FINAL
ENVIRONMENTAL ASSESSMENT

FOR
PROPOSED CONSTRUCTION AND OPERATION OF NEW VEHICLE MAINTENANCE FACILITY

Buckley Air Force Base, Colorado

Prepared by

Headquarters Air Force Center for Engineering and the Environment

Project Execution Division

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14. ABSTRACT

The United States Air Force (USAF or Air Force) prepared an Environmental Assessment (EA) to assess the potential environmental consequences of activities associated with constructing and operating a vehicle maintenance facility at Buckley Air Force Base, Colorado. This EA was prepared in accordance with requirements of the National Environmental Policy Act (NEPA) and the corresponding NEPA-implementing regulations of the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500-1508) and the USAF (32 CFR 989). The Proposed Action is to construct and operate a new vehicle maintenance facility for combined use by the USAF and the Air National Guard near the intersection of Aspen Street and Camp Hale Way at Buckley Air Force Base. In addition to the Proposed Action, three action alternatives, and a No Action Alternative were considered. The three action alternatives to the Proposed Action include constructing an Air Force-only facility at the Proposed Action location, constructing an Air Force-only facility at an alternative location, and expanding/modifying the existing facility to serve the Air Force only.

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FINAL
FINDING OF NO SIGNIFICANT IMPACT
PROPOSED CONSTRUCTION AND OPERATION OF A VEHICLE MAINTENANCE FACILITY AT BUCKLEY AIR FORCE BASE, COLORADO

AGENCY: U.S. Air Force, 460th Space Wing

BACKGROUND

The United States Air Force (USAF or Air Force) prepared an Environmental Assessment (EA) to assess the potential environmental consequences of activities associated with constructing and operating a vehicle maintenance facility at Buckley Air Force Base, Colorado. This EA was prepared in accordance with requirements of the National Environmental Policy Act (NEPA) and the corresponding NEPA-implementing regulations of the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500-1508) and the USAF (32 CFR 989).

PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to construct and operate a new vehicle maintenance facility for combined use by the USAF and the Air National Guard near the intersection of Aspen Street and Camp Hale Way at Buckley Air Force Base. In addition to the Proposed Action, three action alternatives, and a No Action Alternative were considered. The three action alternatives to the Proposed Action include constructing an Air Force-only facility at the Proposed Action location, constructing an Air Force-only facility at an alternative location, and expanding/modifying the existing facility to serve the Air Force only.

FACTORS CONSIDERED IN DETERMINING THAT NO ENVIRONMENTAL IMPACT STATEMENT IS REQUIRED

The EA, which is incorporated by reference, analyzed the environmental impacts of implementing the Proposed Action and four alternatives by taking into account relevant environmental resource areas and conditions. The following resources were eliminated from detailed analysis in this EA due to the absence of these resources at or adjacent to the project area or because accepted engineering or design techniques would ensure that no significant adverse impacts would occur: airspace, cultural resources, environmental justice, farmlands, floodplains, geology and soils, lead-based paint, noise, occupational safety and health, polychlorinated biphenyls, radon, socioeconomics, transportation, visual resources, and wetlands. The USAF has examined the following resource areas and found that implementing the Proposed Action would not result in any significant impacts: land use; air quality; water resources; biological resources, including vegetation, wildlife, and threatened and endangered species; hazardous materials and wastes; Environmental Restoration Program sites; asbestos; solid waste and pollution prevention; and utilities. Potential cumulative environmental impacts were also considered.

PUBLIC NOTICE

Per 32 CFR 989.15 (e), the USAF is required to make the draft EA and draft Finding Of No Significant Impact (FONSI) available for public review before approval of the FONSI and implementation of the Proposed Action. The 30 day public review period ended on 19 July 2007. The USAF received comments on the EA from 2 agencies. The comments received from Colorado Department of Public Health and Environment and the Colorado State Historic Preservation Officer have been addressed.

FINDING OF NO SIGNIFICANT IMPACT

Based on the requirements of NEPA, 40 CFR 1500-1508, and 32 CFR 989, I conclude that the environmental effects of implementing the Proposed Action or alternatives are not significant, and, therefore, an environmental impact statement will not be prepared. A notice of availability indicating a 30-day public review period for the EA was published in the *Denver Post* on 17 June 2007 and the *Aurora Sentinel* on 14 June 2007. Hard copies of the Draft EA and Draft FONSI were placed in the Denver, Aurora, and Boulder public libraries for public review. The signing of this FONSI completes the USAF NEPA requirements.

Approved: Donald W. McGee, Jr. 21 JAN 08

DONALD W. McGEE, JR., Colonel, USAF — Date

Commander, 460th Space Wing

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Tables

Figures

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1.0 Purpose and Need for Action

This section describes the purpose of and need for the Proposed Action, summarizes the scope of the environmental review and applicable regulatory requirements, and presents an overview of the organization of the document.

This environmental assessment (EA) has been prepared in accordance with U.S. Air Force (USAF) obligations under the National Environmental Policy Act (NEPA) of 1969 (42 United States Code §4321 to §4370d), the Council on Environmental Quality (CEQ) NEPA-implementing regulations (40 Code of Federal Regulations [CFR] Part 1500-1508), USAF NEPA-implementing regulations (32 CFR 989), and Department of Defense (DoD) Instruction 4715.9 (Environmental Planning and Analysis).

1.1 Background

Buckley Air Force Base (AFB) covers approximately 3,283 acres (ac) (1,328 hectares [ha]) (see Figure 1-1). It is surrounded by the city of Aurora (Arapahoe County) in the Denver, Colorado, metropolitan area. Buckley AFB was realigned from an Air National Guard Base (ANGB) to an AFB in October 2000.

The 460th Space Wing (460 SW) operates and maintains Buckley AFB. Its mission is to provide combatant commanders with superior global surveillance, worldwide missile warning, homeland defense, and expeditionary forces. The 460 SW provides security, communications, civil engineering, personnel, services, logistics, and medical support to more than 50 active-duty, Guard, and Reserve units from all branches of military service. Currently (November 2005), there are 13,126 employees at Buckley AFB, including 2,971 active-duty personnel, 4,159 Guard and Reserve personnel, 3,240 civilian employees, and 2,756 contract employees (460 SW, 2006). In addition, Buckley AFB serves approximately 77,000 retirees and 17,825 dependents in the Denver metropolitan area.

Since being realigned as an Air Force Base, Buckley AFB has been transforming from a minimally developed installation designed for weekend influxes of Reserve and Guard personnel into a fully developed active-duty AFB. The *General Plan for Buckley AFB* (General Plan) (Buckley AFB, 2005a) is in place to guide the development of Buckley AFB to meet military facility and infrastructure needs while maintaining the look and feel of a singular, well-planned military installation integrated into its natural environment (Buckley AFB, 2005a).

The 140th Wing (140 WG) was responsible for operating Buckley ANGB before the base stood up as an active duty Air Force Base. The 140 WG is still a major tenant at Buckley AFB.

1.2 Purpose and Need for the Proposed Action

To meet the vehicle maintenance requirements of vehicle fleet at Buckley AFB, the USAF proposes to construct and operate a new vehicle maintenance facility (VMF) on Buckley AFB that would serve the USAF and the Air National Guard. Air Force Form 813, Request for Environmental Impact Analysis, for the Proposed Action, is provided in Appendix A. The facility would support the mission of the Air Force's 460th Logistics Readiness Squadron Vehicle Maintenance (460 LGRVM) and the Colorado Air National Guard's 140th Logistics Readiness Squadron Vehicle Maintenance (140 LGRVM). Both units require vehicle maintenance work areas where their assigned vehicles will receive routine, periodic and emergency repairs and maintenance; although, no depot level maintenance is performed here. Each unit also is responsible for managing and administering the vehicle fleets owned by their parent organization.

The current VMF, located at Building 340, was designed and sized for the 140 LGRVM and would meet their needs except that the facility is now shared between the 140 LGRVM and 460 LGRVM, and the functions are overcrowded, operations are inefficient, and the space does not meet applicable facility size standards for either the 140 LGRVM or 460 LGRVM as a collocated facility. See Section 2.1 for a description of the Air Force and Air National Guard facility requirements. The facility also was not designed for the types and mix of vehicles used by the active-duty Air Force, so existing maintenance bays are inappropriately sized for the 460 LGRVM. Additionally, the current VMF is located in an area of the base that is incompatible with the goals of the General Plan. The current VMF, an "Industrial" land use, is located adjacent to the new military family housing area in an area designated by the General Plan for "Community Support" land uses. The siting of the facility is in conflict with the goals of the General Plan (see Section 3.1, "Land Use").

Additionally, because of space constraints in the existing facility, the dispatch functions of the 460 LGRVM are housed in Building 940, separate from the maintenance functions. The new VMF would provide increased efficiency of administrative functions by housing all requirements in one building. In addition to the inefficiency of the separated functions, Building 940 is located in the Airfield Clear Zone (area near the airfield that for safety reasons needs to be clear of obstructions). As soon as the traffic management functions within Building 940, including vehicle dispatch, can be relocated outside the Airfield Clear Zone, the building would be removed. The VMF needs of the 140 LGRVM and the 460 LVRGM are described in Section 2.1.

1.3 Scope of the Environmental Assessment

The USAF has prepared numerous EAs for construction projects on Buckley AFB, and many environmental plans and permits have been developed to support activities onbase. Consequently, much is known about the environmental resources and potential environmental impacts of construction activities on Buckley AFB. Copies of recent EAs are available in the government documents collections at the main Aurora, Denver, and Boulder public libraries located at 14949 East Alameda Parkway, 10 West 14th Avenue, and 1000 Canyon Boulevard, respectively.

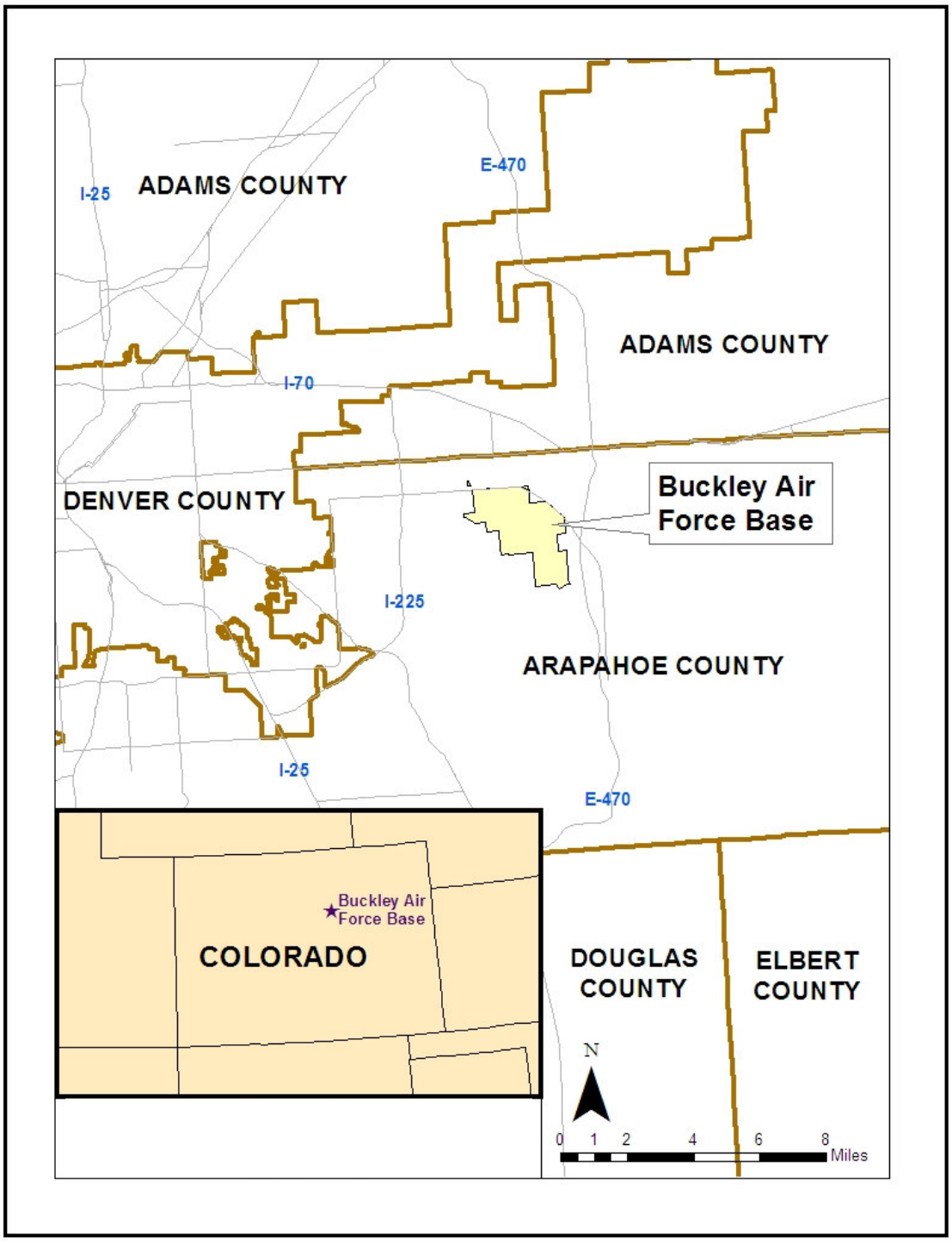

FIGURE 1-1
Regional Context Map for Buckley AFB

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1.3.1 Alternatives to be Analyzed in this Environmental Assessment

This EA discusses in detail the potential effects of construction and operation of the VMF under the following alternatives:

- Proposed Action – Construction and operation of a new VMF for use by the 460 LVRGM and the 140 LVRGM.
- Alternative 1 – Construction and operation of a new VMF for use by the 460 LVRGM at the Proposed Action site (the facility would be smaller than that of the Proposed Action), and the 140 LVRGM would remain in its current location at Building 340.
- Alternative 2 – Construction and operation of a new VMF for use by the 460 LVRGM at an alternative site than that of the Proposed Action and Alternative 1 (the facility would be smaller than that of the Proposed Action), and the 140 LVRGM would remain in its current location at Building 340.
- Alternative 3 – Enlarging Building 340 to accommodate expanded maintenance activities and relocating the 460 dispatch functions from Building 940 to the new VMF. The 140 LVGRM would relocate to an unidentified replacement site.
- No Action Alternative – The new VFM would not be built and conditions of overcrowding at the current facility would persist.

The Proposed Action, action alternatives and No Action Alternative are discussed in detail in Section 2.0.

1.3.2 Resources Analyzed in this Environmental Assessment

This EA addresses the potential impacts of the Proposed Action and alternatives to the following environmental resource areas:

- Land use
- Air quality
- Water resources, including stormwater
- Biological resources, including vegetation, wildlife, and threatened and endangered species
- Hazardous materials and wastes
- Environmental Restoration Program (ERP) sites
- Asbestos
- Solid waste and pollution prevention
- Utilities

The draft EA was made available for public and agency review and comment. After reviewing the environmental impact analysis and public and agency comments, the USAF decided to issue a Finding of No Significant Impact.

1.3.3 Resources Eliminated from this Analysis

As noted in 40 CFR 1500.1(b), "…NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail." In this spirit, potential impacts to several environmental resource areas were initially considered but determined not to be relevant to the Proposed Action or alternatives. In these instances, either the environmental resources were not present within the project area, or the project would present a negligible potential impact to these environmental resources. Consequently, they have been eliminated from detailed analysis. The following summarizes these issues and the basis for eliminating them from further consideration in the EA document.

- **Airspace –** The proposed project does not involve any flying and/or flying missions. Therefore, there would be no effect to airspace resulting from the Proposed Action or alternatives.

- **Cultural Resources –** The National Historic Preservation Act, as amended (16 United States Code 470 et seq.) and NEPA require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places (NRHP). Ninety-five percent of Buckley AFB land area, including the proposed construction sites for the Proposed Action and alternatives, has been inventoried for cultural resources, and the State Historic Preservation Office has concurred with all survey results (Geo-Marine, Inc., 2004 and Foothills Engineering, 2002). On June 5, 2007, the Air Force requested initiation of Section 106 consultation for the VMF construction project, with the State Historic Preservation Office, in accordance with the National Historic Preservation Act. The Colorado Historical Society concurred with the proposed finding of no adverse effect under Section 106 (see Appendix B). No NRHP-eligible archaeological sites have been identified on Buckley AFB. Six historical structures relating to Buckley AFB's World War II and Cold War legacies have been determined to be eligible for inclusion to NRHP (see Figure 1-2). The USAF has determined that the area of potential effects for the Proposed Action, Alternatives 1 and 3 do not include any of these six structures. The Alternative 2 site location is across the street from the NRHP-eligible Building 801. The site would not directly affect any of these structures and would not change the visual setting surrounding the historical structures. The new facility would be a low-profile (single story) industrial building, which is similar to the other facilities around the historical structures. Additionally, adherence to the *Base Facilities Excellence Plan* will prevent adverse effects to Building 801 if Alternative 2 were implemented. With any construction project, there is potential to uncover previously unidentified cultural resources. This potential is very low at Buckley AFB because all construction areas have been surveyed and no NRHP-eligible archaeological sites have been identified anywhere on Buckley AFB. Should cultural material be unexpectedly uncovered during construction, work would stop and the site would be evaluated prior to continuation of the projects.

- **Environmental Justice –** Executive Order 11898 requires federal agencies, including the USAF, to consider potential effects of their actions on minority and low-income populations. The proposed VMF would occur within Buckley AFB boundaries and would not affect surrounding communities, including minority and low-income populations. Additionally, as noted below, no adverse socioeconomic effects are anticipated for any population, including minority and low-income populations.

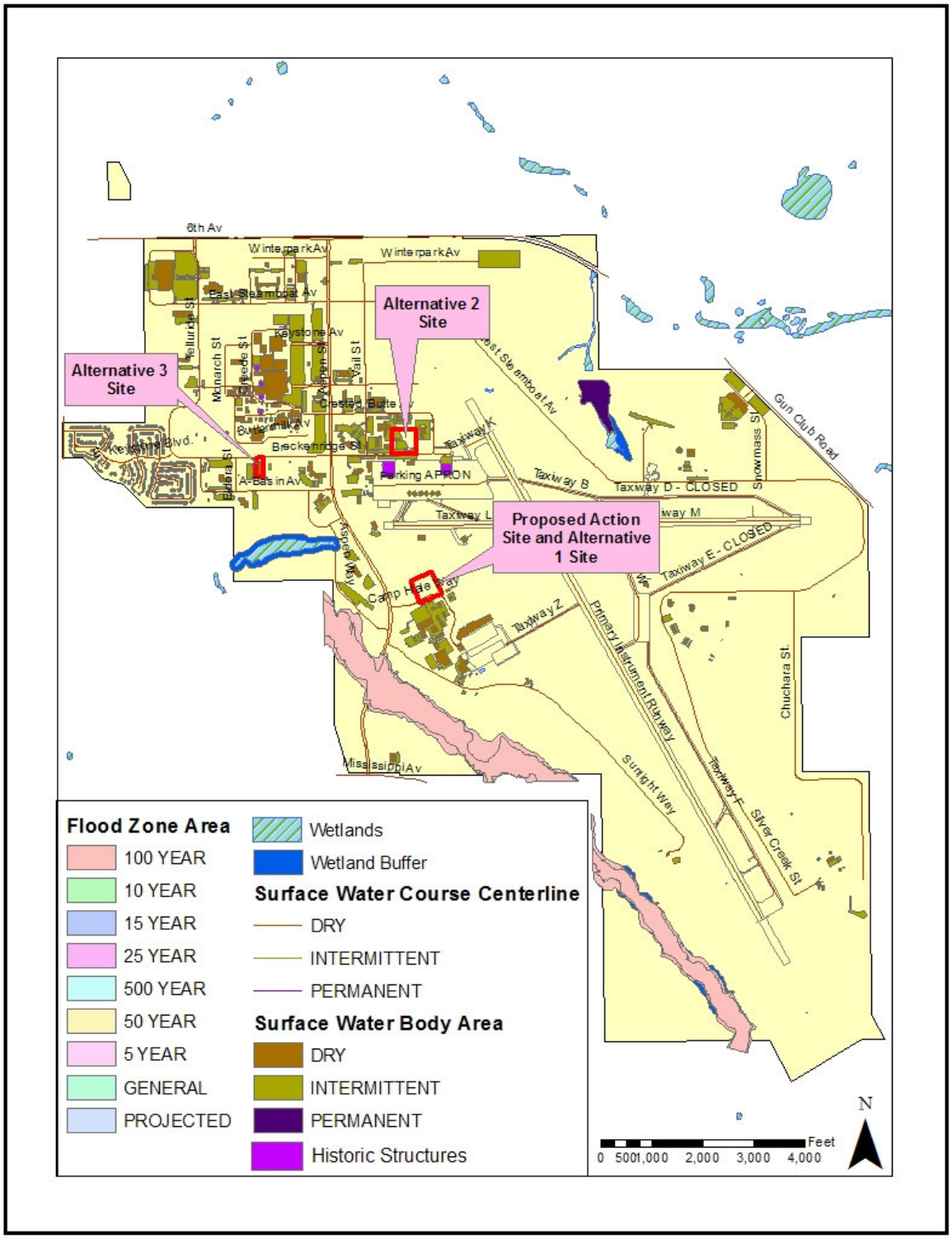

FIGURE 1-2
Floodplains, Wetlands, and Historical Structures on Buckley AFB

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- **Farmlands –** There is no suitable farmland on Buckley AFB (Natural Resource Conservation Service [NRCS], 2001). Therefore, farmlands would not be affected.
- **Floodplains –** The proposed construction locations for the Proposed Action and alternatives are well outside of the 100-year floodplain, as depicted on Figure 1-2. Therefore, no floodplain encroachment would occur under the Proposed Action or alternatives.
- **Geology and Soils –** There are no significant mineral resources on Buckley AFB (Buckley AFB, 2004b). There are no geologic hazards on Buckley AFB that would restrict development (Buckley AFB, 2005b). Erosion is addressed under Water Resources.
- **Lead-based Paint –** Lead exposure can present a human health hazard, particularly to children under the age of 6 years old. Lead-based paint was regularly used in building construction prior to 1978, when the federal government banned the use of lead-based paints in residential construction. Disturbing surfaces painted with lead-based paint during renovations or demolition can present a hazard. The VMF was constructed in 1994 and is unlikely to contain lead-based paint, and the new facility will not use lead-based paint. Therefore, lead-based paint is not a concern for the Proposed Action or alternatives. (Building 940, which is scheduled for removal because it is in the Airfield Clear Zone, was constructed in 1971 and could contain lead-based paint. Air Force standard practices for handling lead-based paint during demolition or renovation projects [including testing and abatement, if necessary] would be protective of human health and the environment, and no additional procedures would be required.)
- **Noise –** None of the project alternatives would be located in areas with sensitive noise receptors (e.g., residences or parks). The VMF is not expected to be a major source of traffic or operational noise, particularly in context of the ambient noise levels at the base. The Proposed Action and alternatives are located in air installation compatible use zone with noise levels of 65 to 75 decibels (dB); these fall within the daily Buckley AFB range from 65 to 80 dBs. Because there are no noise sensitive receptors within 500 feet (ft) of the VMF and the VMF is not a major noise source, noise effects were eliminated from detailed analysis.
- **Occupational Safety and Health –** Worker safety and health would be unchanged under all of the alternatives. Both the existing and proposed new facilities would be managed in accordance with federal, state, and USAF health and safety regulations and instructions. No additional hazards would be encountered as part of the operation of the facility. The construction contractor will be required to develop and implement a health and safety plan for construction of the new facility to ensure worker safety during construction.
- **Polychlorinated Biphenyls –** Polychlorinated biphenyls **(**PCB) are carcinogens that have significant toxic effects on human health. They were regularly used in transformers as a fire retardant until 1977. There are no transformers at Buildings 340 or 940. Therefore, it is not likely that PCBs would be encountered during construction of the Proposed Action or alternatives.
- **Radon –** Radon gas is naturally occurring in soils throughout Colorado. Prolonged exposure to radon increases risks of developing lung cancer. The proposed VMF

heating and cooling system is being designed to mitigate radon (Buckley AFB, 2005b). To ensure that radon exposure does not present a hazard to military personnel, the base Bioenvironmental Engineer tests all newly constructed buildings 1 year after completion to confirm that radon levels do not exceed U.S. Environmental Protection Agency (EPA) or Occupational Health and Safety Administration standards. If radon levels are found to be above the EPA standard (4 picocuries per liter), the Air Force would install a remediation system.

- **Socioeconomics –** No additional employees would be required to operate a new VMF. The personnel needed to support the facility would be assigned from the existing facilities. Therefore, operation of the Proposed Action and alternatives would not affect the number of personnel at Buckley AFB or impact the local workforce, population, or housing. There could be some minor, temporary economic benefit to the local community from the construction of the new facility. There are adequate construction resources within the local workforce and outside contractors to complete the construction of the Proposed Action or alternatives, and no new hiring of construction workers would be expected. Therefore, there would be little effect on the local community or economy resulting from implementation of the Proposed Action or alternatives.
- **Transportation –** There would be no major changes to the existing traffic patterns, capacity, or volume around the VMF. The Proposed Action and alternative site are easily accessed from existing roads, and traffic to and from the site is minimal. No new employees will be required to staff the proposed facility, and no additional vehicles will be serviced at the new facility. Therefore, traffic volume onbase would not change, and transportation was dismissed as an environmental issue.
- **Visual Resources –** The proposed VMF facility is consistent with industrial uses on Buckley AFB and would not change the visual character of the base. The building is low profile and would not affect viewsheds at Buckley AFB or offsite. Therefore, there would be no impact to visual resources from the Proposed Action or alternatives.
- **Wetlands –** There are no wetlands in the vicinity of the Proposed Action or alternatives, as depicted on Figure 1-2. The nearest wetlands are hundreds to thousands of feet from the Proposed Action and alternative sites and implementation of the Proposed Action or alternatives would include best management practices (BMP) to minimize potential sedimentation or other pollutants from entering nearby waters through stormwater runoff. Therefore, wetlands would not be affected by any of the project alternatives.

1.4 Applicable Regulatory Requirements

There are several potentially applicable regulatory requirements related to the Proposed Action discussed in this EA. A brief description of the regulatory requirements, including required construction permits and/or plan updates, is provided below. Each is discussed in more detail in the relevant part of Section 3.0, "Affected Environment and Environmental Consequences."

Title V Operating Permit – Buckley AFB currently maintains a Title V operating permit in accordance with Clean Air Act regulations. The current permit was first issued by the Colorado Department of Public Health and Environment (CDPHE) Air Pollution Control

Division on August 28, 1997, renewed on July 1, 2002, and revised on November 1, 2005. As part of the permit requirements, Buckley AFB must inventory its air emission sources annually. The VMF will contain a stationary source (boiler) for air emissions, and operational emissions from use of this boiler as well as those related to the use of solvents, degreasers, and heating equipment will need to be included in the annual air emission inventory. Emissions are expected to be very low and not contribute to exceedance of permit requirements.

Stormwater Construction General Permit – The owner and/or operator of the project will need to file a Notice of Intent to obtain a Construction General Permit (CGP) from EPA for construction of the VMF. The CGP requires preparation of a stormwater pollution prevention plan (SWPPP) and design of stormwater drainage controls and BMPs in accordance with the CGP. Additionally, according to the USAF Engineering Technical Letter 03-1: Stormwater Construction Standards (USAF, 2003), the project must develop a stormwater control site plan and staff the construction project with a stormwater professional during construction to oversee implementation of the site plan.

Federal Facility Small Municipal Separate Storm Sewer Systems Permit – Buckley AFB holds a permit under the Federal Facility Small Municipal Separate Storm Sewer Systems (MS4) general permit for federal facilities in Colorado, and therefore all new onbase development must comply with MS4 requirements, including post-construction stormwater treatment. Post-construction BMPs will be included in the facility design to treat any stormwater runoff generated by the construction of the facility (Buckley AFB, 2005b).

Spill Prevention, Control, and Countermeasure Plan – Storage of petroleum products is regulated under the Clean Water Act (40 CFR 112). Buckley AFB has a Draft Spill Prevention, Control, and Countermeasure Control (SPCC) Plan, and the current VMF is part of this plan. New construction would require modification of the plan to include the new facility and update existing facility information (e.g., for the Proposed Action, note changes in use of Buildings 340 and 940).

Resource Conservation and Recovery Act (RCRA) – Hazardous wastes are regulated under RCRA. Buckley AFB follows a hazardous waste management plan (HWMP) (460 SW, 2005) that outlines procedures for handling RCRA-regulated wastes in compliance with federal and USAF regulations and guidance. The HWMP will need to be updated to reflect changes in VMF operations on Buckley AFB.

1.5 Organization of the Environmental Assessment

This EA follows the recommended outline in the CEQ and Air Force NEPA-implementing regulations.

Section 1.0 – Purpose and Need for the Action provides background information about the installation; the purpose and need for the Proposed Action; the scope of the environmental review; applicable regulatory requirements; and a brief description of how the document is organized.

Section 2.0 – Description of the Proposed Action and Alternatives identifies selection criteria used to measure the effectiveness of each project alternative in meeting the project

purpose and need; provides a detailed description of the Proposed Action, other action alternatives, and the No Action Alternative; and presents a comparison of the alternatives.

Section 3.0 – Affected Environment and Environmental Consequences provides a description of the existing conditions of the areas potentially affected by the Proposed Action and alternatives and an analysis of potential direct, indirect, and cumulative impacts to environmental resources that might result from implementing the Proposed Action and alternatives.

Section 4.0 – List of Preparers lists the names, affiliations, and qualifications of the document preparers.

Section 5.0 – List of Agencies, Organizations, and Individuals Contacted provides lists of agencies/individuals who were contacted for information in the preparation of this document and to whom the EA will be distributed.

Section 6.0 – References provides a listing of the references used in preparing this EA.

Section 7.0 – Acronyms and Abbreviations provides a list of acronyms and abbreviations used throughout the document.

2.0 Description of the Proposed Action and Alternatives

This section identifies selection criteria used to measure the effectiveness of each project alternative in meeting the project purpose and need; provides a detailed description of the Proposed Action, other action alternatives, and the No Action Alternative; and presents a comparison of the alternatives.

2.1 Identification of Selection Criteria

As noted in Section 1.1, "Background," Buckley AFB has prepared the General Plan to guide development of Buckley AFB in its transition from an Air National Guard facility to a fully functioning, active-duty AFB. Supporting an active-duty population requires many additional facilities, such as housing, community support facilities, and additional workspace, not needed for a weekend National Guard force. In planning the development of these facilities, the General Plan outlined some important considerations, such as realigning installation land use to promote compatibility, relocating functions to enhance operational efficiency and clear areas for the clustering of support facilities, and integrating functional areas into a unified whole. Security considerations also influenced where facilities would be located in relation to the installation boundary.

The VMF project was born out of this planning process. Specific goals and objectives of the VMF project were developed through three design charrettes, other work sessions, and coordination with members of 460 LGRVM and 140 LGRVM. These goals, as summarized below, were identified as critical success factors for the project, and the absence of any one would provide a less than satisfactory VMF (Buckley AFB, 2005b):

- Construct a quality facility that enhances mission effectiveness and protects the environment.
- Construct a fully usable VMF within available funds, on schedule, and in a safe manner that fully satisfies the 460 LGRVM and 140 LGRVM user needs.
- Integrate sustainability principles and achieve a minimum Leadership in Energy and Environmental Design (LEED™) score of 26.

Design criteria were developed on the basis of mission needs of the 460 LGRVM and 140 LGRVM as well as compatibility with land use and environmental plans on Buckley AFB (Buckley AFB, 2005a and 2005b). The following objectives became the selection criteria developed to measure the effectiveness of project alternatives to satisfy the project's purpose and need:

1. Provides clear customer identification of each vehicle maintenance unit (460 LGRVM and 140 LGRVM).
2. Provides clear customer routing.

3. Provides good vehicle traffic flow without conflicts or confusion.
4. Provides easy entrances to and exits from the maintenance bays for vehicles of various sizes.
5. Provides efficient and comfortable administrative areas.
6. Allows convenient technician access to maintenance offices without entering administrative areas.
7. Is efficient, well laid out, and provides productive maintenance shop areas.
8. Consolidates 460 LGRVM maintenance and dispatch functions that are currently split between Buildings 340 and 940.
9. Is not located in the Airfield Clear Zone or other restricted development areas.
10. Is compatible with planned future land uses established in the General Plan.
11. Avoids or minimizes impacts to floodplains, wetlands, natural resources, and areas of environmental concern.

The 460 LGRVM and 140 LGRVM also determined that a joint facility was the most efficient design and that, while two facilities meeting individual needs of the two groups would satisfy their mission requirements, the costs and environmental and land use impacts of operating separate facilities needed to be considered. Requirements criteria for Air Force facilities, including vehicle maintenance facilities, appear in Air Force Handbook, 32-1084, "Civil Engineering, Facility Requirements," and its companion document Air Force Instruction (AFI) 32-1084, "Standard Facility Requirements." Requirements for Air National Guard facilities appear in Air National Guard Handbook (ANGH) 32-1002, "Standard Facility Requirements." These documents provide facility space allowance guidance by category code and are used to program new facilities. Space requirements are defined depending on the number and type of vehicles assigned to the unit, the number of vehicles parked awaiting repair or pickup, typical daily traffic, and other factors. The 460 LGRVM has 99 total assigned vehicles, including 32 special purpose vehicles and one refueling vehicle. Approximately 30 vehicles assigned to the 460 LGRVM, including 20 vehicle operations vehicles, are typically at the VMF on a daily basis. The 140 LGRVM is assigned 122 vehicles, including 50 special purpose vehicles and 8 refueling trucks, of which 35 are typically at the VMF on a daily basis. The existing VMF (Building 340) was designed according to the needs of the 140 LGRVM, and the facility is functional (i.e., maintenance bays are sized for their vehicle inventory) for that organization if it occupied the building on its own.

