unexploded ordnance (UXO) and would minimize the potential for human or environmental exposure to UXO or lead.  Fort Bliss has a Spill Prevention, Control, and Countermeasures Plan (SPCCP) and Installation Spill Contingency Plan (ISCP) in place. These plans establish responsibilities, duties, procedures, and resources to be employed to contain, mitigate, and clean up POL spills. All hazardous wastes would be disposed of according to the Installation Hazardous Waste Management Plan. Minimal hazardous materials and waste impacts would occur as a result of the Preferred Alternative.	Impacts would be similar to those under Alternative 2 and considered minimal.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal hazardous materials and waste impacts would occur as a result of the construction and use of both proposed mountain villages.
<b>Airspace Operations</b>	No additional impacts on airspace operations would occur.	There would be no change in the airspace designation. To minimize airspace conflicts during training exercises, especially during .50-caliber weapon firing, scheduling would be done through Range Operations - Flight Control. There would be no effect on public airspace since all airspace within McGregor Range is classified as military airspace. The impacts on airspace operations would be minimal.	Impacts would be similar to those under Alternative 2 and considered minimal.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal impacts on airspace operations would occur as a result of the construction and use of both proposed mountain villages.
<b>Wildland Fire</b>	No additional wildland fire impacts would occur.	All land within the footprint of the mountain village will be cleared and grubbed. Therefore, the risk of wildland fire at the proposed mountain village site on TA-12 would be low. In addition, the type and amount of vegetation that is found near the site would have little potential to be a fuel source for a wildland fire. The wildland fire impacts would be negligible.	The amount of vegetation located at the proposed mountain village site in TA-13 is greater than in TA-12; therefore, a fuel reduction thinning project would be required for the area around the proposed mountain village. After the implementation of this procedure, the wildland fire impacts under Alternative 3 would be negligible.	Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Negligible wildland fire impacts would occur as a result of the construction and use of both proposed mountain villages.

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1 **3.1 Land Use and Aesthetics**

2  
3 **3.1.1 Affected Environment**

4 The proposed mountain village sites are located on northern McGregor Range, Fort Bliss.  
5 McGregor Range has been withdrawn from the public domain for military use through PL 106-  
6 65. As such, McGregor Range is co-managed by the Bureau of Land Management (BLM) and  
7 Fort Bliss for military, recreation, and other uses.  
8

9 Both mountain village sites are located in areas of relatively undisturbed land north of NM 506.  
10 The proposed mountain village footprint within TA-12 is classified by Fort Bliss as Land Use  
11 Category C, while the proposed mountain village footprint within TA-13 is classified as Land  
12 Use Category B (Figure 3-1) (U.S. Army 2010). The 1-kilometer off-road zone around the  
13 village sites includes both Land Use Category B and C. Land Use Category C allows on-road  
14 vehicle maneuvering for wheeled or tracked vehicles on existing roads; dismounted (foot traffic)  
15 maneuvering and training; aircraft operations; controlled field training exercises; mission support  
16 facilities; live fire; safety danger zone/safety footprint; and environmental management. Land  
17 Use Category B allows for all the same uses as Category C but also allows for off-road travel  
18 with light, wheeled vehicles. Both proposed mountain village sites and the mountain village off-  
19 road zones are located within LUAs. LUAs are open to military training activities but are off  
20 limits to static vehicle positions, concentrations of vehicles, or digging, to include the following  
21 types of operations: all logistical, training unit assembly areas; fuel depots; any digging or  
22 excavation; field fortifications; bivouac areas; tactical operations centers; and any other proposed  
23 concentrations or vehicles or personnel or ground disturbance (U.S. Army 2010).  
24

25 Non-military, public use is also allowed in designated areas, provided such use does not conflict  
26 with military uses or pose safety risks to the public. Non-military use includes public recreation  
27 such as hunting, hiking, picnicking, and bird watching. Public recreation use is controlled  
28 through access permits by Fort Bliss Range Operations to ensure safety and use compatibility  
29 with military activities. Both village sites are located in a designated recreational use area.  
30

31 Through PL 106-65, the BLM also manages livestock grazing on approximately 270,000 acres  
32 on McGregor Range in 14 grazing units. The proposed mountain village in TA-12 is located  
33 within Grazing Unit 3, while the mountain village within TA-13 is located with Grazing Unit 5  
34 (U.S. Army 2010) (Figure 3-1). There are water pipelines, water troughs, and fencing, including  
35 functional, non-functional and semi-functional fencing, located in the areas of both proposed  
36 mountain village sites (Figure 3-1). The water lines and fencing are used and maintained by  
37 BLM as part of the livestock grazing unit (BLM 2006).  
38

39 McGregor Range is a composite of three visually different landscapes: the Tularosa Basin, which  
40 is visually typical of the Chihuahuan Desert landscape; the Otero Mesa, which is predominantly  
41 grassland; and the foothills of the Sacramento Mountains. To protect the visual resources on  
42 BLM-managed or co-managed land, the BLM has established visual resource management area  
43 (VRM) Classifications based upon aesthetic value. The four class categories are Class I and II,  
44 the most aesthetically valued; Class III, moderate value; and Class IV, the least aesthetically  
45 valued. Both mountain village sites in TA-12 and TA-13 are located within VRM area Class IV.

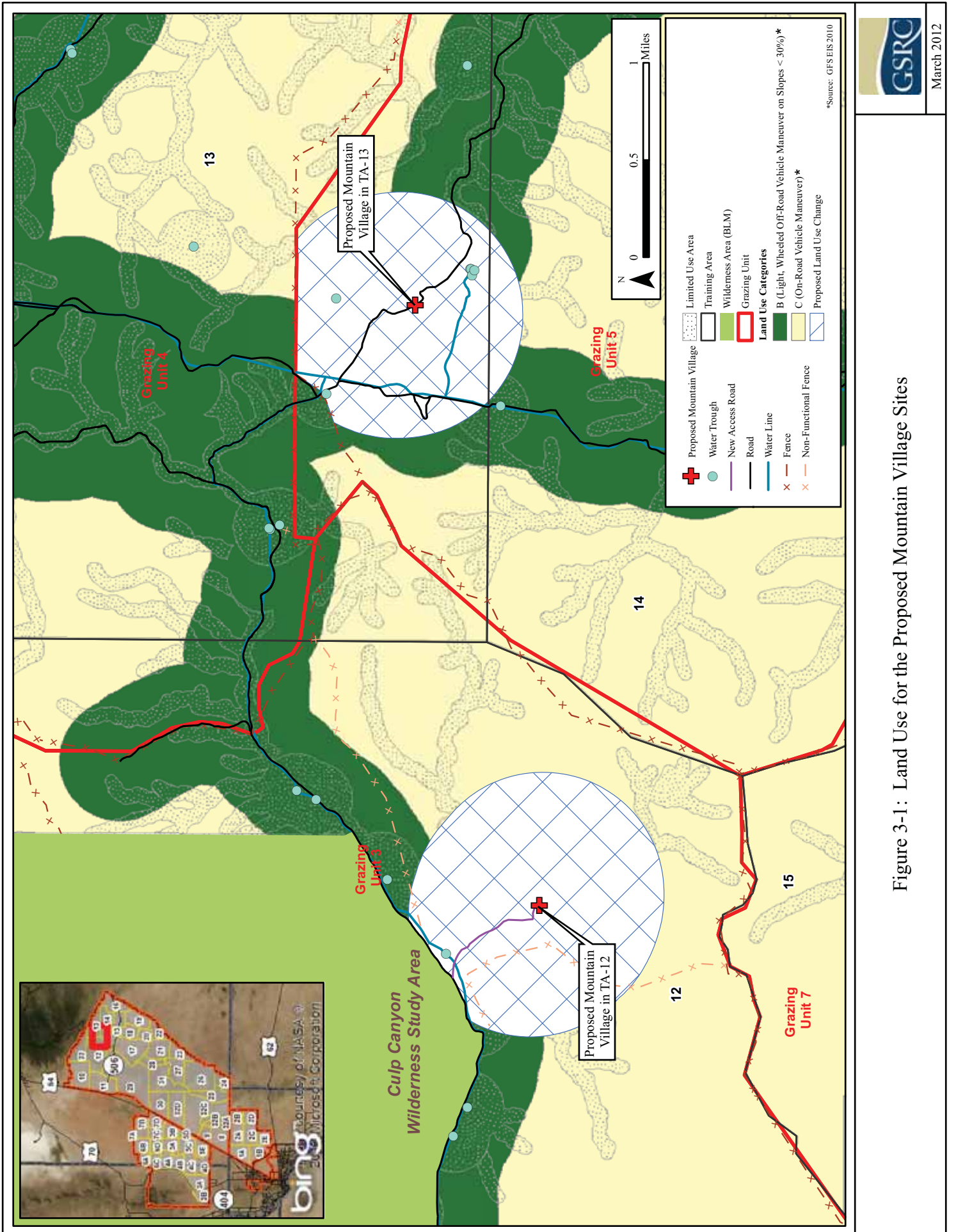


Figure 3-1: Land Use for the Proposed Mountain Village Sites

1 The BLM objective in a Class IV area is to provide management for activities that require major  
2 modifications of the existing character of the landscape. Activities in a Class IV area may  
3 dominate the view and be the major focus of viewer attention (U.S. Army 2010).

### 4 5 **3.1.2 Environmental Consequences**

#### 6 **3.1.2.1 Alternative 1 (No Action)**

7 Under Alternative 1, the mountain villages and access road would not be constructed and no  
8 training activities or land use designation change associated with the proposed mountain villages  
9 would take place; therefore, no impacts on land use or aesthetics additional to the existing  
10 environment would occur.

#### 11 12 **3.1.2.2 Alternative 2 (Preferred Alternative)**

13 The existing land use designation for the proposed mountain village site in TA-12 would need to  
14 be modified to allow for realistic training use of the proposed mountain village and to provide for  
15 more intensive use than allowed for in the GFS EIS. The existing land use designation would be  
16 modified to a proposed land use designation that allows for on-road and off-road vehicle  
17 maneuvering for light, medium, and heavy, wheeled military vehicles, which would allow for  
18 Stryker usage, along with the same military uses described previously for Land Use Categories B  
19 and C (see Figure 3-1). This proposed land use change would be within the approximately 1-  
20 kilometer off-road zone around the village site. Tracked vehicles of any classification would be  
21 prohibited from using the area within the mountain village off-road zone. The site for the  
22 proposed mountain village in TA-12 would be located within an existing LUA. The LUA  
23 designation would be removed from the mountain village off-road zone and reclassified to allow  
24 for the construction and training use of the mountain village (see Figure 3-1). Up to  
25 approximately 868 acres could be impacted within the mountain village off-road zone around the  
26 village during training exercises with off-road vehicles, including ATVs, HMMWVs, and  
27 Strykers, training exercises on foot, and deployment of various weaponry.

28  
29 The proposed mountain village site in TA-12 is located in a designated recreational use area.  
30 Approximately 5.4 acres for the mountain village and access road footprint would be removed  
31 from the 420,000 acres designated for recreational use on McGregor Range, which would be  
32 considered minimal, as it is less than 0.01 percent of the available acreage (U.S. Army 2010).  
33 Public recreation use is strictly controlled by Fort Bliss Range Operations, and areas designated  
34 for recreational use are closed when in use for military training. The Culp Canyon Wilderness  
35 Study Area (WSA) would also be closed to the public when the mountain village is in use for  
36 training.

37  
38 The proposed mountain village in TA-12 is located within Grazing Unit 3. The footprint of the  
39 mountain village and access road would impact approximately 5.4 acres of grazing land from  
40 Grazing Unit 3. This loss of area would be considered minimal (less than 0.01 percent) when  
41 compared to the overall available grazing area of 270,000 acres designated on McGregor Range.  
42 The cattle located within the grazing areas could possibly be included with the live animals that  
43 would be brought into the mountain village. The addition of a salt or protein block could provide  
44 a food source to draw in the cattle, which would add to the functionality of the mountain  
45 villages. Only non-functional fencing is found near the proposed mountain village in TA-12. A  
46 water line is located along Culp Canyon Road and a water trough is located along the existing

1 access road leading to the proposed village site. The water line would need to be protected or  
2 buried sufficiently deep to avoid damage from off-road maneuvers. The water trough would  
3 need to be protected and avoided during construction and training exercises. Also, BLM requires  
4 access to the water troughs, water pipelines, and fencing for 4 hours, twice per week.  
5

