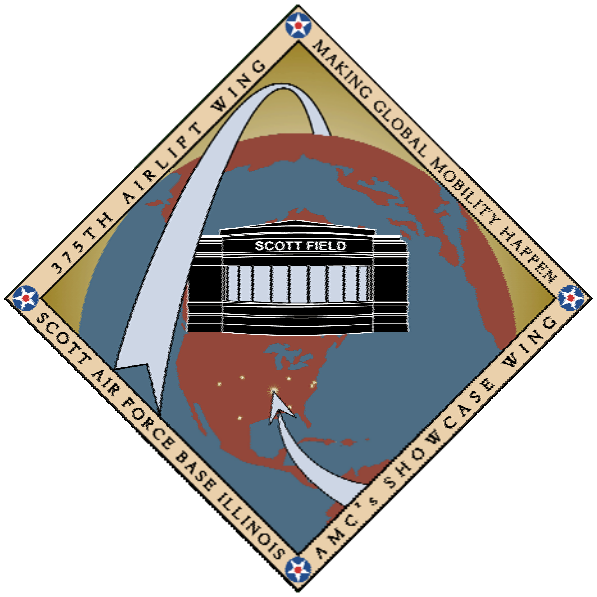
FINAL ENVIRONMENTAL ASSESSMENT
MILITARY HOUSING PRIVATIZATION INITIATIVE
AT SCOTT AIR FORCE BASE, ILLINOIS



Prepared For:

Scott Air Force Base, Illinois

U.S. Air Force

Contract # F41624-01-D-9009

Task Order 20000

Project Number 742705

September 2005

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
SEP 2005		**00-00-2005 to 00-00-2005**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Final Environmental Assessment: Military Housing Privatization Initiative at Scott Air Force Base, Illinois	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) **Parsons,100 West Walnut Street,Pasadena,CA,91124**	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	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**85**	

FINDING OF NO SIGNIFICANT IMPACT
MILITARY HOUSING PRIVATIZATION INITIATIVE
SCOTT AIR FORCE BASE, ILLINOIS

INTRODUCTION

The Air Force is proposing the privatization of military family housing (MFH) at Scott Air Force Base (AFB) Illinois. The purpose of the Military Housing Privatization Initiative (MHPI) is to provide suitable MFH for military personnel stationed at Scott AFB. This action is needed to comply with the Office of the Secretary of Defense (OSD) Strategic Planning Guidance (SPG). The OSD, tasked the Department of Defense (DOD) and Air Force to privatize a minimum 60% of the MFH inventory, eliminate inadequate housing at all but four northern tier bases by 2007, eliminate inadequate housing at the remaining bases by 2008, and eliminate inadequate housing overseas by 2009.

A Housing Requirements and Market Analysis (HRMA) was prepared in 2004 to determine the total MFH requirement for personnel at Scott AFB. Based on the findings of the HRMA, the Scott AFB housing requirement is 1,593 units (Parsons 2004). Currently, the base has 1,430 units within 6 housing areas. Therefore, there is a potential deficit of 163 units as the total MFH requirement is more than the current Scott AFB housing inventory. No change in the HRMA is anticipated based on current Base Realignment and Closure (BRAC) scenarios proposed for Scott AFB. .

To comply with the requirements of the OSD directive and to meet the demand for MFH at Scott AFB, the MHPI includes renovating some MFH units, demolishing inadequate housing units, and constructing new housing units. Privatization to meet MFH requirements is authorized by the 1996 Defense Authorization Act when economically feasible. Scott AFB has determined that privatization is economically feasible for the MFH areas. Privatization would involve the lease of Air Force land and conveyance of Air Force buildings and structures to a successful offeror (SO) developer for the purpose of satisfying new construction, replacement, and improvement requirements.

Due to age and continual degradation, many of the units at Scott AFB do not meet modern standards and require either major improvements or replacement. Additionally, many of these units have deteriorated beyond the reasonable cost of whole unit renovation; consequently, demolition is necessary to comply with the SPG directive

The proposed action would include the transfer and enhancement, as appropriate, of other installation-owned improvements located within the housing areas, including ancillary facilities (e.g., garages, sheds, and bus stop shelters), recreational areas (e.g., playgrounds and basketball courts), and infrastructure (e.g., roads, sidewalks, parking areas, and utilities). The SO would maintain all housing units, improvements, and land located within the leased area. Of the 108 units included in the Scott AFB Historic District and listed on the National Register of Historic Places, 55 of the listed units will be maintained and renovated in accordance with standards approved by the Illinois Historic Preservation Agency (IHPA or "SHPO").

DESCRIPTION OF ALTERNATIVES TO IMPLEMENT THE PROPOSED ACTION:

Alternative 1

Alternative 1 would consist of privatization and renovation of a total of 248 units in Shiloh West. The SO would determine the layout of the units. The actions taken at Shiloh East, Galaxy, Colonial, Patriot's Landing, and Georgian housing areas would be the same as described for the Disposition of Existing Housing Area Under Proposed Action in Section 2.3 of the attached Environmental Assessment (EA).

Alternative 2

Alternative 2 would be similar to Alternative 1 except for the replacement of 248 Shiloh West housing units in lieu of renovation. The number of units to be replaced and layout of the units would be determined by the SO. The actions taken at Shiloh East, Galaxy, Colonial, Patriot's Landing, and Georgian housing areas would be the same as described for the Disposition of Existing Housing Area Under Proposed Action in Section 2.3 of the EA.

No Action Alternative

Under the No Action alternative, the Air Force would not privatize the government-owned housing. The installation would continue to be responsible for providing, operating, and maintaining the MFH units. New construction and renovations required to upgrade the substandard housing conditions would be conducted at a substantially slower pace using limited military construction (MILCON) funding, effectively preventing Scott AFB from meeting the DOD commitment to upgrade all inadequate housing by the end of FY 2007.

ENVIRONMENTAL ANALYSIS

Pursuant to the National Environmental Policy Act (NEPA), regulations codified at Title 40 Code of Federal Regulations (CFR) Parts 1500-1508 and guidance of the Council on Environmental Quality (CEQ) established by NEPA, and the Air Force Environmental Impact Analysis Process (EIAP) promulgated at 32 CFR 989, the Air Force completed an environmental assessment (EA) of the potential environmental consequences of privatizing the military family housing at Scott AFB. The EA, which supports this Finding of No Significant Impact (FONSI), fully evaluated the Proposed Action, all reasonable alternatives, and the No Action Alternative.

EVALUATION OF THE PROPOSED ACTION

This section describes the environmental and socioeconomic consequences of implementing the proposed alternatives. Due to the similarity of Alternative 1 and Alternative 2, the evaluations are summarized together.

Land Use

All projects associated with the proposed action are located within the cantonment area of the base, which is developed with numerous buildings located throughout the area. No significant impacts are anticipated to Scott AFB land use under this alternative.

Air Quality

No stationary sources of air emissions will exist at the construction sites. Air emissions within the cantonment area will be limited to mobile sources (autos) traveling on parking lots and roadways. There would be minor short-term and no long-term impacts to air quality under these alternatives. Emissions associated with demolition and construction would be temporary, diminish rapidly with distance from the construction sites, and end with construction activities. A conformity determination is not required.

Wastes, Hazardous Materials, and Stored Fuels

The properties associated with the proposed action do not appear to have been sites of either authorized or unauthorized disposal of hazardous or non-hazardous waste. Limited quantities of residential-type hazardous and non-hazardous substances are likely present. However, no evidence of mismanagement or applications beyond intended purposes were observed during a site visit conducted to prepare the Environmental Baseline Survey (EBS).

There would be no short-term or long-term adverse impacts from hazardous waste generation associated with the proposed action projects. No hazardous materials would be used during construction and no hazardous materials would be used, stored, or created at the new facilities.

Lead-Based Paint. Lead-based paint (LBP) at Scott AFB is managed under the base's Lead-based Paint Management Plan, dated September 2003. The Scott Environmental Restoration Program has identified elevated lead levels in soil, attributed to LBP, in the yards of eight Colonial and Georgian MFH units. The Air Force is committed to abate this lead contamination and remediate affected soil in compliance with all applicable statutory and regulatory regimes to protect human health and safety. No significant impacts from LBP are anticipated through this proposed MHPI. The SO is responsible for the demolition of structures containing LBP, as well as the removal and disposal of LBP debris; all activities will be conducted in accordance with applicable standards.

Asbestos. ACBM may be found in floor tile, floor tile adhesive, roofing materials, drywall systems, plumbing systems, linoleum floor backing, and other materials.

The SO is responsible for the demolition of structures containing ACBM, as well as the removal and disposal of ACBM debris, to be conducted in accordance with all applicable standards.

Radon. All housing units built or renovated will have adequate ventilation systems installed. No significant impacts from radon are anticipated.

Pesticides. Pesticide applications occurring historically in the housing areas include chlordane, dieldrin, aldrin, DDT, and other pesticides that were commercially available at the time of application. Both surface and subsurface applications were made.

The application of pesticides may have occurred at all housing units proposed for privatization (except for Patriots Landing, which did not exist at the time). The potential exists to encounter pesticides during construction and demolition activities. If soil contamination is found at proposed action sites, there is a potential for short-term and long-term adverse impacts from pesticides. If contamination is found, all contaminated soils would be handled in accordance with Federal, State, and local laws and regulations. Potential impacts from exposure

to pesticides would be mitigated by implementing proper soil handling procedures. Appropriate management of this material after privatization would be the responsibility of the SO. No significant impacts are expected if proper procedures are followed.

Water Resources

Impacts to water resources at Scott AFB associated with new construction would be limited to increased runoff and siltation. The construction of new buildings at Scott AFB would result in a minor increase in impervious surfaces at the base. Based on this increase in impervious surface, the potential for a minor increase in surface water runoff exists; however, Scott AFB has an effective stormwater control system in place. Long-term adverse impacts associated with increased runoff would be minimal, because the SO will be required to comply with all existing base stormwater provisions.

Construction activities are anticipated to result in short-term, adverse impacts to soils at the project sites. There is potential to result in short-term increases in siltation and sedimentation into surface water bodies. No long-term impacts are anticipated. On completion of construction and revegetation of disturbed areas, soil erosion and siltation levels would return to baseline conditions. Based on the implementation of Scott AFB's erosion control policy during construction and the lack of any nearby water bodies, short-term increases in siltation would be minimal.

Biological Resources

The proposed construction sites in this MHPI are primarily within the cantonment area, which contain only scattered trees and shrubs for landscaping purposes. Lawns around the cantonment area are primarily composed of locally-suited turf grasses including bluegrass, fescues and Bermuda grass. The scattered trees and shrubs at the sites provide limited habitat for birds and small mammals.

No threatened or endangered species or their habitats occur in the MHPI area. No wetlands have been identified in the vicinity of the proposed project construction sites evaluated by this EA.

Cultural Resources

All renovation of housing units listed on the National Register of Historic Places will be coordinated with the Illinois Historic Preservation Agency (IHPA), which is the State Historic Preservation Officer (SHPO). An agreement between IHPA and the Air Force, signed by the SHPO and AMC/A7, respectively, and a Historic Preservation Covenant will be included in the lease of land and conveyance of facilities. The agreement and covenant will constitute the legally enforceable restrictions to ensure long-term preservation of the property's historical significance. The Scott AFB Integrated Cultural Resources Management Plan (INRMP), the referenced agreement and covenant , and the requisite formal consultation with the SHPO will ensure no adverse effects to cultural resources occur on the base due to the proposed MHPI. In the event an artifact or historical object is discovered during construction, all ground disturbing activities would cease until the Cultural Resource Specialist and/or the Base Historian is notified. Archaeological resources on cannot be excavated, removed, damaged, or otherwise disturbed on public lands without a permit in accordance with 32 CFR 229.4(a)(5)(b) and approval from the base Cultural Resources Specialist.

Safety

Because the proposed projects sites are located outside the Clear Zones (CZs), Accident Potential Zone (APZs), and Explosive Quantity-Distance arcs, there would be no significant impacts to safety associated with implementation.

Noise

Aircraft operations are the notable source of noise at Scott AFB. In addition to aircraft operations, noise generators at Scott AFB include vehicular traffic, rail operations, and heavy equipment operations. Noise generation at the proposed construction sites is currently limited to vehicular and pedestrian activities.

Minor, short-term, adverse impacts to noise levels are anticipated during demolition, renovation, and construction activities. No long-term impacts are anticipated. On completion of construction, renovation, and demolition activities under the proposed action or its alternatives, base noise levels would return to normal.

Socioeconomics

Housing and recreational amenities would be improved under all proposed action alternatives.

Local Economy. Minor socioeconomic impacts are anticipated for the local area. Short-term beneficial impacts would result from the increased demand for labor and materials related to housing construction, renovation, and demolition activities. Minor, long-term impacts may occur due to a change in the number of families residing off-base. There will be no significant changes in employment

Education. Although the same number of military families will reside in the local area, there will be changes in where a portion of families reside. The on-base population of military families will decrease by 218 families when these families move off-base to live in private-sector housing that will be built on land acquired and owned separately from this MHPI by the Successful Offeror (SO). It is anticipated another 163 military families, currently living off-base in existing private-sector housing, would move into a new MFH area located off-base on the land developed by the SO. Since the overall number of military families would not change, the number of students attending schools in the affected area (i.e., St. Clair County) would not change. Federal Impact Aid received by individual school districts would change based on the free movement of the 381 families within the local area. Although there may be a loss of Federal Impact Aid to specific local school districts in the region, the loss would be offset, in part, by increases in local tax revenue generated from the presence of 381 new homes constructed in the region through the MHPI. Any potential movement would occur within the region, on a school district-to-school district level. This change would depend upon the location of the new private-sector housing units to be constructed in a specific school district. The potential impacts among the various local school districts would be similar irrespective of where the proposed housing units are built within their boundaries. Although the Mascoutah School District is currently classified as "heavily impacted" by school attendance attributable to Scott AFB, it is not anticipated impacts to the Mascoutah School District associated with the proposed MHPI will be significant.

Environmental Justice

No significant impacts are anticipated. There would be no short-term or long-term impacts on environmental justice at Scott AFB if this alternative is adopted. There would be no change in the existing conditions for minority or low-income populations.

Notice of Availability

The Notice of Availability (NOA) for the Military Housing Privatization Initiative EA at Scott Air Force Base was published in the *Belleville News Democrat, O'Fallon Progress, Command Post, Madison-St. Clair Record, Scott AFB Flier*, and the *O'Fallon/Fairview Suburban Journal.* No comments were received during the 30-day comment period beginning August 1, 2005.

Federal, state, local and regional agencies reviewed the EA and provided comments. The comments received on the Draft EA have been considered in the development of the Final EA and FONSI.

FINDING OF NO SIGNIFICANT IMPACT

After careful review of the potential impacts of the proposed action and alternatives analyzed in the attached Environmental Assessment, which is incorporated by reference, I conclude implementation of the Proposed Action will not have a significant impact on the quality of the human or natural environment, either by itself or cumulatively with other projects at Scott AFB. Accordingly, in compliance with the requirements of NEPA, and regulations promulgated by the Council on Environmental Quality and Air Force, an Environmental Impact Statement is not required. The required public involvement for this decision has been satisfied by a Notice of Availability published in *The Belleville News Democrat, O'Fallon Progress, Command Post, Madison-St. Clair Record, Scott AFB Flier, and the O'Fallon/Fairview Suburban Journal.* The 30-day public comment period ended August 31, 2005. This Finding of No Significant Impact (FONSI) completes the Air Force environmental impact analysis process.

Approved: Christopher A. Kelly Date: 21 Nov 2005

CHRISTOPHER A. KELLY
Lieutenant General, USAF
Vice Commander

Attachment: Environmental Assessment

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ABBREVIATIONS AND ACRONYMS

ACBM	Asbestos-containing building materials
AFCEE	Air Force Center for Environmental Excellence
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
ANSI	American National Standards Institute
AOC	area of concern
APZ	accident potential zone
AR	Army Regulation
AST	aboveground storage tank
AT/FP	antiterrorism/force protection
AW	Air Wing
BCP	base comprehensive plan
BX	base exchange
CE	Civil Engineering
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRMP	Cultural Resources Management Plan
CZ	clear zone
dBA	decibels, A-weighted
DNL	day night level
DOD	Department of Defense
EA	Environmental Assessment
EBS	Environmental Baseline Survey
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
ERNS	Environmental Release Notification System
FAA	Federal Aviation Administration
FICUN	Federal Interagency Committee on Urban Noise
FONSI	finding of no significant impact
FY	fiscal year
HQ	headquarters
HRMA	housing requirements and marketing analysis

HUD	Department of Housing and Urban Development
IESPB	Illinois Endangered Species Protection Board
INHS	Illinois Natural History Survey
LBP	lead-based paint
MFH	military family housing
MILCON	military construction
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NRHP	National Register of Historic Places
PCB	polychlorinated biphenyl
pCi/L	Pico Curie per liter
ppm	part per million
Q-D	(explosive) quantity-distances
RFP	request for proposal
ROI	region of influence
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SMSA	Standard Metropolitan Statistical Area
SO	successful offeror
TACO	Tier-Based Approach to Cleanup Objectives
U.S.	United States
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VFW	Veterans of Foreign War
VOC	volatile organic compound
VSI	visual site inspection

SECTION 1 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The Air Force is proposing the privatization of military family housing (MFH) at Scott Air Force Base (AFB,) Illinois (Figure 2.1). The proposed privatization action for the installation would include the transfer of Air Force MFH units and associated facilities (e.g., sidewalks and roads) to a successful offeror (SO) and implementation of a long-term lease to the SO for land associated with the housing units. The SO would conduct selective demolition, construction, and renovation of housing units (as required) to provide quality housing for military families. The SO would also be required to maintain the housing communities (including the units) for 50 years.

The proposed action would also include the transfer and enhancement, as appropriate, of other installation-owned improvements located within the housing areas, including ancillary facilities (e.g., garages, sheds, and bus stop shelters), recreational areas (e.g., playgrounds and basketball courts), and infrastructure (e.g., roads, sidewalks, parking areas, and utilities). The SO would maintain all housing units, improvements, and land located within the leased area.

The purpose of the MFH Revitalization Project is to provide suitable MFH for military personnel stationed at Scott AFB. This action is needed to comply with the Office of the Secretary of Defense (OSD) Strategic Planning Guidance (SPG). The OSD, in its current guidance has tasked the Department of Defense (DOD) services to AF to privatize a minimum 60% of the family housing inventory, eliminate inadequate housing at all but four United States bases by 2007, eliminate inadequate housing at the remaining four northern tier bases by 2008, and eliminate inadequate housing overseas by 2009.

Due to advancing age and continual degradation, many of the MFH units at Scott AFB do not meet modern standards and require either major improvements or replacement. Additionally, many of these units have deteriorated beyond the reasonable cost of whole unit renovation. Therefore, demolition activities are necessary to comply with the SPG directive. It is the Air Force's goal to meet the OSD mandate by 2007.