Table 2-1 provides a summary of the building space and functional requirements of the combined VMF facility, based on AFI 32-1084 and ANGH 32-1002 and the vehicle inventory listed above.

TABLE 2-1
Building Space Requirements for 460 LGRVM and 140 LGRVM Vehicle Maintenance Facility

Space Type	460 LGRVM Requirement (gross ft^2)	140 LGRVM Requirement (gross ft^2)
Lobby/Entrance/Waiting Room	400	240
Vehicle Operations/Dispatch	480	420
Customer Service Center/Work Leader	240	240
Maintenance Control and Analysis	400	280
Vehicle Manager	280	240
Material Control/Tool Crib/Library	920	1,000
Break and Training Room	480	400
Storage and Ready Room	80	0
Conference and Training Room	600	0
Men's Restroom/Locker/Shower Room	480	440
Women's Restroom/Locker/Shower Room	240	240
Janitor Closet	50	50
Mechanical/Air Compressor/POL Storage	900	0
Electrical/Telephone/Communication	200	0
Maintenance Bay 1	2,100	2,100
Maintenance Bay 2	2,100	2,100
Maintenance Bay 3	2,100	980
Maintenance Bay 4	2,100	0
Maintenance Bay 5	1,400	0
Corridor and Circulation	700	660
Gross ft^2 (each organization)	**16,250**	**9,390**
Total Gross ft^2		**25,640**

Notes:
POL = petroleum, oil, and lubricants
ft^2 = square feet

2.2 Description of the Proposed Action

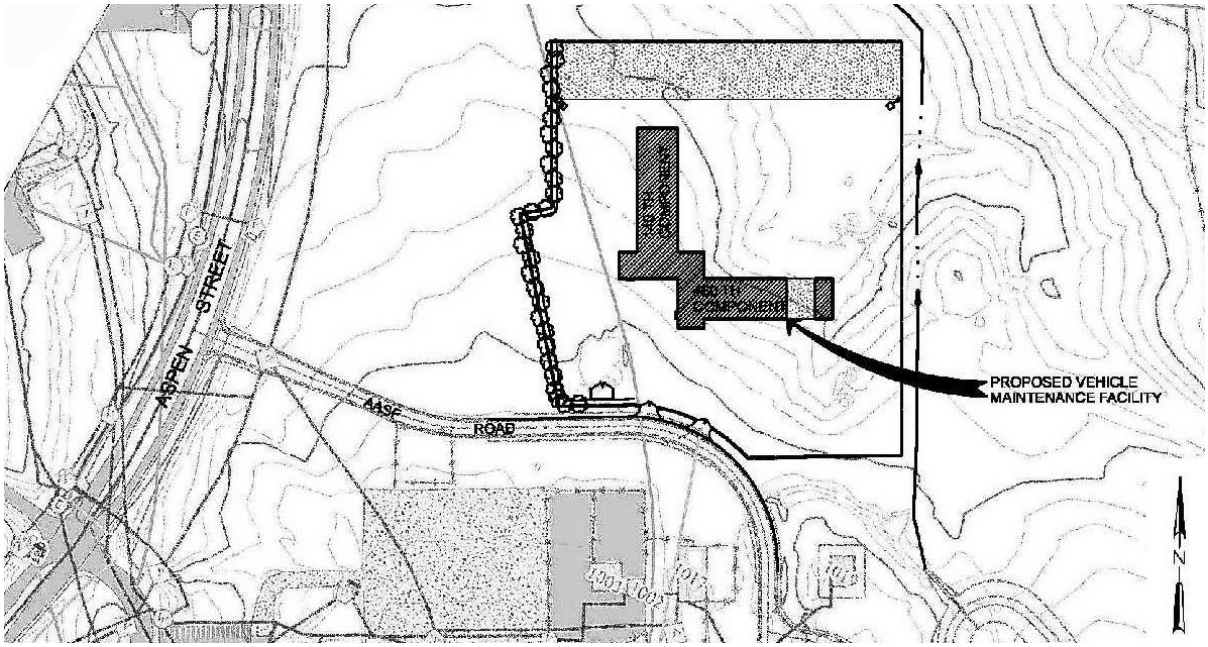
The 460 SW proposes to construct and operate a new VMF for efficient use by the 460 LGRVM and the 140 LGRVM. The new facility would meet the space and functional requirements of the 460 LGRVM and 140 LGRVM functions. The 460 LGRVM function that is divided between Buildings 340 (maintenance) and Building 940 (vehicle operations and dispatch) would be combined into one facility. The 140 LGRVM function is housed in Building 340. Once a new facility is provided for these functions, Building 340 would be converted to use as a recreational auto hobby shop. Once all Logistics Readiness Squadron activities are relocated, Building 940, which is in the Airfield Clear Zone, would be removed.

Sizing and dimensions of the maintenance areas for Air Force facilities is guided by Air Force Handbook 32-1084, "Civil Engineering, Facility Requirements," and its companion document AFI 32-1084, "Standard Facility Requirements." Requirements for Air National

Guard Facilities appear in ANGH 32-1002, "Standard Facility Requirements." Square footage authorizations differ between the active duty component (the 460 LGRVRM) and the Air National Guard (the 140 LGRVM), as outlined in AFG and AFI 32-1084 and ANGH 32-1002, respectively. However, the functional requirements and adjacencies are fundamentally the same; and the proper configuration for the joint use VMF requires the separation of the two units.

2.2.1 Design

Figure 2-1 is a conceptual drawing of the proposed vehicle maintenance facility. In addition to the building space outlined in Table 2-1, the facility would require approximately 135,000 ft² of paved areas to support vehicle circulation and drive-through, U-Drive-It Fleets, privately-owned vehicle parking, overflow parking, a loading dock, and areas for vehicles awaiting parts, maintenance, disposal, or return to owners. The proposed project would consist of three main elements: maintenance, administration and reception, and paved areas.



Note: AASF Road is now called Camp Hale Way.

FIGURE 2-1
Combined 460 LGRVM and 140 WG Vehicle Maintenance Facility Site Plan Conceptual Drawing

The facility design meets all the selection criteria identified in Section 2.1, "Identification of Selection Criteria," and fully described in the *Requirements Document* (Buckley AFB, 2005b). The facility would be designed and operated to meet USAF environmental standards, including stormwater management, hazardous materials and waste management, operational air emissions reporting, and recycling and solid waste management. The facility would be designed to meet LEED™ certification for environmentally-friendly building construction. The paved areas will provide necessary standoff distances to meet anti-terrorism and force protection requirements. Other installation security requirements met by the proposed VMF design include its internal fencing, location inside the perimeter fence and away from the flight line, and no fuel storage.

Under the Proposed Action, the 460 LGRVM and 140 LGRVM maintenance functions would be relocated from Building 340 to the new facility, and Building 340 would be converted to use as a recreational auto hobby shop. Vehicle operations dispatch functions currently housed in Building 940, the Traffic Management Facility, would be relocated to the new facility. Building 940 could be removed from the Airfield Clear Zone once all traffic management functions can be relocated.

2.2.2 Location

The total area required for the VMF would be approximately 5 ac (2 ha). This includes the building space and parking requirements outlined in AFI 32-1084 and ANGH 32-1002,which equate to 3.6 ac (1.5 ha) of impervious (building and paved areas) plus a 1.4-ac (0.6-ha) gravel area for possible future expansion of paved parking. The VMF perimeter would be enclosed by a "Type A" 10-foot-high chain-link fence with razor wire.

The proposed site (see Figure 2-2) for the new VMF is a vacant lot near the intersection of Aspen Street and the newly constructed Camp Hale Way. The site is east of the proposed Logistics Readiness Complex, southeast of the Outdoor Recreation Rental Complex (under construction), west of the proposed Warehouse Supply Facility, and north of the existing Civil Engineering complex. The building would be oriented to the southeast with the front door for administrative offices located approximately 250 ft from Camp Hale Way and 95 ft from the eastern perimeter of the VMF site (see Figure 2-1). The southernmost vehicle maintenance bay would be approximately 150 ft from Camp Hale Way.

FIGURE 2-2
Proposed Action Site, Looking Southeast from Aspen Street

2.2.3 Construction and Site Preparation

Estimated ground disturbance resulting from construction is expected to be contained within the facility footprint (i.e., no more than 5 ac [2 ha]) because the sizable paved and gravel areas surrounding the building provide adequate construction staging areas for building construction, material stockpiling, and other construction needs. Generally, ground disturbance related to utility connections also would occur within this disturbed area because these connections would be made from utilities that run along the surrounding roadways or other properties developed or planned for development around the proposed site. The *Requirements Document*, *Buckley AFB Fiscal Year 2008 Vehicle Maintenance Facility* (Buckley AFB, 2005b) describes the utility connections and coordination with other projects.

The construction site would be readily accessible from paved roads. Site preparation activities would be minimal because:

- The proposed site is located near existing paved roads that provide good access for construction equipment.
- The proposed site is currently undeveloped.
- The proposed site is gently sloping, with elevations ranging from approximately 5,560 to 5,570 ft, thereby minimizing the need for soil cuts and fills.
- Utility connections can be made from existing or planned utilities located along adjacent roadways (see Section 3.9, "Utilities").

Full construction of the VMF would take approximately 16 months, although ground disturbance would be less than 6 months.

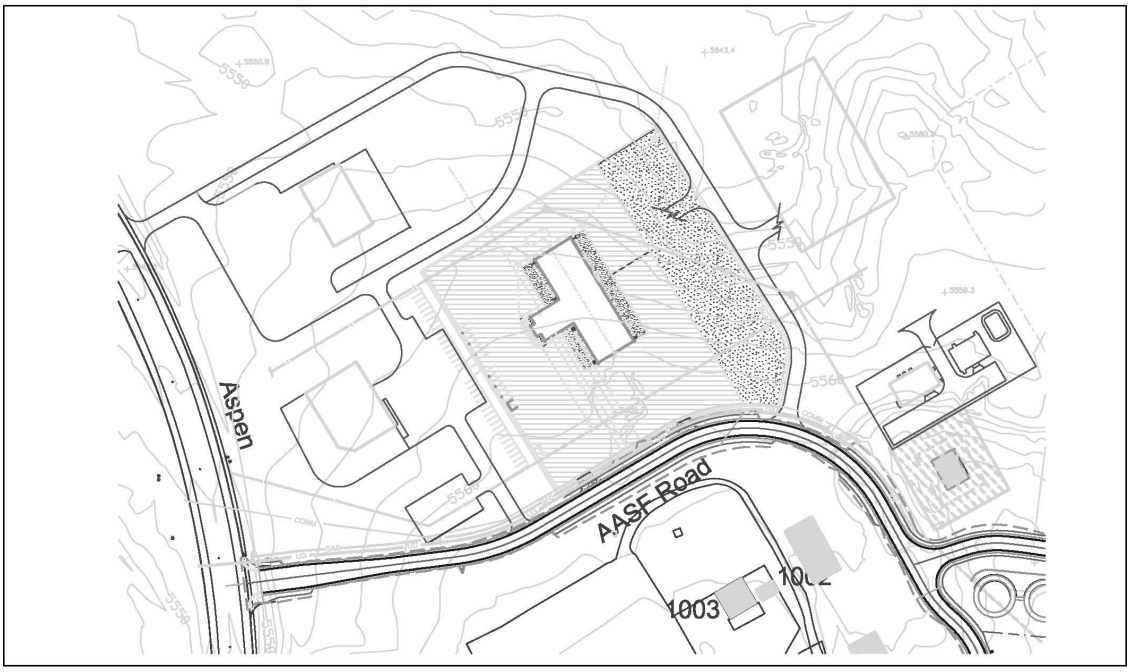
2.3 Alternatives

Three construction (action) alternatives to the Proposed Action were evaluated. The No Action Alternative was also considered and is described in Section 2.4, "No Action Alternative." The types of activities that would occur within the facility under the action alternatives are similar to those under the Proposed Action. Alternative 1 would consist of an Air Force-only facility at the Proposed Action site, and Alternatives 2 and 3 would consist of an Air Force-only facility at two alternative locations. These are described below.

2.3.1 Alternative 1

Under Alternative 1, the Air Force would construct a new VMF for the 460 LGRVM at the Proposed Action site, and the 140 LGRVM VMF would remain in Building 340. The design of the dedicated (Air Force only) 460 LGRVM facility is shown on Figure 2-3.

Space requirements for the 460 LGRVM-only facility would be those described in the 460 LGRVM column in Table 2-1, and the facility would be approximately 4,000 ft^2 smaller than the Proposed Action facility (although the preliminary design for Alternative 1 does include an optional bid package for two additional maintenance bays to accommodate for future growth, which would make the facility more similar in size to the Proposed Action).



Note: AASF Road is now called Camp Hale Way.

FIGURE 2-3
460 LGRVM Vehicle Maintenance Facility Site Map

Parking areas also would be slightly smaller (although not significantly because of circulation needs). Under Alternative 1, the 460 LGRVM vehicle dispatch operations in Building 940 would be relocated to the new facility.

2.3.2 Alternative 2

Alternative 2 involves construction of the Alternative 1 design at a different location. Alternative 2 would use a site just north of Breckenridge Street and west of Wolf Creek Street (see Figure 2-4). The site is a 5.7-ac (2.3-ha) parcel. Building 940 and Building 902 (thrift shop) are located at the Alternative 2 site, but both buildings are scheduled for removal for other reasons. (Building 940 is in the Airfield Clear Zone, and Building 902 is excess.) Buildings 950, 850, and 830 also are in the vicinity of the Alternative 2 location but would be unaffected by construction.

2.3.3 Alternative 3

Alternative 3 consists of enlarging Building 340 to accommodate expanded maintenance activities and relocating the 460 LGRVM dispatch functions from Building 940. Building 340 is east of Eldora Street, between Breckenridge Street and A-Basin Avenue at the eastern edge of the Community Support area of the base (see Figure 2-5). The area surrounding the building consists primarily of paved areas, weedy dirt areas, and some ornamental landscaping. Alternative 3 would require construction of additional maintenance bays, administrative facilities, and parking. To be equal in size to the Alternative 1 design, this expansion would need to be at least 2,085 ft^2 (0.05 ac); however, to be equal in efficiency to the Proposed Action or Alternative 1 designs, other modifications, such as reconfiguration of bays or circulation areas, beyond a building addition could be required.

FIGURE 2-4
Vehicle Maintenance Facility Alternative 2 Site, Looking Northeast

FIGURE 2-5
Building 340, Current Vehicle Maintenance Facility and Alternative 3 Site, Looking Northwest

Under this alternative, the 140 LGRVM mission would need to be relocated to provide a dedicated VMF for the 460 SW. Air Force regulations require the Air Force to provide new facilities for tenant units if the Air Force displaces a tenant (Buckley AFB, 2006a). No

replacement sites have been identified for a new 140 LGRVM VMF, and further environmental evaluation under NEPA would be required if a new facility were developed.

2.4 No Action Alternative

Under the No Action Alternative, the new VMF would not be built. Overcrowding at the facility would persist, and the efficiency of maintenance operations would continue to be compromised. Vehicle dispatch operations would continue to be separated from the maintenance function. Building 940, which is located within the Airfield Clear Zone, could not be removed until all traffic management functions, including 460 LGRVM dispatch, could be relocated in a replacement structure(s).

As described in Section 2.1, the requirements criteria for Air Force facilities, including vehicle maintenance facilities, appear in Air Force Handbook 32-1084*, Civil Engineering, Facility Requirements*, and its companion document, AFI 32-1084, *Standard Facility Requirements*. The No Action Alternative does not meet AFI regulation requirements governing the design of vehicle maintenance facilities; therefore, the No Action Alternative would leave in place a facility that does not meet Air Force design or space standards.

The No Action Alternative does not meet the mission needs of the 460 LGRVM or 140 LGRVM, support the expanding missions or development plan at Buckley AFB and does not meet the project purpose and need. While the No Action Alternative does not satisfy the purpose and need for the project, it is included in the environmental analysis to provide a baseline for comparison with the Proposed Action and the other action alternatives and is analyzed in accordance with CEQ and USAF regulations for implementing NEPA.

2.5 Comparison of Alternatives

The Proposed Action supports the 460 LGRVM and 140 LGRVM missions by enhancing efficiency through providing an adequately sized, efficiently designed VMF for use by the 460 LGRVM and 140 LGRVM (Buckley AFB, 2005b). It also allows the consolidation of 460 LGRVM dispatch and maintenance functions. The design addresses all of the specific needs identified by the 460 LGRVM and 140 LGRVM during a collaborative design planning process. The Proposed Action supports the base development plans outlined in the General Plan by locating the VMF in the Industrial area of the base and relocating 460 LGRVM dispatch functions from Building 940, which is located within the Airfield Clear Zone. The Proposed Action does require development of an undeveloped parcel on the installation. However, the parcel is surrounded by other development and infrastructure (e.g., roads, utilities) and does not contain significant physical, natural, or cultural resources.

Alternative 1 incorporates all of the USAF design elements of the Proposed Action and, therefore, meets the operational requirements of the 460 LGRVM. The Alternative 1 facility does not accommodate the 140 LGRVM so the 140 LGRVM would remain in Building 340. Building 340 cannot be converted to an auto hobby shop. This alternative does not support the land use goals of the General Plan as well as the Proposed Action because the Industrial use of Building 340 would persist in the Community Support area. Because Building 340 would continue to be occupied by the 140 LGRVM, a new auto hobby shop would be

required. Environmental impacts associated with the construction of Alternative 1 would be similar to the Proposed Action. Although the Proposed Action facility accommodates two units rather than just one, it is only slightly larger in footprint because the building and parking areas still need to be sized for servicing large vehicles. Operational impacts associated with hazardous and solid waste management would be greater under Alternative 1 because two VMFs would be operated, and wastes would be generated and managed at two locations.

Operational impacts of implementing Alternative 2 would be similar to Alternative 1. The land use and waste management drawbacks would be the same as described under Alternative 1, and a new auto hobby shop would also be required. Construction on the Alternative 2 site could be accomplished without significant environmental impacts. However, Environmental Restoration Program (ERP) Site 9 is located at the site and has been identified as an area of environmental concern. The site needs to be officially closed (that is, paperwork for the cleanup accepted by the state of Colorado) before construction could begin at this location. Although not a fatal flaw, closure of this site could delay development of the VMF. Additionally, Buildings 940 and 902 would require removal before construction could commence; because these buildings are slated for removal for other reasons (Building 940 is in the Airfield Clear Zone, and Building 902 is excess), there are no consequences to the removal requirement other than potential construction delay.

Alternative 3 could be developed within the existing footprint of Building 340 and surrounding area. This alternative, therefore, would not require disturbing additional soil, vegetation, or wildlife habitat. However, Alternative 3 does not meet the operational needs of the 460 LGRVM as well as the Proposed Action because there are inherent inefficiencies with the flow of the operations. Joint use of the facility between the 460 LGRVM and 140 LGRVM would not be possible because of these inefficiencies. The facility does not meet the objectives identified in the VMF *Requirements Document* (Buckley AFB, 2005b). Additionally, the site does not conform to land use designations or the General Plan (Buckley AFB, 2005a) and would require construction of a new VMF for the 140 LGRVM and a new auto hobby shop.

Table 2-2 compares the Proposed Action, Alternative 1, Alternative 2, and the No Action Alternative as they relate to the selection criteria presented in Section 2.1, "Identification of Selection Criteria." As illustrated by the table, the Proposed Action meets all of the selection criteria and, therefore, best meets the project purpose and need.

Table 2-3 compares the impacts to environmental resources analyzed in this EA for the Proposed Action, Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative. As noted in Section 1.3.3, "Resources Eliminated from This Analysis," the following resource areas were eliminated from detailed evaluation because either the resources were not present in any of the alternative locations or effects to the resources would be negligible: airspace, cultural resources, environmental justice, farmlands, floodplains, geology and soils, lead-based paint, noise, occupational safety and health, PCBs, radon, socioeconomics, transportation, visual resources, and wetlands.

TABLE 2-2
Comparison of Alternatives with Selection Criteria

Selection Criteria	No Action Alternative	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Clear customer identification of 460 LGRVM and 140 LGRVM	NO	YES	YES	YES	YES
Clear customer routing	NO	YES	YES	YES	YES
Good vehicle traffic flow without conflicts or confusion	NO	YES	YES	YES	NO
Easy vehicle entrances and exits to/from the maintenance bay for all sizes of vehicles	NO	YES	YES	YES	NO
Efficient and comfortable administrative areas	NO	YES	YES	YES	YES
Convenient technician access to maintenance offices without entering administrative areas	NO	YES	YES	YES	YES
Efficient, well laid out, and productive maintenance shop areas	NO	YES	YES	YES	NO
Consolidation of service functions that are currently scattered around the base into a single location for Buckley AFB personnel to conduct business	NO	YES	YES	YES	YES
Location not in the Airfield Clear Zone	NO	YES	YES	YES	YES
Meets LEED™ Green Building Rating System	NO	YES	YES	YES	YES
Meets the land use criteria established in the General Plan	NO	YES	NO	NO	NO
Avoids or minimizes impacts to floodplains, wetlands, natural and cultural resources, and areas of concern	YES	YES	YES	YES	YES

TABLE 2-3
Comparison of Resource Impacts for Proposed Action and Alternatives

Resource	No Action Alternative	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Land Use	No change in land use. Adverse long-term impact because locations of current facilities conflict with planned land use.	No short- or long-term adverse impact.	Change in land use would not result in short- or long-term adverse impact. Adverse long-term impact because location of 140 LGRVM facility conflicts with planned land use.	Land use would change from a thrift shop to a VMF facility. No change in land use designation by the General Plan. Adverse long-term impact because location of 140 LGRVM facility conflicts with planned land use.	No change in land use. Adverse long-term impact because location of 140 LGRVM facility conflicts with planned land use.
Air Quality	No change in emissions. No short- or long-term adverse impacts.	Minor long-term adverse impacts from boiler emissions.	Minor long-term adverse impacts from boiler emissions.	Minor long-term adverse impacts from boiler emissions.	Minor long-term adverse impacts from boiler emissions.
	No construction-related emissions. No short- or long-term adverse impacts.	Minor short-term localized increase in PM_{10} emissions (e.g., dust, vehicular emissions) would have a minor adverse affect to air quality during construction.	Minor short-term localized increase in PM_{10} emissions (e.g., dust, vehicular emissions) would have a minor adverse affect to air quality during construction.	Minor short-term localized increase in PM_{10} emissions (e.g., dust and vehicle emissions) would have a minor adverse affect to air quality during construction.	Minor short-term localized increase in PM_{10} emissions (e.g., dust and vehicle emissions) would have a minor adverse affect to air quality during construction. Construction impacts would be slightly less than under the Proposed Action and Alternatives 1 and 2 because of decreased area of land disturbance.
Water Resources	No change in stormwater runoff. No short- or long-term adverse impacts.	Minor increase in stormwater runoff due to increased impervious surface area has minor adverse effect on water quality.	Minor increase in stormwater runoff due to increased impervious surface area has minor adverse effect on water quality.	Minor increase in stormwater runoff due to increased impervious surface area has minor adverse effect on water quality.	Minor increase in stormwater runoff due to increased impervious surface area has minor adverse effect on water quality.
		Increase in impervious surface reduces water infiltration to groundwater but the amount of precipitation that infiltrates at the site is minimal even on undeveloped sites; therefore, the impact to groundwater is minimal.	Increase in impervious surface reduces water infiltration to groundwater but the amount of precipitation that infiltrates at the site is minimal even on undeveloped sites; therefore, the impact to groundwater is minimal.	Increase in impervious surface reduces water infiltration to groundwater but the amount of precipitation that infiltrates at the site is minimal even on undeveloped sites; therefore, the impact to groundwater is minimal.	
Vegetation	No short- or long-term adverse impacts.	Permanent loss of approximately 5 ac of low-quality (previously disturbed) natural vegetation has a minor, long-term adverse effect to natural resources at Buckley AFB.	Permanent loss of approximately 5 ac of low-quality (previously disturbed) natural vegetation has a minor, long-term adverse effect to natural resources at Buckley AFB.	Permanent loss of approximately 5 ac of low-quality (previously disturbed) natural vegetation has a minor, long-term adverse effect to natural resources at Buckley AFB.	No permanent loss of habitat; therefore, no adverse impacts are expected to occur.

TABLE 2-3
Comparison of Resource Impacts for Proposed Action and Alternatives

Resource	No Action Alternative	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Wildlife	No impact to wildlife habitat. No short- or long-term adverse impacts would occur.	Minor long-term adverse impact to low-quality wildlife habitat affected by previous disturbance and fragmentation by surrounding development that will be converted to development has a minor adverse effect on wildlife at Buckley AFB.	Minor long-term adverse impact to low-quality wildlife habitat affected by previous disturbance and fragmentation by surrounding development that will be converted to development has a minor adverse effect on wildlife at Buckley AFB.	Minor long-term adverse impact to low-quality wildlife habitat affected by previous disturbance and fragmentation by surrounding development that will be converted to development has a minor adverse effect on wildlife at Buckley AFB.	No wildlife or habitat onsite. No short- or long-term adverse impacts would occur.
	No displacement of wildlife, or wildlife mortality. No short- or long-term adverse impacts would occur.	Permanent displacement of prairie species, especially ground dwelling migratory birds, that might be living in the 5 ac site that will be developed has a minor long-term adverse effect on wildlife at Buckley AFB. Potential for increased mortality to smaller, less mobile wildlife species if those species are present during construction.	Permanent displacement of prairie species, especially ground dwelling migratory birds, that might be living in the 5 ac site that will be developed has a minor long-term adverse effect on wildlife at Buckley AFB. Potential for increased mortality to smaller, less mobile wildlife species if those species are present during construction.	Permanent displacement of prairie species, especially ground dwelling migratory birds, that might be living in the 5 ac site that will be developed has a minor long-term adverse effect on wildlife at Buckley AFB. Potential for increased mortality to smaller, less mobile wildlife species if those species are present during construction.	No wildlife or habitat onsite. No short or long-term adverse impacts would occur.
	No wildlife mortality. No impacts to prairie dogs or burrowing owls. No short- or long-term adverse impacts would occur.	Potential for increased mortality to smaller, less mobile wildlife species if those species are present during construction. Prairie dogs present at very low density (seven or less per ac) at site. Minor adverse impact expected to occur.	Potential for increased mortality to smaller, less mobile wildlife species if those species are present during construction. Prairie dogs present at very low density (seven or less per ac) at site. Minor adverse impact expected to occur.	Potential for increased mortality to smaller, less mobile wildlife species if those species are present during construction. No prairie dogs or burrowing owls are present; however, potential prairie dog habitat at site. Minor adverse impact expected to occur.	No wildlife mortality. No prairie dogs, burrowing owls, or suitable habitat are present; therefore, no impacts would occur.

TABLE 2-3
Comparison of Resource Impacts for Proposed Action and Alternatives

Resource	No Action Alternative	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Threatened, Endangered, and Other Sensitive Species	No impacts to prairie dogs or burrowing owls. No short- or long-term adverse impacts would occur.	Prairie dogs present at very low density (seven or less per ac) at site; burrowing owls are not present on the project site. Permanent loss of approximately 5 ac of prairie habitat would have minor, long-term adverse impacts to prairie dogs and burrowing owls. Potential short-term adverse impacts to prairie dogs if they are present during construction.	Prairie dogs present at very low density (seven or less per ac) at site; burrowing owls are not present at the project site. Permanent loss of approximately 5 ac of prairie habitat would have minor, long-term adverse impacts to prairie dogs and burrowing owls. Potential short-term adverse impacts to prairie dogs if they are present during construction.	No prairie dogs or burrowing owls are present so direct impacts to these species are unlikely. Potential short-term adverse impacts to prairie dogs could occur if they are present during construction. Potential prairie dog habitat at site; loss of this low-quality habitat would be a minor, long-term adverse effect for prairie dogs and burrowing owls.	No prairie dogs, burrowing owls, or suitable habitat are present. No adverse impacts to prairie dogs or burrowing owls would occur.
Hazardous Materials and Wastes	No change in use of hazardous materials or management of hazardous wastes. Potential long-term adverse impacts associated with using hazardous materials and generating hazardous wastes would continue.	No change in use of hazardous materials or management of hazardous wastes. Potential long-term adverse impacts associated with using hazardous materials and generating hazardous wastes would continue.	Minor long-term adverse impacts from increased risk of managing hazardous materials and wastes at two locations.	Minor long-term adverse impacts from increased risk of managing hazardous materials and wastes at two locations.	Minor long-term adverse impacts from increased risk of managing hazardous materials and wastes at two locations.
ERP Sites	No effect on ERP sites. No short- or long-term adverse impacts would occur.	No ERP sites are located within the Proposed Action area; therefore no adverse impacts associated with disturbance of ERP sites would occur.	No ERP sites are located within the Alternative 1 area; therefore, no adverse impacts associated with disturbance of ERP sites would occur.	ERP Site 9 is within the boundaries of the Alternative 2 area. Official closure (certification of cleanup) of the site by CDPHE would be required prior to construction; therefore, no adverse impacts associated with disturbance of contaminated soils would occur.	No ERP sites are located within the Alternative 3 area; therefore, no adverse impacts associated with disturbance of ERP sites would occur
Asbestos	No soils affected (no short- or long-term impacts from asbestos in soils)	Unlikely to encounter asbestos in soils. Sampling conducted in project area to confirm asbestos in soils unlikely to be encountered during construction; therefore, no short- or long-term adverse impacts from asbestos in soil would be expected to occur.	Unlikely to encounter asbestos in soils. Sampling conducted in project area to confirm asbestos in soils unlikely to be encountered during construction; therefore, no short- or long-term adverse impacts from asbestos in soil would be expected to occur	Unlikely to encounter asbestos in soils because no WWII-era structures are known to have been onsite, and, therefore, unlikely to have been demolished). No short- or long-term adverse impacts from asbestos in soil would be expected to occur	Unlikely to encounter asbestos in soils, because no WWII-era structures are known to have been onsite, and, therefore, unlikely to have been demolished), No short- or long-term adverse impacts from asbestos in soil would be expected to occur

TABLE 2-3
Comparison of Resource Impacts for Proposed Action and Alternatives

Resource	No Action Alternative	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Solid Waste and Pollution Prevention	No change in solid waste generation or P2 Program. No short- or long-term adverse impacts.	Increased solid waste generated during construction would represent a minor, short-term adverse impact from waste disposal. P2 Program would continue; there are no adverse impacts associated with the P2 Program.	Increased solid waste generated during construction would represent a minor, short-term adverse impact from waste disposal. P2 Program would continue; there are no adverse impacts associated with the P2 Program.	Increased solid waste generated during construction would represent a minor, short-term adverse impact from waste disposal. P2 Program would continue; there are no adverse impacts associated with the P2 Program.	Increased solid waste generated during construction would represent a minor, short-term adverse impact from waste disposal. P2 Program would continue; there are no adverse impacts associated with the P2 Program.
Utilities	No additional utilities required. No short- or long-term adverse impacts to utility use or supplies.	Minor, short-term impacts of ground disturbance associated with utility connections during construction. Impacts are considered to be minor because utilities are close to project site and can be coordinated with other planned projects. Short- and long-term adverse impacts resulting from the use of utilities would be minor because utility supplies are sufficient for adding an additional building.	Disturbance associated with utility connections during construction limited because utilities are close to project site and can be coordinated with other planned projects. Short- and long-term adverse impacts resulting from the use of utilities would be minor because utility supplies are sufficient for adding an additional building.	Disturbance associated with utility connections during construction limited because utilities are close to project site. Short- and long-term adverse impacts resulting from the use of utilities would be minor because utility supplies are sufficient for adding an additional building.	Disturbance associated with utility connections during construction limited because utilities are close to project site. Short- and long-term adverse impacts resulting from the use of utilities would be minor because utility supplies are sufficient.

Note:

WW II = World War II

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3.0 Affected Environment and Environmental Consequences

3.1 Land Use

3.1.1 Affected Environment

NEPA regulations require that potential conflicts with land use plans, policies or controls be evaluated (40 CFR 1502.16[c]). The following presents the applicable land use plans on and around Buckley AFB and evaluates the consistency of the Proposed Action and alternatives with these plans and policies.

Land use at Buckley AFB is guided by the installation's General Plan (Buckley AFB, 2005a). The plan describes existing and future land uses and includes a description of the existing and required facilities necessary to operate the military installation (see Figure 3-1). Land uses within Buckley AFB are primarily divided into the following fourteen categories:

- Administrative
- Aircraft Operations and Maintenance
- Airfield
- Airfield Pavements
- Community Commercial
- Community Service
- Housing-Accompanied
- Housing-Unaccompanied
- Industrial
- Medical
- Mission Operations and Maintenance
- Open Space
- Outdoor Recreation
- Water

Buckley AFB land uses are divided by these land use categories to prevent incompatible siting of facilities and/or operations. The VMF is considered an Industrial land use.

