



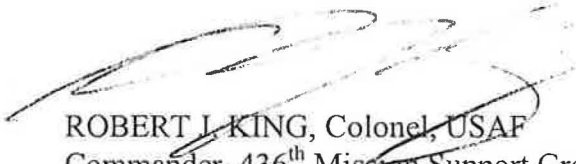
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 436TH AIRLIFT WING (AMC)

MEMORANDUM FOR 436 CES/CEV

FROM: 436 MSG/CC

SUBJECT: Finding of No Significant Impact (FONSI)- Military Family Housing
Revitalization Project

1. Dover AFB is proposing the demolition of 1,010 Military Family Housing (MFH) units and construction of 768 units by a private contractor, for a total of 980 MFH units upon completion of the Proposed Action. The 212 units currently being constructed would remain in place. The housing units would be conveyed to the contractor; however, the land would remain Air Force property. All demolition, construction, and renovation activities would be completed by 2009. A private contractor would accomplish project activities.
2. An environmental assessment, which is attached, was drafted and demonstrates that there are no significant environmental impacts from the proposed action. An environmental assessment was available for public review and comment from 19 May through 19 June 2004. No comments were received.
3. This document was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality (CEQ) regulations of 1978, and Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*. AFI 32-7061 addresses implementation of the NEPA and directs Air Force officials to consider the environmental consequences of any proposal as part of the decision-making process. This instruction has been recently amended and appears, as amended, in 32 CFR Part 989. It was determined that neither an environmental impact statement nor a formal environmental assessment is necessary. No further environmental documentation is necessary.
4. I have evaluated the attached environmental assessment and find no significant impacts on the quality of the human or natural environment from the proposed action.


ROBERT L. KING, Colonel, USAF
Commander, 436th Mission Support Group

Attachments:

1. AF Form 813
2. Environmental Assessment

Report Documentation Page		Form Approved OMB No. 0704-0188
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.		
1. REPORT DATE JUL 2004	2. REPORT TYPE	3. DATES COVERED 00-00-2004 to 00-00-2004
4. TITLE AND SUBTITLE Environmental Assessment Eagle Heights Housing Area Revitalization Dover Air Force Base, Delaware		5a. CONTRACT NUMBER
		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) Earth Tech,2620 Hunt Rd,Land O'Lakes,FL,34638		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 <p>This environmental assessment (EA) evaluates the potential environmental impacts of privatization of the Eagle Heights Housing Area at Dover AFB. It has been determined that privatization of the housing areas is a viable option because the housing area meets the required criteria for privatization. This EA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the Proposed Action Alternative 1, and the No-Action Alternative. As part of the privatization action, the Proposed Action would include demolition of 1 ,010 units and construction of 768 units; the 212 units that are currently being constructed would remain in place. The housing units would be conveyed to the contractor; however, the land would remain Air Force property. Under Alternative 1, 869 units would be demolished, 627 units would be constructed, and 141 units would be renovated. The 212 units currently being constructed would remain in place. Under the No- Action Alternative, the Air Force would not privatize MFH at Dover AFB. The Air Force would continue to be responsible for providing, operating, and maintaining the MFH units and the Air Force would continue to incur costs associated with these responsibilities. Any funding required to complete renovations to upgrade substandard housing would continue to be the responsibility of the Air Force. Any required demolition of existing units and construction of new housing units would also be the responsibility of the Air Force. The environmental resources potentially affected by the Proposed Action are utilities (solid waste) hazardous materials management, hazardous waste management, Environmental Restoration Program sites, storage tanks, pesticide usage, asbestos-containing material, lead-based paint, soils and geology, water resources, air quality, noise, and biological resources. Based on the nature of activities associated with the privatization of the MFH units and the associated demolition and construction activities, the Air Force has determined that impacts to these resources would not be significant.</p>		
15. SUBJECT TERMS		

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 106	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS			Report Control Symbol RCS:	
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).				
SECTION I - PROPONENT INFORMATION				
1. TO (Environmental Planning Function) 436 MSG/CEV	2. FROM (Proponent organization and functional address symbol) 436 MSG/CECP	2a. TELEPHONE NO. 677-4712		
3. TITLE OF PROPOSED ACTION FJXT994012RX, PRIVATIZATION OF EAGLE HEIGHTS MILITARY FAMILY HOUSING.				
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) Privatization Initiative for Eagle Heights Military Family Housing.				
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.) Demolish and replace 768 substandard housing units.				
6. PROPONENT APPROVAL (Name and Grade) TSgt Kevin Hickman Project Programmer	6a. SIGNATURE 	6b. DATE 20040716		
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)				
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. WATER RESOURCES (Quality, quantity, source, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. OTHER (Potential impacts not addressed above.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION				
17.	<input type="checkbox"/>	PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____ ; OR		
	<input checked="" type="checkbox"/>	PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS Dover AFB is in a severe non-attainment area for ozone. The air pollutants of concern are nitrogen oxides (NOx) and volatile organic compounds (VOCs). This project will not produce or cause to be produced or released, directly or indirectly, any NOx or VOC. Therefore, a Clean Air Act Section 176(c) Conformity Determination is not required.				
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) CHARLES C. MIKULA Chief, Environmental Flight	19a. SIGNATURE 	19b. DATE 19 Jul 04		