A Housing Requirements and Market Analysis (HRMA) was prepared in 2004 to determine the total MFH requirement for personnel at Scott AFB. Based on the findings of the HRMA, the Scott AFB housing requirement is 1,593 units (Parsons 2004). Currently, the base has 1,430 units within 6 housing areas. Therefore, there is a potential deficit of 163 units as the total MFH requirement is more than the current Scott AFB housing inventory.

In order to comply with the requirements of the OSD directive and to meet the demand for MFH at Scott AFB, the MFH Revitalization Project includes renovating some MFH units, demolishing inadequate housing units, and constructing new housing units. Privatization to meet MFH requirements is authorized by the 1996 Defense Authorization Act when economically feasible. Scott AFB has determined that privatization is feasible for the MFH areas. Privatization would involve the lease of Air Force land and

conveyance of Air Force buildings and structures to a private contractor for the purpose of satisfying new construction, replacement, and improvement requirements.

1.2 NEED FOR PROPOSED ACTION

The DOD currently faces two significant housing problems. First, the condition of DOD-owned housing is poor, and second, there is a shortage of affordable, quality private housing available to service members and their families (ACQWEB 2001). The DOD currently owns approximately 300,000 family housing units on and off military installation. More than 60 percent of these units must be renovated or replaced. Using the traditional military construction (MILCON) approach, it would cost taxpayers nearly $30 billion and it would take 30 to 40 years to upgrade housing to current standards.

While the quality of existing on-base military housing has been in decline for the past three decades, deployments and family separations have lengthened; out-of-pocket expenses for service members living in private housing have increased; and demands on military personnel and their families have increased. A DOD Quality of Life Task Force report confirmed these disconcerting trends and warned that readiness and morale are in jeopardy. It is for this reason that the military housing privatization initiative is so important to the DOD, service members and their families, and the American taxpayers.

Based on findings in the most recent Scott AFB Housing Requirements and Marketing Analysis (HRMA), required housing assets for the installation in 2008 are estimated to be 1,593 units (HRMA 2004). Due to historic budget constraints, some of the existing units are of inadequate quality and do not meet the Air Force housing standards.

- Colonial and Colonial Annex: This centrally located neighborhood consists of one single-family one-story and 96 Colonial revival two-story duplex units constructed in several phases during 1939 to 1950 and 1970. The majority of units have a brick veneer/aluminum siding façade and slate roofs. The parcel consists of approximately 26 acres. Portions of the neighborhood are both within the Scott AFB Historic District and listed on the National Register of Historic Places; certain of the units were surveyed, determined to be "noncontributing" within the district, and were not listed.

- Galaxy: This centrally located neighborhood contains 87 two-story multiplex units that were constructed in 1969. The units have been renovated in phases since 1994. A majority of the units have a brick veneer/aluminum siding façade and asphalt shingle roofs. The parcel consists of 26 acres.

- Georgian: The Georgian area consists of 50 Colonial revival two-story duplex brick units constructed in the early 1940s. These units are listed on the National Register of Historic Places, are included within the Scott AFB Historic District, and were renovated in the early 1990s. The majority of units have a brick veneer facade and slate roofs. The parcel consists of 9 acres.

- Patriot's Landing: This neighborhood is located in the southwest corner of Scott AFB and consists of 808 ranch style units constructed in the late 1990s. The majority of these units have a brick veneer/vinyl siding façade and asphalt shingle roofs. The parcel consists of 292 acres.

- Shiloh East: The neighborhood consists of 140 single-story duplex units constructed in the early 1970s and is located in the northwest portion of the base. All but 24 units were renovated in the late 1990s. The majority of units have a hardwood siding and brick veneer facade and asphalt shingle roofs. The parcel consists of 52 acres.

- Shiloh West: The neighborhood consists of 248 single-story duplex units constructed in the early 1970s and is located in the northwest portion of the base. The majority of units have a hardwood siding and brick veneer facade and asphalt shingle roofs. The parcel consists of 87 acres.

1.3 OBJECTIVES

The DOD objective is to upgrade all required, inadequate MFH by Fiscal Year (FY) 2010. To accomplish this objective, the Air Force has launched an aggressive program to revitalize all MFH units under its control through a combination of traditional MILCON funding and a privatization initiative. 10 USCS 2871 *et seq*. grants DOD military departments a series of authorities that allow novel approaches to military family housing efforts and allows the DOD to work with the private sector to build and renovate military housing. The DOD's goals are to:

- Obtain private capital to leverage government dollars,
- Make efficient use of limited resources, and
- Use a variety of private sector approaches to build and renovate military housing faster and at a lower cost to American taxpayers.

DOD military departments have also been provided the authority to permit privatization of MFH where privatization is economically feasible. Therefore, the proposed action and alternatives for accomplishing the objective of upgrading MFH all involve a privatization scenario, including necessary renovation and construction by a private contractor over a shorter period of time than would be accomplished by the Air Force using traditional MILCON approaches.

1.4 SCOPE OF ENVIRONMENTAL REVIEW

Consistent with the National Environmental Policy Act of 1969 (NEPA), the regulations of the President's Council on Environmental Quality (CEQ) implementing NEPA, and U.S. Air Force and Army regulations implementing NEPA, an Environmental Assessment (EA) will be prepared with a focus on those resources that may be affected by implementation of the proposed action alternatives at Scott AFB. The EA will describe and address the potential environmental and socioeconomic impacts of the activities associated with the privatizing initiative which involves renovating, demolishing, and constructing housing facilities on the installation to meet MFH housing requirements. The EA will also address the potential environmental impacts of the No Action alternative.

The study area for the EA includes the specific housing areas to be affected by the Proposed Action and the region of influence (ROI). The ROI determines the geographic area to be addressed as the potentially affected environment. Although the housing area

boundaries may constitute the ROI limit for some resources, potential effects associated with certain issues (e.g., transportation and air quality) transcend these limits. For this analysis, the ROI is generally limited to the Scott AFB cantonment area. The ROI for air quality issues is defined by the United States Environmental Protection Agency (USEPA) Region 5, Metro-East Area.

1.5 DECISION TO BE MADE

The decision is whether or not to privatize military family housing on Scott AFB. The EA provides the Air Force decision makers with information required to understand the potential environmental consequences of privatization of MFH units at Scott AFB, including renovation, demolition, and new construction. If implementation of the proposed action at any of the alternative locations would result in significant adverse impact on the environment, an Environmental Impact Statement (EIS) would be prepared as specified in the CEQ regulations implementing NEPA to further facilitate the decision-making process. Alternatively, the proposed action could be altered to include mitigation measures that address potentially significant adverse impacts so that the impacts are not significant, thereby obviating the need for an EIS and enabling the proponents to conclude the environmental analysis with an EA and Finding of No Significant Impact (FONSI).

1.6 APPLICABLE REGULATORY REQUIREMENTS AND REQUIRED COORDINATION

1.6.1 Applicable Regulatory Review

The EA will be prepared in accordance with the CEQ regulations, Title 40 of the Code of Federal Regulations (CFR) §§1500-1508, as they implement the requirements of NEPA, 42 USC §4321, *et seq*. and AFI 32-7061, The Environmental Impact Analysis Process, as promulgated in 32 CFR Part 989.

These regulations specify that an EA be prepared for the following purposes:

1. To briefly provide sufficient analysis and evidence for determining whether or not to prepare an EIS or a FONSI,
2. To aid an agency's compliance with NEPA when an EIS is deemed unnecessary or facilitate EIS preparation when one is necessary, or
3. To provide a basis for continuing or terminating the proposed action.

As appropriate, the Air Force will issue either a FONSI or a Notice of Intent for preparing an EIS. If the EA results in a draft FONSI, the public would be notified of the opportunity to review the draft EA and FONSI through local news media. Following this notification, a 30-day waiting period would be observed, during which the Air Force would consider any comments submitted by agencies, organizations, or members of the public on the proposed action or the EA.

1.6.2 Required Coordination

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, and 32 CFR 989.14(1), the Air Force must notify relevant federal, state, and local agencies and allow them sufficient time to make known their environmental

concerns specific to the proposed action. Comments submitted by these entities during the environmental review process will be incorporated into the analysis of potential environmental impacts conducted as part of the EA.

1.6.3 Notice of Availability

The Notice of Availability (NOA) for the Military Housing Privatization Initiative EA at Scott Air Force Base was published in the *Belleville News Democrat, O'Fallon Progress, Command Post, Madison-St. Clair Record*, *Scott AFB Flier*, and the *O'Fallon/Fairview Suburban Journal*. The NOA initiated a 30-day waiting and comment period beginning August 1, 2005 through August 31, 2005.

The EA was also available for public comment at five repositories:

- City of Belleville Library, Main Branch, 121 E. Washington, Belleville, Illinois
- City of O'Fallon Library, 120 Civic Plaza, O'Fallon, Illinois
- Fairview Heights Public Library, 10017 Bunkum Rd, Fairview Heights, Illinois
- Southwestern Illinois College Library, 2500 Carlyle Avenue, Belleville, Illinois
- Scott AFB Library, Scott Air Force Base, Illinois

During the 30-day period federal agencies, state agencies, local and regional agencies, elected officials, organizations, and individual citizens were able to review the EA and provide comments. The following is a list of the officials and agencies that were given a copy of the EA and FONSI for review:

- Mr. Don L. Klima, Director
  Advisory Council on Historic Preservation Office of Federal Agency Programs, Eastern Office (EO)
- Mr. Ken Westlake
  Env. Review Coordinator
  USEPA Region 5
- Bernard P. Killian, Deputy Director
  Illinois Environmental Protection Agency
- Mr. Tom Flattery
  Environmental Planning
  Illinois Department of Natural Resources
- Ms. Joyce Collins, Assistant Field Supervisor USFWS, Marion Ecological Services Sub-Office
- Michael Mitchell, Director of Planning and Zoning
  St. Clair County Zoning
- Joseph Parente
  Madison County Zoning
- Ms. Lucas
  Clinton County Zoning
- Mr. William L. Wheeler
  SHPO, Associate Director
  Illinois Historic Preservation Agency
- Mr. Todd Shekell, Planning and Zoning Director
  O'Fallon Planning and Zoning Department
- Mr. Ken Zacharski, Chairman
  Mascoutah Planning Commission

- Michael Malloy, Director Planning and Zoning
  Belleville Planning and Zoning
- Mr. Tim Cantwell
  MidAmerica St. Louis Airport Director

The comments received on the Draft EA have been considered in the development of the Final EA and FONSI regarding the Military Housing Privatization Initiative at Scott AFB.

All written comments received during the 30-day public waiting period following the publication of the NOA of the EA have been included in Appendix B.

Two letters providing no comments on the EA were received during the 30-day comment period. The letters were received from:

- State of Illinois Environmental Protection Agency – Bernard P. Killian, Deputy Director
- Illinois Historic Preservation Agency – William Wheeler, State Historic Preservation Officer

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SECTION 2 DESCRIPTIONS OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The proposed privatization action would include transferring (by deed) up to 1,430 Air Force-owned MFH units to an SO and leasing to the firm (for 50 years) government land associated with and/or near the housing units. The SO would renovate or replace the transferred units within 10 years of the initial transfer to provide quality housing for military families. It is anticipated that the total number of units required on Scott AFB would not exceed 1,593. Specific designs for renovated or replaced housing and plans for the housing community have not yet been identified. The proposed action would also include the transfer and enhancement (as appropriate) of other Air Force-owned improvements located within the housing areas, including ancillary facilities (e.g., garages, sheds, and bus stop shelters), recreational areas (e.g., playgrounds and basketball courts), and infrastructure (e.g., roads, sidewalks, parking areas, and utilities as stated in the request for proposals [RFP]). In addition, the SO would maintain all housing units, improvements, and land located within the leased area throughout the 50-year lease period.

2.2 PROJECT LOCATION

Scott AFB is located in St Clair County in southwestern Illinois, approximately 16 miles east of St Louis, Missouri, and 300 miles southwest of Chicago, Illinois. The areas surrounding the installation are largely flat, semi-rural, and agricultural.

Scott AFB was first established in 1917 as training and staging grounds for U.S. Army Divisions. It is now Headquarters for Air Mobility Command (AMC) and U.S. Transportation Command. The 375th Airlift Wing is the host of these and other important tenants.

Scott AFB occupies approximately 3,230 acres. Originally named Scott Field, the base was established in 1949 when the Scott airfield was transferred to the Air Force. The base is under the AMC. The primary mission of the base is aeromedical evacuation.

Currently occupied Scott AFB family housing is located in two separate areas in the northwest portion of the base. Housing is also located within the Scott AFB Historic District situated in the central area of the base. Additionally, the Patriots Landing area occupies approximately 292 acres in the southwestern-most portion of the installation.

2.2.1 Patriots Landing Housing

The Patriots Landing housing area neighborhood was built to replace the demolished Cardinal Creek housing area that had been located in the northeast corner of the base. Construction was started at Patriots Landing in 1994, completed in late 1997, and opened in 1998. The neighborhood is located in the southwest corner of Scott AFB. St. Clair County purchased the land and also financed the housing construction. Scott AFB initially owned the housing and leased the land from St. Clair County. Scott AFB now owns the housing units and land as of September 2004. Patriots Landing housing consists of 808 slab-on-grade two-story units. Most of these units have a brick

veneer/aluminum siding façade and asphalt shingle roofs. All units have natural gas heat and central air conditioning. Vehicle parking is provided by attached garage, or remote parking, depending on the unit type. Although the Youth Center and school are located within the general housing area, they are not part of the proposed privatization. The fire station located in the housing area is, however, included in the privatization. Patriots Landing is bordered by Highway 158 to the west, Scott Drive (Old Highway 158) to the east, private agricultural land to the south, and the base commissary and dormitories to the north. The parcel consists of 292 acres. The Patriots Landing neighborhood is the newest of the six housing areas.

2.2.2 Shiloh East Housing

The Shiloh East neighborhood was constructed in the early 1970s. The area consists of 140 single-story duplex units and is located in the northwest portion of the base. Between 1997 and 1998, all but 24 units were renovated. Of those 24 units, 12 were then renovated in 2002. The units are slab-on-grade, wood frame, have hardboard siding, partial brick veneer façade, and asphalt shingle roofs. All units have central air conditioning. The units were constructed for use with liquefied petroleum (LP) gas, but were later converted to natural gas. Vehicle parking is provided by attached carport, attached garage, or remote parking, depending on the unit type. Shiloh East is bordered by Scott Drive to the north, Galaxy housing area to the east, dormitories to the south, and the Shiloh West housing area to the west. Shiloh East and West are separated by Ash Creek. The parcel consists of 52 acres.

2.2.3 Shiloh West Housing

The Shiloh West neighborhood was also constructed in the early 1970s. The area consists of 248 single-story duplex units. The units are slab-on-grade, wood frame, with hardboard siding, brick veneer façade, and asphalt shingle roofs. All units have central air conditioning. The units were constructed for use with LP gas, but were later converted to natural gas. Vehicle parking is provided by attached carport or remote parking, depending on the unit type. Severe flooding in the summer of 2000 damaged several units located along Foxhall Manor, and resulted in residents being vacated. Those damaged houses were later renovated and occupied by military families again. Shiloh West is bordered by Scott Drive to the north, Shiloh East housing to the east, dormitories and the Metro Link station to the south (separated by a stormwater ditch), and agricultural land to the west. Shiloh East and West are separated by Ash Creek. There is only one entrance and exit to Shiloh West currently in use. This is a two-lane culvert over Ash Creek. The parcel consists of 87 acres.

2.2.4 Galaxy Housing

The Galaxy neighborhood was constructed between 1969 and 1973. The area consists of 87 two-story multiplex units and 15 ranch style homes with attached garages. All units were renovated in phases between 1994 and 1998. The units are slab-on-grade, wood frame, have a brick veneer/aluminum siding façade, and asphalt shingle roofs. The Galaxy housing area is located southwest of the Shiloh Gate entrance. All units historically relied on LP gas for heat, but were eventually converted to natural gas. All units have central air conditioning. The Galaxy housing area is bordered by a small commercial retail center and office complex to the north, the Scott Club to the east, the

hospital to the south, and Shiloh East to the west. Vehicle parking is provided by attached carport, attached garage, or remote parking, depending on the unit type. The parcel consists of 26 acres.

2.2.5 Colonial Housing

The Colonial neighborhood was constructed in several phases from 1939 to 1950 and in 1970. The area consists of one single-family, one-story and 96 Colonial revival two-story multi-family units. Fifty-eight units are registered on the National Register of Historic Places. The majority of the units have a below grade basement, brick veneer/aluminum siding façade, and slate roof. All units historically relied on coal for heat but have since been converted to natural gas. There are no records to indicate whether another source of heat was used between the initial construction and the present. All units have central air conditioning. Although Housing Office representatives stated that the Colonial housing still had coal chute doors on the exterior (Lewis 2004), during the time of the site investigation coal chute doors were not seen on the exterior of the unit inspected. The Colonial housing is bordered by athletic fields to the north, headquarters across Scott Drive to the west, and administrative buildings and a testing laboratory to the east and south. Vehicle parking is provided by detached garage, or remote parking, depending of the unit type. The parcel consists of 26 acres.

2.2.6 Georgian Housing

The Georgian neighborhood was constructed in several phases from the early 1930s to the early 1940s. The units on the south side are the oldest. The area consists of 50 Colonial revival two-story duplex brick units, all of which are listed on the National Register of Historic Places. All units historically relied on coal for heat but were converted to a natural gas-fired, heated water system using radiators. There are no records to indicate whether another source of heat was used between the initial construction and the present. During the time of the site reconnaissance, coal chute doors were seen on the exterior of several units. All units have central air conditioning. All 50 units were renovated between 1996 and 1997, and additions were constructed on the back of the units in the early 1990s. The units have below grade basements, hard wood floors and banisters, a brick veneer façade, and slate roof. The Georgian housing is bordered by Scott Drive to the west and administrative buildings to the north and east. The Transportation Motor Pool (Building 548) is located to the south. Vehicle parking is provided by detached garage, or remote parking. The parcel consists of nine acres. The Georgian neighborhood is the oldest out of the six housing areas.

2.3 DESCRIPTION OF PROPOSED ACTION

The proposed privatization action involves a real estate transaction to privatize military family housing at Scott AFB. The government will lease land for 50 years and convey 1,430 existing housing units and other improvements by quitclaim deed to the SO. The SO will:

- Demolish 352 units (including a loss of 72 to conversion) at Scott AFB and construct 134 units on the leased land.
- Renovate 360 units including converting 144 units from 2-bedroom to 4-bedroom resulting in a loss of 72 units.

- Preserve and maintain 108 units that are in the Scott AFB Historic District and listed on the National Register of Historic Places, of which 55 will be renovated in accordance with the State Historic Preservation Office (SHPO), being the Illinois Historic Preservation Agency (IHPA).
- Operate and maintain conveyed utilities and other supporting infrastructure systems.
- Preserve housing inventory in good state of repair for entire term.

The EA evaluates alternatives for implementing the proposed action and a No Action alternative. Table 2.1 and Figure 2.1 present the housing parcels being considered under the Scott AFB housing privatization effort.