6 The village site would not be visible to travelers on US 54, NM 506, residents of Orogrande, or  
7 residents of Timberon; however, some activity is likely to be noted during training activities.  
8 The area where the proposed mountain village would be located is primarily utilized by Fort  
9 Bliss and other personnel, ranchers, and local residents accustomed to seeing military activities  
10 and equipment in the area. The Culp Canyon WSA, which has a VRM Class II designation, is  
11 located about 0.75 mile north of the proposed site. The Culp Canyon WSA will be avoided and  
12 will not be used for any training purposes. Only a very small portion of the mountain village  
13 would be within the Culp Canyon WSA viewshed (Figure 3-2). The main portion of the village  
14 site would not be within the Culp Canyon WSA viewshed. Since the mountain village would be  
15 within a mountainous area, it would not be very visible and, therefore, would not dominate the  
16 view corridor. The mountain village site would comply with the VRM class designations. The  
17 proposed mountain village would not have a greater visual impact beyond what is normal for the  
18 area. As such, there would be minimal land use and visual aesthetics impacts from the Preferred  
19 Alternative.  
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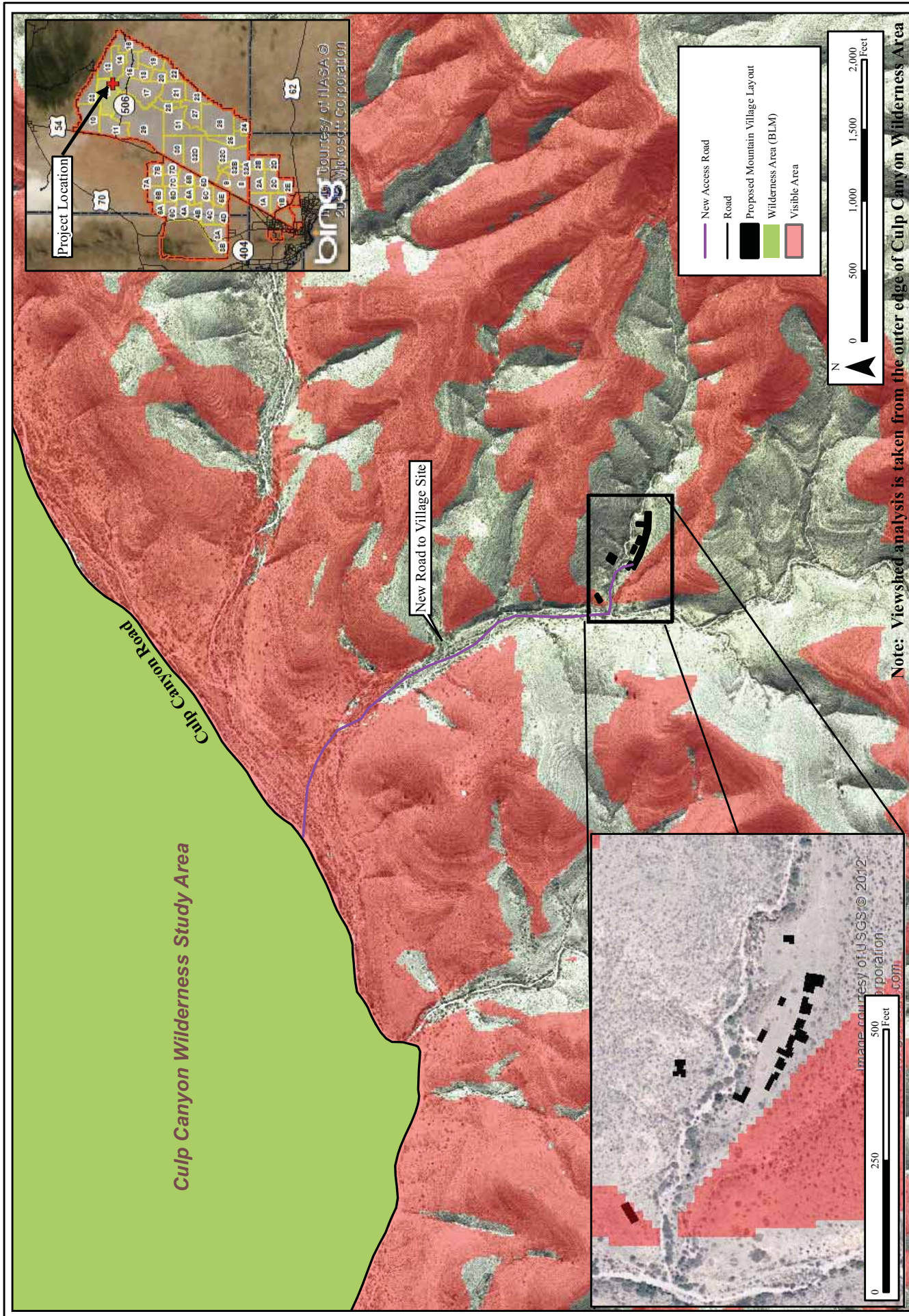
### 21 **3.1.2.3 Alternative 3**

22 Similar to Alternative 2, the existing land use designation for the proposed mountain village site  
23 in TA-13 would need to be modified to allow for realistic training use of the proposed mountain  
24 village and provide for more intensive use than allowed for in the GFS EIS. The land use  
25 designation would be modified to a proposed land use designation that allows for on-road and  
26 off-road vehicle maneuvering for light, medium, and heavy, wheeled vehicles. This would allow  
27 for Stryker usage along with the same military uses described previously for Land Use  
28 Categories B and C (see Figure 3-1). However, tracked vehicles of any classification would be  
29 prohibited from using the area within the mountain village off-road zone. The site for the  
30 proposed mountain village TA-13 would be located within an existing LUA. The LUA  
31 designation would be removed from the mountain village off-road zone and reclassified to allow  
32 for the construction and training use of the mountain village (see Figure 3-1). Up to  
33 approximately 780 acres could be impacted within the mountain village off-road zone around the  
34 village during training due to off-road driving with vehicles, including ATVs, HMMWVs, and  
35 Strykers, training exercises on foot, and deployment of various weaponry.  
36

37 The proposed mountain village site in TA-13 is located in a designated recreational use area.  
38 Approximately 1.6 acres would be removed from the 420,000 acres designated for recreational  
39 use on McGregor Range, which would be considered minimal, as it is less than 0.01 percent of  
40 the available acreage (U.S. Army 2010). The public recreation areas and the Culp Canyon WSA  
41 would be closed to the public when the mountain village is in use for training.  
42

43 The proposed mountain village in TA-13 is located within Grazing Unit 5. The footprint of the  
44 mountain village would impact approximately 1.6 acres of grazing land from Grazing Unit 5.  
45 This loss of area would be considered minimal (less than 0.01 percent) when compared to the  
46 overall available grazing area of 270,000 acres designated on McGregor Range. Only non-





Note: Viewshed analysis is taken from the outer edge of Culp Canyon Wilderness Area

Figure 3-2: Viewshed Analysis from Culp Canyon Wilderness Area to Proposed Mountain Village Site in Training Area 12 on McGregor Range

1 functional fencing is found near the proposed mountain village in TA-13. Functional fencing is  
2 located within the off-road zone for the proposed mountain village on TA-13. Therefore, the  
3 mountain village off-road zone was modified to avoid impacting the functional fencing (see  
4 Figure 2-3). Water lines and water troughs are also located within the mountain village off-road  
5 zone. The water lines would need to be protected or buried sufficiently deep to avoid damage  
6 from off-road maneuvers. The water troughs would need to be protected and avoided during  
7 construction and training exercises.  
8

9 The proposed mountain village site would not be visible to travelers on US 54, NM 506,  
10 residents of Orogrande, or residents of Timberon but some activity is likely to be noted during  
11 training activities. However, the area where the proposed mountain village would be located is  
12 primarily utilized by Fort Bliss and other personnel, ranchers, and local residents accustomed to  
13 seeing military activities and equipment in the area. The mountain village would be visible  
14 from the Combat Trail Road and could dominate the view corridor; however it is located within a  
15 VRM Class IV area. The proposed mountain village would not have a greater visual impact  
16 beyond what is normal for the area. As such, there would be minimal land use and visual  
17 aesthetics impacts from the proposed mountain village in TA-13.  
18

#### 19 **3.1.2.4 Alternative 4**

20 Impacts on land use and aesthetics would be similar to those under Alternatives 2 and 3. There  
21 would be minimal land use and visual aesthetics impacts as a result of the construction and  
22 training use of both proposed mountain villages.  
23

### 24 **3.2 Soils**

#### 25 **3.2.1 Affected Environment**

26 The soils found within the TA-12 area of the McGregor Range village site are mapped as  
27 Deama-Rock outcrop complex, 35 to 65 percent slopes, and, therefore, could contain  
28 characteristics of either Deama or Rock outcrop series. Deama-Rock outcrop complex, 35 to 65  
29 percent slopes, occur at elevations of 5,500 to 6,800 feet, and the map unit composition is 60  
30 percent Deama and similar soils and 35 percent rock outcrop (Natural Resources Conservation  
31 Service [NRCS] 2011). Deama series consist of shallow, well-drained, very stony loam and/or  
32 rangeland soils with moderately slow permeability above very slowly permeable limestone  
33 rockbed (NRCS 2011). Deama soils occur on hills, ridges, plateaus, and mesas and can have  
34 slopes ranging from 0 to 75 percent. Deama-rock outcrop complex soils are susceptible to severe  
35 erosion on steeper slopes, and surface runoff is high (U.S. Department of Agriculture [USDA]  
36 1976).  
37

38  
39 Other soils occurring within the mountain village off-road zone within TA-12 include: Altuda-  
40 Rock outcrop complex, 15 to 35 percent slopes; Deama-Rock outcrop complex, 15 to 35 percent  
41 slopes; Bissett-Rock outcrop complex, 35 to 65 percent slopes; and Sonic, very gravelly fine  
42 sandy loam, 1 to 8 percent slopes. Altuda-Rock outcrop rock complex soils occur at elevations  
43 of 4,900 to 6,000 feet and consist of 60 percent Altuda (well-drained, cobbly loam soils) and  
44 similar soils and 30 percent rock outcrop. Sonic soils are very gravelly fine sandy loam, well-  
45 drained soils.

1 The soil found within the TA-13 area of McGregor Range village site is mapped as Cale silt  
2 loam, 2 to 5 percent slopes. Cale silt loam, 2 to 5 percent slopes, is well-drained, silt clay loam  
3 soil that occurs on valley floors at elevations of 5,500 to 6,800 feet.  
4

5 Other soils occurring within the mountain village off-road zone surrounding the proposed  
6 mountain village site in TA-13 include: Deama-Penalto-Rock outcrop complex, 15 to 35 percent  
7 slopes; Deama-Penalto-Rock outcrop complex, 5 to 15 percent slopes; Deama-Penalto-Rock  
8 outcrop complex, 35 to 65 percent slopes; Deama-Rock outcrop complex, 15 to 35 percent  
9 slopes; Deama-Rock outcrop complex, 35 to 65 percent slopes; and Deama-Rock outcrop  
10 complex, 5 to 15 percent slopes.  
11

12 The wind erosion hazard on Fort Bliss is high due to the dominance of highly erodible soils. The  
13 soil surface is dry, sandy, and sparsely vegetated, especially in areas that have already been  
14 impacted by military vehicle traffic. The soils are susceptible to dust generation and dune  
15 formation. The Fort Bliss Soil Survey (USDA 2003) provides details on the usability and  
16 trafficability ratings of each soil based on the series' characteristics.  
17

### 18 **3.2.2 Environmental Consequences**

#### 19 **3.2.2.1 Alternative 1 (No Action)**

20 Under Alternative 1, the mountain villages and access road would not be constructed and no  
21 training activities or land use designation change associated with the proposed mountain villages  
22 would take place; therefore, no impacts on soils additional to the existing environment would  
23 occur.  
24

#### 25 **3.2.2.2 Alternative 2 (Preferred Alternative)**

26 Approximately 1.4 acres of Deama-rock outcrop complex soils would be permanently disturbed  
27 for the construction of the mountain village site within TA-12 of the McGregor Range. The  
28 construction of the new access road will permanently disturb 4 acres of Deama-Rock outcrop  
29 complex, 15 to 35 percent slopes, Deama-Rock outcrop complex, 35 to 65 percent slopes, and  
30 Sonic very gravelly fine sandy loam, 1 to 8 percent slopes soils. In addition, up to 868 acres of  
31 soil could be impacted within the mountain village off-road zone during training due to off-road  
32 driving with military vehicles, training exercises on foot, and deployment of various weaponry.  
33

34 No impacts on prime or unique farmland soils would occur because none occur within the  
35 project area. Direct post-construction impacts on soils include the physical disturbance of upper  
36 soil layers, including biological crusts, and the disruption of soil processes caused by activities  
37 that alter the natural soil layers or result in accelerated erosion, increased soil compaction, loss of  
38 protective vegetation, and loss of soil productivity. Impacts would depend on the frequency,  
39 intensity, total area of disturbance, and amount of bare ground created. Training activities could  
40 increase the potential for soil erosion (water and wind). Indirect effects (e.g., soil compaction)  
41 include reduced surface water infiltration, increased surface water runoff, increased wind erosion  
42 due to loss of vegetation, and poor plant growth and seed germination. Alternative 2 would  
43 result in moderate impacts on soils as a result of construction and training activities.  
44

45 Soil management at Fort Bliss is coordinated through the Fort Bliss Directorate of Public Works-  
46 Environmental Division (DPW-E) and Integrated Training Area Management - Directorate of

1 Plans, Training, Mobilization, and Security (ITAM-DPTMS) to control or mitigate for water or  
2 wind erosion, and includes cost-effective technologies such as revegetation, erosion control  
3 structures, site hardening, blockades, and dust palliatives to prevent training site degradation, soil  
4 erosion, and excessive road damage. Fort Bliss resource management objectives include  
5 preventing the deterioration of highly erodible soil resources (U.S. Army 2008b). Construction  
6 stormwater permitting is required for this project because the area of disturbance exceeds 1 acre.  
7 The Fort Bliss Stormwater Pollution Prevention Plan (SWPPP) requirements would be  
8 incorporated into contractor specifications prior to construction. Best Management Practices  
9 (BMP) following Fort Bliss SWPPP guidance (U.S. Army 2011a) would be utilized to control  
10 temporary fugitive dust and erosion during construction.

### 11 12 **3.2.2.3 Alternative 3**

13 Approximately 1.6 acres of Cale silt loam, 2 to 5 percent slopes soils would be permanently  
14 disturbed for the construction of the mountain village site within TA-13 of the McGregor Range.  
15 In addition, up to 780 acres of soil could be impacted within the mountain village off-road zone  
16 area during training. No impacts on prime or unique farmland soils would occur because none  
17 occur within the project area. Impacts on soils would be similar to those listed under Alternative  
18 2. There would be moderate impacts on soils as a result of the construction and training use of  
19 the proposed mountain village.

### 20 21 **3.2.2.4 Alternative 4**

22 Approximately 7 acres of soils would be permanently disturbed for the construction of the  
23 mountain village sites within TA-12 and TA-13 of the McGregor Range, and up to 1,648 acres of  
24 soil could be impacted within the mountain village off-road zone during training. Impacts on  
25 soils would be similar to those listed under Alternatives 2 and 3. There would be moderate  
26 impacts on soils as a result of the construction and use of both proposed mountain villages.

## 27 28 **3.3 Surface Water**

### 29 30 **3.3.1 Affected Environment**

31 The Region of Influence (ROI) for water resources includes the surface water and groundwater  
32 resources that supply Fort Bliss, El Paso, and other communities whose water supply may be  
33 affected by activities at Fort Bliss, and includes four watersheds. The surface watersheds in the  
34 ROI are Tularosa Valley, Rio Grande-Fort Quitman, Salt Basin, and El Paso-Las Cruces  
35 watersheds (U.S. Geological Survey [USGS] 2011). These watersheds fall within the Rio  
36 Grande Hydrologic Unit (Region 13). The Rio Grande River is the main surface water feature  
37 within the ROI. Other surface water in the area is scarce or seasonal in nature.