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 436TH AIRLIFT WING (AMC)

23 July 2004


MEMORANDUM FOR 436 MSG/CC

FROM: 436 AW/JA

SUBJECT: FONSI - Military Family Housing Revitalization Project

1. I have reviewed the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for Military Family Housing Revitalization Project. I find both documents to be in compliance with 40 CFR 1501.3 and 1508.9, as implemented by AFI 32-7061. Additionally, the EA was made available for public review and comment and no comments were received.

2. **RECOMMENDATION:** Sign the FONSI.




PATRICK M. SCHWOMEYER, 1Lt, USAF
Assistant Staff Judge Advocate

1st Ind, 436 AW/DSJA

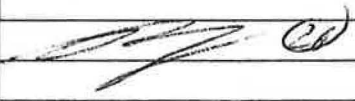
MEMORANDUM FOR 436 MSG/CC

Concur/~~Non-concur~~



DAVID J. WESTERN, Maj, USAF
Deputy Staff Judge Advocate

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	AW/JA	Coord	<i>R. W. S., Maj, 23 Jul 04</i> <i>Div & J. W. Skm, D S J R</i>	6			
2	MSG/CC	Sign		7			
3	CES/CEV	Action		8			
4				9			
5				10			

SURNAME OF ACTION OFFICER AND GRADE
Mikula, GS-13

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CEV

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SUBJECT

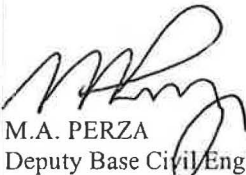
Finding of No Significant Impact (FONSI) for the Military Family Housing Revitalization Project.

DATE

20040716

SUMMARY

1. PURPOSE. To request MSG/CC to sign the Finding of No Significant Impact (FONSI) for the Military Family Housing Revitalization Project (tab 1).
2. A Request for an Environmental Impact Analysis, AF Form 813, is enclosed (tab 2).
3. An environmental assessment (EA) for the Military Family Housing Revitalization Project (tab 3). The EA indicates there are no significant environmental impacts from the proposed action.
4. RECOMMENDATION: MSG/CC sign the enclosed FONSI.


M.A. PERZA
Deputy Base Civil Engineer

3 Tabs

1. FONSI, Military Family Housing Revitalization Project
2. AF Form 813
3. Environmental Assessment and Supporting Documentation

Delaware State

Maryland State News



State of Delaware:

:ss.

County of Kent :

Before me, a Notary Public, for the County and State aforesaid, personally appeared Tamra Brittingham, known to me to be such, who being sworn according to law deposes and says that she is Publisher of the Delaware State News, a daily newspaper published at Dover, County of Kent and State of Delaware, and that the notice, a copy of which is hereto attached, was published in the Delaware State News in its issue of

June 2 & 6, 2004

Tamra Brittingham

Publisher

Sworn to and subscribed before me this

day of

June

10th

A.D.

2004

Janet E Kelly

Notary Public

PUBLIC NOTICE DOVER AIR FORCE BASE

Dover Air Force Base (DAFB) is providing a public comment period regarding an environmental assessment associated with Eagle Heights Housing Area Revitalization.

A copy of the environmental assessment is available for review at the Dover Public Library, 45 State St. Dover, DE 19901. Comments may be submitted in writing no later than July 2, 2004 to Mr. Charles Miller, 436 CES/CEV, 600 Chevron Avenue, Dover AFB, DE 19902-5600. All comments received prior to July 2, 2004 will be considered in the final decision. DSN 6/6,9/04

Privatization helping DoD meet housing goals

Army Sgt. 1st Class Doug Sample
American Forces Press Service

WASHINGTON – Defense Department officials recently said housing privatization programs are helping DoD reach its goals for repairing or replacing inadequate housing, and Dover Air Force Base Airmen will soon reap the benefits of the privatization program.