Table 2.1 Summary of Areas Covered under Proposed Action

Area	Acreage (approximate)	Number of Units	Description
Colonial	16	65	Developed Housing Area
Colonial Annex	10	32	Developed Housing Area
Galaxy	26	87	Developed Housing Area
Georgian	9	50	Developed Housing Area
Patriots Landing	292	808	Developed Housing Area
Shiloh East	52	140	Developed Housing Area
Shiloh West	87	248	Developed Housing Area

The SO would selectively demolish, construct, and renovate housing units as required to bring housing up to current DOD housing standards. Under the proposed action, the following actions would occur as shown in Table 2.2.

Figure 2.1 Project Location Map

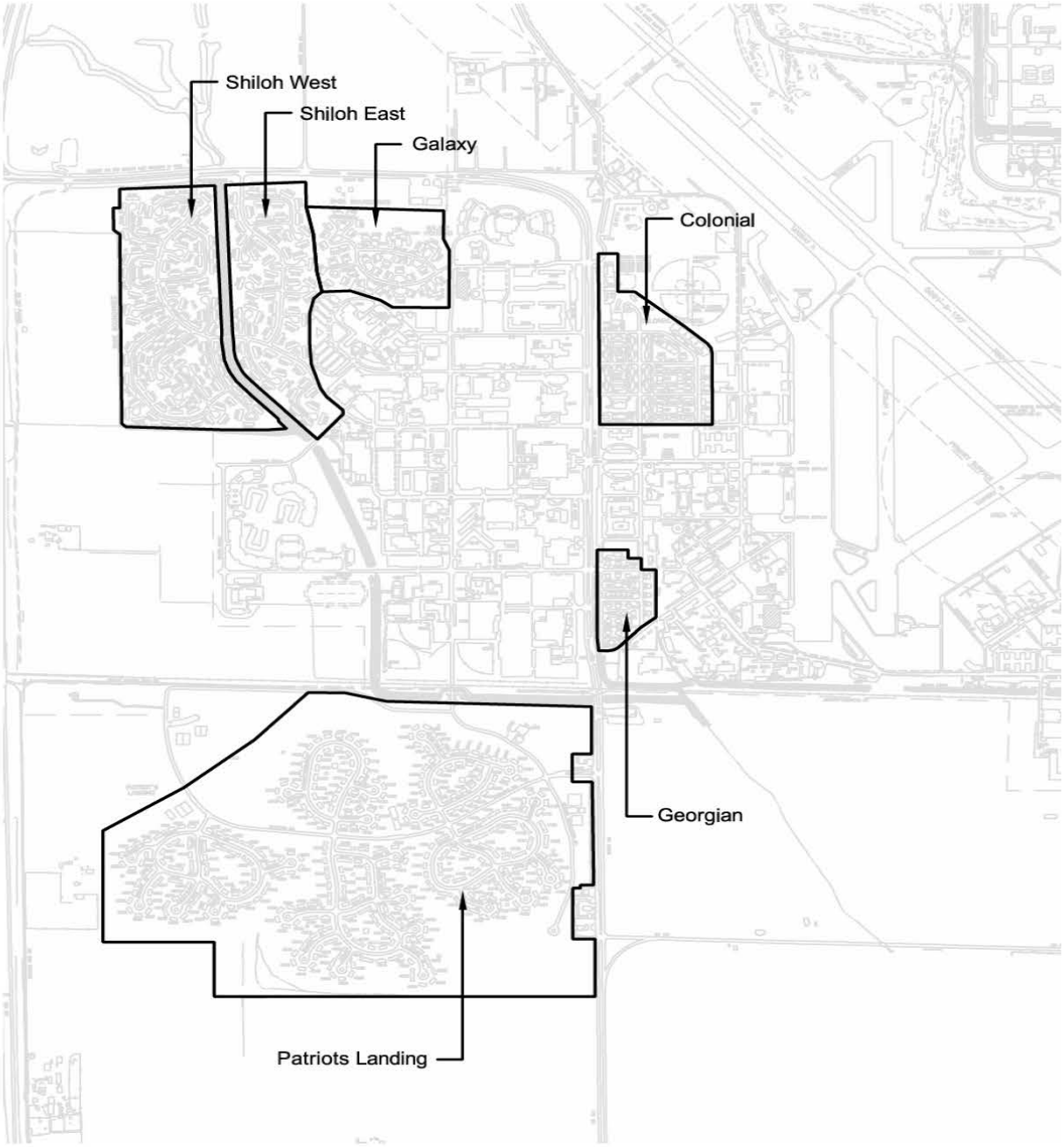


Table 2.2 Disposition of Existing Housing Under Proposed Action			
Area	**Years Built**	**Number of Units**	**Disposition**
Colonial	1939-1950 and 1970	65	Demolish 6 Renovate 56 Construct 3
Colonial Annex	1948	32	Demolish 26* Renovate 0 Construct 0
Galaxy	1969	87	Demolish 0 ** Renovate 0 Construct 0
Georgian	1930s-1940s	50	Demolish 0 Renovate 0 Construct 0
Patriots Landing	1990s	808	Demolish 72*** Renovate 246 Construct 0
Shiloh East	1970s	140	Demolish 0 Renovate 58 Construct 0
Shiloh West	1970s	248	Demolish 248 Renovate 0 Construct 131
TOTAL		**1,430**	**Demolish 352** **Renovate 360** **Construct 134******

*The SO will be required to demolish the remaining six units before the year 2020. If the SO chooses to demolish the units at different times the land will revert to the government in two parcels upon completion of demolition.

**All Galaxy units must be demolished prior to 2020 but not necessarily in the Transition Period.

***Reflects loss due to conversion of 72 units from 2-bedroom into 4-bedroom.

****A total of 515 new units will be constructed but at least 381 units will be built on New Land.

Table 2.3 summarizes the proposed alternatives, which are described in section 2.6.

Table 2.3 Comparison of Proposed Alternatives		
Area	**Alternative 1**	**Alternative 2**
Shiloh West	Renovate 248 units	Replace 248 units
Shiloh East	Renovate 58 units	Same as Alternative 1
Galaxy	Same as proposed action; demolish all 87 units by 2020 and convey	Same as Alternative 1
Colonial/Colonial annex	Demolish a total of 38, renovate a total of 56 and construct a total of 3	Same as Alternative 1
Patriots Landing	Demolish 72 (convert 144 two-bedroom units to 72 four-bedroom) and renovate 246	Same as Alternative 1
Georgian	Same as proposed action; convey 50 NRHP-listed units in "as is" condition	Same as Alternative 1

Additional elements of the proposed action include the following:

- *Proposed Phasing*. The proposed action would most likely include the start and completion of new family housing replacement units (approximately 100) during the 2005 construction season. Renovation, demolition/replacement, and new construction of the remaining units would occur during each subsequent year until the end of 2015.
- *Proposed Infrastructure Changes*. Infrastructure changes under the proposed action would primarily be limited to upgrade or extension of utility services, road surface improvements, and construction of access roads, parking areas, driveways, and sidewalks. Utilities would be conveyed to the SO as described in the housing privatization RFP, to be issued by the government later this year.
- *Proposed Support Facility Changes*. Playgrounds associated with the family housing areas would be included under the privatization initiative. The SO would also construct and operate additional recreational facilities, playground, and amenities (e.g., a community center complex) or upgrade and operate existing facilities, as required by the government. The Youth Center (Building 4780), school, and all associated structures would be retained by the government.
- *Proposed Mission Changes*. The proposed action does not include any mission changes.
- *Proposed Personnel Changes*. The proposed action may result in a slight reduction in Air Force housing personnel. The Scott housing office currently consists of 12 government employees, which is anticipated to slightly decrease to 11 employees once privatization is implemented.
- *Proposed Preservation Covenant*. The proposed action will include an Historic Preservation Covenant included in the transfer of the MFH units and leased interest in the land included under the privatization initiative. The covenant will require the preservation and maintenance of all units and structures listed on the National Register of Historic Places (NRHP) in accordance with the management standards and guidelines for treatment of historic properties established by the Secretary of the Interior ("the Secretary of the Interior's Standards for the Treatment of Historic Properties," 36

CFR Part 68) in order to preserve those qualities that make the Scott Air Force Base Historic District eligible for listing on the NRHP.

2.4 SELECTION CRITERIA FOR ALTERNATIVES

Three alternatives, including the No Action Alternative, were identified for the proposed action. These alternatives were selected based on the following criteria:

- DOD directive to privatize all housing units on base.
- Efficient use of available land that is suitable to be built upon.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

All three identified alternatives are assessed in this EA. Appropriate and available land area at Scott AFB is limited but sufficient to meet HRMA when coupled with the houses to be built off base by the SO. Acquisition of additional land area would not be desirable given the additional costs that would be involved. Therefore, the alternative of the Air Force purchasing additional land outside of Scott AFB on which to build military family housing was considered, but eliminated from further evaluation.

2.6 DESCRIPTION OF PROPOSED ALTERNATIVES

Table 2.3 summarizes the proposed alternatives, which are described in the following subsections.

2.6.1 Alternative 1

Alternative 1 would consist of renovation of a total of 248 units in Shiloh West. The SO would determine the layout of the units. The actions taken at Shiloh East, Galaxy, Colonial, Patriot's Landing, and Georgian would be the same as described for the Disposition of Existing Housing Area Under Proposed Action in Section 2.3.

2.6.2 Alternative 2

Alternative 2 would be similar to Alternative 1 except for the replacement of 248 Shiloh West housing units in lieu of renovation. The number of units to be replaced and layout of the units would be determined by the SO. The actions taken at Shiloh East, Galaxy, Colonial, Patriot's Landing, and Georgian would be the same as described for the Disposition of Existing Housing Area Under Proposed Action in Section 2.3.

2.6.3 No Action Alternative

Under the No Action alternative, the Air Force would not privatize the government-owned housing. The installation would continue to be responsible for providing, operating, and maintaining the MFH units. New construction and renovations required to upgrade the substandard housing conditions would be conducted at a substantially slower pace using limited MILCON funding, effectively preventing Scott AFB from meeting the DOD commitment to upgrade all required and inadequate housing by the end of FY 2010.

2.7 IDENTIFICATION OF PREFERRED ALTERNATIVE

The government has no preference for any of the alternatives at this time.

SECTION 3 AFFECTED ENVIRONMENT

This chapter describes the existing environmental resources that could be affected by or could affect the Proposed and Alternative Actions and No Action Alternative. Only those specific resources relevant to the potential impacts are described in detail.

3.1 LAND USE

3.1.1 Definition of the Resource

Land use may be defined as the natural or human activities occurring at a particular location. Human land use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, and recreational. Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and can protect specially designated or environmentally sensitive areas.

3.1.2 Land Use at Scott AFB

Based on data obtained for the Environmental Baseline Survey, the areas of Galaxy, Shiloh East and West, and Patriots Landing were agricultural land before construction of the housing units by Scott AFB. Prior to construction of the Colonial housing area and the northern half of the Georgian housing area, the land contained other military buildings; however, the use of those buildings is unknown. The southern half of the Georgian housing area was unused on-base land prior to housing construction.

Land use around Scott AFB is predominately agricultural. The East and West Shiloh housing neighborhoods are located in the northwest corner of the base just southwest of the Shiloh Gate entrance. Small retail shops and a small office complex are located west of the Shiloh Gate entrance. The Galaxy housing neighborhood is south of the small retail shops and offices near the Shiloh Gate entrance. The Patriots Landing neighborhood is located at the southwest corner of the base and is mainly surrounded by agricultural land. A small motel, barber shop, and auto repair facility are located east of Patriots Landing housing area.

Over time, base activities were grouped in areas based on commonality of function and land use category. This grouping resulted in efficient clustering of the industrial areas and maintenance areas, assisted in development of a training campus, and generally separated base housing areas from base functions that would be incompatible with residential activities.

3.2 AIR QUALITY

3.2.1 Definition of the Resource

Air quality in a given location is determined by the concentration of various pollutants in the atmosphere. Air quality is not only determined by the types and quantities of atmospheric pollutants, but also by surface topography, size of the air basin, and prevailing meteorological conditions.

National Ambient Air Quality Standards (NAAQS) are established by the USEPA for criteria pollutants, specifically ozone (O_3) precursors (nitrogen oxides (NO_x) and volatile organic compounds (VOCs), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter equal to or less than ten microns in diameter (PM_{10}), and lead (Pb). NAAQS represent maximum levels of background pollution that are considered safe, with an adequate margin of safety, for protecting public health and welfare. The Clean Air Act places most of the responsibility of achieving NAAQS compliance on the individual states. To this end, the USEPA requires each state to prepare a State Implementation Plan (SIP). A SIP is a compilation of goals, strategies, schedules, and enforcement actions that would lead the state to compliance with all NAAQS; changes to the compliance schedule or plan must be incorporated into the SIP. Areas not in compliance with a standard can be declared "non-attainment areas" by the USEPA or the appropriate state or local agency.

The USEPA General Conformity Rule (40 CFR 93, Subpart B, for federal agencies and 40 CFR 51, Subpart W, for state requirements), which took effect on January 31, 1994, requires all federal agencies to ensure that any agency action or activity conforms to an approved SIP. This applies only to federal actions in non-attainment or maintenance areas.

The General Conformity Rule requires analysis of total direct and indirect emissions of criteria pollutants, including precursors, when determining conformity of the proposed action. The rule does not apply to actions where the total direct and indirect emissions of criteria pollutants are at the *de minimis* levels or lower. In addition, ongoing activities currently being conducted are exempt from the rule as long as there is no increase in emissions above the specified *de minimis* levels. If the proposed emissions exceed the *de minimis* levels, a formal air conformity determination is necessary. If the levels are not exceeded and the predicted emissions do not exceed 10 percent or more of a non-attainment area's total emission budget for that pollutant, a record of non-applicability must be prepared.

3.2.2 Air Quality at Scott AFB

Scott AFB is in the Metro East Sector of the St. Louis Metropolitan Area (STLMA). Although the East St. Louis ozone monitoring station reflects compliance with the ozone standard, the Metro East Sector has been designated by the Illinois EPA as a non-attainment area for ozone and for the particulate matter standard of 2.5.

Scott AFB is currently operating under a FESOP (Federally Enforceable State Operating Permit). This type of permit includes restrictions on criteria pollutant emissions to ensure that the levels are below Title V thresholds. Any new air emissions sources would have to be added to this FESOP permit. If at any time, the emissions exceeded the FESOP limits, a Title V permit would have to be acquired.

3.3 WASTES, HAZARDOUS MATERIALS, AND STORED FUELS

3.3.1 Definition of the Resource

A hazardous material is defined as any material with physical properties of ignitability, corrosivity, reactivity, or toxicity that will cause danger or will likely cause danger to

health or the environment. Hazardous wastes are wastes that by reason of their ignitability, corrosivity, reactivity, or toxicity can cause danger or will likely cause danger to health or the environment, whether alone or when coming into contact with other waste. Evaluation of hazardous materials and wastes include evaluation of storage tanks and the storage of fuels.

3.3.2 Wastes, Hazardous Materials, and Stored Fuels at Scott AFB

Past activities that may have contributed to environmental conditions at Scott AFB include fuel storage, aircraft refueling, equipment maintenance and washing, electronic maintenance, waste accumulation and storage, pesticide usage, fire protection training, landfilling, disposal of medical waste, and storage of low-level radioactive materials. Current day-to-day operations at the base generate several types of hazardous and special wastes that require special handling for disposal, including oils, fuels, cleaning compounds, paints and solvents, and batteries. However, based on aerial photos, none of these activities is believed to have occurred on the subject properties.

Based on the records search, visual site inspection (VSI), and interviews, there is no evidence that hazardous materials, hazardous wastes, or petroleum substances are currently used and/or stored in volumes greater than reasonable household-type quantities at the housing units of the subject properties. Storage of gasoline or other flammable materials is limited, and discharge of automotive chemicals and grease to plumbing, the drainage system, or the ground is prohibited. Residents are allowed to perform only minor vehicle (automobile and boat) maintenance activities within the subject properties.

According to the EDR Emergency Response Notification System (ERNS) records, there was one emergency response at 1458 Galaxy Avenue. However, no other details were listed about this incident. Chief Dodson of the Scott AFB Fire Department disclosed that a staff member had recalled that the incident was a punctured fuel tank from a moving truck backing into a fire hydrant, but the fire department had no documentation to verify the incident. The U.S. Environmental Protection Agency (USEPA) National Response Center computer program was queried, and the recollection of the incident was found to be accurate.

A release of hydraulic fluid from a ruptured line on a trash truck occurred in March 2004 in the Shiloh West housing area. Approximately 50 gallons of hydraulic fluid spilled onto the pavement. The hydraulic fluid reached the Ash Creek drainage ditch that flows between the Shiloh East and Shiloh West housing areas. Sediments in the drainage ditch were sampled. Contaminant levels were found to be below regulatory levels. The sampling data has been submitted to the Illinois EPA.

Information obtained during the records search, VSI, and interviews performed for this EBS indicated no evidence of disposal of hazardous materials, hazardous wastes, or petroleum substances at the subject properties.

Two releases of chiller water containing ethylene glycol occurred north of the Georgian housing area. Investigations indicated that ethylene glycol may have migrated in groundwater under portions of the Georgian housing. A TACO Tier 3 analysis performed in consultation with the Illinois EPA Site Remediation Program indicated that natural degradation of the ethylene glycol in groundwater would prevent unacceptable

levels of ethylene glycol at the closest discharge of groundwater to surface water. These investigations indicate that the concentrations are below risk-based cleanup objectives, and that no further action is required (Parsons 1996 and 1997).

Aboveground Storage Tanks. Based on the records search, visual site inspection, and interviews conducted for the EBS, the only aboveground storage tank (AST) located on any of the subject properties is integrated into a backup generator located at the Patriots Landing Fire Station (Building 4560). No stains or other indications of a release from this tank were observed. The generator was placed at this facility during its construction in the mid 1990s.

Underground Storage Tanks. Based on the records search, visual site inspection, and interviews conducted for the EBS, there is no evidence that underground storage tanks (UST) are currently present on the properties associated with the proposed action for this EA. Coal shoots were observed in the Georgian and Colonial housing areas which were thought to be formerly associated with providing fuel for steam heat. Coal is no longer used in these housing areas. There was one leaking UST reported on the parcel that became the Patriots Landing area. Records indicate that the UST was located in the northeastern corner of Patriots Landing. The UST was used for agricultural purposes prior to St. Clair County developing the Patriots Landing area. The tank and contaminated soil were removed by St. Clair County. Groundwater contamination was detected in the area of the leaking UST. Quarterly monitoring of the groundwater revealed that the contamination levels fell below regulatory levels and analytical detection levels for two consecutive quarters in 1999. An application was made to the Illinois EPA for a letter of no further remediation. The Illinois EPA noted the successful cleanup of the site, but declined to issue a letter of no further remediation based on the fact that since it was an agricultural UST, it was not a regulated tank and no letter was required.