The *City of Aurora Comprehensive Plan 2003* (City of Aurora, 2003) contains a strategic plan for the Buckley AFB area, which outlines goals and objectives for the development and upgrade of Buckley AFB. The document recognizes the impact of Buckley AFB on the surrounding community and identifies offbase improvements, particularly transportation and housing needs that will be necessary to support the orderly transition of the active-duty installation. Construction of the VMF on Buckley AFB supports the vision of the *City of Aurora Comprehensive Plan 2003* by providing facilities that meet the needs of the active-duty Air Force.

3.1.2 Impacts

Each of the alternatives was evaluated to determine conformity with the goals and objectives of the General Plan.

3.1.2.1 No Action Alternative

Under the No Action Alternative, existing land uses would continue until they are altered or replaced by other land uses in response to base expansion. The No Action Alternative is not in conformity with the goals and objectives of the General Plan because the locations of both Building 940 and Building 340 conflict with planned land uses. Building 340, an Industrial use, is located in an area of the base planned for Community Support uses. Building 940 is located in the Airfield Clear Zone, an area that, for aircraft safety reasons, should be clear of any type of development. All of the traffic management functions (including the 460 LGRVM dispatch operations) would need to be relocated before this structure could be removed. These land use conflicts represent a long-term adverse impact to base land use and planning.

There is no impact to offbase land use associated with the No Action Alternative.

3.1.2.2 Proposed Action

Under the Proposed Action, the VMF would be located east of Aspen Street across from 460 SW Headquarters. The future land use designation for this area is Industrial. Vehicle maintenance is an industrial use that would be permitted in this area; therefore, the Proposed Action is consistent with the goals and objectives of the General Plan, and there are no adverse impacts associated with the Proposed Action.

There is no impact to offbase land use associated with the No Action Alternative.

3.1.2.3 Alternative 1

The Alternative 1 site for the 460 LGRVM VMF operations is consistent with the future Industrial land use designation for the site, and there are no adverse impacts to land use from the siting of the new VMF at this location. Under Alternative 1, however, the Industrial use of Building 340 would persist in the Community Support area because the 140 LGRVM would not be collocated with the 460 LGRVM. Therefore, there would be long-term adverse land use impacts associated with continuing to operate the 140 LGRVM in Building 340.

3.1.2.4 Alternative 2

Under Alternative 2, the VMF would be located near Building 940 and on ERP Site 9. This area is currently designated for Open Space and Administrative land uses. Proposed future land use of this location is Industrial and Open Space (Buckley AFB, 2005a). The Open Space area corresponds to the Airfield Clear Zone, where development should not occur. Assuming that the facility could be located at the southernmost portion of the parcel along Breckenridge Street (see Figure 1-2), the facility should be outside the Airfield Clear Zone. Development of the VMF at this location would be consistent with planned land use, and no adverse impacts to land use would occur. Potential conflicts with the ERP site are discussed in Section 3.6, "Environmental Restoration Program Sites." Because the site would be closed, no long-term adverse land use impacts would result from siting the 140 LGRVM VMF at the Alternative 2 location. As with Alternative 1, there would be long-term adverse land use impacts associated with continuing to operate the 140 LGRVM in Building 340.

There is no impact to offbase land use associated with the No Action Alternative.

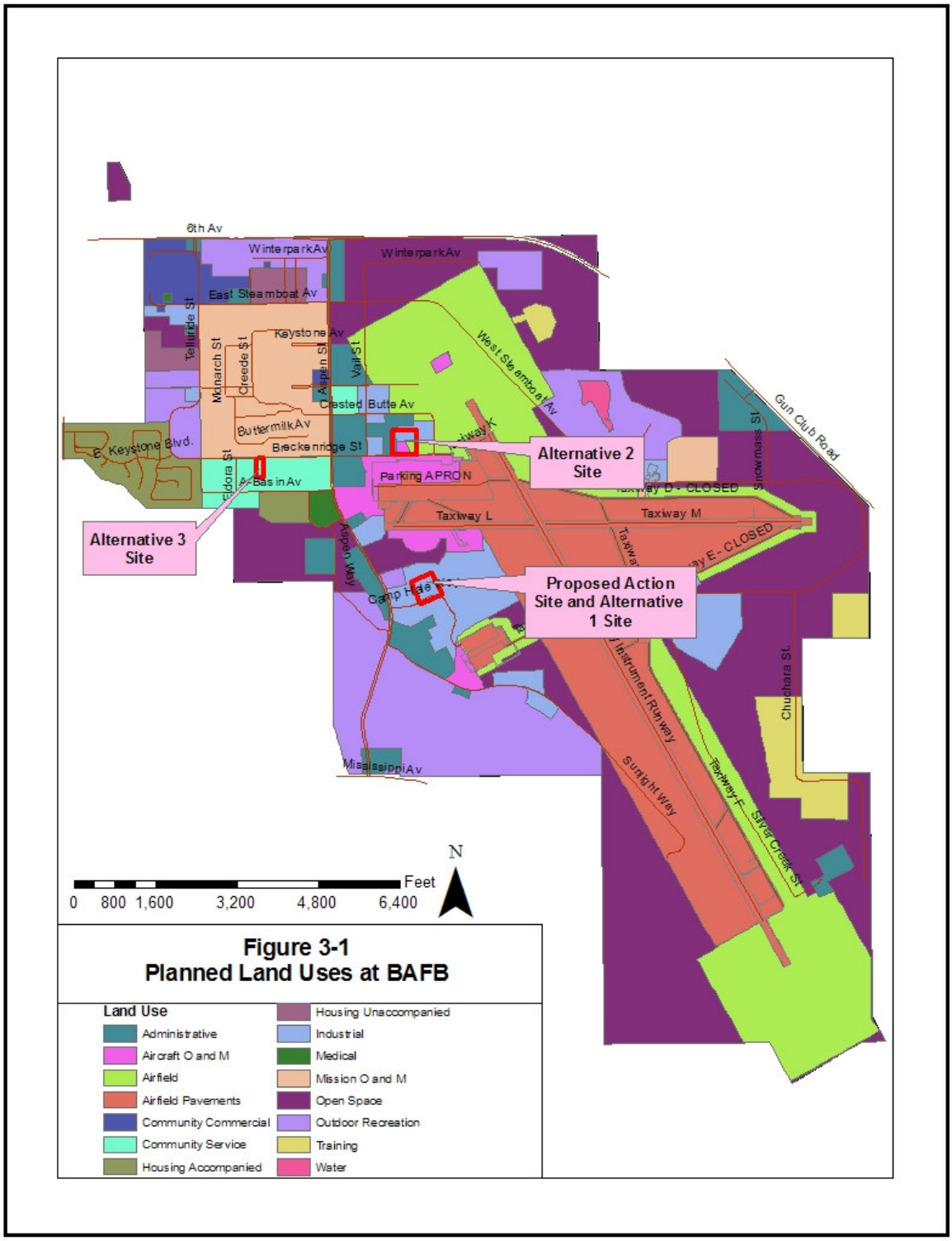

FIGURE 3-1
Planned Land Uses at Buckley AFB

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3.1.2.5 Alternative 3

Under Alternative 3, the VMF would be expanded at its current location between Breckenridge Street and A-Basin Avenue. The VMF is an Industrial land use, and the proposed future land use of the location is Community Support (Buckley AFB, 2005a). The location of the VMF in the Community Support area is an adverse impact to land use.

There is no impact to offbase land use associated with the No Action Alternative.

3.2 Air Quality

3.2.1 Affected Environment

Buckley AFB is located in Arapahoe County, Colorado, within the Metropolitan Denver Air Quality Control Region (AQCR). The Denver AQCR is currently designated attainment/ maintenance for carbon monoxide (CO), the 1-hour ozone standard, sulfur dioxide (SO_2), and particulate matter with a diameter of 10 micrometers or less (PM_{10}) (Colorado Air Quality Control Commission [CAQCC], 2001a, 2001b, and 2001c; and CDPHE, 2005). The region is in attainment with National Ambient Air Quality Standards (NAAQS) for all other criteria pollutants regulated by the Clean Air Act, including nitrogen oxides (NO_x), lead (Pb), sulfur oxides (SO_x), and $PM_{2.5}$ (EPA, 2004). Due to violations of the 1-hour and the 8-hour ozone standards during the summer of 2003, an Ozone Early Action Compact with EPA is in place to ensure attainment of the 8-hour ozone standard by December 2007 (CAQCC, 2004).

Buckley AFB is a major source of criteria pollutants under the Title V program because it has the potential to emit more than 10 tons of the criteria pollutants SO_2 and NO_x. The base operates under a Title V air permit that regulates air emissions from stationary sources at the facility. Combustion sources, such as generators and engines, can emit CO, NO_x, SO_2, Pb, PM_{10} and volatile organic compounds (VOC); and storage tanks and degreasing stations can emit VOCs. The Title V operating permit requires Buckley AFB to review and update the inventory of all the stationary emission units at the end of each calendar year and calculate the total of criteria pollutant and hazardous air pollutant (HAP) emissions.

Mobile sources are not regulated under the Clean Air Act, Title V operating permit, or the Colorado operating permit program but are considerable components of total base air emissions. These emissions, therefore, are also inventoried as part of Buckley AFB's air quality management program. Emissions from mobile sources include CO, NO_x, Pb, SO_x, PM_{10}, and VOCs.

The air emissions summary for mobile and stationary sources at Buckley AFB is presented in Table 3-1. All emissions are substantially below permit limits.

Toxic air pollutants are those pollutants listed by the Clean Air Act Amendments of 1990 that are hazardous to human health or the environment but are not specifically covered under another part of the Act. The National Emissions Standards for HAPs and Colorado state regulations regulate several toxic air pollutants, including arsenic, asbestos, benzene, beryllium, mercury, and vinyl chloride. Buckley AFB currently emits HAPs during the

course of base activities such as storing fuel, using paints, and running generators. These emissions are estimated annually in the Buckley AFB Air Emission Inventory.

TABLE 3-1
Buckley AFB Mobile and Stationary Source Air Emissions Inventory[1]

Pollutant Emission Sources	CO (tpy)[2]	VOC (tpy)[3]	SO_x (tpy)	NO_x (tpy)[3]	PM_{10} (tpy)
Buckley AFB 2003 Mobile Emissions[4]	204.5	56.9	2.1	40.6	5.0
Buckley AFB 2005 Point and Fugitive Stationary Source Emissions[5]	21.8	26.4	1.5	52.04	6.08
Total 2003 Mobile and 2005 Stationary Buckley AFB Emissions	226.3	83.3	3.6	92.6	11.1
AQCR 36 Emission Inventory[6]	678,170	167,900	69,350	112,785	32,156
Conformity Rule De Minimus Threshold[7]	100	100	100	100	100
10 Percent of AQCR 36 Emission Inventory (Significant Threshold Values)	67,817	16,790	6,935	11,279	2,316

[1]The Buckley AFB 2003 Air Emission Inventory did not assess Pb or $PM_{2.5}$ emissions.
[2]tpy – tons per year
[3]VOCs and NO_x contribute to the formation of ground-level ozone
[4]Source: Buckley AFB 2004c. Mobile emission inventories are not conducted annually.
[5]Source: Golder Associates 2006. *Calendar Year 2005 (Air Emissions Inventory, Buckley AFB).*
[6]CAQCC, 2003 (*CO-2006 Interim Year Inventory*); CAQCC 2001a, (*VOC and NO_x 2006 Inventory*), and CAQCC 2001b (*PM_{10} and SO_x 2005 Maintenance Inventory*)
[7]40 CFR 93.153(b) – These limits are applicable to non-attainment and maintenance areas, and therefore, apply to Buckley AFB

3.2.2 Impacts

Air emission calculations were performed to determine the impacts of the Proposed Action and alternatives. The USAF Air Conformity Applicability Model, Version 4.3.0 was used to perform these calculations.

Construction projects in Colorado that result in a ground disturbance of more than 25 ac or last more than 6 months in duration require the filing of an Air Pollution Emissions Notice and an Application for Construction Permit. This project is expected to disturb no more than 5 ac and last less than 6 months. Therefore, an Air Pollution Emissions Notice is not required.

3.2.2.1 No Action Alternative

There would be no change in operational air emissions associated with the VMF under the No Action Alternative. There would be no adverse impacts resulting from construction-related fugitive dust emissions under the No Action Alternative because no construction would occur.

Building 340 units contain R-22, which is a Class II ozone-depleting chemical (ODC). These units would continue to operate when the building is converted to an auto hobby shop. The 140 LGRVM would continue to use refrigerant recovery equipment. Technicians certified to work on vehicles would continue to handle refrigerants.

3.2.2.2 Proposed Action

There would be little change in operational air emissions resulting from implementation of the Proposed Action. Buckley AFB would maintain the same number of vehicles and generate the same waste streams (and associated minor air emissions) as under the No Action Alternative; therefore, there would be no change to operational emissions due to hazardous materials use. The new boiler would emit a small amount of additional air pollutants, as noted in Table 3-1, resulting in a minor long-term adverse impact.

A minor increase in fugitive dust emissions would result from ground-disturbing activities associated with construction of the Proposed Action. Buckley AFB typically assumes six times the building footprint plus estimates for walkways and landscaping to estimate the area of ground disturbance for building construction. However, due to the large paved areas required for the proposed VMF, it was determined that a larger number (5 ac, as compared to the 3 ac that would be estimated using the typical method) would be used to more accurately reflect ground disturbance and associated emissions. Table 3-2 provides estimated pollutant emissions that might result from the Proposed Action.

TABLE 3-2
Estimated Emissions Associated with Proposed Action

Criteria Pollutants	Denver AQCR Total Emission[1] (tpy)	Buckley AFB Total 2003 Mobile and 2004 Stationary Source Emissions (tpy)	Facility Construction Emissions (tpy)	Facility Operational Emissions Increase (tpy)[2]	Significance Threshold (10 percent of AQCR emissions)	Applicable Threshold (tpy)[3]	Exceeds Threshold?
NO_x	112,785	103.7	2.33	6.26	11,279	100	No
SO_x	69,350	3.8	0.27	44.43[4]	N/A[5]	N/A[5]	N/A[5]
VOCs	167,900	79.1	0.54	0.24	16,790	100	No
CO	678,170	226.1	6.64	3.72	67,817	100	No
PM_{10}	32,156	10.5	1.26	0.67	3,216	100	No

[1] Source: CAQCC 2003 (*CO-2006 Interim Year Inventory*); CAQCC 2001a (*VOC and NO_x 2006 inventory*), and CAQCC 2001b (*PM_{10} and SO_x 2005 Maintenance Inventory*)

[2] Operational emissions are based on worst-case assumptions (i.e., potential to emit) and, therefore, are likely biased high. The boiler is assumed to be the largest in the commercial size category (i.e., 10 million Btu per hour) and is assumed to burn either natural gas or #2 fuel oil. The calculations assume that the boiler runs 8,760 hours per year. Emissions for each pollutant were selected as the higher of the two fuel-type calculations.

[3] Source: 40 CFR 93.153(b)(1)

[4] SO_x emissions from the Air Conformity Applicability Model program are based on a sulfur weight percent in fuel of approximately 1 percent. According to EPA's AP-42, Section 1.3.1, distillate fuels typically contain less than 0.3 percent sulfur. If the fuel oil used is 0.3 weight percent, the SO_x emissions are 13.4 tpy.

[5] There are no regionally applicable thresholds for SO_x because the Denver AQCR is in attainment for this pollutant.

BMPs to control fugitive dust emissions would be implemented during construction. These measures could include the following:

- Control of unpaved roads (through watering or other stabilizer and vehicle speed control)
- Control of disturbed areas onsite (through watering, revegetation, wind breaks, and others)
- Prevention of tracking mud and dirt onto paved surfaces (through gravel entry ways, vehicle washing, street sweeping, and others)

These measures are consistent with CAQCC Regulation 1.

The VMF design provides for zero use of chlorofluorocarbon-based refrigerants in its cooling systems, so no new impacts from ODCs would occur. Units using ODCs in Building 340 would continue to operate, and storage of refrigerants by the 140 LGRVM would continue. These impacts are not a result of the implementation of the Proposed Action but rather a continuation of the existing impact.

Overall, emissions associated with the Proposed Action would have minor short- and long-term adverse impacts to air quality but would not cause violations of NAAQS or Title V permit thresholds.

3.2.2.3 Alternative 1

The development footprint of Alternative 1 is similar to the Proposed Action. Although the facility could be 4,000 ft^2 smaller and include fewer parking areas, this represents only a 5 percent or less reduction in developed area and might require a slightly smaller boiler. The emissions from construction would be slightly less than those presented for the Proposed Action. Operational emissions associated with Alternative 1 would be the same that would result from implementation of the Proposed Action because the 460 LGRVM and 140 LGRVM would continue to perform maintenance on the same number of vehicles, and the building spaces would both be heated.

Overall, emissions associated with Alternative 1 would have minor short- and long-term adverse impacts to air quality but would not cause violations of NAAQS or Title V permit thresholds.

3.2.2.4 Alternative 2

Operational and construction emissions would be identical to those that would result from implementation of Alternative 1.

3.2.2.5 Alternative 3

Operational emissions would be identical to those that would result from implementation of the Proposed Action or the other action alternatives. Construction emissions would be slightly less due to the decreased area of ground disturbance associated with Alternative 3.

Overall, emissions associated with Alternative 3 would have minor short- and long-term adverse impacts to air quality but would not cause violations of NAAQS or Title V permit thresholds.

3.3 Water Resources

3.3.1 Affected Environment

The South Platte River, located approximately 15 miles (27.8 kilometers) northwest of Buckley AFB, is the primary surface water drainage in the region. Sand Creek is the primary tributary to the South Platte River in the Buckley AFB area and is located to the north of Buckley AFB. Other named drainages in the area are Murphy Creek, a tributary to Sand Creek, located to the northeast; East Toll Gate Creek, a tributary to Toll Gate Creek, which is

tributary to Sand Creek, located to the southwest; and Granby Ditch, a tributary to Toll Gate Creek, located to the northwest. Drainages located on Buckley AFB include several unnamed tributaries of the named drainages given above, along with a portion of East Toll Gate Creek, which crosses the southern part of Buckley AFB. All the drainages on and adjacent to Buckley AFB are intermittent and the general direction of flow is to the northwest. The most prominent surface water feature on Buckley AFB is Williams Lake, a reservoir located in the northeastern section of the installation (Buckley AFB, 2004b).

In general, surface drainage on Buckley AFB flows to the northwest. Stormwater is conveyed through a system of surface ditches and channels. An underground storm drainage system has been installed around the runway, portions of the taxiways, and the hangars and facilities north of the main ramp. Drainage from the northern section of Buckley AFB discharges into Sand Creek and Murphy Creek to the north and east of the base, respectively, and drainage from the southern and western section of the base discharges into East Toll Gate Creek (Buckley AFB, 2004b). Structures have been installed to control flows and offset impacts from channel erosion at the East Toll Gate Creek discharge (Buckley AFB, 2005a).

There are a total of approximately 3,200 ac (1,295 ha) of drainage area at Buckley AFB, of which 525 ac (212.5 ha), or 16.4 percent, are impervious surface (Buckley AFB, 2005c).

Groundwater is generally present under Buckley AFB at depths of 20 ft or more below ground surface (Buckley AFB, 2004a). The building and infrastructure foundation of the proposed VMF is estimated to be no greater than 5 ft below ground surface. Therefore, groundwater is not expected to be encountered during construction. No groundwater would be used for the operation of the facility.

3.3.2 Impacts

3.3.2.1 No Action Alternative

There would be no change in stormwater runoff or impervious surface area resulting from the No Action Alternative. Therefore, there would be no adverse impacts to surface or groundwater under the No Action Alternative.

3.3.2.2 Proposed Action

Potential impacts to water quality from the Proposed Action are primarily associated with increased stormwater runoff due to increased impervious surface area, as well as the potential for erosion and sedimentation during ground-disturbing activities if proper stormwater management is not implemented during construction.

It is estimated that the Proposed Action would increase the amount of paved surface on Buckley AFB by approximately 156,200 ft^2 (14,511 square meters) or 3.6 ac (1.5 ha), from approximately 525 ac today to almost 529 ac, an increase of 0.69 percent. The development of additional impermeable surfaces would increase the volume of storm drainage generated onsite that would have to be managed prior to its outfall.

Groundwater could be affected by reduced infiltration because of the increase in impervious surface. However, groundwater infiltration at Buckley AFB overall is minimal because total rainfall averages 18 inches per year, and evapotranspiration rates range from 13 inches per

year for native grasses and 33 inches per year for ornamental grasses. Water that doesn't evaporate or get used by plants flows into surface waters for other beneficial uses. The amount of precipitation that is able to infiltrate and recharge groundwater resources is therefore relatively small, and the impact to groundwater is considered minor.

The potential for pollutant loading from VMF operations would not change. Buckley AFB and USAF management practices minimize the potential of pollutants entering the storm-water system through the use of permanent BMPs (e.g., runoff infiltration areas or specially designed hydrocarbon filters) that will be constructed in the new facility. Adhering to temporary and permanent water quality treatment BMPs in the SWPPP during construction and post-construction further limits the potential contamination of stormwater runoff.

Approximately 5 ac (2 ha) would be disturbed during construction under the Proposed Action. The project would require application for a Construction General Permit (CGP). The permit requires filing a notice of intent with EPA and preparation of a stormwater pollution prevention plan (SWPPP). Additionally, according to *Engineering Technical Letter 3-01: Storm Water Construction Standards* (USAF, 2003), the project would be required to develop a stormwater control site plan and have a stormwater professional present during construction to oversee implementation of the site plan. These permits and plans require BMPs for erosion control, sediment control, materials handling and spill prevention, and waste management to be implemented to protect stormwater quality during construction. Some BMPs that might be employed include silt fencing, inlet protection, erosion logs, spill prevention and control, stabilized construction entrances, and stockpile management. Proper installation and implementation of BMPs minimizes the potential for adverse effects to surface water from stormwater runoff during construction.

Short- and long-term adverse effects to water quality associated with the Proposed Action would be negligible because BMPs employed during construction would protect surface waters, groundwater recharge is minimal both under existing conditions and the Proposed Action, and potential for pollutant loading (and BMPs in place to permanently protect surface waters) would not change.

3.3.2.3 Alternative 1

Impacts to surface water under Alternative 1 for the VMF are expected to be similar to the Proposed Action. Alternative 1 would have slightly less impervious surface for the VMF but this would be offset (and potentially increased) from the additional building space required for a new auto hobby shop.

As with the Proposed Action, short- and long-term adverse effects to water quality associated with the Proposed Action would be negligible because BMPs employed during construction would protect surface waters, and potential for pollutant loading (and BMPs in place to permanently protect surface waters) would not change.

3.3.2.4 Alternative 2

Impacts to surface water under Alternative 2 for the VMF are expected to be the same as under the Alternative 2.

3.3.2.5 Alternative 3

Under Alternative 3, site disturbance would be less than described in the Proposed Action because site disturbance would be less than 1 ac. Therefore, the stormwater control site plan and a stormwater supervisor would not be required. However, BMPs would still be employed to minimize stormwater impacts.

Impervious surfaces would not increase for the VMF under Alternative 3 because the expansion would occur within existing paved areas. A new auto hobby shop and 140 LGRVM VMF would increase impervious area similarly to the Proposed Action (or potentially more).

Short- and long-term adverse effects to water quality associated with the Alternative 3 would be negligible. The BMPs would protect surface waters, and the potential for pollutant loading (and BMPs in place to permanently protect surface waters) would not change.

3.4 Biological Resources

This section describes native and non-native vegetation, wildlife, threatened and endangered species, and other sensitive species known or likely to occur at Buckley AFB.

3.4.1 Vegetation

3.4.1.1 Affected Environment

Buckley AFB is located in the Great Plains-Palouse Dry Steppe Province Ecoregion (Bailey, 1995), an ecoregion also classified as shortgrass prairie (Buckley AFB, 2004b). The *Draft Integrated Natural Resource Management Plan* (Buckley AFB, 2004b) identifies four vegetation types occurring at Buckley AFB:

- Midgrass prairie comprising blue grama (*Bouteloua gracilis*), western wheatgrass (*Agropyron smithii*), and crested wheatgrass (*Agropyron cristatum*)
- Riparian corridors consisting of bottomland meadows or cottonwood/willow (*Populus* spp./*Salix* spp.) habitat
- Weedy/disturbed areas
- Landscaped areas, including turfgrass.

There are no riparian areas within the project area of any of the alternative sites.

Midgrass prairie is dominated by native grass species, such as blue grama, western wheatgrass, and buffalo grass (*Buchloe dactyloides*). Other common grasses include tumble grass (*Schedonnardus paniculatus*) and three-awn (*Aristida fendleriana* and *A. longiseta*). Fringed brome grass (*Bromus ciliatus*) dominates depressions and gullies within the mixed grass prairie. Areas dominated by crested wheatgrass, a non-native grass species historically used to revegetate disturbed ground, occur throughout the base. Herbaceous species associated with mixed grass prairie are scarlet globe mallow (*Spaeralcea coccinea*), prickly pear (*Opuntia macrorhiza*), rabbitbrush (*Chrysothamnus nauseosus*), and snakeweed (*Gutierrezia sarothrae*).

Areas dominated by weeds have been disturbed by past or current ground-disturbing construction activities or past grazing activities. Weed species observed include cheatgrass (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), Canada thistle (*Cirsium arvense*), and Russian thistle (*Salsola kali*). Noxious weeds observed at Buckley AFB include Dalmation toadflax (*Linaria genistifolia* ssp. *dalmatica*) and leafy spurge (*Euphorbia esula*) (Buckley AFB, 2004b).

3.4.1.2 Impacts

This analysis is based on a site visits conducted in September 2005 and September 2006, as well as review of relevant literature and previous surveys. Impacts were assessed on the basis of the ground disturbance for facility and parking area construction for each of the project alternatives. Additional impacts to existing vegetation would occur from any required utility connection to the proposed facility during construction. However, these areas would be very small because, for the Proposed Action and the other action alternatives, utility connections are to surrounding roadways.

3.4.1.2.1 No Action Alternative

No adverse impacts to vegetation are expected under the No Action Alternative because no proposed facilities would be constructed and, therefore, there would be no construction or permanent conversion of natural areas.

3.4.1.2.2 Proposed Action

Direct adverse impacts to vegetation would occur under the Proposed Action and the other action alternatives due to clearing and grubbing of construction areas and permanently converting natural areas to paved surfaces. Indirect adverse impacts associated with storm-water runoff (erosion and pollutant loading) could occur both during construction and operation of the facility. However, adverse impacts due to runoff would be minor because stormwater is well managed onbase, and BMPs would be employed to minimize any adverse effects of runoff (see Section 3.3, "Water Resources").

Approximately 5 ac (2 ha) of low-quality vegetation would be permanently lost as a result of the Proposed Action. The Proposed Action site exhibits evidence of previous disturbance by the abundance of crested wheatgrass growing on the site. The site is surrounded by other development or planned development and does not represent high habitat value as it is fragmented and of low quality due to previous disturbance. Temporary disturbance from construction activities outside the permanent impact areas would be negligible because there are sufficient staging areas within the parking areas surrounding the proposed facility. Any areas disturbed and not required for the permanent facility would be revegetated in accordance with the requirements of the SWPPP and the Buckley AFB landscape plan. Overall, the loss of 5 ac of low-quality vegetation will have minor adverse impacts to natural resources at Buckley AFB.

3.4.1.2.3 Alternative 1

Impacts would be similar to those that would result from implementation of the Proposed Action.

3.4.1.2.4 Alternative 2

Impacts would be similar to those that would result from implementation of the Proposed Action. As with the Proposed Action site, the Alternative 2 site shows evidence of previous disturbance and is surrounded by other development.

3.4.1.2.5 Alternative 3

Alternative 3 would result in no impacts to vegetation because the building expansion would be accommodated on existing paved areas.

3.4.2 Wildlife

3.4.2.1 Affected Environment

This section describes the wildlife species and their habitat associations at Buckley AFB. No aquatic or riparian habitat occurs within any of the alternative sites; therefore, animals associated with permanent water sources or riparian areas are not included in this analysis.

3.4.2.1.1 Mammals

Although no ungulates (hooved mammals, such as deer or elk) occur onbase due to the presence of exclusion fencing around its perimeter, pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemionus*) historically occurred onbase and still inhabit surrounding properties (Buckley AFB, 2004b).

Carnivores inhabiting Buckley AFB include red fox (*Vulpes vulpes*), coyote (*Canis latrans*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and long-tailed weasel (*Mustela frenata)*.

Small mammals observed at Buckley AFB include rodents and lagomorphs (rabbits). The most widely observed rodent is the black-tailed prairie dog (*Cynomys ludovicianus*). Prairie dogs are considered keystone species of the shortgrass prairie ecosystem because a diverse array of other plant and wildlife species are supported within their colonies. Prairie dogs are discussed in more detail in Section 3.4.3, "Threatened, Endangered, and Other Sensitive Species."

Other rodents known to inhabit Buckley AFB include plains pocket gopher (*Geomys bursarius*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), fox squirrel (*Sciurus niger*), deer mouse (*Peromyscus maniculatus*), and prairie vole (*Microtus ochragaster*). Common lagomorphs include black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendi*), eastern cottontail (*Sylvilagus floridanus*), and desert cottontail (*Sylvilagus auduboni*).

3.4.2.1.2 Birds

The midgrass prairie community supports numerous bird species, many of which are ground-nesters. All bird species on Buckley AFB, except the non-native house sparrow, rock dove, and European starling, are protected under the Migratory Bird Treaty Act, which implements the United States' commitment to international conventions for the protection of migratory birds.

The most common songbirds inhabiting prairie include western meadowlark (*Sturnella neglecta*), horned lark (*Eremophila alpestris*), lark bunting (*Calamospiza melanocorys*), killdeer (*Charadrius vociferous*), black-billed magpie (*Pica pica*), mourning dove (*Zanaida macroura*),

western kingbird (*Tyrannus verticalis*), and eastern kingbird (*Tyrannus tyrannus*). Species more common in urbanized areas include house finch (*Carpodacus mexicanus*), common grackle (*Quiscalus quiscula*), and the non-native house sparrow (*Passer domesticus*), rock dove (*Columba livia*), and European starling (*Sturnus vulgaris*).

Raptor species known or likely to occur at Buckley AFB include burrowing owl (*Athene cunicularia*) (discussed further in Section 3.4.3, "Threatened, Endangered, and Other Sensitive Species"), Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamacensis*), prairie falcon (*Falco mexicanus*), and American kestrel (*Falco sparverius*). Additionally, bald eagles (*Haliaeetus leucocephalus*), ferruginous hawks (*Buteo regalis*), and rough-legged hawks (*Buteo lagopus*) may be observed in winter.

No trees or human structures which might provide migratory bird nesting habitat are available onsite for the Proposed Action or Alternatives 1 or 2. Several mature ponderosa pine and eight Siberian elm trees are located on the eastern and western portion of the Alternative 3 site. A pair of great horned owls nested in one of these trees in the 2004-2006 seasons. (Buckley AFB, 2005d and 2006b)

3.4.2.1.3 Reptiles

A variety of reptile species inhabit Buckley AFB. Some of the more commonly observed species include northern prairie lizard (*Sceloporus undulates garmani*), bullsnake (*Pituophis catenifir*), western hognose snake (*Heterodon nasicus*), plains garter snake (*Thamnophis radix*), and prairie rattlesnake (*Crotalus viridis viridis*) (Buckley AFB, 2004b).

3.4.2.2 Impacts

This section analyzes potential impacts to wildlife species from implementation of the Proposed Action and alternatives. Black-tailed prairie dogs and burrowing owls are discussed separately in Section 3.4.3, "Threatened, Endangered, and Other Sensitive Species." The basis for impact analysis includes the area of direct ground disturbance under each alternative, and the potential effect on surrounding adjacent habitats.

3.4.2.2.1 No Action Alternatives

No impacts to wildlife are expected under the No Action Alternative because no proposed facilities would be constructed or operated.

3.4.2.2.2 Proposed Action

The vegetation at the Proposed Action site is mixed grass prairie dominated by crested wheatgrass, which is suitable habitat for ground-nesting birds, raptors, mammals, and reptiles. There are no large trees, perches, or other nesting sites for other birds on the site. Prairie dogs occur on this site at very low (seven or less per ac) density. Approximately 5 ac (2 ha) of habitat would be permanently lost for construction and operation of the VMF. If present, ground-dwelling migratory birds and other prairie species would be permanently displaced. However, the habitat area is fragmented and of low quality, and no resident wildlife species are known to be present on the site; therefore, minor adverse impacts would be expected to occur.