38  
39 TA-12 falls entirely within the Tularosa Valley watershed; TA-13 falls primarily within the Salt  
40 Basin watershed. Both watersheds are characterized by ephemeral streams that discharge  
41 towards the central area of the Salt Basin. Higher runoff occurs in the Salt Basin due to the  
42 higher elevation, particularly in the Sacramento Mountains. The arroyos in the area discharge  
43 into the bolson floor during extreme rainfall events or the water is lost to evapotranspiration. No  
44 well-defined natural drainage channels are present in the area.

1 No Federally regulated wetlands or waters of the U.S. as defined by the U.S. Army Corps of  
2 Engineers (USACE) under Section 404 of the Clean Water Act of 1972 (CWA) would be  
3 impacted by the Proposed Action. The vast majority of arroyo-riparian drainages on Fort Bliss  
4 do not qualify as jurisdictional wetlands as defined by USACE (U.S. Army 2009). An arroyo  
5 located near the Alternative 2 site would be impacted by the proposed access road leading to the  
6 site (Figure 3-3). Within the mountain village off-road zone of Alternative 2, there are  
7 approximately 6.19 miles of surface water (e.g., arroyos). The Alternative 3 site has 4.05 miles  
8 of surface water within the mountain village off-road zone.

### 9 10 **3.3.2 Environmental Consequences**

#### 11 **3.3.2.1 Alternative 1 (No Action)**

12 Under Alternative 1, the mountain villages and access road would not be constructed and no  
13 training activities or land use designation change associated with the proposed mountain villages  
14 would take place; therefore, no impacts on surface water additional to the existing environment  
15 would occur.

#### 16 17 **3.3.2.2 Alternative 2 (Preferred Alternative)**

18 Under Alternative 2, the arroyo nearest to the proposed access road would be minimally  
19 impacted. The majority of the proposed access road may be constructed within or near the  
20 existing arroyo. In addition, the proposed access road would cross the arroyo several times, and  
21 the installation of arroyo crossings or culverts at certain points would be required where the road  
22 crosses the main stream channel. The road would be designed with low-water crossings to allow  
23 water to flow across it and so that losses of arroyo-riparian attributes downstream of the crossing  
24 would not occur. All design standards for the design and construction of the access road  
25 including draining and sustainability would be adhered to.

26  
27 A SWPPP following Fort Bliss Construction SWPPP guidance (U.S. Army 2011a) would be  
28 developed outlining the BMPs and other measures to be implemented to prevent stormwater  
29 runoff during and following construction. New construction for any facilities with a footprint  
30 exceeding 5,000 square feet or greater on Fort Bliss property require the design of the  
31 operational stormwater drainage aspects of these facilities to comply with the Energy  
32 Independence and Security Act Section 438. All designs and specifications must include a  
33 written statement of compliance and brief summary description of the technical approach applied  
34 to maintain or restore stormwater hydrology to the maximum extent technically feasible. The  
35 use of Low Impact Development/Green Infrastructure design options would also be considered  
36 along with the conventional on-site or off-site stormwater detention/retention.

37  
38 The construction of the proposed access road adjacent to and within the arroyo could temporarily  
39 result in increased sedimentation within the arroyo. In addition, all ephemeral arroyos within the  
40 project area could experience increased sedimentation and erosion temporarily during  
41 construction and training activities (e.g., off-road maneuvering). Maneuver training could also  
42 result in impacts on surface water quality from nonpoint source sediment loading, increased  
43 runoff, and accidental spills. BMPs following Fort Bliss SWPPP guidance could be utilized to  
44 control temporary fugitive dust, erosion, and sedimentation during construction. These BMPs  
45 include silt fencing, structural wind breaks, erosion control mats, and applying water during  
46 construction.

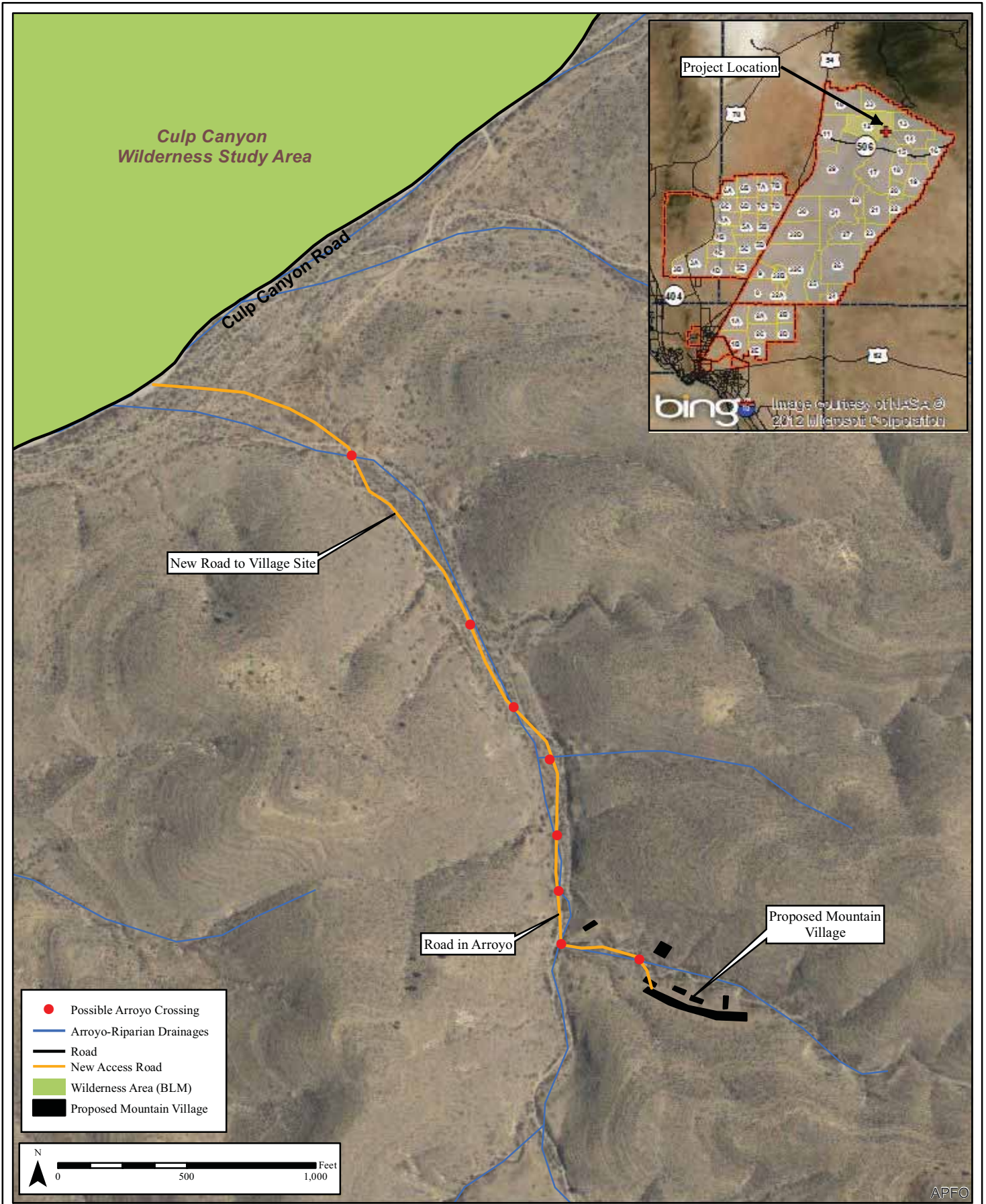


Figure 3-3: Location of Arroyo Near Proposed Mountain Village in TA-12

1 An increase in the amount of bare ground can reduce the quantity of water held within the upland  
2 areas and increase overland flow, thus increasing discharge from peak flows and decreasing the  
3 duration of flood flows. Training activities could result in accidental releases of fuels, solvents,  
4 and other hazardous materials that could impact surface water. Fort Bliss has a Spill Prevention,  
5 Control, and Countermeasures Plan (SPCCP) and Installation Spill Contingency Plan (ISCP) in  
6 place that would be followed during construction and training activities. These plans establish  
7 responsibilities, duties, procedures, and resources to be employed to contain, mitigate, and clean  
8 up petroleum, oil, and lubricants (POL) spills.

9  
10 No significant volume of surface water is discharged from the basin. There are water pipelines  
11 in the area that feed the cattle troughs located within the mountain village off-road zone and the  
12 surrounding areas. These pipelines receive water from surface water diversions in the area.  
13 Historically, the surface water has been modified to provide water for livestock in the perennial  
14 reaches of the streams, but even under normal conditions, the mountain drainages are not  
15 tributary to larger streams. Therefore, there would be minimal impacts on surface water as a  
16 result of Alternative 2.

### 17 18 **3.3.2.3 Alternative 3**

19 Impacts on surface water would be similar to, but less than those under Alternative 2 because the  
20 proposed site is located further away from existing arroyos and no arroyo under Alternative 3  
21 would be directly impacted by project construction.

### 22 23 **3.3.2.4 Alternative 4**

24 Impacts on surface water would be similar to those under Alternatives 2 and 3. There would be  
25 minimal impacts on surface water as a result of the construction and training use of both  
26 proposed mountain villages.

## 27 28 **3.4 Groundwater**

### 29 30 **3.4.1 Affected Environment**

31 Fort Bliss is located primarily in the Tularosa-Hueco Basin of the Basin and Range  
32 Physiographic Province with small portions in the Mesilla Basin and the Salt Basin. The  
33 majority of McGregor Range is located in the Tularosa Basin, which is a large, closed basin with  
34 surface drainages to playas and salt flats. The northeast quarter of McGregor Range, including  
35 the southern slopes and Sacramento Foothills North of NM 506 and the western part of the Otero  
36 Mesa South of NM 506, is within the Salt Basin, which is listed as an undeclared groundwater  
37 basin by the New Mexico State Engineer. Groundwater resources are not extensively developed  
38 in the Salt Basin, and no significant use of groundwater occurs within McGregor Range. All  
39 potable water for use at McGregor Range Camp is currently supplied by El Paso Water Utilities  
40 (U.S. Army 2010).

### 41 42 **3.4.2 Environmental Consequences**

#### 43 **3.4.2.1 Alternative 1 (No Action)**

44 Under Alternative 1, the mountain villages and access road would not be constructed and no  
45 training activities or land use designation change associated with the proposed mountain villages

1 would take place; therefore, no impacts on groundwater additional to the existing environment  
2 would occur.

#### 3 4 **3.4.2.2 Alternative 2 (Preferred Alternative)**

5 Indirect impacts on groundwater quality could occur from compaction of soils and decreased  
6 percolation to groundwater related to construction activities and maneuver training and from  
7 contamination resulting from POL at the mountain village sites. However, Fort Bliss' SPCCP  
8 and ISCP would be followed to contain, mitigate, and clean up any spills. BMPs and erosion and  
9 sediment controls would be implemented during construction activities. Periodic field  
10 inspections would be conducted by Fort Bliss personnel to monitor for compliance with  
11 environmental requirements and to identify any adverse effects from training.

12  
13 The project would not require drilling of water wells and no groundwater would be used during  
14 construction or training exercises. Potable water would be carried in during training activities.  
15 Impacts on groundwater as a result of Alternative 2 would be negligible.

#### 16 17 **3.4.2.3 Alternative 3**

18 Impacts on groundwater would be similar to those under Alternative 2. There would be  
19 negligible impacts on groundwater as a result of the construction and training use of the  
20 proposed mountain village in TA-13.

#### 21 22 **3.4.2.4 Alternative 4**

23 Impacts on groundwater would be similar to those under Alternatives 2 and 3. There would be  
24 negligible impacts on groundwater as a result of the construction and training use of both  
25 proposed mountain villages.

### 26 27 **3.5 Biological Resources**

#### 28 29 **3.5.1 Affected Environment**

30 The U.S. Fish and Wildlife Service (USFWS), under the Endangered Species Act (ESA) of 1973,  
31 and the State of New Mexico, under the New Mexico Wildlife Conservation Act (NMWCA) of  
32 1978, list various species of flora and fauna that are known to occur, or have the potential to  
33 occur, on Fort Bliss as Threatened, Endangered, or Species of Concern. Additionally, Locally  
34 Important Natural Resources (LINR) have been identified for protection by Fort Bliss. These  
35 include black grama grasslands (*Bouteloua eriopoda*), sand sagebrush (*Artemisia filifolia*)  
36 communities, shinnery oak islands, arroyo-riparian drainages, and playa lakes (U.S. Army 2010).  
37 A listing of these resources and information on habitat and occurrences can be found in the SEIS,  
38 the GFS EIS, and the *Fort Bliss Integrated Natural Resources Management Plan, November*  
39 *2001* (INRMP). The INRMP is herein incorporated by reference. These documents can be  
40 found at <https://www.bliss.army.mil>.

41  
42 The Sacramento Mountains, bordering Fort Bliss to the northeast, are composed of steep terrain  
43 ascending from the lower slopes to an altitude of more than 7,600 feet above mean sea level  
44 (MSL) within the Fort Bliss boundary. The elevation range is 4,450 to 7,700 feet. This area is  
45 made up of a complex of limestone foothills of diverse aspects alternating with steep-sided  
46 canyons and narrow to moderately wide valleys (U.S. Army 2009).



1 The terrain for the proposed mountain village in TA-12 is a fairly steep, very rocky, stream  
2 terrace. The vegetation is mapped as foothills desert shrubland and is dominated by mesquite  
3 (*Prosopis* spp.), creosote bush (*Larrea tridentata*), American tarbush (*Flourensia cernua*),  
4 prickly pear (*Opuntia engelmannii*), broom snakeweed (*Gutierrezia sarothrae*), Apache plume  
5 (*Fallugia paradoxa*), mormon tea (*Ephedra viridis*), whitethorn acacia (*Acacia constricta*), and  
6 banana yucca (*Yucca baccata*). The proposed access road to the mountain village in TA-12  
7 bisects an arroyo, which is considered a LINR. It is a primarily a gravelly sheet flow area that is  
8 sparsely vegetated.

9  
10 The terrain for the proposed mountain village in TA-13 is relatively flat with a deep cut near the  
11 rear of the site. The vegetation is mapped as montane shrubland and the site is very sparsely  
12 dominated by juniper (*Juniperus* spp.), creosote bush, whitethorn acacia, American tarbush, and  
13 banana yucca.