Lead-Based Paint. Lead-based paint (LBP) at Scott AFB is managed according to the base's Lead-based Paint Management Plan dated September 2003. In administrative and industrial facilities, LBP is managed in place unless the condition deteriorates and subsequently poses a health threat to personnel. In some MFH units, LBP still exists and is managed in place. Base housing residents are required to sign a "Disclosure of Information on Lead-based Paint and Lead-based Paint Hazards." On accepting a unit, the housing office discusses the form with the service member before the family occupies the unit. The form contains a statement that warns that housing built before 1978 *may* contain LBP and that lead is harmful to children and pregnant women. The tenants also receive a federally approved pamphlet on lead poisoning prevention. The form further states that if requested, all available information on the unit, including reports pertaining to LBP sampling and/or LBP hazards, will be made available to the family.

In May 2003, the Air Force issued policy and guidance on LBP in facilities. The Air Force identified a four-step approach to implementing the LBP inspection program at the base level. Step 1 initiated a blood lead screening program and established a lead toxicity investigation team. Step 2 is the performance of visual inspections to identify deteriorated paint in high priority facilities. Step 3 is the performance of risk assessments identifying areas with the greatest hazard, and Step 4 is a comprehensive survey.

Visual inspection and subsequent sampling was accomplished in 1994. Samples of paint were collected and submitted for laboratory analysis to determine if the paint was lead as defined by the Housing and Urban Development (HUD) guideline of 0.5 percent by weight. Due to budget limitations, paint sample locations were selected to be representative of common building, paint, and surface types.

A total of 462 MFH units were inspected at Scott AFB. Approximately 31 percent of those MFH units inspected had at least one observation of deteriorated interior surface paint. The interior paint samples acquired represented approximately five percent of the total deteriorated paint observations documented. Of the interior samples taken as a part of this survey, none contained lead concentrations at or above the HUD action level. Subsequent individual sampling and analysis refute these findings. The program manager at the 375th CES/CEV indicates that LBP has been found in the interior of MFH units over the past few years.

A total of 309 MFH building exteriors were inspected. All but a few were observed to have deteriorated painted surface areas. Samples representing approximately 1 percent of the total number of exterior observations were collected and analyzed. Of those exterior samples taken, approximately 39 percent contained lead concentrations at or above the HUD action level.

The units surveyed included units in the Shiloh East, Shiloh West, Galaxy, Colonial, and Georgian housing areas, along with units in the since demolished Cardinal Creek housing area and the mobile home park. Separate LBP surveys are available on 2568 A/B Cumberland (Shiloh West), 227 Birchard (Colonial) and 231 Birchard (Colonial).

Renovation projects that included LBP removal were accomplished on a number of units since the initial survey. These include units in the Shiloh East, Shiloh West, Galaxy, Colonial, and Georgian neighborhoods. The Patriots Landing neighborhood was constructed in the 1990s and should not have LBP hazards because prohibition of LBP was written into construction specifications and contracts.

Asbestos. Air Force policy is to manage asbestos-containing building materials (ACBM) in place as long as practicable, ideally until a facility with ACBM is scheduled for renovation or disposal. ACBM may be found in floor tile, floor tile adhesive, roofing materials, drywall systems, plumbing systems, linoleum floor backing, and other materials not specifically mentioned here. ACBM is removed if it poses a health hazard. Scott AFB does not have a base-wide survey of ACBM at the MFH facilities.

The only housing units which should be asbestos free, in accordance with the non-use of ACBM clause in the contract specifications, is Patriots Landing. While extensive renovation was performed in housing units at Shiloh East, Galaxy, and selected Colonial housing units, these units should not be considered asbestos free. Construction closeout documents detail the abatement work that was accomplished and should be used as an historical source along with applicable sampling and analysis.

The manager for the company that performs housing maintenance under contract specifically noted the presence of asbestos in the floor tile mastic in the Shiloh West neighborhood.

Polychlorinated Biphenyl. All polychlorinated biphenyl (PCB)-containing transformers within the housing areas were replaced by PCB-free transformers. The base has disposed of most PCB electrical equipment (i.e., items containing over 500 parts per million [ppm] PCBs) and obtained "PCB-free" status in April 1996. However, there are still surge protectors, capacitors, ballasts, and a few transformers that are PCB-contaminated (containing between 50 and 499 ppm PCBs). These are disposed of through attrition. There are several locations on base where PCBs or PCB-contaminated fluids may have leaked or spilled. Many of these are addressed in the Installation Restoration Program as Area of Concern (AOC) No. 2. None of the AOC No. 2 sites are known to be within the properties associated with the proposed action.

Radon. Radon, a naturally occurring radioactive gas found in soils and rocks, originates from the natural breakdown or decay of radium. Radon is an odorless, colorless gas believed to be harmful at all exposure levels. Once inside an enclosed space, radon can accumulate. There is an increased risk of developing lung cancer when exposed to elevated levels of radon. In general, the risk increases as the level of radon and the length of exposure increase. The USEPA established a guidance level of 4.0 picoCuries per liter (pCi/L) of radon in indoor air for residences; however, there have been no standards established for commercial or industrial structures. Radon gas accumulations above 4.0 pCi/L are considered to represent a health risk to occupants.

The USEPA radon zone for St. Clair County is Zone 2, which has a predicted indoor radon accumulation of >= 2.0 pCi/L and <= 4pCi/L (USEPA 2004). Approximately 40 housing units in the housing areas have had ventilation systems installed to reduce radon levels below the 3.3 pCi/L of air threshold. These vent systems run from the basement up into the attic and out through the roof. Currently, half of these units have been inspected and are not in compliance due to improper installation of the ventilation systems. This non-compliance report has also been sent to the State of Illinois. The other half of these units will soon be inspected once the residents have been notified. It is anticipated that these units will also not be in compliance since the ventilation systems were installed in the same manner. Therefore, it can be concluded that all of the 40 units have improperly installed ventilation systems, all of which require reinstallation.

Pesticides. Residents are responsible for general pest control through the use of commercially available products. Commercial contractors may be used for more extensive treatments of severe infestations. Contractor activities are performed under the oversight of Scott AFB Entomology personnel. Historic pesticide applications in the housing areas include chlordane, dieldrin, aldrin, dichlorodiphenyltrichloroethane (DDT), and other pesticides that were commercially available at the time of application. Both surface and subsurface applications were made.

A former housing area known as Cardinal Creek was located in the northeast corner of the base and was found to have soil contamination from chlordane. This contaminated area is now currently being remediated.

Historical sampling has been performed for radon, LBP, and asbestos by Scott AFB; however, not all housing areas have been sampled.

3.4 WATER RESOURCES

3.4.1 Definition of the Resource

Water resources consist of surface water and groundwater. Critical elements associated with water resources are water quality and availability. Surface water resources include lakes, rivers, ponds, and streams. Surface water serves a critical ecological function, both as a habitat resource and as a means of transport. It is used for transportation, recreation, drinking water, irrigation, industrial processes, and fishing. Groundwater is water below the ground surface, and is defined as water within the saturation zone. A saturated soil or geologic formation capable of yielding significant quantities of water is often referred to as an aquifer. Groundwater serves a critical function as a recharge source for surface water. It is used for drinking water, irrigation, and industrial processes.

3.4.2 Water Resources at Scott AFB

Silver Creek on the east side of the base drains approximately 60 percent of the base, and Ash Creek, which flows through the Galaxy and Shiloh housing areas on the west side of the base, drains the other 40 percent. North Ditch, South Ditch, and Mosquito Creek are on-base tributaries to Silver Creek.

Silver Creek has a drainage area of 395 square miles upstream of Scott AFB. It is a tributary of the Kaskaskia River, which, in turn, is tributary to the Mississippi River. The creek typically has steep mud banks, low stream gradient, and turbid water. Silver Creek water quality in the vicinity of Scott AFB is rated as fair by the Illinois EPA, with nutrients and siltation from agriculture being the main non-point sources of pollution (USAF 2002). Cardinal Creek is a tributary of Silver Creek.

Ash Creek originates approximately one mile northwest of the base near Shiloh, Illinois. From its origin, Ash Creek, after turning behind the Commissary, runs off base behind the Veterans of Foreign War (VFW) building and then down to Loop Creek, or down the South Ditch into Silver Creek, depending on the level of the flow before discharging into Silver Creek. Ash Creek joins Loop Creek, a Silver Creek tributary, approximately 2.5 miles south of the base.

Surface water impoundments on Scott AFB include Scott Lake (12 acres), Cardinal Lake (7 acres), and golf course ponds. Scott Lake, which is fed by natural surface drainage, is the focus of natural resource-based outdoor recreation at Scott AFB. Cardinal Lake is also used for fishing to a limited extent. It receives surface drainage but can also receive treated effluent from the Scott AFB wastewater treatment plant. The golf course pond routinely receives treated wastewater, which is used in golf course irrigation.

Groundwater in the unconsolidated sediments occurs at a depth of approximately 8 to 15 feet below land surface. Groundwater in the shallow unconsolidated sediments is typically available only in low quantities. Water quality is generally poor and highly variable. Water in the consolidated rocks of the Paleozoic Era is available in greater quantity, but is hard. The water may also contain elevated iron concentrations.

3.5 BIOLOGICAL RESOURCES

3.5.1 Definition of the Resource

Biological resources consist of natural land vegetation (flora) and wildlife (fauna), as well as the associated habitats for each (ecosystems). Species diversity in an ecosystem is closely related to the stability of the system. Specific concerns for biological resources include sensitive elements, such as threatened or endangered species/ecological communities and wetlands. In general, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Most wetlands share a common feature of soil or substrate that is at least periodically saturated with or covered by water. Wetlands serve a variety of functions, including groundwater recharge and discharge, floodwater control, sediment retention, contaminant removal and transformation, and aquatic and terrestrial habitat.

3.5.2 Biological Resources at Scott AFB

Most developed areas of the base are highly disturbed and are dominated by introduced or non-native grasses such as fescue (*Fescue spp*.), bluegrass (*Poa pratensis*), ryegrass (*Lolium spp*.), and zoysia (*Zoysia spp*.) mixed with various perennial and annual weed species. The base maintains an urban forestry program to manage trees within landscaped areas (USAF 2002). The most common trees used in landscaped areas of the base are listed in Table 3.1.

Table 3.1 Common Trees in Landscaped Areas

Common Name	Scientific Name
White Pine	*Pinus strobus*
Ornamental Crabapple	*Malus (Pyrus) spp.*
Green Ash	*Fraxinus pennsylvanica*
Red Maple	*Acer rubrum*
Eastern Redbud	*Cercis canadensis*
Bradford Pear	*Pyrus calleryana*
Northern Red Oak	*Quercus rubra*
Sugar Maple	*Acer saccharum*
Siberian Elm	*Ulmus pumila*
Pin Oak	*Quercus palustris*

There is little native vegetative cover remaining on Scott AFB except for the wooded bottomland on the eastern side of the base near Silver Creek. There are three distinct wetland communities in this bottomland area: forested wetland, scrub-scrub wetland, and swamp.

A wetland delineation and evaluation of Scott AFB was accomplished in 1993 (USAF 2002). In general, the entire bottomland forested area (approximately 390 acres) bordering Silver Creek along the east side of the base was classified as wetlands (USAF 2002). No wetlands were identified within the developed portion of the installation west of the flight line.

During botanical surveys conducted on September 19, 2001, no plants listed as endangered by the Illinois Endangered Species Protection Board (IESPB) were found within Scott AFB. Although no botanical endangered species were discovered, suitable habitat does exist for many federally and state listed species within the base boundaries. The 2001 plant surveys within the six identified forest stands located two high-quality, regionally exceptional, natural plant communities. These two communities consisted of a well-developed floodplain forest and a swamp enclosed within the forest (USAF 2002). No threatened or endangered species were located during the plant surveys. However, suitable habitat for six Illinois endangered plant species was identified. These species include blue jasmine *(Clematis crispa),* finger dog-shade *(Cynosciadium digitatum),* American burning bush *(Euonymus alatus),* trailing loosestrife *(Lysimachia nummularia),* Nuttall's mock bishop-weed *(Ptilimnium nuttallii),* and featherbells *(Stenanthium gramineum).* Habitat for the federally threatened decurrent false aster *(Boltonia decurrens)* was also identified, but no specimens were found.

Much of the forested wetland community is managed by the installation as potentially commercial forest. Three clear-cut timber sales were completed during the 1980s and 1990s as part of the Forest Management Plan (USAF 2002). However, changes in access to areas adjacent to Silver Creek related to construction and operation of MidAmerica Airport have made commercial management and harvesting of timber more difficult.

A point-count census of avian species was conducted during 2001 at approximately 23 permanent stations during winter, spring, and summer (USAF 2002). Eighty-three species were identified during the survey period, including two state-listed threatened species (as breeders): the brown creeper *(Certhia familiaris)* and the red-shouldered hawk *(Buteo lineatus).* Additionally, five species that are considered to be Partners-in-Flight priority species for the region were detected. These included the red-headed woodpecker *(Melanerpes erythrocephalus),* chimney swift (*Chaetura pelagica*), yellow-billed cuckoo *(Coccyzus americanus),* eastern wood peewee *(Contopus virens),* and great-crested flycatcher *(Myiarchus crinitus).* The presence of the state endangered little blue heron *(Egretta caerulea)* was noted during the 2001 bird survey. The endangered and threatened species identified in this document are not present at the site of the Proposed Action, nor does suitable habitat for these species exist at the housing locations.

A survey for the federally endangered Indiana bat *(Myotis sodalist)* was performed by the Illinois Natural History Survey (INHS) in 1991. Mist-netting efforts were concentrated along the Silver Creek bottomlands. Although six bat species were seen or captured - eastern pipistrelle *(Pipistrellus subflavus),* little brown bat *(Myotis lucifugus),* northern long-eared bat *(Myotis septentrionalis),* evening bat *(Nycticeius humeralis),* hoary bat *(Leptonycteris cinereus),* and red bat *(Leptonycteris borealis)* - no Indiana bats were found. In 2001, the U.S. Army Engineer Research and Development Center, Environmental Laboratory (formerly the Waterways Experiment Station), in cooperation with the INHS, performed additional surveys on Scott AFB for bats, seasonal avian fauna, and plant communities in the forested bottomlands of Silver Creek (USAF 2002). The 2001 bat surveys resulted in the capture of one Indiana bat. Other bats captured in mist nets set over Silver Creek and its on-base tributaries during 2001 included the little brown bat, northern long-eared bat, eastern pipistrelle, and evening bat, again showing the importance of the wooded Silver Creek corridor as bat foraging habitat. Although

suitable habitat exists for the Indiana bat at Scott AFB, none exists in the vicinity of the Proposed Action.

3.6 CULTURAL RESOURCES

3.6.1 Definition of the Resource

Cultural resources include prehistoric and historic archaeological sites, buildings, structures, districts, artifacts, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, or religious purposes. Cultural resources are generally divided into archeological resources, architectural resources, and traditional resources. A federal agency is responsible for the preservation of potentially historic properties eligible for listing on the National Register of Historic Places (NRHP) under the National Historic Preservation Act (NHPA). Significant cultural resources, whether historic or prehistoric in age, are referred to as "historic properties." Numerous laws and regulations require federal agencies to consider the effects of a proposed project or undertaking on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among other involved agencies. Section 106 of the National Historic Preservation Act of 1966, as amended, (NHPA) requires that the effects of federal actions on known or potentially National Register-eligible historical, architectural, and archaeological resources be considered in advance.

3.6.2 Cultural Resources at Scott AFB

Scott AFB has completed its identification and nomination of NRHP-eligible properties under Section 110 of the NHPA. Scott AFB includes 104 historic buildings and structures that contribute to the Scott Field or Scott AFB Historic District. The Scott Historic District has been listed in the National Register of Historic Places (NRHP) since March 10, 1994. There are 18 non-contributing features (buildings and structures) included within the historic district. Cultural resource surveys have identified six historical archeological sites and two historic cemeteries; however, none were determined eligible for the NRHP. At present, no prehistoric sites are known. Consultation with the State Historic Preservation Officer (SHPO) at the Illinois Historic Preservation Office (IHPA) concerning effects to unidentified archeological sites is necessary on a project-by-project basis in three areas: along portions of the Silver Creek floodplain; within an area located on the dissected uplands of Silver Creek in the southeast corner of the base; and within another area located in the upland plains on the north side of the main entrance on Scott Drive and Seibert Road. None of the housing areas proposed for privatization are located in a suspected archeological area.

The NRHP-listed, historic Georgian area consists of 50 Colonial revival two-story duplex brick units constructed from the early 1930s into the 1940s. All these units are on the National Register of Historic Places and were renovated in the early 1990s.

Scott AFB has developed an Integrated Cultural Resources Management Plan (ICRMP) to provide for effective management of cultural resources as an integral part of the Base Comprehensive Plan (BCP), as directed by AFI 32-7065. It summarizes the history and prehistory of the base and reviews past historical and archeological survey efforts. It

outlines and assigns responsibilities for the management of cultural resources and discusses related concerns and standard operating procedures for Scott AFB. Procedures that would help to preserve the cultural resources of Scott AFB within the context of the base mission are discussed. It is intended for the use of any personnel involved in planning on Scott AFB.

3.7 TRANSPORTATION SYSTEMS

3.7.1 Definition of the Resource

Transportation and circulation refer to the movement of vehicles and humans throughout a road or highway network. Primary roads are principal arterials, such as major interstate routes, designed to move traffic, but not necessarily provide access to all adjacent areas. Secondary roads are arterials, such as rural routes and major surface streets that provide access to most, if not all, areas.

3.7.2 Transportation Systems at Scott AFB

Entry Gates. Scott AFB has four entrances. Two of these entrances, Belleville and Shiloh Gates, serve as the main access points for the base. Belleville Gate is located at Illinois 161 (old Illinois 158) and is a south entrance to Scott Drive. Belleville Gate is currently under design for major upgrades that include traffic calming lanes, increased parking area, random inspection area, rumble strips, tire shredder, and pop-up barriers. The Belleville Gate is a 24-hour gate. Shiloh Gate is located at Seibert Road off of Air Mobility Drive (new Illinois 158) and is a west entrance to Scott Drive. Shiloh Gate is also currently under design for major upgrades that include traffic calming lanes, increased parking area, new rejection lane, random inspection area, rumble strips, tire shredder, and pop-up barriers.

Patriots Landing Gate serves the Patriots Landing housing complex and Scott Elementary School southwest of the main installation off Illinois 161 (old Illinois 158). Patriots Landing Gate provides access to the base at Patriots Drive. Because of increased concerns about terrorist attacks, Patriots Landing Gate has been closed since fall of 2001. However, the gate can be operational at certain times if needed.

Mascoutah Gate, located off Illinois 161 near the base warehouse district, provides access to South Drive. Mascoutah Gate currently serves as the commercial vehicle gate. It is currently under design for major upgrades that include commercial vehicle entry screening facility, inspection area, new rejection lanes, truck holding area, and pop-up barriers.

Cardinal Creek Gate on the north side of the base provides direct access to East Drive or Golf Course Road. Cardinal Creek Gate is currently used only during peak traffic hours, and on guard or reserve use weekends.