Direct impacts from mortality to smaller, less-mobile species including reptiles could occur during construction if those species are present. Noise, human presence, and heavy equipment activity during construction are likely to displace wildlife that might be present on or

near the Proposed Action site. Since the site will not contain habitat or landscaped areas, wildlife would not return to the site but could reinhabit the surrounding areas after construction. The duration and distance an animal is displaced are generally dependent on the individual or species, and an individual's response to disturbance might change with time. Long-term adverse impacts to wildlife are expected to be minor; Buckley AFB is an active military installation, and the Proposed Action site is located within the developed portion of the base. Any animals residing in or near the Proposed Action site have adapted to noise and human activity associated with an active military installation. No trees or manmade structures that might provide migratory bird nesting habitat are available onsite. To minimize and avoid disturbance to ground nesting migratory birds during the breeding season (late March to August), a survey would be conducted. If construction is to begin during nesting season, a migratory bird survey (including burrowing owls) must be accomplished prior to start.

3.4.2.2.3 Alternative 1

The impacts to wildlife at this site would be the same as for the Proposed Action.

3.4.2.2.4 Alternative 2

The habitat at this site consists of a very disturbed, weedy area that is only of marginal wildlife value. Approximately 5 ac (2 ha) of low-quality habitat would be permanently lost for construction and operation of the VMF. Impacts would be similar to those that would result from implementation of the Proposed Action.

3.4.2.2.5 Alternative 3

This site is very disturbed. The area around the site consists of vegetation dominated primarily by weedy species. There would be no direct impacts to habitat from ground-disturbing activities because construction activities would be contained within the existing paved areas.

A previously occupied great horned owl nest tree is present near Building 340 (outside the fence). The nest is far enough away from construction that, if the owls returned to this nest, they would not likely be bothered. Construction materials, equipment, and vehicles should be kept away from the base of the tree during the nesting season (January to September). Only minor adverse impacts to wildlife would be expected to occur with implementation of Alternative 3.

3.4.3 Threatened, Endangered, and Other Sensitive Species

3.4.3.1 Affected Environment

Threatened and endangered plant and animal species are protected under the Endangered Species Act (ESA) or Colorado state law. An endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Other sensitive species include those listed by the Colorado Division of Wildlife (CDOW) as of "special concern," meaning that they receive no formal protection but are still considered when assessing potential project impacts. The Migratory Bird Treaty Act protects all native migratory birds and their parts (including eggs, nests, and feathers). Specifically, the act prohibits the pursuit, hunting, taking, capture, possession, or killing of such species or their nests and

eggs. Surveys conducted prior to construction during the breeding season could minimize or avoid damage to nesting birds as much as possible (see Section 3.4.2.2.2).

Federal and Colorado state-listed threatened and endangered species and CDOW species of concern are shown in Table 3-3. As shown in Table 3-3, most of these species, including the black-footed ferret, swift fox, Preble's meadow jumping mouse, bald eagle, ferruginous hawk, plains sharp-tailed grouse, northern leopard frog, Ute ladies'-tresses orchid, and Colorado butterfly plant, are unlikely to occur within the project areas and are not discussed further in this section.

TABLE 3-3
Threatened, Endangered, and Other Sensitive Species and Their Occurrence at Buckley AFB

Common Name	Scientific Name	Status		Potential for Occurrence Onsite
		Federal	State	
Mammals				
Black-tailed Prairie Dog	*Cynomys ludovicianus*	--	SC	Present at Buckley AFB; very low density (seven or less per ac) present at Proposed Action and Alternative 1 sites; none present at Alternative 2 or Alternative 3 sites.
Black-footed Ferret	*Mustela nigripes*	E	E	Not present at Buckley AFB; Buckley AFB is within Block Clearance Zone in Colorado.
Swift Fox	*Vulpes velox*	--	SC	Presence at Buckley AFB unlikely; occurs on eastern plains of Colorado in areas of native prairie. No observations at Buckley AFB.
Preble's Meadow Jumping Mouse	*Zapus hudsonius preblei*	T	T	Not present at Buckley AFB; within the Denver Metropolitan Block Clearance Zone.
Birds				
Burrowing Owl	*Athene cunicularia*	--	T	Present at Buckley AFB; no nesting locations in vicinity of Proposed Action, Alternative 1, Alternative 2, or Alternative 3 sites.
Bald Eagle	*Haliaeetus leucocephalus*	T	T	Occasional visitor to Buckley AFB; no known nest or roost locations within Buckley AFB.
Ferruginous Hawk	*Buteo regalis*	--	SC	Potentially present at Buckley AFB; no known nesting locations on Buckley AFB.
Plains Sharp-tailed Grouse	*Tympanuchus phasianellus jamesii*	--	E	Potentially present at Buckley AFB; no known nesting locations on Buckley AFB.
Amphibians				
Northern Leopard Frog	*Rana pipiens*	--	SC	Potentially present in association with permanent water sources at Buckley AFB; no permanent water sources at Proposed Action, Alternative 1, Alternative 2, or Alternative 3 sites.
Plant Species				
Colorado Butterfly Plant	*Gaura neomexicana* ssp. *coloradensis*	T	--	Presence at Buckley AFB unlikely; survey conducted in 2004 with none found.
Ute Ladies'-tresses Orchid	*Spiranthes diluvialis*	T	--	Riparian areas at Buckley AFB could provide habitat; none present in 2001 (Buckley AFB, 2004b); no riparian areas within Proposed Action, Alternative 1, Alternative 2, or Alternative 3 sites.

Notes:
-- = Not applicable
E = Endangered
SC = Species of Concern
T = Threatened

No federally listed species are known to be present on Buckley AFB, and no federally listed species would not likely be affected by the Proposed Action or alternatives. On May 3, 2007,

the Air Force requested initiation of Section 7 consultation in accordance with the ESA for the VMF construction project (see Appendix B).

The two state of Colorado sensitive species (the black-tailed prairie dog and burrowing owl), which are known to occur on Buckley AFB and could occur on the Proposed Action or alternative sites, are discussed in the following sections.

3.4.3.1.1 Black-tailed Prairie Dog

The black-tailed prairie dog was a Candidate for listing under the ESA in 2000 but was withdrawn in 2004. However, the black-tailed prairie dog is still considered a Species of Special Concern by the CDOW because it is a keystone species and is important to the shortgrass prairie ecosystem.

Black-tailed prairie dogs occur in many areas throughout Buckley AFB (see Figure 3-2). They inhabit burrows, which form networks of tunnels typically 3 to 6 ft (0.7 to 1.8 meters [m]) deep. Many other species inhabit prairie dog burrows, including burrowing owls, cottontails, other rodents, reptiles, insects, and spiders (Hoogland, 1995).

The *Supplement to Environmental Assessment of Proposed Prairie Dog Management Practices at Buckley Air Force Base* (Buckley AFB, 2001) specifies that, if a prairie dog colony would be impacted by a proposed construction activity then the prairie dogs would be removed prior to construction. The best time for removal is July through October, and prairie dogs should not be disturbed during the period when young are in the nest and still nursing (March through June) or during migratory bird nesting season. Approved removal methods include soap and water capture, trapping, and the vacuum method. Removal methods currently used at Buckley AFB include trapping and relocating, trapping and sending to a raptor or ferret rehabilitation facility, or poisoning.

During a 2006 survey, prairie dogs were found at very low density (seven or less per ac) at the Proposed Action and Alternative 1 sites (Buckley AFB, 2006b). No prairie dogs were found at the Alternative 2 site. No habitat (and no prairie dogs) exists at the Alternative 3 site because the site is paved and fenced.

3.4.3.1.2 Burrowing Owl

Burrowing owls are listed as a threatened species in Colorado and also receive federal protection under the Migratory Bird Treaty Act. Burrowing owls nest in abandoned prairie dog burrows and are generally present onbase from late March to late October. Unlike the prairie dogs, they cannot be moved and must not be disturbed during nesting. A 2006 survey shows no burrowing owls in the vicinity of the Proposed Action or the other action alternative sites (Buckley AFB, 2006b). However, the owls, like most other birds, move their nests around from year to year, and surveys would be required prior to start of construction if it begins during the nesting season.

3.4.3.2 Impacts

This section analyzes potential impacts to black-tailed prairie dogs (Colorado Species of Special Concern) and burrowing owls (Colorado threatened species) from construction and operation of the Proposed Action and alternatives. Figure 3-2 shows the location of prairie dog colonies and burrowing owls on Buckley AFB in relation to the Proposed Action and the other action alternative sites.

Burrowing owls have nested in various locations throughout Buckley AFB where suitable prairie dog habitat occurs (see Figure 3-2).

3.4.3.2.1 No Action Alternative

No adverse impacts to threatened, endangered, or other sensitive species are expected under the No Action Alternative because no proposed facilities would be constructed or operated.

3.4.3.2.2 Proposed Action

Prairie dogs are present at a very low density (seven or less per ac) at the Proposed Action site. Construction activities, including utility connections, might generate noise and dust that could affect prairie dogs in the vicinity. However, prairie dogs are not overly sensitive to these effects, and adverse impacts would be short-term during active construction. Construction activities affecting prairie dogs are governed by the management procedures outlined in the *Supplement to Environmental Assessment of Proposed Prairie Dog Management Practices at Buckley Air Force Base* (Buckley AFB, 2001). Procedures include:

- Adhering to the prairie dog management procedures outlined in *the Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* or other currently applicable prairie dog management directive.
- Removing prairie dogs prior to construction (by soap and water capture, trapping and relocating, trapping and sending to a raptor or ferret rehabilitation facility, poisoning, or vacuum method), preferably during July through October.
- Avoiding disturbance during March through June, when young are in the nest and still nursing, and during migratory bird nesting season.

Although not present at the current time, it is possible that burrowing owls could locate on the site prior to construction. In accordance with the *Supplement to Environmental Assessment of Proposed Prairie Dog Management Practices at Buckley Air Force Base* (Buckley AFB, 2001), should construction occur during the burrowing owl nesting season, pre-construction surveys would need to be conducted to determine the presence or absence of nesting burrowing owls at the site. If nesting burrowing owls are present, a 150-ft (46-m) buffer would be established around active nest sites during the breeding season to protect owls from disturbances, especially increased noise, associated with construction. Also, if nesting burrowing owls are present, prairie dog removal would not be conducted until after the burrowing and breeding season. Impacts to burrowing owls are minimized by the following procedures implemented by Buckley AFB:

- Refraining from attempting to move them.
- Avoiding disturbance during nesting.
- If nesting burrowing owls are present, establishing a 150-ft (46-m) buffer around the active nest sites during the breeding season to protect owls from disturbance associated with construction, especially increased noise.
- If nesting burrowing owls are present, refraining from prairie dog removal activities until after the burrowing owl breeding season.

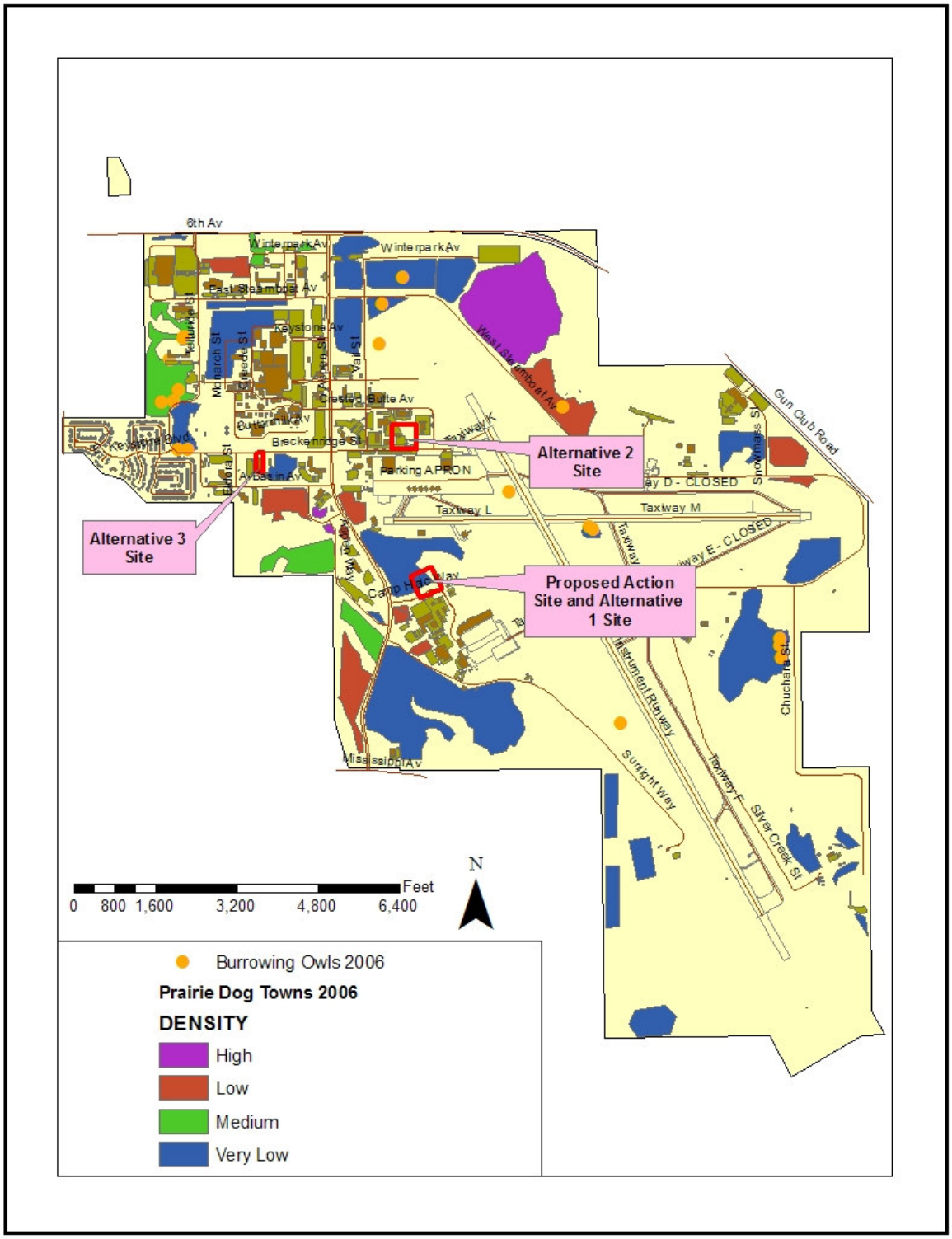

FIGURE 3-2
Prairie Dogs and Burrowing Owls on Buckley AFB

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Pre-construction surveys would be conducted to determine the presence or absence of nesting burrowing owls at the site if construction would occur during the breeding season. Procedures to minimize adverse affects on burrowing owls would be implemented, and minimal short-term adverse impact to the burrowing owls would occur during construction. No adverse long-term impacts are anticipated because no burrowing owls are currently known to be present at the Proposed Action site.

3.4.3.2.3 Alternative 1

Prairie dogs are present at a very low density (seven or less per ac) at the Alternative 1 site. No burrowing owls are present at the site. Potential impacts and mitigating procedures for managing prairie dogs and owls would be the same as for the Proposed Action. Impacts to the prairie dog and burrowing owl are the same as described under the Proposed Action.

3.4.3.2.4 Alternative 2

Neither prairie dogs nor burrowing owls are present at the Alternative 2 site, and no direct, short-term impacts to either species are expected from construction at the site. The undeveloped portions of the site are low-quality prairie dog habitat. Development of this low-quality habitat would result in a minor, long-term impact to prairie dogs that might inhabit the site. Burrowing owls could also be affected if prairie dogs established on the site and the prairie dog colonies became habitat for the owls.

3.4.3.2.5 Alternative 3

Neither prairie dogs nor burrowing owls are present at the Alternative 3 site. The entire site is disturbed because of the existing VMF and no habitat exists; therefore, no short- or long-term adverse impacts would occur.

3.5 Hazardous Materials and Wastes

3.5.1 Affected Environment

Buckley AFB manages hazardous wastes in accordance with a HWMP (460 SW, 2005). The HWMP provides guidance to all personnel, including those of tenant organizations, who generate, treat, store, or dispose of RCRA-regulated waste at Buckley AFB. In addition to setting procedures for managing RCRA-regulated wastes, the HWMP provides procedures for managing universal wastes and used oil. The existing VMF generates hazardous wastes, universal wastes, and used oil. The reported quantities of waste include wastes generated by 460 LGRVM and 140 LGRVM.

3.5.1.1 Hazardous Materials

The VMF will use hazardous materials that become hazardous wastes after they are spent or are no longer needed. Hazardous materials will be used and stored in accordance with federal law, AFI 32-7086, *Hazardous Materials Management,* AFI 32-7080, *Pollution Prevention Program*, and Buckley AFB protocols. In addition, the SWPPP contains procedures to ensure that stormwater conveyance structures are maintained to prevent hazardous materials from entering waterways and ensure that hazardous materials storage areas are properly designed, maintained, and periodically inspected. Section 3.8, "Solid Waste and Pollution Prevention," provides additional information about the P2 Program and potential impacts to this program from the Proposed Action and alternatives.

Storage of POL is regulated under the Clean Water Act (40 CFR 112). Buckley AFB has a Draft SPCC Plan, and the current VMF is included in the plan. The plan is updated when existing facilities that store POL are modified or new facilities are constructed.

3.5.1.2 Wastes Regulated by the Resource Conservation and Recovery Act

Buckley AFB is classified as a "small-quantity generator" of hazardous waste (EPA ID Number CO9570025644). A small-quantity generator produces more than 100 and less than 1,000 kg (between 220 and 2,200 pounds, or approximately 25 to 300 gallons) of hazardous waste. A small-quantity generator produces no more than 1 kg of acutely hazardous waste in any month and never accumulates more than 6,000 kg of non-acutely hazardous waste onsite at any one time.

The VMF generates hazardous waste and stores it at an initial accumulation point within its facility where it can store less than 55 gallons of hazardous waste or 1 quart of acute hazardous waste. Before the waste limits are reached, the VMF must transfer the waste to the installation's central accumulation point located outside of Building 1009, where up to 6,000 kg of waste can be stored up to 6 months. The design and operation requirements for the initial accumulation point, including documentation and recordkeeping requirements, are found in Sections 4.6 and 4.7 of the HWMP (460 SW, 2005). The types and annual quantities of RCRA-regulated waste generated by the current VMF are shown in Table 3-4.

TABLE 3-4
Hazardous Waste Generation at Current Vehicle Maintenance Facility (Building 340)

Waste Stream Number	Waste Name	Annual Quantities (pounds per year)	Waste Characterization Information
BAFBANG11	Diesel filters	459	Ignitable (D001)
BAFBANG12	Antifreeze	5,500	Selenium 1.1 mg/L (D010)
BAFBANG19	Mogas filters	459	Benzene 0.97 mg/L (D018)
BAFBANG22	Sludge from parts washer	84	12.69 pH (D002)
BAFBANG24	Aerosol paint waste	417	Assumed metals (drum not full to sample)

3.5.1.3 Universal Waste

Universal waste consists of batteries; pesticides; mercury-containing devices, including barometers, electrical switches and relays, thermostats, thermocouples, and thermometers; aerosol cans; lamps including fluorescent, high-intensity discharge, mercury vapor, high-pressure sodium, and metal halide; and electronic devices and components. These wastes are subject to the universal waste requirements of 6 Code of Colorado Regulations 1007-3, Section 273. Universal waste does not need to be characterized unless it is mixed with a hazardous waste. If a universal waste is mixed with a hazardous waste then the product is managed as hazardous.

Buckley AFB is classified as a large-quantity handler of universal waste because it generates more than 5,000 kg annually. Most of the universal waste generated by Buckley AFB (and the VMF) consists of aerosol cans. Buckley AFB has special procedures for handling aerosol cans in its HWMP (460 SW, 2005).

The VMF has a universal accumulation point for the storage of universal wastes. There are no limits to the quantity of universal waste that may be stored at a universal accumulation

point. However, universal waste must be removed from the base within 1 year of the accumulation start date.

3.5.1.4 Used Oil

Buckley AFB has an active used oil management program that manages, recycles, and reuses petroleum products. The VMF participates in this program and stores used oil in a 528-gallon tank at its facility. Storage and handling procedures for used oil are contained in Chapter 6 of the HWMP (460 SW, 2005).

3.5.2 Impacts

3.5.2.1 No Action Alternative

Site conditions would remain as they currently are under the No Action Alternative. Use of hazardous materials and generation of hazardous wastes would continue to pose a minor risk to the environment from accidental release. Although these risks represent a long-term adverse impact to the environment, the potential for adverse impacts is minimized by adhering to regulations and policies for these materials and wastes.

3.5.2.2 Proposed Action

The programs in place at Buckley AFB are protective of the environment and provide adequate procedures for responding to accidental spills or other releases. Adverse short- and long-term impacts resulting from hazardous materials use and waste management under the Proposed Action would be negligible.

Operation of the VMF facility under the Proposed Action would generate waste streams similar to those listed in Table 3-4. Wastes generated by the new VMF would be managed by the same personnel and under the same management conditions as the existing facility. The new facility would have the same or greater storage capacity for used oil as the existing facility, with a 500-gallon tank or two smaller tanks. Because personnel are trained and experienced in waste management and emergency response procedures, environmental and health and safety risks are low. All requirements of the HWMP and SPCC Plan would apply to operation of the facility. The VMF also would continue to use hazardous materials, such as paint, POL, or solvents, and the use of these materials would continue to be monitored by the AFIs previously mentioned (i.e., impacts would be the same as under the existing conditions). There is some potential for hazardous material spills or leaks outside the main facility (e.g., in parking areas) from transporting hazardous materials to the facility and/or parking leaking vehicles. These situations are not common, and any leaks or spills would be monitored and contained in accordance with the HWMP and SPCC Plan. Therefore, adverse impacts during operation of the facility would be minor.

3.5.2.3 Alternative 1

Hazardous waste impacts would be similar to those described for the Proposed Action. The 140 LGRVM would continue to use hazardous materials and generate hazardous wastes at Building 340; the 460 LGRVM would use hazardous materials and generate hazardous wastes at the new VMF. Overall quantities of materials used and wastes generated would be similar to those described in Table 3-4 because no change in the numbers or types of vehicles serviced is proposed. However, materials would be used and wastes generated at two locations instead of a single facility as described in the Proposed Action.

Adverse impacts to hazardous materials use and waste management from Alternative 1 would be negligible because the programs in place at Buckley AFB are protective of the environment and provide adequate procedures for containing accidental spills or other releases. Managing materials and wastes at two locations increases risks but these are minimal because of the effective programs.

3.5.2.4 Alternative 2

Adverse impacts to hazardous materials use and waste management from Alternative 2 are the same as for Alternative 1.

3.5.2.5 Alternative 3

Adverse impacts to hazardous materials use and waste management from Alternative 3 are the same as for Alternative 1.

3.6 Environmental Restoration Program Sites

3.6.1 Affected Environment

The ERP is a program to protect human health and the environment by cleaning up and restoring sites on USAF lands where past activities created contamination from toxic and hazardous substances, low-level radioactive materials, and petroleum, oils, and lubricants. The Buckley AFB ERP consists of ten sites, two of which (Sites 6 and 8) have been closed. An expanded Preliminary Assessment of historical Army, Navy, and National Guard records is ongoing. The results of this assessment might point to other previously undiscovered contaminated sites. The locations of the eight open ERP sites are illustrated on Figure 3-3.

Alternative 2 is located on ERP Site 9. ERP Site 9 consists of an area of approximately 3,000 ft^2 where four 12,500-gallon underground storage tanks were formerly located. These tanks were used from the 1950s to 1985 then excavated and removed from the site in 1987, in accordance with Colorado UST regulations. A Site Inspection is currently underway to confirm suspicion that no further response action is warranted. Expanded site inspection sampling to completely delineate a hot spot of polynuclear aromatic hydrocarbon contamination will be accomplished in FY08. Additionally, trichloroethylene contamination detected in a Site 9 monitoring well will be further investigated as part of the Armament and Automotive Area of Concern, a "Highest Priority Site" listed in the February 2007 Basewide Preliminary Assessment Report. Coordination between BAFB and the Colorado Department of Public Health, concerning ERP Site 9, is presented in Appendix B.

3.6.2 Impacts

3.6.2.1 No Action Alternative

There would be no construction of the VMF under the No Action Alternative; therefore, there would be no adverse impact to any ERP site.

3.6.2.2 Proposed Action

There are no ERP sites within or near the Proposed Action site; therefore no adverse impacts would occur.

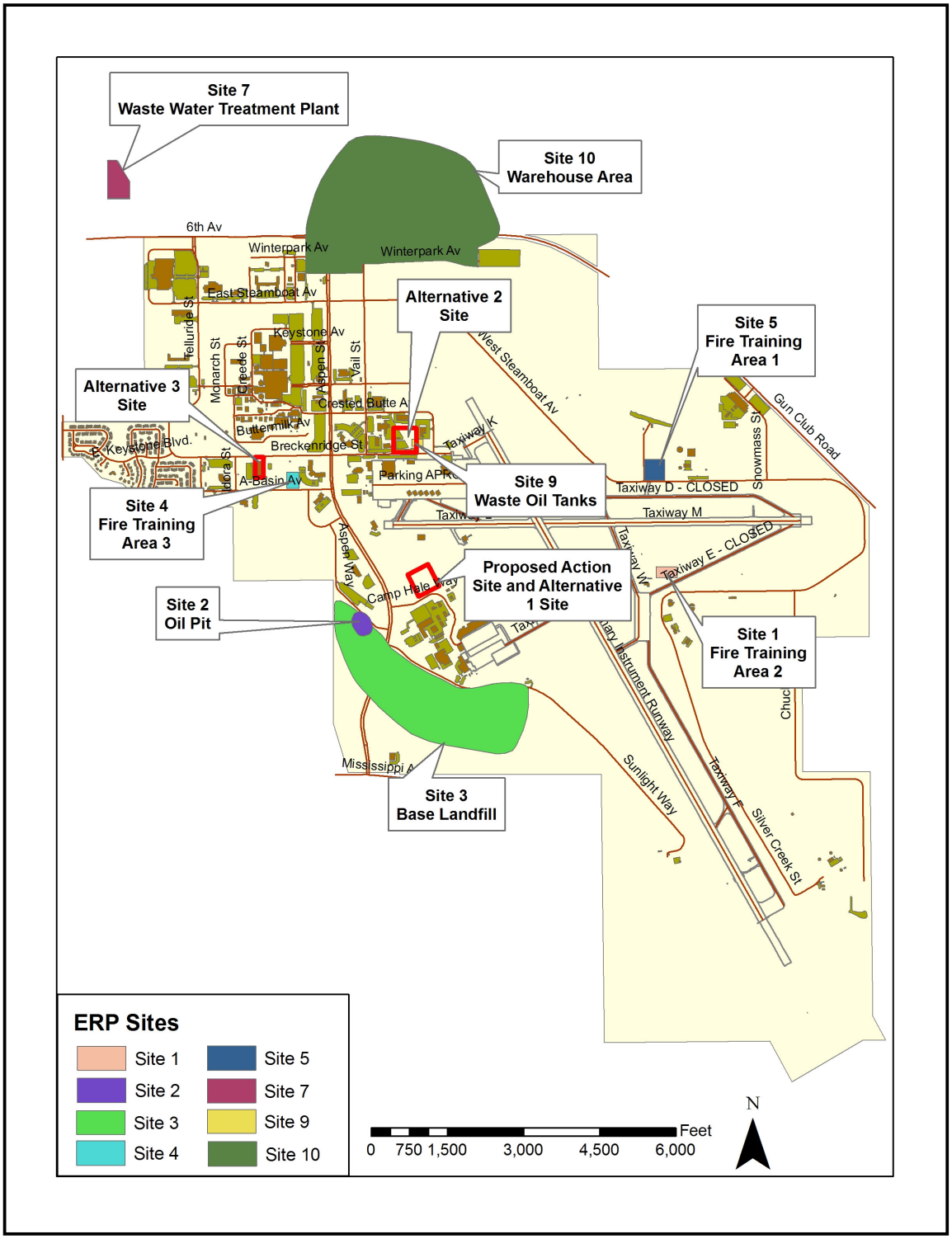

FIGURE 3-3
Environmental Restoration Program Sites at Buckley AFB

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3.6.2.3 Alternative 1

There are no ERP sites within or near the Alternative 1 site; therefore no adverse impacts would occur.

3.6.2.4 Alternative 2

The Alternative 2 site is located on ERP Site 9 and the Armament and Automotive Area of Concern. If further investigation of these areas reveal contaminated soil or groundwater that require remedial effort, such work will be accomplished in accordance with all applicable laws and regulations and in coordination with appropriate regulatory agencies. Therefore, assuming proper identification and management of potential issues from these ERP areas, implementation of the proposed action would result in negligible, short-term, adverse impacts and long-term, beneficial impacts associated with the ERP areas.

3.6.2.5 Alternative 3

There are no ERP sites located within or near the Alternative 3 site; therefore, no adverse impacts would occur.

3.7 Asbestos

3.7.1 Affected Environment

Building debris and infrastructure, including asbestos-lined pipes, were left in place during some past demolition projects (1950s to 1960s) at Buckley AFB. Therefore, the potential exists for discovering asbestos-lined pipes or asbestos-contaminated soil during construction. CDPHE regulates the management of asbestos in soils during construction (6 Code of Regulations [CCR] 1007-2, Section 5 and 5 CCR 1001-10, Part B).

To identify areas of potential asbestos contamination, Buckley AFB reviewed an installation map of World War II-era structures to determine where building materials might have been left in place. On the basis of this map, in January 2003 soil samples from 11 proposed Fiscal Year 2004 though 2007 construction sites were analyzed for asbestos. The results were negative for asbestos. However, Buckley AFB routinely tests soil in construction areas where WWII-era building debris might be present.

3.7.2 Impacts

3.7.2.1 No Action Alternative

No asbestos-containing material would be disturbed as a result of the No Action Alternative because no ground disturbance would occur; therefore, no adverse impact would occur from disturbing asbestos-containing soils.

3.7.2.2 Proposed Action

The Proposed Action site is located near an area where previous World War II-era buildings might have been present. To determine whether asbestos was present in soils in the vicinity of the Proposed Action site, field soil sampling was conducted on September 16, 2005 (CH2M HILL, 2006). The sampling consisted of collecting soil from five direct-push

technology boreholes with maximum depths not exceeding 10 ft (3 m). Soil samples were collected from beneath the surface (0 to 2 ft [0 to 0.6 m]) and from the subsurface (8 to 10 ft [2.4 to 3 m]). Asbestos was not detected in the soil samples. Results of the sampling are provided in Appendix C.

Because no asbestos-contaminated soils were detected at the Proposed Action site; no adverse impacts from disturbing asbestos-contaminated soils would result from construction activities at the Proposed Action site.

3.7.2.3 Alternative 1

Because the Alternative 1 site is the same as the Proposed Action site, there would also be no adverse asbestos-related impacts from construction of Alternative 1 at that site.

3.7.2.4 Alternative 2

There is no evidence of former WWII-era structures having been located at the Alternative 2 location. Therefore, the potential for finding buried asbestos-containing materials is low, and no adverse asbestos-related impacts are expected to occur.

3.7.2.5 Alternative 3

There is no evidence of former WWII-era structures having been located at the Alternative 3 location. Furthermore, subsurface excavation would be more limited under Alternative 3 because construction would be an addition to the existing structure. Therefore, no adverse asbestos-related impacts are expected to occur.

3.8 Solid Waste and Pollution Prevention

3.8.1 Affected Environment

The CDPHE Hazardous Materials and Waste Management Division regulates solid waste management in the state of Colorado, ensures compliance with state hazardous waste regulations and permits, and oversees remediation of contamination at federal facilities in the state (CDPHE, 2007). All solid waste disposal must comply with state and federal regulations; federal waste disposal is regulated by 40 CFR 240-259. Municipal solid waste landfills must comply with 40 CFR 258, "Criteria for Municipal Solid Waste Landfills." Air Force installations must use permitted, secure, municipal or regional facilities for solid waste disposal, when feasible. Buckley AFB must comply with state and federal regulations and DoD requirements when disposing of solid waste.

Solid waste generated by Buckley AFB is collected and disposed of by a private contractor. Waste is collected from dumpsters located throughout the base and routinely transported to the Denver-Arapahoe Disposal Site in Arapahoe County. Buckley AFB generated approximately 1,200 tons of non-hazardous waste in Fiscal Year 2006. A small amount (0.6 ton) of this waste was attributed to construction and demolition activities.

Buckley AFB participates in the Air Force P2 Program. The program encompasses a range of environmental management functions, including recycling, hazardous/toxic chemicals reduction, green (environmentally friendly) procurement, and waste minimization. All organizations on Buckley AFB are required to participate in the P2 Program in accordance

with the impacts of their specific operations. For example, the VMF participates in the hazardous materials pharmacy, which minimizes unnecessary storage of hazardous materials at the facility, and the used oil recycling program.

In addition to the standard pollution prevention policies that are implemented by every USAF construction and operation activity, one of the goals of the new VMF facility is to qualify for LEED™ certification with a rating of at least 26.

Preliminary items or issues that have been identified for capturing LEED™ points specific to the location and construction of the VMF include:

- Do not locate buildings within 100 ft of any wetland.
- Incorporate stormwater management.
- Develop and implement a construction waste management plan.
- Specify a minimum of 20 percent of building materials manufactured regionally (within a radius of 500 miles).
- Specify rapidly renewable building materials for 5 percent of total building materials.
- If any wood is being used, specify a minimum of 50 percent of wood-based materials certified in accordance with the Forest Stewardship Council Guidelines for wood building components.