### 14 15 **3.5.2 Threatened and Endangered Species, Species of Special Concern, and LINRs**

16 On Fort Bliss, 61 sensitive species of flora and fauna are known to occur or have the potential to  
17 occur, of which 31 have Federal special status. Seven are listed as threatened or endangered  
18 under the ESA, and one is a candidate for listing. The remaining 23 are listed as species of  
19 concern. In addition to those Federally listed and special status species, 11 are listed as New  
20 Mexico threatened animals, 5 as endangered animals in the state, 18 are considered sensitive in  
21 the state, and 27 are New Mexico animal species of concern (some of the latter are in addition to  
22 a species having sensitive or state-listed status). Only one species on the ESA list, Kuenzler  
23 hedgehog cactus (*Echinocereus fendleri* var. *kuenzleri*), has the potential to be impacted by the  
24 project since it has potential habitat on the extreme northern McGregor Range in the Sacramento  
25 Mountains. The cactus prefers gravelly gentle slopes or benches of Permian limestone at  
26 elevations from 5,195 to 6,990 feet within the lower slopes of pine-juniper woodland. Habitat  
27 that appears to be the most suitable is in the northern McGregor Range; however, surveys  
28 conducted from 2004 to 2006 in potential habitat on northern McGregor Range did not detect  
29 populations (U.S. Army 2010). In summer 2012, Fort Bliss DPW-E conducted evaluations of  
30 potential sites for the Federally listed endangered Kuenzler hedgehog cactus in the two proposed  
31 mountain village locations, including the 1-kilometer off-road zone. Biologists surveyed these  
32 areas extensively, and no individuals of the Kuenzler hedgehog cactus species were detected.  
33 The Proposed Action also occurs in habitat that could be utilized by bird species protected under  
34 the Migratory Bird Treaty Act (MBTA) of 1918, such as the gray vireo (*Vireo vicinior*).

### 35 36 **3.5.3 Environmental Consequences**

#### 37 **3.5.3.1 Alternative 1 (No Action)**

38 Under Alternative 1, the mountain villages and access road would not be constructed and no  
39 training activities or land use designation change associated with the proposed mountain villages  
40 would take place; therefore, no impacts on biological resources additional to the existing  
41 environment would occur.

#### 42 43 **3.5.3.2 Alternative 2 (Preferred Alternative)**

44 The Kuenzler hedgehog cactus, which is Federally listed as endangered and is also considered  
45 endangered by the state of New Mexico, has potential habitat in the region, but recent surveys  
46 have indicated that no individuals of the species are located within the project area. The

1 implementation of Alternative 2 is not likely to adversely affect the Kuenzler hedgehog cactus  
2 species listed under the ESA. The remaining Federally listed species do not occur nor is suitable  
3 habitat available within the project area.  
4

5 Approximately 5.4 acres would be cleared of regionally common vegetation. The arroyo, which  
6 is considered a LINR, would lose a very small amount of riparian habitat (estimated at no more  
7 than a few acres) where the proposed access road crosses the drainage in places (see Figure 3-3).  
8 Low-water crossings, however, would be built to allow water to continue flowing downstream  
9 and support the area's riparian system. All design standards for the design and construction of  
10 the access road including draining and sustainability would be adhered to. No other LINRs as  
11 described in the SEIS, the GFS EIS, and INRMP would be affected.  
12

13 To prevent the spread of noxious weeds from construction activities, a noxious weed monitoring  
14 and treatment program would be established by ITAM with guidance from DPW-E biologists.  
15 Additionally, construction equipment would be cleaned of all dirt, mud, and plant debris prior to  
16 moving onto or off of the project area. Following construction, disturbed areas would be graded  
17 to match the surrounding topography and the surface left rough to facilitate regrowth of native  
18 vegetation.  
19

20 Alternative 2 could occur in habitat that is utilized by the gray vireo and other bird species  
21 protected under the MBTA. The canyons and draws in this part of the Sacramento Mountains  
22 have known habitat for the gray vireo, and the canyon leading to the proposed mountain village  
23 in TA-12 has had gray vireo sightings in recent surveys; however only a small percentage of  
24 habitat is located within the vicinity of the project area. Any impacts on the gray vireo and other  
25 migratory birds would be minimal because construction work would be carried out in the fall and  
26 winter months to coincide with the non-breeding season for these species or if construction  
27 occurs during the spring, a preconstruction survey for bird activity or nesting colonies would be  
28 conducted and active nests would be avoided, if discovered.  
29

30 The livestock animals that would be brought in during training exercises would possibly include  
31 goats, sheep, pigs, chickens, and dogs. Federal and state regulations pertaining to the use of  
32 these animals will be followed.  
33

### 34 **3.5.3.3 Alternative 3**

35 Impacts under Alternative 3 would be similar to those under Alternative 2. Approximately 1.6  
36 acres of regionally common vegetation would be cleared as a result of construction of the  
37 proposed mountain village. The implementation of Alternative 3 is not likely to adversely affect  
38 the Kuenzler hedgehog cactus species listed under the ESA.  
39

### 40 **3.5.3.4 Alternative 4**

41 Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3.  
42 Approximately 7.5 acres of regionally common vegetation would be cleared as a result of the  
43 construction of both proposed mountain villages. The implementation of Alternative 4 is not  
44 likely to adversely affect the Kuenzler hedgehog cactus species listed under the ESA.

1 **3.6 Cultural Resources**

2  
3 **3.6.1 Affected Environment**

4 Cultural resources are regulated at Fort Bliss per the National Historic Preservation Act (NHPA)  
5 of 1966, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, the  
6 Archaeological Resources Protection Act of 1979, and other statutes. Cultural resources are  
7 important because of their association or linkage to past events, historically important persons,  
8 design and construction values, and for their ability to yield important information about history.  
9 Fort Bliss manages cultural resources associated with all prehistoric and historic periods  
10 recognized in south-central New Mexico. The *Fort Bliss Texas and New Mexico, Mission and*  
11 *Master Plan, Programmatic Environmental Impact Statement* (MMP EIS) (U.S. Army 2000)  
12 describes in detail the cultural history of Native Americans and post-contact inhabitants in the  
13 region. The *Integrated Cultural Resources Management Plan* (ICRMP) for Fort Bliss (U.S.  
14 Army 2008a) also contains detailed information about the history of Fort Bliss. Both documents  
15 are incorporated herein by reference and can be found at <https://www.bliss.army.mil>. Pursuant  
16 to Army Regulation AR 200-1, the Garrison Commander at Fort Bliss is responsible for  
17 managing the cultural resources on the installation in compliance with all Federal laws,  
18 regulations, and standards.

19  
20 Both the Alternative 2 and Alternative 3 project areas have been evaluated for impacts on  
21 historic and archaeological properties in a previous survey that included TA-12 and TA-13 by  
22 Lone Mountain Archaeological Services (Renn et al. 2010) and Fort Bliss archaeologists  
23 (Hawthorne-Tagg et al. 1999; Lowry 2011; and O’Leary et al. 1997). The recent cultural  
24 resources investigations by Renn et al. and Fort Bliss archaeologists incorporating the project  
25 area comply with both the NHPA (16 USC fl470, et. seq.) and the Programmatic Agreement  
26 (PA) entered into by the Fort Bliss Garrison Command, the Texas State Historic Preservation  
27 Officer (SHPO), the New Mexico SHPO, and the Advisory Council on Historic Preservation  
28 (ACHP) for the Management of Historic Properties on Fort Bliss.

29  
30 For the proposed mountain village site in TA-12, the Renn et al. 2010 investigation included 189  
31 acres of the off-road zone. Fort Bliss archaeologists surveyed the proposed 1.4-acre village  
32 footprint and disturbance area and access road under one investigation (Lowry 2011) and 167.4  
33 acres of the mountain village off-road zone under a separate investigation (O’Leary 1997). At  
34 the time of preparing this document, an additional investigation of previously unsurveyed  
35 portions of the off-road zone is in progress by Fort Bliss archaeologists and the results are  
36 forthcoming. No archaeological sites were encountered within the proposed 1.4-acre village  
37 footprint. Two archaeological sites located within the proposed 868-acre off-road zone were  
38 reported. One site is recommended ineligible for inclusion in the National Register of Historic  
39 Places (NRHP) and will require no further consideration (Renn et al. 2010); the second site is of  
40 undetermined eligibility.

41  
42 For the proposed mountain village site in TA-13, the Renn et al. 2010 investigation covered 646  
43 acres of the proposed Alternative 3 project area including the 1.6-acre village footprint  
44 disturbance area and the majority of the surrounding mountain village off-road zone. An  
45 additional 78.6 acres were surveyed by Fort Bliss archaeologists (Hawthorne-Tagg et al. 1999).

1 At the time of preparing this document, Fort Bliss archaeologists are conducting cultural  
2 resources surveys of previously unsurveyed portions of the Alternative 3 project area and the  
3 results are forthcoming. No cultural resources were reported within the proposed 1.6-acre  
4 village site and 22 archaeological sites were recorded within the mountain village off-road zone  
5 of Alternative 3. Seventeen of the archaeological sites located within the off-road zone are  
6 recommended ineligible for the NRHP and require no further consideration. One site within the  
7 off-road zone was recommended ineligible but has not received SHPO concurrence. Two sites  
8 within the mountain village off-road zone are recommended eligible for the NRHP and two are  
9 of undetermined eligibility (Renn et al. 2010).

### 10 11 **3.6.2 Environmental Consequences**

#### 12 **3.6.2.1 *Alternative 1 (No Action)***

13 Under Alternative 1, the mountain villages and access road would not be constructed and no  
14 training activities or land use designation change associated with the proposed mountain villages  
15 would take place; therefore, no impacts on cultural resources additional to the existing  
16 environment would occur.

#### 17 18 **3.6.2.2 *Alternative 2 (Preferred Alternative)***

19 According to cultural resources surveys conducted by Fort Bliss personnel, there are no cultural  
20 resources located within the footprint of the proposed mountain village or access road (Lowry  
21 2011). Two archaeological sites are located outside of the proposed 1.4-acre village site  
22 footprint, but within the 868-acre mountain village off-road zone (Renn et al. 2010). One  
23 archaeological site is recommended not eligible for inclusion in the NRHP, and implementation  
24 of the Preferred Alternative would not result in an adverse effect. The second archaeological site  
25 is of undetermined NRHP eligibility and would require further testing to determine whether  
26 adverse effects would occur as a result of implementation of the Preferred Alternative. During  
27 the implementation of the Preferred Alternative, the site of undetermined eligibility would be  
28 delineated with Seibert stakes and avoided by all actions associated with the off-road zone,  
29 thereby negating any yet-to-be-determined adverse effects. The Preferred Alternative site is not  
30 within the viewshed of a historic district. No adverse effects on cultural resources are expected  
31 as a result of the implementation of the Preferred Alternative.

32  
33 Final siting of the proposed access road would be reviewed by DPW-E archaeologists prior to  
34 construction. All previously unsurveyed portions of the off-road zone are currently being  
35 surveyed by Fort Bliss archaeologists and the results will be evaluated for adverse effects prior to  
36 implementation of the Preferred Alternative. It should be stipulated that if any sub-surface  
37 cultural resources are encountered during the construction of the proposed mountain village in  
38 TA-12, they would be properly mitigated per the PA. Any discovery of possible human remains  
39 would be treated in accordance with the NAGPRA and the Standard Operating Procedures  
40 (SOPs) set out in the ICRMP.

#### 41 42 **3.6.2.3 *Alternative 3***

43 Surveys determined that no surface archaeological sites eligible for inclusion in the NRHP are  
44 located within the 1.6-acre mountain village footprint and disturbance area. Survey coverage of  
45 the 780-acre off-road zone surrounding the proposed village site was limited to 96 percent of the  
46 area. Within the area surveyed, 22 archaeological sites were reported by Renn et al. 2010. Of

1 these 22 archaeological sites, 18 are ineligible and require no further consideration. The four  
2 remaining previously reported archaeological sites consist of two recommended eligible for the  
3 NRHP and two of undetermined eligibility. If Alternative 3 is implemented, these four sites  
4 would be delineated with Seibert stakes and avoided by all actions associated with the off-road  
5 zone. If avoidance is not possible, a mitigation plan for their treatment would be developed per  
6 the PA. No adverse effects on cultural resources are expected as a result of the implementation  
7 of Alternative 3.

8  
9 All previously unsurveyed areas within the off-road zone are currently being surveyed by Fort  
10 Bliss archaeologists and the results will be evaluated for adverse effects prior to implementation  
11 of Alternative 3. It should be stipulated that if any sub-surface cultural resources are  
12 encountered during the construction of the proposed mountain village in TA-13, they would be  
13 properly mitigated per the PA. Any discovery of possible human remains would be treated in  
14 accordance with the NAGPRA and the SOPs set out in the ICRMP.

#### 15 16 **3.6.2.4 Alternative 4**

17 Impacts on cultural resources would be similar to those under Alternatives 2 and 3. No adverse  
18 effects on cultural resources are expected.

### 19 20 **3.7 Air Quality**

#### 21 22 **3.7.1 Affected Environment**

23 The U.S. Environmental Protection Agency (USEPA) established National Ambient Air Quality  
24 Standards (NAAQS) for specific pollutants determined to be of concern with respect to the  
25 health and welfare of the general public (USEPA 2010a). Ambient air quality standards are  
26 classified as either "primary" or "secondary." The major pollutants of concern, or criteria  
27 pollutants, are carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>),  
28 particulate matter less than 10 microns (PM-10), particulate matter less than 2.5 microns (PM-  
29 2.5), and lead. NAAQS represent the maximum levels of background pollution that are  
30 considered safe, with an adequate margin of safety, to protect the public health and welfare.

31  
32 Areas that do not meet these NAAQS standards are called non-attainment areas; areas that meet  
33 both primary and secondary standards are known as attainment areas (USEPA 2010b). The  
34 project sites for the Alternatives are located in Otero County, which is in attainment for all  
35 NAAQS.

#### 36 37 **3.7.2 Environmental Consequences**

##### 38 **3.7.2.1 Alternative 1 (No Action)**

39 Under Alternative 1, the mountain villages and access road would not be constructed and no  
40 training activities or land use designation change associated with the proposed mountain villages  
41 would take place; therefore, no impacts on regional air quality additional to the existing  
42 environment would occur.

