FINAL
ENVIRONMENTAL ASSESSMENT
FOR THE
MILITARY HOUSING
PRIVATIZATION INITIATIVE (MHPI)
MALMSTROM AIR FORCE BASE, MONTANA

341st MISSILE WING

AUGUST 2009

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
AUG 2009		**00-00-2009 to 00-00-2009**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Final Environmental Assessment for the Military Housing Privatization Initiative (MHPI) Malmstrom Air Force Base, Montana	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Science Applications International Corporation,1710 SAIC Drive,McLean,VA,22102**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**122**	

FINAL

FINDING OF NO SIGNIFICANT IMPACT
FOR
MILITARY HOUSING PRIVATIZATION INITIATIVE AT MALMSTROM AIR FORCE BASE, MONTANA

Pursuant to the Council on Environmental Quality (CEQ) regulations for implementing procedural provisions of the National Environmental Policy Act (NEPA) (40 Code of Federal Regulations [CFR] Part 1500–1508), Department of Defense Directive 6050.1 and 32 CFR Part 989, the Air Force has conducted an Environmental Assessment (EA) of the probable environmental consequences of implementing the Military Housing Privatization Initiative (MHPI) at Malmstrom Air Force Base (MAFB), Montana.

ACTION AGENCY

United States Air Force, Air Force Space Command – Malmstrom AFB.

PURPOSE AND NEED

The purpose of the Proposed Action is to provide access to safe, quality, well-maintained housing in a community where Air Force members and their families will choose to live. Determining the specific need for required housing at MAFB involved estimating the number of appropriate private sector housing units available to military families within 20 miles, or a 60-minute commute. The need associated with housing on MAFB is the result of a Housing Requirements and Market Analysis (HRMA) conducted for MAFB in 2005 to identify the housing units available to military members in the private community and determine the number of military family housing (MFH) units that the Air Force needs to provide at MAFB for its personnel by calendar year 2010. The total MFH requirement for MAFB factored in shortfalls in the available private sector housing, resulting in a housing requirement on MAFB of 1,405 units. The HRMA was updated in 2007, and the Air Force has identified the maximum requirement for housing units at MAFB as 1,224. Prior to 2005, and ongoing currently, MAFB began a Military Construction (MILCON) process to demolish and construct new homes within the MFH areas. This MILCON process is separate from the MHPI and has been evaluated in previous NEPA documentation. At the conclusion of this MILCON process, MAFB will have a total of 1,420 housing units (via a combination of older units and newly constructed units) distributed throughout six parcels of land located on MAFB, resulting in a surplus of 196 units.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action (EA Section 2.2, pages 2-1 through 2-7)

Through a combination of unit transfers to a non-DoD agency, demolition, new construction, and/or renovation, a developer would reach the end-state requirement of 1,224 MFH units. The following activities are associated with the Proposed Action:

Malmstrom AFB MHPI Proposed Action Details

Existing Housing Area /Facility	Parcel Designator	Estimated Size of Lease (Acres)	Length of Lease (Years)	Number of Units Conveyed	Units Conveyed "as-is"*	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Units
Minuteman Village	11-M	70	50	202	23	179	0		1,224
Jupiter Village	12-M	39		150	150	0			
Peacekeeper Park	13-M	96		356	300	56			
Peacekeeper Park (Surplus)	16-M	45	Upon completion of demo.	196	0		196	0	
Titan Village	14-M	45	50	146	94	52			
Atlas Village		45		276	276	0			
Matador Manor	15-M	30		94	94				
Housing Office (Optional)	18-M	1.6		Housing Office					
Peacekeeper Park (Optional)	17-M	8		To be leased if a suitable use is identified					
Ball Park Area (Optional)	19-M	12							
Housing Maint. Facility (Optional)**				N/A				1	
			Total	**1,420**	**937**	**287**	**304**	**108**	

N/A = not applicable

*Units "as-is" upon completion of current MILCON housing construction.

**A new Housing Maintenance Facility, if constructed, would be built within one of the areas listed above.

Proposed Action Potential Renovation, Demolition, and Construction

Housing Area	Total Units Affected	Units Potentially Renovated*		Units Potentially Demolished		Units Potentially Constructed**		Roadway SqFt	
		#	SqFt	#	SqFt	#	SqFt	Demo'd	Const
Minuteman Village	179	179	266,481	0					
Peacekeeper Park	252	56	112,215	252	496,190	56	123,437	422,844	158,994
Titan Village	52	52	166,095	52	166,095	52	182,705	133,294	
Additional Impervious Surface Area per Unit: 1,275 SqFt				387,600		137,700			
MFH Subtotal	***483***	***287***	***544,791***	***304***	***1,049,885***	***108***	***443,842***		
Housing Maint. Facility	N/A					1	4,000		
	Total	***544,791***	***N/A***	***1,049,885***	***N/A***	***447,842***	***556,138***	***292,288***	

N/A = not applicable; SqFt = square feet

* Renovation of units does not include additional impervious surface area.

** Square footage potentially constructed includes 10% increase over baseline for increased housing size standards.

Alternative 1: Demolition and New Construction at Minuteman Village (EA Section 2.5.1, pages 2-7 through 2-9)

The difference between the Proposed Action and Alternative 1 is that the 179 units at Minuteman Village would be demolished rather than renovated and associated roadways would be demolished and reconstructed. The developer would then reconstruct the 179 units within the existing footprint.

Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc. (EA Section 2.5.2, pages 2-10 through 2-13)

The difference between Alternative 2 and the Proposed Action is that instead of demolishing the 196 units at Peacekeeper Park, the Air Force would convey the relocatable military housing units to Native American Tribes through the Operation Walking Shield Program, on behalf of Native American Tribes in the State of Montana, managed by Walking Shield, Inc. Walking Shield, Inc. is a nonprofit organization that specializes in measures and services to improve the quality of life for Native Americans. In FY99, a Defense Appropriations Bill authorized the Air Force and MAFB, specifically, to convey excess military housing units to Native American tribes in Montana.

Alternative 3: Combination of Alternatives 1 and 2 (EA Section 2.5.3, pages 2-13 through 2-14)

The difference between Alternative 3 and the Proposed Action is that the developer would demolish 179 units at Minuteman Village and associated roadways and reconstruct homes and roads within the same footprint rather than renovate the existing units. Additionally, the Air Force would release 196 units at Peacekeeper Park to Walking Shield, Inc. for use in the Operation Walking Shield Housing Relocation Program, rather than demolish them.

No Action Alternative (EA Section 2.5.4, pages 2-14 through 2-16)

The Air Force would not implement the MHPI program at MAFB and would manage and maintain existing housing in accordance with existing Air Force policy. Currently, 179 units in Minuteman Village require either whole-house renovation or demolition and new construction. Additionally, 52 units in Titan Village and 56 units in Peacekeeper Park require renovation in order to meet current Air Force housing standards. These activities would occur regardless of MHPI and are therefore a component of the No Action Alternative. Additionally, based on the HRMA, MAFB has a surplus of 196 housing units (associated with Peacekeeper Park). If the Air Force were to select the No Action Alternative under this proposal, it is reasonable to assume that in the near future MAFB would implement one of the following actions associated with the surplus units: a) demolish the units and associated roadways; or b) release the units to Walking Shield, Inc. for distribution to local Native American tribes through the Operation Walking Shield Housing Relocation Program.

Alternatives Considered but Eliminated (EA Section 2.4, page 2-7)

Since nearly all of the housing units that would be owned and operated under privatization will be either newly constructed or renovated already through ongoing MILCON projects, alternatives associated with developing new housing areas were not considered as part of the MHPI program. Instead, alternatives associated with the disposition of housing units that would not be affected by ongoing MILCON activities are considered in this EA.

ISSUES ELIMINATED FROM DETAILED ANALYSIS

The Air Force conducted preliminary impact analyses to identify resource areas that would be potentially impacted as a result of the Proposed Action and alternatives. Based on preliminary impact analyses, the Air Force does not anticipate the Proposed Action or alternatives will result in impacts to the following resource areas: biological resources, land use, transportation, utilities and infrastructure, and safety/occupational health.

SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS

Chapter 3 of the EA identifies anticipated environmental effects of the Proposed Action, Alternative 1 through 3, and No Action alternative (Chapter 3, pages 3-1 to 3-55). The Proposed Action would not

significantly affect any of the resource areas identified in Chapter 3 of the EA. The following paragraphs summarize the potential effects of the Proposed Action and alternatives.

Air Quality (EA Section 3.1, pages 3-1 to 3-6): There would be no significant impacts to air quality from the Proposed Action or alternatives. Air emissions associated the Proposed Action and alternatives would result from construction and demolition activities (mainly carbon monoxide and fugitive dust emissions).

Water Resources (EA Section 3.2, pages 3-6 to 3-16): There would be no significant impacts to surface water or groundwater quality under the Proposed Action or alternatives. Approximately 20 acres of land could be restored to permeable surfaces, thus having increased benefits to groundwater recharge and flood control over current conditions on MAFB. Proper use of best management practices (BMPs) and adherence to pollutant and water discharge regulations would minimize potential effects from all alternatives to water resource to less than significant.

Soils (EA Section 3.3, pages 3-16 to 3-20): There would be no significant impact to soil and sediment resources. BMPs as required by the authorization to discharge stormwater under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity would serve to minimize any potential adverse, long-term impacts associated with erosion.

Noise (EA Section 3.4, pages 3-20 to 3-26): There would be no significant noise impacts to people or wildlife. Noise from demolition and construction would cause an increase in the ambient noise levels. However, these noises are short-term and transitory in nature and activities would occur during normal, weekday working hours, concluding once the project has been completed.

Hazardous Materials and Waste (EA Section 3.5, pages 3-26 to 3-37): There would be no significant impact with regard to hazardous materials or waste. The management of theses materials and wastes would be performed according to prescribed procedures already in place, which are designed to prevent or reduce pollution, reduce safety and health risks, and recycle wastes when possible. Wastes that cannot be recycled would be disposed of in a manner approved by the USEPA, at licensed facilities.

Solid Waste (EA Section 3.6, pages 3-37 to 3-43): There would be no significant impacts associated with solid waste from the Proposed Action or alternatives. Renovation, demolition, and construction activities would generate solid waste; however, the amounts of waste generated would be reduced through recycling and reuse of waste materials to the extent practicable. Amounts of waste requiring landfill disposal would not significantly impact local landfill disposal capacity.

Socioeconomics and Environmental Justice (EA Section 3.7, pages 3-43 to 3-50): There would be no significant impact to socioeconomic resources. Beneficial environmental justice impacts would be expected from Alternatives 2 and 3 by providing housing to American Indians on tribal reservations in need of suitable and affordable housing.

Cultural Resources (EA Section 3.8, pages 3-51 to 3-55): The Air Force has not identified any significant impacts to cultural resources. The Air Force anticipates no effect to cultural resources under the Proposed Action or any of the alternatives. The Proposed Action or alternatives would have no effect on the integrity of the Lewis and Clark/Great Falls Portage National Historic Landmark. Should any inadvertent discoveries of archaeological materials be made during project activities, all actions in the immediate vicinity would cease and efforts would be taken to protect the find from further impact. The Malmstrom Cultural Resource Element, 341 CES/CEAN, would be contacted immediately should a discovery occur.

PUBLIC / AGENCY REVIEW

The Air Force published a public notice in the *Great Falls Tribune* and the Malmstrom AFB newspaper on June 12, 2009, inviting the public to review and comment upon the EA (located at the Great Falls Library and the Malmstrom AFB Library). The Air Force also provided the following agencies copies of the EA for review and comment: Montana Department of Environmental Quality; Montana Historical

Society; U.S. Fish and Wildlife Service; City of Great Falls; Cascade County Conservation District; and Walking Shield American Indian Society.

The public comment and agency review period ended on July 12, 2009. The only response received was from the U.S. Fish and Wildlife Service, which concurred on the FONSI. The Service recommended that the Air Force contact the Montana Department of Fish, Wildlife, and Parks for concurrence on the EA findings. However, this agency is a component of the Montana Department of Environmental Quality, which received the EA for review; no responses were received from either agency. No public comments were received on the EA. Two articles were published in the *Great Falls Tribune* regarding housing privatization at Malmstrom AFB (see Appendix A of the EA).

PERMITS AND REGULATORY CONSIDERATIONS

Should the Air Force choose to implement the Proposed Action or alternatives, an authorization to discharge storm water under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated With Construction Activity would have to be obtained.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and the environmental analysis contained in the attached EA and as summarized above, I find the proposed decision of the Air Force to implement the MHPI at MAFB under either the Proposed Action or any of the alternatives will not have a significant impact on the human or natural environment; therefore, an environmental impact statement is not required. This analysis fulfills the requirements of the NEPA, the President's CEQ, and 32 CFR Part 989.

5 OCT 2009
Date

ANTHONY J. COTTON, Colonel, USAF
Malmstrom AFB ESOH Council Chairman

FINAL
ENVIRONMENTAL ASSESSMENT

FOR THE

MILITARY HOUSING
PRIVATIZATION INITIATIVE (MHPI)

MALMSTROM AIR FORCE BASE, MONTANA

Prepared by:

SAIC®
From Science to Solutions

AUGUST 2009

PRINTED ON RECYCLED PAPER

TABLE OF CONTENTS

Page

Page

Page

List of Tables

Page

List of Figures

Page

List of Figures, Cont'd

Page

Acronyms, Abbreviations, and Symbols

341 CES	341 Civil Engineer Squadron
341 CES/CEA	341 Civil Engineer Squadron/Asset Management
341 CES/CEAN	341 Civil Engineer Squadron/Natural Resources Management Element
ACAM	Air Conformity Applicability Model
ACM	Asbestos-Containing Materials
AFB	Air Force Base
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health
AFPD	Air Force Policy Directive
Air Force	United States Air Force
AOC	Area of Concern
APE	Area of Potential Effects
BMPs	Best Management Practices
C&D	Construction and Demolition
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CY	Calendar Year
dB	Decibels
dBA	A-weighted Decibels
DoD	Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Restoration Program
FONSI	Finding of No Significant Impact
FY	Fiscal Year
HRMA	Housing Requirements and Market Analysis
Hz	Hertz
LBP	Lead-Based Paint
lbs/ft^2	Pounds per Square Foot
L_{dn}	Day/Night Average Sound Level
$L_{eq(8)}$	Equivalent Noise Level (Average Acoustic Energy) over an Eight-Hour Period
L_{max}	Maximum Sound Level
MAFB	Malmstrom Air Force Base
MFH	Military Family Housing
MHPI	Military Housing Privatization Initiative
MILCON	Military Construction
MTDEQ	Montana Department of Environmental Quality
MTNW	Med-Tox Northwest
NEI	National Emissions Inventory

NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
OWS	Operation Walking Shield
pCi/L	Picocuries per Liter
PCB	Polychlorinated Biphenyl
ROI	Region of Influence
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency

This page is intentionally blank.

1. PURPOSE AND NEED

1.1 INTRODUCTION

The United States Air Force (Air Force), Air Force Space Command, proposes to privatize its military family housing (MFH) at Malmstrom Air Force Base (MAFB), Montana. The *National Defense Authorization Act of 1996* gives the Department of Defense (DoD) the authority to engage private sector businesses through a process of housing privatization wherein private sector housing developers would renovate or demolish existing housing units (Figure 1-1), build new units, and provide the infrastructure needed to support such developments. The developer would own the units, lease the land from the Air Force, and collect rent from service members while providing maintenance and management. Government officials have determined that privatization is the best solution for leveraging resources to meet these goals in a timely manner. Additional information and details regarding the military housing privatization initiative (MHPI) can be found on the DoD housing privatization website at http://www.acq.osd.mil/housing. The proposed privatization activities at MAFB are part of a larger privatization effort that includes Whiteman AFB, Missouri, and F.E. Warren AFB, Wyoming. All three bases are grouped together as part of a single privatization Request for Proposal. However, environmental and socioeconomic impacts associated with the privatization action are singular to the respective installations; therefore, impacts associated with privatization at each installation are analyzed in separate National Environmental Policy Act (NEPA) documentation specific to each installation.

Figure 1-1. Existing Older Housing Units (Peacekeeper Park Built 1959–1961)

1.2 LOCATION OF THE PROPOSED ACTION

MAFB is situated on 3,626.72 acres within the boundaries of Cascade County, Montana. The base is located south of the Missouri River approximately 75 miles east of the Rocky Mountains and 2 miles east of the city of Great Falls. MAFB is 120 miles south of the Canadian border and 220 miles northwest of Billings, the largest city in Montana. Major transportation links include Interstate 15 and U.S. Highways 87 and 89. Specific to the proposed project, the Air Force proposes to implement MFH privatization through selection of one of several alternatives specifically discussed in Chapter 2 of this document. Figure 1-2 shows the location of MAFB and the surrounding area.

1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of the Proposed Action is to provide access to safe, quality, well-maintained housing in a community where Air Force members and their families will choose to live. Determining the specific need for required housing at MAFB involved estimating the number of appropriate private sector housing units available to military families within 20 miles, or a 60-minute commute.

The need associated with housing on MAFB is the result of a Housing Requirements and Market Analysis (HRMA) conducted for MAFB in 2005 to identify the housing units available to military members in the private community and determine the number of units that the Air Force needs to provide at MAFB for its personnel by calendar year (CY) 2010 (U.S. Air Force, 2005a). The total MFH requirement for MAFB factored in shortfalls in the available private sector housing, resulting in a housing requirement on MAFB of 1,405 units. The HRMA was updated in 2007, and the Air Force has identified the maximum requirement for housing units at MAFB as 1,224 (U.S. Air Force, 2007). Prior to 2005, and ongoing currently, MAFB began a Military Construction (MILCON) process to demolish and construct new homes within the MFH areas. This MILCON process is separate from the MHPI and has been evaluated in previous NEPA documentation. At the conclusion of this MILCON process, MAFB will have a total of 1,420 housing units (via a combination of older units and newly constructed units) distributed throughout six parcels of land located on MAFB, resulting in a surplus of 196 units.

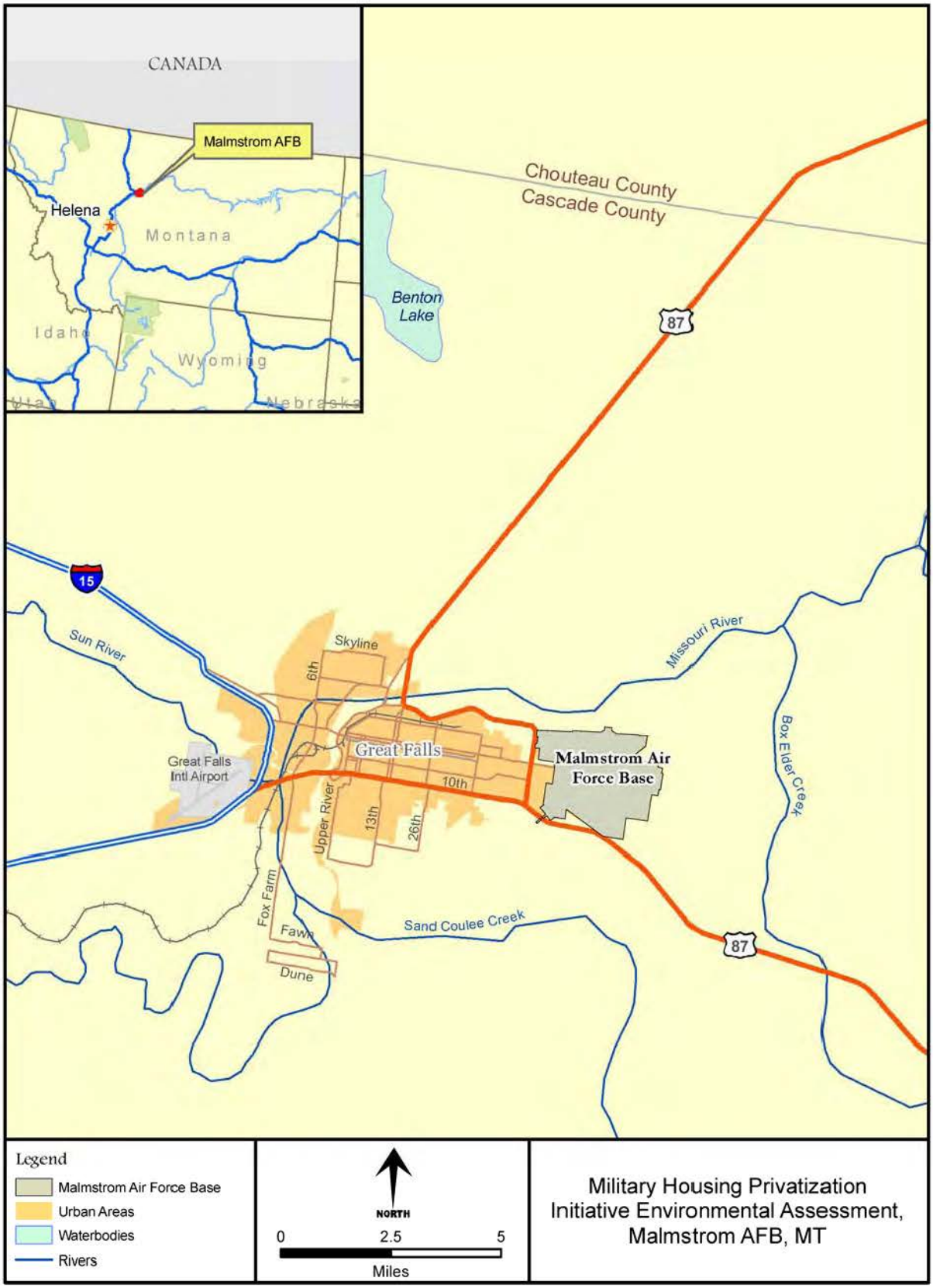

Figure 1-2. Location of Malmstrom AFB, Montana

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

This Environmental Assessment (EA) identifies, describes, and evaluates the potential environmental impacts that may result from the implementation of MFH privatization under the Proposed Action and the alternatives, as well as the No Action Alternative. As appropriate, the affected environment and environmental consequences of the Proposed Action and alternatives may be described in terms of site-specific descriptions or regional overview. Finally, the EA identifies measures that would prevent or minimize environmental impacts.

Federal agencies are required to consider the environmental consequences of proposed actions in the decision-making process under the NEPA, 42 United States Code (USC) 4321, et seq. The Council on Environmental Quality (CEQ) was established under NEPA, 42 USC 4342, et seq., to implement and oversee federal policy in this process. In 1978, the CEQ issued regulations implementing the NEPA process under 40 Code of Federal Regulations (CFR) Parts 1500–1508. The CEQ regulations require that the federal agency considering an action evaluate or assess the potential consequences of the action or alternatives to the action, which may result in the need for an environmental assessment or environmental impact statement. Under 40 CFR:

- An EA must briefly provide sufficient evidence and analysis to determine whether a Finding of No Significant Impact or Environmental Impact Statement (EIS) should be prepared.
- An EA must facilitate the preparation of an EIS if required.

The activities that are addressed within this document constitute a federal action and, therefore, must be assessed in accordance with NEPA. To comply with NEPA, as well as other pertinent environmental requirements, the decision-making process for the Proposed Action will include the development of an EA to address the environmental issues related to the proposed activities. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to the procedures set forth in CEQ regulations and 32 CFR Part 989 (*Air Force Environmental Impact Analysis Process*).

The following environmental features were identified for analysis in this EA: air quality, solid waste, hazardous materials, water resources/wetlands, soils, noise, socioeconomics, and cultural resources.

1.4.1 Issues Not Carried Forward for Detailed Analyses

Issues with minimal or no impacts were identified through a preliminary screening process. The following describes the issues that were not carried forward for a detailed analysis and the rationale associated with their elimination.

- *Biological Resources*: Based on interviews with MAFB personnel and survey information in the installation's *Integrated Natural Resources Management Plan*, no threatened, endangered, or species of concern are located within or adjacent to the proposed MAFB MHPI action areas (Verzuh, 2008; U.S. Air Force, 2007a). Additionally, the housing areas are all improved areas that do not provide habitat for wildlife species, and no undeveloped areas are proposed for use as housing. As a result, there would be no impacts to biological resources associated with the Proposed Action or alternatives.
- *Land Use*: All action areas associated with the MHPI at MAFB are either currently utilized for housing or are improved grounds used for purposes similar to the expected final disposition under the Proposed Action and alternatives. As a result, the Air Force does not anticipate changes in land use designations associated with MHPI, and no impacts to internal or adjacent land uses are expected.
- *Transportation*: For most of the housing areas, there would be no changes in current residential traffic, and traffic within Peacekeeper Park would be reduced in association with the proposed removal of 196 houses. Potential demolition of roadways in the surplus area of Peacekeeper Park, as well as demolition of existing roadways and construction of new roadways in Minuteman Village (depending on the alternative selected), is not expected to significantly affect local traffic patterns. Intermittent traffic delays associated with construction activities are ongoing due to current MILCON activities within the housing areas, and some housing unit renovation and/or demolition activities associated with MHPI may result in similar impacts. However, any traffic delays would be temporary in nature, ending once activities have ceased. As a result, the Air Force does not anticipate any significant adverse impacts to MAFB transportation.
- *Utilities and Infrastructure*: Housing area utilities are provided by local, off-base utility providers. While a reduction of housing units on the MAFB would result in some residents moving out into the local community, there would be no net

increase or reduction in utility use associated with the Proposed Action or alternatives. Existing utility infrastructure would be utilized to the greatest extent possible, and while there may be minor utility infrastructure work conducted at or near specific housing units being renovated, demolished, or constructed, no service interruption to residences would be anticipated.