With funding levels making it increasingly difficult to maintain acceptable housing conditions at many military installations, Defense Department officials in the mid-1990s turned management and maintenance of some 200,000 "below standard" quarters over to private firms.

"We knew that we would never be able to budget enough money to be able fix all of that housing in any short time frame," said Joseph K. Sikes, DoD's director of housing and competitive sourcing. "We originally estimated it would take about 20 years, based on the amount of money we were budgeting for housing back in the middle '90s."

Today, Mr. Sikes appears much more optimistic. He said DoD's plan for privatizing government housing has meant that 95 percent of the department's inadequate housing will be fixed by 2007.

Mr. Sikes said Defense Secretary Donald H. Rumsfeld identified military housing as a top priority for the department, and President Bush made housing privatization a key component of his management initiative.

He said that already some 60,000 inadequate housing units have been eliminated at military installations from Fort Hood, Texas, to

"It was a big cultural change for commanders ... to actually own and maintain these houses on

"After 1999, the projects really started coming in at a higher pace," he said. "And what we're seeing now is a result of that increase."

So far 32 projects have been awarded and \$58 million invested in the program, Mr. Sikes said. Meanwhile, private firms have invested some \$6.5 billion to improve living conditions and housing for service members and their families.

MEMORANDUM FOR 436 AW/PA

FROM: 436 CES/CEV

SUBJECT: Public Notice Release

1. Attached is a public notice we will be placing in the Delaware State News. The advertisement announces a public comment period for an environmental assessment associated with Eagle Heights Housing Area Revitalization.
2. Request your coordination on this public notice. The contractor will pay for placement of this ad. We plan to place the ad by Wednesday, 5 June 04, so the ad will begin running in the paper by the following Sunday. Please acknowledge by endorsing below.

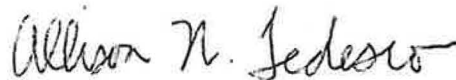


CHARLES C. MIKULA, P.E.
Chief, Environmental Flight

1st Ind, 436 AW/PA

MEMORANDUM FOR 436 CES/CEV

PA has reviewed and coordinated on the attached advertisement announcing a public comment period for the environmental assessment indicated in this correspondence.