3.8.2 Impacts

3.8.2.1 No Action Alternative

Under the No Action Alternative, solid waste generation at Buckley AFB would not increase, and the P2 Program would be unaffected; therefore, no adverse impacts would occur as a result of solid waste.

3.8.2.2 Proposed Action

Construction of the VMF and delivery of construction supplies would increase solid waste generation (e.g., concrete, building materials, any associated demolition debris) during the project performance period. Certain forms of construction-related solid waste might be eligible for diversion to recycling. To the extent feasible during construction, waste materials would be recycled, recycled-content materials would be procured, use of hazardous materials would be minimized, and any unused hazardous and non-hazardous materials and wastes would be removed at the conclusion of construction. The new VMF would participate in the P2 Program; therefore adverse impacts would be negligible.

The new VMF would meet the LEED™-rated level of "Certified" and, as such, would have the beneficial effect of supporting the base's pollution prevention goals. Implementation of standard pollution prevention policies established at Buckley AFB, and meeting the requirements of the LEED™-rated level of "Certified" would result in negligible adverse impacts resulting from solid waste.

3.8.2.3 Alternative 1

Impacts from Alternative 1 would be the same as those described for the Proposed Action.

3.8.2.4 Alternative 2

Impacts from Alternative 2 would be the same as those described for the Proposed Action.

3.8.2.5 Alternative 3

Construction of the Alternative 3 VMF addition would result in the generation of less solid waste due to the smaller size of the construction project. The P2 Program would be unaffected. Implementation of standard pollution prevention policies already established at Buckley AFB would result in negligible adverse impacts resulting from solid waste.

It is possible that Alternative 3 could be designed to meet a LEED™-rating but an evaluation of the renovations or additions and their compliance with LEED™ has not been accomplished.

3.9 Utilities

3.9.1 Affected Environment

Public providers supply water, gas, and electrical power to Buckley AFB. Since 2001, Buckley AFB has been proactive in increasing the capacity of its infrastructure systems (Buckley AFB, 2003). Stormwater is addressed in Section 3.3, "Water Resources."

3.9.1.1 Potable Water

Potable water is provided by the city of Aurora directly to Buckley AFB facilities without supplemental treatment. There are two connections to the City pipelines: the first along 6th Avenue, where a water main connects to a line that provides the primary source of potable water to the installation; the second is along Mississippi Avenue, where a water main provides emergency backup should the water main on 6th Avenue fail. There are no contractual limits on the amount of water that Buckley AFB may use. However, Buckley AFB has instituted water conservation measures in response to recent droughts (Buckley AFB, 2005c).

3.9.1.2 Sanitary Sewer

Wastewater flow from Buckley AFB is conveyed through an onbase sanitary sewer system to the city of Aurora's wastewater collection system and then to one of two wastewater treatment facilities. Both of the treatment facilities have excess capacity. The majority of Buckley AFB's sanitary sewer system is composed of vitrified clay pipe, which was installed in the 1940s and 1950s. More recently installed sections of sewer main are polyvinyl chloride pipe, which is now used for all sewer upgrades on the installation (Buckley AFB, 2005c).

3.9.1.3 Electricity and Natural Gas

Buckley AFB receives electrical power and natural gas from Xcel Energy® (Buckley AFB, 2005c).

3.9.2 Impacts

3.9.2.1 No Action Alternative

Under the No Action Alternative, utility location and usage would not change; therefore no adverse impacts would occur.

3.9.2.2 Proposed Action

The new VMF would require sanitary sewer line, potable water, feeder for electrical power, and natural gas supply (Buckley AFB, 2005b).

Water, natural gas, and electric lines run along Aspen Street in the vicinity of the Proposed Action site (Buckley AFB, 2006c), and electric lines run along Camp Hale Way (see Figure 3-4). Utilities required for the VMF can be connected from these existing lines. Therefore, disturbance for utility connections is accounted for in the overall disturbance area of 5 ac (2 ha), and no additional adverse impacts to utility installations would occur from ground disturbance.

Appendix D presents calculations of the consumption of resources, to include water, electricity and natural gas consumption associated with a variety of projects at BAFB, including the VMF. Although the tables show increased usage over time, the increases would have only a minor effect on either the base or regional supplies. Please also refer to Section 3.10 for a discussion of cumulative impacts.

Buckley AFB utilities have been planned with sufficient capacity to accommodate adding an additional building to the base. As part of LEED™ certification, a used-oil boiler is being considered for the VMF, which would reduce natural gas requirements for heating. Limited landscaping is required or proposed for the VMF, and the *Requirements Document* (Buckley AFB, 2005) specifies that drought-tolerant vegetation and landscaping be selected to minimize water consumption. Because utilities on Buckley AFB have been planned with sufficient capacity to accommodate the VMF, adverse impacts to utilities would be minor. The VMF design incorporates energy-saving elements to reduce electricity and natural gas usage (Buckley AFB, 2005b).

3.9.2.3 Alternative 1

Impacts related to providing utilities for the VMF under Alternative 1 would be the same as described for the Proposed Action.

3.9.2.4 Alternative 2

Impacts of construction disturbance and utility usage would be the same as stated for the Proposed Action. The Alternative 2 site is within a developed area, and utilities are available nearby. Water lines are found to the south, east, and west; primary electric lines are to the south and west; and gas lines are located to the north and south of the site. Wastewater lines are located just south of Breckenridge Street and to the north at Building 940. Trenching and ground disturbance for utility supply to the VMF would be required; however, it is unlikely that ground disturbance would exceed the 5 ac assumed for construction of the facilities.

3.9.2.5 Alternative 3

Utilities at the Alternative 3 site are sized to accommodate an expanded VMF at this location, so no upgrade to utilities (or trenching or other ground-disturbing activities associated with utility installation) would be necessary to implement this alternative. Utility usage would be similar to the Proposed Action.

3.10 Cumulative Impacts

Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action, when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions" (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively substantial actions undertaken over a period of time by various agencies or individuals. Informed decision making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

The implementation of the Proposed Action or alternatives does not pose any significant environmental impacts. Because the environmental effects associated with the Proposed Action and alternatives are negligible in all environmental resource areas, the potential for this project to measurably contribute to cumulative environmental impacts is very low.

3.10.1 Offbase Activities

The city of Aurora surrounds Buckley AFB. The land adjacent to the installation is generally split between developed and undeveloped areas, with the developed areas bordering the western portion of the installation and agricultural and grassland conservation areas to the east. Along the southwestern boundary, the East Toll Gate Creek 100-year floodplain provides a buffer between the developed area and the installation boundary.

The Plains Conservation Center, located immediately south of the installation, has an Open Space designation, which prevents private development on this land. The restrictions on development also provide a benefit to Buckley AFB from encroaching, incompatible development along its borders.

Table 3-5 provides a list of planned development and projects under construction in the vicinity (an approximately 1-mile radius) of Buckley AFB. Information supporting the table was gathered from the *City of Aurora Comprehensive Plan 2003* (City of Aurora, 2003) and the February 2006 E-470 Public Highway Authority development activity report for the E-470 corridor (E-470 Public Highway Authority 2006). Development is generally concentrated around the Plains Conservation Center and the E-470 Corridor.

Cumulatively, these projects account for 3,379 ac of newly developed land area, including more than 16,000 residential units and more than 17,000,000 ft^2 of retail space. Research and development office space between Buckley AFB and E-470 is envisioned but not currently under design or construction.

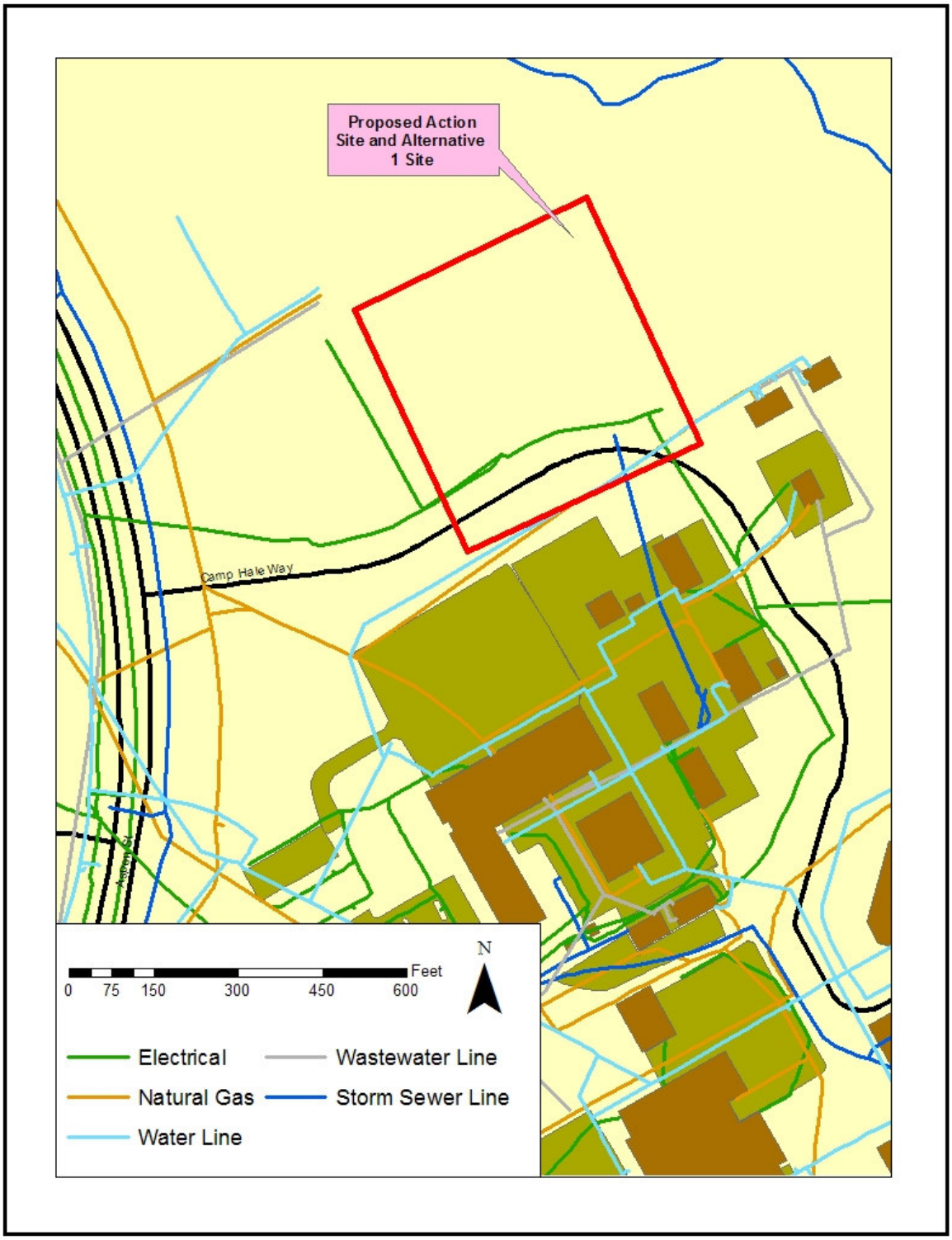

FIGURE 3-4
Existing Utilities in the Vicinity of the Proposed Action Site

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3.10.2 Onbase Activities

As noted in Section 3.1, "Land Use," Buckley AFB developed the General Plan to guide the transition of the site to an active-duty Air Force Base. Although the development of individual facilities, such as the VMF, do not have significant environmental effects, developing all of the capital improvements necessary to realign Buckley AFB as an active duty installation does have the potential to create cumulative environmental effects that could be more substantial. In recognition of the potential that these individually small projects could cumulatively create significant environmental effects on Buckley AFB and in the surrounding community, Buckley AFB has completed a review and analysis of its entire capital improvements program (CIP) under a single EA (Buckley AFB, 2006).

TABLE 3-5
Planned Development and Projects under Construction in the Vicinity of Buckley AFB

Name	Size	Location	Notes
Bounds Sell Coakes	444 ac	Across Gun Club Road, along the northeast boundary of Buckley AFB	Under construction; 3,263 dwelling units
Sterling Hills	435 ac	South of Buckley AFB, near northwestern boundary of the Plains Conservation Center	Under construction; 3,281 dwelling units
Conservatory at the Plains	490 ac	Along the western boundary of the Plains Conservation Center	Under construction; 1,425 single family units
Murphy Creek	1,277 ac	East of Gun Club Road, between Mississippi and Yale	Under construction; residential and mixed-use development, golf course community; 4,735 single and multi-family units
Cross Creek	218 ac	East of Gun Club Road, north of 6th Avenue	Under construction; 1,070 dwelling units, 55-ac of commercial development
Horizon City Center	500 ac	Southwest corner of E-470 and I-70	Approved; 2,853 residential units; 14,940,862 ft^2 of retail and office; 10- to 20-year build out
Marketplace at Jewell Commons.	15 ac	Northwest corner of Jewell Avenue and Gun Club Road	Under construction; 600,000 ft^2 of retail

The majority of projects identified in the CIP EA that are required to support the active-duty base have been programmed for construction between 2002 and 2013. More than 80 construction or renovation projects were identified, and a number of other buildings were determined as not meeting Air Force standards or needs and identified for demolition. Construction and renovation projects include building construction, land development (e.g., athletic fields and parking lots), road improvements, and utility and infrastructure upgrades. Some, such as the new 460 SW Headquarters, have been constructed. Others, such as the Army Aviation Support Facility, are under construction, while others, such as the proposed VMF, are still in planning or design. Some of the facilities involve construction in vacant parcels, while others represent more of an infill development, constructing a replacement structure on the same site as an original, substandard structure. In total, Buckley AFB estimates these projects will result in ground disturbance of about 640 ac or approximately 19 percent of the total base area (of which 16.4 percent is already developed) (Buckley AFB, 2006b).

The primary purpose of the CIP EA was to evaluate the cumulative effects of the many capital improvements planned at the base, including the Proposed Action. Calculations of cumulative increases in air emissions, electricity consumption, natural gas consumption, water consumption, solid waste generation, traffic volumes, impervious surfaces, and stormwater loads were completed for the CIP projects. For each parameter, construction impacts were greater than operational impacts, and none of the impacts were determined to be significant. The CIP EA was released for public review, and a Finding of No Significant Impact was signed in September 2006 indicating that the CIP, including the vehicle maintenance facility, did not contribute to adverse cumulative environmental impacts. The description of cumulative impact analysis of the CIP EA, which included the VMF project, is incorporated by reference into this EA (Buckley AFB, 2006b).

Since the completion of the CIP EA, Buckley AFB has identified additional projects that will need to be completed and could, in combination with the more than 80 projects analyzed in the CIP EA, contribute to cumulative environmental effects.

Projects included in the CIP EA, and additional projects identified by Buckley AFB are listed in Appendix D. The tables within Appendix D include projects with and without structures, and projects that only involve demolition activities.

3.10.3 Impacts

Because the environmental effects associated with the Proposed Action and alternatives are negligible in all environmental resource areas, the potential for this project to measurably contribute to cumulative environmental impacts is very low. Additionally, the impact to the physical environmental from the buildout of Buckley AFB (all projects identified in Appendix D) is relatively minor in comparison with the impact of development of the surrounding area. For instance, the combined development of areas within 0.5-mile radius of Buckley AFB is larger than the entire installation area (of which less than 20 percent is developed).

Appendix D presents updated calculations of air emissions, electricity consumption, natural gas consumption, water consumption, solid waste generation, traffic volumes, impervious surfaces, and stormwater loads for all planned projects at Buckley AFB. The tables included in Appendix D contain updated information regarding projects presented in the CIP (as design and construction information have been further refined) and new projects that have been added since the completion of the CIP EA. The updated tables were compared to the tables in the CIP EA. In most cases, updated tables show an increased impact over that presented in the CIP EA. These increases are attributed to changes in project design projects included in the CIP EA and additional new projects not included in the CIP EA. The increases, however, are still below the significance criteria established in the CIP EA. The proposed projects would not contribute to adverse cumulative environmental impacts.

Minor environmental impacts result from the implementation of the Proposed Action or alternatives. Resource areas that are affected include land use, air quality, water resources, vegetation and wildlife, and threatened, endangered, and other sensitive species, hazardous materials and wastes, P2, and utilities. Because no impacts were identified for other resource areas, this project will not contribute to any environmental effects and cannot contribute to cumulative effects to the following resources: asbestos, cultural resources, socioeconomics,

environmental justice, noise, occupational safety and health, transportation, visual resources, airspace, wetlands, farmlands, floodplains, geology and soils, PCBs, and radon. Cumulative impacts to the affected resources from the Proposed Action and alternatives are presented in Table 3-6.

TABLE 3-6
Cumulative Impacts

Resource	Past	Present	Future	Impact
Land Use	Development of Buckley AFB and other military installations shaped the early development of the city of Aurora.	A number of projects are approved or under construction in the vicinity of Buckley AFB. These projects are not associated with the development of Buckley AFB. Buckley AFB has planned or under construction a CIP to provide suitable facilities for the newly activated AFB. Buckley AFB prepared the General Plan for the development of the base. Implementation of the plan is expected to improve land use compatibility onbase.	Development around Buckley AFB is expected to continue, particularly as infill around the still vacant parcels surrounding the E-470 corridor. Buckley AFB will continue its development of currently planned projects and with the implementation of the goals of the General Plan. Once these facilities have been provided, development of facilities onbase will likely slow. Implementation of the General Plan will improve land use compatibility onbase.	Beneficial land use impacts will occur onbase and offbase as Buckley AFB and the city of Aurora implement land use plans and policies consistent with planning goals. Minor adverse impacts could occur when development is initiated.
Air Quality	Development of the Denver metropolitan area has had an adverse effect on air quality. Air quality from the mid 1970s to late 1990s was poor, and EPA mandated a number of programs to improve regional air quality.	EPA-mandated programs and regional voluntary programs have improved air quality in the region, and the region is in maintenance for all criteria pollutants. Construction projects at Buckley AFB contribute to a minor increase in regional air pollutants, but the contribution will not cause a violation of regional air quality standards.	Emissions for all criteria pollutants except PM_{10} are expected to continue a downward trend (Dilley, 2004). PM_{10} slight increase primarily due to street sanding operations; precursors continue downward trend (Dilley, 2004). The construction and operation of the VMF and other new projects at Buckley AFB will result in temporary and permanent increases in air emissions.	Increases in air emissions at Buckley AFB from construction and operation of the VMF and other projects in combination with other regional projects will have a minor impact on air quality. No violations of NAAQS or the Title V permit are expected. Refer to the summary tables in Appendix D for cumulative impact calculations.
Water Resources	Development created many acres of impervious surfaces, causing pollutants from stormwater runoff.	Development on and around Buckley AFB continues to increase impervious surfaces. Stormwater regulations (MS4) require treatment of stormwater runoff. Water supply is a continuing concern.	Adherence to stormwater regulations requiring permanent BMPs, such as detention basins, to treat stormwater will continue to improve water quality. Water supply will continue to be a concern.	Short- and long-term adverse impact to water quality is negligible because stormwater regulations require treatment of runoff. VMF requires use of a small amount of water. Landscaping will be minimal. Operation of the VMF will have a negligible adverse impact on regional water supply.

TABLE 3-6
Cumulative Impacts

Resource	Past	Present	Future	Impact
Vegetation and Wildlife	Development in and around Buckley AFB has fragmented habitat and displaced wildlife. Many non-native plant species and noxious weeds introduced to region.	Plains Conservation Center provides 1,500 ac of relatively high-quality short grass prairie habitat. Other vacant and open space areas are being developed. Portions of Buckley AFB are dedicated to wildlife and habitat conservation.	Plains Conservation Center will continue to be undeveloped. Buckley AFB will conserve areas of the base for wildlife habitat and has an active program to manage and conserve prairie dogs and burrowing owls (Buckley AFB, 2001; Buckley AFB, 2004b).	Project is infill development, does not impact high-quality wildlife habitat or natural areas, and is consistent with Buckley AFB's natural resource management goals. The project does not affect wildlife conservation areas on or off Buckley AFB. Construction and operation of the VMF would have a minor adverse long-term impact on vegetation and wildlife.
Threatened, Endangered, and Other Sensitive Species	Dramatic reduction in numbers and range of prairie dogs throughout the short grass prairie. Decline important enough to list the black-tailed prairie dog as a Candidate for protection under the ESA.	Buckley AFB has an active program to protect and conserve burrowing owls and manage prairie dogs within Buckley AFB's borders.	Existing pockets of habitat will continue to be managed for species conservation.	Burrowing owls not present on Proposed Action or alternative sites. Prairie dogs are present in low density (seven or less per ac) on Proposed Action and Alternative 1 site. Removal of the prairie dogs from the site will have a long-term adverse effect of further fragmentation of prairie dog habitat on Buckley AFB. Because the densities are low at the site and the site is already surrounded by current or planned development, the habitat is low-quality and the effect is minor.
	Populations of burrowing owls have declined, and species is recognized as a Species of Concern (for extinction) by the CDOW.	The Plains Conservation Center provides quality prairie dog and burrowing owl habitat.	The Plains Conservation Center will continue to provide quality prairie dog and burrowing owl habitat.	The Plains Conservation Center habitat area has a beneficial effect for prairie dogs and burrowing owl habitat.
Hazardous Materials and Wastes	Disposal of municipal and industrial wastes was not comprehensively regulated, and numerous contaminated sites posed threats to human health and the environment.	Hazardous materials and wastes are regulated to protect human health and the environment. Past contaminated sites at Buckley AFB are managed under the ERP. Contaminated sites offbase are managed under CERCLA. Leaks and spills are monitored and contained according to the HWMP and SPCC Plan to prevent	Hazardous materials and wastes continue to be regulated to protect human health and the environment. Hazardous materials used during operation and construction of facilities would be managed to protect the environment. New construction would require modification to the existing HWMP and SPCC Plan.	Adverse short- or long-term impacts to hazardous materials use and waste management would be negligible because federal and state regulations are protective of the environment and provide adequate procedures for accidental spills or other releases. Current management programs at Buckley AFB are in compliance with laws and regulations. Additional programs adopted by Buckley AFB,

TABLE 3-6
Cumulative Impacts

Resource	Past	Present	Future	Impact
		contamination of soils or water.		such as the hazardous materials pharmacy, further reduce risks of hazardous materials and wastes.
Solid Waste/P2	Disposal of municipal and industrial wastes was not comprehensively regulated, and numerous contaminated sites posed threats to human health and the environment.	Waste facilities are regulated and managed to be protective of human health and the environment. Recycling programs are in place to reduce generation of wastes. Solid waste at Buckley AFB is collected and disposed of by a private contractor at an approved waste facility in Arapahoe County. Buckley AFB participates in the Air Force P2 Program to minimize waste.	Waste facilities will continue to be regulated and managed to be protective of human health and the environment. Buckley AFB will continue to use its P2 Program to reduce generation of wastes.	Construction and demolition wastes generated at Buckley AFB in combination with other regional wastes could present a short-term moderate impact to the waste-handling capabilities of the area if not carefully coordinated and planned. Refer to summary tables in Appendix D for cumulative impact calculations.
Utilities	Gas, water and electrical power is provided to Buckley AFB by public providers.	Since 2001 Buckley AFB has been proactive in increasing the capacity of its infrastructure systems.		Increased utility consumption would have a short-term minor effect onbase and regional supplies. Buckley AFB utilities have been planned with the capacity to accommodate a new vehicle maintenance facility and regional utility suppliers have adequate capacity to meet the demand. Short- and long-term adverse impacts to utilities would be minor. Refer to summary tables in Appendix D for cumulative impact calculations.

3.11 Summary of Best Management Practices

3.11.1 Best Management Practices

This section presents BMPs that will be implemented to minimize any potential environmental impacts that could occur from implementation of the Proposed Action. The BMPs for Alternatives 1, 2, or 3 would be similar to those outlined for the Proposed Action. Table 3-7 summarizes these practices. BMPs for the No Action would include those that are followed by implementation of the plans and policies applicable to Buckley AFB (e.g., the HWMP). No additional BMPs would be required because the No Action Alternative is, by definition, continuation of the existing situation.

TABLE 3-7
Best Management Practices

Resource	No Action Alternative Best Management Practices	Proposed Action and Alternatives 1, 2, and 3 Best Management Practice
Land Use	Identify opportunities to achieve goals and vision of the General Plan to transition Buckley AFB to a fully functional Air Force installation.	Implement goals and vision of the General Plan to transition Buckley AFB to a fully functional Air Force installation. Site VMF in area designated for Industrial land use.
Air Quality	The 140 LGRVM would continue to use refrigerant recovery equipment, and technicians certified to work on vehicles would continue to handle refrigerants.	Design VMF would not use ozone-depleting chemicals. Use low NO_x burners. The VMF provides for zero use of chlorofluorocarbon-based refrigerants in cooling systems. Control fugitive dust emissions during construction by the following: • Control of unpaved roads (e.g., watering or other stabilizer and vehicle speed control) • Control of disturbed areas onsite (e.g., watering, revegetation, and wind breaks) • Prevention of tracking mud and dirt onto paved surfaces (e.g., gravel entry ways, vehicle washing, and street sweeping)
Water Quality	Maintain structures currently installed to control stormwater flows and offset impacts resulting from channel erosion.	Control stormwater quality during construction through implementation of BMPs for erosion control, sediment control, materials handling and spill prevention, and waste management. Some BMPs that might be employed include silt fencing, inlet protection, erosion logs, spill prevention and control, stabilized construction entrances, and stockpile management.
	Follow SPCC Plan to minimize potential for pollutants to enter stormwater system.	Minimize potential for pollutants from operation of the VMF from entering the stormwater system through the use of permanent water quality treatment BMPs (e.g., use of runoff infiltration areas or specially designed hydrocarbon filters). Continue to follow the SPCC Plan.
	Follow SWPPPs for current construction projects.	Limit potential contamination of stormwater runoff by adhering to temporary and permanent water quality treatment BMPs in the project SWPPP during construction and post-construction.
Vegetation	Restore disturbed areas onbase according to the requirements of the SWPPP and the Buckley AFB landscape plan.	Restore disturbed areas not required for the permanent facility by reseeding in accordance with the applicable SWPPP and adhering to the requirements of the Buckley AFB landscape plan.
Threatened, Endangered, and Other Sensitive Species	Minimize impacts to black-tailed prairie dogs by the following: • Adhere to the prairie dog management procedures outlined in *the Supplement to Environmental Assessment of Proposed Prairie Dog Practices at Buckley Air Force Base* (Buckley AFB, 2001) or other currently applicable prairie dog management directive. • Remove prairie dogs prior to construction (by soap and water capture, trapping and relocating, trapping and sending to a raptor or ferret rehabilitation facility, poisoning, or vacuum method), preferably from July through October.	Continue to follow existing procedures to minimize impacts to prairie dogs and their habitats. To minimize and avoid disturbance to ground nesting migratory birds during the breeding season (late March to August), a survey would be conducted. If construction is to begin during nesting season, a migratory bird survey (including burrowing owls) must be accomplished prior to start.

TABLE 3-7
Best Management Practices

Resource	No Action Alternative Best Management Practices	Proposed Action and Alternatives 1, 2, and 3 Best Management Practice
	Avoid disturbance from March through June, when young are in the nest and still nursing, and during migratory bird nesting season.	
	Minimize impacts to burrowing owls by implementing the following: • Do not attempt to move burrowing owls. • Avoiding disturbing burrowing owls during nesting. • Establish a 150-ft-radius(46-m-radius) buffer zone around the active nest sites during the breeding season to protect owls from disturbance associated with construction, especially increased noise. If nesting burrowing owls are present, refraining from prairie dog removal activities until after the burrowing owl breeding season.	Continue to follow existing procedures to minimize impacts to burrowing owls.
	Minimize impacts to nesting birds from construction activities by implementing the following: • Conduct surveys to identify ground nesting migratory birds during the breeding season (late March to August) in all construction areas. • If construction is to begin during nesting season, a migratory bird survey (including burrowing owls) must be accomplished prior to start.	Conduct a survey for migratory birds in the construction area if construction is to occur between late March and August.
Hazardous Materials and Waste	Manage RCRA-regulated wastes, universal wastes, and used oil in accordance with procedures specified in the HWMP, Clean Water Act, and SPCC Plan.	Continue to manage RCRA-regulated wastes, universal wastes, and used oil in accordance with procedures specified in applicable HWMP, Clean Water Act, and SPCC Plan.
	Use hazardous materials pharmacy to manage and minimize storage of hazardous materials on Buckley AFB.	Minimize unnecessary storage of hazardous materials at the VMF through participation in the hazardous materials pharmacy.
	Monitor and contain any leaks and spills in accordance with the Buckley AFB HWMP and SPCC Plan. Maintain and follow SWPPPs for all construction projects.	Monitor and contain any leaks and spills in accordance with the Buckley AFB HWMP, SPCC Plan, and project SWPPP.
	Manage ERP sites in accordance with state and federal laws and regulations.	ERP Site 9 needs to be fully closed and closure accepted by CDPHE before construction begins (applies to Alternative 2 only).

TABLE 3-7
Best Management Practices

Resource	No Action Alternative Best Management Practices	Proposed Action and Alternatives 1, 2, and 3 Best Management Practice
Asbestos	Where WWII-era building debris might be present, sample and analyze soils in construction area for potential asbestos contamination.	Soils in all construction sites have been evaluated for potential asbestos contamination, no asbestos was detected or is likely to be present, and no further action is required.
Solid Waste and Pollution Prevention	Implement and maintain the P2 Program at Buckley AFB.	Minimize solid wastes and potential pollution from construction and operation of the VMF through participation in the Air Force P2 Program. To the extent feasible during construction, waste materials would be recycled, recycled-content materials would be procured, use of hazardous materials would be minimized, and any unused hazardous and non-hazardous materials and wastes would be removed at the conclusion of construction. Integrate sustainability principles in the design VMF and meet LEED™ certification for "green" (environmentally friendly) building construction by the following: • Locating buildings at least 100 ft away from any wetland. • Incorporating stormwater management. • Developing and implementing a construction waste management plan. • Specifying a minimum of 20 percent of building materials that are manufactured regionally (within a radius of 500 miles). • Specifying rapidly renewable building materials for 5 percent of total building materials. • If any wood is being used, specifying a minimum of 50 percent of wood-based materials certified in accordance with the Forest Stewardship Council Guidelines for wood building components. Minimize solid waste generation during construction by the following: • Procuring recycled-content materials. • Minimizing the use of hazardous materials. • Diverting eligible solid wastes to recycling. • Removing unused hazardous and non-hazardous materials.
Utilities	Implement and maintain the P2 Program at Buckley AFB. Continue basewide water conservation initiatives to reduce consumption of water.	Reduce natural gas requirements for heating by installing a used-oil boiler as part of the LEED™ certification. Minimize water consumption by selecting drought-tolerant vegetation and landscaping in accordance with the VMF requirements documents.

The No Action Alternative does result in adverse land use impacts both onbase and offbase. Cumulatively, if other planned projects were not implemented, serious land use conflicts could be encountered due to the uncoordinated, inefficient, and incompatible development on and off Buckley AFB. Other resources would not be affected by the No Action Alternative, so no cumulative impacts would occur.

3.11.2 Mitigation Measures

The Proposed Action and the action alternatives would continue to comply with procedures established by Buckley AFB. As shown in Table 3-8, no additional mitigation measures (in addition to the BMPs shown in Table 3-7) have been identified or would be required for implementation of the Proposed Action or alternatives.

TABLE 3-8
Summary of Mitigation Measures for Proposed Action and Alternatives

Resource	No Action Alternative	Proposed Action	Alternative 1	Alternative 2	Alternative 3
Land Use	None	None	None	None	None
Air Quality	None	None	None	None	None
Water Resources	None	None	None	None	None
Vegetation	None	None	None	None	None
Wildlife	None	None	None	None	None
Threatened, Endangered, and Other Sensitive Species	None	None	None	None	None
Hazardous Materials and Wastes	None	None	None	None	None
ERP Sites	None	None	None	None	None
Asbestos	None	None	None	None	None
Solid Waste and Pollution Prevention	None	None	None	None	None
Utilities	None	None	None	None	None

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7.0 Acronyms and Abbreviations

140 LGRVM	140th Logistics Readiness Squadron Vehicle Maintenance
140 WG	140th Wing
460 LGRVM	460th Logistics Readiness Squadron Vehicle Maintenance
460 SW	460th Space Wing
ac	acre
AFB	Air Force Base
AFI	Air Force Instruction
ANGH	Air National Guard Handbook
AQCR	Air Quality Control Region
BMP	best management practice
CAQCC	Colorado Air Quality Control Commission
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CO	carbon monoxide
DoD	Department of Defense
EA	environmental assessment
EIS	environmental impact statement
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ETL	Engineering Technical Letter
FONSI	Finding of No Significant Impact
ft	feet
ft^2	square feet

General Plan	*General Plan for Buckley Air Force Base*
ha	hectare
HAP	hazardous air pollutant
HWMP	hazardous waste management plan
IAP	initial accumulation point
kg	kilogram
LEED™	Leadership in Energy and Environmental Design
m	meter
MS4	Municipal Separate Storm Sewer Systems
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_x	nitrogen oxides
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
ODC	ozone-depleting chemical
P2	Pollution Prevention
PCB	polychlorinated biphenyl
PM_{10}	particulate matter with diameter of 10 microns or less
$PM_{2.5}$	particulate matter with diameter of 2.5 microns or less
POL	petroleum, oil, and lubricants
RCRA	Resource Conservation and Recovery Act
SO_2	sulfur dioxide
SO_x	sulfur oxides
SPCC	Spill Prevention and Countermeasure Control
SWPPP	stormwater pollution prevention plan
tpy	tons per year
USAF or Air Force	U.S. Air Force
VMF	vehicle maintenance facility
VOC	volatile organic compound
WWII	World War II

Appendix A
Air Force Form 813

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
CRWU043006

INSTRUCTIONS: *Section I to be completed by Proponent; Sections II and II to be completed by Environmental Planning Function. Continue on Separate Sheets as necessary. Reference appropriate item number(s).*

SECTION I - PROPONENT INFORMATION

1. TO (Environmental Planning Function)	2. FROM (Proponent organization and functional address symbol)	2a. TELEPHONE NO.
460 CES/CEV	460 CES/CEC	303-677-6819

3. TITLE OF PROPOSED ACTION
Vehicle Maintenance Facility

4. PURPOSE AND NEED FOR ACTION (*Identify decision to be made and need date).*
Construct a new 460 ABW vehicle maintenance facility. The 460 ABW wing shares vehicle maintenance space with the 140 Wing in bldg 340. Building 340 is inadequately designed and sized to house both functions. Vehicle administrative and vehicle washing are performed in building 940 that is in the airfield clear zone. The purpose of this project is to alleviate overcrowded maintenance conditions at building 340 and to relocate activities from within the airfield clear zone. Construction is required by 1 November 2004.