- *Safety and Occupational Health*: Day-to-day construction operations and maintenance activities conducted at MAFB are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) requirements. Construction and demolition activities on the installation are required to have appropriate job site safety plans, which explain how job safety will be assured throughout the life of the project. Construction and demolition workers are also required to follow applicable Occupational Safety and Health Administration (OSHA) requirements. Occupational health and safety would be governed by the terms of the contract, which may incorporate Air Force regulations and technical orders, AFOSH standards, and OSHA standards. The Air Force does not anticipate impacts to safety, provided that all applicable AFOSH and OSHA requirements are implemented.

1.5 APPLICABLE REGULATORY REQUIREMENTS

Environmental Coordination and Public Review

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning, the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate the potential environmental impacts of a proposed action. Comments from these agencies are subsequently incorporated into the EIAP.

NEPA also requires that the government provide the public with an opportunity to review and provide input on the proposal and the potential environmental consequences prior to the government decision regarding the Proposed Action and alternatives.

The Air Force published a public notice in the *Great Falls Tribune* and the Malmstrom AFB newspaper on 12 June 2009, inviting the public to review and comment upon the EA (located at the Great Falls Library and the Malmstrom AFB Library). A copy of the display ad is located in Appendix A, Public Involvement. The Air Force also provided the following agencies copies of the EA for review and comment: Montana Department of Environmental Quality; Montana Historical Society; U.S. Fish and Wildlife Service; City of Great Falls; Cascade County Conservation District; and Walking Shield American Indian Society.

The public comment and agency review period ended on 12 July 2009. The only response received was from the U.S. Fish and Wildlife Service, which concurred on the Finding of No Significant Impact (FONSI). The Service recommended that the Air Force contact the Montana Department of Fish, Wildlife, and Parks for concurrence on the EA findings. However, this agency is a component of the Montana Department of Environmental Quality, which received the EA for review. No responses were received from either agency. No public comments were received on the EA. Two articles were published in the *Great Falls Tribune* regarding housing privatization at Malmstrom AFB (see Appendix A).

Environmental Permitting/Coordination Requirements

Should the Air Force choose to implement the Proposed Action or alternatives, an authorization to discharge storm water under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity would have to be obtained.

1.6 ORGANIZATION OF THE DOCUMENT

This EA follows the requirements established by CEQ regulations (40 CFR 1500–1508). This document consists of the following chapters:

1. Purpose and Need
2. Description of Proposed Action and Alternatives
3. Affected Environment and Environmental Consequences
4. Cumulative Impacts
5. Persons and Agencies Contacted
6. List of Preparers
7. References

This page is intentionally blank.

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the process by which the Air Force formulated alternatives for implementing the Proposed Action, the alternatives that the Air Force considered but did not carry forward, and the No Action Alternative.

2.2 PROPOSED ACTION

The Proposed Action consists of activities associated with the overall proposal for the Air Force to implement the MHPI program at MAFB, Montana. The MAFB HRMA determined that the installation requires 1,224 MFH units by CY10 (U.S. Air Force, 2007), resulting in a surplus of 196 units. Through a combination of unit transfers to a non-DoD agency, demolition, new construction, and/or renovation, a developer would reach the end-state requirement of 1,224 MFH units.

The following activities are associated with the Proposed Action:

- Conveyance of 1,420 housing units and associated infrastructure
  - Minuteman Village: 202 units
    - 23 units "as-is"
    - Whole-house renovation of 179 units
  - Jupiter Village: 150 units "as-is"
  - Peacekeeper Park: 552 units
    - 300 units "as-is"
    - Demolition of 196 units
    - Up to 56 units renovated or demolished and newly constructed (demolition and reconstruction would include roadways)
  - Titan Village: 146 units
    - 94 units "as-is"
    - Up to 52 units renovated or demolished and newly constructed (demolition and reconstruction would include roadways)
  - Atlas Village: 276 units "as-is"
  - Matador Manor: 94 units "as-is"

- End-state units: 1,224 (per HRMA requirement)
- Construction of a Housing Maintenance Facility within existing housing areas
- Optional conveyance of the existing Housing Office "as-is"
- Lease of the affected real property to the developer for a period of 50 years
  - The developer would have the option of leasing the ball park area adjacent to Matador Manor and a small parcel within Peacekeeper Park if a suitable use, as approved by the Air Force, is proposed
  - Approximately 45 acres at Peacekeeper Park would be returned to the Air Force once demolition of 196 units is completed

Table 2-1 provides a summary of activities associated with the Proposed Action while Figure 2-1 shows the location of existing housing areas and Figure 2-2 shows the location of activities associated with the Proposed Action and alternatives.

Table 2-1. Malmstrom AFB MHPI Proposed Action Details

Existing Housing Area /Facility	Parcel Designator	Estimated Size of Lease (Acres)	Length of Lease (Years)	Number of Units Conveyed	Conveyed "as-is"*	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Units
Minuteman Village	11-M	70	50	202	23	179	0		**1,224**
Jupiter Village	12-M	39		150	150	0			
Peacekeeper Park	13-M	96		356	300	56			
Peacekeeper Park (Surplus)	16-M	45	Upon completion of demo.	196	0		196	0	
Titan Village	14-M	45	50	146	94	52			
Atlas Village		45		276	276	0			
Matador Manor	15-M	30		94	94				
Housing Office (Optional)	18-M	1.6		Housing Office					
Peacekeeper Park (Optional)	17-M	8		To be leased if a suitable use is identified					
Ball Park Area (Optional)	19-M	12							
Housing Maint. Facility (Optional)**				N/A				1	
			Total	**1,420**	**937**	**287**	**304**	**108**	

N/A = Not Applicable
*Units "as-is" upon completion of current MILCON housing construction.
**A new Housing Maintenance Facility, if constructed, would be built within one of the areas listed above.

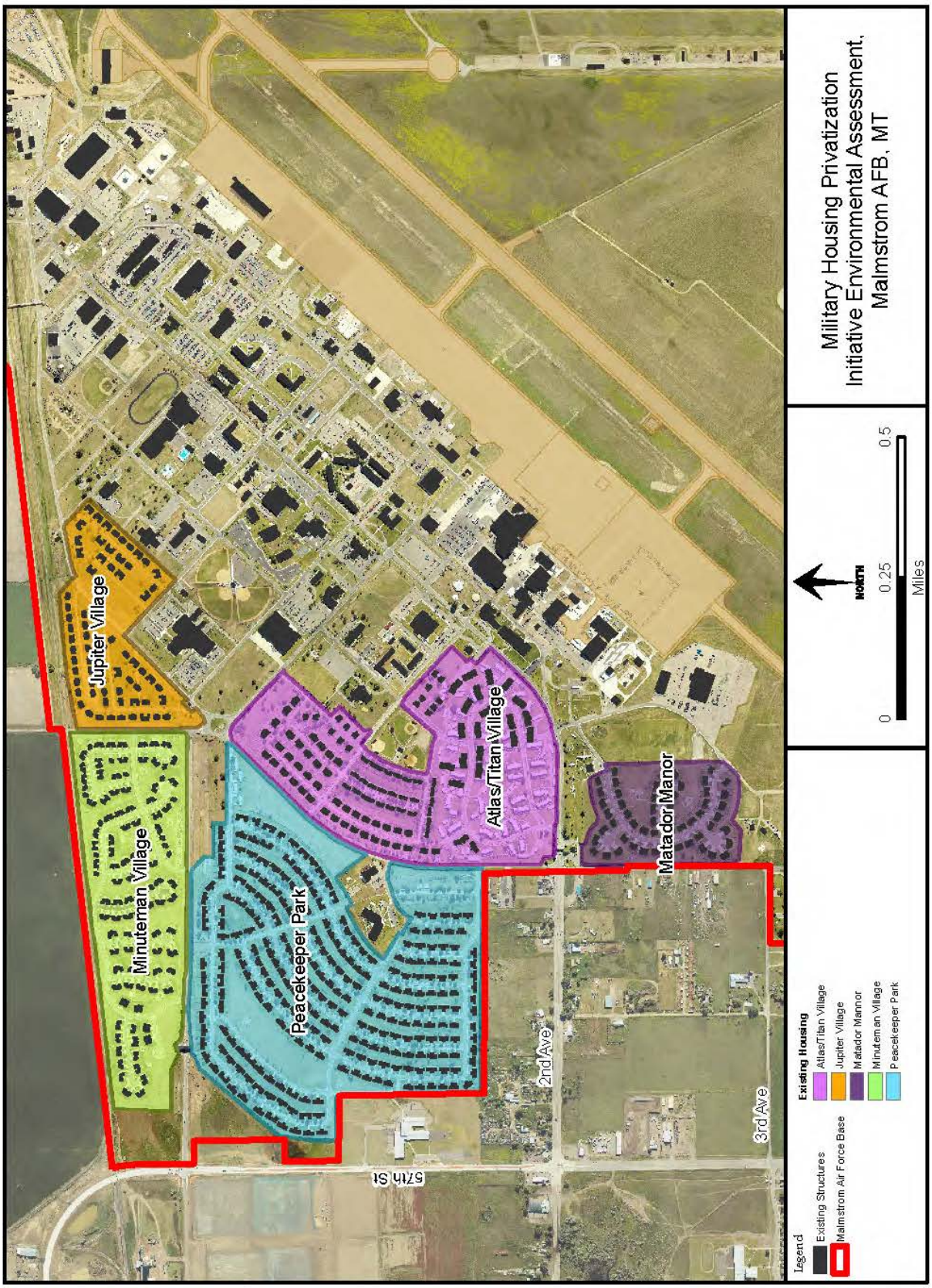

Figure 2-1. Location of Existing Housing at MAFB

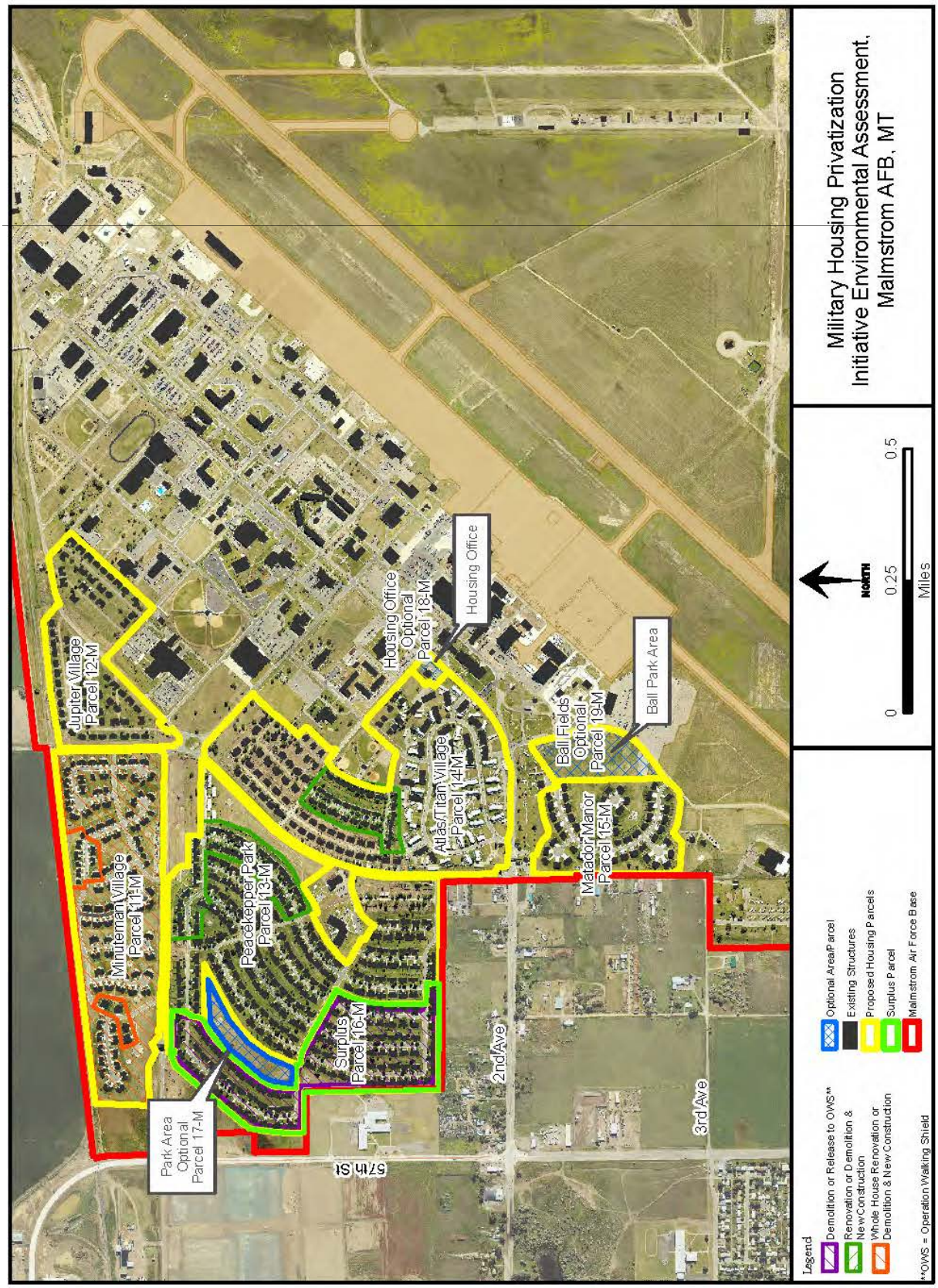

Figure 2-2. Location of Activities Associated With the MHPI Proposed Action and Alternatives

Through the combination of demolition, renovation, and/or new construction, the developer would need to meet the end-state requirement of 1,224 housing units. For analysis purposes, the most reasonably foreseeable development scenario based on existing housing area logistics and design/layout is utilized for impact analysis. In the case of demolition and new construction, it is assumed that new units would be constructed relative to previous unit locations (i.e., the location where another unit was demolished) so that areas that were previously undeveloped would not be utilized for replacement housing. The specific units that should be either demolished or renovated would be identified by the Air Force within the Housing Privatization Request for Proposal, and the developer would propose the approach for handling those units, whether renovation or demolition and new construction.

The Air Force also made assumptions for the square footage of the impervious surfaces associated with the units that would be demolished and newly constructed as well as roadways potentially demolished and constructed. The average impervious surface area associated with each unit (which includes driveways, patios, sidewalks, etc.) would be approximately 1,275 square feet. For most of the housing areas, there would be no changes in current residential roadways. However, there may be demolition of roadways in the surplus area of Peacekeeper Park. The developer also has two location options (one south and one southeast of Matador Manor) for development of a new Housing Maintenance Facility. For purposes of this EA, the Air Force assumes that either location could be utilized and that the Housing Maintenance Facility would be approximately 4,000 square feet. The following Table 2-2 shows the square footage associated with any potential demolition, renovation, and new construction that would occur under the Proposed Action.

Table 2-2. Proposed Action Potential Renovation, Demolition, and Construction

Housing Area	Total Units Affected	Units Potentially Renovated*		Units Potentially Demolished		Units Potentially Constructed**		Roadway SqFt	
		#	SqFt	#	SqFt	#	SqFt	Demo'd	Const
Minuteman Village	179	179	266,481	0					
Peacekeeper Park	252	56	112,215	252	496,190	56	123,437	422,844	158,994
Titan Village	52	52	166,095	52	166,095	52	182,705	133,294	
MFH Subtotal	***483***	***287***	***544,791***	***304***	***662,285***	***108***	***306,142***	***556,138***	***292,288***
Additional Impervious Surface Area per Unit: 1,275 SqFt		0		304	387,600	108	137,700	N/A	
Housing Maint. Facility		N/A				1	4,000		
Total			***544,791***	***N/A***	***1,049,885***	***N/A***	***447,842***	***556,138***	***292,288***

N/A = not applicable; SqFt = square feet (represents footprint of building, roadway, or impervious area)
* Renovation of units does not include additional impervious surface area.
** Square footage potentially constructed includes 10% increase over baseline for increased housing size standards.

Currently, MAFB is in the process of updating existing housing through MILCON actions previously analyzed and approved through separate NEPA analysis. At the end of the MILCON process, nearly all MAFB housing units (with the exception of 252 units at Peacekeeper Park, 52 units at Titan Village, and 179 units at Minuteman Village) will have been newly constructed (Figure 2-3) or renovated within the last 10 years. Table 2-3 shows the relationship between previous environmental documentation and current MILCON construction activities.

Table 2-3. Previous Environmental Documentation for Housing

Housing Area	Environmental Documentation	Year	Date of FONSI Signature
Minuteman Village	EA for Land Purchase of 90 Acres for Housing Development, Malmstrom AFB, MT EBS for Land Purchase of 90 Acres for Housing Development, Malmstrom AFB, MT	Jun 1996	Jun 1996
Matador Manor	Abbreviated EA , Phase 4, Construction of New Housing at Malmstrom AFB, MT	Jul 1998	Dec 1998
Titan Village	Final EA for Phase 4 Replace Family Housing at Malmstrom AFB, MT	Aug 2003	Nov 2003
Jupiter Village	EA for Fiscal Year 2005 Replace Family Housing (Jupiter) Phase 5 at Malmstrom AFB, MT	May 2004	Nov 2004
Peacekeeper Park	Final EA for Phase 6 and Phase 7 Replace Family Housing at Malmstrom AFB, MT	Nov 2005	Dec 2005
Atlas Village			

FONSI = Finding of No Significant Impact

Figure 2-3. New Housing Constructed via MILCON

The alternatives to the Proposed Action are associated with differences in the number of units that would be released, demolished, renovated, and constructed in order to meet the 1,224-unit housing requirement, based on the parameters for housing distribution, renovation, and construction described previously. The details of each alternative are discussed in the associated section of this chapter.

2.3 FORMULATION OF ALTERNATIVES FOR IMPLEMENTING THE PROPOSED ACTION

Alternatives for implementing the MHPI program at MAFB were developed with consideration of the ongoing MILCON activities associated with existing housing. Since the majority of housing will be constructed via MILCON and then conveyed to the developer, alternatives were developed to address the units remaining that would be surplus or would need renovation.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED

Since nearly all of the housing units that would be owned and operated under privatization will be either newly constructed or renovated already through ongoing MILCON projects, alternatives associated with developing new housing areas were not considered as part of the MHPI program. Instead, alternatives associated with the disposition of housing units that would not be affected by ongoing MILCON activities are considered in this EA.

2.5 ALTERNATIVES CARRIED FORWARD FOR ANALYSIS

Based on the facility and location requirements described previously, the Air Force has identified the following alternatives for implementing the Proposed Action. Figure 2-2 shows the locations of each alternative.

2.5.1 Alternative 1: Demolition and New Construction at Minuteman Village

The difference between the Proposed Action and Alternative 1 is that the 179 units at Minuteman Village would be demolished rather than renovated and associated roadways would be demolished and reconstructed. The developer would then reconstruct the 179 units within the existing footprint. Table 2-4 shows the

activities associated with Alternative 1 while Table 2-5 shows the square footage estimates associated with Alternative 1.

Table 2-4. Malmstrom AFB MHPI Alternative 1 Details

Existing Housing Area /Facility	Parcel Designator	Estimated Size of Lease (Acres)	Length of Lease (Years)	Number of Units Conveyed	Units Conveyed "as-is"*	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Units
Minuteman Village	11-M	70	50	202	23	0	179		1,224
Jupiter Village	12-M	39		150		0			
Peacekeeper Park	13-M	96		356	300	56			
Peacekeeper Park (Surplus)	16-M	45	Upon completion of demo.	196	0		196	0	
Titan Village	14-M	45	50	146	94	52			
Atlas Village		45		276		0			
Matador Manor	15-M	30		94					
Housing Office (Optional)	18-M	1.6		Housing Office					
Peacekeeper Park (Optional)	17-M	8		To be leased if a suitable use is identified					
Ball Park Area (Optional)	19-M	12							
Housing Maint. Facility (Optional)**				N/A				1	
			Total	**1,420**	**937**	**108**	**483**	**287**	

N/A = not applicable
*Units "as-is" upon completion of current MILCON housing construction

Table 2-5. Alternative 1 Housing Unit Potential Renovation, Demolition, and Construction

Housing Area	Total Units Affected	Units Potentially Removed by OWS		Units Potentially Renovated		Units Potentially Demolished		Units Potentially Constructed		Roadway Square Footage	
		#	SqFt	#	SqFt	#	SqFt	#	SqFt	Demolished	Constructed
Minuteman Village	179	0				179	266,481	179	266,481	234,000	
Peacekeeper Park	252	0		56	112,215	252	496,190	56	123,437**	422,844	158,994
Titan Village	52	0		52	166,095	52	166,095	52	182,705**	133,294	
MFH Subtotal	***483***	***0***		***108***	***278,310***	***252***	***928,766***	***287***	***572,623***	***790,138***	***526,288***
Additional Impervious Surface Area per Unit: 1,275 SqFt		0				483	615,825	287	365,925	N/A	
Housing Maint. Facility		N/A						1	4,000		
Total		***N/A***	***0***	***N/A***	***278,310****	***N/A***	***1,544,591***	***N/A***	***942,548***	***790,138***	***526,288***

MFH = military family housing; N/A = not applicable; OWS = Operation Walking Shield; SqFt = square feet (represents footprint of building, roadway, or impervious area)

*Renovation of units does not include additional impervious surface area.

**Square footage potentially constructed includes 10% increase over baseline for increased housing size standards.

2.5.2 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

The difference between Alternative 2 and the Proposed Action is that instead of demolishing the 196 units at Peacekeeper Park, the Air Force would convey the relocatable military housing units to Native American Tribes through the Operation Walking Shield Program, on behalf of Native American Tribes in the State of Montana, managed by Walking Shield, Inc. Walking Shield, Inc. is a nonprofit organization that specializes in measures and services to improve the quality of life for Native Americans.

In fiscal year (FY) 1999, a Defense Appropriations Bill authorized the Air Force and MAFB, specifically, to convey excess military housing units to Native American (or Indian) tribes in Montana. Since the program's implementation, MAFB has provided approximately 230 surplus housing units to several reservations within Montana. Walking Shield, Inc. manages the Operation Walking Shield Program and facilitates conveyances of housing units between identified Indian tribes requesting housing and the Air Force or MAFB with the excess housing units. The Air Force then generates the Transfer Agreement and Bill of Sale of the military housing units to be conveyed and Walking Shield, Inc. organizes, arranges, and budgets for the relocation of those units to be conveyed. The identified tribes, or its members who need or requested housing through the Operation Walking Shield Program, then work with Walking Shield Inc. to finalize housing relocation, installation, utilities, and the completion of all necessary conveyance transaction documents.

Table 2-6 shows the activities associated with Alternative 2 while Table 2-7 shows the square footage estimates associated with Alternative 2.

Table 2-6. Malmstrom AFB MHPI Alternative 2 Details

Existing Housing Area / Facility	Parcel Designator	Estimated Size of Leased Area (Acres)	Length of Lease (Years)	Number of Units Conveyed	Units Conveyed "as-is"*	Released to Walking Shield, Inc.	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Unit Requirement
Minuteman Village	11-M	70	50	202	23	0	179	0		**1,224**
Jupiter Village	12-M	39		150		0				
Peacekeeper Park	13-M	96		356	300	0	56			
Peacekeeper Park (Surplus)	16-M	45	Upon release to OWS	196			0			
Titan Village	14-M	45	50	146	94	0	52			
Atlas Village		45		276		0	0			

Table 2-6. Malmstrom AFB MHPI Alternative 2 Details, Cont'd

Existing Housing Area / Facility	Parcel Designator	Estimated Size of Leased Area (Acres)	Length of Lease (Years)	Number of Units Conveyed	Units Conveyed "as-is"*	Released to Walking Shield, Inc.	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Unit Requirement
Matador Manor	15-M	30		94		0				
Housing Office (Optional)	18-M	1.6		Housing Office		N/A				
Peacekeeper Park (Optional)	17-M	8		To be leased if a suitable use is identified						
Ball Park Area (Optional)	19-M	12								
Housing Maint. Facility (Optional)**				N/A					1	
			Total	**1,420**	**1,113**	**196**	**287**		**108**	

N/A = not applicable; OWS = Operation Walking Shield

*Units "as-is" upon completion of current MILCON housing construction

Table 2-7. Alternative 2 Potential Housing Unit Renovation, Demolition, and Construction

Housing Area	Total Units Affected	Units Potentially Removed by OWS		Units Potentially Renovated		Units Potentially Demolished		Units Potentially Constructed		Roadway Square Footage	
		#	SqFt	#	SqFt	#	SqFt	#	SqFt	Demolished	Constructed
Minuteman Village	179	0		179	266,481	0					
Peacekeeper Park	252	196	383,975	56	112,215	56	112,215	56	123,437**	422,844	158,994
Titan Village	52	0	0	52	166,095	52	166,095	52	182,705**	133,294	
MFH Subtotal	***483***	***196***	***383,975***	***287***	***544,791***	***108***	***278,310***	***108***	***306,142***	***556,138***	***292,288***
Additional Impervious Surface Area per Unit: 1,275 SqFt		0				304***	387,600***	108	137,700	N/A	
Housing Maint. Facility		N/A						1	4,000		
Total		***N/A***	***383,975***	***N/A***	***544,791****	***N/A***	***665,910***	***N/A***	***447,842***	***556,138***	***292,288***

MFH = military family housing; N/A = not applicable; OWS = Operation Walking Shield; SqFt = square feet (represents footprint of building, roadway, or impervious area)

*Renovation of units does not include additional impervious surface area.