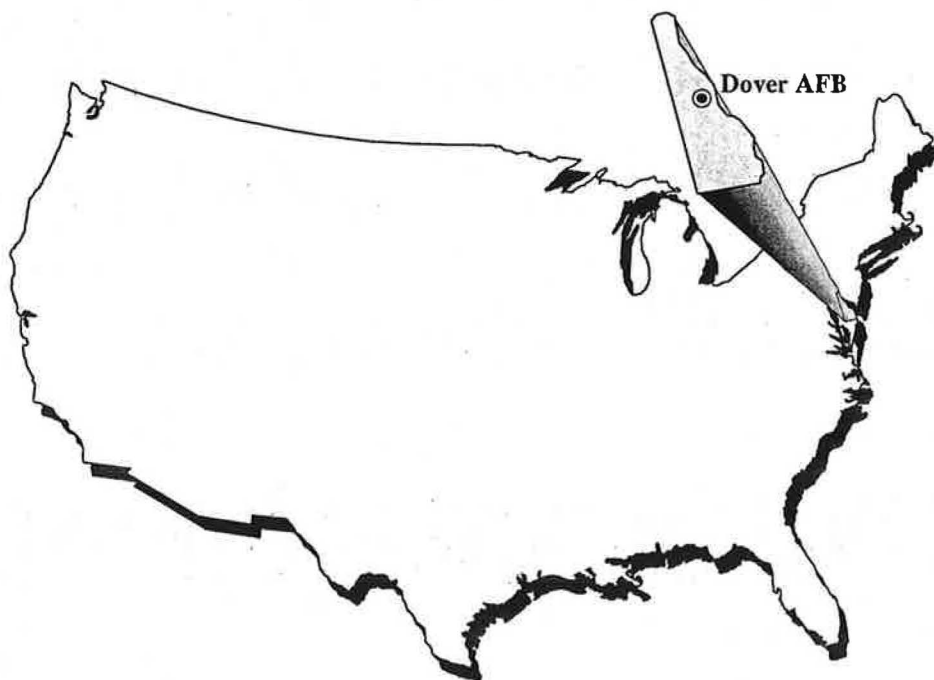


ALLISON TEDESCO, 1Lt., USAF
Chief, Public Affairs Division



ENVIRONMENTAL ASSESSMENT

July 2004



EAGLE HEIGHTS HOUSING AREA
REVITALIZATION
DOVER AIR FORCE BASE,
DELAWARE

**ENVIRONMENTAL ASSESSMENT
EAGLE HEIGHTS HOUSING AREA REVITALIZATION
DOVER AIR FORCE BASE, DELAWARE**

July 2004

COVER SHEET
ENVIRONMENTAL ASSESSMENT
MILITARY FAMILY HOUSING REVITALIZATION PROJECT
DOVER AIR FORCE BASE, DELAWARE

- a. Responsible Agency: U.S. Air Force
- b. Proposed Action: Privatization of the Eagle Heights Housing Area on Dover Air Force Base (AFB), Delaware, including demolition and construction of military family housing (MFH) units within the housing area by a private contractor.
- c. Written comments and inquiries regarding this document should be directed to: Mr. Steven Seip, 436 CES/CEV, 600 Chevron Avenue, Dover AFB, DE 19902-5600; telephone: (302) 677-6839.
- d. Report Designation: Draft Environmental Assessment
- e. Abstract: This environmental assessment (EA) evaluates the potential environmental impacts of privatization of the Eagle Heights Housing Area at Dover AFB. It has been determined that privatization of the housing areas is a viable option because the housing area meets the required criteria for privatization. This EA has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the Proposed Action, Alternative 1, and the No-Action Alternative.

As part of the privatization action, the Proposed Action would include demolition of 1,010 units and construction of 768 units; the 212 units that are currently being constructed would remain in place. The housing units would be conveyed to the contractor; however, the land would remain Air Force property.

Under Alternative 1, 869 units would be demolished, 627 units would be constructed, and 141 units would be renovated. The 212 units currently being constructed would remain in place. Under the No-Action Alternative, the Air Force would not privatize MFH at Dover AFB. The Air Force would continue to be responsible for providing, operating, and maintaining the MFH units and the Air Force would continue to incur costs associated with these responsibilities. Any funding required to complete renovations to upgrade substandard housing would continue to be the responsibility of the Air Force. Any required demolition of existing units and construction of new housing units would also be the responsibility of the Air Force.

The environmental resources potentially affected by the Proposed Action are utilities (solid waste), hazardous materials management, hazardous waste management, Environmental Restoration Program sites, storage tanks, pesticide usage, asbestos-containing material, lead-based paint, soils and geology, water resources, air quality, noise, and biological resources. Based on the nature of activities associated with the privatization of the MFH units and the associated demolition and construction activities, the Air Force has determined that impacts to these resources would not be significant.

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Privacy Advisory

1
2 Your comments on this draft environmental assessment (EA) are requested. Letters or other
3 written or oral comments provided may be published in the final EA. As required by law,
4 comments will be addressed in the final EA and made available to the public. Any personal
5 information provided will be used only to identify your desire to make a statement during the
6 public comment period or to fulfill requests for copies of the final EA or associated documents.
7 Private addresses will be compiled to develop a mailing list for those requesting copies of the final
8 EA. However, only the names of the individuals making comments and specific comments will be
9 disclosed. Personal home addresses and telephone numbers will not be published in the final
10 EA.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	asbestos-containing material
AFB	Air Force Base
AFI	Air Force Instruction
AFPMB	Armed Forces Pest Management Board
AHERA	Asbestos Hazard Emergency Response Act
AICUZ	Air Installation Compatible Use Zone
asl	above sea level
AST	aboveground storage tank
BASH	Bird/Wildlife Aircraft Strike Hazard
bgs	below ground surface
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CES	Civil Engineering Squadron
CFR	Code of Federal Regulations
CO	carbon monoxide
CPSC	Consumer Product Safety Commission
CSWMC	Central Solid Waste Management Center
CWA	Clean Water Act
DAFBI	Dover Air Force Base Instruction
dB	decibel
dBA	A-weighted sound level
DCE	dichloroethylene
DEQPPM	Department of Defense Environmental Quality Program Policy Memorandum
DERP	Defense Environmental Restoration Program
DNL	day-night average sound level
DNREC	Delaware Department of Natural Resources and Environmental Control
DOD	Department of Defense
DPG	Defense Planning Guidance
EA	environmental assessment
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
FFA	Federal Facilities Agreement
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FONSI	Finding of No Significant Impact
FY	fiscal year
HRMA	Housing Requirements and Market Analysis
INRMP	Integrated Natural Resources Management Plan
IPMP	Integrated Pest Management Plan
IRP	Installation Restoration Program
MAJCOM	Major Command
µg/kg	micrograms per kilogram
MFH	military family housing
mg/l	milligrams per liter
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards

NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NLR	noise level reduction
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
P.L.	Public Law
PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter
PM ₁₀	particulate matter equal to or less than 10 microns in diameter
PMC	Pest Management Consultant
ppm	parts per million
PRG	preliminary remediation goal
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
SCAQMD	South Coast Air Quality Management District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SWPPP	Storm Water Pollution Prevention Plan
TCE	trichloroethylene
TCLP	Toxic Characteristic Leaching Procedure
TLF	Temporary Living Facility
U.S.C.	U.S. Code
UST	underground storage tank
VC	vinyl chloride
VOC	volatile organic compound

1.0 PURPOSE OF AND NEED FOR ACTION

This environmental assessment (EA) evaluates the potential environmental impacts of activities associated with revitalization of the Eagle Heights military family housing (MFH) at Dover Air Force Base (AFB), Delaware (Figure 1-1). The MFH Revitalization Project would include demolition and construction activities.

This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code [U.S.C.] 4321, et seq.), the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989).

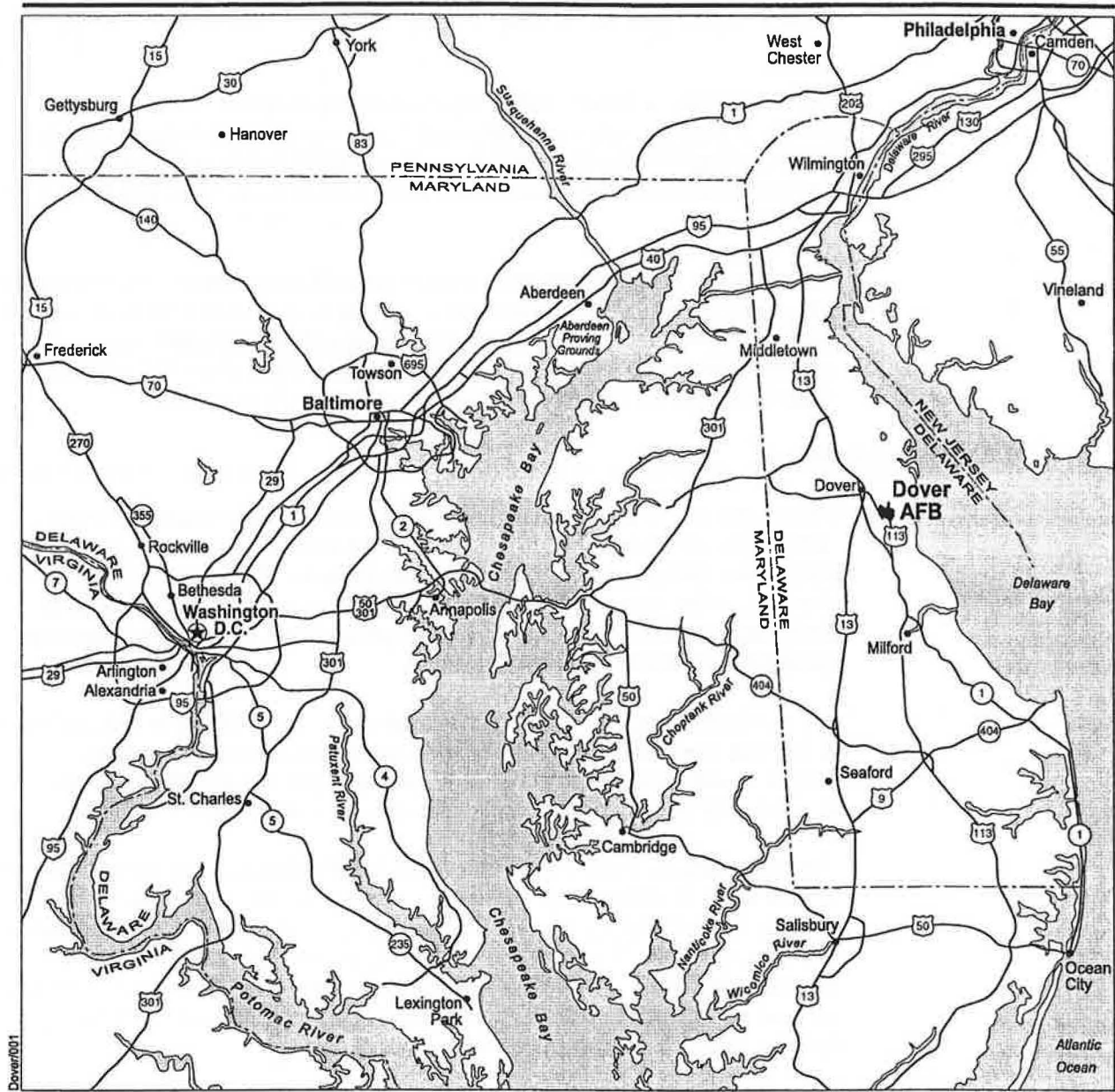
1.1 PURPOSE AND NEED

The purpose of the MFH Revitalization Project is to provide suitable MFH for military personnel stationed at Dover AFB. This action is needed to comply with the Office of the Secretary of Defense (OSD) Defense Planning Guidance (DPG). The OSD, in its current DPG directive has tasked the Department of Defense (DOD) services to revitalize, divest through privatization, or demolish inadequate housing by or before fiscal year (FY) 2010.

Due to advancing age and continual degradation, many of the MFH units at Dover AFB do not meet modern standards and require replacement. Therefore, demolition and construction activities are necessary to comply with the DPG directive. It is the Air Force's goal to meet the OSD mandate by FY 2010.