5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPPA) (Provide sufficient details for evaluation of the total action.
See attached

6. PROPONENT APPROVAL (*Name and Grade*)	6a. SIGNATURE	6b. DATE
Charles Nicely, GS-11	[signature]	7 Jan 2003

SECTIONII - PRELIMINARY ENVIRONMENTAL SURVEY. (*Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = Unknown effect.*	+	0	-	U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (*Noise, accident potential, encroachment, etc.*)		X		
8. AIR QUALITY (*emissions, attainment status, state implementation plan, etc.)* Fugitive dust during construction;			X	
9. WATER RESOURCES (Quality, quantity, source, etc.) Stormwater during and after construction			X	
10. SAFETY AND OCCUPATIONAL HEALTH (*Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)* Safety During construction			X	
11. HAZARDOUS MATERIALS/WASTE (*Use/storage/generation, solid waste, etc*). Use of hazardous materials during construction.			X	
12. BIOLOGICAL RESOURCES (*Wetlands/floodplains, flora, fauna, etc)* Potential adverse effects to prairie dogs and/or burrowing owls.			X	
13.CULTURAL RESOURCES (*Native American burial sites, archeological, historical, etc.)*		X		
14.GEOLOGY AND SOILS (*Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)*		X		
15.SOCIOECONOMIC (*Employment/population projections, school and local fiscal impacts, etc.)* Assuming the additional employees currently reside in the local commuting area.		X		
16.OTHER (*Potential impacts not addressed above.)*		X		

SECTION III - ENVIRONMENTAL ANALSIS DETERMINATION

17.		
		PROPOSED ACTION CUALIFIES FOR A CATEGORICAL EXCLUSION (CATEX #) _____: OR
	X	PROPOSED ACTION DOES NOT QULIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALSIS IS REQUIRED.

18. REMARKS

19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (*Name and Grade*)	19a. SIGNATURE	19b. DATE
Elise L. Sherva, GS-12	[signature]	1-8-03

AF Form 813 Continuation

Project Title: Vehicle Maintenance Facility

Proposed Action: Construct a new vehicle maintenance facility. The proposed project consists of 2 buildings and would be located in the Installation Support Area as depicted in the base's General Plan. A 16,533 SF building would house government vehicle maintenance and washing activities. A water recovery system would be provided at the vehicle wash area. A 3,627 SF building would house administrative, dispatch and training functions. Less than 20 personnel would work in the maintenance building. Less than 10 personnel would work in the administrative building. The facility would normally be operational 5 days per week approximately 10 hours per day.

1st Alternative Action: As above but with vehicle washing activities in a separate building. This alternative would include 3 buildings.

No Action Alternative: Do not construct a new Vehicle Maintenance Facility. The Vehicle maintenance facility would continue to be located in an incompatible land use area (building 340) and in the clear zone (building 940). The wash rack in building 940 would require upgrading to meet current regulations.

Appendix B
Agency Coordination Letters

DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

JUN 0 5 2007

Bruce James
460th Civil Engineer Squadron
660 South Aspen Street, Stop 86
Buckley AFB CO 80011-9551

Georgianna Contiguglia
State Historic Preservation Officer
Colorado History Museum
1300 Broadway
Denver CO 80203-2137

Dear Ms. Contiguglia

The Air Force is preparing an Environmental Assessment for the construction and operation of a New Vehicle Maintenance Facility (VMF) for the USAF 460th Space Wing and the Air National Guard 140th Wing. The proposed action analyzed in the New VMF Environmental Assessment (EA) is to construct and operate a VMF at Buckley Air Force Base (AFB). Under the No Action Alternative, the VMF would not be built. The No Action Alternative would not support the expanding missions at Buckley AFB and does not meet the project purpose and need. A figure that shows the proposed action and alternative locations is attached.

In compliance with Section 106 of the National Historic Preservation Act, Buckley Air Force Base has determined that the proposed action, and alternatives, would not have an adverse affect on historic properties. Cultural resources on Buckley AFB have been inventoried and analyzed for historic significance (Historic Building Inventory and Evaluation dated June 2004). No known archaeological resources are in, or near, the proposed sites. Known historic structure resources occur within the Area of Potential Effect (APE) of Alternative Sites 2 and 3. Building information, with the dates of construction in parenthesis, is outlined below. Attached is a map referencing the buildings and proposed sites. We are officially requesting consultation on this project.

Proposed Action Site:

- Buildings 1003, 1017, 1019, 1022, 1024, and 1025 were constructed or in place after 1990. Therefore, they are not eligible for inclusion on the National Register of Historic Places.

Alternative #1:

- Buildings 1003, 1017, 1019, 1022, 1024, and 1025 were constructed or in place after 1990. Therefore, they are not eligible for inclusion on the National Register of Historic Places.

Alternative #2:

- Buildings 801 (5AH2274) (1953) and 909 (5AH2276) (1956) Hangar Maintenance were determined to be eligible for inclusion on the National Register of Historic Places per formal consultation with your office dated 21 May 2004. The APE for construction of the Vehicle Maintenance Facility under the Alternative Site 2 would include Building 801 and 909. The second alternative site for the proposed action is located just north of Breckenridge Street and west of Wolf Creek Street on a 5.7-a (2.3-ha) parcel encompassing Building 940 and Building 902 (thrift shop) that are both scheduled for removal for other reasons. (Building 940 is in the Airfield Clear Zone, and Building 902 is excess.) Building 801 is located about 425 feet west of the proposed location for the new Vehicle Maintenance Facility and Building 909 is located 800 feet east from the new facility. Because of the alternative site's proximity to Buildings 801 and 909, consideration was given to the potential effect of the construction on Buildings 801 and 909's viewsheds. Building 801 and 909 are presently surrounded by several modern structures that are visible from the hangars. The new construction's one-story height has a lower profile than other buildings nearby and will not overwhelm the hangar's own architectural presence, nor impact its significant architectural characteristics. The probable inclusion of communications equipment (e.g., antennae) would also have no visual impact when viewed from the distance of the historic hangar. Furthermore, because the hangar's immediate setting has already changed from its historic period of significance (through the removal of a neighboring hangar to the east), and the hangar remains an integral part of an active military installation, the hangars' historic setting will not be adversely affected, nor will their NRHP eligibility. Review of the proposed construction footprint for the Vehicle Maintenance Facility under the proposed action indicates that this action would not directly affect any eligible historic structure. However, in compliance with Section 106 of the NHPA and the guidance proposed by the draft ICRMP, the 460 SW is requesting consultation with the State Historic Preservation Officer (SHPO) to ensure that the architecture of the new construction will be consistent with the Secretary of the Interior's Standards and Guidelines, and the general architectural standards of Buckley AFB.
- Buildings 800 (5AH2308) (1980), 814 (5AH2309) (1971), 850 (5AH2342) (1975), 937 (5AH2312) (1977), 940 (5AH2313) (1971), 950 (5AH2314) (1971), and 960 (5AH2315) (1976) were constructed after 1970. Therefore, they are not eligible for inclusion on the National Register of Historic Places.
- Buildings 830, 831, 838, 950, 940, 902, and 961 were constructed or in place after 1990. Therefore, they are not eligible for inclusion on the National Register of Historic Places.

Alternative #3:

- Building 405 (5AH2333) (1976) Satellite Communications Ground Terminal was determined to be eligible for inclusion on the National Register of Historic Places per formal consultation with your office dated 21 May 2004. The APE for construction of the Vehicle Maintenance Facility under the Alternative 3 would include Building 405. The third alternative site for the proposed action would enlarge Building 340, the current Vehicle Maintenance Facility, located east of Eldora Street, between Breckenridge Street and A-Basin Avenue. The area surrounding the building consists primarily of paved areas, weedy dirt areas, and some ornamental landscaping. Alternative 3 would require construction of additional maintenance bays, administrative facilities, and parking. Building 405 is located about 1090 feet north of the proposed location for the new Vehicle Maintenance Facility. Because of the alternative site's proximity to Buildings 405, consideration was given to the potential effect of the construction on Buildings 405's viewshed. Building 405 is presently surrounded by several modern structures that are visible from the satellite communications ground terminal. The new

construction's one-story height has a lower profile than other buildings nearby and will not overwhelm the terminal's own architectural presence, nor impact its significant architectural characteristics. Since the terminal remains an integral part of an active military installation, the terminal's historic setting will not be adversely affected, nor will its NRHP eligibility. Review of the proposed construction footprint for the Vehicle Maintenance Facility under the proposed action indicates that this action would not directly affect any eligible historic structure. However, in compliance with Section 106 of the NHPA and the guidance proposed by the draft ICRMP, the 460 SW is requesting consultation with the Colorado SHPO to ensure that the architecture of the new construction will be consistent with the Secretary of the Interior's Standards and Guidelines, and the general architectural standards of Buckley AFB.

- Buildings 316, 340, 342, 344, 347, 351 were constructed or in place after 1990. Therefore, they are not eligible for inclusion on the National Register of Historic Places.

Please provide written comments and/or concurrence to:

Floyd W. Hatch
460 CES/CEVP
660 S. Aspen Street, Mail Stop 86
Buckley AFB CO 80011-9551

If you have any questions please feel free to contact Mr. Floyd Hatch, Cultural Resources Manager 720-847-6937, email floyd.hatch@buckley.af.mil or Mr. Bruce James, Environmental Conservation and Planning Section Chief at 720-847-7245, email bruce.james@buckley.af.mil. A copy of the Draft Vehicle Maintenance Facility Environmental Assessment will be sent for your review in the near future.

Sincerely

BRUCE JAMES, YF-02
Chief, Environmental Conservation & Planning Section

Attachment
Location figure

COLORADO
HISTORICAL
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

June 20, 2007

Floyd W. Hatch
460th CES/CEVP
660 South Aspen Street, Stop 86
Buckley AFB, CO. 80011-9551

Re: Proposed Vehicle Maintenance Facility, Buckley AFB (CHS #47033)

Dear Mr. Hatch:

Thank you for your correspondences dated June 5, 2007 and received by our office on June 8, 2007 regarding Section 106 consultation under the National Historic Preservation Act (Section 106) for the above-mentioned project.

After review of the submitted information, we concur with the findings of *no adverse effect* under Section 106 for alternatives #1 and #2, providing that our office reviews the design of the proposed new construction.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties. If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,

Georgianna Contiguglia
State Historic Preservation Officer

RECEIVED
JUN 26 2007

COLORADO
HISTORICAL
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

June 25, 2007

Ms. Elizabeth Meyer
460 CES/CEVP
660 South Aspen Street (Stop 86)
Building 1005, Room 178
Buckley AFB CO 80011-9551

Re: Draft Environmental Assessment and Draft Finding of No Significant Impact for construction of a Vehicle Maintenance Facility at Buckley Air Force Base. (CHS #47033)

Dear Ms. Meyer

Thank you for your correspondence dated June 11, 2007 and received by our office on June 15, 2007 regarding the consultation of the above-mentioned project under Section 106 of the National Historic Preservation Act (Section 106).

On June 20, 2007 we responded to a letter dated June 5, 2007 regarding the proposed undertaking. We concur with the proposed finding of *no adverse effect* under Section 106 providing the SHPO reviews the design of the proposed new construction. According to your letter to our office dated June 15, 2007, you state that finding under Section 106 was "no effect." We wish to clarify that the consensus finding was no adverse effect for this undertaking.

If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CRF 60.4, in consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties. If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,

for Mark Wolfe
Georgianna Contiguglia
State Historic Preservation Officer

RECEIVED
JUL 3 2007

DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

Mr. Bruce James
Environmental Flight
460th Civil Engineering Squadron
660 South Aspen Street
Buckley AFB, CO 80011-9551

03 MAY 2007

Mr. Bruce Rosenlund
Colorado Field Supervisor
US Fish and Wildlife Service
134 Union Blvd., Suite 675
Lakewood, CO 80228-1807

Dear Mr. Rosenlund,

The Air Force has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the construction of a new Vehicle Maintenance Facility (VMF). The vehicle maintenance facility will be located on a vacant parcel near the intersection of two existing roads (Aspen Way and Camp Hale Way) on Buckley AFB. The new facility would provide vehicle maintenance functions for both the USAF and the Air National Guard. Vehicle maintenance for both organizations is currently performed out of Building 340, which is inadequately designed and sized to meet mission needs. Additionally, the Industrial land use is not compatible with the Community Support land use planned for this area. Constructing a new facility will provide a consolidated facility for vehicle maintenance, operations, and administrative functions; alleviate overcrowded maintenance conditions in Building 340 and support the development plans of the base *General Plan for Buckley AFB* (land use master plan).

The Air Force is requesting initiation of Section 7 consultation per the Endangered Species Act for the Environmental Assessment of the Vehicle Maintenance Facility construction project. We have assessed the potential effects of the proposed projects on federally listed and candidate species and determined that the proposed actions are not likely to adversely affect federally listed and candidate species.

If you have any questions please feel free to contact Floyd Hatch at 720-847-6937/ floyd.hatch@buckley.af.mil, Virginia Lightsey-Ceehorne at 720-847-6158/ virginia.lightsey@buckley.af.mil, or Bruce James at 720-847-7245/ Bruce.James@buckley.af.mil.

BRUCE JAMES
Chief, Environmental Planning & Conservation

STATE OF COLORADO

Bill Ritter, Jr., Governor
James B. Martin, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

http://www.cdphe.state.co.us

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

Colorado Department
of Public Health
and Environment

June 27, 2007

Ms. Elizabeth Meyer
460 CES/CEVP
660 South Aspen Street (Stop 86)
Building 1005, Room 178
Buckley AFB, CO 80011-9551

Dear Ms. Meyer:

Re: Draft Environmental Assessment (EA) for Proposed New Vehicle Maintenance Facility at Buckley Air Force Base, Colorado dated June 2007

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) has reviewed the above referenced document received June 18, 2007. The Division has no environmental concerns with the Proposed Action. However, the Division offers the following comments on the Alternatives:

Section 3.6.2.4, Alternative 2 – ERP Site 9 is not ready for no future action until additional soil sampling is conducted. Additionally, a TCE groundwater-contamination plume extends under the site. This will be investigated as part of the Armament and Automotive Area of Concern, a "Highest Priority Site" listed in the February 2007 Basewide Preliminary Assessment Report.

Sections 3.7.2.4, Alternative 2 and Section 3.7.2.5, Alternative 3 – According to a map provided by Buckley AFB (ww2 and new construction.mxd 1/21/03), Alternative 2 and possibly Alternative 3 are located in areas of WWII-era structures. Asbestos-containing materials are possible is these areas.

Please contact me at 303-692-3324 or ed.larock@state.co.us if there are any questions.

Sincerely,

Ed LaRock, P.G.
Environmental Protection Specialist
Hazardous Materials and Waste
Management Division

cc: Richard Lotz, AGO
Mark Spangler, Buckley Air Force Base
David Rathke, EPA Region 8
File D003-1.1

DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

JUL 2 7 2007

Bruce James
Environmental Flight, 460th Civil Engineer Squadron
660 S. Aspen St., Stop 86
Buckley AFB, CO 80011-9551

Ed LaRock
Hazardous Materials and Waste Mngt. Division
Colorado Dept. of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Mr. LaRock

Thank you for your letter, dated 27 June 2007, on the Vehicle Maintenance Facility Environmental Assessment (EA) and Finding of No Significant Impact (FONSI).

Your comments on Site 9 in Alternative 2 have been incorporated into the EA. In response to your comments on asbestos-containing material (ACM), any ACM that is discovered during construction would be handled and disposed in accordance with all applicable Federal, state, and local laws, regulations, and policies.

Please contact Ms. Elizabeth Meyer, NEPA Program Manager, at 720-847-7159 or elizabeth.meyer@buckley.af.mil, if you have any questions or require further information.

Sincerely

BRUCE JAMES, YF-02
Chief, Planning and Conservation

DEPARTMENT OF THE AIR FORCE
460TH SPACE WING (AFSPC)

JUN 15 2007

Mr. Bruce James
460th Civil Engineer Squadron
660 South Aspen Street
Buckley AFB CO 80011-9551

Ms. Patricia Mehlhop
US Fish & Wildlife Service
134 Union Blvd., Suite 645
Lakewood, CO 80228-1807

U.S. FISH AND WILDLIFE SERVICE
☐ CONCUR NO EFFECT
☐ CONCUR NOT LIKELY TO ADVERSELY AFFECT
☒ NO COMMENT
6/3/07
COLORADO FIELD SUPERVISOR (DATE)
Susan C. Linner

Dear Ms. Mehlhop

The US Air Force (USAF) has prepared a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) to construct a Vehicle Maintenance Facility at Buckley Air Force Base (AFB). The VMF is one of a number of facilities completed, planned, or under construction at the base to achieve the overall goal of developing a former Air National Guard base into a fully functioning, active-duty AFB.

The VMF would be located on a vacant parcel near the intersection of two existing roads (Aspen Street and Camp Hale Way) on Buckley AFB. The new VMF would provide vehicle maintenance functions for both the USAF and Air National Guard. Vehicle maintenance for both organizations is currently performed in a building (Building 340) that is inadequately designed and sized to meet mission needs. Additionally, the Industrial land use of the current building location is not compatible with the Community Support land use planned for this area. Constructing a new facility will provide a consolidated facility for vehicle maintenance, operations, and administrative functions; alleviate overcrowded maintenance conditions in Building 340; and support the development plans of the base *General Plan* (land use master plan).

The Draft EA and Draft FONSI are attached for your information, review, and comment. The comment period for this EA is 30 days. Please provide any written comments to:

Ms. Elizabeth Meyer
460 CES/CEVP
660 South Aspen Street (Stop 86)
Building 1005, Room 178
Buckley AFB CO 80011-9551

If you have any questions, please feel free to contact Ms. Elizabeth Meyer at 720-847-7159.

Sincerely

BRUCE R JAMES
Chief, Environmental Planning

Appendix C
Draft Phase II Environmental Assessment of the Proposed Vehicle Maintenance Facility

Draft

Phase II Environmental Assessment of the Proposed Vehicle Maintenance Facility, Buckley Air Force Base

Prepared for

Buckley Air Force Base

Aurora, Colorado

January 2006

CH2MHILL

9193 South Jamaica Street
Englewood, CO 80112-5946

List of Acronyms

AFCEE	Air Force Center for Environmental Excellence
CDPHE	Colorado Department of Public Health and Environment
COC	Chain of Custody
DPT	Direct Push Technology
EA	Environmental Assessment
GPS	Global Positioning System
ND	Nondetect
PID	Photoionization detector
PLM	Polorarized light microscopy
SAP	Sampling and Analysis Plan
VMF	Vehicle Maintenance Facility

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Introduction

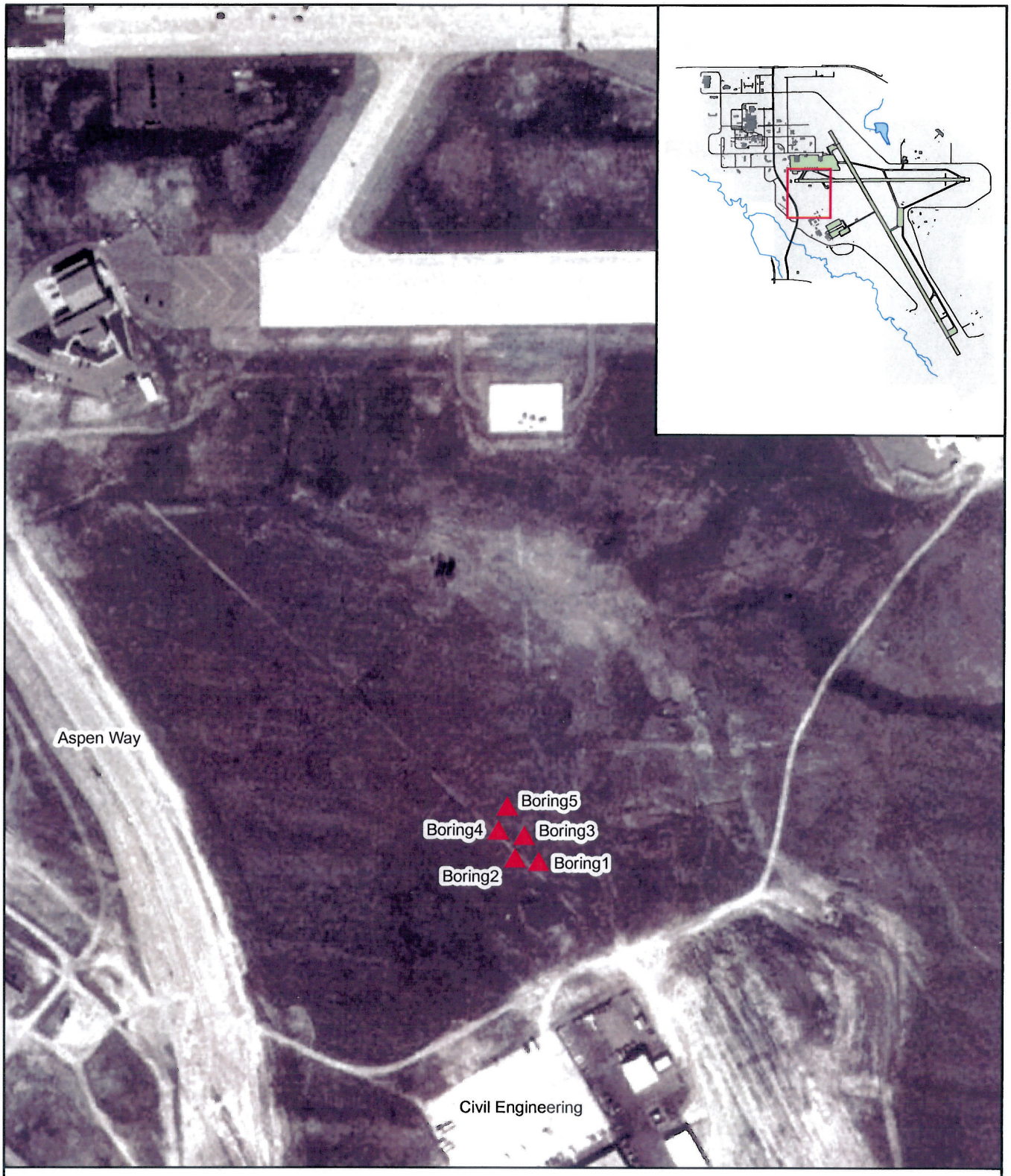
This Report was prepared by CH2M HILL under Modification 03 of Air Force Center for Environmental Excellence (AFCEE) contract F41624-03-D8595-0178. The Report outlines activities performed as part of the Phase II Environmental Assessment (EA) at the proposed Vehicle Maintenance Facility (VMF) at Buckley Air Force Base (Buckley) in Aurora, Colorado (Figure 1). The purpose of the Phase II EA was to further assess if chemical or other contamination is present in the soil in and around the building footprint.

Aerial photographs were reviewed at approximately ten year intervals from Buckley's inception to the present. In the photographs, the VMF site was revealed to be undeveloped land. Due to the ten year time gap between photographs, it is difficult to infer if activities such as construction debris stock piling may have occurred on the VMF site resulting in possible asbestos or chemical contamination of the underlying soil.

The Phase II EA consisted of advancing and collecting soil from five direct-push technology (DPT) boreholes with maximum depths not exceeding 10 feet. Evidence of chemical or other contamination was evaluated during the sampling event using visual and odor characteristics of the soil. Soil samples were collected from beneath the surface (0 to 2 feet) and from the subsurface (8 to 10 feet). The samples were then sent to an independent laboratory for asbestos analysis, as low levels of asbestos in soil are not readily identified by visual screening.

The object of the Phase II EA was to determine if chemical or other contamination is present in soils associated with the VMF. The following scenarios were outlined in the Sampling and Analysis Plan (SAP) to determine how to proceed with the project:

- If visual or odor indications during soil sampling indicated the potential presence of chemical or other contamination, additional investigation would need to be performed to determine the nature and extent of contamination.
- If asbestos is detected at any concentration including trace levels, it is considered to be an asbestos-contaminated soil. Another investigation will need to be performed to determine the extent of the asbestos-contaminated soil; however this additional work is not covered under this contract modification.
- If chemical or other contamination is not detected during the investigation, the site and project can proceed through the remainder of the design process.



Explanation

- Roads
- Drainages
- Water Bodies
- Buildings
- Airfield
- Base Boundary
- Sample Locations, 9/16/2005

CH2MHILL

N
W E
S

Feet
0 150 300
1 inch equals 300 feet

Figure 1
Buckley AFB - Vehicle Maintenance Facility
Site and Sample Location Map

Phase II EA

To complete the Phase II EA, field activities were performed to determine if chemical or other contamination is present at the site. Soil samples were collected on September 16, 2005. The Phase II activities are discussed in the following paragraphs.

Health and Safety Plan

Prior to completion of field activities, CH2M HILL prepared a Health and Safety Plan for the Phase II EA. The Health and Safety Plan recommended that Modified Level D Personal Protective Equipment be worn, including an asbestos air sampling device. In addition, utilities were cleared through Buckley Air Force Base Civil Engineering. Work order number B4052 was issued.

Field Methods

CH2M HILL subcontracted ESN-RM of Golden, Colorado, to advance five borings using the DPT method. Soil samples were collected with a macro sampler utilizing acetate liners. Locations for the borings were determined by utilizing the current footprint of the proposed building, staking the centerline in the field and placing five boring locations approximately 33 feet apart and 20 to 25 feet to the left and right of the centerline.

On September 16th, 2005, the field team collected five surface and subsurface soil samples from the site. A map of soil boring locations is provided in Figure 1. Soil samples B1-1, B2-1, B3-1, B4-1, and B5-1 were collected from the surface while samples B1-2, B2-2, B3-2, B4-2 and B5-2 were collected from the subsurface. Observations recorded in the field logbook are included in Appendix A.

CH2M HILL provided a staff member on site to oversee the investigation and to qualitatively evaluate the soil borings for the presence of chemical contamination, using staining and odor indicators. A photoionization (PID) detector was on hand, in the event either was observed. CH2M HILL subcontracted Family Environmental, a certified asbestos contractor located in Denver, Colorado, to collect grab samples from beneath the surface (0 to 2 feet approximately below ground surface) and subsurface (8 to 10 feet approximately below ground surface) and place the samples into a zip lock bag provided by the laboratory, Analytica Solutions, Inc., Thorton, Colorado. A total of 10 field samples and one blind field duplicate were collected. A global positioning system (GPS) was utilized to obtain geographic coordinates for the boring locations after the sampling was completed.

Laboratory Analytical Results

Soil Sample Results

The soil borings were evaluated qualitatively for the presence of staining and odor, indicators of chemical contamination. Neither was observed in the soil borings and the PID was not needed. Based upon the lack of evidence via visual observation and field screening for non-asbestos debris or other chemical contamination, no laboratory analysis was performed.

Samples were collected from the soil borings and analyzed for asbestos. Analytical reports by Analytica Solutions, Inc., Thorton, Colorado are included in Appendix B and the sample chain of custody (COC) is included in Appendix C. Samples B1-1, B2-1, B3-1, B4-1, B1-2, B2-2, B3-2, B4-2 and B5-2 were analyzed for asbestos fiber content and other fibrous materials, including: fibrous glass, cellulose, synthetics and other, nondescript, fibrous materials by Polarize Light Microscopy (PLM) using EPA 600/R-93/116 Test Method: Method for Determination of Asbestos in Bulk Building Materials. The results were verified by the CH2M HILL Project Chemist. Table 1 lists a summary of the results of the surface and subsurface soil samples.

TABLE 1
Proposed VMF Site
Surface and Subsurface Soil Sample Results

Location ID	Sample Depth (feet below ground surface)	Asbestos (% by volume)	Cellulose (% by volume)	Nonfibrous Material (% by volume)
B1-1	0 to 2	ND[1]	1.0	99.0
B1-2	8 to 10	ND	Trace (<1)	99.5
B2-1	0 to 2	ND	1.0	99.0
B2-2	8 to 10	ND	Trace (<1)	99.5
B3-1	0 to 2	ND	2.0	98.0
B3-2	8 to 10	ND	0.0	100.0
B4-1	0 to 2	ND	3.0	97.0
B4-2	8 to 10	ND	Trace (<1)	99.5
B5-1	0 to 2	ND	1.0	99.0
B5-2	8 to 10	ND	Trace (<1)	99.5
B6-1[2]	0 to 2	ND	1.0	99.0

[1]ND = Non Detect

[2]Sample B6-1 is a field duplicate for B3-1

Conclusions

A Phase II EA was performed on the proposed VMF site on September 16, 2005, to further assess if chemical or other contamination is present in the soil in and around the building footprint. Five borings were advanced to 10 feet below ground surface and two samples were collected from each core; one surface soil sample from 0- to 2-feet and one subsurface sample from 8- to 10-feet. One field duplicate sample was collected for quality assurance. The cores were qualitatively evaluated for the presence of staining and odor, and soil samples collected were analyzed for asbestos fiber content and other fibrous materials, including: fibrous glass, cellulose, synthetics and other, nondescript, fibrous materials by Polarized Light Microscopy (PLM) using EPA 600/R-93/116 Test Method: Method for Determination of Asbestos in Bulk Building Materials.

The evaluation of the Phase II EA field and analytical results revealed the following data:

- Soil samples were qualitatively evaluated for the presence of staining and odor. Neither was observed in the soil borings.
- Asbestos was not detected in the soil samples associated with this Phase II EA. Cellulose was the only fibrous material detected in the samples.

Special Terms and Conditions

This report has been prepared for the exclusive use by AFCEE for specific application to the property as described in the report. No warranty, expressed or implied, is made. There are no beneficiaries of this report other than AFCEE, and no other person or entity is entitled to rely upon this report without the written consent of CH2M HILL and a written agreement limiting CH2M HILL's liability.

CH2M HILL is not responsible for any claims, damages, or liabilities associated with the interpretation of these findings or reuse of the analysis, associated site data, or recommendations without the expressed written authorization of CH2M HILL.

Limitations of this assessment may not be altered or waived without written consent of CH2M HILL.

This is a technical report and is not a legal representation or interpretation of environmental laws, rules, regulations, or policies of local, state, or federal governmental agencies. CH2M HILL makes no representation regarding whether this investigation constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice," as defined under Section 101(35)(B) CERCLA.

CH2M HILL assumes no responsibility for conditions we are not authorized to investigate or conditions not generally recognized as environmentally unacceptable when services were performed.

Any opinions or recommendations presented herein apply to site conditions existing when services were performed. CH2M HILL is unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces.

The degree and quality of the information contained in this report is the result of a limited scope of work and a limited fee, as directed by CH2M HILL's client.

No investigation is thorough enough to exclude the presence of hazardous substances at a given site. If hazardous substances or hazardous conditions have not been identified during the assessment, such a finding should not therefore be construed as a guarantee of the absence of such substances or conditions but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

APPENDIX A

Buckley AFB Work Order

BASE CIVIL ENGINEERING WORK CLEARANCE REQUEST *(See Instructions on Reverse)*	DATE PREPARED 11 July 2005

1. Clearance is requested to proceed with work at New Vehicle Maintenance Facility Ground Sample.
on Work Order No. B4052, Contract No. ______, involving excavation or utility disturbance per attached sketch. This area ☐ has ☒ has not been staked or clearly marked.