**Square footage potentially constructed includes 10% increase over baseline for increased housing size standards.

***Includes impervious area demolished as a result of 196 units removed by OWS.

2.5.3 Alternative 3: Combination of Alternatives 1 and 2

The difference between Alternative 3 and the Proposed Action is that the developer would demolish 179 units at Minuteman Village and associated roadways and reconstruct homes and roads within the same footprint rather than renovate the existing units. Additionally, the Air Force would release 196 units at Peacekeeper Park to Walking Shield, Inc. for use in the Operation Walking Shield Housing Relocation Program, rather than demolish them. Table 2-8 shows the activities associated with Alternative 3, while Table 2-9 shows the square footage estimates associated with Alternative 3.

Table 2-8. Malmstrom AFB MHPI Alternative 3 Details

Existing Housing Area / Facility	Parcel Designator	Estimated Size of Leased Area (Acres)	Length of Lease (Years)	Number of Units Conveyed	Units Conveyed "as-is"*	Released to Walking Shield, Inc.	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Unit Requirement
Minuteman Village	11-M	70	50	202	23	0		179		1,224
Jupiter Village	12-M	39		150		0				
Peacekeeper Park	13-M	96		356	300	0	56			
Peacekeeper Park (Surplus)	16-M	45	Upon release to OWS	196			0			
Titan Village	14-M	45	50	146	94	0	52			
Atlas Village		45		276		0	0			
Matador Manor	15-M	30		94		0				
Housing Office (Optional)	18-M	1.6		Housing Office		N/A				
Peacekeeper Park (Optional)	17-M	8		To be leased if a suitable use is identified						
Ball Park Area (Optional)	19-M	12								
Housing Maint. Facility (Optional)**				N/A					1	
			Total	**1,420**	**1,113**	**196**	**108**	**287**		

N/A = not applicable
*Units "as is" upon completion of current MILCON housing construction.

Table 2-9. Alternative 3 Potential Housing Unit Renovation, Demolition, and Construction

Housing Area	Total Units Affected	Units Potentially Removed by OWS		Units Potentially Renovated		Units Potentially Demolished		Units Potentially Constructed		Roadway Square Footage	
		#	SqFt	#	SqFt	#	SqFt	#	SqFt	Demolished	Constructed
Minuteman Village	179	0				179	266,481	179	266,481	234,000	
Peacekeeper Park	252	196	383,975	56	112,215	56	112,215	56	123,437**	422,844	158,994
Titan Village	52	0		52	166,095	52	166,095	52	182,705**	133,294	
MFH Subtotal	***483***	***196***	***383,975***	***108***	***278,310***	***287***	***544,791***	***287***	***572,623***	***790,138***	***526,288***
Additional Impervious Surface Area per Unit: 1,275 SqFt		0				483***	615,825***	287	365,925	N/A	
Housing Maint. Facility		N/A						1	4,000		
Total		***N/A***	***383,975***	***N/A***	***278,310****	***N/A***	***1,160,616***	***N/A***	***942,548***	***790,138***	***526,288***

MFH = military family housing; N/A = not applicable; OWS = Operation Walking Shield; SqFt = square feet (represents footprint of building, roadway, or impervious area)

*Renovation of units does not include additional impervious surface area.

**Square footage potentially constructed includes 10% increase over baseline for increased housing size standards.

***Includes impervious area and/or roadway demolished as a result of 196 units removed by OWS.

2.5.4 No Action Alternative

Under the No Action Alternative, the Air Force would not implement the MHPI program at MAFB and would manage and maintain existing housing in accordance with existing Air Force policy. Currently, 179 units in Minuteman Village (Figure 2-4) require either whole-house renovation or demolition and new construction. Additionally, 52 units in Titan Village (Figure 2-5) and 56 units in Peacekeeper Park require renovation in order to meet current Air Force housing standards. These activities would occur regardless of MHPI and are therefore a component of the No Action Alternative. Additionally, based on the HRMA, MAFB has a surplus of 196 housing units (associated with Peacekeeper Park). If the Air Force were to select the No Action Alternative under this proposal, it is reasonable to assume that in the near future MAFB would implement one of the following actions associated with the surplus units:

- Demolish the units and associated roadways.
- Release the units to Walking Shield, Inc. for distribution to local Native American tribes through the Operation Walking Shield Housing Relocation Program.

Figure 2-4. Foundational Issues at Minuteman Village Requiring Renovation/Demolition

Figure 2-5. Older Housing Units at Titan Village Requiring Renovation/Demolition (Built 1963)

Table 2-10 provides a summary of activities associated with the No Action Alternative.

Table 2-10. Activities Associated With the No Action Alternative

Housing Area	Total Units Affected	Units Potentially Removed by OWS		Units Potentially Renovated		Units Potentially Demolished		Units Potentially Constructed		Roadway Square Footage	
		#	SqFt	#	SqFt	#	SqFt	#	SqFt	Demolished	Constructed
Minuteman Village	179	0		179	266,481	179	266,481	179	266,481	234,000	
Peacekeeper Park	252	196	383,975	56	112,215	252	496,190	56	123,437**	422,844	158,994
Titan Village	52	0		52	166,095	52	166,095	52	182,705**	133,294	
MFH Subtotal	***483***	***196***	***383,975***	***287***	***544,791***	***483***	***544,791***	***287***	***572,623***	***790,138***	***526,288***
Additional Impervious Surface Area per Unit: 1,275 SqFt	0					483***	615,825***	287	365,925	N/A	
Housing Maint. Facility	N/A							1	4,000		
Total		***N/A***	***383,975***	***N/A***	***278,310****	***N/A***	***1,160,616***	***N/A***	***942,548***	***790,138***	***526,288***

MFH = military family housing; N/A = not applicable; OWS = Operation Walking Shield; SqFt = square feet (represents footprint of building, roadway, or impervious area)

*Renovation of units does not include additional impervious surface area.

**Square footage potentially constructed includes 10% increase over baseline for increased housing size standards.

***Includes impervious area and/or roadway demolished as a result of 196 units removed by OWS.

Table 2-11. Alternative Summary

Alternative	Estimated Size of Leased Area (Acres)*	Length of Lease (Years)	Number of Units Conveyed**	Units Conveyed "as-is"***	Units Released to Walking Shield, Inc.	Max Units Potentially Renovated	Max Units Potentially Demolished	Max Units Potentially Constructed	Total End-State Units
Proposed Action	370 - 391.6	50	1,420	937	0	287	304	108	1,224
Alt 1					0	108	483	287	
Alt 2					196	287	108	108	
Alt 3					196	108	287	287	
No Action	0				196	287	483	287	

Total Estimated Square Footage***						
	Removed	*Buildings*	*Buildings*	*Roads*	*Buildings*	*Roads*
Proposed Action	0	544,791	1,049,885	556,138	447,842	292,288
Alternative 1	0	278,310	1,544,591	790,138	942,548	526,288
Alternative 2	383,975	544,791	665,910	556,138	447,842	292,288
Alternative 3	383,975	278,310	1,160,616	790,138	942,548	526,288
No Action	383,975	278,310	1,160,616	790,138	942,548	526,288

* Depends on utilization of optional parcels
**Does not include the existing Housing Office.
***"Buildings" includes 1,275 square feet of additional impervious surface area per housing unit per building and potential construction of a new Housing Maintenance Facility (4,000 square feet).

Table 2-12. Alternative Impact Summary and Comparison

Resource / Issue Area	Alternatives				
	Proposed Action	**Alternative 1: Demolition & New Construction at Minuteman Village**	**Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.**	**Alternative 3: Combination of Alternatives 1 and 2**	**No Action**
Air Quality	Air emissions associated the Proposed Action and alternatives would result from construction and demolition activities (mainly carbon monoxide and fugitive dust emissions). Based on analyses, the Air Force does not anticipate any significant impacts to regional or local air quality under any of the alternatives.				
Water Resources	No significant impacts to groundwater quality are expected under the Proposed Action and alternatives. A Montana Storm Water Permit would be required for construction activities covering more than 1 acre. A Storm Water Pollution Prevention Plan and associated Erosion Control Plan would also be required.				
	Approximately 20 acres of land could be restored to a permeable surface, thus having increased benefits to groundwater recharge and flood control over current conditions on MAFB. Proper use of best management practices (BMPs) and adherence to pollutant and water discharge regulations would minimize potential effects from all alternatives to water resources to less than significant amounts.				
Soils	Housing renovation causes the least amount of soil disturbance, therefore minimizing erosion potential. Demolition opens up the possibility of soils to being bare and vulnerable to wind and water erosion, as well as weed invasion. Additionally, erosion carries soils off-site and threatens drainages and waterways with sedimentation. BMPs, as required by the authorization to discharge storm water under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated With Construction Activity, would serve to minimize any potential adverse, long-term impacts associated with erosion. Consequently, the Air Force does not expect any significant impacts to soil resources from the Proposed Action or any of the alternatives.				
Noise	Noise from demolition and construction would cause a temporary increase in the ambient noise levels. Residents in the immediate vicinity of the activities may be annoyed due to the noise being greater than 60 dB, where speech communication outdoors and sleep indoors may be affected. However, these noises are short-term and transitory in nature and activities would occur during normal, weekday working hours. Thus, the Air Force anticipates no significant impacts.				

Table 2-12. Alternative Impact Summary and Comparison, Cont'd

Resource / Issue Area	Alternatives				
	Proposed Action	**Alternative 1: Demolition & New Construction at Minuteman Village**	**Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.**	**Alternative 3: Combination of Alternatives 1 and 2**	**No Action**
Hazardous Materials & Waste	Hazardous materials utilized during demolition/construction (i.e., fuels, lubricants) would be stored in proper containers, employing secondary containment as necessary to prevent and limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste would be reported and mitigated as required by the MAFB Hazardous Waste Management Plan and the Spill Prevention, Control, and Countermeasures (SPCC) Plan. Construction activities associated with the Proposed Action and alternatives would not be expected to generate hazardous wastes; however, renovation and demolition of older housing units could result in the production of lead-based paint or asbestos wastes. The management of theses wastes would be performed according to prescribed procedures already in place, which are designed to prevent or reduce pollution, reduce safety and health risks, and recycle wastes when possible. Wastes that cannot be recycled would be disposed of in a manner approved by the USEPA, at licensed facilities. The Air Force does not expect significant impacts.				
Solid Waste	The Proposed Action would result in an estimated 85,998 tons of waste, approximately 3.5% of the remaining landfill capacity at Shumaker and High Plains Landfills. The landfill has 497 acres of expansion not included within the current disposal capacity. As a result, the Air Force expects no significant impacts to local landfill disposal capacity.	Alternative 1 would result in an estimated 102,452 tons of waste, which is approximately 4.1% of the remaining landfill capacity at Shumaker and High Plains Landfills. Given available expansion of the landfills, the Air Force expects no significant impacts to local landfill disposal capacity.	Alternative 2 would result in an estimated 74,002 tons of waste, which is approximately 3% of the remaining landfill capacity at Shumaker and High Plains Landfills. Given available expansion of the landfills, the Air Force expects no significant impacts to local landfill disposal capacity.	Alternative 3 would result in an estimated 90,456 tons of waste, which is approximately 3.6% of the remaining landfill capacity at Shumaker and High Plains Landfills. Given available expansion of the landfills, the Air Force expects no significant impacts to local landfill disposal capacity.	No Action would potentially result in an estimated 102,082 tons of waste, which is approximately 4.1% of the remaining landfill capacity at Shumaker and High Plains Landfills. Given available expansion of the landfills, the Air Force expects no significant impacts to local landfill disposal capacity.

Table 2-12. Alternative Impact Summary and Comparison, Cont'd

Resource / Issue Area	Alternatives				
	Proposed Action	**Alternative 1: Demolition & New Construction at Minuteman Village**	**Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.**	**Alternative 3: Combination of Alternatives 1 and 2**	**No Action**
Socioeconomics & Environmental Justice	The Air Force has not identified any significant socioeconomic or environmental justice impacts associated with the Proposed Action or alternatives. Beneficial environmental justice impacts would be expected from Alternatives 2 and 3 by providing housing to American Indians on tribal reservations in need of suitable and affordable housing.				
Cultural Resources	The Air Force has not identified any significant impacts to cultural resources. The Air Force anticipates no effect to cultural resources under the Proposed Action or any of the alternatives. Any construction, demolition, or renovation activities would be confined to the housing area boundaries and no cultural resources are within the housing areas. The Proposed Action or alternatives would have no effect on the integrity of the Lewis and Clark/Great Falls Portage National Historic Landmark (Site number 24CA238). The landmark does not include MAFB, and any activities associated with the Proposed Action or alternatives would occur only on base property. The portage route identified on base property is approximately 0.5 mile from any housing area that would experience ground-disturbing activities of any kind (Peacekeeper Park and Titan Village).				

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 AIR QUALITY

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

The baseline standards for pollutant concentrations are the National Ambient Air Quality Standards and state air quality standards. These standards represent the maximum allowable atmospheric concentration that may occur and still protect public health and welfare.

3.1.1 Affected Environment

The Region of Influence (ROI) for the air quality analysis centers on Cascade County, Montana, where MAFB is located. According to the CFR, attainment status for Cascade County is attainment or unclassified for all criteria pollutants (U.S. Environmental Protection Agency [USEPA], 2008a), and monitoring data shows generally good air quality.

Cascade County emissions obtained from the USEPA's 2002 National Emissions Inventory (NEI) are presented in Table 3-1. The county data includes emissions data from point sources, area sources, and mobile sources. *Point sources* are stationary sources that can be identified by name and location. *Area sources* are point sources whose emissions are too small to track individually, such as a home or small office building or a diffuse stationary source, such as wildfires or agricultural tilling. *Mobile sources* are any kind of vehicle or equipment with gasoline or diesel engine, an airplane, or a ship. Two types of mobile sources are considered: on-road and non-road. On-road consists of vehicles such as cars, light trucks, heavy trucks, buses, engines, and motorcycles. Non-road sources are aircraft, locomotives, diesel and gasoline boats and ships, personal watercraft, lawn and garden equipment, agricultural and construction equipment, and recreational vehicles (USEPA, 2005).

Table 3-1. Baseline Emissions Inventory for Cascade County

Source Type	Emissions (tons/year)				
	CO	NO_x	PM_{10}	SO_2	VOC
Area Source	1,463	269	21,032	96	1,362
Non-Road Mobile	5,610	1,011	10,454	95	439
On-Road Mobile	19,253	2,252	10,508	62	1,242
Point Source	55	135	206	702	370
Total	*26,380*	*3,668*	*42,200*	*955*	*3,414*

Source: USEPA, 2002

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

3.1.2 Analysis Methodology

The focus of the air analysis is on construction and demolition activities, which are the main issues generated by the Proposed Action and alternatives. This includes emissions from heavy construction machinery, tractor-trailer rigs, dust (particulate matter) from demolition, and vehicle exhaust from contracted employees' personal vehicles. In order to evaluate the air emissions and their impact to the overall ROI, the emissions associated with the project activities were compared to the total emissions on a pollutant-by-pollutant basis for the ROI's 2002 NEI data (U.S. Air Force, No Date). Potential adverse impacts to air quality are identified as the total emissions of any pollutant that equals 10 percent or more of the ROI's emissions for that specific pollutant. The 10-percent criteria approach is used in the USEPA's General Conformity Rule as an indicator for impact analysis for nonattainment and maintenance areas. Although Cascade County is attainment, the General Conformity Rule's impact analysis was utilized to provide a consistent approach to evaluating the impact of construction. To provide a more conservative evaluation, the impacts screening in this analysis used a more restrictive criteria than required in the General Conformity Rule. Rather than comparing emissions from construction activities to regional inventories (as required in the General Conformity Rule), emissions were compared to the individual county (Cascade) potentially impacted, which is a smaller area.

The DoD-developed Air Conformity Applicability Model (ACAM), used by the U.S. Air Force for conformity evaluations, was utilized to provide a level of consistency with respect to emissions factors and calculations. Air emissions estimated using ACAM were compared to the established 10-percent criterion for Cascade County as represented in the USEPA 2002 NEI (USEPA, 2002). Emissions associated with construction and demolition activities are the main issues generated by the Proposed

Action and were the focus of the air analysis. Air quality issues associated with operational activities at MAFB after the completion of construction are not included in this evaluation.

3.1.3 Environmental Consequences

The air analysis focuses on the effects of construction and demolition of housing and associated pavement activities. Construction projects were assumed to be completed during FY09.

3.1.3.1 Proposed Action

The Proposed Action assumed a total of 1,049,885 square feet of units to be demolished and 447,842 square feet of construction, with 556,138 and 292,288 square feet of roadway to be demolished and constructed, respectively. It was conservatively assumed that all construction and demolition activities would be completed in one year. The potential emissions were compared to Cascade County emissions to determine significance (Table 3-2).

Table 3-2. Proposed Action Emissions Compared to Cascade County

Emission Activities	Emissions (tons/year)				
	CO	NO_x	PM_{10}	SO_2	VOC
Construction Emissions	35.31	9.53	4.85	1.08	16.85
Point Source	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.00	0.00	0.00	0.00	0.00
Total	**35.31**	**9.53**	**4.85**	**1.08**	**16.85**
Cascade County Emissions	26,380	3,668	42,200	955	3,414
Percentage of County Emissions	*0.13%*	*0.26%*	*0.01%*	*0.11%*	*0.49%*

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

There would be a slight temporary increase in emissions during the construction and demolition activities. Even under a conservative analysis approach, all emissions would be less than 1 percent of the total county emissions. As a result, the Air Force anticipates no significant impact to regional air quality under the Proposed Action.

3.1.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Under Alternative 1, 179 units at Minuteman Village and associated roadways would be demolished instead of renovated and reconstructed. Alternative 1 would

require the construction of 942,548 square feet of buildings and 526,288 square feet of roadways, and demolition of 1,544,591 square footage units and 790,138 square feet of associated roadways. Emissions would be slightly higher than those in the Proposed Action (Table 3-3). Volatile organic compounds would have the greatest effect on regional air quality, representing 0.98 percent of Cascade County's 2002 emissions. All emissions would be under the 10 percent threshold and temporary, concluding along with completion of project activities; therefore, the Air Force anticipates no significant air quality impacts from activities under Alternative 1.

Table 3-3. Alternative 1 Emissions Compared to Cascade County

Emission Activities	Emissions (tons/year)				
	CO	**NO_x**	**PM_{10}**	**SO_2**	**VOC**
Construction Emissions	43.81	10.01	6.84	1.08	33.61
Point Source	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.00	0.00	0.00	0.00	0.00
Total	**43.81**	**10.01**	**6.84**	**1.08**	**33.61**
Cascade County Emissions	26,380	3,668	42,200	955	3,414
Percentage of County Emissions	*0.17%*	*0.27%*	*0.02%*	*0.11%*	*0.98%*

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

3.1.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

Alternative 2 would release 196 housing units from Peacekeeper Park to Walking Shield, Inc. instead of demolishing the units as in the Proposed Action. There would be a slight increase in emissions as compared to the Proposed Action. The emissions for Alternative 2 would include construction and demolition, as well as vehicle emissions from trucks used to transport the housing units. At this time, it is unknown which Native American tribes or locations would receive the houses. As a result, for purposes of analysis, it is assumed that the houses would be transported to the nearest Native American Reservation (Rocky Boy, 106 miles) (MT.gov, 2008). It was also assumed that the houses would be moved in two pieces via standard "lowboy" tractor trailers. These activities result in minor, short-term (concluding upon completion of project activities) increases in air emissions, and all emissions would remain below the 10-percent threshold (Table 3-4). The Air Force expects no significant impacts to regional air quality for Alternative 2 activities.

Table 3-4. Alternative 2 Emissions Compared to Cascade County

Emission Activities	Emissions (tons/year)				
	CO	NO_x	PM_{10}	SO_2	VOC
Construction Emissions	35.31	9.53	3.71	16.85	0.77
Point Source	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.00	0.00	0.00	0.00	0.00
Vehicle Emissions	1.05	0.60	0.71	0.05	0.18
Total	**36.36**	**10.12**	**4.42**	**16.89**	**0.95**
Cascade County Emissions	26,380	3,668	42,200	955	3,414
Percentage of County Emissions	*0.14%*	*0.28%*	*0.01%*	*1.77%*	*0.03%*

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

3.1.3.4 Alternative 3: Combination of Alternatives 1 & 2

This alternative would demolish and reconstruct 179 units at Minuteman Village and associated roadways. Additionally the Air Force would release 196 units at Peacekeeper Park to Walking Shield, Inc. instead of demolishing the units as in the Proposed Action. Emissions would be short-term and similar to those in Alternative 1 where volatile organic compounds would have the greatest increase in regional air quality representing 0.98 percent of Cascade County emissions (Table 3-5). The Air Force does not anticipate significant air quality impacts from Alternative 3 activities.

Table 3-5. Alternative 3 Emissions Compared to Cascade County

Emission Activities	Emissions (tons/year)				
	CO	NO_x	PM_{10}	SO_2	VOC
Construction Emissions	43.81	10.01	5.39	1.08	33.61
Point Source	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.00	0.00	0.00	0.00	0.00
Vehicle Emissions	1.05	0.60	0.71	0.05	0.18
Total	**43.81**	**10.01**	**5.39**	**1.08**	**33.61**
Cascade County Emissions	26,380	3,668	42,200	955	3,414
Percentage of County Emissions	*0.17%*	*0.27%*	*0.01%*	*0.11%*	*0.98%*

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

3.1.3.5 No Action Alternative

Emissions from the No Action Alternative were analyzed in two separate evaluations since MAFB would have the option to demolish and reconstruct the Minuteman Village housing or renovate the housing. If the Air Force decides to

demolish and reconstruct the units, the emissions, while short-term, would be higher for carbon monoxide, nitrogen oxides, particulate matter, and volatile organic compounds (Table 3-6 and Table 3-7). Regardless of the Air Force's decision, the emissions would be well within the 10-percent threshold. As a result, the Air Force expects no significant air quality impacts for the No Action Alternative.

Table 3-6. No Action Alternative (Demolition and Reconstruction of Minuteman Housing) Emissions Compared to Cascade County

Emission Activities	Emissions (tons/year)				
	CO	NO_x	PM_{10}	SO_2	VOC
Construction Emissions	43.74	10.01	33.46	6.78	1.08
Point Source	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.00	0.00	0.00	0.00	0.00
Total	**43.74**	**10.01**	**33.46**	**6.78**	**1.08**
Cascade County Emissions	26,380	3,668	42,200	955	3,414
Percentage of County Emissions	*0.17%*	*0.27%*	*0.08%*	*0.71%*	*0.03%*

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

Table 3-7. No Action Alternative (Renovate Minuteman Housing) Emissions Compared to Cascade County

Emission Activities	Emissions (tons/year)				
	CO	NO_x	PM_{10}	SO_2	VOC
Construction Emissions	32.94	9.39	4.25	1.08	12.18
Point Source	0.00	0.00	0.00	0.00	0.00
Mobile Source	0.00	0.00	0.00	0.00	0.00
Total	**32.94**	**9.39**	**4.25**	**1.08**	**12.18**
Cascade County Emissions	26,380	3,668	42,200	955	3,414
Percentage of County Emissions	*0.12%*	*0.26%*	*0.01%*	*0.11%*	*0.36%*

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter with a diameter of less than or equal to 10 microns; SO_2 = sulfur dioxide; VOC = volatile organic compounds

3.2 WATER RESOURCES

Water resources consist of groundwater and surface water, quantity and quality, drainage conditions, and subsurface movements. Surface water resources comprise lakes, reservoirs, rivers, and streams and are important for a variety of economic, ecological, recreational, and human health values. Natural and human-induced factors determine the quality of water resources.

3.2.1 Affected Environment

The ROI for water resources is considered to be within the limits of MAFB. Located on a plateau with drainage northward toward the Missouri River, drainage features in the study area are primarily ephemeral streams and coulees (trench-like ravines). Potable groundwater is present at depths greater than 100 feet below ground surface.