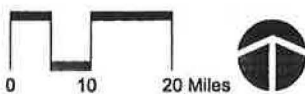
A Housing Requirements and Market Analysis (HRMA) was prepared in 2003 to determine the total MFH requirement for personnel at Dover AFB. Based on the findings of the HRMA, the Dover AFB housing requirement is 980 units (Parsons Corporation, 2003). The base has 1,222 units (including 212 units currently under construction) within the Eagle Heights Housing Area. Therefore, there is a potential surplus of 242 units as the total MFH requirement is less than the current Dover AFB housing inventory.

In order to comply with the requirements of the OSD directive and to meet the demand for MFH at Dover AFB, the MFH Revitalization Project includes 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. Dover AFB has determined that privatization is feasible for the Eagle Heights Housing Area. 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 requirements.



EXPLANATION

- Interstate Highway
- U.S. Highway
- State Highway
- State Boundaries



Regional Map Dover Air Force Base, Delaware

Figure 1-1

1.2 LOCATION OF THE PROPOSED ACTION

Dover AFB is in central Delaware partially within the corporate limits of the city of Dover and unincorporated areas of Kent County. The base is approximately 90 miles south of Philadelphia, Pennsylvania, and 90 miles east of Washington, DC (see Figure 1-1). The Eagle Heights Housing Area covers approximately 250 acres and is situated south of the main base across Highway 113 (Figure 1-2).

1.3 SCOPE OF ENVIRONMENTAL REVIEW

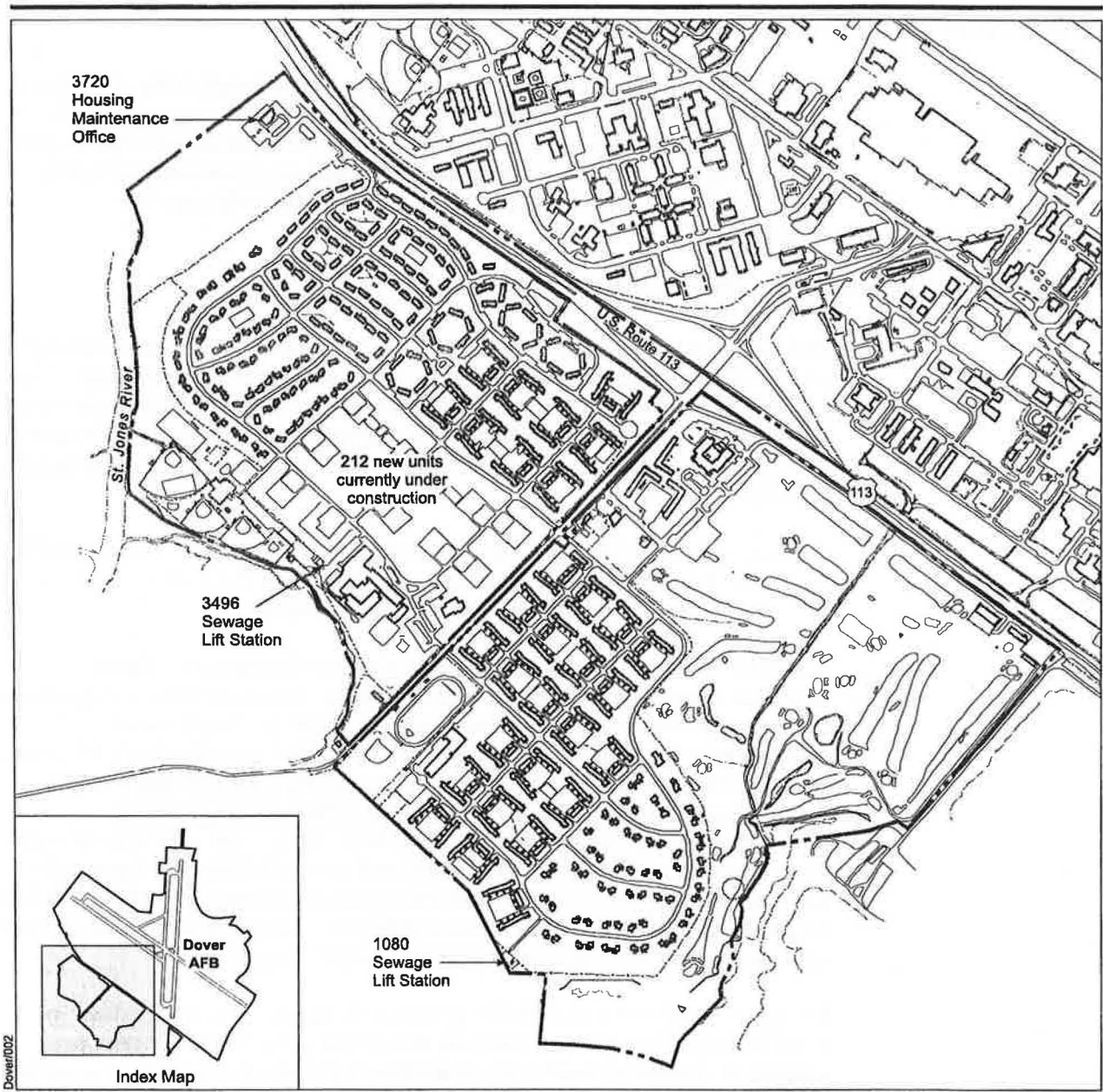
This document is "issue-driven," in that it concentrates on those resources that may be affected by implementation of the Proposed Action or alternatives. The EA describes and addresses the potential environmental impacts of the activities associated with the Proposed Action and alternatives. These activities include the demolition and construction of housing units within the Eagle Heights Housing Area at Dover AFB.