2. TYPE OF FACILITY/WORK INVOLVED

☐ A. PAVEMENTS	☐ D. FIRE DETECTION & PROTECTION SYSTEMS			☐ G. AIRCRAFT OR VEHICULAR TRAFFIC FLOW
☐ B. DRAINAGE SYSTEMS	☐ E. UTILITY	☐ OVERHEAD	☐ UNDERGROUND	☐ H. SECURITY
☐ C. RAILROAD TRACKS	☐ F. COMM	☐ OVERHEAD	☐ UNDERGROUND	☒ I. OTHER

3. DATE CLEARANCE REQUIRED	4. DATE OF CLEARANCE	
For week of 18 July 05 Work		
5. SIGNATURE OF REQUESTING OFFICIAL: James R Emery James Emery	6. TELEPHONE NO. 303/907-4977	7. ORGANIZATION 460 CES

8. ORGANIZATION	REMARKS (Use Reverse for additional comments)	REVIEWER'S NAME AND INITIALS
BASE CIVIL ENGINEERING		
A. ELECTRICAL DISTRIBUTION	New electric line See remarks. OK Check with JBI contractor	Call first. G.L. Gilley x 9916
B. STEAM DISTRIBUTION	N/A	R. [signature]
C. WATER DISTRIBUTION		
D. POL DISTRIBUTION		
E. SEWER DISTRIBUTION		
F. ENVIRONMENTAL	OK	Floyd W. [signature]
G. PAVEMENTS/ GROUNDS	N/A	[signature]
H. FIRE PROTECTION	Bldg. 806 Mr. Young ext. 9926 OK	[signature]
I. ZONE ______		
J. OTHER *(Specify)*		
9. SECURITY POLICE	Bldg. 620 TSgt. Bishop ext. 9593 N/A	[signature]
10. SAFETY	Bldg. ~~600~~ 1030 ~~Mr. Harder ext. 9335~~ SAFETY	James [signature]
11. COMMUNICATIONS	Bldg. 730 Mr. Starcevich ext. 6666	[signature]
12. BASE OPERATIONS	Bldg. 909 Crane + boom need flag + light Karen Larsen ext. 9731	Karen Larsen
13. CABLE TV		
14. COMMERCIAL UTILITY COMPANY ☐ TELEPHONE ☐ GAS ☐ ELECTRIC		

15. OTHER *(Specify)* 5 - 10 FT Deep drill rig borings. (environmental Samples)

16. REQUESTED CLEARANCE ☒ APPROVED ☐ DISAPPROVED

17. TYPED NAME AND SIGNATURE OF APPROVING OFFICER *(Chief of Operations Flight or Chief of Engineering Flight)*	17a. DATE SIGNED
PATRICK O. FOWLER II, USAF Deputy Operations Flight [signature]	7-15-05

AF IMT 103, 19940801, V3 — PREVIOUS EDITIONS ARE OBSOLETE.

INSTRUCTIONS

The BCE work clearance request is used for any work (contract or in-house) that may disrupt aircraft or vehicular traffic flow, base utility services, protection provided by fire and intrusion alarm system, or routine activities of the installation. This form is used to coordinate the required work with key base activities and keep customer inconvenience to a minimum. It is also used to identify potentially hazardous work conditions in an attempt to prevent accidents. The work clearance request is processed just prior to the start of work. If delays are encountered and the conditions at the job site change (or may have changed) this work clearance request must be reprocessed.

18. REMARKS. *(This section must describe specific precautionary measure to be taken before and during work accomplishment. Specific comments concerning the approved method of excavation, hand or powered equipment, should be included.)*

ON 19 July Called JBI, Ira Kelly at 303/961-0315 and met "Travis" in the field at VMF location to show him boring locations. He said we were far enough away from new COMM & ELECT. Lines, both in same 4 FT wide trench.

ON 11 AUG 05, this Dig Permit renewed for another 30 day period.

ON 8 SEPT 05, this Dig Permit renewed again for another 30 day period.

ON 13 SEPT, I was informed (and shown "GeoBase - Buckley CEV CEC") that Locates future structures relative to exist. Buildings. I had installed boring location pin flags ~ 200 FT too far to the East. Reset pinflags on 14 SEPT.
See a Map "ArcIMS Viewer" printed on 9/14/05

CIVIL ENGINEERING WORK ORDER Date: 20050713 Time: 0808

Work Order: CRWUA B4052 Title: LOCATE UTILITIES FOR DIGG SI Code: Status: R
Facility #: CRWU 99000 Work Zone: Gen/Senior Qtrs:
Fac Mgr: Phone #: Orgn:

Requestor: JAMES EMERY Phone #: 303-907-4977 Orgn: 460 CIVIL EN
Location: Cust Code: 420

Service (Work Description)

LOCATE UTILITIES FOR DIGGING PERMIT - NEW VEHICLE MAINTENANCE FACILITY

EPS Noun: EPS TTS: Est Hours:
Type Service: ROUTINE DIN Truck #:
Commit Date: 20050812 Adjusted Commit Date: 20050812

Shops		Name	Actual Hours	Status
453	PB	UTILITIES		OPEN
472	ET	ELECTRICAL		OPEN

Work Order Remarks

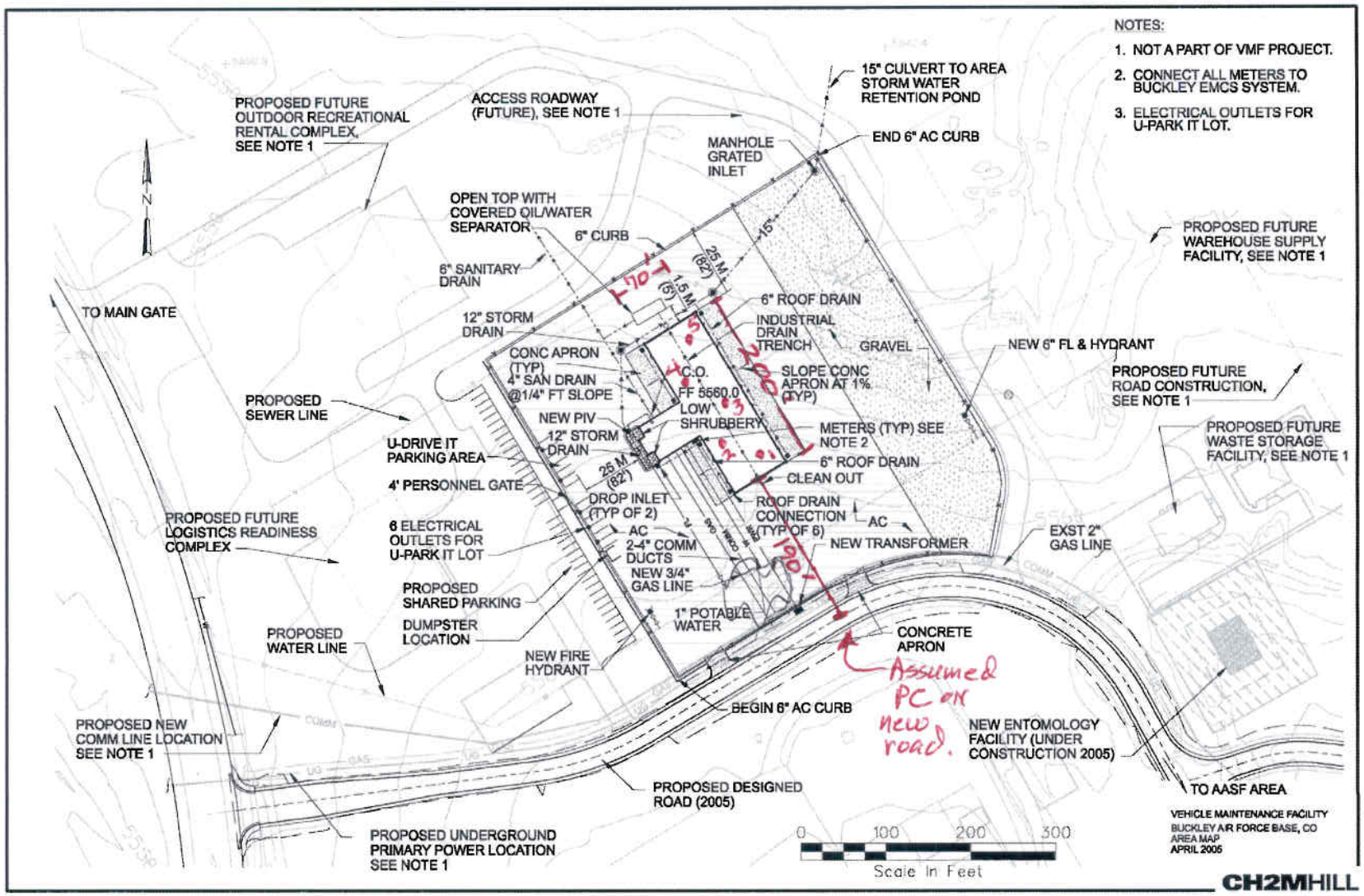
Work Order: CRWUAB4052 LOCATE UTILITIES FOR DIGGING P

There aren't any remarks

Organization	Remarks/Date Marked	Reviewer's Name and Initials
A. Electrical Distribution - MSgt Goff		[illegible]
B. Natural Gas — Ray Wett	ok to dill	
C. Water Distribution		RW
D. POL Distribution		9915
E. Sewer Distribution		
F. Environmental - Earl	OK	[illegible]
G. Pavements/Grounds - SSgt Gooden	N/A	[illegible]
E. Communications	Duct Bank NEAR [illegible]	[illegible]
Name and Signature of Approving Officer (Operations Flight Chief, Deputy or Senior Enlisted Manager) PATRICK O. FOWLER II, USAF Deputy Operations Flight		Date Signed 8-11-05

Organization	Remarks/Date Marked	Reviewer's Name and Initials
A. Electrical Distribution	OK	[illegible]
B. Natural Gas	N/A	[illegible]
C. Water Distribution		
D. POL Distribution		
E. Sewer Distribution		
F. Environmental	OK	J. Wade
G. Pavements/Grounds	N/A	[illegible] 9-8-05
E. Communications	OK	[illegible]
Name and Signature of Approving Officer (Operations Flight Chief, Deputy or Senior Enlisted Manager) PATRICK O. FOWLER II, USAF Deputy Operations Flight		Date Signed 9-8-05

Organization	Remarks/Date Marked	Reviewer's Name and Initials
A. Electrical Distribution		
B. Natural Gas		
C. Water Distribution		
D. POL Distribution		
E. Sewer Distribution		
F. Environmental		
G. Pavements/Grounds		
E. Communications		
Name and Signature of Approving Officer (Operations Flight Chief, Deputy or Senior Enlisted Manager)		Date Signed

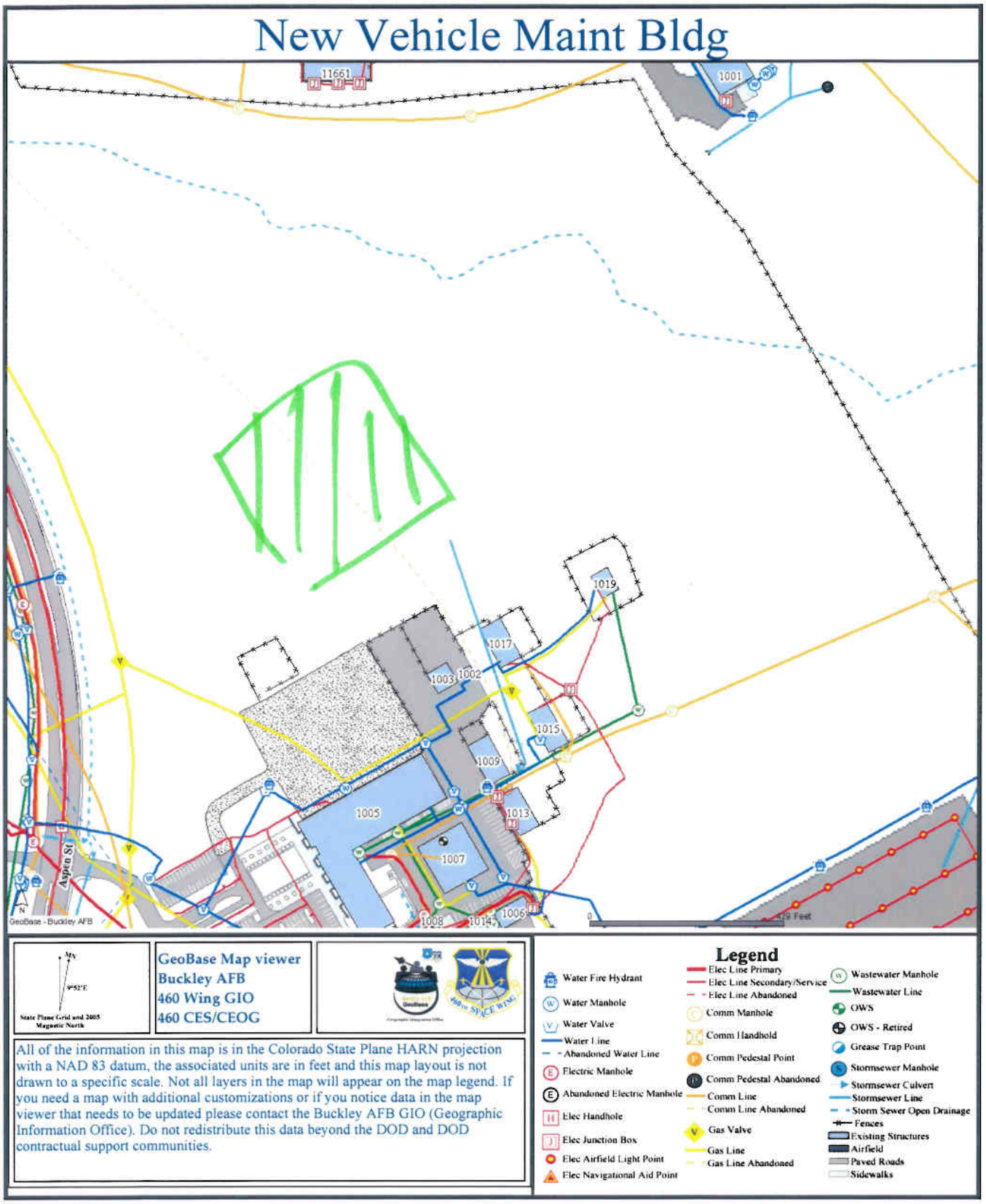


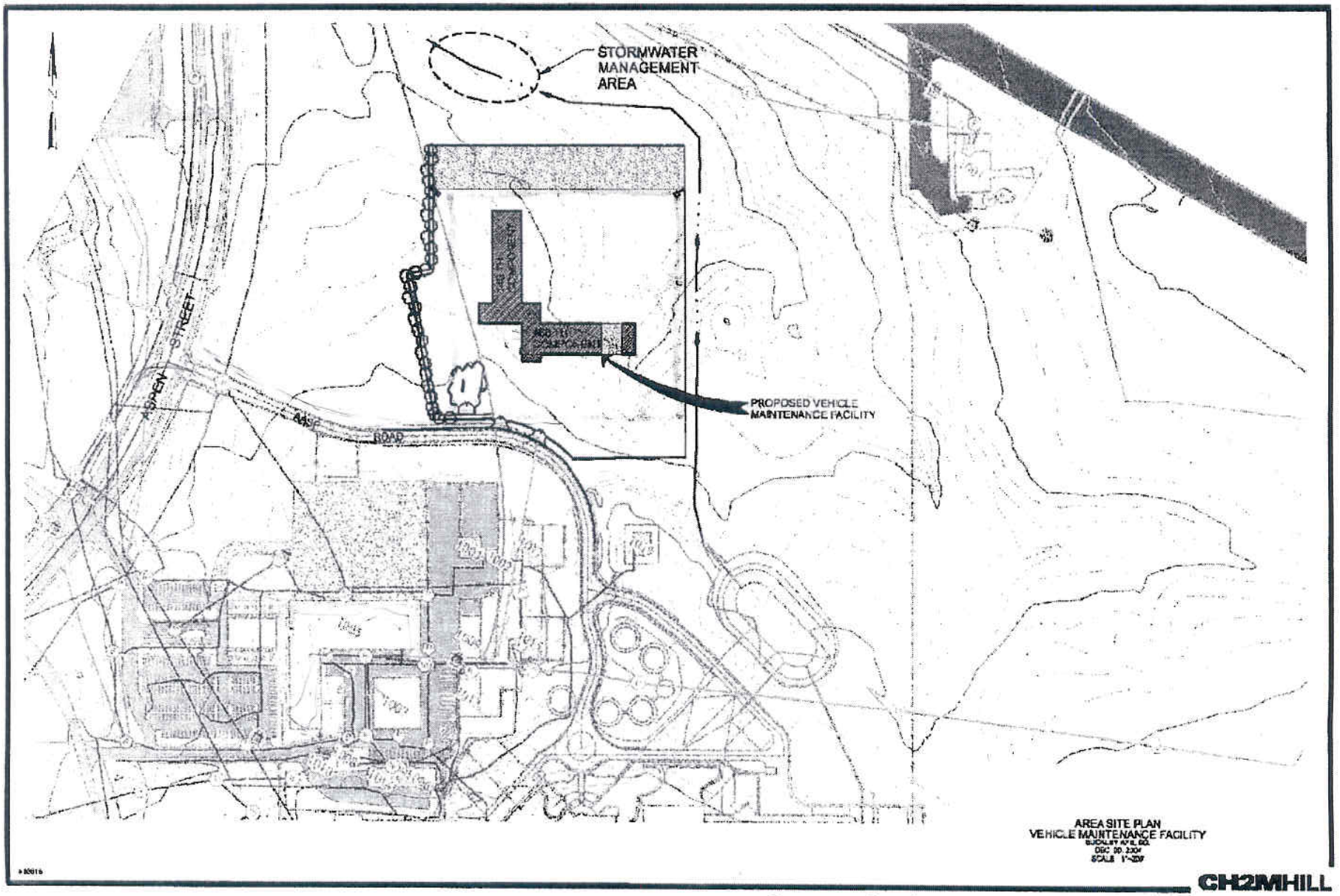
B1 thru B5 are ~33 FT apart and 20 to 25 FT Left and Right of BLDG. ℄

1.63" = 300 FT

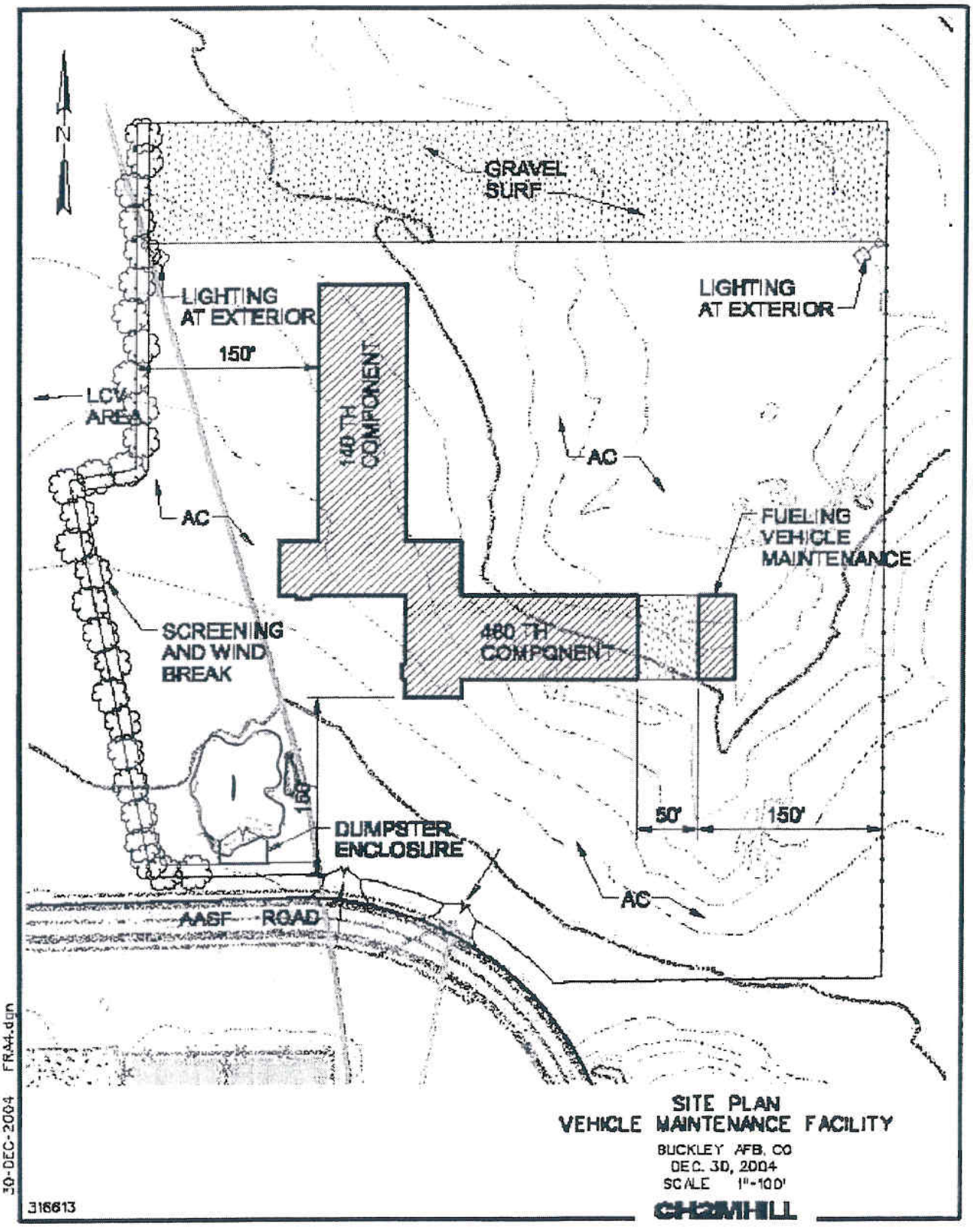
1" = 184 FT

New Vehicle Maint Bldg

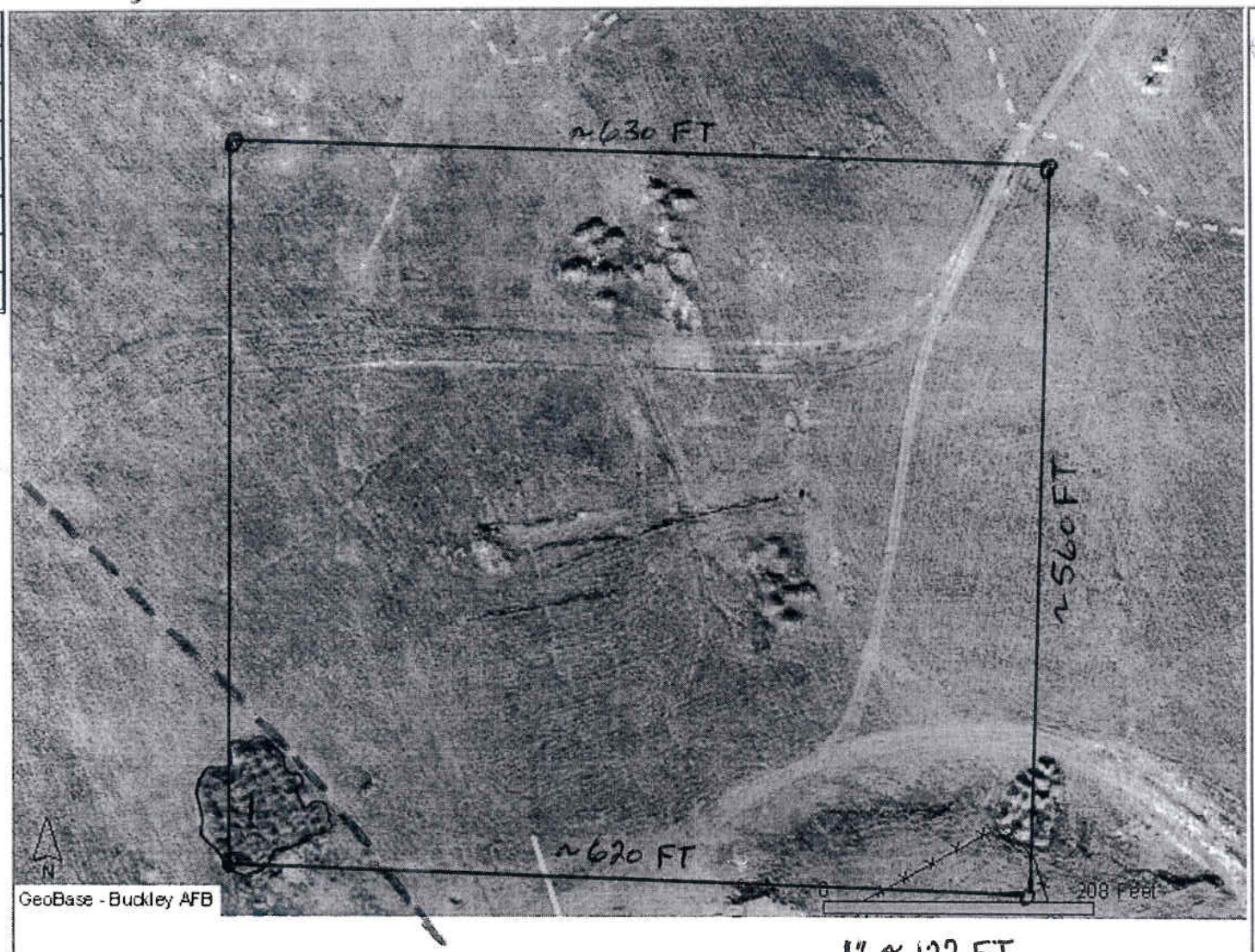




Notice that Red outlined area identified as a "1" is consistant on all 3 attached maps.


N
GRAVEL SURF
LIGHTING AT EXTERIOR
LIGHTING AT EXTERIOR
150'
LCV AREA
140 TH COMPONENT
AC
AC
FUELING VEHICLE MAINTENANCE
SCREENING AND WIND BREAK
460 TH COMPONENT
150'
DUMPSTER ENCLOSURE
50'
150'
AC
AASF ROAD
SITE PLAN
VEHICLE MAINTENANCE FACILITY
BUCKLEY AFB, CO
DEC. 30, 2004
SCALE 1"=100'
CH2MHILL
316613
30-DEC-2004 FRA4.dgn

Buckley Geobase Viewer Utilities



LAYERS

- All Layers
  - DP Grid Group
    - DP Grid Point
    - DP Grid Area
    - DP Grid Text
  - Dig Permit Group
    - Dig Permit Poin
  - Water Group
    - Water Fire Hydr
    - Water Manhole
    - Water Valve
    - Water Line
  - Electric Group
    - Elec Manhole
    - Elec Handhole
    - Elec Junction Bo
    - Elec Airfield Ligl
    - Elec Navigation
    - Elec Line
  - Comm Group
    - Comm Manhole
    - Comm Handhol
    - Comm Pedestal
    - Comm Line
  - Gas Group
    - Gas Valve
    - Gas Line
  - Wastewater Group
    - Wastwater Man
    - Wastewater Lin
    - Oil/Water Separ
    - Grease Trap Po
  - Stormsewer Group
    - Stormsewer Ma
    - Stormsewer Cul
    - Stormsewer Lin
    - Stormsewer Op
    - Stormsewer Dra
  - Basemap Group

Pan

APPENDIX B

Field Notes

16 SEPT 2005, Friday.

0815 Arrive gas station meeting place @ Airport BLVD & 6th AVE.

0835 Meet up with 3 workers.
2 from ESN-RM, Bill & Toby
1 from Family ENV., Greg.

0855 Arrive North Gate (6th AVE) Visitors center to get day pass for the 3 and their Vehicles.

0915 Obtain day passes from Visitors' center. Proceed to South gate.

0935 Get cleared thru South gate, proceed to site.

1005 ESN-RM has a lug trailer so they off load crawler mounted DP-66 geoprobe & crawl

9/16/05

to VMF foot print site.

1010 Have H&S meeting, Sign off on plan and orient to site and the 5 boring locations.

Greg sets up for 3 air sampling devices for their personal breathing zones, all 3 set at ~ 1.5 LPM.

ESN-RM also has a PID, a mini-RAE Classic Plus S/N 103843.

Crew sets up at B-1 will sample 2 intervals at each location unless Contaminates are seen at other intervals.
0 to 2 FT and
8 to 10 FT.

1015 Begin direct push at B-1.

9/16/05

Obtain sample B1-1 from interval 0 to 2 FT. @ 1015 hrs.

1030 obtain Sample B1-2 @ 8 to 10 FT.
TD B1 was 10 ft bgs.

1045 obtain sample B2-1 @ 0 to 2 FT.

Driller reports a real Hard Layer at ~ 3ft bgs. First run recovery is only ~ 2 to 3 ft length of soil in Liner.

1054 Obtain Sample B2-2 @ 8 to 10 FT bgs.

1108 obtain sample B3-1 @ 0 to 2 FT. This will also be the blind duplicate

9/16/05

Sample that we will call "B6-1" with a made up time of 1300 hrs.

1119 obtain sample B3-2 @ 8 to 10 Ft bgs.

1123 obtain Sample B4-1 @ 0 to 2 FT.

1135 obtain Sample B4-2 @ 8 to 10 FT.

1157 obtain Sample B5-1 @ 0 to 2 FT.

1159 obtain Sample B5-2 @ 8 to 10 FT.

1200 Intrusive activities cease. Greg shuts off personal air Sampliers.

9/16/05

1215 Greg (Family Env.) departs site & BAFB.

ESN-RM crawls the geoprobe back to parked trailer. Driller helper fills probe holes with bentonite pellets.

1245 ESN-RM packs up equipment and departs site, base.

I Sign Job ticket. Wait for John D. for GPS of the 5 locations.

1305 John D. Arrives VMF site. We shoot in boring locations with GPS.

1330 John D departs site I depart site (BAFB) for Lab.

9/16/05

1406 Arrive ANALYTICA Lab & relinquish custody of 11 soil samples.

1415 Depart Lab

~~1315~~

1515 END of Day. (74 miles POV)

APPENDIX C

Analytical Data

Analytica Solutions, Inc.
12189 Pennsylvania Street
Thornton, Colorado 80241
(303) 469-8868
(800) 873-8707
Fax: (303) 469-5254

September 30, 2005

Ms. Kay Dry
CH2M Hill
9189 S. Jamaica St.
Englewood, CO 80112-

Re: LGN 351242 Project: BAFB-VMF, Job #316613.01.04

Dear Ms. Kay Dry:

The bulk samples recently submitted to our laboratory have been analyzed by polarized light microscopy (PLM), the EPA-recommended method for identification of fibrous constituents in building materials. The results of these analyses are summarized in the enclosed table. Also enclosed is a copy of documentation submitted with your samples.

If you have any technical questions concerning these analyses, please feel free to call me. All other calls should be directed to our Customer Service Representatives.

Sincerely,

Daryl M Nikki (for)

Nikki MacDonald
Laboratory Manager

Enclosures

Analytica Solutions, Inc.
12189 Pennsylvania Street
Thornton, Colorado 80241
(303) 469-8868
(800) 873-8707
Fax: (303) 469-5254

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY (PLM)

Client: **CH2M Hill**

LGN: **351242**

Project ID: **BAFB-VMF, Job #316613.01.04**

Sample Description:

Sample Number	Sample Date	Description
B1-1	09/16/2005	0 to 2 ft [brown soil]
B1-2	09/16/2005	8 to 10 ft [brown soil]
B2-1	09/16/2005	0 to 2 ft [brown soil]
B2-2	09/16/2005	8 to 10 ft [brown soil]
B3-1	09/16/2005	0 to 2 ft [brown soil]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	B1-1	B1-2	B2-1	B2-2	B3-1
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile					
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	ND	ND	ND	ND	ND
Other Fibrous Materials:					
Fibrous Glass					
Cellulose	1.0	Trace <1%	1.0	Trace <1%	2.0
Synthetics					
Other:					
Percent Nonfibrous Material	99.0	99.5	99.0	99.5	98.0

Analyst: Nikki MacDonald

Nikki MacDonald

Date: 09/30/2005

Analytica Solutions, Inc.
12189 Pennsylvania Street
Thornton, Colorado 80241
(303) 469-8868
(800) 873-8707
Fax: (303) 469-5254

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY (PLM)

Client: **CH2M Hill** LGN: **351242**

Project ID: **BAFB-VMF, Job #316613.01.04**

Sample Description:

Sample Number	Sample Date	Description
B3-2	09/16/2005	8 to 10 ft [brown soil]
B4-1	09/16/2005	0 to 2 ft [brown soil]
B4-2	09/16/2005	8 to 10 ft [brown soil]
B5-1	09/16/2005	0 to 2 ft [brown soil]
B5-2	09/16/2005	8 to 10 ft [brown soil]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	B3-2	B4-1	B4-2	B5-1	B5-2
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile					
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	ND	ND	ND	ND	ND
Other Fibrous Materials:					
Fibrous Glass					
Cellulose		3.0	Trace <1%	1.0	Trace <1%
Synthetics					
Other:					
Percent Nonfibrous Material	100	97.0	99.5	99.0	99.5

Analyst: Nikki MacDonald
Nikki MacDonald

Date: 09/30/2005

Analytica Solutions, Inc.
12189 Pennsylvania Street
Thornton, Colorado 80241
(303) 469-8868
(800) 873-8707
Fax: (303) 469-5254

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY POLARIZED LIGHT MICROSCOPY (PLM)

Client: **CH2M Hill**

LGN: **351242**

Project ID: **BAFB-VMF, Job #316613.01.04**

Sample Description:

Sample Number	Sample Date	Description
B6-1	09/16/2005	0 to 2 ft [brown soil]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	B6-1				
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile					
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	ND				
Other Fibrous Materials:					
Fibrous Glass					
Cellulose	1.0				
Synthetics					
Other:					
Percent Nonfibrous Material	99.0				

Analyst: Nikki MacDonald

Date: 09/30/2005

APPENDIX D

Chain of Custody for Samples

ANALYTICA GROUP

Sample Data Sheet

Analytica Solutions, Inc.
12189 Pennsylvania Street
Thornton, Colorado 80241-3115
(303) 469-8868
FAX: (303) 469-5254
www.analyticagroup.com

LGN: 351242 *(for Analytica internal use only)*

Contact: Ms. Kay Dry
Company: CH2M Hill
Address: 9189 S. Jamaica St.
City: Englewood
State: CO. Zip: 80112
Phone: 720/201-7486 (cell)
Fax:

Project: BAFB - VMF
Job # 316613.01.04
P.O.#:

☐ Same Day ☐ 3 Day
☐ 1 Day ☐ 5 Day
☐ 2 Day ☒ 10 Day (Standard)

☒ e-mail results to: Kay.Dry@ch2m.com *(e-mail address must be clearly specified above)*

☒ EDD (Excel Electronic Data Deliverable) *(additional charges may apply)*

(1) **Type** = **A** (asbestos) or **Pb** (lead paint)
(2) **Matrix** = **B** (bulk); **S** (soil); **W** (wipe); **P** (paint)

Report Units: ☒ % volume (asbestos) ☐ % weight (lead) ☐ mg/kg or ppm (lead) ☐ mg/cm² or ug/ft² (lead)

↑ **FOR PROMPT PROCESSING, PLEASE COMPLETE ALL BOXES** ↓

Type (1)	Matrix (2)	Sample Number *(maximum 16 characters in length)*	Sample Date	Sample Description *(maximum 75 characters in length)*	Sampling Area in² or cm²
A	S	B1-1	9/16/05	0 to 2 FT	
		B1-2		8 to 10 FT	
		B2-1		0 to 2 FT	
		B2-2		8 to 10 FT	
		B3-1		0 to 2 FT	
		B3-2		8 to 10 FT	
		B4-1		0 to 2 FT	
		B4-2		8 to 10 FT	
		B5-1		0 to 2 FT	
A	S	B5-2	9/16/05	8 to 10 FT	
A	S	B6-1	9/16/05	0 to 2 FT	

Special Instructions or Other Information:

USE PLM via EPA 600/R-93/116 Test Method.