Road Network. The primary vehicular circulation system inside Scott AFB revolves around Scott Drive, the primary north-south artery. All other main roads originate from this principal artery. Scott Drive is a four-lane divided boulevard connecting Shiloh Gate on the north with Belleville Gate on the south. This roadway bisects the main core of the installation into the contemporary administrative, community service, and residential areas to the west and the historic district, industrial, and flightline activities on the east.

Scott Drive has direct access to Billeting (Scott Inn), AMC headquarters (HQ), and HQ USTC. This road also contains the only signalized intersections at Scott AFB (at Bucher Street/Golf Course Road, Birchard Street, and Winters Street). A three-way stop sign system is located at Scott Drive and Heritage Drive, immediately across from the AMC HQ building. Several arterials extend westward from Scott Drive.

Primary east-west roads include Bucher Street, West Losey Street, West Birchard Street, West Martin Street, and West Winters Street. Bucher Street provides access to the Scott Club, Housing Office, and the Galaxy housing area. West Losey Street provides direct access to AFCA HQ and the Scott Medical Center. West Birchard Street provides primary access to the base exchange (BX) and the Shiloh housing area. West Martin Street connects to the Global Reach Planning Center and base community services. West Winters Street allows access to the BX/Commissary, James Gym, Child Development Center, the UEPH complex, and the MetroLink light rail transit station serving Scott AFB.

North-south vehicular circulation west of Scott Drive focuses on Ward Drive, running from the Scott Club on the north to Patriots Landing on the south. Arterials extending eastward from Scott Drive include Golf Course Road, Heritage Drive, and East Winters Street. Golf Course Road first travels north from its intersection with Scott Drive at Bucher Street to circumvent the north end of the runway, then east to Scott AFB's Cardinal Creek Golf Course. Golf Course Road becomes East Drive at the 126 ARW complex. Heritage Drive provides access to the 375 AW HQ, Parade Field, Military Personnel Flight, Air Passenger Terminal, and the flight line. East Winters Street links to industrial and airfield operations activities, as well as South Drive.

North-south vehicular circulation east of Scott Drive is limited to Symington Drive, POW-MIA Drive, and Hangar Road. East Drive provides circulation from Golf Course Road at the 126 ARW complex on the north to South Drive on the south. South Drive connects the southern and southeastern portions of the base with the base's administrative core by intersections at Hangar Road and East Winters Street. Together, Golf Course Road, East Drive, South Drive, and Hangar Road complete a circumferential route around the airfield and the eastern half of Scott AFB.

Traffic in the vicinity of the Proposed Action is generated from all types of activities conducted at Scott AFB. Vehicles, including semi-trailer trucks, construction vehicles, buses, and government and privately owned vehicles, pass by the areas on an intermittent and daily basis. Weekdays are considerably busier than weekends. The increase in off-base family traffic will be marginal and is not anticipated to have a negative effect on the base transportation system. As a result of there being 218 more housing units off-base, there is the potential for a minor impact on commuting convenience.

3.8 SAFETY

3.8.1 Definition of the Resource

A safe environment is one in which there is little or no potential for death, severe injury or illness, or property damage. The primary public safety concern considered for Scott AFB is associated with military training flights and the potential for injuries, fatalities, or

property damage as a result of a training accident. Aircraft safety focuses on matters such as Air Installation Compatible Use Zones (AICUZ) and munitions handling.

3.8.2 Safety at Scott AFB

The mission-related safety constraints at Scott AFB are airfield clearances, Clear Zones (CZs), Accident Potential Zones (APZs), and explosive quantity-distances (Q-D) arcs. Airfield clearances, CZs, and APZs are created to discourage development in areas where the greatest chance of aircraft accidents exists. Q-D arcs are restricted-use areas associated with munitions storage areas, hot cargo pads, and other explosive hazard areas. Antiterrorism/force protection (AT/FP) guidelines also provide restrictions to development.

Air Installation Compatible Use Zones. The DOD developed the AICUZ program for military airfields to promote compatible and responsible land use surrounding air bases. The AICUZ program provides information involving aircraft noise, operations, and accident potential to local governments, as well as recommendations of land use surrounding air strips. The accident potential zones are based on statistical analysis of past DOD aircraft incidents and are the focus of this discussion. The DOD has identified areas beyond the runway ends and along the flight paths that have significant potential for aircraft accidents (AFCEE 2001):

- Clear Zone is the area closest to the runway end, and is considered the most hazardous. This area at Scott AFB measures approximately 2,000 feet wide by 2,000 feet long, and is associated with Runway 14 Right/32 Left. No housing units are within the CZ.
- Accident Potential Zones I and II extend beyond the CZ. APZI is located at the end of the CZ, and measures approximately 2,500 feet in length and 2,000 feet in width.

Planning controls are encouraged within APZI and APZII to protect the public from potential harm. No housing units are within APZI or APZII. HQ AMC is considering reducing the APZs within the airfield to reflect standards dictated by the Federal Aviation Administration (FAA). The zones used by the FAA are less restrictive than the Air Force zones, and would allow development to occur closer to the airfield (AFCEE 2001).

3.9 SOILS

3.9.1 Definition of the Resource

Geological resources are the surface and subsurface materials of an area and their inherent properties, such as soil composition. The term “soil” generally refers to unconsolidated materials overlying bedrock or other parent material. Soils are products of weathering and other physical and chemical processes that act on parent material. Soil characteristics can determine the ground’s ability to support land-use activities.

3.9.2 Soils at Scott AFB

The soil at Scott AFB was formed from loess, alluvium, and exposed glacial deposits. The primary soil type at Scott AFB is the Mascoutah silty clay loam, with 0 to 2 percent slopes. The soils are poorly drained, and the dominant parent material is loess. The

Mascoutah soil meets the requirements for a hydric soil. Depth to bedrock is approximately 80 feet below ground surface (bgs) to 100 feet bgs, varying based on the overburden thickness. The depth to water ranges from approximately 10 to 15 feet bgs (AFCEE 2003). The water table is closest to the surface near surface water bodies (e.g., streams and creeks).

Bedrock in the vicinity of the base is sedimentary rock from the Paleozoic Era consisting of dolomite, sandstone, limestone, claystone, and shale. Covering the bedrock is a layer of glacial till which, in the eastern upland portions of St. Clair County, is overlain with a layer of loess (wind-blown silt).

3.10 NOISE

3.10.1 Definition of the Resource

The characteristics of sound include parameters such as amplitude (loudness), frequency (pitch), and duration. Sound varies over an extremely large range of amplitudes. The decibel, a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit for describing levels of sound.

Different sounds have different frequency contents. Because the human ear is not equally sensitive to sound at all frequencies, a frequency-dependent adjustment, called A-weighting and expressed as dBA (decibels A-weighted), has been devised to measure sound similar to the way the human hearing system responds. The adjustments in amplitude, established by the American National Standards Institute (ANSI S1.4 1983), are applied to the frequency content of the sound. Figure 3-1 depicts typical A-weighted sound pressure levels for various sources. For example, 65 dBA is equivalent to normal speech at a distance of 3 feet.

Noise is defined as sound that is undesirable because it interferes with speech and hearing, is intense enough to damage hearing, or is otherwise annoying. Noise levels often change with time. To compare sound levels over different time periods, several descriptors have been developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various effects of noise on humans.

The day night level (DNL) metric is a measure of the total community noise environment. DNL is the average A-weighted sound level over a 24-hour period, with a 10-dBA adjustment added to the nighttime levels (between 10:00 p.m. and 7:00 a.m.). This adjustment is an effort to account for increased human sensitivity to nighttime noise events. DNL was endorsed by the USEPA for use by federal agencies and has been adopted by HUD, the FAA, and DOD. DNL is an accepted unit for quantifying annoyance to humans by general environmental noise, including aircraft noise. The Federal Interagency Committee on Urban Noise (FICUN) developed land use compatibility guidelines for noise (FICUN 1980). Compatible or incompatible land use is determined by comparing the predicted DNL level at a site with the recommended land uses.

Methods used to quantify the effects of noise, such as annoyance, speech interference, and health and hearing loss, have undergone extensive scientific development during the past several decades. The most reliable measures are noise-induced annoyance and hearing loss. The effects of noise exposure are summarized in the following paragraphs.

Annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction to noise by an individual or group. Figure 3.1 presents the results of over a dozen studies of the relationship between noise and annoyance levels. This relationship has been suggested by the National Academy of Sciences (1977) and was reevaluated (Fidell *et al.* 1988) for use in describing people's reaction to semi-continuous (transportation) noise. These data are shown to provide a perspective on the level of annoyance that might be anticipated. For example, 15 to 25 percent of persons exposed on a long-term basis to DNL of 65 to 70 dBA would be expected to be highly annoyed by noise events.

Figure 3.1 Typical A-Weighted Noise Levels

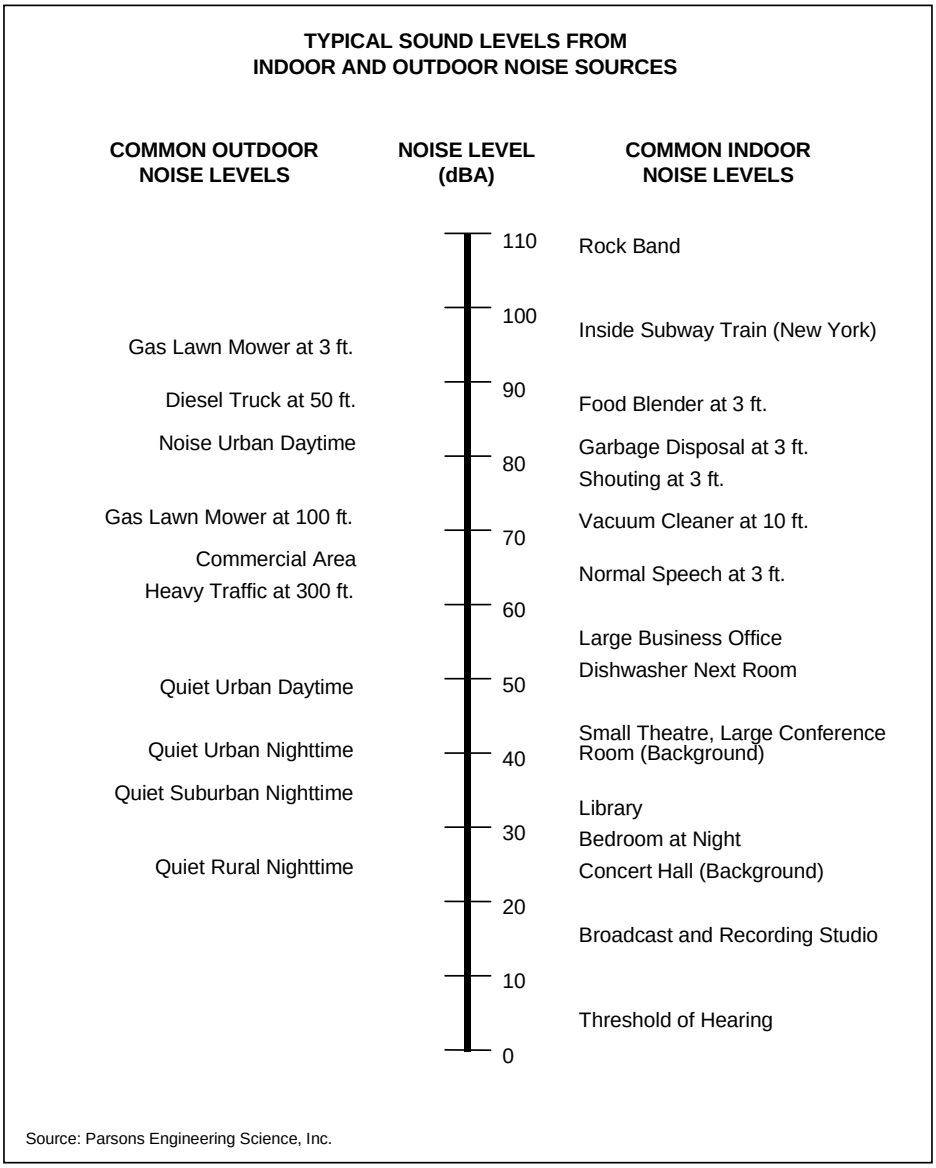


Table 3.2 Percentage of Persons Highly Annoyed by Noise Exposure	
Noise Exposure Zone (DNL dBA)	**Percentage of Persons Highly Annoyed**
<65	<15
65-70	15-25
70-75	25-37
75-80	37-52
>80	61
Note: Noise impacts on individuals vary. The "low" numbers above indicate individuals with higher tolerance of noise while the "high" numbers indicate individuals with higher sensitivity to noise.	
Source: Adapted from NAS 1977.	

Speech Interference. One of the ways noise affects daily life is by prevention or impairment of speech communication. In a noisy environment, understanding speech is diminished when speech signals are masked by intruding noises. Reduced speech intelligibility also may have other effects. For example, if speech understanding is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired. Elevated noise levels can interfere with speech, causing annoyance or communication difficulties. Based on a variety of studies, DNL 75 dBA indicates a good probability for frequent speech disruption. This level produces ratings of "barely acceptable" for intelligibility of spoken material. Increasing the level of noise to 80 dB reduces the intelligibility to zero, even if people speak in loud voices.

Hearing Loss. Hearing loss is measured in decibels and refers to a permanent auditory threshold shift of an individual's hearing. The USEPA recommended a limiting daily equivalent energy value or equivalent sound level of 70 dBA to protect against hearing impairment over a period of 40 years (USEPA 1974). This daily energy average would translate into a DNL value of approximately 75 dBA or greater. Hearing loss is not expected in people exposed to a DNL of 75 dBA or less (USEPA 1974). The potential for hearing loss involves direct exposure to DNL levels above 75 dBA on a regular, continuing, long-term basis. FICUN states that hearing loss due to noise 1) may begin to occur in people exposed to long-term noise at or above a DNL of 75 dBA; 2) will not likely occur in people exposed to noise between a DNL of 70 and 75 dBA; and 3) will not occur in people exposed to noise less than a DNL of 70 dBA (FICUN 1980).

An outdoor DNL of 75 dBA is considered the threshold above which the risk of hearing loss is evaluated. Following guidelines recommended by the Committee on Hearing, Bioacoustics, and Biomechanics, the average change in the threshold of hearing for people exposed to DNL equal to or greater than 75 dBA was evaluated. Results indicated that an average of 1 dBA hearing loss could be expected for people exposed to DNL equal to or greater than 75 dBA. For the most sensitive 10 percent of the exposed population, the maximum anticipated hearing loss would be 4 dBA. These hearing loss projections must be considered conservative as calculations are based on an average daily outdoor exposure of 16 hours (7:00 a.m. to 10:00 p.m.) over a 40-year period. It is doubtful any individual would spend this amount of time outdoors within the DNL equal to or greater than 75 dBA noise exposure area.

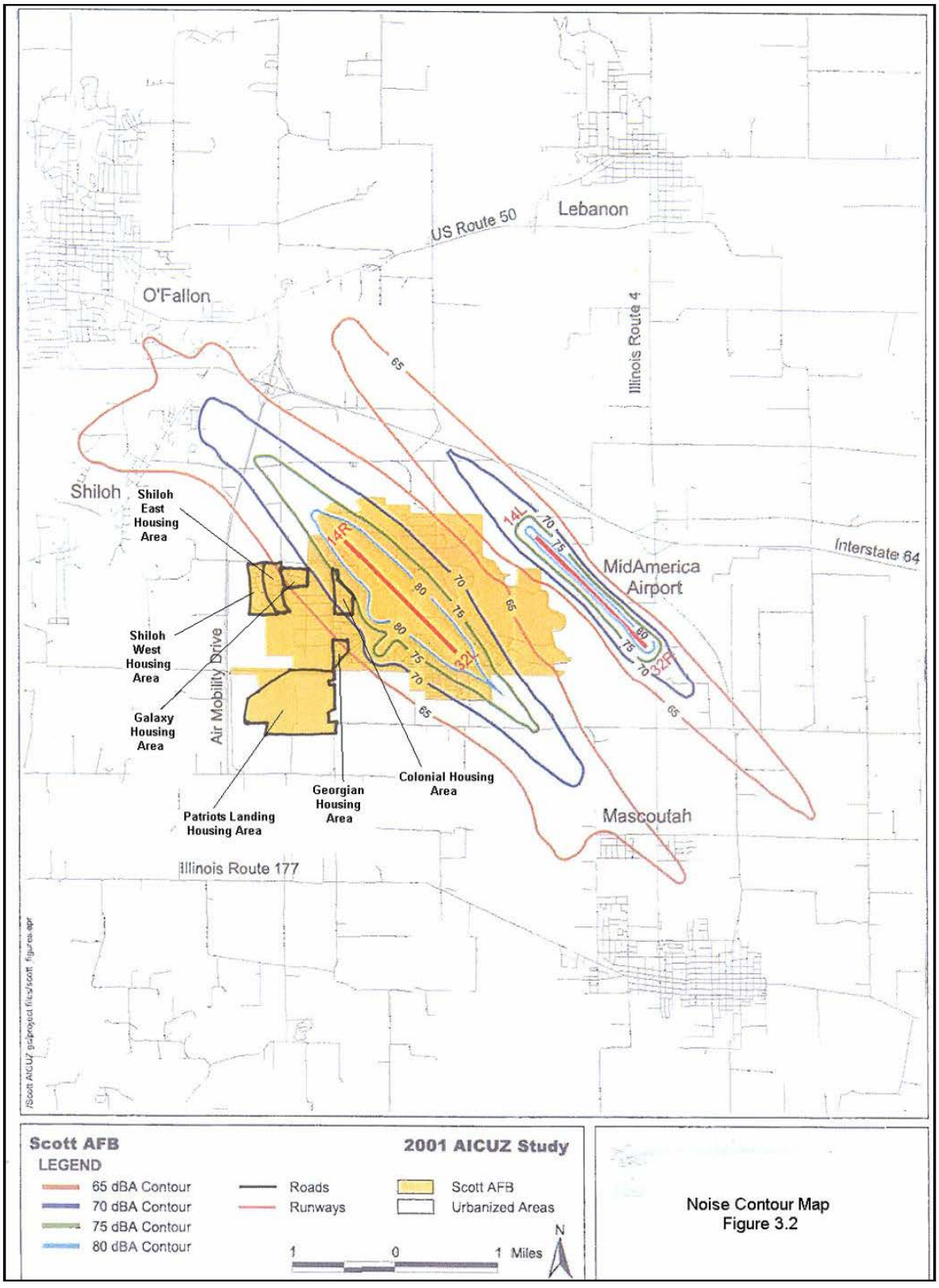
The objectives of noise abatement, according to AR 200-1, Environmental Protection and Enhancement, are to:

- Evaluate and minimize environmental impacts from noise produced by military activities;
- Comply with federal and state laws and regulations involving noise management;
- Maintain a noise abatement program through the application of engineering noise control measures, land use planning, and use of low-noise emission products; and
- Incorporate noise control provisions as needed.