##### 43 44 **3.7.2.2 Alternative 2 (Preferred Alternative)**

45 Temporary and minor increases in air pollution would occur from the use of construction  
46 equipment (combustion emissions) and the disturbance of soils (fugitive dust) during

1 construction of the new access road and mountain village. Construction workers would  
2 temporarily increase the combustion emissions in the airshed during their commute to and from  
3 the project area. Emissions from delivery trucks would also contribute to the overall air emission  
4 budget. Operational air emissions refer to air emissions that may occur after the mountain  
5 village has been constructed and during training exercises. It would include commuter and  
6 military vehicles traveling to the project site during the training exercises and portable diesel  
7 generators used to power the remote location. Fort Bliss will not require an air emission permit  
8 for the diesel generators. The New Mexico Environment Department Air Quality Bureau does  
9 not regulate new sources if the annual emission rates are below *de minimis* thresholds. No  
10 permit is required from new sources if annual emissions are less than 10 tons per year (tpy) of  
11 any regulated air contaminants and less than 1 tpy of lead. Annual emissions for the diesel  
12 generators are estimated to be well below 1 tpy for any of the regulated air contaminants. Air  
13 emissions were also calculated for fugitive dust emissions when Soldiers are driving around the  
14 project site during tactical training. The calculations for air emissions from these operational  
15 sources are presented in Appendix B.

16  
17 Based upon the calculations, air emissions from the proposed construction and operational  
18 activities do not exceed Federal *de minimis* thresholds. As there are no violations of air quality  
19 standards and no conflicts with the state implementation plans, the impacts on air quality in  
20 Otero County from the implementation of the Preferred Alternative would be negligible. During  
21 the construction of the proposed mountain village, proper and routine maintenance of all vehicles  
22 and other construction equipment would be implemented to ensure that emissions are within the  
23 design standards of all construction equipment. Dust suppression methods should be  
24 implemented to minimize fugitive dust, including wetting solutions applied to construction areas.

### 25 26 **3.7.2.3 Alternative 3**

27 Impacts on air quality would be similar to those under Alternative 2. The impacts on air quality  
28 in Otero County from the implementation of Alternative 3 would be negligible.

### 29 30 **3.7.2.4 Alternative 4**

31 Impacts on air quality would be similar to those under Alternatives 2 and 3. The impacts on air  
32 quality in Otero County from the implementation of Alternative 4 would be negligible.

## 33 34 **3.8 Noise**

### 35 36 **3.8.1 Affected Environment**

37 Noise is generally described as unwanted sound, which can be based either on objective effects  
38 (i.e., hearing loss, damage to structures, etc.) or subjective judgments (e.g., community  
39 annoyance). Sound is usually represented on a logarithmic scale with a unit called the decibel  
40 (dB). Sound on the decibel scale is referred to as sound level. The threshold of human hearing  
41 is approximately 3 dB, and the threshold of discomfort or pain is around 120 dB. The A-  
42 weighted decibel scale (dBA) takes this into account, emphasizes the frequencies, and is a  
43 measure of noise at a given, maximum level or constant state level. A Day-Night Average  
44 Sound Level (DNL) represents the 24-hour average frequency-weighted sound level, in decibels,  
45 from midnight to midnight, obtained after the addition of 10 decibels to sound levels in the night  
46 from midnight up to 7 a.m. and from 10 p.m. to midnight. Gunshots are impulsive in nature and

1 occur over a very short period in time, only a few thousandths of a second. Therefore, noise  
2 emissions from small and large ammunitions are measured in unweighted peak sound level  
3 (dBP), which is a measurement of gunfire pulse sound in decibels. Similarly, the PK15(met) is a  
4 peak sound measurement. It is the maximum value of the instantaneous sound pressure for each  
5 unique sound source after applying the 15 percentile rule accounting for meteorological  
6 variation.

7  
8 Experience has shown that complaints from infrequent or sporadic training use of small and large  
9 caliber firearms are usually attributed to a single loud event, at a particular point in time. The  
10 U.S. Army is committed to the avoidance and mitigation of noise impacts on areas adjacent to  
11 military installations, has developed a noise abatement policy, and has implemented this policy  
12 through Army Regulation (AR) 200-1. The AR 200-1 policy partitions noise into zones with  
13 each zone representing an area of increasing decibel level. The AR lists housing, schools, and  
14 medical facilities as examples of noise-sensitive land uses (U.S. Army 2007a). The program  
15 defines four Noise Zones:

- 16  
17 • **Zone I.** Zone I is the entire area outside of the Zone II contour. Noise-sensitive land  
18 uses are generally acceptable within Zone I. While an area may only receive Zone I  
19 levels, military operations may be loud enough to be heard or even considered loud on  
20 occasion.
- 21  
22 • **Zone II.** Development in Zone II should be limited to non-sensitive activities such  
23 industry, manufacturing, transportation, and agriculture. Although local conditions such  
24 as availability of developable land or cost may require noise-sensitive land uses in Zone  
25 II, this type of land use is strongly discouraged on the installation and in surrounding  
26 communities, and all viable alternatives should be considered to limit development.
- 27  
28 • **Zone III.** Noise-sensitive land uses are not recommended in Zone III.
- 29  
30 • **Land Use Planning Zone (LUPZ).** The LUPZ, a subdivision of Zone I, is 5 dB lower  
31 than Zone II. Within this area, noise-sensitive land uses are generally acceptable.  
32 However, communities and individuals often have different views regarding what level of  
33 noise is acceptable or desirable. To address this, some local governments have  
34 implemented land use planning measures out beyond the Zone II limits. Additionally,  
35 implementing planning controls within the LUPZ can develop a buffer to avert the  
36 possibility of future noise conflicts.

1 Table 3-2 summarizes each zone and its appropriate weighting by type of operation:  
2

3 **Table 3-2. Noise Zone Decibel Levels**

Noise Zone	Aviation (DNL)	Small Arms (PK15[met])
Land Use Planning Zone	60-65	N/A
Zone I	Less than 65	Less than 87
Zone II	65 to 75	87 to 104
Zone III	Greater than 75	Greater than 104

4 Source: Army Regulations 200-1.  
5

6 **Complaint Risk Analysis**

7 The U.S. Army has adopted a complaint risk analysis metric to assess the response of the public  
8 to large caliber weapons (grenade launcher) artillery. Complaints from infrequent or sporadic  
9 training are usually attributed to a single loud event, at a particular point in time, versus the  
10 average noise dose received at any one location. To this end, the U.S. Army has adopted the  
11 practice of assessing infrequent or sporadic demolition and large caliber activity noise using the  
12 complaint risk PK15 (met) noise metrics (U.S. Army 2007a). Table 3-3 contains the complaint  
13 risk guidelines.  
14

15 **Table 3-3. Complaint Risk Guidelines for Large Caliber Weapons**

Risk of Complaints	Large Caliber Weapons
	PK15(met) dB Noise Contour
Low	< 115
Moderate	115 – 130
High	> 130

16 Source: Army Regulations 200-1.  
17

18 Noise-sensitive land uses are discouraged in areas where PK15(met) is between 115 and 130 dB  
19 which has medium risk of complaints. Noise-sensitive land uses are strongly discouraged in  
20 areas equal to or greater than PK15(met) of 130 dB which has a high risk of noise complaints.  
21 For infrequent noise events, installations should determine if land use compatibility within these  
22 areas is necessary for mission protection.  
23

24 **Residential Homes and Wilderness Areas**

25 The potential for noise from the small caliber firing activity may be perceived as an issue for the  
26 communities surrounding the project area. The civilian areas closest to the project sites are  
27 characterized as minimally developed rural land, and few residential homes are located in the  
28 areas adjacent to Fort Bliss property in the community of Timberon, New Mexico. The distance  
29 from Timberon to the proposed mountain village in TA-12 is 5.9 miles, and 3.7 miles from  
30 Timberon to the proposed mountain village in TA-13. The Culp Canyon WSA is located  
31 northwest of the project sites and is considered a sensitive noise receptor. The Culp Canyon  
32 WSA is located 0.5 mile adjacent to the proposed mountain village in TA-12 and 3.7 miles from  
33 the proposed mountain village in TA-13.



1 **3.8.2 Environmental Consequences**

2 **3.8.2.1 Alternative 1 (No Action)**

3 Under Alternative 1, the mountain villages and access road would not be constructed and no  
4 training activities or land use designation change associated with the proposed mountain villages  
5 would take place; therefore, no regional noise impacts additional to the existing environment  
6 would occur.

7  
8 **3.8.2.2 Alternative 2 (Preferred Alternative)**

9 The noise section is divided into two sections - the noise emissions associated with construction  
10 and the noise emissions associated with the operation and training use of the proposed mountain  
11 village. Training noise emission includes sources such as small arms gunfire and helicopter  
12 traffic.

13  
14 **Construction Noise Emissions**

15 The construction of the proposed mountain village and access road would require the use of  
16 common construction equipment. The noise emission levels for construction equipment range  
17 from 76 dBA to 82 dBA at a distance of 50 feet (FHWA 2007). Assuming the worst-case  
18 scenario of 82 dBA, the noise model projected that noise levels of 82 dBA from a point source  
19 (i.e., bulldozer) would have to travel 370 feet before the noise would be attenuated to a noise  
20 level of 65 dBA. The 82 dBA noise level would have to travel 830 feet before the noise would  
21 attenuate to 57 dBA, the criterion for the Culp Canyon WSA. The Culp Canyon WSA is located  
22 approximately 3,110 feet from the proposed mountain village footprint in TA-12. Assuming the  
23 construction activities are contained within the delineated construction area, no residential areas,  
24 National parks, or other sensitive noise receptors would be impacted by the construction of the  
25 proposed mountain village in TA-12. Noise generated by the construction activities would be  
26 intermittent and last up to 1 year, after which noise levels would return to ambient levels.  
27 Therefore, the noise impacts from construction activities would be temporary and considered  
28 minimal.

29  
30 **Operational Noise Emissions**

31 The U.S. Army Public Health Command (USAPHC) performed a noise emissions analysis of the  
32 planned actions (USAPHC 2012) and this section summarizes the findings in the report.

33  
34 ***Small Caliber and Pyrotechnic Simulator Noise Emissions***

35 The USAPHC analysis concluded that the noise from proposed small caliber activity (.50-caliber  
36 machine gun) and the Zone II levels (PK15(met) 87 dB) would extend out approximately 984  
37 feet (USAPHC 2012). Noise emissions from the Pyrotechnic Simulator were assessed based on  
38 the potential for individual events to generate noise complaints. The USAPHC analysis  
39 concluded that the risks of noise complaints from the pyrotechnics as tested in the pyrotechnic  
40 simulator would be low beyond 2,624 feet (USAPHC 2012).

41  
42 ***Aircraft Noise Emissions***

43 The loudest helicopter planned to be used would be the CH-47, which has a 92.4 dBA at 500 feet  
44 above ground level. The USAPHC noise analysis (2012) concluded that the low number of  
45 flights per day would produce noise emissions less than a Zone II 65 dBA DNL threshold and  
46 that the complaint risk would be low. However, if the aircraft approach route travels over the

1 off-post community of Timberon, there is a potential for community annoyance (USAPHC  
2 2012).

3  
4 In conclusion, neither the noise from the construction activities or the proposed training activities  
5 would have an impact in the Culp Canyon WSA. There is potential that aircraft flying an off-  
6 post approach to the mountain village site may annoy those living near the flight tracks. The  
7 addition of the proposed mountain village and its training use would have little to no noise  
8 impact beyond the Fort Bliss boundary. The noise levels from proposed training would be  
9 compatible with U.S. Army guidelines, and impacts on the noise environment in the region  
10 would be minimal.

### 11 12 **3.8.2.3 *Alternative 3***

13 Noise emissions associated with Alternative 3 would be similar to those described in  
14 Alternative 2. The distances to the sensitive noise receptors are far enough away that noise  
15 emissions would only have minimal impacts. Similar to Alternative 2, there is potential that  
16 aircraft flying an off-post approach to the proposed mountain village site may annoy those living  
17 near the flight tracks. The USAPHC noise analysis (2012) concluded that noise emissions  
18 associated with construction and military training activities would attenuate to levels below  
19 significant thresholds before entering areas with sensitive noise receptors; therefore, impacts on  
20 the noise environment in the region would be minimal.

### 21 22 **3.8.2.4 *Alternative 4***

23 Noise impacts would be a combination of those under Alternatives 2 and 3. The implementation  
24 of Alternative 4 would result in minimal impacts on the noise environment.

## 25 26 **3.9 Transportation and Supporting Infrastructure**

### 27 28 **3.9.1 Affected Environment**

29 Access to McGregor Range is provided by US 54, which serves as the western boundary of  
30 McGregor Range, and NM 506 (see Figure 1-1). NM 506 is a semi-improved road that intersects  
31 US 54 north of the town of Orogrande, New Mexico, and runs easterly across McGregor Range,  
32 serving the northern portion of the range, as well as the southeastern part of Otero County and  
33 communities in the southern Sacramento Mountains. As such, NM 506 is used by both the  
34 military and civilians. Access to the proposed mountain village in TA-12 would be provided by  
35 Culp Canyon Road, which is maintained by BLM. Access to the proposed mountain village in  
36 TA-13 would be provided by Culp Canyon Road and Combat Trail Road, which are maintained  
37 by BLM.

38  
39 A water line is located along Culp Canyon Road, and a water trough is located along the existing  
40 access road leading to the proposed mountain village site in TA-12 (see Figure 2-1). Water lines  
41 and water troughs are also located within the mountain village off-road zone of the proposed  
42 mountain village in TA-13 (see Figure 2-3).

1 **3.9.2 Environmental Consequences**

2 **3.9.2.1 Alternative 1 (No Action)**

3 Under Alternative 1, the mountain villages and access road would not be constructed and no  
4 training activities or land use designation change associated with the proposed mountain villages  
5 would take place; therefore, no impacts on transportation and supporting infrastructure additional  
6 to the existing environment would occur.