3.2.1.1 Groundwater

Groundwater resources in the project area occur primarily in deep, confined aquifers (e.g., the Kootenai and Madison-Swift aquifers). The depth to these deep aquifers ranges between about 150 feet and 500 feet below land surface at MAFB. The deep confined aquifers in the area tend to flow northward. Shallow groundwater (less than about 25 to 40 feet below land surface) occurs locally as noncontiguous, unconfined, perched zones. Flow in the shallow, unconfined aquifers typically follows topographic gradients.

The deep Madison-Swift aquifer has the greatest potential for future groundwater development. Because of the limited supply of water and discontinuous nature of the shallow perched zones, they are unlikely to be used as a water source in the future. Due to the abundance of good quality surface water and the depth of most of the aquifers, groundwater resources have not been developed on MAFB. For details on the MAFB influence on groundwater in the area, refer to the *Draft Final Whitmore Ravine Watershed Assessment Upper Missouri Dearborn Rivers Sub-Basin, Sub-Unit 686* (BAH, 2008).

3.2.1.2 Surface Water

MAFB lies on a plateau roughly 10 square miles in extent, and surface water drains northward toward the Missouri River. The Missouri River is located about 1 mile north of MAFB and serves as the principal source of potable water for MAFB and the city of Great Falls. Much of the water flowing through the Missouri River originates as snow melt in the mountains. Other nearby surface water bodies are Box Elder Creek and Sand Coulee Creek, which are located within 5 miles of MAFB. There are no perennial streams present on MAFB, and no areas of MAFB lie within a designated floodplain.

Surface water drainage on MAFB occurs primarily through open storm ditches and in ephemeral streams and coulees. Man-made storm water drainage flows through

open storm ditches, swales, underground pipes, and discharge outfalls. Storm water discharge is regulated by a Montana Pollution Discharge Elimination System permit to MAFB from the Montana Department of Environmental Quality (MTDEQ). Storm water discharges from industrial areas on MAFB represent a potential pathway by which pollutants can enter surface waters. MAFB's Storm Water Pollution Prevention Plan (SWPPP) specifies best management practices (BMPs) that are used to minimize the discharge of pollutants into the storm water system.

MAFB has an estimated 901 acres of impervious area out of a total of 3,272 acres (BAH, 2008). Storm water exits MAFB at six discharge points (outfalls) that primarily flow north into Whitmore Ravine, a tributary of the Missouri River. MAFB has easements along these drainages for storm water discharge into the Missouri River, see Figure 3-1.

Whitmore Ravine is located east of downtown Great Falls in Cascade County in north central Montana. The Whitmore Ravine watershed is part of the Upper Missouri-Dearborn Rivers Sub-Basin (Hydrologic Unit Code 10030102) (BAH, 2008). The watershed drainage area is approximately 6,930 acres, of which approximately 3,052 acres is part of MAFB and the remaining 3,878 acres is agricultural property north and east of the installation. At the confluence of Whitmore Ravine and the Missouri River, the river is recognized as a Class B-2 river by the State of Montana. This classification specifies that the river is a source of water for domestic, recreational, industrial, and agricultural uses, as well as an integral part of wildlife habitat (MTDEQ, 2006). However, the portion of the Missouri River at the confluence with Whitmore Ravine is listed as an impaired water body on Montana's Impaired and Threatened Waters (Section 303(d)) List because it is not meeting the designated uses of aquatic life, drinking water supply, and warm water fishery, and is partially meeting the industrial designated use (BAH, 2008).

Construction and development activities on MAFB must consider potential impacts on these uses of the river. Significant erosion has occurred and continues in Whitmore Ravine, resulting in steep-sided, crumbling channels as much as 50 feet deep in some areas. A delta has formed in the Missouri River at the mouth of Whitmore Ravine (BAH, 2008). No single factor is the sole cause of erosion in Whitmore Ravine. The three major factors influencing the rate and type of erosion occurring within the West and Middle Forks of Whitmore Ravine are (1) geology and hydrogeology; (2) annual regional weather patterns; and (3) surface and groundwater from agricultural land and dry weather base flow from the MAFB storm water system (BAH,

2008). Local efforts to develop mitigation for reducing erosion potential recommended reducing storm water discharge into the ravine.

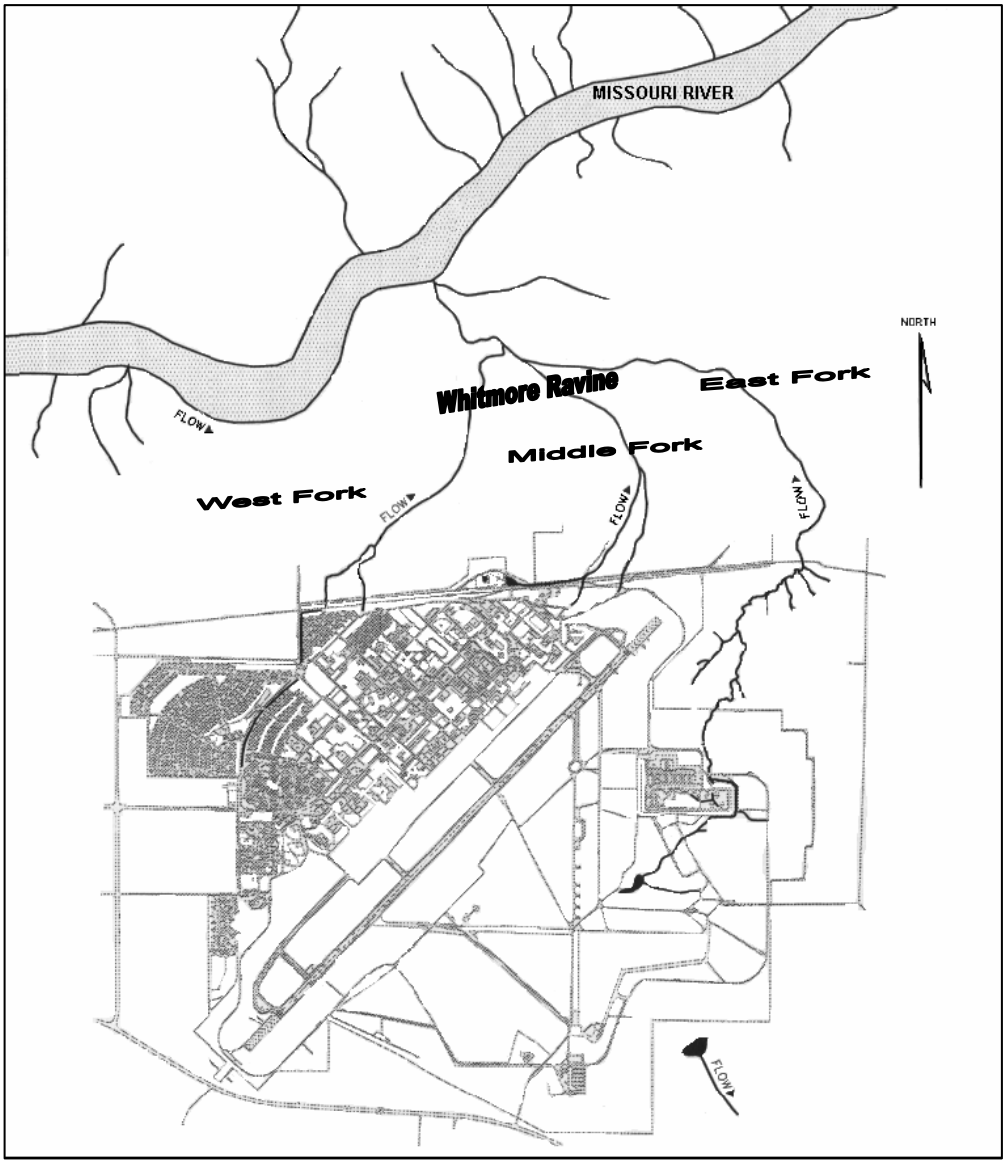

Figure 3-1. Surface Water Drainage Patterns at MAFB

MAFB can be divided into nine drainage areas, with drainage areas 1 through 6 flowing northerly and exiting MAFB at six outfalls, discharging into the west, middle, and east forks of Whitmore Ravine (Figure 3-2).

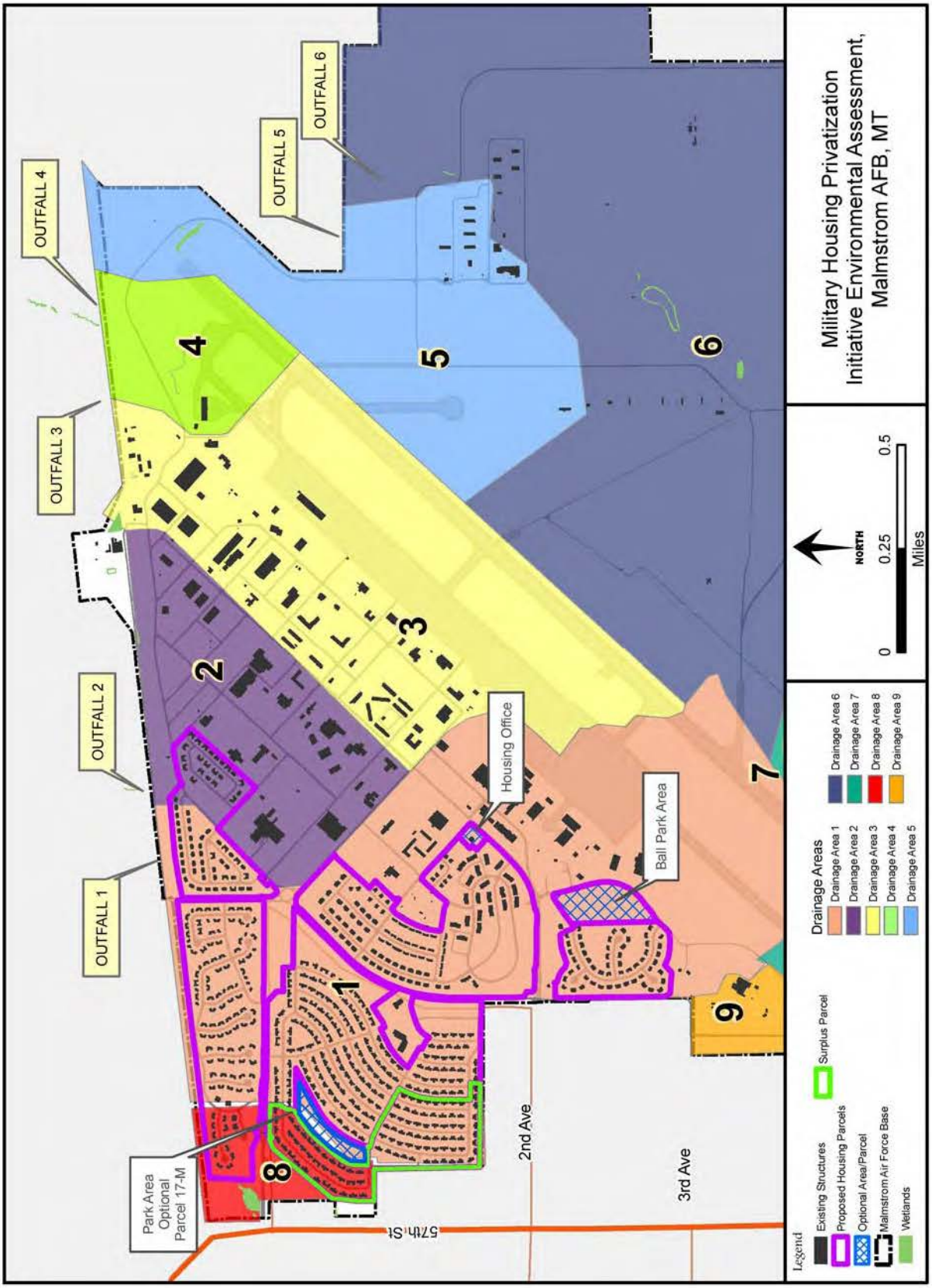

Figure 3-2. Water Drainage Areas Located on MAFB

Of the nine drainage areas on MAFB, the proposed housing action alternatives would most likely affect areas 1, 2, and 8.

Drainage Area 1 collects runoff from various runway, aircraft-parking, maintenance, and fueling areas, as well as most of Minuteman Village, about half of Jupiter Village, most of Peacekeeper Park, Titan Village, Atlas Village, and Matador Manor. The entire basin drains through a concrete-lined ditch, culverts, and a rock-lined open ditch into the west fork of Whitmore Ravine (refer to Figure 3-1).

Drainage Area 2 collects storm water runoff from the north central portion of MAFB, including from about half of Jupiter Village and other non-housing, developed areas of MAFB. The basin drains by a combination of underground concrete pipes, grass-lined ditches and curb and gutters in streets and roadways to Outfall 2.

Drainage Area 8 carries storm water from the western portions of Peacekeeper Park and Minuteman Village. It drains to wetland areas in the northwest corner of the base. The two delineated and regulated wetlands (approximately 1.17 acres total) identified in the project area, occur to the west of Minuteman Village and west of Peacekeeper Park within Drainage Area 8 (refer to Figure 3-2). In most cases, other wet areas within the ROI are associated with man-made drainage areas.

3.2.2 Analysis Methodology

Criteria for evaluating impacts related to water resources are water availability, water quality, water quantity, and adherence to applicable regulations. Impacts to water resources may occur from bare soils being exposed to wind or water erosion and soils leaving the site to enter surface waters or groundwater recharge systems. Impacts are measured by their potential to reduce water availability to existing users, endanger public health by affecting water quality, or violate laws or regulations adopted to protect or manage water resources.

The MTDEQ and the U.S. Army Corps of Engineers (USACE) are the regulatory agencies that govern water resources in the state of Montana and at MAFB. The Clean Water Act of 1977 regulates pollutant discharges and development activities that could affect aquatic life forms or human health and safety.

3.2.3 Environmental Consequences

Demolition and construction activities have the potential to affect water resources by physical disturbances and material releases (e.g., sediment, chemical contaminants) into surface waters and groundwater. An impact to water resources at

MAFB would be considered significant if an aquifer, groundwater well, or surface water body is degraded resulting in a measurable and persistent change in a water supply or potential water supply. An impact would also be considered significant if surface or groundwater quality were degraded such that severe or long-term exceedances of federal or state water quality criteria resulted. Increased recharge or improved water quality are examples of beneficial impacts.

Potential Impacts Common to All Alternatives

Surface water could potentially be affected by sedimentation when bare soils are exposed to wind and water erosion. Soils can be carried from the demolition and construction areas into surface water systems. These types of sedimentation impacts could increase turbidity in surface waters or add fill to wetlands that are downstream of construction activities. Because the identified wetlands in the northwest portion of MAFB within the ROI are located in Drainage Area 8 (refer to Figure 3-2), demolition or construction activities within the western portions of Minuteman Village and Peacekeeper Park may affect drainage to and sedimentation into the wetlands. Erosion and sedimentation related to construction activities are usually temporary, should conclude after construction and soil stability controls, and can be minimized with effective, preventative BMPs such as the use of silt fencing, covering of soil stockpiles, establishment of buffer areas near intermittent streams, and revegetation of disturbed areas in a timely manner. With proper BMP use, no significant effects to the quality of the two wetlands present are expected from implementation of action alternatives.

The MAFB SWPPP includes a section describing how discharges of pollutants of concern will be controlled and how storm water discharges will not cause or contribute to in-stream exceedances of water quality standards. The discussion identifies measures and BMPs that will collectively control the discharges of pollutants of concern, which may be associated with construction activities. With use of BMPs, pollutant discharge to groundwater would be expected to be minimal to zero and be less than significant under all alternatives.

Construction actions are considered short-term. Other short-term impacts that have the potential to affect shallow perched water zones, as well as surface waters, could occur if leaks or spills of contaminants from construction equipment (e.g., fuels, lubricants) should occur. However, these types of spills would not be expected to enter the deeper confined aquifers and can be readily mitigated through implementation of appropriate construction/maintenance practices and BMPs (refer to Section 3.5

Hazardous Materials and Waste). Impacts to groundwater aquifers are expected to be less than significant.

The MAFB Spill Prevention, Control, and Countermeasure (SPCC) Plan (U.S. Air Force, 2008b) identifies potential hazards, details emergency action procedures, including response functions and support organizations, and describes reporting and investigative follow-up procedures should a spill or leak of oil occur. Contractors are required to comply with applicable environmental regulations when working on MAFB property. MAFB has instituted a policy that requires contractors working at MAFB to provide secondary containment for oil and other hazardous liquids in storage containers greater than or equal to 55 gallons. In addition, contractors storing 1,320 gallons or more of oil on MAFB property are required to develop and implement their own site-specific SPCC plan. Drainage Areas 1, 2, and 8 (Figure 3-2) have the most potential to be affected by construction or demolition activities under any of the alternatives. At outfalls 1 through 4 and 6, controls are incorporated that allow for the discharge of storm water while simultaneously preventing the discharge of spilled petroleum products (oil, gasoline or diesel) (U.S. Air Force, 2008b).

Under Montana law, all action alternatives with construction activities that will disturb more than 1 acre require authorization to discharge storm water under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated With Construction Activity. Compliance with this permit, as well as the required Erosion Control Plan and the above-mentioned measures combined with the use of BMPs and engineering controls as prescribed in the required SWPPP, would reduce the potential for construction-related impacts to surface water resources to less than significant.

3.2.3.1 Proposed Action

The Proposed Action would not be expected to adversely impact groundwater resources since excavations at the housing construction sites would be shallow compared to depth of groundwater (greater than 100 feet) and would not intersect groundwater (except possibly minor perched zones).

Ground disturbance in the western portion of Peacekeeper Park and Minuteman Village could have an effect on the wetlands located east of 57th Street and west of Minuteman Village. If sedimentation is allowed to leave the demolition/construction areas, it could reach the wetlands. Contractors' adherence to local, state, and federal regulations and to established BMPs would greatly reduce, prevent, and control erosion

impacts that could move soil and debris from construction sites to surface waters. Effects to the wetlands would also differ depending on whether the housing in the western portions of Minuteman Village and Peacekeeper Park are renovated (few effects) or demolished followed by new construction (potential sedimentation flowing to wetlands after rubble removal). Proper use of BMPs would reduce these downstream effects to less than significant.

Full implementation of the Proposed Action would likely result in a net decrease in impervious surface due to a decrease in the total number of houses and roads remaining after completion, even though each unit rebuilt would occupy a larger square-foot footprint (Table 3-8).

Table 3-8. Changes in Impervious Surface Area for the Alternatives

Alternative	Proposed Buildings* Increase/ (Decrease)	Buildings* Increase/ (Decrease)	Proposed Roads Increase/ (Decrease)	Roads Increase/ (Decrease)	Total Impervious Areas Increase/ (Decrease)	
	ft²	acres	ft²	acres	ft²	acres
Proposed Action	(602,043)	(13.8)	(263,850)	(6.1)	(865,893)	(19.9)
Alternative 1	(602,043)	(13.8)	(263,850)	(6.1)	(865,893)	(19.9)
Alternative 2	(602,043)	(13.8)	(263,850)	(6.1)	(865,893)	(19.9)
Alternative 3	(602,043)	(13.8)	(263,850)	(6.1)	(865,893)	(19.9)
No Action	(602,043)	(13.8)	(263,850)	(6.1)	(865,893)	(19.9)

ft² = square feet

* Includes 4,000-ft² Housing Maintenance Facility, building demolished, building released to Walking Shield, Inc., and buildings constructed

This decrease in impervious area for the Proposed Action may be almost 20 acres, which results in increased water infiltration, groundwater recharge, and flood control on MAFB. Following revegetation, newly created open lands that were once covered with impervious surfaces have the potential for slowing down overland flow of storm water, reducing the impact of storm events on erosion and decreasing flooding potential. This results in a beneficial impact for the base. Housing renovation would have little more than temporary effects to watersheds and groundwater resources and no significant impacts.

3.2.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Because this alternative includes demolition and construction similar to the Proposed Action, potential groundwater, erosion and sedimentation impacts would be

similar. Like the Proposed Action, approximately 20 acres of land that currently is covered with buildings and roads could be restored to permeable surfaces that can allow greater groundwater recharge and flood control under Alternative 1. This results in a similar beneficial impact to MAFB. Housing renovation would have little more than temporary effects to watersheds and groundwater resources and no significant impacts.

3.2.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

Potential groundwater, erosion, and sedimentation impacts for housing unit demolition and construction under Alternative 2 would also be similar to those described for the Proposed Action and Alternative 1. Even though fewer housing units would be demolished under Alternative 2, potential sedimentation would also occur as a result of removal of 196 housing units for release to Operation Walking Shield and bare ground being exposed. After project completion, impervious area reduction under Alternative 2 would be the same as under the Proposed Action and Alternative 1, with approximately 20 acres of land becoming pervious. Therefore, following bare ground stabilization, this alternative would also benefit water resources by reducing overland flow rates of storm water and the impact of storm events on erosion and flooding potential. Housing renovation would have little more than temporary effects to watersheds and groundwater resources and no significant impacts.

3.2.3.4 Alternative 3: Combination of Alternatives 1 & 2

Under Alternative 3, potential groundwater, erosion and sedimentation impacts would be similar to the Proposed Action and Alternative 1. Like Alternative 2, releasing housing units to Operation Walking Shield would also leave bare soils until stabilization controls can take affect, resulting in potential soil erosion. Approximately 20 acres of impervious areas would also be reduced under Alternative 3, creating a benefit for water resources similar to other alternatives. Housing renovation would have little more than temporary effects to watersheds and groundwater resources and no significant impacts.

3.2.3.5 No Action Alternative

Because this alternative includes demolition and construction, potential groundwater, erosion, and sedimentation impacts would be similar to other alternatives. Like Alternative 2, releasing housing units to Operation Walking Shield would also leave bare soils until stabilization controls can take affect, resulting in

potential soil erosion. Under the No Action Alternative, MILCON projects currently underway would be completed and additional housing renovations and redevelopment would occur, but not under privatization. Like the other alternatives, approximately 20 acres of land that currently is covered with buildings and roads could be restored to permeable surfaces that can allow groundwater recharge. This results in a similar benefit to water resources as under other alternatives. Housing renovation would have little more than temporary effects to watersheds and groundwater resources and no significant impacts.

3.3 SOILS

The term "soils" refers to unconsolidated materials formed from the underlying bedrock or other parent material. Soils play a crucial role in both the natural and human environment. Soil drainage, texture, strength, shrink-swell potential, and erodibility all determine the suitability of the ground to support man-made structures and facilities.

3.3.1 Affected Environment

The ROI for soil resources includes the area primarily underlying MAFB in the MHPI project area, but it is possible that soils can leave the project area and MAFB due to erosion. Modern soils of MAFB consist primarily of Lawther silty clay and Dooley sandy loam (SCS, 1982). These two series encompass approximately 75 percent of MAFB. The Lawther series consists of very deep, well drained, slowly permeable soils that formed in calcareous clayey sediments on uplands, fans, and terraces on slopes that range from 0 to 9 percent (USDA, 2008). Available water capacity is moderate or high.

Dooley sandy loams are very deep (20 to 40 inches), well drained soils that formed in alluvium or eolian material over glacial till or lacustrine deposits (USDA, 2008). These soils occur on uplands and lacustrine areas on slopes from 0 to 15 percent. Permeability is slow and available water capacity is moderate. In conjunction with the level nature of the surface (average slope of 0.5 percent), runoff for this soil, as well as for the Lawther soils, is slow and surface erosion due to water is slight with wind erosion hazard being moderate to high. The Dooley sandy loams underlie a majority of the proposed project area.

Other prominent soils on MAFB include loamy fine sands (Virgelle) and alluvial silty clay loams (Gerber). The Virgelle series, found in the western side of the installation primarily under Peacekeeper Park and a portion of Titan Village, consists of

very deep, well drained soils that have a severe erosion potential from wind. Most of the other soils on MAFB are not highly subject to wind or water erosion. Gerber silty clay loams are deep, well drained soils and occur under Atlas Village. A small portion of McKenzie clays occurs in the extreme western portion of MAFB and may be affected by construction/demolition activities in Peacekeeper Park. This soil type occurs in depressions and is poorly drained; therefore, it may be a problem for construction equipment in that area. Specific soil types that occur in the project area are listed in Table 3-9.

Table 3-9. Soil Types Within Malmstrom AFB Housing Parcels (Acres)

Housing Parcels	Soils Types				
	Lawther	Virgelle	Dooley	Gerber	Gerber-Lawther
Minuteman Village			77		
Jupiter Village			40		
Peacekeeper Park		42	113		
Titan Village		10	35	2	
Atlas Village	8		18	21	
Matador Manor			31	12	5
Total Surface Area	**8**	**52**	**314**	**35**	**5**

3.3.2 Analysis Methodology

Protection of unique geologic features, minimization of soil erosion, and siting facilities in relation to potential geologic hazards and soil limitations are considered when evaluating impacts to soils. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development. Analysis of impacts to soil resources typically includes identification and description of soil types present in the ROI, evaluation of the potential effects that project actions may have on soils, and development of mitigation measures, if necessary. Impact analysis for soil resources includes examining the suitability of locations for proposed operations and activities. Impacts to and loss of soils can result from earth disturbance that would expose soil to wind and water erosion.