Consistent with the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the Proposed Action and alternatives.

In addition to privatization of the Eagle Heights Housing Area, the Eagle Meadows Housing Area (approximately 3 miles southwest of Dover AFB) will also be privatized through sale of the land and housing units. The potential environmental consequences of the privatization activities at the Eagle Meadows Housing Area were evaluated in the Final Environmental Assessment for the Eagle Meadows and 152 Eagle Heights Units, Military Family Housing Privatization, Dover Air Force Base (Dover AFB, 2003e). No significant impacts were identified and a Finding of No Significant Impact (FONSI) for this activity was signed on 11 March 2003. Potential impacts of privatization activities at the Eagle Meadows Housing Area will be addressed in this EA in terms of cumulative effects in Section 4.8 Cumulative Environmental Consequences.

Resources that have a potential for impact were considered in more detail in order to provide the Air Force decision maker with sufficient evidence and analysis to determine whether or not additional analysis is required pursuant to 40 CFR Part 1508.9. The resources analyzed in more detail are utilities (solid waste), hazardous materials management, hazardous waste management, Environmental Restoration Program (ERP) sites, storage tanks, pesticide usage, asbestos-containing material (ACM), lead-based paint, geology and soils, water resources, air quality, noise, and biological resources. The affected environment and the potential environmental consequences relative to these resources are described in Chapters 3.0 and 4.0, respectively.

Initial analysis indicates that demolition and new construction activities would not result in short- or long-term impacts to socioeconomics, transportation, utilities (water, wastewater, electricity, and natural gas), land use, aesthetics, polychlorinated biphenyls (PCBs), radon, medical/biohazardous waste, ordnance, radioactive materials, cultural resources, and environmental justice. The reasons



EXPLANATION

- Base Boundary
- Housing Privatization Areas
- 113 U.S. Highway

Eagle Heights Housing Area Dover Air Force Base

Figure 1-2

for not addressing these resources are briefly discussed in the following paragraphs.

Socioeconomics. Under the Proposed Action and alternatives, revitalization of the Eagle Heights Housing Area would not create an increase in population in the region and there would be a slight decrease in on-base residents based on the findings of the HRMA. The Proposed Action and Alternative 1 would result in a net decrease in MFH units; however, because these units are surplus, there would not be additional demand on the housing market in the region.