Relinquished by: James R Date/Time: 9/16/05 1406 Received by: Date/Time: 9/16/05 14:06

Relinquished by: Date/Time: Received by: Date/Time:

Return samples: ☐ YES ☒ NO

057.01.01

Appendix D
Capital Improvements Program Environmental Assessment Projects List

TABLE D-1

CIP EA Construction List – Projects with Structures

Environmental Assessment for Proposed Construction and Operation of New Vehicle Maintenance Facility, Buckley Air Force Base, Colorado – Capital Improvements Program Environmental Assessment Projects List

Project Number	Fiscal Year	Building Number	Projects	Project Footprint (m^2)[a]	Project Footprint (ft^2)[a]	Total Facility Sq Ft (ft^2)[a]	CIP EA[b]
	02	1	BX/Commissary (completed)			200,152	
	02	35	Fitness Center (completed)	7,049	54,500	75,880	Yes (02)
	02	2	Telluride Gate (completed)	11	120	133	Yes (02)
	02	34	Gas Meter House		379		Yes (02)
	03	1030	460 SW Headquarters (Completed)	2,323	25,000	51,066	Yes (03)
	03		ADAL SBIRS Mission Control (Completed)	1,672	18,000		Yes (03)
	03	725	Child Development Center 4 room Addition	69	743		Yes (03)
	03	1530	Control Tower (COANG) (Completed)	539	5,800	4,949	Yes (03)
	03	960	Engine Shop Addition Bldg 960 (COANG)	186	2,000		Yes (03)
	03	1019	Entomology (O&M) Replace Entomology Shop (Completed)	209	2,255		Yes (03)
	03	806	Fire Station Addition (Completed)	2,000	21,531		Yes (04)
	03	703	H-70 (Hydrazine) Fuel Storage Facility	97	1,045	178	Yes (04)
	03		Golf Driving Range	13	144		Yes (03)
	03	n/a	Two Pavilions at Williams Lake (Completed)	6	60		Yes (04)
	03	1015 and 1017	Two Warehouses - Civil Engineering. Originally one warehouse.(Completed)	929	10,000	10,000	Yes (03)
	04	830	Civil Engineering Complex (COANG)	3,470	37,350		Yes (05)
	04	205	Dormitory II (144 person) (Completed)	2,601	28,000	57,528	Yes (04)
	04		East Restricted/Official Use Only Access Point	12	128		
	04	17906	Fire Training Facility - (Completed)		3,400 buildings, 41,112 concrete pads		Yes (04)
	04	n/a	Military Family housing = 71 acres total land (for houses, landscaping, roads etc). Total acreage includes the clubhouse/pool and playgrounds. MFH 734,789 and Clughouse 22,500 sf (Under Construction)	70,355	757,298		Yes (05)
	05	1500	Army Aviation Support Facility (COARNG) (Complete)	11,148	120,000		Yes (05)
CRWU043006	05	316	Chapel Center (Complete)	2,423	26,080		Yes (05)
CRWU043007	05	351	Child Development Center CDCII (Under Construction)	2,248	24,197		Yes (05)
	05	600	Medical Clinic ADAL (Completed)	424	4,563		Yes (05)
	05		Visitor Center Addition and Parking	93	1,000		Yes
	05		Install two temporary modulars DSOC	3,066	33,000		Yes (08)
CRWU033009	06	204	Car Wash (AAFES) 4 bay (Under Construction)	186	2,000		Yes (06)
CRWU787395	06	1024	Haz Materials Storage (Env. Level 1) HAZMART Pharmacy Construction initiated in 06. (Under Construction)	507	5,457		Yes (06)
CRWU787399	06	1025	Haz Waste Facility (Env. Level 1) Construction initiated in 06. (Under Construction)	507	5,457		Yes (06)
CRWU051101	06		Medical (Clinic) Warehouse (Poss construct with '06 funds) (Under Construction)	372	4,000		Yes (06)
CRWU033009	06	1022	Outdoor Rec Equip Rental (NAF) - originally 05, then awarded 06 (Under Construction)	865	9,310		Yes (06)
CRWU073008	07	1051	Consolidated Fuels -POL Ops Building	255	2,745		Yes
CRWU073008	07	1054	Consolidated Fuels -Pump house	93	1,001		Yes
CRWU073008	07	1053	Consolidated Fuels- Storage Pol Bulk Ops Building	42	452		Yes
CRWU029003	07	911	Alert Crew Quarters (COANG)	604	6,500		Yes (07)
CRWU053006	07	730	Communications Center (ADAL 730) orig 05 - moved to 07	5,666	60,988		Yes (06)
CRWU063006	07	347	Consolidated Services Facility Admin	1,476	15,892		Yes (06)
	07		Construct ADF Admin Facility	2,788	30,000		
CRWU083001	07		Freight Transfer Facility	1,115	12,000		Yes (06)
CRWU063003	07	1032	Leadership Development Center (Under Construction)	1,638	17,631		Yes (06)
CRWU073005	07		Military Working Dog Kennel	325	3,500		Yes (06)
CRWU059006	07	701	Squadron Ops Facility (COANG)	2,132	22,950		Yes (07)
CRWU033003	07	332	Temporary Lodging Facility (NAF) Originally 03	6,450	69,434	84,377	Yes (07)
CRWU033003	07	331	Visitors Quarters	3,676	39,568	39,568	Yes (07)

TABLE D-1

CIP EA Construction List – Projects with Structures

Environmental Assessment for Proposed Construction and Operation of New Vehicle Maintenance Facility, Buckley Air Force Base, Colorado – Capital Improvements Program Environmental Assessment Projects List

Project Number	Fiscal Year	Building Number	Projects	Project Footprint (m^2)[a]	Project Footprint (ft^2)[a]	Total Facility Sq Ft (ft^2)[a]	CIP EA[b]
CRWU073006	07	350	Youth Center (NAF) 06 MILCON project	2,656	28,586		Yes (06)
	07		926th Security Forces Squadron		9,376		
	08	n/a	Athletic Fields Concession (NAF)	130	1,399		Yes (06)
CRWU041108	08	1540	BITC Mailroom	372	4,000		
	09		NSA CSS, was '08	46,468	500,000		Yes 08
CRWU048002	09	208	Satellite Pharmacy	557	6,000		Yes (06)
CRWU103003	10		Bowling Center and Community Activities (Peterson)_	.	5,274		Yes (TBD)
CRWU063002	10	1026	Logistics Readiness Complex - now states in clear zone	2,290	24,650		Yes (07)
	11		Visitors Center (6th Ave)		1,000		Yes (11)
CRWU033008	11		Arts, Crafts, Auto Skills Development Ctr	1,033	11,119		Yes (TBD)
CRWU073003	11	345	Education Center/Library	2,193	23,605		Yes (08)
CRWU053009	12	35	Fitness Center ADAL (estimate based on existing swimmint pool at Peterson AFB)	3,345	36,000		Yes (10)
CRWU073004	12	807	SF Operations Facility -	3,252	35,000		
CRWU053007	12	1027	Vehicle Maintenance Facility - (joint COANG)	14,924	160,640	25,640	Yes (08)
CRWU063011	14		Fire/Crash Rescue Station	2,137	23,000		
CRWU053004	15		6th Ave Entry Gate. Was'11	885	9,528		Yes (09)
CRWU019119	15	805	ADAL Weapons Release Complex (ADAL COANG).	372	4,000		Yes (09)
CRWU073010	15	1023	Consolidated Base Warehouse Originally 08	4,645	50,000		Yes (09)
CRWU051084	15		Entry Control Facility (upgrade-was 08)	1,337	14,391		Yes (09)
CRWU053005	15		Mississippi Entry Gate	902	9,709		Yes (09)
CRWU063008	15	1600	Small Arms Range Indoor Arm Range - indoor with outdoor grenade launcher (originally 06)	2,205	23,735		Yes (08)
CRWU053002	15		Telluride Entry Gate	567	6,107		Yes (FY 09)
CRWU019118	15		Weapons Loading Training Facility (COANG)	929	10,000		
	16		Dormitory 3 (96 PN)	3,717	40,000		Yes (TBD)
CRWU093002	16	447	Spaced Based Infrared (SBIR) Operational Support Facility Originally 09.	8,820	94,940		Yes (09)
CRWU013011	16	447	Spaced Based Infrared (SBIR) Remote Ground Station. Was FY'11	1,900	20,451		Yes (10)
CRWU069201	16		Upgrade Weapons Live Load Area (COANG)	929	10,000		
	TBD		Expand Bldg 700 (COANG)				

[a]Project footprint does not include disturbance due to construction; such as, laydown areas and generally does not include parking lots

[b]CIP EA: Project was addressed in the Capital Improvements Environmental Assessment. The project year at the time of the CIP EA is in parenthesis. Note: Project years are dynamic.

TABLE D-2

CIP EA Construction List – Projects without Structures

Environmental Assessment for Proposed Construction and Operation of New Vehicle Maintenance Facility, Buckley Air Force Base, Colorado – Capital Improvements Program Environmental Assessment Projects List

`	Fiscal Year	Building Number	Projects	Project Size (m^2)[a]	Project Size (ft^2)[a]	CIP EA[b]
	03		Runway and Taxiway Additions	3484	37500	Yes
	03	n/a	Repair Runway, Taxiways, Ramps (COANG)	18116	195000	Yes (03)
	04	n/a	ADD/Alter Access Roads (Airfield) (COANG)	41204	443520	Yes (04)
	04	n/a	Approach Lighting (COANG)	62	672	
	04		East Restricted/Official Use Only Access Point	12	128	
	04	n/a	Repair Parking Lots ANG wide (COANG)	12	144000	
	04	n/a	Upgrade Base Infrastructure, Ph III (Complete)	n/a	n/a	
	04		Transportation System/Landscaping Aspen		1280000	Yes (04)
	04		New Dedicated Fire Mains		86000 linear feet	Yes (04)
	05	n/a	Athletic Fields (two ball fields, 1 track, and 1 football field) (Ball Fields Complete)	160 Parking	Fence 3,600 meters	Yes (05)
	05	n/a	CDCII Pre school Playground	818	8800	
	05	n/a	CDCII Pretoddler Playground	486	5225	
	05	n/a	CDCII Toddler Playground	599	6450	
	05	n/a	Construct 2 SWS/MCS Force Protection - just installing barriers			
	05	n/a	Repair Taxiways A&K	Unknown at this	Unknown at this time	Yes (05)
	05		Central Mall (Landscaping, sidewalks for ADP 5)	12077	130000	Yes (05)
CRWU031112	06		ADF Parking Lot Mod-1	297	3200	Yes (02 and 06)
CRWU1071007	06	n/a	North Industrial Storm Water Retention Pond (Under construction)	40413	435000	
	06		6th Avenue Deceleration Lanes		45000	Yes (06)
	06	n/a	Repair Parking Lot East of Bldg 471	12	316798	
CRWU052063	07		Repair Alert Taxiway L Pvts			
CRWU062002	07		Repair Taxiway "M"			
	08		ADF Parking Lot Mod-2	325	3500	
CRWU061012	08		FAMCAMP - RV Parking Sites 38, Tent Sites 10 each	5398	58100	Yes (TBD and 10)
CRWU041017	08		Youth Baseball Field (Originally part of youth athletic fields).			Yes (TBD)
	09		Highspeed Taxiway		844500	Yes (10)
	09	n/a	Impound Lot (asphalt paved)	743	8000	
CRWU041130	09		RV Storage Lot (ADAL)	57700	621075	
	09	n/a	Vail Street Improvements	8475	91200	Yes (05)
CRWU081002	10		Youth Soccer Field		250000	Yes (TBD)
CRWU041017A	10		Youth Softball Field		250000	Yes (TBD)
	11		West Parking Lot			
CRWU061164	14		Adult Softball Field			
	14		North Runway Extension (Construct, COANG)	49821	536274	
	15		South Runway Repair (COANG)	50047	538704	Yes (11)
CRWU103002	15	multi	Upgrade Based Infrastructure Ph IV. Originally 09	Unknown at this	Unknown at this time	
CRWU049013	16	n/a	East Parking Apron Relocation (COANG).	33696	362700	
CRWU909724	16	11603	Taxiway and Arm/Disarm (COANG) Includes Demoliton of existing parking apron and protion of Sunlight Road and taxiways F, W, X, and Y.		75 feet by 10,500 linear feet and holding pads 225 feet by 400 LF (paved)	Yes (09)
	20		Widen 6th Avenue from Airprt Blvd to 6th Avenue Gate		528000	Yes (20)
	TBD		Realign Steamboat		270000	Yes (TBD)
	TBD		Relocate jogging trail		3,800 linear feet	Yes (TBD)
	TBD		Williams Lake Core Area, picknic shelters, and sites		6000	Yes (TBD)
	TBD		Williams Lake Playground			Yes (TBD)
	TBD		Williams Lake tent camping area			Yes (TBD)
	TBD		New Munitions and Hazardous Materials Gate (East Gate)		15000	Yes (TBD)

[a]The following projects do not involve paving and/or lanscaping without construction of any structures. The project footprint is equivalent to the final size of the project.

[b]CIP EA: Project was addressed in the Capital Improvements Environmental Assessment. The project year at the time of the CIP EA is in parenthesis. Note: Project years are dynamic.

TABLE D-3
CIP EA Demolition Project List
Environmental Assessment for Proposed Construction and Operation of New Vehicle Maintenance Facility, Buckley Air Force Base, Colorado – Capital Improvements Program Environmental Assessment Projects List

Project Number	Fiscal Year	Building Number	Projects	Project Footprint (m^2)[a]	Project Footprint (ft^2)[a]	Total Facility Sq Ft (ft^2)[a]	Compete (FY)
	02		Demolish existing ballfields			800	Yes (02)
	02		Demolish Winter Park Street and Parking lot west of Dormitory 1			50,000	Yes (02)
	03	25	Demolish Building 25			12,000	Yes (03)
	04	T-11	Remove Temporary Modular Building - Mod 3		20,000		Yes (04)
	04	39	Demolish Gas Meter House			378	Yes (04)
	04		Demolish street and parking lot in vicinity of Building 28 and portions of Beaver Creek		40,000		Yes (04)
	05	T-10	Remove Temporary Modular Building - Mod 1		20,000		Yes (04)
CRWU051092	05	19	Demolish Building 19 (Camana Club) (Completed)	663	7,132		Yes (05)
CRWU061006	05	1011 and 1012	Demolish Warehouse (1011/1012) Was an FY 05 Project. (Completed)	2,132	22,949		Yes (06)
	05		Demolition of roads and parking lot adjacent to Bulding 600 (Beaver Creek)			40,000	Yes (05)
	06	1103	Demolish Pump Station/Other Structures		264		Yes (06)
	07	1606	Demolish Crash House		8,327		Yes (06)
CRWU061039	07	302	Demolish Fuels Admin		1,185		Yes (09)
	08	T-12	Remove Temporary Modular Building - Mod 2		20,000		Yes (04)
CRWU073008	08	341	Demolish Bulding 341 (Part of consolidated fuels)	20	216		Yes (09)
CRWU091001	09	31	Demolish Building 31		204		
CRWU051014	09	902	Demolish Building 902 Originally 05 project, then '08 and possibly '09 if funded		4,428		Yes (06)
CRWU073008	09	200	Demolish Fuel Storage Constuction 07, if funded		1,576		Yes (09)
CRWU073008	09	200	Demolish Fuel Tanker Stands Construction 07	[b]	[b]		Yes (09)
CRWU073008	09	300	Demolish Fuels Lab Construction 07		1,503		Yes (09)
	09	344	Demolish Hazardous Materials/Waste Storage		160		Yes (09)
	09	PB 605	Demolish Gas Mask Training Building		216		Yes (09)
	09		Air Reserve Personnel Center Base Realignment and Closure		86,937		
	10	1411	Demolish Range Supply and Equipment Storage		1,500		Yes (10)
	10	1413	Demolish Range Target Storage		600		Yes (10)
	10	1415	Demolish Small Arms Range		Range		Yes (10)
CRWU071003	10	950	Demolish Building 950		20,303		Yes (06)
CRWU071002	11	940	Demolish Building 940		14,758		Yes (09)
	11	41	Demolish Visitors Center		783		Yes (11)
CRWU051011	12	1631	Demolish Electrical Shop		3,025		Yes (06)
CRWU071001	12		Demolish Engine Test Pad Originally FY07		2,057		
CRWU051079	12	310	Demolish Hydrazine Bulding 310	76	820		Yes (TBD)
CRWU051013	12	n/a	Demolish Marine Area Foundations		[b]	[b]	Yes (06)
CRWU041012	12	1620	Demolish Radio Relay Bulding 1620	149	1,600		Yes (06)
CRWU051012	12	1632	Demolish Reserve Forces Bulding 1632		600		Yes (06)
	12	429	Demolish Space Operations Facility				Yes (12)
	12	431	Demolish Space Operations Facility				Yes (12)
	TBD	210	Demolish Working Dog Kennel		1,629		Yes (TBD)
CRWU061035	TBD	306	Demolish Entomology Facility	108	1,160		Yes (TBD)

[a]Project footprint does not include disturbance due to construction; such as, laydown areas and generally doesn't include parking lots.

[b]Unknown at this time.

Attachment D1
Updated Tables from the CIP Environmental Assessment

ATTACHMENT D1

Updated Tables from the CIP Environmental Assessment

The following tables contain updated information and calculations on proposed projects, in addition to those provided in the CIP Environmental Assessment. For reference, table numbers correspond to tables found within the CIP Environmental Assessment.

Table 4.2: Construction and Demolition Project Emissions					
Year	Emissions Generated from Construction and Demolition Site Disturbance Activities (Tons/Year)				
	VOC	NOx	SO_2	CO	PM_{10}
2002	1	4	0	10	13
2003	5	26	3	73	40
2004	11	37	4	112	32
2005	20	57	6	156	139
2006	11	39	4	114	32
2007	6	31	3	82	43
2008	10	50	5	144	26
2009	6	30	3	82	60
2010	3	15	1	36	8
TBD*	1	9	0	13	26
Cumulative Totals	74	298	29	822	419

Table 4.3 Heating and Hot Water Unit Air Emissions										
Year	Emissions Generated from Operation of Heating, Hot Water and Air Conditioning Units (Tons/Year)									
	Hydrocarbons		NOx		SO_2		CO		PM_{10}	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2003	0.06	0.11	1.15	2.02	0.01	0.01	0.97	1.69	0.09	0.15
2004	0.13	0.24	2.43	4.45	0.01	0.03	2.04	3.74	0.18	0.34
2005	0.06	0.31	1.11	5.56	0.01	0.03	0.94	4.67	0.08	0.42
2006	0.03	0.34	0.58	6.14	0	0.04	0.49	5.16	0.04	0.47
2007	0.04	0.38	0.68	6.82	0	0.04	0.57	5.73	0.05	0.52
2008	0.01	0.38	0.12	6.94	0	0.04	0.1	5.83	0.01	0.53
2009	0.06	0.44	1.07	8.01	0.01	0.05	0.9	6.73	0.08	0.61
2010	0.02	0.46	0.3	8.32	0	0.05	0.25	6.99	0.02	0.63
2011	0.01	0.46	0.1	8.42	0	0.05	0.09	7.07	0.01	0.64
2012	0.01	0.48	0.22	8.64	0	0.05	0.18	7.26	0.02	0.66
TBD[3]	0.1	0.58	1.83	10.48	0.01	0.06	1.54	8.8	0.14	0.8
Cumulative Totals	0.58	0.58	10.48	10.48	0.06	0.06	8.8	8.8	0.8	0.8

Table 4.4 New Personal Vehicle Pollutant Emissions						
Year	Emissions Generated from New Personal Vehicles (Tons/Year)					
	Hydrocarbons		NOx		CO	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2002	1.61	1.61	1.61	1.61	33.72	33.72
2003	2.15	3.76	2.15	3.76	45.23	78.96
2004	4.54	8.3	4.54	8.3	95.29	174.24
2005	2.08	10.37	2.08	10.37	43.62	217.86
2006	1.08	11.46	1.08	11.46	22.75	240.61
2007	1.27	12.73	1.27	12.73	26.69	267.3
2008	0.22	12.95	0.22	12.95	4.65	271.95
2009	2	14.95	2	14.95	42.07	314.02
2010	0.57	15.52	0.57	15.52	11.88	325.9
2011	0.19	15.71	0.19	15.71	4.06	329.97
2012	0.41	16.12	0.41	16.12	8.62	338.58
TBD[3]	3.42	19.54	3.42	19.54	71.83	410.42
Cumulative Totals	19.54	19.54	19.54	19.54	410.42	410.42

Table 4.5: Proposed Action Air Emission Totals										
Year	Emissions (Tons/Year)									
	Hydrocarbons		NOx		SO_2		CO		PM_{10}	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2002	2.65	2.65	6.47	6.47	0.01	0.01	44.45	44.45	13.07	13.07
2003	7.22	9.87	29.31	35.77	3.01	3.01	119.2	163.65	40.09	53.15
2004	15.67	25.54	43.97	79.74	4.01	7.03	209.33	372.98	32.18	85.34
2005	22.14	47.68	60.19	139.93	6.01	13.03	200.55	573.53	139.08	224.42
2006	12.12	59.8	40.66	180.6	4	17.04	137.24	710.77	32.04	256.47
2007	7.31	67.1	32.95	213.55	3	20.04	109.26	820.03	43.05	299.52
2008	10.23	77.33	50.34	263.89	5	25.04	148.75	968.79	26.01	325.53
2009	8.06	85.39	33.08	296.97	3.01	28.05	124.97	1,093.76	60.08	385.61
2010	3.58	88.98	15.87	312.84	1	29.05	48.14	1,141.89	8.02	393.63
TBD[3]	4.52	93.5	14.25	327.09	0.01	29.06	86.37	1,228.27	26.14	419.77
Cumulative Totals	93.5	557.85	327.09	1,856.86	29.06	171.36	1,228.27	7,118.11	419.77	2,456.50

Note: This table has not been updated since the Capital Improvements Environmental Assessment.

Table 4.12: Construction and Demolition Water Suppression Consumption			
Year	Water Required for Construction Projects (Gallons)	Water Required for Demolition Projects (Gallons)	Total (Gallons)
2002	7,840,097	0	7,840,097
2003	10,685,207	6,612	10,691,818
2004	24,921,514	18,539	24,940,054
2005	9,824,420	61,939	9,886,359
2006	1,947,378	364	1,947,742
2007	4,302,526	5,071	4,307,597
2008	534,727	18,944	553,671
2009	11,837,424	25,035	11,862,459
2010	2,862,971	19,129	2,882,100
2011	371,944	10,180	382,124
2012	1,742,383	106,467	1,848,851
Beyond 2012	11,758,001	3,085	11,761,086
Totals	**88,628,593**	**275,364**	**88,903,957**

Table 4.13: Finished Building Operational Water Consumption		
	Water Required for Human Consumption	
Year	Annual	Cumulative
2002	1.864	1.864
2003	2.5	4.365
2004	5.268	9.632
2005	2.411	12.043
2006	1.258	13.301
2007	1.475	14.777
2008	0.257	15.034
2009	2.326	17.359
2010	0.657	18.016
2011	0.225	18.241
2012	0.476	18.717
Beyond 2012	3.971	22.688
Totals	**22.688**	**22.688**

Table 4.14: Irrigation Water Consumption			
Year	Area Requiring Irrigation	Annual Water Required for Irrigation (Million Gallons)	Cummulative Water Required for Irrigation (Million Gallons)
2002	0.924	0.99	0.99
2003	4.856	5.205	6.196
2004	1.727	1.851	8.047
2005	11.391	12.21	20.257
2006	5.289	5.669	25.926
2007	0.356	0.381	26.307
2008	2.079	2.228	28.535
2009	4.804	5.149	33.684
2010	7.53	8.071	41.755
2011	9.014	9.661	51.416
2012	0.251	0.269	51.686
Beyond 2012	2.674	2.866	54.551
Totals	**50.894**	**54.551**	**54.551**

Table 4.15: Construction and Demolition Waste Generation - Proposed Action		
Year	Construction and Demolition Solid Waste Generation (Tons)	Percent of Total Waste Received by Denver-Arapahoe Disposal Site
2002	8,469	0.37%
2003	20,284	0.89%
2004	509	0.02%
2005	50,030	2.19%
2006	648	0.03%
2007	16,442	0.72%
2008	798	0.04%
2009	118,744	5.21%
2010	50,298	2.21%
2011	25,477	1.12%
2012	71,653	3.14%
Beyond 2012	3,823	0.17%
Totals	**367,176**	**16.10%**

Table 4.16: Cummulative Water Consumption			
Year	Buckley AFB Cumulative Water Increase (Million Gallons)	City of Aurora Construction Water Increase (Million Gallons)	Total Cumulative Water Increase (Million Gallons)
2002	11	842	852
2003	18	1,743	1,761
2004	32	2,614	2,646
2005	25	3,486	3,510
2006	9	4,357	4,366
2007	6	5,229	5,235
2008	3	6,100	6,103
2009	19	6,972	6,991
2010	12	7,843	7,855
2011	10	8,714	8,725
2012	3	9,586	9,588
Beyond 2012	19	10,457	10,476
Totals	**166**	**67,943**	**68,109**

Table 4.17: Cummulative Solid Waste Generation			
Year	Buckley AFB Cumulative Solid Waste Generation Increase (Tons)	City of Aurora Construction Solid Waste Generation Increase (Tons)	Total Cumulative Solid Waste Generation Increase (Tons)
2002	10,088	110,632	120,720
2003	21,902	261,105	283,007
2004	2,128	391,657	393,785
2005	51,648	522,210	573,858
2006	2,266	652,762	655,029
2007	18,061	783,315	801,375
2008	2,416	913,867	916,284
2009	3,111,014	1,044,420	4,155,434
2010	51,916	1,174,972	1,226,889
2011	27,096	1,305,525	1,332,620
2012	73,272	1,436,077	1,509,349
Beyond 2012	5,441	1,566,630	1,572,071

Table 4.18: Cumulative Electrical Demand Increases			
Year	Buckley AFB Electrical Demand Increase (kWh)	City of Aurora Construction Electrical Demand Increase (kWh)	Total Cumulative Electrical Demand Increase (kWh)
2002	11,661,239	612,846,000	624,507,239
2003	15,641,041	1,471,284,000	1,486,925,041
2004	32,950,264	2,206,926,000	2,239,876,264
2005	15,081,742	2,942,568,000	2,957,649,742
2006	7,867,835	3,678,210,000	3,686,077,835
2007	9,229,256	4,413,852,000	4,423,081,256
2008	1,608,418	5,149,494,000	5,151,102,418
2009	14,547,274	5,885,136,000	5,899,683,274
2010	4,108,191	6,620,778,000	6,624,886,191
2011	1,404,917	7,356,420,000	7,357,824,917
2012	2,979,020	8,092,062,000	8,095,041,020
Beyond 2012	24,839,871	8,827,704,000	8,852,543,871
Totals	**141,919,068**	**57,257,280,000**	**57,399,199,068**

Table 4.19: Cumulative Natural Gas Demand Increases			
Year	Buckley AFB Natural Gas Demand Increase (kWh)	City of Aurora Construction Natural Gas Demand Increase (kWh)	Total Cumulative Natural Gas Demand Increase (kWh)
2002	17	681	698
2003	23	1,635	1,658
2004	49	2,452	2,501
2005	22	3,270	3,292
2006	12	4,087	4,099
2007	14	4,904	4,918
2008	2	5,722	5,724
2009	21	6,539	6,561
2010	6	7,356	7,362
2011	2	8,174	8,176
2012	4	8,991	8,996
Beyond 2012	37	9,809	9,845
Totals	**210**	**63,619**	**63,829**

Table 4.23: Construction/Demolition Debris Handling Traffic - Proposed Action			
Year	**Weight of Debris Generated (tons)**	**Volume of Debris Generated (yd^3)**	**Number of Truck Trips Required**
2002	8,469	3,826	174
2003	20,284	11,216	510
2004	509	278	13
2005	50,030	27,692	1,259
2006	648	360	16
2007	16,442	9,092	413
2008	798	442	20
2009	118,744	55,796	2,536
2010	50,298	26,286	1,195
2011	25,477	14,103	641
2012	71,653	40,156	1,825
Beyond 2012	3,823	2,121	96
Totals	**367,176**	**191,369**	**8,699**

Table 4.25: Construction and Demolition Vehicles Entering the South Gate - Proposed Action			
Year	**Construction and Demolition Contractor Employee Traffic**	**Construction and Demolition Delivery Traffic (Vehicles/Day)**	**Total (Vehicles/Day)**
2002	10	40	50
2003	28	112	140
2004	32	128	160
2005	32	128	160
2006	14	56	70
2007	24	96	120
2008	14	56	70
2009	36	144	180
2010	10	40	50
2011	12	48	60
2012	22	88	110
Beyond 2012	46	184	230
Totals	**280**	**1,120**	**1,400**

Table 4.27: Increased Impervious Surface Calculations			
Year	Increased Impervious Surfaces Due to Construction (Acres)	Decreased Impervious Surfaces Due to Demolition (Acres)	Net Increased Impervious Surfaces (Acres)
2002	28.77	0	28.77
2003	41.48	0.28	41.2
2004	74.99	0.47	74.52
2005	25.27	2.1	23.17
2006	3.37	0.01	3.37
2007	5.7	0.22	5.48
2008	2.54	0.47	2.07
2009	33.25	0.32	32.93
2010	2.34	2.41	-0.06
2011	2.38	0.36	2.02
2012	3.06	1.13	1.93
Beyond 2012	69.37	0.04	69.33
Totals	**292.53**	**7.8**	**284.73**

Table 4.28: Cumulative Increased Impervious Surface Calculations			
Year	Buckley AFB Increased Impervious Surfaces (Acres)	City of Aurora Increased Impervious Surfaces (Acres)	Cumulative Increased Impervious Surfaces (Acres)
2002	29	452	481
2003	41	1,121	1,162
2004	75	1,681	1,756
2005	23	2,242	2,265
2006	3	2,802	2,805
2007	5	3,363	3,368
2008	2	3,923	3,925
2009	33	4,483	4,516
2010	0	5,044	5,044
2011	2	5,604	5,606
2012	2	6,165	6,167
Beyond 2012	69	6,725	6,794
Totals	**285**	**43,605**	**43,890**

Table 4.29: Cumulative Increased Stormwater Loading Calculations			
Year	Buckley AFB Increased Stormwater Loading (Million Gallons)	City of Aurora Increased Stormwater Loading (Million Gallons)	Cumulative Increase in Increased Stormwater Loading (Million Gallons)
2002	11.91	187	199
2003	17.05	464	481
2004	30.84	696	727
2005	9.59	928	937
2006	1.39	1,160	1,161
2007	2.27	1,391	1,394
2008	0.86	1,623	1,624
2009	13.63	1,855	1,869
2010	-0.03	2,087	2,087
2011	0.84	2,319	2,320
2012	0.8	2,551	2,552
Beyond 2012	28.69	2,783	2,812
Totals	**118**	**18,044**	**18,162**