According to AR 200-1, noise in non-sensitive land uses such as residential areas is "incompatible" above 75 decibels (A-weighted), "normally acceptable" between 65 and 75 decibels, and "compatible" at 65 decibels or less.

3.10.2 Noise at Scott AFB

Primary noise sources for the parcels under consideration are road traffic associated with adjacent roads and the airfield at Scott AFB. Ground-based vehicle operations consist mainly of privately owned vehicles and government vehicles. According to the 2001 noise study performed at Scott AFB, the Colonial housing area is located between the 75 and 70 dBA noise contours; the Galaxy housing area is located between the 70 and 65 dBA noise contours; and the Georgian, Shiloh East and West, and Patriots Landing housing areas are located outside the 65 dBA noise contour. The noise contours derived in the study are shown on Figure 3.2. Because of the locations of the housing areas, no noise abatement is required as part of the housing privatization.


US Route 50
Lebanon
O'Fallon
Illinois Route 4
Shiloh
Shiloh East Housing Area
Shiloh West Housing Area
Galaxy Housing Area
Air Mobility Drive
Patriots Landing Housing Area
Georgian Housing Area
Colonial Housing Area
MidAmerica Airport
Interstate 64
Mascoutah
Illinois Route 177
14L
4R
32R
32L
65
70
75
80
Scott AFB
2001 AICUZ Study
LEGEND
65 dBA Contour
70 dBA Contour
75 dBA Contour
80 dBA Contour
Roads
Runways
Scott AFB
Urbanized Areas
1 0 1 Miles
N
Noise Contour Map
Figure 3.2

3.11 SOCIOECONOMICS

3.11.1 Definition of the Resource

To consider the socioeconomic issues associated with the proposed action, this section briefly discusses the demographics and economics of Scott AFB and the surrounding area.

3.11.2 Socioeconomics at Scott AFB

Population. Scott AFB is located in the St. Louis Missouri-Illinois Standard Metropolitan Statistical Area, which includes St. Clair County, with the major cities being Mascoutah, O'Fallon, Fairview Heights, and Belleville. The 2003 estimated population for St. Clair County was 258,606, approximately a one percent increase since 2000. Approximately 32 percent of the population of St. Clair County consists of minority population.

As indicated in Table 3.3, the population of St. Clair County was 256,082 in 2000, an increase of approximately three percent from 1990. The city of O'Fallon grew at a much faster relative rate, while East St. Louis had a 23 percent decrease during this same time period. During 1990 to 2000, Illinois' population increased approximately nine percent.

The current on-base day-time population is approximately 13,065, which includes 5,753 active duty military personnel, 5,431 civilians, 1,221 Air Force Reserve, 660 Air National Guard, and 7,679 family members (dependents). In addition, approximately 14,630 military retirees reside in the vicinity of Scott AFB (Scott AFB 2004a). The proposed action would result in fewer units on-base with a potential decrease of 218 families living on-base.

However, the overall base day-time population will remain the same. No substantial changes in employment on-base are anticipated. Regional population and military payrolls within the region are not expected to change substantially.

Table 3.3 Population Trends, 1990 to 2000

Geographic Area	Estimated Population, 2003	Percent Population Change (1990-2000)	2000 Population[2]	1990 Population[3]
St. Clair County	258,606	2.6	256,082	262,852
Belleville	41,209	3.2	41,410	42,785
East St. Louis	30,573	23.0	31,542	40,944
Fairview Heights	15,264	4.8	15,034	14,351
O'Fallon	24,006	36.3	21,910	16,073
Mascoutah	5,687	2.7	5,659	5511

Source: U.S. Department of Commerce, U.S. Census Bureau, 2000 Census.

Housing. Table 3.4 portrays the housing characteristics for St. Clair County, Belleville, East St. Louis, Fairview Heights, O'Fallon, and Mascoutah. According to the 2000 U.S. Census, there were 258,606 housing units in St. Clair County. Approximately 18 percent

of these units were in Belleville. Approximately 67 percent of the housing units in St. Clair County are owner-occupied, with a lower owner-occupancy rate in East St. Louis and a higher owner-occupancy rate in Fairview Heights, O'Fallon, and Mascoutah. Approximately seven percent of the housing units in St. Clair County were classified as vacant in the 2000 U.S. Census. Currently, there are 1,430 on-base housing units, 304 for officers and 1,126 for enlisted personnel (Scott AFB 2004b). The proposed action would result in 1,593 privatized units consisting, in part, of 1,212 on-base units.

Table 3.4 Housing Characteristics, 2000

Jurisdiction	Total Housing Units	Percent Owner-Occupied	Percent Vacant	Median Value (Owner-Occupied)	Median Monthly Contract Rent	Median Household Income
St. Clair County	104,446	67	7	$79,200	$379	$39,148
Belleville	19,142	60	8	$69,700	$380	$35,979
East St. Louis	12,899	53	13	$41,600	$265	$21,324
Fairview Heights	6310	77	5	$83,600	$503	$49,131
O'Fallon	8626	69	4	$111,800	$541	$55,927
Mascoutah	2309	72	6	$79,200	$406	$46,451

Source: U.S. Department of Commerce, U.S. Census Bureau, 2000 Census.

Economy. Table 3.5 portrays the labor force, employment, and unemployment rate for St. Clair County.

Table 3.5 Annual Civilian Labor Force, Employment, and Unemployment Rates

Jurisdiction	Labor Force, 2003	Employment, 2003	Unemployment Rate 2004
St. Clair County	113,479	105,032	7.4

Source: Illinois Department of Employment Security, 2004.

Table 3.6 displays the distribution of employment by industry sector in St. Clair County in 2000. St. Clair's economic base is well diversified and represents a broad range of various industry sectors. As indicated in Table 3.6, the services and retail trade sectors account for 53 percent of the employment in St. Clair County. The government sector is a major employer, comprising 19 percent of the county's employment in 2000. Federal civilian and military employment accounts for almost half of the government employment in St. Clair County.

Table 3.6 Total Full- and Part-Time Employment by Major Industry Sector by Place of Work, St. Clair County, Illinois, 2000

Industry Sector	Total Employment, 2000	Percent of Total Employment
Farming	1,212	1
Agriculture, Forestry, and Fishing	1,105	<1
Mining	234	Negligible
Construction	6,015	5
Manufacturing	7,689	6
Transportation, Communication, and Utilities	6,758	6
Wholesale Trade	3,156	3
Retail Trade	24,941	20
Finance, Insurance, and Real Estate	7,442	6
Services	40,059	33
Government	23,278	19
Total	**121,889**	**100**

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts, 2004.

Education. Military dependent children who live on-base attend schools in the Mascoutah School District 19. The four schools in this district are Mascoutah Elementary School, Scott Elementary School, Mascoutah Middle School, and Mascoutah High School. The combined student population for the district was approximately 2,873 students in 2004.

For the 2003 fiscal year, the Mascoutah School District received approximately 9.4 million dollars in Federal Impact Aid, roughly 1/3 of the school district's 29 million dollar budget. This aid was provided for 1,512 military dependent students, 1,456 of whom were living on-base (Tanner 2004). Federal impact aid is provided in an approximate 4:1 ratio for student s living on-base and off-base, respectively. Since more than 40 percent of the Mascoutah School District's students are military dependents, the District qualifies as "heavily impacted" and receives a higher Impact Aid allotment.

Other school districts in the region include, but are not limited to, Lebanon Community Unit School District 9, Triad Community Unit School District 2, the O'Fallon Community Consolidated School District 90, and the Collinsville Community Unit School District 10. These school districts receive Federal Impact Aid in proportion to the number of military dependent students they accommodate. Since less than 40 percent of these school district's students are military dependents, the districts do not qualify as "heavily impacted".

3.12 ENVIRONMENTAL JUSTICE

3.12.1 Definition of the Resource

Environmental justice is a concept involving race and ethnicity and the poverty status of populations within the ROI of a particular area. On February 11, 1994, President Clinton enacted Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. The purpose of the order is to avoid the disproportionate placement of any adverse environmental or economic impacts from federal policies and actions on minority and low-income populations. Environmental

justice analysis is performed to identify potential disproportionately high and adverse impacts from the proposed action and alternatives and to identify alternatives that might mitigate these impacts.

3.12.2 Environmental Justice at Scott Air Force Base

St. Clair County is a large, demographically diverse county, with communities ranging from the urban areas of East St. Louis and Belleville to small rural towns east and west of Scott AFB. The 2000 census data indicates that the population of St. Clair County was approximately 67.9 percent Caucasian and 34.3 percent minorities, with the predominant minority described as African-American; 2.2 percent of the county's population is considered Hispanic. There are no low-income or minority disadvantaged populations in the area of the Proposed Action.

SECTION 4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

The proposed action and its alternatives are similar in nature and scope. Both Alternative 1 and 2 involve renovating, demolishing, and constructing to some degree in all of the housing areas. The only difference is that Alternative 1 consists of renovating 248 units in Shiloh West while Alternative 2 consists of replacing 248 Shiloh West housing units in lieu of renovation. All other proposals for Shiloh East, Galaxy, Georgian, Colonial, and Patriots Landing are the same for Alternative 1 and Alternative 2. The impacts that would result from implementing any of the action alternatives are similar enough that the preparers of this document did not differentiate between them. Thus, the potential impacts of the action alternatives are discussed under a single heading of "Proposed Action and Its Alternatives."

4.2 DEFINITION OF KEY TERMS

The terms *impact* and *effect* are synonymous as used in this EA. Impacts may be beneficial or adverse and may apply to the full range of natural, historic, cultural, and socioeconomic resources of the installation and its surrounding area.

A *direct impact* is caused by an action or alternative, and occurs at the same time and place. An *indirect impact* is caused by an action or alternative and is later in time or farther removed in distance, but still reasonably foreseeable. For example, if highly erodible soils were disturbed at a construction site near a stream, there could be direct impact on water quality through stormwater runoff. This runoff could indirectly affect aquatic species through sedimentation downstream from the construction site.

This section also distinguishes between short-term and long-term impacts. In this context, short- and long-term do not refer to any specific time period and are determined on a case-by-case basis in terms of the environmental consequences of implementing the Proposed Action, its Alternatives, or the No Action Alternative.

4.3 RESOURCE CATEGORIES

This section describes the environmental and socioeconomic consequences of implementing the project alternatives. The discussion of consequences is divided into the resource categories described in Section 3, Affected Environment. Each resource category includes discussion of the environmental consequences of the proposed action and its alternatives, as they relate to that resource.

4.3.1 Land Use

The proposed action projects are all located within the cantonment area of the base, which is developed with numerous buildings located throughout the area.

***No Action Alternative*.** No impacts are anticipated to land use under this alternative. No changes in base land use would occur.

Proposed Action and Its Alternatives. No impacts are anticipated to Scott AFB land use under this alternative. The proposed renovations and construction are consistent with the existing land use in the cantonment area.

4.3.2 Air Quality

No stationary sources of air emissions exist at the construction sites. Air emissions within the cantonment area are limited to mobile sources (automobile traffic) traveling on parking lots and roadways.

No Action Alternative. No impacts are anticipated to air quality under this alternative. No changes in air quality would occur.

Proposed Action and Its Alternatives. There would be minor short-term and no long-term impacts to air quality under this alternative. Emissions associated with demolition and construction would be temporary, fall off rapidly with distance from the construction sites, and last only as long as the construction activities. This increase would not violate any current state standards or NAAQS. A conformity determination is not required. No meaningful change in vehicular traffic is anticipated associated with construction activities or future use of the new facilities. A summary of the air quality impacts for Alternative 1 and Alternative 2 are summarized below. Supporting documentation for these summary tables is attached in Appendix A.

Table 4.1 Summary of Air Emissions for Alternative 1 and Alternative 2

ALTERNATIVE 1	TSP	PM10	PM 2.5	VOCs	CO	NOX	SOX
Soil Transfer	18.9	4.7	1.9				
Mobile Sources				0.15	1.4	0.2	
Haul Road	21.8	5.1	2.18				
Construction	7.08	1.77	0.708	2.22	1.72	8.07	0.87
(TONS)	40.7	11.57	1.9	2.37	3.12	8.27	0.69

*** REPRESENTS FOR 10 YEAR PROJECT**

* ANNUAL EMISSIONS SHOULD BE DIVIDED BY A FACTOR OF 10

ALTERNATIVE 2	TSP	PM10	PM 2.5	VOCs	CO	NOX	SOX
Soil Transfer	29.7	7.4	2.9				
Mobile Sources				0.15	0.14	0.2	
Haul Road	21.8	5.1	2.18				
Construction	7.08	1.77	0.708	2.22	1.72	8.07	0.87
(TONS)	51.5	14.27	1.9	2.37	1.86	8.27	0.69

*** REPRESENTS FOR 10 YEAR PROJECT**

* ANNUAL EMISSIONS SHOULD BE DIVIDED BY A FACTOR OF 10

4.3.3 Wastes, Hazardous Materials, and Stored Fuels

No Action Alternative. No impacts are anticipated. There would be no short-term or long-term impacts from hazardous material or hazardous materials management if this alternative is adopted.

Proposed Action and Its Alternatives. The properties associated with the proposed action do not appear to have been sites of either authorized or unauthorized disposal of hazardous or non-hazardous waste. Limited quantities of residential-type hazardous and non-hazardous substances are likely present. However, no evidence of mismanagement or applications beyond intended purposes were observed during a site visit conducted for the preparation of an EBS (USAF 2004).

There would be no short-term or long-term adverse impacts from hazardous waste generation associated with the proposed action projects. No hazardous materials would be used during construction and no hazardous materials would be used, stored, or created at the new facilities.

Aboveground Storage Tanks. Based on the records search, visual site inspection, and interviews conducted for the EBS, the only AST located on any of the subject properties is integrated into a backup generator located at the Patriots Landing Fire Station (Building 4560). No impacts from ASTs are anticipated. The installation of ASTs is not a part of the housing privatization initiative.

Underground Storage Tanks. As described in Section 3, there is no evidence that USTs are present on the properties associated with the proposed action, with the exception of one leaking UST reported on the parcel that became the Patriots Landing area. The Illinois EPA noted the successful cleanup of the site, but declined to issue a letter of no further remediation based on the fact that as an agricultural UST, it was not a regulated tank. No impacts from USTs are anticipated. The installation of USTs is not a part of the housing privatization initiative.

Lead-Based Paint. LBP at Scott AFB is managed according to the base's Lead-based Paint Management Plan dated September 2003. Since Scott AFB has this plan in place to protect human health, no impacts from LBP are anticipated. The SO is responsible for the demolition of structures containing LBP, as well as the removal and disposal of LBP debris, to be conducted in accordance with all applicable standards.

Asbestos. Air Force policy is to manage asbestos-containing building materials (ACBM) in place as long as practicable, ideally until a facility with ACBM is scheduled for renovation or disposal. ACBM may be found in floor tile, floor tile adhesive, roofing materials, drywall systems, plumbing systems, linoleum floor backing, and other materials not specifically mentioned here. ACBM is removed if it poses a health hazard. Scott AFB does not have a base-wide survey of ACBM at the MFH facilities.

The only housing units which should be asbestos free, in accordance with the non-use of ACBM clause in the contract specifications, is Patriots Landing. While extensive renovation was performed in housing units at Shiloh East, Galaxy, and selected Colonial housing units, these units should not be considered asbestos free. Construction closeout

documents detail the abatement work that was accomplished and should be used as an historical source along with applicable sampling and analysis.

The manager for the company that performs housing maintenance for the Air Force at Scott AFB specifically noted the presence of asbestos in the floor tile mastic in the Shiloh West neighborhood. The SO is responsible for the demolition of structures containing ACBM, as well as the removal and disposal of ACBM debris, to be conducted in accordance with all applicable standards.

Polychlorinated Biphenyl. Since none of the AOC No. 2 sites are known to be within the properties associated with the proposed action, no impacts from PCBs are anticipated.

Radon. Approximately 40 housing units in the housing areas have had ventilation systems installed to reduce radon levels below the 3.3 pCi/L of air threshold. These vent systems run from the basement up into the attic and out through the roof. Currently, half of these units have been inspected and are not in compliance due to improper installation of the ventilation systems. This non-compliance report has also been sent to the State of Illinois. The other half of these units will soon be inspected once the residents have been notified. It is anticipated that these units will also not be in compliance since the ventilation systems were installed in the same manner. Therefore, it can be concluded that all of the 40 units have improperly installed ventilation systems, all of which require reinstallation. All housing units built or renovated will have adequate ventilation systems installed.

Pesticides. Historic pesticide applications in the housing areas include chlordane, dieldrin, aldrin, DDT, and other pesticides that were commercially available at the time of application. Both surface and subsurface applications were made.

It is possible that pesticide application occurred at housing units proposed for privatization (except for Patriots Landing, which did not exist at the time). A former housing area known as Cardinal Creek was located in the northeast corner of the base and was found to have soil contamination from chlordane. This contaminated area is currently being remediated through removal of concrete foundations and covering affected soils with a minimum of two feet of soil. The potential exists to encounter pesticides during construction and demolition activities. If soil contamination is found at proposed action sites, there is potential for short-term and long-term adverse impacts from pesticides. If contamination is found, all contaminated soils would be handled in accordance with Federal, State, and local laws and regulations. Potential impacts from exposure to pesticides would be mitigated by implementing proper soil handling procedures. Appropriate management of this material after privatization would be the responsibility of the SO. No significant impacts are expected if proper procedures are followed.

4.3.4 Water Resources

Surface Waters. Impacts to water resources at Scott AFB associated with new construction would be limited to any activities that would result in increased runoff into water bodies or an increase in siltation into water bodies.

No Action Alternative. No impacts are anticipated to surface water resources under this alternative. No changes to runoff or siltation would occur.

***Proposed Action and Its Alternatives*.** The construction of new buildings at Scott AFB would result in an overall very minor increase in impervious surfaces at the base. Based on this increase in impervious surface, the potential for a minor increase in surface water runoff exists. Scott AFB does, however, have an effective stormwater control system in place. Consequently, long-term adverse impacts associated with increased runoff would be minimal as long as the SO follows the current base stormwater provisions.

Construction activities are anticipated to result in short-term, adverse impacts to soils at the project sites. There is potential to result in short-term increases in siltation and sedimentation into surface water bodies. No long-term impacts are anticipated. On completion of construction and the revegetation of disturbed areas, soil erosion and siltation levels would return to baseline conditions. Based on the implementation of Scott AFB's erosion control policy during construction and the lack of any nearby water bodies, short-term increases in siltation would be minimal.

Floodplains. Although portions of Scott AFB are located within the floodplain, the proposed construction sites are not located within the floodplain at Scott AFB.

***No Action Alternative*.** No impacts are anticipated to floodplains under this alternative. No changes to the floodplain would occur.

***Proposed Action and Its Alternatives*.** There would be no short-term or long-term impacts to floodplains under this alternative. No changes in floodplains or activities within the floodplain are anticipated with construction activities or future use of the new facilities.