3.3.3 Environmental Consequences

Problem areas for typical construction/demolition projects include areas of steep slopes and erodible soils. Slopes within the project area are generally gentle; however, water and wind erosion could result if harsh weather occurs during construction

activities. Engineering controls such as the use of silt fences, sediment traps, wetting of the construction site, daily site inspections, and other BMPs would reduce soil movement, stabilize runoff, and control sedimentation.

All of the proposed alternatives' activities would take place on previously developed land, and continued development of these parcels should not be problematic. All soils present under the housing parcels are well drained, decreasing erosion potential. Where houses would be demolished or removed and not replaced in west Peacekeeper Park, soils would be stabilized with a ground cover (likely turfgrass). Upon completion of demolition and housing reconstruction in other areas, soil erosion problems would be reduced by the replacement of structures, paving, and landscaping. Therefore, no long-term impacts to site soils are expected.

A 1977 foundation soil study conducted by the USACE concluded that the clays underlying MAFB are expansive (USACE, 1977). Expansive soils on MAFB that are moisture sensitive and have high clay content have caused foundation-related problems. The USACE recommended specific foundation designs to compensate for this soil property. They also recommended that all construction should begin in late May or June when soil moisture conditions are high and the soil can be better stabilized. Foundation problems were also documented in a geotechnical investigation for ongoing MILCON projects that included site-specific engineering considerations and controls that could mitigate the negative impacts of the soil conditions; these considerations and controls would likely be included in any design requirements for contractor-built housing.

3.3.3.1 Proposed Action

Housing renovation causes the least amount of soil disturbance, thus minimizing erosion potential. Demolition opens up the possibility of soils remaining bare and vulnerable to wind and water erosion, as well as weed invasion. Additionally, erosion carries soils off-site and threatens drainages and waterways with sedimentation. The proper use of BMPs, the authorization to discharge storm water under the Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated With Construction Activity, and an Erosion Control Plan would serve to minimize any potential adverse, long-term impacts associated with erosion. Consequently, the Air Force does not expect any significant impacts to soil resources from implementation of the Proposed Action.

3.3.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Under Alternative 1, the high activity level and effort required for increased house and road demolition (over that for the Proposed Action) has a higher potential for disturbing existing ground cover and underlying soils and, therefore, the highest erosion potential. During the time that soils are disturbed and exposed, wind and rain can cause soil movement off the construction site and to downstream surface waters and drainages. However, as with the Proposed Action, a Storm Water Permit and Erosion Control Plan would be required, and BMPs followed, thus minimizing any potential adverse impacts to soils. The Air Force does not anticipate significant impacts to soils under Alternative 1.

3.3.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

This alternative considers the same high number of houses for renovation as the Proposed Action, which reduces potential impacts to ground surfaces and, therefore, soils. Also, it includes the least number of potentially demolished houses, also beneficial for keeping soils in place and reducing the potential for erosion to occur. Even though fewer housing units would be demolished under Alternative 2, potential sedimentation would also occur as a result of removal of 196 housing units for release to Operation Walking Shield and bare ground being exposed. Even so, with proper permits, plans, and BMPs including soil stabilization and revegetation, the Air Force does not anticipate significant impacts to soils under Alternative 2.

3.3.3.4 Alternative 3: Combination of Alternatives 1 & 2

With the lowest number of houses considered for renovation along with Alternative 1 (108) and a medium number considered for demolition (287), this alternative falls into the middle of the alternatives in relation to soil impacts. Other alternatives would preserve more soils and some would disturb more soils. As with the other alternatives, the appropriate Montana storm water permit and Erosion Control Plan would be required, thus minimizing any potential adverse impacts to soils. The Air Force does not anticipate significant adverse impacts to soils under Alternative 3.

3.3.3.5 No Action Alternative

This alternative also considers a high number of houses for renovation, which reduces potential impacts to ground surfaces and, therefore, soils. However, the No Action Alternative also includes, along with Alternative 1, the highest number of house demolitions, which leaves soils vulnerable to erosion and weed invasion. Again, as

with the other alternatives, the appropriate Montana storm water permit and Erosion Control Plan would be required, and BMPs implemented, thus minimizing any potential adverse impacts to soils. The Air Force does not anticipate significant adverse impacts to soils under the No Action Alternative.

3.4 NOISE

Noise is defined as any unwanted sound. Defining characteristics of noise include sound level (amplitude), frequency (pitch), and duration. Each of these characteristics plays a role in determining the intrusiveness and level of impact of the noise on a noise receptor. The term "noise receptor" is used in this document to mean any person, animal, or object that hears or is affected by noise.

Sound levels are recorded on a logarithmic decibel (dB) scale, reflecting the relative way in which the ear perceives differences in sound energy levels. A sound level that is 10 dB higher than another would normally be perceived as twice as loud while a sound level that is 20 dB higher than another would be perceived as four times as loud. Under laboratory conditions, the healthy human ear can detect a change in sound level as small as 1 dB. Under most nonlaboratory conditions, the typical human ear can detect changes of about 3 dB.

Sound measurement may be further refined through the use of frequency "weighting." The normal human ear can detect sounds that range in frequency from about 20 hertz (Hz) to 20,000 Hz (Federal Interagency Committee on Noise, 1992). However, all sounds throughout this range are not heard equally well. In "A-weighted" measurements, the frequencies in the 1,000 to 4,000 Hz range are emphasized because these are the frequencies heard best by the human ear. Sound level measurements weighted in this way are termed *A-weighted decibels* (dBA).

Typically, sound levels at any given location change constantly. For example, the sound level changes continuously when an aircraft flies by, starting at the ambient (background) level, increasing to a maximum when the aircraft passes closest to the receptor, and then decreasing to ambient levels when the aircraft flies into the distance. The term *Maximum Sound Level,* or "L_{max}" represents the sound level at the instant of an aircraft overflight, when the sound level is at its maximum.

Annoyance is the most common effect of noise on humans. Noise often interferes with activities such as conversation, watching television, using a telephone, listening to the radio, and sleeping. This interference often contributes to individuals becoming annoyed. Whether or not an individual becomes annoyed by a particular

noise is highly dependent on emotional and situational variables of the listener, as well as the physical properties of the noise (FAA, 1985). However, when assessed over long periods of time and with large groups of people, a strong correlation exists between the percentage of people highly annoyed by noise and the time-averaged noise exposure level in an area (Finegold et al., 1994). This finding is based on surveys of groups of people exposed to various intensities of transportation noise. A generalized categorization of noise-induced annoyance can be found in Table 3-10.

Table 3-10. Relationship Between Noise Level and Percent of Population Highly Annoyed

Criteria	Noise Level		
A-Weighted Average Noise Levels (Continuous Noise)	< 65 dBA	65-75 dBA	> 75 dBA
C-Weighted Average Noise Levels (Impulsive Noise)	< 62 dBC	62-70 dBC	> 70 dBC
Percent of Population Highly Annoyed	< 15%	15%-39%	>39%

Source: USACHPPM, 2005; U.S. Army, 1997

< = less than; > = greater than; dB = decibels; dBA = A-weighted decibels; dBC = C-weighted decibels

Based on numerous sociological surveys and recommendations of federal interagency councils, the most common benchmark referred to is the Day/Night Average Sound Level (L_{dn}) of 65 dBA (Table 3-10). The L_{dn} is a measure of the cumulative noise exposure in a community, with a 10-dB addition to nighttime (10:00 PM to 7:00 AM) noise levels. This annual average threshold is often used to determine residential land use compatibility around airports, highways, or other transportation corridors.

The USEPA recommends that, to protect public health with an adequate margin of safety, exterior noise levels should not exceed 55 dB L_{dn} and interior noise levels should not exceed 45 dB L_{dn} in noise-sensitive locations (USEPA, 1974). The Federal Interagency Committee on Urban Noise took these recommendations into consideration when developing its recommendations on compatibility of land uses with noise (Federal Interagency Committee on Urban Noise, 1980). These recommendations have been adopted, with minor modifications, by the DoD (DoD Instruction 4165.57, *Air Installation Compatible Use Zones*).

3.4.1 Affected Environment

MAFB does not currently host an active air wing, thus the runway is currently inactive with the exception of helicopters. The most recent Air Installation Compatible Use Zone analysis was completed in 1994, when the 43rd Air Refueling Wing was still

assigned to MAFB. The analysis showed the residential area outside the 65-dB contour was deemed acceptable for residential housing (with sound attenuation materials present) (U.S. Air Force, 2005b).

The primary source of noise within the residential areas is vehicular traffic. Perimeter Road bisects two residential areas and is a primary arterial for on-base travel. Residential areas partially surround the medical clinic operating at the intersection of Perimeter Road and Clinic Court. The noise experienced by residential and other noise-sensitive receptors varies according to their distance from the roadway and the number of intervening residences. Typically noise is attenuated (or reduced) 6 dB for every doubling of distance. In addition, one intervening row of houses reduces noise about 5 dB; additional rows reduce noise by about 10 dB. Current noise levels for this area are documented as "Urban Residential" consisting of a typical noise range of 58 to 62 dB near roadways and "Normal Suburban Residential" for houses farthest from Perimeter Road, which has a typical noise range of 53 to 57 dB (U.S. Air Force, 2005b).

3.4.2 Analysis Methodology

Construction noise was evaluated using Roadway Construction Noise Model version 1.00, the Federal Highway Administration's standard model for the prediction of construction noise (U.S. Department of Transportation, 2006). The Roadway Construction Noise Model can model types of construction equipment that would be expected to be the dominant construction-related noise sources associated with this action. All construction noise analyses were assumed to make use of a standard set of construction equipment (Table 3-11). Construction noise is expected be limited to normal working hours (7:00 AM to 5:00 PM). Construction noise impacts are quantified using the L_{dn} noise metric as calculated on an average busy working day during construction.

Table 3-11. Typical Construction and Demolition Equipment Noise Levels

Equipment Type	Maximum Noise Level L_{max} at 50 feet (dBA, slow)
Dozer	85
Dump Truck	84
Front End Loader	80
Pavement Scarifier	85
Generator	82
Pneumatic Tools	85
Flat Bed Truck	84
Paver	85

dBA = A-weighted decibels; L_{max} = maximum sound level

Construction noise was evaluated for one construction site and may be applied to each of the sites individually for potential negative effects to sensitive receptors in the vicinity of the construction site. Construction noise was evaluated at various distances from the construction equipment. Noise levels were evaluated for receptors at 100-foot increments. Noise abatement measures were not considered in this analysis, for a worst case scenario. The same types of equipment are assumed to be used on each construction site. Noise levels above 65 dBA would be considered significant impacts.

3.4.3 Environmental Consequences

Concerns regarding noise relate to certain potential impacts such as hearing loss, nonauditory health effects, annoyance, speech interference, and sleep interference. Analysis also evaluated potential impacts to the existing noise environment associated with additional residential noise using this scenario.

Impact analysis considered and compared noise associated with operational activities, human presence at the installation, transportation-related noise, and construction and demolition activities associated with the alternatives to current conditions in order to assess impacts.

It is likely that construction and demolition would occur over a multi-year period, and at any one time a few projects at multiple locations would be expected to be ongoing simultaneously. Therefore, the Air Force expects noise associated with active construction sites to be intermittent and transitory over time. Analysis assumed that the primary sources of noise during these activities would be truck and vehicle traffic, heavy earth-moving equipment, and other construction equipment or infrastructure powered by internal combustion engines used on-site.

Using the Roadway Construction Noise Model, construction equipment was assumed for demolition and construction activities to give noise levels at various distances from the project site. Noise levels were calculated as an equivalent noise level (average acoustic energy) over an eight-hour period ($L_{eq(8)}$). The maximum sound level (L_{max}) shows the sound level of the loudest piece of equipment, which is generally the driver of the $L_{eq(8)}$ sound level. Table 3-12 shows the noise levels expected at receptor distances at 100-foot increments.

Table 3-12. Demolition and Construction Noise

Receptor Distance (feet)	Max Sound Level (dBA)	Sound Level (dBA) $L_{eq(8)}$
Demolition		
100	83.5	78.6
200	77.5	72.5
300	73.9	69.0
400	71.4	66.5
500	69.5	64.6
Construction		
100	79.2	78.4
200	73.1	72.4
300	69.6	68.9
400	67.1	66.4
500	65.2	64.4

dBA = A-weighted decibels; $L_{eq(8)}$ = equivalent noise level (average acoustic energy) over an eight-hour period

The L_{max} is the sound level of the loudest piece of equipment being used. For demolition noise, the pavement scarifier is the noisiest followed by bulldozers. Pneumatic tools and generators are the loudest for construction and renovation activities. The noise averaged over an eight-hour period would be above 65 dBA at distances less than 500 feet for both construction and demolition. Noise is expected to be perceived as very loud while construction is occurring in the same neighborhood.

On-site, all workers potentially exposed to elevated noise associated with their activities would comply with all hearing protection requirements specified by OSHA. Any military/federal civilians visiting on-site would adhere to the Air Force standard, which is more stringent (85-dBA standard versus the 90-dBA OSHA standard).

Off-site, noise experienced on a day-to-day basis depends on the specific activity underway and its proximity to the site edge where a receptor may be present. Nevertheless, the relatively low time-averaged noise levels calculated indicate that neither project-related demolition nor construction activities would be excessively intrusive. Construction noise emanating off-site would probably be noticeable in the immediate site vicinity but would not be expected to create adverse impacts. Construction and demolition-related noise is intermittent and transitory and would cease at the completion of the project. Restricting construction and demolition activities on weekends and holidays and maintaining normal working hours during weekdays would serve to further minimize potential adverse impacts to local neighborhoods from noise associated with these activities.

3.4.3.1 Proposed Action

Noise from demolition and construction would cause increased noise levels in the Peacekeeper Park, Minuteman Village, and Titan Village neighborhoods. Residents within 500 feet of the activities would experience the greatest noise disturbances during the construction and demolition activities. Demolition and construction may occur in the Peacekeeper Park and Titan Village where residents would be subject to longer periods of noise than those in Minuteman Village where renovation activities would occur. The noise would cause a temporary increase in the ambient noise levels. Residents in the immediate vicinity of the activities may be annoyed due to the noise being greater than 60 dB where speech communication outdoors and sleep indoors may be affected. These noises are short-term and transitory in nature and not expected to cause significant impacts. The Air Force does not expect significant impacts to the ambient noise environment.

3.4.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Under Alternative 1, the 179 units at Minuteman Village would be demolished and reconstructed rather than renovated. This alternative would mean that Minuteman Village would experience noise levels greater than 65 dBA within 500 feet of the site while the construction and demolition activities are occurring. The noise levels would not cause harm to residents' hearing but may cause some annoyance. The elevated noise levels would be short-term, and the Air Force does not anticipate significant impacts to the ambient noise environment.

3.4.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

This alternative would release the 196 units at Peacekeeper Park to Walking Shield, Inc. for use in the Operation Walking Shield Housing Relocation Program. This would require the use of large tractor-trailers to move the units. Noise levels for this alternative would be less than those for the Proposed Action and Alternative 1 since less demolition and construction would be required. Minuteman Village would still experience noise from the renovation of 179 units. Peacekeeper Park and Titan Village would have 56 and 52 units, respectively, to be renovated or demolished and reconstructed. The noise from construction, demolition, renovation, and moving of the units would cause a temporary increase in ambient noise levels. The noise levels would not exceed the 65-dB threshold at distances greater than 500 feet. The Air Force does not anticipate significant impacts to ambient noise levels.

3.4.3.4 Alternative 3: Combination of Alternatives 1 & 2

Under this alternative the Minuteman Village units would be demolished and reconstructed, and 196 units at Peacekeeper Park would be released to Walking Shield, Inc. Noise in the Minuteman Village and Titan Village would be as described in Table 3-12. Peacekeeper Park would have temporary noise from the tractor-trailers (L_{max} of 84 dBA at a distance of 50 feet) needed to move the housing units for the Operation Walking Shield Housing Relocation Program. Residents in the affected neighborhoods would not be subject to noise levels that would cause hearing impairment. Some receptors may be annoyed due to speech interference. The noise would be short-term while the activities are occurring. The Air Force does not expect significant impacts to ambient noise levels.

3.4.3.5 No Action Alternative

Under the No Action Alternative, noise levels at Minuteman Village would be as described in Table 3-12. Renovation noise levels would be similar to or less than the noise levels for construction noise. Residents closest to the activities would be most likely to experience annoyance due to the elevated noise levels. Noise from the No Action Alternative would not have significant impacts to residents.

3.5 HAZARDOUS MATERIALS & WASTE

This section describes the affected environment associated with hazardous materials and hazardous wastes, asbestos, lead-based paint, solid waste, and Environmental Restoration Program (ERP) sites at MAFB. The terms *hazardous materials* and *hazardous waste* refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation and Liability Act and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. In general, hazardous materials include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment. Hazardous wastes that are regulated under the Resource Conservation and Recovery Act are defined as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR 261. Petroleum products include petroleum-based fuels, oils, and their wastes.

The affected resources include the potential presence of *asbestos* in structures. Asbestos is a naturally occurring mineral that is a very effective heat and sound insulator. Consequently, it has been used in many buildings as a fire and noise

retardant. However, asbestos has been linked to several diseases, including lung cancer, and has not been used in construction materials since 1987. Friable (brittle) asbestos becomes hazardous when fibers become airborne and are inhaled.

The affected resources include the potential presence of *lead-based paint* (LBP) in structures. Lead was used as an additive and pigment in paints for many years prior to 1978; therefore, older structures on MAFB that have multiple layers of older paint are potential sources of lead. Lead has been associated with central nervous system disorders, particularly among children and other sensitive populations. Exposure to lead is usually through inhalation during renovation and demolition activities or through ingestion of paint chips or lead-contaminated drinking water.

The affected resources include the potential presence of *radon* in structures. Radon is a radioactive gas, which comes from the natural decay of uranium that is found in nearly all soils. It typically moves up through the ground to the air above and into the home through cracks and other holes in the foundation. Radon is the number one cause of lung cancer among nonsmokers, according to USEPA estimates.

Affected resources also include Air Force ERP sites. The ERP is used by the Air Force to identify, characterize, clean up, and restore sites contaminated with toxic and hazardous substances, low-level radioactive materials, petroleum, oils, lubricants, or other pollutants and contaminants. The ERP has established a process to evaluate past disposal sites, control the migration of contaminants, identify potential hazards to human health and the environment, and remediate the sites.

3.5.1 Affected Environment

The ROI for hazardous materials and hazardous and solid waste is defined as the boundary of MFH areas and encompasses areas that could be exposed to an accidental release of hazardous substances from the construction or demolition activities and areas where hazardous materials would be utilized and hazardous wastes generated as part of the Proposed Action.

Hazardous Materials and Hazardous Waste

MFH areas contain no industrial facilities; however, residents may purchase cleaning supplies and other chemicals for personal use that contain constituents classified as hazardous materials. These products are typical of those found in a household and include gasoline, motor oils, paints and thinners, small volumes of pesticides, cleaning solvents, and janitorial supplies. The use of these chemicals is not

tracked by the installation, and the quantity stored of these materials is unknown. There are no records of spills or releases of hazardous materials or petroleum products at MFH areas (Semana, 2008; Hedlund, 2008b). Small quantities of janitorial supplies are used at the Housing Office.

MAFB generates hazardous waste associated with installation activities. MAFB is classified as a Large Quantity Generator of hazardous waste, operating under permit number MT8571924556, issued by the MTDEQ. Typical hazardous wastes include waste fuel, waste paint, paint-stripper, contaminated rags, and solvents. Fluids, such as used oil, are tested to determine whether they should be disposed of as hazardous or nonhazardous waste. To properly collect those wastes, MAFB has satellite accumulation points at 16 locations on MAFB (U.S. Air Force, 2007b). Hazardous wastes generated from MAFB operations are temporarily stored at the Hazardous Waste Storage Facility (building 434) until these wastes can be disposed of by permitted contractors (Semana, 2008).

Routine household hazardous wastes are generated in MFH areas. Used oil, paints, solvents, batteries, and waste fluorescent lamps generated by residents may be turned in at building 410 (Chemical Drop Point). The Auto Hobby Shop (building 1248) also collects used oil and antifreeze generated by housing residents. The Housing Office provides incoming residents with a brochure that presents guidance on disposal of hazardous wastes (Semana, 2008).

Asbestos

Because many of the structures in MAFB were developed in the 1950s and 1960s, asbestos-containing materials (ACM) would likely be encountered in some facilities. An asbestos management program is in place to ensure the protection of all personnel assigned to MAFB from the potentially harmful effects of ACM. MAFB manages asbestos in-place where possible; removing it only when there is a threat to human health or the environment or when it is in the way of construction or demolition. Removal and disposal of asbestos is done in strict compliance with all applicable federal, state, and local laws, rules, regulations, and standards (Zieske, 2008).

Older MFH units in Peacekeeper Park and Titan Village were built in the late 1950s and early 1960s in an era when the use of ACM was common. A comprehensive survey of ACM was conducted in Peacekeeper units early in 2006 by Med-Tox Northwest (MTNW). The survey, which was performed for demolition purposes to identify ACM, identified both friable and nonfriable asbestos. The survey identified

nonfriable ACM in the following locations: multilayered composition roofing; gray/tan 9-inch tile/mastic, black floor tile mastic, basement window glazing, ceramic tile mastic, and foundation sealant. Friable asbestos was found in heat shields inside fixtures and sink undercoating (MTNW, 2007).

Additionally, the Med-Tox report indicates that the main gas supply line and the domestic wastewater pipes running in the street at Peacekeeper Park are assumed to be asbestos-containing (MTNW, 2007). Additionally, the master plan for Phase 7 of military family housing describes water distribution lines as being transite asbestos concrete (USACE, 2006).

Lead-based Paint

A comprehensive basewide LBP survey was performed in 1998 by Radian International, LLC and Galson Corporation. This report identified at least trace levels of lead in painted surfaces throughout the installation; therefore, all painted building components should be handled in accordance with applicable local, state, and federal regulations as they pertain to lead in construction (MTNW, 2007). MAFB manages LBP in-place where possible; removing it only when there is a threat to human health or the environment or when it is in the way of construction or demolition (Zieske, 2008).

Older MFH units in Peacekeeper Park and Titan Village were built in the late 1950s and early 1960s in an era when the use of LBP was common. According to installation personnel, LBP has been identified in windows and doorframes in order MFH units (Weaver and Brown, 2008).

Radon

Air Force policy requires the implementation of a radon assessment and mitigation program to prevent radon exposure of military personnel and their dependents. The USEPA recommends an action level of 4 picocuries per liter (pCi/L). With samples above this level, the USEPA recommends immediate action, such as a radon mitigation system to circulate airflow. Further action would need long-term testing to determine if the mitigation system is working as designed.

According to installation personnel, radon sampling was conducted 2001 to 2004 in older MFH housing units. Units with high radon readings (greater than 4 pCi/L) have since been demolished and reconstructed as part of the housing improvement MILCON currently underway. Radon mitigation (a barrier shield with venting to the exterior) has been installed in all new housing (Weaver and Brown, 2008). A survey of

radon was also conducted by MTNW in Peacekeeper housing units in early 2006. MTNW sampled 45 units for radon emission and documented radon levels between 4.3 and 8.2 pCi/L in the basement of seven housing units (MTNW, 2007). These units are currently vacant and will be either demolished or removed, depending on alternative selection.

The USEPA has mapped radon potentials nationwide based on indoor radon measurements, geology, aerial radioactivity, soil permeability, and foundation type. The USEPA map assigns one of three zones based on radon potential. Each zone designation reflects the average short-term radon measurement that can be expected in a building without the implementation of radon-control methods. Zone 1 (greater than 4 pCi/L) is the highest-priority zone, followed by Zone 2 (moderate potential, from 2 to 4 pCi/L), and finally Zone 3 (low potential, with less than 2 pCi/L). Cascade County is classified as Zone 1, which has a high potential for the presence of indoor radon (USEPA, 2008b).

ERP Sites

The ERP at MAFB began in the 1984 with a basewide record search that identified 19 ERP sites for further investigation. Supplemental site assessments and investigations in the late 1980s and throughout the 1990s have brought the total number of ERP sites to 27, and identified 4 areas of concern (AOCs) requiring further evaluation. These sites include storage tanks, landfills, drainage areas, a fire training area, spill areas, a radioactive waste site, and waste munitions disposal pits. Primary contaminants in soil and water include fuels, solvents, and metals (U.S. Air Force, 2008a).

One ERP site is located within the boundary of the Jupiter Village MFH area (Figure 3-3). Site SS-14 (Acorn/Chestnut Streets polychlorinated biphenyl [PCB] Incident) was the location of a transformer leak and suspected PCB contamination. The leak was the result of a lighting strike on an automatic circuit reclosure electrical device. Approximately 10.5 gallons of transformer oil were released and windblown over an area covering 3 acres. Cleanup of the site consisted of complete removal of all sod and vegetation in the affected area, as well as decontamination of building surfaces in the affected area using trisodium phosphate. Soil samples taken after sod removal all tested below the detection limit of 0.5 milligram per kilogram. All contaminated sod and other contaminated materials were disposed of in a licensed chemical waste

landfill. The decision document for the site, which indicated that no further action was required, was signed on 28 September 1992 (U.S. Air Force, 1992).