7  
8 **3.9.2.2 Alternative 2 (Preferred Alternative)**

9 Construction and training use of the proposed mountain village in TA-12 would require the use  
10 of NM 506 and Culp Canyon Road. A minor and temporary disruption in normal traffic use of  
11 NM 506 and Culp Canyon Road would be expected during construction. There would be an  
12 increase in military vehicle traffic during training exercises, but a low volume of traffic occurs  
13 currently in the area. There is a potential for damage to the Culp Canyon Road due to the  
14 increased military vehicles, especially some of the heavier vehicles. Fort Bliss and BLM share  
15 road maintenance responsibilities, and roads will be maintained to a standard that is consistent  
16 with levels of use, environmental factors, safety requirements, level of funding, and resource  
17 conditions, per the Memorandum of Understanding between Fort Bliss and BLM (U.S. Army  
18 1990). Construction of the access road to the mountain village site in TA-12 would result in  
19 approximately 0.65 mile of new road. This represents an additional 4 acres being cleared and  
20 grubbed. A water line and water trough are located along the existing access road leading to the  
21 proposed village site. The water line located along Culp Canyon Road would need to be  
22 protected or buried sufficiently deep to avoid damage from off-road maneuvers. The water  
23 trough would need to be protected and avoided during construction and training exercises. Also,  
24 BLM requires access to the water troughs, water pipelines, and fencing for 4 hours, twice per  
25 week. There would be minimal impacts on transportation and supporting infrastructure due to  
26 the Preferred Alternative.

27  
28 **3.9.2.3 Alternative 3**

29 Construction and training use of the proposed mountain village in TA-13 would require the use  
30 of NM 506 and Combat Trail Road. Impacts would be similar to those under Alternative 2.

31  
32 **3.9.2.4 Alternative 4**

33 Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. While there  
34 would be a potential for more military vehicles to use the roadways during training exercises at  
35 both village sites, there would still be minimal impacts on transportation and supporting  
36 infrastructure as a result of the construction and training use of both proposed mountain villages.

37  
38 **3.10 Health and Safety**

39  
40 **3.10.1 Affected Environment**

41 Federal, State, and Fort Bliss guidelines, rules, and regulations are in place to protect personnel  
42 throughout the installation. Safety information and analysis is found in the *Fort Bliss, Texas and*  
43 *New Mexico Mission and Master Plan Final EIS* (U.S. Army 2007) and Fort Bliss Regulation  
44 385-63. Health programs are promoted through U.S. Army Public Health Command and  
45 Medical Command. Various Fort Bliss SOPs have also been established to meet health and  
46 safety requirements.

1 Health and safety hazards in the mountain village activity area could include exposure to  
2 unexploded ordnance (UXO), dehydration and heat illness, and contact with venomous animals  
3 and spiny vegetation. Lightning strikes are a potential hazard, especially during stormy  
4 summertime weather. The live-fire military activities, including the use of weapons with laser  
5 sights that would occur during training exercises, could pose potential safety hazards.  
6 Helicopters and other possible aircraft would utilize the airspace during the exercises, and  
7 hazards associated with use of the airspace would need to be considered.

### 8 9 **3.10.2 Environmental Consequences**

#### 10 **3.10.2.1 Alternative 1 (No Action)**

11 Under Alternative 1, the mountain villages and access road would not be constructed and no  
12 training activities or land use designation change associated with the proposed mountain villages  
13 would take place; therefore, no impacts on health and safety additional to the existing  
14 environment would occur.

#### 15 16 **3.10.2.2 Alternative 2 (Preferred Alternative)**

17 The Proposed Action is located in a military training area; as such, there is a small potential for  
18 encountering UXO during construction of the mountain village site in TA-12. Detected UXO  
19 would be handled by explosive ordnance disposal (EOD) personnel, as per approved procedures  
20 at Fort Bliss. Live- fire military activities would occur as part of the Proposed Action. The live-  
21 fire military activities would occur under controlled conditions and only in the specified areas.  
22 The live-fire military activities would be scheduled and would temporarily restrict non-military  
23 access to the site and the safety buffer surrounding the live-fire site. Certain weapons would be  
24 equipped with laser sights. The potential hazards of the laser sights are limited to the eye. The  
25 most likely effects from exposure to viewing the laser beam are afterimage, flash blindness, and  
26 glare. Afterimage is the perception of spots in the field of vision. Flash blindness is a temporary  
27 vision impairment after viewing a bright light. These are all temporary conditions that would  
28 improve after minutes. In addition, Soldiers would be required to participate in a marksmanship  
29 program to be trained and qualified on weapons, including the use of laser sights. Public  
30 recreation use is controlled through access permits by Fort Bliss Range Operations to ensure  
31 safety and use compatibility with military activities, and areas designated for recreational use,  
32 including the Culp Canyon WSA, would be closed when in use for military training. The  
33 airspace use would be scheduled through Range Operations to prevent accidents. As a result,  
34 minimal impacts on health and safety would be expected to result from the Preferred Alternative.

#### 35 36 **3.10.2.3 Alternative 3**

37 Impacts under Alternative 3 would be similar to those under Alternative 2. Minimal impacts on  
38 health and safety would be expected as a result of the implementation of Alternative 3.

#### 39 40 **3.10.2.4 Alternative 4**

41 Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal  
42 impacts on health and safety would be expected as a result of the construction and training use of  
43 both proposed mountain villages.

1 **3.11 Hazardous Materials and Waste**

2  
3 **3.11.1 Affected Environment**

4 Hazardous materials are substances that cause human physical or health hazards (29 CFR  
5 1910.1200). Materials that are physically hazardous include combustible and flammable  
6 substances, compressed gases, and oxidizers. Health hazards are associated with materials such  
7 as toxic agents, carcinogens, and irritants that cause acute or chronic reactions.

8  
9 Hazardous waste is produced from various equipment maintenance processes and is comprised  
10 of any material listed in 40 CFR 261 Subpart D, or those that exhibit characteristics of toxicity,  
11 corrosivity, ignitability, and reactivity. Hazardous wastes are managed under the Installation  
12 Hazardous Waste Management Plan, which provides detailed information on training; hazardous  
13 waste management roles and responsibilities; and hazardous waste identification, storage,  
14 transportation, and spill control, consistent with Federal and state regulations (U.S. Army 2011).

15  
16 **3.11.2 Environmental Consequences**

17 ***3.11.2.1 Alternative 1 (No Action)***

18 Under Alternative 1, the mountain villages and access road would not be constructed and no  
19 training activities or land use designation change associated with the proposed mountain villages  
20 would take place; therefore, no hazardous materials and waste impacts additional to the existing  
21 environment would occur.

22  
23 ***3.11.2.2 Alternative 2 (Preferred Alternative)***

24 Construction of the proposed mountain village on TA-12 and the supporting access road would  
25 require machinery and the use of POL. A limited amount of hazardous materials and waste  
26 would be used or generated during routine maintenance and operation of the facilities and  
27 associated equipment, including POL. Helicopters used during training exercises would purge 1  
28 quart of fuel during shutdown; however, the shutdown would occur once the helicopters have  
29 landed on the concrete landing pad, so the fuel spill impacts would be minimal. Fuel for the  
30 generators would be transported and stored on-site in designated trucks. Secondary containment  
31 for parking and fuel trucks would be utilized. Drip pans would be provided for stationary  
32 equipment to capture any POL accidentally spilled during construction and operation activities or  
33 leaks from the equipment. Solid waste would be separated into recyclable and non-recyclable,  
34 collected on-site in appropriate containers, and disposed of at an approved disposal facility.

35  
36 During live-fire training exercises, additional munitions and explosives of concern (MEC) would  
37 be generated. MEC consists of UXO and discarded military munitions, which are unfired  
38 military munitions that have been abandoned, discarded, or improperly disposed of and are still  
39 capable of functioning. Current Army protocols for the protection of Army personnel and the  
40 public would reduce the safety risks associated with UXO and would minimize the potential for  
41 human or environmental exposure to UXO or lead.

42  
43 The SPCCP and ISCP would be adhered to during construction and training use. These plans  
44 establish responsibilities, duties, procedures, and resources to be employed to contain, mitigate,  
45 and clean up POL spills. All hazardous wastes would be disposed of according to the

1 Installation Hazardous Waste Management Plan. Minimal hazardous materials and waste  
2 impacts would occur as a result of the Preferred Alternative.

3  
4 **3.11.2.3 Alternative 3**

5 Impacts under Alternative 3 would be similar to those under Alternative 2. Minimal hazardous  
6 materials and waste impacts would occur as a result of the implementation of Alternative 3.

7  
8 **3.11.2.4 Alternative 4**

9 Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Minimal  
10 hazardous materials and waste impacts would occur as a result of the construction and training  
11 use of both proposed mountain villages.

12  
13 **3.12 Airspace Operations**

14  
15 **3.12.1 Affected Environment**

16 The U.S. Army manages airspace delegated to them by the Federal Aviation Administration  
17 (FAA) in accordance with Department of Defense (DoD) Directive 5030.19, *Responsibilities on*  
18 *Federal Aviation and National Airspace System Matters*. The Army implements these  
19 requirements through AR 95-2, *Air Traffic Control, Airspace, Airfields, Flight Activities, and*  
20 *Navigational Aids*. Airspace over most of McGregor Range and the proposed mountain village  
21 sites is special use airspace (SUA) restricted for military use and designated SUA R-5103C (U.S.  
22 Army 2010) (Figure 3-4). Use of airspace on McGregor Range is scheduled through the  
23 DPTMS, McGregor Base Camp - Range Operations.

24  
25 **3.12.2 Environmental Consequences**

26 **3.12.2.1 Alternative 1 (No Action)**

27 Under Alternative 1, the mountain villages and access road would not be constructed and no  
28 training activities or land use designation change associated with the proposed mountain villages  
29 would take place; therefore, no impacts on airspace operations additional to the existing  
30 environment would occur.

31  
32 **3.12.2.2 Alternative 2 (Preferred Alternative)**

33 Under Alternative 2, there would be no change in the airspace designation. To minimize  
34 airspace conflicts during training exercises, especially during .50-caliber weapon firing,  
35 scheduling would be done through Range Operations - Flight Control. There would be no effect  
36 on public airspace since all airspace within McGregor Range is classified as military airspace.  
37 The implementation of the Preferred Alternative would result in minimal impacts on airspace  
38 operations.

39  
40 **3.12.2.3 Alternative 3**

41 Impacts under Alternative 3 would be similar to those under Alternative 2. The implementation  
42 of Alternative 3 would result in minimal impacts on airspace operations.

43  
44 **3.12.2.4 Alternative 4**

45 Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. The  
46 implementation of Alternative 4 would result in minimal impacts on airspace operations.

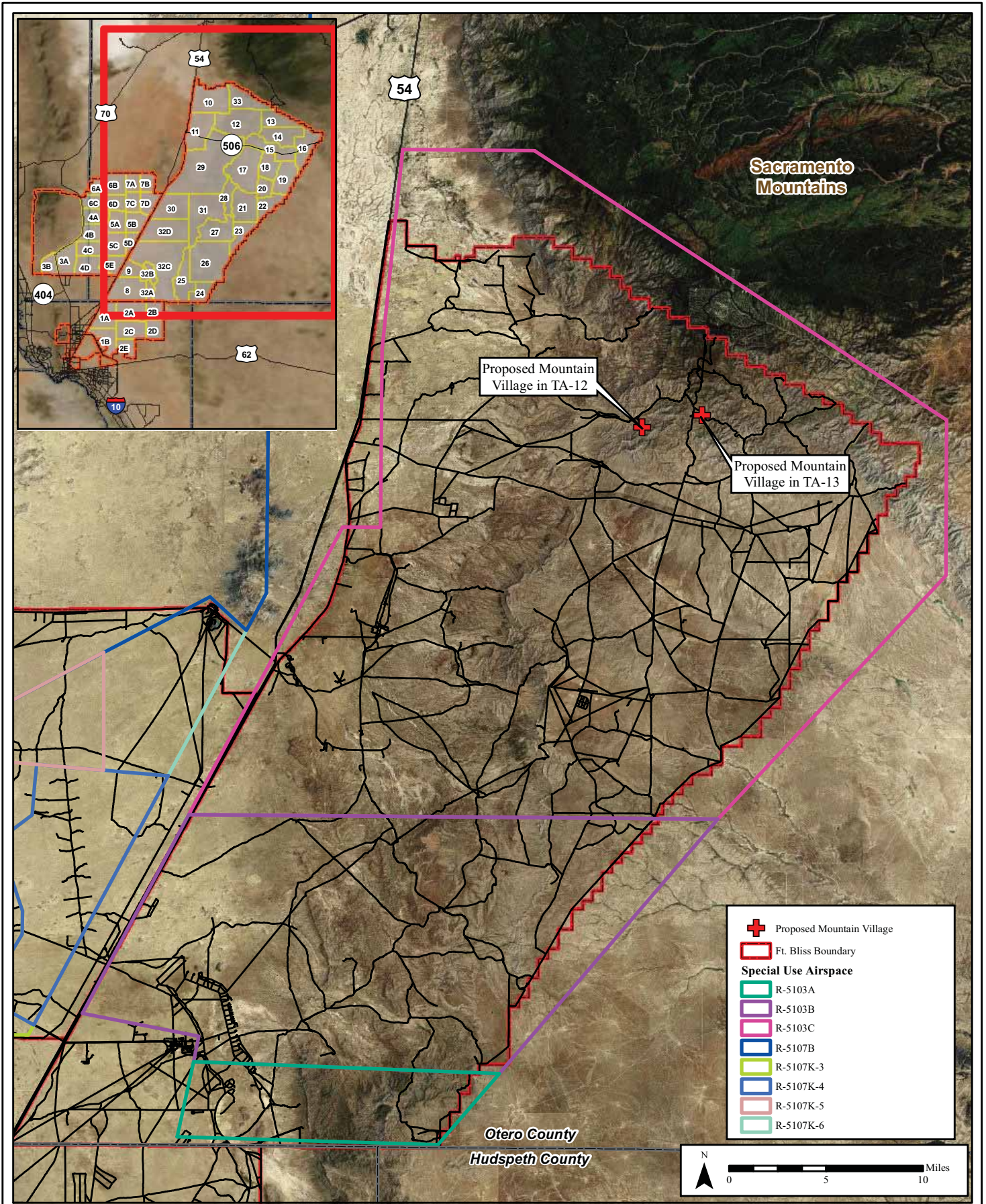


Figure 3-4: McGregor Range Restricted Airspace

1 **3.13 Wildland Fire**

2  
3 **3.13.1 Affected Environment**

4 Training-related activities, including detonation of munitions, smoking, use of welding torches,  
5 and vehicle engines, could initiate wildland fires. Wildland fire caused by live-fire training  
6 activities could remove large areas of vegetation that normally protect soil from erosion by  
7 slowing surface runoff, intercepting rain before it reaches the soil surface, and anchoring the soil  
8 with roots. Vegetation removal resulting from wildland fires could result in increased soil  
9 erosion by water and wind, indirectly causing large-scale removal and redeposition of soils,  
10 gullyng, or unstable slopes in areas of steep slopes and rapid runoff. The impact would be  
11 directly proportional to the size of the fire.