Groundwater. There are no water production wells on the base. Groundwater is not used for drinking, irrigating, or industrial purposes. Site-specific groundwater data is not available; however based on the nature of the soils, topography, and existing construction at the sites; groundwater is apparently not located near the surface at the proposed construction sites*.*

***No Action Alternative*.** No impacts are anticipated to groundwater under this alternative. No changes to the groundwater would occur.

***Proposed Action and Its Alternatives*.** The construction of new buildings at Scott AFB would result in an overall very minor increase in impervious surfaces at the base. Infiltration of precipitation does not occur with an impervious surface, resulting in a reduction in the amount of recharge to the groundwater system. Based on this increase in impervious surfaces, the potential for a minor decrease in groundwater recharge may exist.

4.3.5 Biological Resources

Most of the construction sites are primarily cantonment area with scattered trees and shrubs for landscaping purposes. Lawns around the cantonment area are primarily composed of locally-suited turf grasses including bluegrass, fescues and Bermuda grass. The proposed action sites are in the cantonment area and provide little wildlife habitat. The scattered trees and shrubs at the sites provide some limited habitat for birds and small mammals.

No threatened or endangered species or their habitats occur at the construction sites.

No wetlands have been identified in the vicinity of the proposed project construction sites evaluated by this EA.

No Action Alternative. No impacts are anticipated. There would be no short-term or long-term impacts to wildlife if this alternative is adopted.

Proposed Action and Its Alternatives. In general, natural biological communities would not be influenced by either of the project alternatives. Impacts associated with specific biological resources types include the following:

Vegetation. Impacts to vegetation would be short term and limited to developed and landscaped habitats. After completion of construction, these areas would be re-vegetated and landscaped again. Minor, short-term, adverse impacts to grass and ornamental vegetation are expected with construction at the proposed action sites.

Wildlife. No impact to terrestrial or aquatic wildlife is anticipated under any of the project alternatives. The construction sites are located within the cantonment area, which does not provide meaningful habitat for wildlife.

Threatened and Endangered Species. Scott AFB does support some minor populations of federally listed, threatened, or endangered species; however, due to the location of the species' habitats, no impacts are expected.

Wetlands. No impacts to wetlands associated with the proposed action would be anticipated. No wetlands occur at any of the project sites.

4.3.6 Cultural Resources

No Action Alternative. No impacts are anticipated. There would be no short-term or long-term impacts to cultural resources if this alternative is adopted.

Proposed Action and Its Alternatives. The proposed action will include an Historic Preservation Covenant included in the transfer of the MFH units and leased interest in the land included under the privatization initiative. The covenant will require the preservation and maintenance of all units and structures listed on the National Register of Historic Places (NRHP) in accordance with the management standards and guidelines for treatment of historic properties established by the Secretary of the Interior ("the Secretary of the Interior's Standards for the Treatment of Historic Properties," 36 CFR Part 68) in order to preserve those qualities that make the Scott Air Force Base Historic District eligible for listing on the NRHP.

The Historic Preservation Covenant also is intended to establish adequate and legally enforceable restrictions and conditions for the transfer to ensure long-term preservation of the property's historic significance. This covenant will serve as the basis for an Air Force finding of no adverse effect in accordance with regulations promulgated under the National Historic Preservation Act, specifically 36 CFR 800.5(b), in the transfer of historic properties under the proposed privatization initiative. Air Force will seek IHPA concurrence in this approach to comply with both NHPA provisions regarding a finding of no adverse effect, and NEPA procedural requirements regarding a finding of no significant impact.

During the renovation of housing units that are on the National Register of Historic Places, the work will be coordinated with the SHPO in accordance with the National Historic Preservation Act (NHPA), regulations promulgated under the NHPA, and the

programmatic agreement (PA) or memorandum of agreement (MOA) entered into by the Illinois Historic Preservation Agency (IHPA) and the successful offeror (SO). Provided the existing provisions of the base Integrated Cultural Resources Management Plan (ICRMP) are followed and appropriate consultation with the SHPO is conducted, no impacts are anticipated. In the event of the discovery of an artifact or historical object occurred all construction activities would cease until the Cultural Resource Specialist and/or the Base Historian is notified. Construction activities would not proceed until the authorized personnel provide approval. Archaeological resources on public lands cannot be excavated, removed, damaged, or otherwise altered without a permit (32 CFR 229.4(a)(5)(b) and approval from the Cultural Resources Specialist at Scott AFB.

4.3.7 Transportation Systems

No Action Alternative. No impacts are anticipated. There would be no short-term or long-term impacts to transportation if this alternative is adopted. No changes in transportation systems or traffic are anticipated.

Proposed Action and Its Alternatives. Impacts would include a temporary increase in construction-related traffic during the construction activities and a slight increase of commuter traffic of off-base personnel. It is anticipated that construction-related traffic would be localized to the specific proposed action project sites as well as the route between the project sites and the base gate. The construction-related traffic would be temporary, lasting as long as the project activity in that area. The increase in off-base family traffic will be marginal and is not anticipated to have a negative effect on the base transportation system. As a result of there being 218 more housing units off-base, there is the potential for a minor impact on commuting convenience.

4.3.8 Safety

No Action Alternative. No impacts are anticipated to safety under this alternative.

Proposed Action and Its Alternatives. Because the proposed projects sites are located outside the CZs, APZs, and Explosive Quantity-Distance arcs, there would be no impacts to safety associated with implementation.

4.3.9 Soils

The overall geology and soils of Scott AFB would remain unchanged under both evaluated alternatives. The proposed construction sites are expected to have Urban Land or Borrow Pit soils resulting from past soil disturbance in the cantonment area of the base.

No Action Alternative. No impacts are anticipated to geology and soils under this alternative. No changes to geology or soils would occur.

Proposed Action and Its Alternatives. Minor, short-term, adverse impacts to soils (i.e. soil erosion) are anticipated during construction of the new facilities. No long-term impacts are anticipated. On completion of construction and the revegetation of disturbed areas, soil and soil erosion levels would return to baseline conditions.

4.3.10 Noise

Aircraft operations are the notable source of noise at Scott AFB. In addition to aircraft operations, noise generators at Scott AFB include vehicular traffic, rail operations, and heavy equipment operations. Noise generated from these sources is generally considered minor compared to the noise generated from aircraft operations.

Noise generation at the proposed construction sites is currently limited to vehicular and pedestrian activities. No major noise generation currently occurs at these sites.

No Action Alternative. No impacts are anticipated to the noise environment under this alternative. No changes in base noise levels would occur.

Proposed Action and Its Alternatives. Minor, short-term, adverse impacts to noise levels are anticipated during demolition, renovation, and construction activities. No long-term impacts are anticipated. On completion of the proposed action or its alternatives, base noise levels would return to normal.

4.3.11 Socioeconomics

Base population would not be influenced by any of the project alternatives. Housing and recreational amenities would be improved under the proposed action alternative.

No Action Alternative. No impacts are anticipated. There would be no short-term or long-term impacts to socioeconomic resources at Scott AFB if this alternative is adopted. There would be no change in the existing conditions.

Proposed Action and Alternatives. *Local Economy.* Minor socioeconomic impacts are anticipated for the local area. Short-term beneficial impacts would result from the increased demand for labor and materials related to housing construction, renovation, and demolition activities. Minor, long-term impacts may occur due to a change in the number of families residing off-base. There will be no significant changes in employment

Short-term beneficial impacts to socioeconomic resources are anticipated as a result of the proposed action. Minor, short-term, beneficial impacts to the local economy associated with the labor and materials required for the construction projects are anticipated.

on the base and regional populations and military payrolls are not expected to change.

Education. Although the same number of military families will reside within the region, there will be changes in where a portion of families reside. The on-base population of military families will decrease by 218 families when these families move off-base to live in privatized housing that will be built on land owned by the successful offeror. Another 163 military families currently living off-base in existing housing would move into this new off-base privatized housing area. Since the overall number of military families would not change, the number of students attending school in the affected area (i.e., St. Clair County) would not change. Federal Impact Aid received by individual school districts would change due to the movement of these 381 families. Although there may be a loss of Federal Impact Aid to local school districts in the region, this loss may be offset, in part, by increases in local tax revenue generated from the presence of 381 new privatized homes in the region. Any potential change would occur within the region, on a school district-to-school district level. This change would depend in which school district in the region the proposed new housing units are located. For most local school

districts, the potential impacts would be similar if the proposed housing units are built within their boundaries. Because of its current status as a "heavily impacted" district, the Mascoutah School District may experience a different level of impacts.

4.3.12 Environmental Justice

No Action Alternative. No impacts are anticipated. There would be no short-term or long-term impacts on environmental justice at Scott AFB if this alternative is adopted. There would be no change in the existing conditions for minority or low-income populations.

Proposed Action and Alternatives. No impacts are anticipated. There would be no short-term or long-term impacts on environmental justice at Scott AFB if this alternative is adopted. There would be no change in the existing conditions for minority or low-income populations.

4.4 Indirect and Cumulative Impacts

4.4.1 Description of Reasonably Foreseeable Future Actions Relevant to Cumulative Impacts

Other identified actions for the installation and surrounding areas with potential relevance to indirect and cumulative impacts include:

<u>On-Base Actions</u>

- The preferred development plan for the flight line area focuses on the ability of Scott AFB to accommodate new aircraft and missions. The plan includes short-range plans to accommodate the incoming fleet of C-40s and C-21s and long-range options for future mission bed downs.
- Short-Range Development Projects
  - The refueling vehicular parking area would move to a location north of South Drive near the fuel fill stand to allow the development of the C-40 Squadron Operations facility.
  - The C-40 Squadron Operations facility for the 932 AW would accommodate anticipated needs associated with incoming C-40 aircraft.
  - The Security Forces Complex will relocate the 375 Security Forces Squadron from their current location in Building 1970 to a new facility in the southern flight line area.
  - A new Civil Engineering (CE) Complex would be constructed to consolidate CE into one location. Once CE relocates, CE facilities would be demolished and the available land redeveloped as administrative space.
- Long-Range Development Projects
  - The 375 AW and the 932 AW would construct an Operations Group Headquarters facility for use.
  - An addition to the 932 AW C-40 Squadron Operations building for use by the 375 AW would be constructed.

- Building 742 (former C-9 fuel systems maintenance dock) would be demolished to allow development of a Communications complex.
- The hot cargo pad would be relocated to allow future apron expansion required for additional assigned aircraft.
- C-40 parking apron would be expanded to accommodate additional aircraft and construction of an apron with associated hangars for transient aircraft.
- Building 800 (petrol ops) would be demolished to allow for apron expansion. Petrol ops would move to the fuel ops building in FY 2005.
- Construction of a new 20,000-square foot band center would replace Buildings 868, 869, and 870; these buildings would be impacted by the proposed apron expansion.

- Circulation and Parking
  - Hangar Road / Golf Course Road would be realigned pending land acquisition to remove the roadway from airfield clearance areas.
  - The jogging track would be realigned concurrently with Hangar Road/Golf Course Road realignment.
  - East Winters Street would extend eastward to Adams Street as a roadway grid extension.
  - Adams Street would be widened to accommodate the need for future mission facilities.

Off-Base Actions.

- A minimum of 381 housing units would be constructed elsewhere within 10 miles of Scott AFB. The units would be built according to all local codes and standards. Specific layouts for replaced housing have not yet been identified. The location of the land to be developed has not yet been determined.

4.4.2 Potential Cumulative Impacts

No Action Alternative. No significant impacts are expected to occur from implementation of the No Action Alternative. Approximately the same extent and intensity of environmental impacts as currently occur would be expected to continue.

Proposed Action and Its Alternatives. No significant impacts are expected to occur from implementation of the Proposed Action Alternative. The portion of Scott AFB in which the Proposed Action would occur is highly disturbed and has an urban character. The Military Family Housing privatization initiative and other foreseeable Air Force initiatives would occur consistent with the installation's approved Base General Plan. All demolition, construction, and renovation would be conducted consistent with Air Force environmental protection regulations and guidance. Also, the daily activities occurring at Scott AFB may be taking place at different times and locations as the housing projects. Therefore, no cumulative impacts differing from the baseline condition that result from implementation of the Proposed Action would be expected. The potential for cumulative

impacts to each of the affected environments from the implementation of the proposed action and its alternatives are summarized below.

Land Use

No new cumulative impacts are anticipated to Scott AFB land use under this alternative. The proposed renovations and construction are consistent with the existing housing land use in the cantonment area. The renovations inside of the current housing will not increase the land use area and the new construction will be in the same areas as the current housing which will not increase the land use area. All land use on base pertaining to housing will stay residential and will not become commercial or industrial.

Air Quality

There would be minor short-term and no cumulative impacts to air quality under this alternative. Emissions associated with demolition and construction would be temporary, fall off rapidly with distance from the construction sites, and last only as long as the construction activities. This increase would not violate any current state standards or NAAQS. A conformity determination is not required. No meaningful change in vehicular traffic is anticipated associated with construction activities or future use of the new facilities.

Waste, Hazardous Materials, and Stored Fuels

There would be no short-term or cumulative adverse impacts from hazardous waste generation associated with the proposed action projects. No hazardous materials would be used during construction and no hazardous materials would be used, stored, or created at the new facilities.

Water Resources

There would be no short-term or cumulative impacts to floodplains under this alternative. No changes in floodplains or activities within the floodplain are anticipated with construction activities or future use of the new facilities.

The construction of new buildings at Scott AFB would result in an overall very minor increase in impervious surfaces at the base. Infiltration of precipitation does not occur with an impervious surface, resulting in a reduction in the amount of recharge to the groundwater system. Based on this increase in impervious surfaces, the potential for a minor decrease in groundwater recharge may exist.

Biological Resources

In general, natural biological communities would not be influenced by either of the project alternatives.

Impacts to vegetation would be short-term, not cumulative, and limited to developed and landscaped habitats. After completion of construction, these areas would be re-vegetated and landscaped again. Minor, short-term, adverse impacts to grass and ornamental vegetation are expected with construction at the proposed action sites.

No cumulative impact to terrestrial or aquatic wildlife is anticipated under any of the project alternatives. The construction sites are located within the cantonment area, which does not provide meaningful habitat for wildlife.

Scott AFB does support some minor populations of federally listed, threatened, or endangered species; however, due to the location of the species' habitats, no cumulative impacts are expected.

No cumulative impacts to wetlands associated with the proposed action would be anticipated. No wetlands occur at any of the project sites.

Cultural Resources

During the renovation of housing units that are on the National Register of Historic Places, the work will be coordinated closely with the SHPO. Provided the provisions of the base Integrated Cultural Resources Management Plan are followed and appropriate consultation with the SHPO is conducted, no cumulative impacts are anticipated. However, the discovery of an artifact or historical object would require all construction activities to cease until the Cultural Resource Specialist and/or the Base Historian is notified. Construction activities must not proceed until authorized personnel provide approval. Archaeological resources on public lands cannot be excavated, removed, damaged, or otherwise altered without a permit (32 CFR 229.4(a)(5)(b) and approval from the Cultural Resources Specialist at Scott AFB.

Transportation System

Impacts would include a temporary increase in construction-related traffic during the construction activities and a slight cumulative increase of commuter traffic of off-base personnel. It is anticipated that construction-related traffic would be localized to the specific proposed action project sites as well as the route between the project sites and the base gate. The construction-related traffic would be temporary, lasting as long as the project activity in that area. The cumulative increase in off-base family traffic will be marginal and is not anticipated to have a negative effect on the base transportation system. As a result of there being 218 more housing units off-base, there is the potential for a minor cumulative impacts on commuting convenience.

Safety

Because the proposed projects sites are located outside the CZs, APZs, and Explosive Quantity-Distance arcs, there would be no cumulative impacts to safety associated with implementation.

Soils

Minor, short-term, adverse impacts to soils (i.e. soil erosion) are anticipated during construction of the new facilities. No cumulative impacts are anticipated. On completion of construction and the revegetation of disturbed areas, soil and soil erosion levels would return to baseline conditions.

Noise

Minor, short-term, adverse impacts to noise levels are anticipated during demolition, renovation, and construction activities. No cumulative impacts are anticipated. On completion of the proposed action or its alternatives, base noise levels would return to normal.

Socioecomonics

Local Economy. Minor socioeconomic impacts are anticipated for the local area. Short-term beneficial impacts would result from the increased demand for labor and materials related to housing construction, renovation, and demolition activities. Minor, cumulative impacts may occur due to a change in the number of families residing off-base. There will be no significant changes in employment

Education. Although the same number of military families will reside within the region, there will be changes in where a portion of families reside. The on-base population of military families will decrease by 218 families when these families move off-base to live in privatized housing that will be built on land owned by the successful offeror. Another 163 military families currently living off-base in existing housing would move into this new off-base privatized housing area. Since the overall number of military families would not change, the number of students attending school in the affected area (i.e., St. Clair County) would not change. Federal Impact Aid received by individual school districts would change due to the movement of these 381 families. Although there may be a loss of Federal Impact Aid to local school districts in the region, this loss may be offset, in part, by increases in local tax revenue generated from the presence of 381 new privatized homes in the region. Any cumulative impacts would occur within the region, on a school district-to-school district level. This change would depend in which school district in the region the proposed new housing units are located. For most local school districts, the potential impacts would be similar if the proposed housing units are built within their boundaries. Because of its current status as a "heavily impacted" district, the Mascoutah School District may experience a different level of impacts.

Environmental Justice

No cumulative impacts are anticipated. There would be no short-term or long-term impacts on environmental justice at Scott AFB if this alternative is adopted. There would be no change in the existing conditions for minority or low-income populations.

Off-base Actions. Actions carried out by parties off base other than the Air Force are expected to be consistent with the development that has historically occurred and continues to take place in the vicinity of the base. These actions include residential and commercial development. These actions would be expected to be carried out in accordance with state and federal environmental protection laws and regulations. These laws and regulations are written and implemented to protect the human environment. Therefore, only minor cumulative impacts would be expected as a result of, and typical of, continuing development and urbanization of the off-base environment of Scott AFB, in combination with implementation of the Proposed Action. The effects of the housing privatization are so small, that when added to other off-base actions in the vicinity of the base the effects of the housing privatization are not expected to be significant. The other activities that may be taking place on-or off-base at the time of the housing privatization initiative would not likely cause any additional cumulative impacts. In addition, since the housing initiative is expected to take place within 10 years of initial transfer the cumulative impacts would be spread out over a longer period of time, hence allowing the impacts to be less on a daily basis but for a longer period of time.

4.5 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of the Proposed Action.

4.5.1 Air Quality

The emission of air pollutants associated with facilities construction and daily aircraft operation is an unavoidable condition, but is not considered significant and a Clean Air Act General Conformity Determination would not be required.

4.5.2 Noise

Noise resulting from anticipated construction activities is an unavoidable condition. Although some annoyance may occur, no sleep disturbance or speech interference is anticipated for the Proposed Action. Hearing impairment is not expected. Noise would not be considered a significant impact.

4.5.3 Biological Resources

Site grading associated with construction projects would remove minimal vegetation and associated small animal life now occupying or utilizing the few acres affected. All of the affected sites are in the areas of the Base that were previously disturbed and would not presently provide significant habitat for many species. Minimal plant life and wildlife would be eliminated from the sites, negligibly decreasing site floral and faunal diversity. Although unavoidable, this adverse condition is not significant.