In addition, several ERP sites are located near MFH areas. These sites include Sites AOC-28, OT-07, AOC-31, and ST-03. All cleanup activities have been accomplished for these sites, and they have received or are awaiting regulatory closure from the MTDEQ (Zieske, 2008).

3.5.2 Analysis Methodology

The analysis focuses on how and to what degree the alternatives would affect hazardous materials usage and management, and hazardous waste generation and management. The analysis includes potential impacts related to hazardous materials and hazardous wastes for the following three effects:

1) Generation of hazardous waste types or quantities that could not be accommodated by the current management system. Analysis of the Proposed Action processes and activities utilized process knowledge or other available data to predict the type and quantity of hazardous waste that would likely be generated from these processes and activities. This data compared with current generation rates, waste types, and base capability for managing hazardous wastes results in the determination of the effects of hazardous waste on base management capabilities and the general classification of the base for hazardous wastes.

2) Potential for increased likelihood of an uncontrolled release of hazardous materials (e.g., asbestos or lead from building demolition and renovation activities) that could contaminate soil, surface water, groundwater, or air. Analysis of the Proposed Action processes and activities determined the potential for these releases and compared the results to the mitigation procedures currently in place.

3) Potential for adverse impacts to an existing ERP site, such as disturbing the ground in a site identified as having contaminated soil or by causing damage to existing site remediation infrastructures (e.g., pumps and tanks). The evaluation includes the identification and comparison of existing ERP site locations and status with the location and scope of proposed activities. In addition, the analysis compares site-specific conditions, such as the existence of land use controls against proposed activities to assess the extent of impacts that overlap existing ERP sites.

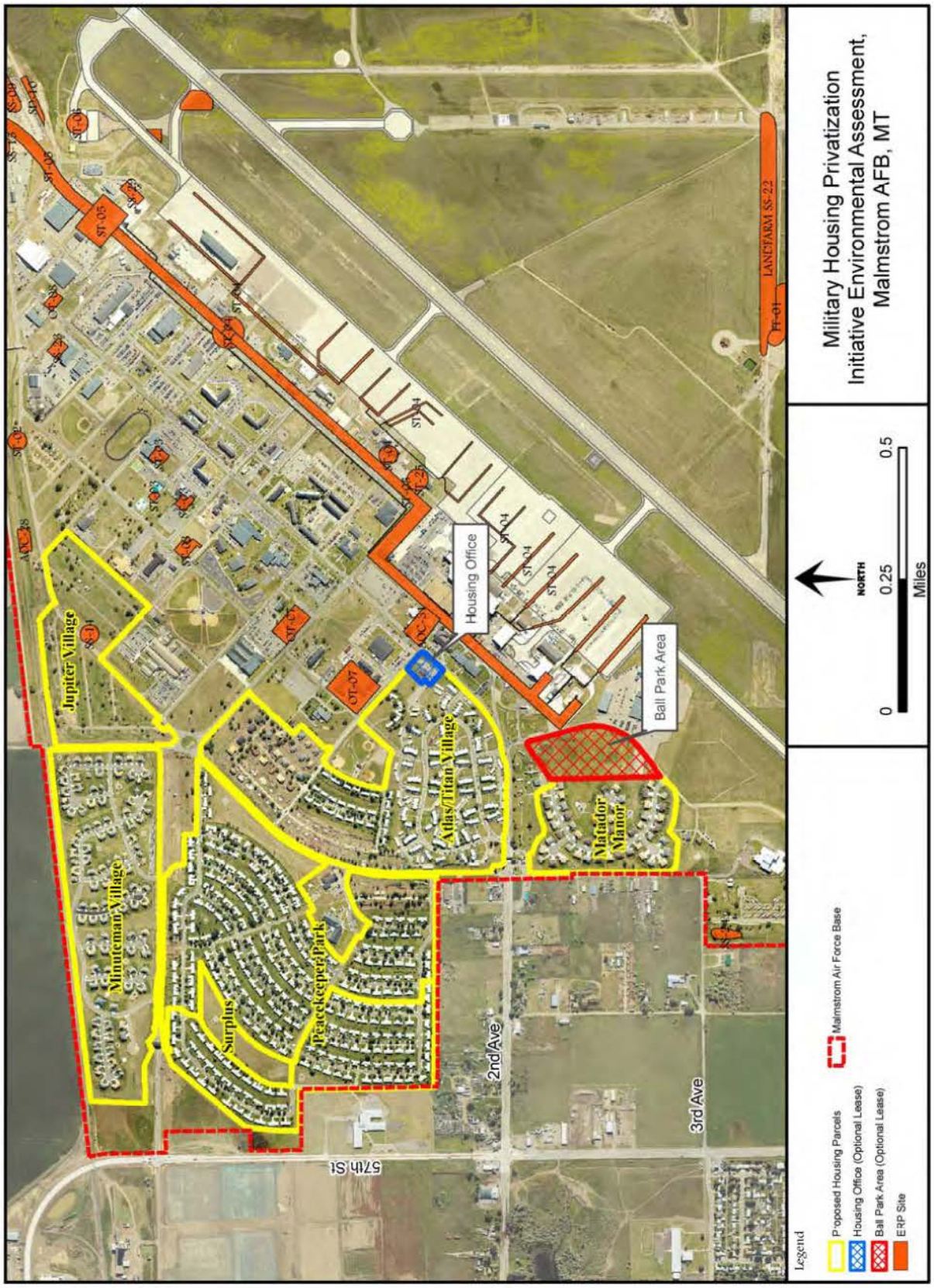

Figure 3-3. ERP Sites on or near MFH Areas

3.5.3 Environmental Consequences

3.5.3.1 Proposed Action

Hazardous Materials and Hazardous Waste

New buildings would be constructed utilizing normal construction methods, which would limit, to the extent possible, the use of hazardous materials. Petroleum products and other hazardous materials (e.g., paints and solvents) would be used during construction and renovation activities. These materials would be stored in proper containers, employing secondary containment as necessary to prevent and limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste would be reported and mitigated.

MAFB has emergency response procedures and site-specific contingency plans for all hazardous materials locations. The Hazardous Waste Management Plan (U.S. Air Force, 2007b) and the SPCC Plan (U.S. Air Force, 2008b) describe procedures and responsibilities for responding to a hazardous material spill or other incidents.

Construction activities associated with the Proposed Action would not be expected to generate hazardous wastes; however, renovation and demolition of older housing units could result in the production of LBP or ACM (see below for additional information). The management of theses wastes would be performed according to prescribed procedures already in place, which are designed to prevent or reduce pollution, reduce safety and health risks, and recycle wastes when possible. Wastes that cannot be recycled would be disposed of in a manner approved by the USEPA, at licensed facilities. The Air Force has not identified any significant impacts associated with hazardous materials or waste for the Proposed Action.

Asbestos

Older MFH units in Peacekeeper Park and Titan Village were built in the late 1950s and early 1960s in an era when the use of ACM was common. A comprehensive survey of ACM conducted in Peacekeeper units identified both friable and nonfriable asbestos. Many of these units are scheduled to be demolished and will not be conveyed as part of the privatization effort; however, older units that have undergone renovation in recent years still have the potential to contain ACM. The National Emissions Standards for Hazardous Air Pollutants (40 CFR 61.40–157) requires all suspect material (anything other than wood, glass, plastic, metal) to be assumed to be asbestos unless sampling proves otherwise.

Housing units would be sampled for ACM, and any such materials would be abated and properly disposed. If required, debris generated as a result of renovation and demolition activities would be characterized for the presence of asbestos to determine whether to dispose of it as solid waste or regulated ACM. Implementation of these procedures would ensure that the majority of demolition debris can be disposed of as solid waste (nonspecial waste) or recycled.

Proper disposal of asbestos wastes would be conducted as directed by the National Emissions Standards for Hazardous Air Pollutants. Only those contractors who are licensed to perform asbestos abatement work in Montana would be allowed to work on the project. Contractor personnel would have to be trained and certified. Transport and disposal documentation records, including signed manifests, would also be required.

Additionally, the main gas supply line and the domestic wastewater pipes running in the street at Peacekeeper Park are assumed to be asbestos-containing (MTNW, 2007). Also, the water distribution pipe has been identified as transite asbestos concrete (USACE, 2006). It is not anticipated that demolition or renovation activities would disturb these pipes. However, if there is a need for any excavation near these pipes, these activities would be coordinated with personnel from the Civil Engineer Squadron and the gas company.

Implementation of these management requirements would mitigate any adverse impacts resulting from ACM, and ACM would not be employed for new construction; therefore, there would be beneficial impacts associated with implementing the Proposed Action due to the net loss of ACM.

Lead-based Paint

A basewide LBP survey performed in 1998 identified at least trace levels of lead in painted surfaces throughout the installation, and all buildings constructed before 1978 are at risk for containing lead-based paint. LBP debris may be generated as a result of proposed building renovation and demolition activities. The resulting debris would be characterized for the presence of LBP. Demolition and renovation of structures known to contain LBP would be conducted in accordance with applicable regulations. Proper disposal of lead-containing wastes would also be conducted in accordance with state and federal regulations, including the Toxic Substances Control Act and the Occupational Safety and Health Act. Further, these wastes would be accompanied by a waste manifest and disposed of at a state-approved facility.

The appropriate management of LBP would not be expected to create adverse impacts, and LBP would not be employed for new construction; therefore, there would be beneficial impacts from the removal of existing LBP.

Radon

Elevated radon levels have been documented in housing units on MAFB. Radon mitigation (including installation of a barrier shield with venting to the exterior) has been installed in all new construction; therefore; construction and renovation activities associated with the Proposed Action would result in beneficial impacts to residents associated with reduced potential for radon exposure.

ERP Sites

One ERP site is located within the boundary of the Jupiter Village MFH area: Site SS-14 (Acorn/Chestnut Streets PCB Incident). As previously discussed, all cleanup activities have been accomplished for this site, including filling the site with clean soil and topsoil, grading, and compacting and seeding.

There are no land use restrictions for ERP Site SS-14, and activities associated with the Proposed Action would not impact any existing infrastructure (e.g., monitoring wells) associated with any other ERP site. Regardless, construction, renovation, or demolition activities located on or adjacent to an ERP site would be coordinated with the Environmental Office. In addition, should any unusual odor, soil, or groundwater coloring be encountered during development activities in any areas, construction would cease and the Environmental Office would be contacted immediately. The Air Force has not identified any significant impacts associated with ERP sites for the Proposed Action.

3.5.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Alternative 1 has similar site conditions to the Proposed Action with regard to hazardous materials and hazardous wastes, with the exception that the number of housing units under this alternative that would be potentially demolished or constructed would be higher than under the Proposed Action. Therefore, there are no potential impacts associated with hazardous materials or hazardous waste, asbestos, LBP, radon, or ERP sites for Alternative 1 not already described for the Proposed Action. The Air Force has not identified any significant impacts associated with hazardous materials or waste, asbestos, LBP, radon, or ERP for this alternative.

3.5.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

Alternative 2 has similar site conditions to the Proposed Action with regard to hazardous materials and hazardous wastes, with the exception that the number of housing units under this alternative that would be potentially demolished or constructed would be lower than under the Proposed Action. Therefore, there are no potential impacts associated with hazardous materials or hazardous waste, asbestos, LBP, radon, or ERP sites for Alternative 2 not already described for the Proposed Action.

Prior to conveyance of the housing units to identified Native American Tribes, the Air Force will provide disclosure of all known hazards such as LBP and ACM associated with the housing units. The Tribes will also be given the opportunity to inspect and conduct a risk assessment on the housing units prior to the final transaction. The Air Force has not identified any significant impacts associated with hazardous materials or waste, asbestos, LBP, radon, or ERP for this alternative.

3.5.3.4 Alternative 3: Combination of Alternatives 1 & 2

Alternative 3 has similar site conditions to the Proposed Action with regard to hazardous materials and hazardous wastes, with the exception that the number of housing units under this alternative that would be potentially demolished would be lower, while the number of units constructed would be higher than under the Proposed Action. Therefore, there are no potential impacts associated with hazardous materials or hazardous waste, asbestos, LBP, radon, or ERP sites for Alternative 3 not already described for the Proposed Action. The Air Force has not identified any significant impacts associated with hazardous materials or waste, asbestos, LBP, radon, or ERP for this alternative.

3.5.3.5 No Action Alternative

The No Action Alternative has similar site conditions to the Proposed Action with regard to hazardous materials and hazardous wastes, with the exception that the number of housing units under this alternative that would be potentially demolished or constructed would be higher than under the Proposed Action. Therefore, there are no potential impacts associated with hazardous materials or hazardous waste, asbestos, LBP, radon, or ERP sites for the No Action Alternative not already described for the Proposed Action. The Air Force has not identified any significant impacts associated with hazardous materials or waste, asbestos, LBP, radon, or ERP for this alternative.

3.6 SOLID WASTE

"Solid waste" is divided into three groups as described in the Administrative Rules of Montana (Rules) 17.50.503 Waste Groups. These waste groups include Group II, Group III, and Group IV wastes. The regulations specify that Group II wastes include decomposable wastes and mixed solid wastes containing decomposable material but exclude regulated hazardous wastes. Group II wastes include such materials as municipal and household solid wastes such as garbage and organic materials. Group III wastes include wood wastes and non-water-soluble solids. These wastes are characterized by their general inert nature and low potential for adverse environmental impacts. Group IV wastes consist of construction and demolition (C&D) wastes, and asphalt, with the exception of regulated hazardous wastes.

Wastes generated or requiring management under this action would be primarily Group IV wastes under the Administrative Rules of Montana and consist of C&D wastes. Air Force regulatory requirements and management of solid waste are established by Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*. AFPD 32-70 requires compliance with applicable federal, state, and local environmental laws and standards. For solid waste, AFPD 32-70 is implemented by Air Force Instruction (AFI) 32-7042, *Solid and Hazardous Waste*. AFI 32-7042 requires that each installation have a solid waste management program that includes a solid waste management plan that addresses handling, storage, collection, disposal, and reporting of solid waste. AFI 32-7080, *Pollution Prevention Program*, contains the solid waste requirement for preventing pollution through source reduction, resource recovery, and recycling. The 341 CES/CEA at MAFB manages the solid waste management programs.

The impacted resource associated with the generation of solid waste and subsequent disposal is the available landfill capacity located within the ROI.

3.6.1 Affected Environment

The ROI for available solid waste resources includes MAFB and the landfill resources (e.g., disposal capacity) within the area. Available resources in the immediate vicinity of MAFB include the High Plains Landfill located in Cascade County approximately 9 miles north of Great Falls**.** The analysis assumes that C&D waste generated from the demolition, renovation, and/or construction of housing units would be disposed of at this local landfill resource, resulting in an increase in the solid waste disposal rate at the landfill.

Currently, solid waste is collected at MAFB by Montana Waste Systems, Inc., located in Great Falls. Montana Waste Systems, Inc. also owns and operates the High Plains Landfill where solid wastes (including C&D wastes) are disposed of. The High Plains Landfill is currently approximately 80 to 90 acres in size and has a remaining capacity of approximately 8,169,858 cubic yards (Wennerberg, 2008). Table 3-13 lists the annual amounts of solid waste disposed of at the High Plains Landfill.

Table 3-13. Solid Waste Disposed of at High Plains Landfill

Year	Waste Mass (tons)
2005	147,315
2006	166,402
2007	184,768
Average	**166,162**

Source: Wennerberg, 2008

A second landfill resource in the immediate area is the Shumaker Landfill located in Cascade, Montana. Although disposal rates were not available on an annual basis, the current available capacity of the landfill is 1,500,000 cubic yards at a minimum (Aline, 2009). This results in an available landfill capacity within the area of influence to be approximately 9,669,858 cubic yards.

3.6.2 Analysis Methodology

The alternatives evaluated within this EA would result in the generation of C&D debris associated with the demolition, construction, and renovation of housing units. The methodology utilized to estimate C&D wastes is discussed below.

C&D debris includes materials such as construction materials for buildings, concrete, and asphalt rubble. Sampling studies documented in *Characterization of Building-Related Construction and Demolition Debris in the United States* (USEPA, 1998) indicate that the solid waste generation rate during residential construction activities is 4.38 pounds per square foot (lbs/ft^2) of debris. Similarly, the USEPA guidance indicates that the average generation rate associated with the demolition of residential structures within the United States is approximately 115 lbs/ft^2. Generation rates associated with renovation of facilities have not been established; therefore, in order to develop a conservative estimate, the generation rate associated with demolition activities (115 lbs/ft^2) was used in calculating the mass of debris from renovation activities. Because the Proposed Action includes the demolition, renovation, and construction of

structures used for housing installation personnel, the generation rates associated with residential activities was deemed appropriate for use in this evaluation.

In addition to debris generated from the construction, demolition and/or renovation of housing units, additional C&D debris would result from the demolition of associated impervious areas (e.g., patios, walkways, roadways/driveways) as discussed in Section 2.2. For estimating purposes, the depth of asphalt/concrete for impervious surfaces and base roads of 6 inches (0.5 foot) was selected. This depth was then multiplied by the total impervious area and then multiplied by concrete density (150 lbs/cubic foot [ft^3]) for impervious surfaces associated with the housing structures and the asphalt density (125 lbs/ft^3) for roadways to determine the total weight of debris that would be produced. The number of pounds was then divided by 2,000 to give the weight in tons. Waste volumes were not calculated for construction of roadways or impervious surfaces associated with housing units as the quantity of asphalt or concrete wasted during construction is negligible. The debris associated with basements is included in the square footage associated with the housing units.

Basement debris was also estimated separately and used the assumption that one-third of the reported square footage of a housing unit was associated with a basement. Basement slabs and walls were estimated based upon the square footage provided in Section 2. The square footage was then used to calculate the linear wall footage and an assumed height of 8 feet was utilized for the wall height. Wall construction was assumed to be of standard concrete block construction. Slab thickness for the basement floor was estimated at 0.5 foot to calculate the quantity of debris generated during demolition. The volume of concrete from the walls and floor were then added and divided by the density of concrete assumed to be 150 lbs/ft^3.

For each alternative, an estimated quantity of C&D waste was calculated based upon generation rates discussed above. The volume of C&D wastes requiring disposal was then compared to the disposal rate of solid waste at the High Plains Landfill to determine whether the action would result in a significant increase of wastes requiring disposal or impact the available disposal capacity at the landfill.

3.6.3 Environmental Consequences

3.6.3.1 Proposed Action

Utilizing the generation rates specified by the USEPA guidance and the total square footage of material that would be generated from renovation, demolition, and construction activities for the Proposed Action (Table 2-2), it is anticipated that the total

quantity of C&D wastes generated from the associated construction, renovation and demolition activities of housing units and associated impervious surfaces would be approximately 68,618 tons. Of the 68,618 tons associated with housing unit activities, approximately 16,802 tons of debris is expected to result from basement demolition. In addition, it is estimated that 17,379 tons of debris would be generated from the demolition of roadways. This results in a total of 85,998 tons of debris from all construction and demolition activities. For estimation purposes, it has been assumed that all debris generated from construction, renovation, and demolition activities would be completed within two calendar years. Based upon this timeframe, it is anticipated that about 42,999 tons of C&D waste would be generated annually.

The High Plains Landfill's current average disposal rate is 166,162 tons per year based upon the last three years of operational data (Wennerberg, 2008). Disposal of all C&D wastes generated from construction activities is calculated to be 26 percent of the current annual disposal rate realized at the landfill. Although this could be deemed a significant increase in the annual disposal rate at the High Plains Landfill, this waste volume is anticipated to have a negligible impact on overall disposal capacity and life cycle of the landfill resources within the area of influence. Based upon information from the landfills within the ROI, the approximate current remaining capacity (for the High Plains and Shumaker Landfills) is 9,669,858 cubic yards.

C&D wastes have been found to range from 169 to 860 lbs/cubic yard (New Mexico Solid Waste Bureau, 2008) when disposed of. Using the range midpoint (515 lbs/cubic yard), the mass of the remaining capacity at the landfill is estimated to be 2,489,988 tons. Comparing the remaining estimated landfill capacity to the total mass of C&D waste generated from the Proposed Action indicates that the 85,998 tons generated from the Proposed Action would be approximately 3.5 percent of the remaining existing landfill capacity within the ROI. The High Plains Landfill also has an additional 497 acres of expansion, which is not included within the current disposal capacity for the landfill resources within the area. Based upon this amount of C&D waste requiring disposal, the Air Force has not identified any significant impacts to landfill disposal capacity.

3.6.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Alternative 1 differs from the Proposed Action in that more units would be demolished and constructed and fewer units would be renovated (Table 2-5). Utilizing the generation rates specified by the USEPA guidance and the estimated amount of

waste generated, it is anticipated that the total quantity of C&D wastes generated from the associated construction, renovation, and demolition activities would be approximately 102,452 tons. Of this quantity, it is estimated that approximately 24,322 tons will be generated from basement demolition. Demolition of roadways will result in the generation of approximately 24,692 tons of debris. The total quantity of debris from Alternative 1 is 102,452 tons. Construction is estimated to occur over a two-year period which would result in the generation of approximately 51,226 tons per year.

Comparing this with the annual average disposal rate at the High Plains Landfill indicates that the disposal of all C&D wastes generated from construction activities is calculated to be 31 percent of the current annual disposal rate. Although this could be deemed a significant increase in the annual disposal rate at the High Plains Landfill, this waste volume is anticipated to have a negligible impact on overall disposal capacity available within the area of influence. Comparing the remaining estimated landfill capacity to the total mass of C&D waste generated from Alternative 1 indicates that the 102,452 tons generated would be approximately 4.1 percent of the remaining existing landfill capacity at the High Plains and Shumaker Landfills. Based upon this amount of C&D waste requiring disposal, and the expansion capacity at the landfills, the Air Force has not identified any significant impacts to landfill disposal capacity.

3.6.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

Utilizing the generation rates specified by the USEPA guidance and the estimated waste to be generated square footage provided in Table 2-7, it is anticipated that the total quantity of C&D wastes generated from the associated construction, renovation, and demolition activities would be approximately 74,002 tons or 37,001 tons annually over the two years of construction. This includes 56,623 tons of debris from actual building construction and demolition (includes driveways and patios, but not roadways) and 17,379 tons of debris from road demolition. Approximately 16,802 tons of debris will come from demolition of basements (including the 196 units associated with Operation Walking Shield).

Comparing this with the annual average disposal rate at the High Plains Landfill indicates that the disposal of all C&D wastes generated from construction activities is calculated to be 22 percent of the current annual disposal rate and would have a negligible impact on overall disposal capacity of landfills within the area. Comparing the remaining estimated landfill capacity at the High Plains and Shumaker Landfills to the total mass of C&D waste generated from this alternative indicates that the

74,002 tons generated would be approximately 3 percent of the remaining existing landfill capacity. Therefore, the Air Force has not identified any significant impacts to landfill disposal capacity.

By conveying excess housing units to Native American tribes, MAFB is able to recycle housing units that have been determined to be in good condition but are also considered to be excess housing and/or do not meet updated Air Force size standards. Prior to the Operation Walking Shield Program, these military family housing units would have been demolished and the debris transported to a landfill. Therefore, conveyance of the housing units to identified Native American Tribes through the Operation Walking Shield Program reduces the amount of demolition debris generated by the Air Force or MAFB.

3.6.3.4 Alternative 3: Combination of Alternatives 1 & 2

Utilizing the generation rates specified by the USEPA guidance and the estimates from Table 2-9 for Alternative 3, it is anticipated that the total quantity of C&D wastes generated from the associated construction, renovation, and demolition activities would be approximately 90,456 tons or 45,228 tons annually. This estimated waste mass includes 65,764 tons from housing unit demolition/construction/renovation and 24,692 tons of debris associated with road demolition and construction. Debris from basements was estimated to be 24,322 tons.

Comparing this with the annual average disposal rate at the High Plains Landfill indicates that the disposal of all C&D wastes generated from construction activities is calculated to be 27 percent of the current annual disposal rate, which would have a negligible impact on overall disposal capacity of landfills within the area. The amount of waste generated would be approximately 3.6 percent of the remaining existing landfill capacity at the High Plains and Shumaker Landfills. Based upon this amount of C&D waste requiring disposal, the Air Force has not identified any significant impacts to landfill disposal capacity.

3.6.3.5 No Action Alternative

Comparison of the C&D waste generated under the No Action Alternative (Table 2-10) to the mass of the remaining capacity at the landfill indicates that the 102,082 tons of C&D waste generated would be approximately 4.1 percent of the remaining existing landfill capacity at the High Plains and Shumaker Landfills. Additional projects related to demolition, renovation and construction of facilities at MAFB are anticipated but are not quantified at this time.

3.7 SOCIOECONOMICS & ENVIRONMENTAL JUSTICE

Socioeconomic resources are defined as the basic attributes associated with human activities. The MAFB MHPI is primarily associated with the construction and renovation of on-base housing units for military members. Therefore, the following resources are addressed under socioeconomics as the indicators that could be potentially impacted by the MHPI process: economic activity (employment and earnings), environmental justice, and safety/protection of children.