12  
13 **3.13.2 Environmental Consequences**

14 **3.13.2.1 Alternative 1 (No Action)**

15 Under Alternative 1, the mountain villages and access road would not be constructed and no  
16 training activities or land use designation change associated with the proposed mountain villages  
17 would take place; therefore, no wildland fire impacts additional to the existing environment  
18 would occur.

19  
20 **3.13.2.2 Alternative 2 (Preferred Alternative)**

21 All land within the footprint of the mountain village would be cleared and grubbed. Therefore  
22 the risk of wildland fire at the proposed mountain village site on TA-12 would be low. In  
23 addition, the type and amount of vegetation found near the site would have little potential to be a  
24 fuel source for a wildland fire. The Fort Bliss Fire Department responds to all fires within the  
25 installation. They work cooperatively with BLM to fight fires on McGregor Range. Wildland  
26 fire management practices are further described in the INRMP. The wildland fire impacts would  
27 be negligible under the Preferred Alternative.

28  
29 **3.13.2.3 Alternative 3**

30 The amount of vegetation located at the proposed mountain village site in TA-13 is greater than  
31 in TA-12; therefore, a fuel reduction thinning project would be required for the area around the  
32 proposed mountain village. This vegetation thinning procedure would remove vegetation build-  
33 up to reduce the threat of wildfire on approximately 500 acres within the off-road zone. Field  
34 personnel would use hand tools such as chainsaws to cut trees less than 8 inches in diameter at  
35 breast height, leaving a stump. Branches that are less than 5 feet above ground level will be  
36 trimmed off of the remaining trees. After the implementation of this procedure the wildland fire  
37 impacts under Alternative 3 would be negligible.

38  
39 **3.13.2.4 Alternative 4**

40 Impacts under Alternative 4 would be similar to those under Alternatives 2 and 3. Negligible  
41 wildland fire would occur as a result of the construction and training use of both proposed  
42 mountain villages.



**SECTION 4.0**  
**CUMULATIVE IMPACTS**

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1 **4.0 CUMULATIVE IMPACTS**

2  
3 Cumulative impacts are defined as the impacts on the environment that result from the  
4 incremental impact of the action when added to other past, present, and reasonably foreseeable  
5 future actions. Although the Proposed Action is not specifically addressed in the SEIS and GFS  
6 EIS, the cumulative impact on the natural and human environment from construction of training  
7 facilities and support infrastructure on McGregor Range is covered by these documents. The  
8 Proposed Action would not significantly change those analyses.

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**SECTION 5.0**  
**SUMMARY OF MITIGATION MEASURES**





1 **5.0 SUMMARY OF MITIGATION MEASURES**

2  
3 The following is a summary of the mitigation measures identified under the Proposed Action:

- 4  
5 • To minimize impacts on migratory birds, all site preparation would require either a  
6 preconstruction survey for bird activity, or that the work would be carried out in the fall  
7 and winter months to coincide with the non-breeding season for these species.  
8
- 9 • Where the access road to the proposed mountain village in TA-12 crosses the arroyo,  
10 low-water crossings would be built to allow water to continue flowing downstream and  
11 support the area's riparian system.  
12
- 13 • To prevent the spread of noxious weeds from construction activities, a noxious weed  
14 monitoring and treatment program would be established by ITAM with guidance from  
15 DPW-E biologists. Additionally, construction equipment would be cleaned of all dirt,  
16 mud, and plant debris prior to moving onto or off of the project area. Following  
17 construction, disturbed areas would be graded to match the surrounding topography and  
18 the surface left rough to facilitate regrowth of native vegetation.  
19
- 20 • Public recreation use is controlled through access permits by Fort Bliss Range Operations  
21 to ensure safety and use compatibility with military activities. And areas designated for  
22 recreational use, including the Culp Canyon WSA, would be closed when in use for  
23 military training.  
24
- 25 • The sites that are recommended eligible for the NRHP or of undermined eligibility would  
26 be delineated with Seibert stakes and avoided by all actions associated with the mountain  
27 village off-road zones. If any sub-surface cultural resources are encountered during the  
28 construction of the proposed mountain village site(s) or access road, they would be  
29 properly mitigated per the PA. Any discovery of possible human remains would be  
30 treated in accordance with the NAGPRA and the SOPs set out in the ICRMP.  
31
- 32 • Fuel for the generators would be transported and stored on-site in designated trucks.  
33 Secondary containment for parking and fuel trucks would be utilized. Drip pans would  
34 be provided for stationary equipment to capture any POL accidentally spilled during  
35 construction and operation activities or leaks from the equipment. The SPCCP and ISCP  
36 would be followed for any POL spills. Solid waste would be separated into recyclable  
37 and non-recyclable, collected on-site in appropriate containers, and disposed of at an  
38 approved disposal facility for the type of waste.  
39
- 40 • A SWPPP would be developed and implemented to prevent stormwater runoff during and  
41 following construction.  
42
- 43 • BMPs following Fort Bliss SWPPP guidance would be utilized to control temporary  
44 fugitive dust, erosion, and sedimentation during construction. These BMPs include silt  
45 fencing, structural wind breaks, erosion control mats, and applying water during  
46 construction.

- 1       • The proposed mountain villages are located in grazing areas with water troughs, water  
2 pipelines, and fencing throughout. The water pipelines would be buried sufficiently deep  
3 to avoid damage from off-road maneuvers. The water troughs would be protected and  
4 avoided during construction and training exercise. BLM requires access to the water  
5 troughs, water pipelines, fencing etc., for 4 hours, twice per week.



**SECTION 6.0**  
**REFERENCES**





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**SECTION 7.0**  
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**7.0 LIST OF PREPARERS**

The following people were primarily responsible for preparing this EA.

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**SECTION 8.0**  
**DISTRIBUTION LIST**





1 **8.0 DISTRIBUTION LIST**

2  
3 **Libraries**

4  
5 El Paso Main Public Library  
6 501 North Oregon Street  
7 El Paso, TX 79901

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9 Alamogordo Public Library  
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**SECTION 9.0**  
**ACRONYMS AND ABBREVIATIONS**







1	<b>9.0</b>	<b>ACRONYMS AND ABBREVIATIONS</b>
2		
3	ACHP	Advisory Council on Historic Preservation
4	ATV	All-Terrain Vehicle
5	BCT	Brigade Combat Team
6	BLM	Bureau of Land Management
7	BMP	Best Management Practice
8	BRAC	Base Closure and Realignment
9	CEQ	Council on Environmental Quality
10	CFR	Code of Federal Regulations
11	CO	Carbon Monoxide
12	CWA	Clean Water Act
13	dB	Decibel
14	dBA	A-weighted Decibel
15	dBp	Unweighted peak sound level
16	DoD	Department of Defense
17	DNL	Day-Night Average Sound Level
18	DPTMS	Directorate of Plans, Training, Mobilization and Security
19	DPW-E	Directorate of Public Works-Environmental Division
20	EA	Environmental Assessment
21	EIS	Environmental Impact Statement
22	EOD	Explosive Ordnance Disposal
23	ESA	Endangered Species Act
24	FAA	Federal Aviation Administration
25	FBTC	Fort Bliss Training Complex
26	FNSI	Finding of No Significant Impact
27	FORSCOM	Forces Command
28	GFS EIS	Growth and Force Structure Realignment FEIS
29	HMMWV	High Mobility Multipurpose Wheeled Vehicles
30	ICRMP	Integrated Cultural Resources Management Plan
31	IED	Improvised Explosive Device
32	INRMP	Integrated Natural Resources Management Plan
33	ISCP	Installation Spill Contingency Plan
34	ITAM	Integrated Training Area Management
35	LINR	Locally Important Natural Resources
36	LUA	Limited Use Area
37	LUPZ	Land Use Planning Zone
38	MATV	Mine-Resistant Ambush Protected All-Terrain Vehicle
39	MBTA	Migratory Bird Treaty Act
40	MEC	Munitions and Explosives of Concern
41	MMP EIS	Mission and Master Plan, Programmatic EIS
42	MRAP	Mine-Resistant Ambush Protected
43	MSL	Mean Sea Level
44	NAAQS	National Ambient Air Quality Standards
45	NAGPRA	Native American Graves Protection and Repatriation Act
46	NEPA	National Environmental Policy Act

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1	NM	New Mexico
2	NMWCA	New Mexico Wildlife Conservation Act
3	NRCS	Natural Resources Conservation Service
4	NRHP	National Register of Historic Places
5	O <sub>3</sub>	Ozone
6	PA	Programmatic Agreement
7	PK15	Peak Sound Measurement
8	PL	Public Law
9	PM	Particulate Matter
10	PM-2.5	Particulate Matter less than 2.5 microns
11	PM-10	Particulate Matter less than 10 microns
12	POL	Petroleum, Oil, and Lubricants
13	ROD	Record of Decision
14	ROI	Region of Influence
15	SEIS	Supplemental Environmental Impact Statement
16	SHPO	State Historic Preservation Officer
17	SO <sub>2</sub>	Sulfur dioxide
18	SOP	Standard Operation Procedures
19	SPCCP	Spill Prevention, Control, and Countermeasures Plan
20	SWPPP	Stormwater Pollution Prevention Plan
21	SUA	Special Use Airspace
22	TA	Training Area
23	tpy	Tons per year
24	U.S.	United States
25	UAS	Unmanned Aircraft Systems
26	USACE	United States Army Corps of Engineers
27	USAPHC	United States Army Public Health Command
28	USDA	United States Department of Agriculture
29	USEPA	United States Environmental Protection Agency
30	USGS	United States Geological Survey
31	USFWS	United States Fish and Wildlife Service
32	UXO	Unexploded Ordnance
33	VEC	Valued Environmental Component
34	VRM	Visual Resource Management
35	WSA	Wilderness Study Area

**APPENDIX A**  
**INTERAGENCY AND PUBLIC CORRESPONDENCE**





**INTERAGENCY AND PUBLIC CORRESPONDENCE  
WILL BE INCLUDED IN THE FINAL EA**



**APPENDIX B**  
**AIR EMISSIONS CALCULATIONS**







CALCULATION SHEET-COMBUSTION EMISSIONS-CONSTRUCTION

Assumptions for Combustion Emissions						
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs	
Water Truck	1	300	8	180	432000	
Diesel Road Compactors	0	100	8	15	0	
Diesel Dump Truck	1	300	8	15	36000	
Diesel Excavator	1	300	8	15	36000	
Diesel Hole Trenchers	1	175	8	60	84000	
Diesel Bore/Drill Rigs	1	300	8	60	144000	
Diesel Cement & Mortar Mixers	1	300	8	60	144000	
Diesel Cranes	1	175	8	60	84000	
Diesel Graders	1	300	8	15	36000	
Diesel Tractors/Loaders/Backhoes	1	100	8	60	48000	
Diesel Bulldozers	1	300	8	15	36000	
Diesel Front-End Loaders	1	300	8	15	36000	
Diesel Forklifts	2	100	8	180	288000	
Diesel Generator Set	2	40	8	180	115200	

Emission Factors							
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	SO2 g/hp-hr	CO2 g/hp-hr
Water Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Road Compactors	0.370	1.480	4.900	0.340	0.330	0.740	536.200
Diesel Dump Truck	0.440	2.070	5.490	0.410	0.400	0.740	536.000
Diesel Excavator	0.340	1.300	4.600	0.320	0.310	0.740	536.300
Diesel Trenchers	0.510	2.440	5.810	0.460	0.440	0.740	535.800
Diesel Bore/Drill Rigs	0.600	2.290	7.150	0.500	0.490	0.730	529.700
Diesel Cement & Mortar Mixers	0.610	2.320	7.280	0.480	0.470	0.730	529.700
Diesel Cranes	0.440	1.300	5.720	0.340	0.330	0.730	530.200
Diesel Graders	0.350	1.360	4.730	0.330	0.320	0.740	536.300
Diesel Tractors/Loaders/Backhoes	1.850	8.210	7.220	1.370	1.330	0.950	691.100
Diesel Bulldozers	0.360	1.380	4.760	0.330	0.320	0.740	536.300
Diesel Front-End Loaders	0.380	1.550	5.000	0.350	0.340	0.740	536.200
Diesel Forklifts	1.980	7.760	8.560	1.390	1.350	0.950	690.800
Diesel Generator Set	1.210	3.760	5.970	0.730	0.710	0.810	587.300

CALCULATION SHEET-COMBUSTION EMISSIONS-CONSTRUCTION

Emission factors (EF) were generated from the NONROAD2005 model for the 2006 calendar year. The VOC EFs includes exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2005 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2005 model is based on the population in U.S. for the 2006 calendar year.