4.5.4 Infrastructure and Utilities

The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require use of fossil fuels, a nonrenewable natural resource.

4.6 Relationship Between Short-Term Uses and Enhancement of Long-Term Productivity

The on-site construction or renovation would enhance the overall use and productivity of the housing areas. Therefore, it is not anticipated that the Proposed Action would result in any land use or aesthetic impacts on-site. Long-term productivity of the sites would be enhanced by development of the Proposed Action.

4.7 Irreversible an Irretrievable Commitment of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action involve consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

4.7.1 Material Resources

Building materials (for construction of facilities), concrete and asphalt (for facilities, runways, and roads), and various material supplies (for infrastructure) would be used for the Proposed Action. Materials are not in short supply, and are readily available from suppliers in the region. Use of these materials for the proposed action would not limit other unrelated construction activities.

4.7.2 Energy Resources

Energy resources such as petroleum-based products (such as gasoline, jet fuel, and diesel), natural gas, and electricity would be used for the Proposed Action and would be

irretrievably lost. Gasoline and diesel would be used for operation of construction vehicles. Natural gas and electricity would be used to operate facilities. Consumption of these energy resources would not place a significant demand on their supply systems or within the region.

4.7.3 Land

Implementation of the Proposed Action would result in construction and/or renovation of new facilities on base. This land would be lost to other uses during the operational life of the facilities. The loss of open space is not considered irreversible.

4.7.4 Biological Habitat

The Proposed Action may result in the irreversible destruction or loss of the vegetation and wildlife habitat on proposed construction sites. The Proposed Action is not expected to remove a significant amount of open space or undeveloped land currently functioning as biological habitat.

4.7.5 Human Resources

The use of human resources for construction and operation is considered an irretrievable loss only in that it would preclude the affected personnel from engaging in other work activities. However, the use of human resources for the proposed action represents employment opportunities, and is considered beneficial

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Michelle Anderson	B.S., Environmental Studies/Policy	Environmental Scientist	8

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APPENDIX A
SUPPORTING AIR QUALITY TABLES

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ALTERNATIVE 1	*TSP*	*PM10*	*PM 2.5*	*VOCs*	*CO*	*NOX*	*SOX*
Soil Transfer	*18.9*	*4.7*	*1.9*				
Mobile Sources				*0.15*	*1.4*	*0.2*	
Haul Road	*21.8*	*5.1*	*2.18*				
Construction	*7.08*	*1.77*	*0.708*	*2.22*	*1.72*	*8.07*	*0.87*
(TONS)	40.7	11.57	1.9	2.37	3.12	8.27	0.69

*** REPRESENTS FOR 10 YEAR PROJECT**

* ANNUAL EMISSIONS SHOULD BE DIVIDED BY A FACTOR OF 10

Alternative 1 Soil Transfer Emissions

** Represents **Total** Project Emissions **

Per AP-42, Section 13 (Tables 11.9 & 13.2) Jan 05

*THESE 3 ACTIVITIES COULD BE MUTUALLY EXCLUSIVE (PARTITION ACCORDINGLY) *

	Truck Loading		
	PM-10	PM-2.5	TSP
EF (lb/T)	4.592	0.135	6.123
Total Soil (Tons)	750,000	750,000	750,000
% Moisture	0.200	0.200	0.200
Soil (Moisture)	150000	150000	150000
% Loaded	0.25	0.25	0.25
Total Soil Emissions	37500	37500	37500
(TONS)	4.6875	1.875	18.75

	BullDozing		
	PM-10	PM-2.5	TSP
EF (lb/hr)	2.256	0.316	3.008
Hours	12,000	12,000	12,000
	0.200	0.200	0.200
	2400	2400	2400
	1	1	1
Total Soil Emissions	2400	2400	2400
(TONS)	0.3	0.12	1.2

	Grading		
	PM-10	PM-2.5	TSP
EF (lb/VMT)	7.589	0.392	12.649
VMT	7,500	7,500	7,500
	0.200	0.200	0.200
	1500	1500	1500
	0.25	0.25	0.25
Total Soil Emissions	375	375	375
(TONS)	0.046875	0.01875	0.1875

Soil Volume Factors

1Acre = ?ft2	43560	43560	43560
1 yd3 = ?T	1.5	1.5	1.5
1yd3 = ?ft3	27	27	27
Depth of Soil(ft)	1	1	1
Area of Soil (Acres)	492	492	492
1 Ton = ? Lbs	2000	2000	2000
1 ft3 = ?yd3	0.037	0.037	0.037

* Assumes all soil will be removed & loaded

	Total Soil Tranfer Emissions		
	PM-10	PM-2.5	TSP
TL	4.700	1.900	18.750
BD	0	0	1
G	0.047	0.019	0.188
(Tons)	4.747	1.919	18.938

Total Acreage = 492 ***21431520 ft2***

Alternative 1 Mobile Source Emissions

**** Represents Annual Emissions ****

Per AP-42, Appendix H (Table 1.1B.1) Jan 05

	Vehicle Emissions		
	VOCs	CO	Nox
EF **(g/mile)**	0.540	8.300	1.200
g-lb Conversion	0	0	0
Vehicular Traffic Increase	0	0	0
VOC-HC Conversion	0.1	NA	NA
Avg. Travel/Day	10	10	10
Criteria Pollutant Emissions(lbs)	0	0	0
Criteria Pollutant Emissions(T)	0	0	0

Assumptions/Conversions:

* HC = 0.1 VOCs

* Avg. between 25 & 50 K Mileage Levels

* 1g = ? lbs	0.0022
* # of new vehicles	2000
* Avg. Travel/Day (miles)	10

Per AP-42, Appendix J (Table 2.01) Jan 05

	Construction Equipment Emissions		
	VOCs	CO	Nox
EF **(g/mile)**	3.490	31.970	4.600
g-lb Conversion	0	0	0
# of Equipment	4	4	4
VOC-HC Conversion	1	NA	NA
Avg. Travel/Day	5	5	5
Criteria Pollutant Emissions(lbs)	0.15356	1.40668	0.2024
Criteria Pollutant Emissions(T)	0.00007678	0.000703	0.0001012
# of Days	200	200	200
TPY	0.015356	0.140668	0.02024

Assumptions/Conversions:

* HDGV used for Dozer/Grader Calculations

* 1 Dozer/1 Grader

Alterative 1 Haul Road Emissions

**** Represents Annual Emissions ****

Per AP-42, Section 13.2.2.2, Dec 2003

Quarry Hual Road w/o watering or chemical suppression

	Haul Road #1		Haul Road #2		Haul Road #3	
	PM-10	TSP	PM-10	TSP	PM-10	TSP
Emission Factor (E), lbs/VMT	1.364	4.623	1.364	4.623	1.364	4.623
Haul Road Length (ft)	500	500	0	0	0	0
Haul Road Length (miles)	0.095	0.095	0.000	0.000	0.000	0.000
Silt Content (s), %	10	10	10	10	10	10
Vehicle Weight (W), tons	3.5	3.5	3.5	3.5	3.5	3.5
k	1.5	4.9	1.5	4.9	1.5	4.9
a	0.9	0.7	0.9	0.7	0.9	0.7
b	0.45	0.45	0.45	0.45	0.45	0.45
VMT/hr	6.32	6.32	3.88	3.88	5.47	5.47
Total Emissions (lbs/round trip)	0.258	0.876	0.000	0.000	0.000	0.000

Round trips/day	**20**	
Total PM-10 Emissions (lbs/day)	**5.17**	***0.516833*** TPY
Total TSP Emissions (lbs/day)	**17.5**	***1.751021*** TPY

$E = k\,(s/12)^a\,(W/3)^b$

	CS2	**CS3**	**CS4**
%	1.000	0.000	0.000
TSP lbs/hr	17.510	0.000	0.000
TSP g/s	2.208	0.000	0.000
X length, m	318.1	155	147.1
Y length, m	10	10	10
Area m2	3181	1550	1471
ER, g/s-m2	0.000694	0.000000	0.000000

TSP, lbs/hr	1
TSP, g/s	0.1261
PM10, lbs/hr	0.34
PM10, g/s	0.0429

microns	**cumulative %**	**mass fraction**
1	0.001	0.001
5	0.12	0.119
10	0.34	0.22
20	0.67	0.33
30	0.81	0.14
50	0.93	0.12
70	0.97	0.04
100	1	0.03
		1.00

Alternative 1 Estimated Pollutant Emissions from Construction Activities

New Construction or Renovation (N/R) (enter "N" for new, "R" for renovation)	R			
Building Square Footage	304,000.0	ft^2	**No. Stories**	1
Asphalt Area		ft^2	**Depth**	inches
Concrete Area		ft^2	**Depth**	inches
Demolition Building Area	50,000.0	ft^2		
Total Area of Site		**Acres (area disturbed by ground breaking)**		
Project Duration	120	**Months (ground breaking to completion)**		

Construction Emissions

Construction Activity	CO (tons)	VOC (tons)	NO_X (tons)	SO_X (tons)	PM_{10} (tons)
Site Preparation/Ground Disturbance	-	-	-	-	-
New Building Construction	-	-	-	-	-
Existing Building Renovation	2.15	0.44	5.27	0.57	0.35
Building Demolition	0.10	0.44	1.11	0.12	0.35
Asphalt Paving Operations	-	-	-	-	-
Concrete Paving Operations	-	-	-	-	-
Total Emissions	**2.25**	**0.88**	**6.38**	**0.69**	**0.70**

*** Represents Total Emissions for Life of the Project ***

Table from Chapter 3

Baseline Air Emissions Inventory, Air Quality Control Region 99

CO	VOC	NOx	SOx	PM10
16	15	22	8	2

Table from Chapter 4

Proposed Action Emissions

	CO	VOC	NOx	SOx	PM10
Baseline	16	15	22	8	2
PA	0.00	0.00	0.00	0.00	0.00
PA Emissions as % of Baseline	0.00000%	0.00000%	0.00000%	0.00000%	0.00000%

Soil Volume Factors

1Acre = ?ft2	43560	43560	43560
1 yd3 = ?T	1.5	1.5	1.5
1yd3 = ?ft3	27	27	27
Depth of Soil(ft)	1	1	1
Area of Soil (Acres)	100	100	100
1 Ton = ? Lbs	2000	2000	2000
1 ft3 = ?yd3	0.037	0.037	0.037

ALTERNATIVE 2	*TSP*	*PM10*	*PM 2.5*	*VOCs*	*CO*	*NOX*	*SOX*
Soil Transfer	*29.7*	*7.4*	*2.9*				
Mobile Sources				*0.15*	*0.14*	*0.2*	
Haul Road	*21.8*	*5.1*	*2.18*				
Construction	*7.08*	*1.77*	*0.708*	*2.22*	*1.72*	*8.07*	*0.87*
(TONS)	51.5	14.27	1.9	2.37	1.86	8.27	0.69

*** REPRESENTS FOR 10 YEAR PROJECT**

* ANNUAL EMISSIONS SHOULD BE DIVIDED BY A FACTOR OF 10

Alternative 2 Soil Transfer Emission * *Represents* ***Total*** *Project Emissions* *******

Per AP-42, Section 13 (Tables 11.9 & 13.2) Jan 05

*THESE 3 ACTIVITIES COULD BE MUTUALLY EXCLUSIVE (PARTITION ACCORDINGLY) *

	Truck Loading		
	PM-10	PM-2.5	TSP
EF (lb/T)	4.592	0.135	6.123
Total Soil (Tons)	1,189,449	1,189,449	1,189,449
% Moisture	0.200	0.200	0.200
Soil (Moisture)	237889.8	237889.8	237889.8
% Loaded	0.25	0.25	0.25
Total Soil Emissions	59472.45	59472.45	59472.45
(Tons)	7.434056	2.973623	29.73623

	BullDozing		
	PM-10	PM-2.5	TSP
EF (lb/hr)	2.256	0.316	3.008
	1,612	1,612	1,612
	0.100	0.100	0.100
	161.2	161.2	161.2
	100	100	100
Total Soil Emissions	16120	16120	16120
(Tons)	0.0125	0.005	0.05

	Grading		
	PM-10	PM-2.5	TSP
EF (lb/VMT)	7.589	0.392	12.649
	1,612	1,612	1,612
	0.100	0.100	0.100
	161.2	161.2	161.2
	25	25	25
Total Soil Emissions	4030	4030	4030
(Tons)	0.003125	0.00125	0.0125

Soil Volume Factors

1Acre = ?ft2	43560	43560	43560
1 yd3 = ?T	1.5	1.5	1.5
1yd3 = ?ft3	27	27	27
Depth of Soil(ft)	1	1	1
Area of Soil (Acres)	492	492	492
1 Ton = ? Lbs	2000	2000	2000
1 ft3 = ?yd3	0.037	0.037	0.037

* Assumes all soil will be removed & loaded

	Total Soil Transfer Emissions		
	PM-10	PM-2.5	TSP
TL	7.400	2.970	29.700
BD	0	0	0
G	0.003	0.001	0.013
(Tons)	7.416	2.976	29.763

Total Acreage = 492 ***21431520 ft2***

Alternative 2 Mobile Source Emissions * *Represents Annual Emissions* *

Per AP-42, Appendix H(Table 1.1B.1) Jan 05

	Vehicle Emissions		
	VOCs	CO	Nox
EF **(g/mile)**	0.540	8.300	1.200
g-lb Conversion	0	0	0
Vehicular Traffic Increase	0	0	0
VOC-HC Conversion	0.1	NA	NA
Avg. Travel/Day	10	10	10
Criteria Pollutant Emissions(lbs)	0	0	0
Criteria Pollutant Emissions(T)	0	0	0

Assumptions/Conversions:
* HC = 0.1 VOCs

* Avg. between 25 & 50 K Mileage Levels

* 1g = ? lbs	0.0022
* # of new vehicles	2000
* Avg. Travel/Day (miles)	10

Per AP-42, Appendix J(Table 2.01) Jan 05

	Construction Equipment Emissions		
	VOCs	CO	Nox
EF **(g/mile)**	3.490	31.970	4.600
g-lb Conversion	0	0	0
# of Equipment	4	4	4
VOC-HC Conversion	1	NA	NA
Avg. Travel/Day	5	5	5
Criteria Pollutant Emissions(lbs)	0.15356	1.40668	0.2024
Criteria Pollutant Emissions(T)	7.68E-05	0.000703	0.0001012
# of Days	200	200	200
TPY	0.015356	0.140668	0.02024

Assumptions/Conversions:
* HDGV used for Dozer/Grader Calculations
* 1 Dozer/1 Grader

Alternative 2 Haul Road Emissions

**** Represents Annual Emissions ****

Per AP-42, Section 13.2.2.2, Dec 2003

Quarry Hual Road w/o watering or chemical suppression

	Haul Road #1		Haul Road #2		Haul Road #3	
	PM-10	TSP	PM-10	TSP	PM-10	TSP
Emission Factor (E), lbs/VMT	1.364	4.623	1.364	4.623	1.364	4.623
Haul Road Length (ft)	500	500	0	0	0	0
Haul Road Length (miles)	0.095	0.095	0.000	0.000	0.000	0.000
Silt Content (s), %	10	10	10	10	10	10
Vehicle Weight (W), tons	3.5	3.5	3.5	3.5	3.5	3.5
k	1.5	4.9	1.5	4.9	1.5	4.9
a	0.9	0.7	0.9	0.7	0.9	0.7
b	0.45	0.45	0.45	0.45	0.45	0.45
VMT/hr	6.32	6.32	3.88	3.88	5.47	5.47
Total Emissions (lbs/round trip)	0.258	0.876	0.000	0.000	0.000	0.000

Round trips/day	**25**	
Total PM-10 Emissions (lbs/day)	**6.46**	***0.646041*** TPY
Total TSP Emissions (lbs/day)	**21.9**	***2.188776*** TPY

Soil Volume Factors

1Acre = ?ft2	43560	43560	43560
1 yd3 = ?T	1.5	1.5	1.5
1yd3 = ?ft3	27	27	27
Depth of Soil(ft)	1	1	1
Area of Soil (Acres)	100	100	100
1 Ton = ? Lbs	2000	2000	2000
1 ft3 = ?yd3	0.037	0.037	0.037

$E = k\,(s/12)^a\,(W/3)^b$

	CS2	CS3	CS4
%	1.000	0.000	0.000
TSP lbs/hr	21.888	0.000	0.000
TSP g/s	2.760	0.000	0.000
X length, m	318.1	155	147.1
Y length, m	10	10	10
Area m2	3181	1550	1471
ER, g/s-m2	0.000868	0.000000	0.000000

TSP, lbs/hr	1
TSP, g/s	0.1261
PM10, lbs/hr	0.34
PM10, g/s	0.0429

microns	cumulative %	mass fraction
1	0.001	0.001
5	0.12	0.119
10	0.34	0.22
20	0.67	0.33
30	0.81	0.14
50	0.93	0.12
70	0.97	0.04
100	1	0.03
		1.00

Alternative 2 Estimated Pollutant Emissions from Construction Activities

New Construction or Renovation (N/R) (enter "N" for new, "R" for renovation)	R			
Building Square Footage	180,000.0	ft^2	**No. Stories**	1
Asphalt Area		ft^2	**Depth**	inches
Concrete Area		ft^2	**Depth**	inches
Demolition Building Area	222,500.0	ft^2		
Total Area of Site		**Acres (area disturbed by ground breaking)**		
Project Duration	120	**Months (ground breaking to completion)**		

Construction Emissions

Construction Activity	CO (tons)	VOC (tons)	NO_X (tons)	SO_X (tons)	PM_{10} (tons)
Site Preparation/Ground Disturbance	-	-	-	-	-
New Building Construction	-	-	-	-	-
Existing Building Renovation	1.27	0.26	3.12	0.34	0.21
Building Demolition	0.45	1.96	4.95	0.53	1.56
Asphalt Paving Operations	-	-	-	-	-
Concrete Paving Operations	-	-	-	-	-
Total Emissions	**1.72**	**2.22**	**8.07**	**0.87**	**1.77**

*** Represents Total Emissions for Life of the Project ***

Table from Chapter 3

Baseline Air Emissions Inventory, Air Quality Control Region 99

CO	VOC	NOx	SOx	PM10
16	15	22	8	2

Table from Chapter 4

Proposed Action Emissions

	CO	VOC	NOx	SOx	PM10
Baseline	16	15	22	8	2
PA	0.00	0.00	0.00	0.00	0.00
PA Emissions as % of Baseline	0.00000%	0.00000%	0.00000%	0.00000%	0.00000%

Soil Volume Factors

1Acre = ?ft2	43560	43560	43560
1 yd3 = ?T	1.5	1.5	1.5
1yd3 = ?ft3	27	27	27
Depth of Soil(ft)	1	1	1
Area of Soil (Acres)	100	100	100
1 Ton = ? Lbs	2000	2000	2000
1 ft3 = ?yd3	0.037	0.037	0.037

APPENDIX B
CONSIDERATION OF COMMENTS

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