Concern that certain disadvantaged communities may bear a disproportionate share of adverse health and environmental effects compared to the general population led to the enactment in 1994 of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO directs federal agencies to address disproportionate environmental and human-health effects in minority and low-income communities. In addition, 32 CFR 989, *Environmental Impact Analysis Process,* addresses the need for consideration of environmental justice issues in compliance with NEPA. EO 12898 applies to federal agencies that conduct activities that could substantially affect human health or the environment. The evaluation of environmental justice is designed to:

- Focus attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities with the goal of achieving environmental justice.
- Foster nondiscrimination in federal programs that may substantially affect human health or the environment.
- Give minority communities and low-income communities greater opportunities for public participation in, and access to public information on, matters relating to human health and the environment.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (*Protection of Children*), was issued in 1997 to identify and address issues that affect the protection of children. According to the EO, all federal agencies must assign a high priority to addressing health and safety risks to children, coordinating research priorities on children's health, and ensuring that their standards take into account special risks to children. The EO states that "…'environmental health risks and safety risks' mean risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the

food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to)."

3.7.1 Affected Environment

The socioeconomics ROI for MAFB is Cascade County. MAFB has a strong influence on Cascade County's economy, and as the largest population center near the base, the city of Great Falls provides the largest supply of housing and other amenities for the military personnel stationed at MAFB.

Employment and Income

Despite the decline in population, total employment in Cascade County increased at an average annual rate of 1.3 percent for a total of over 51,700 jobs in 2006. Employment in the state of Montana also increased at an average annual rate of 2.4 percent for a total employment of approximately 637,401 jobs in the same time period (Table 3-14).

Table 3-14. Employment Growth, 2001–2006

Region	2001	2006	Average Annual Change, 2001—2006
Cascade County	48,627	51,757	1.3%
Montana	565,989	637,401	2.4%

U.S. Bureau of Economic Analysis, 2008a

The largest source of employment in Cascade County was the Government and government enterprises industry, which includes federal, military, state, and local employment. The Government and government enterprises industry accounts for approximately 18 percent of total employment with nearly 9,400 jobs. The construction industry accounts for nearly 7 percent of total employment with over 3,500 jobs in Cascade County.

In FY07, a total of 3,456 military personnel were stationed at MAFB, including active duty, Air Force Reserve, and Air National Guard (U.S. Air Force, 2007c). In addition to the military personnel, there are approximately 3,500 dependents and 782 civilian employees, for a total of 7,738 persons related to MAFB.

Annual expenditures from MAFB were over $110.8 million, including materials and supplies procurement, services contracts, and construction programs. Through these annual expenditures and the employment of the military and civilian personnel,

MAFB is responsible for generating approximately 1,575 indirect jobs in the local area. Assuming an average pay in Cascade County of $28,645, the annual value of the indirect jobs is over $45 million. Accounting for the total number of jobs and expenditures generated from MAFB, the total economic impact of MAFB is approximately $370.7 million.

Per capita income in Cascade County in 2006 was slightly higher than the per capita income in the state of Montana. Between 2001 and 2006, per capita income in Cascade County increased at an average annual rate of 4.2 percent reaching over $31,700 in 2006. In the state of Montana, per capita income increased 4.5 percent per year during the same time period to reach nearly $30,800 (Table 3-15).

Table 3-15. Per Capita Income, 2001–2006

Region	2001	2006	Average Annual Change, 2001–2006
Cascade County	$25,884	$31,740	4.2%
Montana	$24,676	$30,790	4.5%

U.S. Bureau of Economic Analysis, 2008b

Environmental Justice / Youth Populations

Table 3-16 identifies total population and percentage populations of concern in Cascade County, the state of Montana, and the United States. The total population in 2000 for Cascade County was 80,357 persons, representing 8.9 percent of the Montana population (902,195 persons). Cascade County includes the third largest city in the state of Montana resulting in a higher population density than that of the state. Population density in Cascade County in 2000 is approximately 29.8 persons per square mile as compared to 6.2 persons per square mile in Montana as a whole.

Table 3-16. Populations of Concern, 2000

Region	Total Population	Percent Minority	Percent Low-Income	Percent Youth
Cascade County	80,357	9.4%	13.2%	27.5%
Montana	902,195	9.4%	14.2%	27.0%
United States	281,421,906	24.9%	12.0%	27.1%

U.S. Census Bureau, 2000

Minority persons represent 9.4 percent of the population in Cascade County, as well as the state population. American Indians are the predominant minority group in the county, as well as the state. The shares of the minority population in Cascade County and the state of Montana are well below the share of the minority population in the nation as a whole. In the United States, minorities comprise nearly 25 percent of the total population.

The percentage of persons and families in the ROI with incomes below the poverty level was somewhat lower than state levels, averaging 13.2 percent in Cascade County as compared to 14.2 percent in Montana. These poverty rates are slightly higher than the poverty rate in the United States overall with 12 percent of the population living below the poverty level.

The youth population, comprising children under the age of 18 years, constitutes 27.5 percent of the population compared to approximately 27 percent for Montana and the nation overall.

3.7.2 Analysis Methodology

Socioeconomics is driven by human activities, particularly the demand for goods and services, as well as the employment and income that supplies individuals with the means to fulfill the demand. Because the MHPI does not include a change in base personnel at MAFB, the only economic effect would be generated from the construction dollars spent by the Air Force in the local economy. The resulting effects, primarily the change in employment, caused by the additional construction spending was then compared to the overall capabilities of the regional economy to determine the effects and capability of the local economy to absorb the effects. In addition, the change in the amount of available housing in the regional housing market was assessed to determine the capabilities of the local housing market to absorb any additional military personnel that may relocate off-base or military personnel that may return to on-base housing at the completion of the MHPI.

The analytical methods applied to Environmental Justice are in accordance with the *Interim Guide for Environmental Justice with the Environmental Impact Analysis Process* (U.S. Air Force, 1997). Minority, low-income, and youth populations are defined in the guidance as follows:

- *Minority Population*: Blacks, American Indians, Eskimos, Aleuts, Asians, Pacific Islanders, and persons of Hispanic or Latino origin of any race.

- *Low-Income Population*: Persons living below the poverty level, based on a 2000 equivalent annual income of $17,603 for a family of four persons.
- *Youth Population*: Children under the age of 18 years.

The context is necessary to understand if environmental impacts would disproportionately affect minority, low-income, or youth populations. An appropriate basis for comparison is the *community of comparison*, defined as the smallest governmental or geopolitical unit that encompasses the impact footprint for each resource, which in this case is a county. Data from the 2000 Census on race, ethnicity, poverty status, and age were collected at the block level (the smallest geographical unit for which this census data are available) for Cascade County. In addition, general demographic profiles for Cascade County, the state of Montana, and the United States were compiled to provide analytical context.

3.7.3 Environmental Consequences

This section discusses potential impacts to socioeconomic resources, including environmental justice and special risks to children.

3.7.3.1 Proposed Action

The Air Force has not identified any significant socioeconomic impacts associated with the Proposed Action. Implementation of the Proposed Action would generate jobs and income in the local economy over the term of the project. Construction expenditures have not been determined at this time; however, it is expected that construction expenditures would be concentrated in the local economy. The additional expenditures by MAFB would have a multiplier effect throughout the economy in Cascade County. Additional jobs would be generated in the construction industry in particular. With over 3,500 jobs in the construction industry in Cascade County in 2006, the construction jobs generated by the Proposed Action are not likely to stimulate in-migration of workers from outside of the county. The additional jobs and income as a result of the construction and demolition would have a great beneficial effect on the local community. However, these jobs would be temporary and would end at the completion of all of the phases of construction.

It is likely that construction activities under privatization would last between one and two years. It is expected that the developer would phase construction and demolition actions to minimize the disruption to military families. By the end of the privatization, there would be 196 fewer housing units on base. A separate analysis was

conducted in the 2007 HRMA, which determined that these housing units are surplus and not necessary given the local community's capacity to accommodate these military families. With an estimated vacancy rate of 9 percent, there are approximately 3,200 housing units vacant in Cascade County.

The construction and demolition related to the MHPI is not anticipated to disproportionately affect minority and/or low-income communities of concern. Minority and low-income populations in Cascade County are comparable to the minority and low-income populations in the state of Montana. The environmental justice issue that could potentially be associated with the decision regarding the Proposed Action for the MHPI project is noise impacts from construction and demolition activities. Any increase in noise would primarily affect communities located near the development areas. Communities of comparison are generally equally distributed among other portions of the population near project sites. However, as described in Section 3.4.3, noise related to the construction and demolition activities would be temporary and short in duration. Restricting construction and demolition activities on weekends and holidays and maintaining normal working hours during weekdays would serve to further minimize potential adverse impacts to local neighborhoods from noise associated with these activities.

Children have physiologic and behavioral characteristics that make them more vulnerable to damage from environmental effects than adults. Case studies show that children have become ill or died from environmental exposures that did not affect adults or affected them less severely. Among the characteristics leading to children's sensitivity are their limited diets, dividing cells, differentiating organs and organ systems, slow or absent detoxification mechanisms, long life expectancy with the resulting ability to express damage with delayed consequences, and the severe metabolic demands of growth. The risks that could potentially be associated with the alternatives for the housing project are exposure to asbestos, LBP exposure, safety concerns, and noise from construction and demolition. Section 3.5 discusses risks from potential exposure to these materials during construction and demolition. As discussed, project planning and implementation of proper handling and disposal techniques would offset the potential for impacts to any age group.

3.7.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

The effects of Alternative 1 would be similar to those discussed for the Proposed Action, and the Air Force has not identified any significant socioeconomic impacts

associated with Alternative 1. Construction expenditures would generate additional jobs and income in the construction industry. These new jobs would subsequently generate additional activity in the local economy of Cascade County. The additional construction jobs would be temporary and the beneficial effects would end with the completion of the project. It is not anticipated that the projects included in Alternative 1 would have a disproportionate impact on minority and/or low-income populations. There are no anticipated risks to children as proper handling and disposal techniques of hazardous materials would offset the potential for impacts. Noise from the construction activities would primarily affect the areas in the vicinity of the development areas, and restricting the activities from holidays, weekends, and maintaining normal working hours during the weekdays would minimize potential adverse impacts to local neighborhoods from noise associated with these activities.

3.7.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

The socioeconomic effects of the construction and demolition activities included in Alternative 2 are the same as those discussed for the Proposed Action, and the Air Force has not identified any significant socioeconomic impacts associated with Alternative 2. The construction expenditures would temporarily generate additional jobs and income in the construction industry in Cascade County.

The release of 196 housing units to the Operation Walking Shield Housing Relocation Program operated by Walking Shield, Inc. would have a beneficial impact on minority and low-income populations. Walking Shield, Inc. identifies tribes that are in need of suitable housing and acts as a facilitator between the Air Force and the tribe for the transfer of the housing units. In previous transactions through Operation Walking Shield, MAFB has provided housing units to reservations where tribal members were on waiting lists for years prior to receiving affordable housing. Many tribal members that received housing units were living in overcrowded conditions or unsuitable housing units with incomplete plumbing and utilities. The housing units proposed for release through the Operation Walking Shield program would be provided to tribes with similar housing needs, as identified by Walking Shield, Inc. The release of these housing units would benefit the tribes purchasing the housing units as the units would provide suitable and affordable housing that may not be available otherwise. The benefits would not necessarily occur within the region of influence defined as Cascade County. Walking Shield, Inc. would identify the areas with the greatest need for these housing units, which could include reservations in Montana, South Dakota, or North Dakota.

3.7.3.4 Alternative 3: Combination of Alternatives 1 & 2

Alternative 3 would combine the beneficial effects discussed under Alternatives 1 and 2. The Air Force has not identified any significant socioeconomic impacts associated with Alternative 3. The construction expenditures would temporarily generate additional jobs and income in the construction industry in Cascade County. The release of 196 housing units to the Operation Walking Shield Housing Relocation Program would have a beneficial impact on minority and low-income populations. These housing units would be provided to American Indians on reservations in need of suitable and affordable housing. These beneficial impacts would not necessarily occur in the local area since Walking Shield, Inc. would identify a reservation with the greatest need.

3.7.3.5 No Action Alternative

The Air Force has not identified any significant socioeconomic impacts associated with the No Action Alternative. The No Action Alternative would have similar beneficial effects on the local economy, minority, and low-income populations. The housing units in Minuteman Village and Titan Village are substandard according to Air Force standards, and there would still be a surplus of 196 housing units. Because of these conditions, the Air Force would continue with demolition, renovation, and reconstruction actions in Minuteman Village and Titan Village. The surplus units would either be demolished or released to Walking Shield, Inc. These activities and the construction expenditures would temporarily generate additional jobs and income in the construction industry in Cascade County. The construction and demolition activities are not anticipated to disproportionately affect minority and/or low-income populations or children. A beneficial impact would be likely if the surplus units are released to Walking Shield, Inc. to provide American Indian families with suitable and affordable housing.

3.8 CULTURAL RESOURCES

Cultural resources consist of prehistoric and historic sites, structures, artifacts, and any other physical or traditional evidence of human activity considered relevant to a particular culture or community for scientific, traditional, religious, or other reasons. As defined under 36 CFR 800.16 (l)(1), "(an) Historic Property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior.

This term includes artifacts, records, and remains that are related and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria."

MAFB is required to comply with a wide range of federal laws, regulations, and EOs. Both DoD Instruction (DoDI) 4715.3, *Environmental Conservation Program*, and AFI 32-7065, *Cultural Resources Management*, outline proper procedures for cultural resources management at Air Force facilities. The analysis methodology for cultural resources is guided in part by the various definitions of cultural resource laws, regulations, and guidance.

The analysis of cultural resources is mandated or guided by a host of federal laws, rules, and regulations. Foremost among cultural resources compliance laws is the National Historic Preservation Act (NHPA) of 1966, as amended. Under NHPA, the Air Force is required to consider the effects of its undertakings on historic properties listed or eligible for listing in the National Register of Historic Places (NRHP), and to consult with interested parties regarding potential impacts. The NRHP, authorized under the NHPA of 1966, is the United States' formal listing of cultural resources considered worthy of preservation. The NRHP is administered by the National Park Service and is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect historic and archeological resources. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.

NHPA obligations for a federal agency are independent from the NEPA process and must be complied with even when environmental documentation is not required. When both are required, Air Force facilities coordinate NEPA compliance with their NHPA responsibilities to ensure that historic properties, as defined under 36 CFR 800.16 (l)(1), are given adequate consideration.

In addition to NHPA and NEPA, other laws are also pertinent or potentially pertinent to cultural resources and the Proposed Action. Among these are the Antiquities Act of 1906, the Historic Sites Act of 1935, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1990, and the American Indian Religious Freedom Act of 1978.

Federal regulations and EOs governing Air Force cultural resources activities include but are not limited to: 36 CFR 800, *Protection of Historic Properties* (incorporating

amendments effective 05 August 2004); 36 CFR 63, *Determinations of Eligibility for Inclusion in the National Register*; EO 11593, *Protection and Enhancement of the Cultural Environment*; EO 13007, *Indian Sacred Sites*; and EO 13287, *Preserve America*.

3.8.1 Affected Environment

Based on review of the *MAFB Integrated Cultural Resources Management Plan* (currently in the Draft-Final stage), dated September 2008, and interviews with the installation Cultural Resource Manager, there are no archaeological, historical, or tribal resources within the housing area boundaries. Adjacent to the northern boundary of Jupiter Village lays Site 24CA264, which is an old section of the Chicago, Milwaukee, St. Paul, and Pacific Railroad. This archaeological site was determined as potentially eligible for listing on the NRHP (U.S. Air Force, 2008; Hedlund, 2008a).

In 1978, Congress established the Lewis and Clark National Historic Trail as a component of the National Trails System. The National Park Service administers the trail in partnership with the federal, state, and local agencies that own the land that the trail is on. The Lewis and Clark National Historic Trail extends through MAFB and the deployment area. MAFB is responsible for protecting, interpreting, and managing the trail through base property in cooperation with the National Park Service. The Lewis and Clark/Great Falls Portage National Historic Landmark (Site number 24CA238) includes the upper and lower portage camps and occupies 7,700 acres with discontiguous boundaries. The portage route extended across MAFB; however, MAFB is not part of the landmark. The identified portage route is approximately 0.25 miles from the southern boundary of the Matador Manor housing area (U.S. Air Force, 2008; Hedlund, 2008a).

3.8.2 Analysis Methodology

For the purpose of this EA, cultural resources, with a description of their state of investigation and condition, are presented for analysis as they intersect with the Area of Potential Effects (APE) (NHPA terminology equivalent to "ROI") created by the undertaking (as it is presented in the existing conditions descriptions respective to each Alternative). As defined under 36 CFR 800.16(d), "the APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking." The APE for this project is assumed not to extend beyond the footprint of the project boundaries/housing areas.

Effects (i.e., impacts) to cultural resources are defined as "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16(i)). An adverse effect "is any physical intrusion to an individual structure, district, or other cultural resource or to its surrounding property boundary caused by the proposed action" (40 CFR 1508.8). Additional effects, such as noise, visual effects, vibration, and changes in historic setting, are considered adverse effects if they affect the historic integrity of a structure, district, or other cultural resources. Historic setting can be defined as the general character of any given area and reflects the origins of an area's development, its cultural and architectural cohesion, and the overall appearance and sentiment that define it.

There are three types of effects when considering historic properties. These include "no historic properties affected," which applies when there are no historic properties present, or there are historic properties present but the undertaking will have no effect upon them; "no adverse effect," which means that there is a direct or indirect effect to a historic property, but the effect does not diminish the qualities that make the property significant; and "adverse effect," which "is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, and association" (36 CFR 800 5(a)(1)).

The analysis of potential environmental consequences focuses on (a) what cultural resources fall within the APE; (b) whether additional efforts to identify or evaluate cultural resources need to be conducted within the APE, as determined by the Air Force, in consultation with the State Historic Preservation Officer and other appropriate parties; and (c) what mitigations would be required or appropriate to these resources if adverse effects (i.e., impacts) were expected to occur.

3.8.3 Environmental Consequences

This section discusses potential impacts to resources identified within the affected environment from the Proposed Action and alternatives.

3.8.3.1 Proposed Action

The Air Force anticipates no effect to cultural resources under the Proposed Action. While Site 24CA264 is adjacent to the northern boundary of Jupiter Village, its western extent ends at the eastern Minuteman Village boundary. No construction or

demolition would occur in either of these areas under the Proposed Action, and activities associated with potential renovation of homes in Minuteman Village would be confined to the housing area boundary. As a result, there would be no impact to Site 24CA264 from the Proposed Action.

Activities associated with the Proposed Action would have no effect on the integrity of the Lewis and Clark/Great Falls Portage National Historic Landmark (Site number 24CA238). The landmark does not include MAFB and any activities associated with the Proposed Action would occur only on base property. The portage route identified on base property is approximately 0.5 miles from any housing area that would experience ground disturbing activities of any kind (Peacekeeper Park and Titan Village).

3.8.3.2 Alternative 1: Demolition & New Construction at Minuteman Village

Similar to the Proposed Action, there would be no effect to cultural resources under Alternative 1. All activities would be confined to housing area boundaries, thus eliminating any potential for impacts to the Lewis and Clark portage trail. Additionally, the extent of demolition and construction at Minuteman Village would be confined to the housing area boundary. The western extent of Site 24CA264 only reaches to the eastern boundary of Minuteman Village. As a result, the integrity of this site would not be affected by activities within the Minuteman boundary.

3.8.3.3 Alternative 2: Release of 196 Peacekeeper Park Units to Walking Shield, Inc.

Alternative 2 is similar to the Proposed Action with the exception of release of Peacekeeper Park units rather than demolition. As with the Proposed Action, there would be no effect to cultural resources under Alternative 2.

3.8.3.4 Alternative 3: Combination of Alternatives 1 & 2

As with both Alternatives 1 and 2, there would be no effect to cultural resources under Alternative 3.

3.8.3.5 No Action Alternative

Impacts would be similar to the action alternatives as described above. The Air Force therefore anticipates no effect to cultural resources associated with MAFB.

4. CUMULATIVE IMPACTS

According to CEQ regulations, cumulative effects analysis should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects may occur when there is a relationship between a proposed action or alternative and other actions expected to occur in a similar location or during a similar time period. This relationship may or may not be obvious. The effects may then be incremental (increasing) in nature and result in cumulative impacts. Actions overlapping with or in close proximity to a proposed action or alternative can reasonably be expected to have more potential for cumulative effects on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally will tend to offer a higher potential for cumulative effects.

Analysis is conducted by first identifying past, present, and reasonably foreseeable actions as related to the ROI for the particular resource. Cumulative impacts are then identified if the combination of proposed MHPI actions and past, present, and reasonably foreseeable actions interact with the resource to the degree that incremental or additive effects occur.

The proposed privatization activities at MAFB are part of a larger privatization effort that includes Whiteman AFB, Missouri, and F.E. Warren AFB, Wyoming. All three bases are grouped together as part of a single privatization Request for Proposal. However, environmental and socioeconomic impacts associated with the privatization action are singular to the respective installations; therefore, impacts associated with privatization at each installation are analyzed in separate NEPA documentation specific to each installation. With respect to cumulative impacts, decisions regarding whether to implement the proposed action/alternatives at each installation versus the No Action Alternative may negatively impact the grouped privatization effort, in which case the Air Force would need to evaluate alternative means for implementing privatization at the other bases.

4.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

The *MAFB General Plan* (U.S. Air Force, 2004) identifies in the Appendix B Five-Year Plan improvement projects from FY04 through FY08, which represents activities associated with past actions. With regard to present and future activities,

those with the most potential to interact with the Proposed Action are associated with ongoing and future housing improvements via the MILCON process as described previously (Table 2-3, in Chapter 2).

4.2 CUMULATIVE IMPACT ANALYSIS

Air Quality

Due to the nature of development activities, it is expected that construction and demolition impacts on air quality would be short-term and limited to localized areas. Extensive, long-term programs such as the housing program could potentially impact regional air quality attainment status given suitable scope and intensity. However, it is unlikely that the combination of the housing project with other projects on- and off-base would cause long-term air quality degradation. The proposed project is not expected to result in significant cumulative impacts to regional air quality.

Water Resources

Previous and ongoing construction of new housing units under the Replace Family Housing project has added to the impervious surface area of MAFB, affecting storm water flow in both Drainage Area 1 and Drainage Area 2. The cumulative effects of this construction did not combine to create a major change to storm water discharged into the west fork of Whitmore Ravine or groundwater recharge. In 2005, a MAFB-wide storm retention basin and outfall upgrade project was constructed to address storm water handling issues. With these changes, surface water conditions on and around the installation have been maintained or slightly improved.

As noted in the Environmental Consequences section, the demolition and construction activities under all of the proposed alternatives would reduce net impervious area by approximately 20 acres. All alternatives reduce impervious surfaces and have the potential to result in a reduction in storm water outflow. This is considered a benefit to water resources as, with less runoff, more water may permeate into the groundwater supply. Flood potential and soil loss would also be reduced with less storm water outflow.

In light of past, present, and reasonably foreseeable future actions, the Air Force expects no significant cumulative impacts to surface waters as a result of this project or the overall housing program as currently designed.

Soils

Permanent changes to soil structure and stability can occur by disrupting and reworking soils in areas of demolition and reconstruction if it occurs on undisturbed soils. The activities that would occur under all alternatives would affect only previously disturbed soils, would be limited to small areas, and are insignificant to regional soils resources when considered individually or cumulatively.

As noted in the Environmental Consequences section, demolition and construction under four alternatives would reduce net impervious area by approximately 20 acres, which may result in a slight reduction in storm water outflow. This is considered a benefit to soil resources as, with less water runoff, more water may permeate into the groundwater supply. This reduces the potential of soils to be eroded and carried off of MAFB.

To reiterate the discussion in the Water Resources section, studies of the amount of storm water flow leaving MAFB and potential future flows under known construction plans have shown that significant or long-term changes are not expected. With the addition of four of the proposed alternatives, storm water runoff is not expected to increase and may actually decrease. Therefore, changes in soil structure and stability are not expected to occur, nor is soil erosion considered to be at risk of increasing from the past, present, and reasonably foreseeable future actions.

Noise

Noise from construction activities are an unavoidable impact. This impact is short-term and localized to the activity area. Cumulative noise levels from other projects would have little effect as noise attenuates quickly with distance from the source due to vegetation, buildings, and other meteorological factors. No adverse cumulative impacts to ambient noise levels are expected.

Hazardous Materials and Hazardous Waste

MAFB has developed programs and procedures to comply with all federal, state, and local hazardous materials and hazardous waste management and reporting requirements. No cumulative impacts to hazardous material and hazardous waste management are anticipated.