Emission Calculations							
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	SO2 tons/yr	CO2 tons/yr
Water Truck	0.209	0.985	2.614	0.195	0.190	0.352	255.170
Diesel Road Paver	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Dump Truck	0.017	0.082	0.218	0.016	0.016	0.029	21.264
Diesel Excavator	0.013	0.052	0.182	0.013	0.012	0.029	21.276
Diesel Hole Cleaners/Trenchers	0.047	0.226	0.538	0.043	0.041	0.069	49.598
Diesel Bore/Drill Rigs	0.095	0.363	1.135	0.079	0.078	0.116	84.057
Diesel Cement & Mortar Mixers	0.097	0.368	1.155	0.076	0.075	0.116	84.057
Diesel Cranes	0.041	0.120	0.529	0.031	0.031	0.068	49.080
Diesel Graders	0.014	0.054	0.188	0.013	0.013	0.029	21.276
Diesel Tractors/Loaders/Backhoes	0.098	0.434	0.382	0.072	0.070	0.050	36.556
Diesel Bulldozers	0.014	0.055	0.189	0.013	0.013	0.029	21.276
Diesel Front-End Loaders	0.015	0.061	0.198	0.014	0.013	0.029	21.272
Diesel Aerial Lifts	0.628	2.463	2.717	0.441	0.428	0.302	219.243
Diesel Generator Set	0.154	0.477	0.758	0.093	0.090	0.103	74.558
<b>Total Emissions</b>	<b>1.443</b>	<b>5.742</b>	<b>10.802</b>	<b>1.100</b>	<b>1.070</b>	<b>1.321</b>	<b>958.684</b>

Conversion factors	
Grams to tons	1.102E-06

CALCULATION SHEET-TRANSPORTATION COMBUSTION EMISSIONS-CONSTRUCTION

Construction Worker Personal Vehicle Commuting to Construction Site-Passenger and Light Duty Trucks										
Pollutants	Emission Factors			Assumptions				Results by Pollutant		
	Passenger Cars g/mile	Pick-up Trucks, SUVs g/mile		Mile/day	Day/yr	Number of cars	Number of trucks	Total Emissions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	1.61		250	180	20	20	1.35	1.60	2.95
CO	12.4	15.7		250	180	20	20	12.30	15.57	27.87
NOx	0.95	1.22		250	180	20	20	0.94	1.21	2.15
PM-10	0.0052	0.0065		250	180	20	20	0.01	0.01	0.01
PM 2.5	0.0049	0.006		250	180	20	20	0.00	0.01	0.01
CO2	369	511		250	180	20	20	365.97	506.81	872.78

Heavy Duty Trucks Delivery Supply Trucks to Construction Site										
Pollutants	Emission Factors			Assumptions				Results by Pollutant		
	10,000-19,500 lb Delivery Truck	33,000-60,000 lb semi trailer rig		Mile/day	Day/yr	Number of trucks	Number of trucks	Total Emissions Cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	0.29	0.55		250	180	2	2	0.03	0.05	0.08
CO	1.32	3.21		250	180	2	2	0.13	0.32	0.45
NOx	4.97	12.6		250	180	2	2	0.49	1.25	1.74
PM-10	0.12	0.33		250	180	2	2	0.01	0.03	0.04
PM 2.5	0.13	0.36		250	180	2	2	0.01	0.04	0.05
CO2	536	536		250	180	2	2	53.16	53.16	106.32

Operational Emissions Associated with Proposed Action										
Pollutants	Emission Factors			Assumptions				Results by Pollutant		
	Passenger Cars g/mile	Combat Training Transport - Strykers		Mile/day	Day/yr	Number of Cars	Number of Strykers	Total Emissions cars tns/yr	Total Emissions Trucks tns/yr	Total tns/yr
VOCs	1.36	0.29		160	250	60	12	3.60	0.15	3.75
CO	12.4	1.32		160	250	60	12	32.80	0.70	33.49
NOx	0.95	4.97		160	250	60	12	2.51	2.63	5.14
PM-10	0.0052	0.12		160	250	60	12	0.01	0.06	0.08
PM 2.5	0.0049	0.13		160	250	60	12	0.01	0.07	0.08
CO2	369	536		160	250	60	12	975.93	283.52	1,259.45

Truck Emission Factor Source: MOBILE6.2 USEPA 2005 Emission Facts: Average annual emissions and fuel consumption for gasoline-fueled passenger cars and light trucks. EPA 420-F-05-022 August 2005. Emission rates were generated using MOBILE.6 highway.

CALCULATION SHEET-TRANSPORTATION COMBUSTION EMISSIONS-CONSTRUCTION

Conversion factor:	gms to tons
	0.000001102

Carbon Equivalents	Conversion Factor
N2O or NOx	311
Methane or VOCs	25

Source: EPA 2010 Reference, Tables and Conversions, Inventory of U.S. Greenhouse Gas Emissions and Sinks;  
<http://www.epa.gov/climatechange/emissions/usinventoryreport.html>

**CARBON EQUIVALENTS**

Construction Commuters	Conversion	Emissions CO2 tons/yr	Total CO2
VOCs	25	73.64	
NOx	311	2.15	
Total		75.79	948.58

Delivery Trucks	Conversion	Emissions CO2 tons/yr	Total CO2
VOCs	25	2.08	
NOx	311	541.95	
Total		544.03	650.35

Kirtland AFB staff and Students	Conversion	Emissions CO2 tons/yr	Total CO2
VOCs	25	93.76	
NOx	311	1,599.00	
Total		1,692.76	2,952.22

CALCULATION SHEET-FUGITIVE DUST-CONSTRUCTION

Construction Fugitive Dust Emissions

Construction Fugitive Dust Emission Factors

General Construction Activities	Emission Factor	Units	Source
New Road Construction	0.19 ton PM10/acre-month	ton PM10/acre-month	MRI 1996; EPA 2001; EPA 2006
	0.42 ton PM10/acre-month	ton PM10/acre-month	MRI 1996; EPA 2001; EPA 2006

PM2.5 Emissions

PM2.5 Multiplier	0.10	(10% of PM10 emissions assumed to be PM2.5)	EPA 2001; EPA 2006
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Control Efficiency

	0.50	(assume 50% control efficiency for PM10 and PM2.5 emissions)	EPA 2001; EPA 2006
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Project Assumptions

<b>Construction Area (0.19 ton PM10/acre-month)</b>			
Duration of Soil Disturbance in Project	6	months	
Length	0	miles	
Length (converted)	0	feet	
Width	0	feet	
Area	40.00	acres	
			Conversion Factors
			0.000022957 acres per feet
			5280 feet per mile

Staging Areas

Duration of Construction Project	6	months	
Length		miles	
Length (converted)		feet	
Width		feet	
Area	2.00	acres	

	Project Emissions (tons/year)		
	PM10 uncontrolled	PM10 controlled	PM2.5 uncontrolled
Construction Area (0.19 ton PM10/acre)	45.60	22.80	4.56
Staging Areas	0.38	0.19	0.04
<b>Total</b>	<b>45.98</b>	<b>22.99</b>	<b>4.60</b>
			2.28
			0.02
			<b>2.30</b>

References:

- EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999*. EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.
- EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants*. Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.
- MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1)*. Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

## Construction Fugitive Dust Emission Factors

### General Construction Activities Emission Factor

**0.19 ton PM10/acre-month** Source: MRI 1996; USEPA 2001; USEPA 2006

The area-based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM10/acre-month for sites without large-scale cut/fill operations. A worst-case emission factor of 0.42 ton PM10/acre-month was calculated for sites with active large-scale earth moving operations. The monthly emission factors are based on 168 work-hours per month (MRI 1996). A subsequent MRI Report in 1999, Estimating Particulate Matter Emissions from Construction Operations, calculated the 0.19 ton PM10/acre-month emission factor by applying 25% of the large-scale earthmoving emission factor (0.42 ton PM10/acre-month) and 75% of the average emission factor (0.11 ton PM10/acre-month).

The 0.19 ton PM10/acre-month emission factor is referenced by the USEPA for non-residential construction activities in recent procedures documents for the National Emission Inventory (USEPA 2001; USEPA 2006). The 0.19 ton PM10/acre-month emission factor represents a refinement of USEPA's original AP-42 area-based total suspended particle (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the USEPA, this methodology is also supported by the South Coast Air Quality Management District and the Western Regional Air Partnership (WRAP) which is funded by the USEPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non-residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The USEPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM10 and PM2.5 in PM nonattainment areas.

### New Road Construction Emission Factor

**0.42 ton PM10/acre-month** Source: MRI 1996; USEPA 2001; USEPA 2006

The emission factor for new road construction is based on the worst-case conditions emission factor from the MRI 1996 study described above (0.42 tons PM10/acre-month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM10/acre-month emission factor for road construction is referenced in recent procedures documents for the USEPA National Emission Inventory (USEPA 2001; USEPA 2006).

### PM2.5 Multiplier

**0.10**

PM2.5 emissions are estimated by applying a particle size multiplier of 0.10 to PM10 emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (USEPA 2006).

### Control Efficiency for PM10 and PM2.5

**0.50**

The USEPA National Emission Inventory documentation recommends a control efficiency of 50% for PM10 and PM2.5 in PM nonattainment areas. Wetting controls will be applied during project construction (USEPA 2006).

### References:

USEPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999*. USEPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.  
USEPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants*. Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.  
MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1)*. Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

## ONGOING EMISSIONS FROM PORTABLE GENERATOR

Assumptions for Combustion Emissions				
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Total hp-hrs
Deisel Generator Set	2	25	8	100,000
			250	

Emission Factors							
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	SO2 g/hp-hr	CO2 g/hp-hr
Deisel Generator Set	1.21	3.76	5.97	0.73	0.71	0.81	587.3

Emission factors (EF) were generated from the NONROAD2008 model for the 2007 calendar year. The VOC EFs includes exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2008 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2008 model is based on the population in U.S. for the 2006 calendar year.

Emission Calculations							
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	SO2 tons/yr	CO2 tons/yr
Deisel Generator Set	0.133	0.414	0.658	0.080	0.078	0.089	64.720
<b>Total Emissions</b>	<b>0.133</b>	<b>0.414</b>	<b>0.658</b>	<b>0.080</b>	<b>0.078</b>	<b>0.089</b>	<b>64.720</b>

Conversion factors	
Grams to tons	0.000001102

# PM-10 EMISSION CALCULATIONS FOR UNPAVED ROADS

## Unpaved Surfaces at Industrial Sites

Source: AP-42, 13.2.2 Unpaved Surfaces  
 Equation:  $E = k (s/12)^a * (W/3)^b$

Units	PM-2.5	PM-10	Case Scenario
lb/VMT	0.02	0.23	Low
lb/VMT	0.32	3.15	High

VMT=Vehicle Miles Traveled

## Unpaved Surfaces at Public Roads Dominated by Light Duty Vehicles

Equation:  $E = \frac{k (s/12)^a * (S/30)^d}{(M/0.5)^c}$

Units	PM-2.5	PM-10	Case Scenario	Average PM-2.5	Average PM-10
lb/VMT	0.45	4.50	Low	0.2	6.3
lb/VMT	0.02	8.02	High		

### Calculation:

Assumptions		PM-2.5/lbs/day	PM-10/lbs/day	PM-2.5/tons/year	PM-10/tons/year	Dust Control Efficiency (%)	PM-10 tons/year (controlled)
Miles of travel per day in project area	300	70	1878	8.8	234.7	71%	68.08

Assume active training days at the site:

250



## PM-10 EMISSION CALCULATIONS FOR UNPAVED ROADS

Industrial Roads			Public Roads		
PM-2.5	PM-10	PM-30	PM-2.5	PM-10	PM-30
0.15	1.5	4.9	0.18	1.8	6

k= Source: 13.2.2-2

Industrial Roads			Public Roads		
PM-2.5	PM-10	PM-30	PM-2.5	PM-10	PM-30
0.9	0.9	0.7	1	1	1

a= Source: 13.2.2-2

Industrial Roads			Public Roads		
PM-2.5	PM-10	PM-30	PM-2.5	PM-10	PM-30
0.45	0.45	0.45			

b= Source: 13.2.2-2

Industrial Roads			Public Roads		
PM-2.5	PM-10	PM-30	PM-2.5	PM-10	PM-30
			0.2	0.2	0.3

c= Source: 13.2.2-2

Industrial Roads			Public Roads		
PM-2.5	PM-10	PM-30	PM-2.5	PM-10	PM-30
			0.5	0.5	0.3

d= Source: 13.2.2-2

E= size-specific emission factor (lb/VMT)

## PM-10 EMISSION CALCULATIONS FOR UNPAVED ROADS

s= surface material silt content (%)	Low	Industrial Roads High	Public Roads High
	25.2	1.8	1.8
Source Table 13.2.2.-3			35
W= mean vehicle weight (tons)	Low	Industrial Roads High	Public Roads High
	290	2	1.5
Source Table 13.2.2.-3			3
M= surface material moisture content (%)	Low	Industrial Roads High	Public Roads High
	13	0.03	0.03
Source Table 13.2.2.-3			13
S = mean vehicle speed (mph)	Low	Industrial Roads High	Public Roads High
	43	5	10
Source Table 13.2.2.-3			55
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear (lb/VMT)	PM -2.5	PM-10	
	0.00036	0.00047	

### Control Efficiency of Dust Suppressants

Application (gal/square yard)	Average Control Efficiency %
0.073	62%
0.11	68%
0.15	74%
0.18	80%
Median	71%

Source: AP 42 Table 13.2.2-5

CALCULATION SHEET-SUMMARY OF EMISSIONS

Construction Emissions for Criteria Pollutants (tons per year)											
Emission Source	VOC	CO	NOx	PM-10	PM-2.5	SO2	CO2	CO2 Equivalents	Total CO2		
Combustion Emissions	1.44	5.74	10.80	1.10	1.07	1.32	958.68	3395.65	4354.33		
Construction Site-Fugitive PM-10	NA	NA	NA	22.99	2.30	NA	NA	NA	NA		
Construction Workers Commuter & Trucking	3.03	28.32	3.89	0.06	0.06	NA	872.78	1287.01	2159.79		
<b>Total emissions-CONSTRUCTION</b>	<b>4.47</b>	<b>34.06</b>	<b>14.70</b>	<b>24.15</b>	<b>3.43</b>	<b>1.32</b>	<b>1831</b>	<b>4683</b>	<b>6,514.12</b>		
Ongoing emissions from commuters Strykers	3.75	33.49	5.14	0.08	0.08	NA	1259.45	1710.81	2970.27		
Emissions from Unpaved Roads	NA	NA	NA	68.08	8.80	NA	NA	NA	NA		
Deisel Generators	0.13	0.41	0.66	0.08	0.08	0.09	64.72	207.94	272.66		
<b>Total Operational Emissions</b>	<b>3.75</b>	<b>33.49</b>	<b>5.14</b>	<b>68.15</b>	<b>8.88</b>	<b>0.00</b>	<b>1324.17</b>	<b>1918.75</b>	<b>3,242.93</b>		
De minimis Threshold (1)	100	100	100	100	100	100	NA	NA	25,000		

1. Otero County is in attainment for all NAQQS

Carbon Equivalents	Conversion Factor
N2O or NOx	311
Methane or VOCs	25

Source: USEPA 2010 Reference, Tables and Conversions, Inventory of U.S. Greenhouse Gas Emissions and Sinks; <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>