Solid Waste

MAFB is an active facility that will continue to generate solid waste in the form of municipal solid waste from personnel and C&D wastes from facility upgrades, including construction, renovation, and demolition projects. As discussed in Section 3.6.3, the MHPI would result in the generation of between 85,998 tons and 102,452 tons of C&D wastes from the demolition, construction, and renovation of housing units at the installation. Although specific projects cannot be quantified at this time, due to the large existing and future capacity at the High Plains and Shumaker Landfills, no foreseeable cumulative impacts to solid waste resources have been identified.

C&D wastes generated from the MHPI are expected to require potentially up to 4.1 percent of current landfill capacity, which does not take into account potential expansion of the landfill to six times the landfill's current size. Due to the existing and future capacity at the High Plains and Shumaker Landfills, potential cumulative impacts to landfill availability are expected to be negligible.

Socioeconomics & Environmental Justice

MAFB is an active base with several ongoing construction, demolition, and renovation projects underway. The on-base MFH has been undergoing phased improvements since FY99 in addition to improvements to dormitories and other base facilities and infrastructure. These ongoing construction projects would have an additive effect to the Proposed Action and alternatives. This construction generates temporary jobs in the local economy in Cascade County and contributes to the income of workers involved in the construction or other related industries. Under the Proposed Action and alternatives, approximately 196 housing units are determined to be surplus units. These units would be demolished or released to Walking Shield, Inc. and the military families that would have been in the on-base housing would have to rely on housing available in Cascade County. The additional construction projects related to the housing would also temporarily displace military families into the local community. The combined effect would be more military families relying on off-base housing. However, with an estimated vacancy rate of 9 percent, a total of 3,200 housing units are vacant in Cascade County in 2008 providing a choice of size and suitability for the potentially displaced military families. Also, as part of the previous housing projects, a number of housing units were released to Operation Walking Shield Housing Relocation Program operated by Walking Shield, Inc. Under Alternatives 2 and 3, the surplus housing units would also be released to Walking Shield, Inc. and would have

an additional beneficial impact on minority and low-income populations located on American Indian reservations.

Cultural Resources

Damage to the context of cultural resources can have a cumulative impact if the initial act, combined with others, is considerable or compounds other environmental impacts. The alteration or demolition of historic properties has the potential to incrementally impact the historic setting of MAFB. However, none of the proposed activities or Reasonably Foreseeable Future Actions have been identified as contributing to cumulative impacts to Cultural Resources.

This page is intentionally blank.

5. PERSONS AND AGENCIES CONTACTED

Lt Christopher Brown	NEPA Program Manager	341 CES/CEAO
Leo Semana	Hazardous Materials / Waste	341 CES/CEA
Lana Hedlund	Storage Tanks / Cultural	341 CES/CEA
Rudy Verzuh	Natural Resources	341 CES/CEAN
Brian Zieske	ERP / Asbestos / LBP	341 CES/CEA
Lt Crystal Brown	Bioenvironmental Engineering	341 MDG/MDOS
Capt Aaron Weaver	Bioenvironmental Engineering	341 MDG/MDOS
Jeanne Earl	Real Property	341 CES/CERR
Frank Carpenter	Solid Waste	341 CES/CEA
Don Geertz	Solid Waste	341 CES/CEA
TSgt Cornelio Lashley	Entomology	341 CES/CEO
Mike Shotwell	Entomology	341 CES/CEO
Tom McLean	Entomology	341 CES/CEO
Darrick Godfrey	Housing Privatization Manager	341 CES/CEAH
Matt King	Housing Maintenance	341 CES/CE
Layton Dresch	Corrosion Control	341 MMXS
Scott Swanke	Civil Engineering	341 CES/CEOFM

Mr. Greg Wennerberg, Manager – High Plains Landfill, December 2008.

Mr. Joe Aline, Manager – Shumaker Landfill, January 2009.

This page is intentionally blank.

6. LIST OF PREPARERS

Kevin Akstulewicz
10 years, environmental science
B.S., Environmental Science and Policy
Author, Technical Reviewer, Project Manager

Debra Barringer
13 years, NEPA and ecological application
M.S., Ecology, B.A., Biology
Soils, Water Resources

Alysia Baumann
5 years, environmental science
B.S., Chemical Engineering
Air Quality, Noise

Rachel Baxter
4 years, socioeconomic and housing market analysis
B.A., Economics
Socioeconomics

Luis Diaz
15 years, environmental science
M.E., Civil-Environmental Engineering; B.S., Aerospace Engineering
Hazardous Materials and Hazardous Wastes, Safety

Jerry Truitt
22 years, solid and hazardous waste management
B.S., Geological Engineering
Solid Waste

Tara Utsey
14 years, editing and document preparation
B.A., Liberal Arts
Lead Editor

This page is intentionally blank.

7. REFERENCES

Aline, J., 2009. Personal communication between SAIC and Mr. Aline (Manager, Shumaker Landfill) regarding current disposal rates and capacity at Shumaker Landfill. January 2009.

Booz Allen Hamilton (BAH), 2008. *Draft Final Whitmore Ravine Watershed Assessment Upper Missouri Dearborn Rivers Sub-Basin, Sub-Unit 686*. Prepared for 341st Civil Engineer Squadron Environmental Flight Malmstrom AFB, Montana. March 2008.

Federal Aviation Administration (FAA), 1985. Aviation Noise Effects. March 1985.

Federal Interagency Committee on Noise, 1992. *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.

Federal Interagency Committee on Urban Noise, 1980. *Guidelines for Considering Noise in Land Use Planning and Control.* Washington, D.C. NIIS PB83-184838. June 1980.

Finegold, L. S., C. S. Harris, and H. E. vonGlerke, 1994. Community annoyance and sleep disturbance: Updated criteria for assessing the impacts of general transportation noise on people. *Noise Control Engineering Journal*, Vol 42, pp 25–30. Jan-Feb 1994.

Hedlund, L., 2008a. Personal communication between SAIC and Ms. Hedlund (AFSPC 341 CES/CEAN – MAFB Cultural Resources Manager) regarding cultural resource issues at MAFB. October 2008.

Hedlund, L., 2008b. Personal communication between SAIC and Ms. Lana Hedlund (341 CES/CEV, Environmental Office, Malmstrom, AFB, MT) regarding the presence of hazardous materials and storage tanks in MFH areas. October 2008.

Med-Tox Northwest (MTNW), 2007. *Hazardous Building Materials (HBM) Survey Report, Replace Family Housing Units, Phase VII, (Peacekeeper Park), 35% Design*. Prepared by Med-Tox Northwest, Auburn, Washington. 26 February 2007.

MT.gov, 2008. *Montana Big Sky Country: Official State Travel Information Site Indian Nations*. Retrieved from http://indiannations.visitmt.com/rockyboy.shtm on 3 December 2008.

Montana Department of Environmental Quality (MTDEQ), 2006. *Standard Operating Procedure Water Quality Assessment Process and Methods*, Appendix A to 303(d) 2000-2004.

New Mexico Solid Waste Bureau, 2008. Volume to Weight Conversion Factors. Retrieved from http://www.nmenv.state.nm.us/swb/.

SCS, 1982. Soil Survey of Cascade County Area, Montana. U.S. Department of Agriculture Soil Conservation Service. U.S. Government Printing Office. Washington, D.C. 1982.

Semana, 2008. Personal communication between SAIC and Mr. Leo Semana (341 CES/CEV, Environmental Office, Malmstrom, AFB, MT) regarding the management of hazardous materials and hazardous waste in MFH areas. October 2008.

U.S. Air Force, 1992. Site Closure Decision Document, SS-14, Acorn/Chestnut Streets PCB Incident. 43d CES/DEV, Malmstrom AFB, Montana. September 1992.

U.S. Air Force, 1997. Interim Guide for Environmental Justice with the Environmental Impact Analysis Process. November 1997. Retrieved from https://www.denix.osd.mil/denis/Public/ES-Programs/Planning/Eiap/eiap1.html.

U.S. Air Force, 2004. *General Plan (2004–2008), Malmstrom Air Force Base, Montana*. Air Force Space Command, 341st Space Wing.

U.S. Air Force, 2005a. *Housing Requirements and Market Analysis, 2005-2010, Malmstrom AFB, MT*. December 2005.

U.S. Air Force, 2005b. *Final Environmental Assessment for Phase 6 and Phase 7 Replace Family Housing at Malmstrom AFB, MT*. Prepared for 341st CES/CEV 39 78th St N, Malmstrom AFB, MT by U.S. Army Corps of Engineers, Seattle District. 2005.

U.S. Air Force, 2007. *Malmstrom Housing Requirements and Market Analysis Update Summary*. 28 February.

U.S. Air Force, 2007a. *Integrated Natural Resources Management Plan for Malmstrom Air Force Base, MT*. November 2007.

U.S. Air Force, 2007b. *Hazardous Waste Management Plan*, 341 SW OPLAN 32-7042. Headquarters 341st Space Wing, MAFB, Montana. August 2007.

U.S. Air Force, 2007c. *Malmstrom AFB Economic Impact Statement, FY 2007*. 30 September 2007

U.S. Air Force, 2008. *Draft-Final Integrated Cultural Resources Management Plan for Malmstrom Air Force Base, MT*. September 2008.

U.S. Air Force, 2008a. *Management Action Plan For Installation Restoration Program, Malmstrom Air Force Base, Montana*. October 2008.

U.S. Air Force, 2008b. *Spill Prevention, Control, and Countermeasure Plan for Malmstrom Air Force Base*. Prepared by: URS Corporation, Denver, CO. August 2008.

U.S. Air Force, No Date. *Clean Air Act Compliance Guidance*. Air Force Center for Environmental Excellence. http://www.afcee.brooks.af.mil/eq/air/acctoolbox/html.

U.S. Army, 1997. *Army Regulation 200-1, Environmental Protection and Enhancement*. February 1997.

U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM), 2005. *Operational Noise Management: An Orientation Handbook for Army Facilities*. November 2005.

U.S. Army Corps of Engineers (USACE), 1977. *Malmstrom AFB Foundation Soil Study*. June 1977.

U.S. Army Corps of Engineers (USACE), 2006. *Master Plan Replace Military Family Housing Phase 7, 341st CES Malmstrom Air Force Base, Montana FY 2007.* 30 August 2006.

U.S. Bureau of Economic Analysis, 2008a. CA25N: Total Full-Time and Part-Time Employment by Industry, Cascade County, Montana. April 2008. Retrieved from http://www.bea.gov, in November 2008.

U.S. Bureau of Economic Analysis, 2008b. Table CA05N (NAICS) Personal Income by Major Source and Earnings, Cascade County, Montana. April 2008. Retrieved from http://www.bea.gov, in November 2008.

U.S. Census Bureau, 2000. Census 2000. Tables DP-1, DP-2, DP-3, and DP-4. Demographic Profile of Cascade County, Montana. 1 April 2000. Retrieved from http://factfinder.census.gov.

U.S. Department of Agriculture (USDA), 2008. Natural Resources Conservation Service (NRCS) Official Soil Series Descriptions. Retrieved from http://www2.ftw.nrcs.usda.gov/osd/dat on November 17, 2008.

U.S. Department of Transportation, 2006. *FHWA Roadway Construction Noise Model User's Guide.* Prepared for the U.S. Department of Transportation Federal Highway Administration Office of Environment Planning, Washington, D.C. January 2006.

U.S. Environmental Protection Agency (USEPA), 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* Office of Noise Abatement and Control. EPA Report 550/9-74-004.

U.S. Environmental Protection Agency (USEPA), 1998. *Characterization of Building-Related Construction and Demolition Debris in the United States.* Prepared by Franklin Associates for U.S. Environmental Protection Agency, Municipal and Industrial Solid Waste Division, Office of Solid Waste, Report No EPA530-R-98-010. June 1998.

U.S. Environmental Protection Agency (USEPA), 2002. *U.S. Environmental Protection Agency 2002 National Emissions Inventory Microsoft Access Database.* Accessed September 2006.

U.S. Environmental Protection Agency (USEPA), 2005. *Transportation and Air Quality.*, Retrieved from http://www.epa.gov/otaq/ on 18 March 2005.

U.S. Environmental Protection Agency (USEPA), 2008a. *Nonattainment Status for Each County by Year Including Previous 1-Hour Ozone Counties*. Retrieved from http://www.epa.gov/oar/oaqps/greenbk/anayo.html on 18 November 2008.

U.S. Environmental Protection Agency (USEPA), 2008b. EPA Map of Radon Zones for Cascade County, Montana. United States Environmental Protection Agency. Retrieved from http://www.epa.gov/iaq/radon/zonemap.html.

Verzuh, R., 2008. Personal communication between SAIC and Mr. Verzuh (AFSPC 341 CES/CEAN – MAFB Natural Resources Manager) regarding natural resource issues at MAFB. October 2008.

Weaver and Brown, 2008. Personal communication between SAIC and Capt. Aaron Weaver and Lt. Crystal Brown (341 MDG/MDOS, Malmstrom, AFB, MT) regarding radon sampling in MFH units. October 2008.

Wennerberg, G., 2008. Personal communication between SAIC and Mr. Wennerberg (Manager, High Plains Landfill) regarding current disposal rates and capacity at the High Plains Landfill., December 2008.

Zieske, B., 2008. Personal communication between SAIC and Mr. Brian Zieske (341 CES/CEAN, Malmstrom, AFB, MO) regarding status of ERP sites, asbestos, and lead-based management at MAFB. December 2008.

APPENDIX A

PUBLIC INVOLVEMENT

sible to provide ... munication everywhere in the state.

Back then, he was in communications with the U.S. Air Force, charged with handling the missile communication systems for Malmstrom Air Force Base.

"We did a study with MIT (Massachusetts Institute of Technology) in 1963, and found out you can't do it," Martinez said.

So he's not concerned that wireless cell phones will completely replace the main product line he sells from his business, Falls Phone Center.

Details
Falls Phone Center
1110 9th St. S.
406-727-7090

"It would look like a wind farm if cell towers were put up to provide coverage for the whole state," Martinez said. "We will have hard-wire communication for a long, long time."

Although he's certain of that fact, Martinez has seen plenty of changes in communications during his tenure. He purchased Falls Phone Center in 1985, from Bill and Patsy Long, who established the business in 1982.

Martinez and his wife, Linda, recently celebrated their 24th year as the business' owners.

"When I came to Great Falls in the 1960s, there were still crank phones all over the place," he said.

Martinez was trained by the federal government in the late 1950s in communications for missile command.

"There were 15 of us, and when they began rolling out the weapons systems, they knew where to find us," he said.

That experience provided Martinez with versatile job skills.

"We were all required to be literate in all of the communication disciplines, so if the head of the radio communications was sick, I could step in," he said. "If the guy in charge of putting up communication towers (was out), I could step in."

Today, Falls Phone Center sells, maintains and repairs telephones and accessories, phone systems, fax machines and more.

"I do wireless and repair computers, anything involving communications," Martinez said.

Falls Phone Center has four employees, including Martinez.

The customer base is as diverse as the business' services.

"Just this morning, I helped an older woman fix her residential phone," he said. "Tomorrow, I'm headed to the Hi-Line to help a man with a 250 phone system who wants to expand it to 500."

TRIBUNE PHOTO/JO DEE BLACK

Marty Martinez and his wife, Linda, recently celebrated their 24th anniversary as owners of Falls Phone Center.

10-year Treasury note rose for the fourth time in five days, jumping to 3.96 percent from 3.86 percent late Tuesday. That helped send stocks broadly lower, with the Dow Jones industrial average losing 24 points.

Investors are concerned the government's debt load is growing so large that it will lead to higher inflation and soaring interest rates. Higher interest rates could hamper the economy's recovery by raising borrowing costs for consumers, while inflation ... release of the Treasury auction results in the early afternoon.

The S&P 500 index fell 3.28, or 0.4 percent, to 939.15. The Nasdaq composite index fell 7.05, or 0.4 percent, to 1,853.08.

Data from the Federal Reserve on regional economies did little to help stocks. The central bank reported in what's known as its Beige Book that five of 12 U.S. regions said the economy's "downward trend is showing signs of moderating."

NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL ASSESSMENT
MILITARY HOUSING PRIVATIZATON INITIATVE
(MHPI) AT MALMSTROM AIR FORCE BASE (MAFB)

MAFB proposes to privatize 1,224 military housing units by conveying them, as well as all utilities, to a private developer and leasing the land for a period of 50 years. The action may involve demolition, construction, and renovation of several housing units. The Air Force has prepared a Draft EA in accordance with the National Environmental Policy Act.

The Draft EA will be available for review beginning June 12, 2009. The Draft EA can be viewed at the following libraries:

Great Falls Public Library
301 2nd Avenue North
Great Falls MT 59401

Arden G. Hill Memorial Library
7356 4th Avenue North
Malmstrom AFB MT 59402

Comments on the Draft EA will be accepted through July 12, 2009. Please send your comments to Mr. Christopher Murphy, 341 CES/CEANQ, 39 78th Street North, Malmstrom AFB 59402-7536.

eports

EST STOCKS

STOCK EXCHANGE

If you can't find a stock ... track in the Tribune, call ...

June 10, 2009
Dow Jones industrials
-24.04
8,739.02

OVER-THE-COUNTER

NEW YORK (AP) – Wednesday national prices for NASDAQ Over-the-Counter issues.

June 10, 2009
Nasdaq composite
-7.05
1,853.08

Davidson 99
A regional stock index
Wednesday close: 103.67, -0.39

GRAINS

CHICAGO FUTURES

CHICAGO (AP) — Futures trading on the Chicago Board of Trade Wednesday.

PORTLAND GRAIN

Futures trading in Portland on Wednesday.

MINNEAPOLIS FUTURES

United States Department of the Interior
Fish and Wildlife Service

Ecological Services
Montana Field Office
585 Shepard Way
Helena, Montana 59601-6287
Phone: (406) 449-5225 Fax: (406) 449-5339

File: M10 (I)

July 2, 2009

Christopher J. Murphy, E.I.
Environmental Engineer
341 CES/CEANQ
39 78th Street North
Malmstrom AFB, Montana 59402

Dear Mr. Murphy:

This is in response to your request received on June 12, 2009 for U.S. Fish and Wildlife Service (Service) review and comments regarding the draft Environmental Assessment for the Military Housing Privatization Initiative on Malmstrom Air Force Base, Montana. We appreciate the opportunity to review this project proposal and provide comments. These comments have been prepared under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.) and the Endangered Species Act (16 U.S.C. 1531 et. seq.).

Considering the location of the proposed action, the Service does not anticipate the occurrence of any federally listed threatened, endangered, candidate or proposed species. The project is not likely to have any significant effects on fish, wildlife or habitat resources under the purview of the Service. There may be state species of concern in the vicinity of the project and we recommend contacting the Montana Department of Fish, Wildlife and Parks at 1420 East Sixth Ave., P.O. Box 200701, Helena, MT 59620-0701, 406-444-2535 or the Montana Natural Heritage Program, 1515 East 6th Avenue, Box 201800, Helena, MT 59620-1800, 406-444-5354.

The Service appreciates your efforts to incorporate fish and wildlife resource concerns, including threatened and endangered species, into your project planning. If you have questions or comments related to this issue, please contact Katrina Dixon at 406-449-5225 extension 222.

Sincerely,

R. Mark Wilson

R. Mark Wilson
Field Supervisor

greatfallstribune.com
GREAT FALLS, MONTANA

June 28, 2009

Plan calls for reducing number of family housing units

Malmstrom is seeking comments through July 12 about a draft assessment of the environmental impacts of privatizing housing at the Great Falls base and reducing the number of on-base family housing units from 1,420 to 1,224.

When the Air Force updated its Housing Requirements and Market Analysis study for Malmstrom in 2007, it determined that it needs 196 fewer family housing units on base.

The biggest reason for the reduction was the deactivation of the 564th Missile Squadron, one of Malmstrom's four missile teams, last summer resulting in the gradual loss of 500 positions, said Phil Rainforth, chief of asset management with Malmstrom's Civil Engineering Squadron. Another factor was increased availability of housing in town, he added.

The Air Force's main proposal calls for trimming its housing numbers by eliminating 196 older Capehart, 1950s style housing units in the Peacekeeper Park area on the west and southwest side of the base, generally between Malmstrom and 57th Street, he said.

Those houses are considered surplus, but will be temporarily used as replacement housing for families during construction and remodeling of other houses, he said.

One of the alternatives in the Air Force plan calls for assigning some or all of those 196 houses to the non-profit Operation Walking Shield housing relocation program, which would help relocate them to Indian Reservations in Montana in need of good, affordable housing.

"There's a pretty good likelihood that will happen," Rainforth said, depending on the needs and financial resources of the tribes.

"Operation Walking Shield has been an extremely good partner with the Air Force," he said, noting that Malmstrom has transferred 230 excess family housing units to Indian tribes under the program since 1999.

The Air Force plan also calls for transferring 202 newer Minuteman Village houses on the north side of the base to the private developer. Malmstrom recently received $26.2 million in federal stimulus money to repair major structural foundation problems at 179 of those housing units that were built between 1998 and 2001. Work is expected to start late this year.

The other 23 Minuteman Village homes were adequately repaired earlier, helping justify the full stimulus repair project, Rainforth said.

In a nutshell, the environmental analysis found that privatizing Malmstrom housing under the proposed action or alternatives "will not have a significant impact on the human or natural environment."

For instance the analysis said that privatizing the management and future construction and demolition

of the base family housing units have no significant impact on air quality, water quality or noise levels. It also concluded privatized base housing management would have no significant impact on cultural resources, such as the national historic landmark based on the Lewis and Clark Expedition's portage path near the base in 1805.

And the option of allowing as many as 196 surplus base housing units to be relocated to Native American reservations would have a positive social impact, the draft study said.

Copies of the draft environmental assessment can be viewed at the Great Falls Public Library, 301 2nd Ave. N., and Malmstrom's Arden G. Hill Memorial Library, 7356 4th Ave. N., on base.

Comments should be sent to Christopher Murphy, 341 Civil Engineering Squadron, 39 78th St. N., Malmstrom Air Force Base, 59402.

After weighing the public comments, the Air Force will run its housing privatizing plans by developers for their suggestions at an industry forum. Then an Air Force-level team will evaluate the developers' proposal and select the winning big, according to Malmstrom officials.

---

greatfallstribune.com
GREAT FALLS, MONTANA

June 28, 2009

Air Force plans to pare and privatize Malmstrom housing

Stories by Peter Johnson Tribune Staff Writer

The U.S. Air Force is proposing to privatize operations of its military family housing units at Malmstrom, Whiteman and F.E. Warren Air Force bases. If the plan is approved, a 50-year contract will be awarded to a single private developer.

Tentative plans call for the privatization of the construction, renovation and demolition of base housing at the Montana, Missouri and Wyoming Air Force bases by October 2010, said Phil Rainforth, chief of asset management with Malmstrom's Civil Engineering Squadron.

Rainforth said the Air Force first started privatizing housing operations at its bases in 1993 in a pilot program to see if private industry could handle the housing more efficiently than the military.

The 1996 Defense Authorization Act formally permitted the Defense Department to enter into contracts under which private developers lease land from the government and actually own the housing units to renovate, demolish or rebuild. The private contract holder also maintains and manages the housing units, including collecting rent from service members.

Under the current system, with Malmstrom running the housing program, military members living in on base family housing do not pay rent, said 2nd Lt. Mauri Slater. But under the privatization plan, military personnel living on base would be treated the same as military members living off base. They would receive "basic allowance for housing," based on their geographic duty location, pay grade and number of family dependents, and in turn pay rent to the private developer running the housing program.

"Currently the family housing units of 69 percent of the Air Force bases in the continental United States are run by private developers," Rainforth said.

"The Air Force has owned and operated a monumental number of houses at its bases and wants to convert them all to 21st century quality for our airmen," he said, but now realizes that private, housing industry developers have the knowledge and skills to build, operate and maintain housing better and more cost efficiently than the government.

However, Air Force and private industry officials also have come to realize it's not economically feasible for a developer to run the housing at just one base, Rainforth said. The real profit to the business and savings to the government occur when the contractor operates housing at more than one base, he said. Malmstrom, Whiteman and F.E. Warren simply have been scheduled under the same contract.

"It's up to local contractors to decide whether they want to compete for the work," he added, but no special provisions will be made to encourage smaller, local contractors, such as splitting the contracts into smaller segments.

In the past, some Great Falls area contractors have complained that the awarding of $100 million-

plus housing construction contracts at Malmstrom effectively steered much of the work to out-of-state companies.

Rainforth said he does not anticipate the privatizing of the housing operations will result in the loss of civilian military jobs at Malmstrom.

The base's Civil Engineering Squadron still will have a housing office with about the same number of employees, he said. They'll fill a liaison role, monitoring the larger housing decisions made by the private developer to ensure they follow Air Force needs and working through any issues that may arise between airmen residents and the private developer managing the houses.

"The Air Force will still be deeply involved in monitoring what the private developer does with the base housing," he stressed.

In addition, the housing office helps airmen and their families who want to rent or buy housing in the local community.

As for plumbing, carpentry and other maintenance work at the base housing, Malmstrom already farms that out to a private contractor, General Trades and Services of Mississippi, so no military workers would lose their jobs here, Rainforth said.

It's even possible the winning private developer might retain General Trades and Services because of their knowledge of the local houses, he added.