Revitalization would not create a substantial increase or decrease in long-term on-base or regional employment. There are 6,985 employees of Dover AFB, including 3,772 active duty military, 1,800 reserve duty military, 939 civil service, and 474 non-appropriated fund personnel (Dover AFB, 2000a). Any changes in employment resulting from housing privatization would be minimal in relation to the total base work force. Regional population and military payrolls within the region are not expected to change. Because no significant increase or decrease in population or employment is expected under the Proposed Action or alternatives, impacts to socioeconomics would not be expected and are not analyzed further in this EA.

Transportation. Because the Dover AFB housing population would be reduced by approximately 240 families, traffic within the MFH areas would decrease. Construction-related traffic would use the Eagle Heights Housing Gate to access the MFH area; the construction-related traffic would be localized to the housing area and would be temporary, lasting as long as the project activity. Personnel relocated to surrounding communities would now commute to Dover AFB and would not contribute a significant increase to the morning and afternoon peak-hour traffic volume at the installation access gates. Based on the small increase in the number of personnel that would commute to Dover AFB (approximately 250 personnel), a significant decrease in the level of service on roadways surrounding and providing access to Dover AFB is not anticipated. Therefore, potential impacts to transportation are not anticipated and are not analyzed further in this EA.

Utilities. Because the Dover AFB housing population would be reduced by approximately 240 families, on-base utility usage is expected to decrease from current conditions. Because these families would be relocated into surrounding communities, regional utility usage is not expected to change. Impacts to utilities (water, wastewater, electricity, and natural gas) are not expected and are not analyzed further in this EA. Solid waste generation and disposal is addressed in this EA due to proposed demolition of housing units.

Land Use. Under the Proposed Action and alternatives, the Eagle Heights Housing Area would remain residential; no significant change in current or future land use is expected. Under the Proposed Action, a small portion of land north of the football field and east of Lebanon Road within the Eagle Heights Housing Area would change from residential to recreational due to the demolition of existing housing units and replacement with a youth center. This development is compatible with adjacent residential use. Impacts to land use under the

Proposed Action and alternatives would not be expected and are not analyzed further in this EA.

Aesthetics. No adverse impacts to the aesthetic quality of the area are expected from the Proposed Action or alternatives. Temporary impacts to the aesthetic quality of the area may occur during the demolition and construction phases of the Proposed Action and alternatives. However, the long-term, permanent impacts of the construction of new housing units would result in a positive aesthetic effect on the Eagle Heights Housing Area.

Landscaping of common areas and housing unit perimeters and an increase in green space would be incorporated to the extent possible to enhance the aesthetic quality of the housing area. Housing designs would be developed with the intent of creating an attractive appearance. Adverse impacts to aesthetics under the Proposed Action and alternatives would not be expected and are not analyzed further in this EA.

Polychlorinated Biphenyls. Dover AFB conducted a survey of equipment potentially containing PCBs in 1989 and 1996. Since the time of the surveys, all equipment containing over 50 parts per million (ppm) PCBs has been removed (Dover AFB, 2000a). There is no federally regulated PCB equipment or PCB-contaminated equipment within the housing areas. Ballasts of older light fixtures containing PCBs may be present in the housing units. Demolition activities could result in the removal and disposal of PCB-containing light ballasts. The development contractor would be notified of the potential presence of PCBs in the light ballasts and would be responsible for managing any items containing PCBs, including maintenance, removal, and disposal, in accordance with applicable regulations. Management of PCBs in accordance with applicable regulations would preclude any significant impacts. Therefore, impacts associated with PCBs are not expected and are not analyzed further in this EA.

Radon. Radon sample results from the Eagle Heights Housing Area are below the U.S. Environmental Protection Agency's (EPA's) recommended mitigation level of 4.0 picocuries per liter (Dover AFB, 2000a). Therefore, impacts from radon would not be expected and are not analyzed further in this EA.

Medical/Biohazardous Waste. Medical/biohazardous waste has not been generated within the Eagle Heights Housing Area, and none would be generated under the Proposed Action or alternatives. Therefore, impacts from medical/biohazardous waste are not expected and are not analyzed further in this EA.

Ordnance. Ordnance has not been stored, used, or disposed within the Eagle Heights Housing Area. The Proposed Action and alternatives would not require the use of ordnance. Therefore, impacts from ordnance are not expected and are not analyzed further in this EA.

Radioactive Materials. Radioactive materials have not been stored, used, or disposed within the Eagle Heights Housing Area. The Proposed Action and

alternatives would not require the use of radioactive materials. Therefore, impacts from radioactive materials are not expected and are not analyzed further in this EA.

Cultural Resources. Within the Eagle Heights Housing Area where privatization activities (i.e., demolition and construction activities) will occur, there are no historic buildings or structures and no prehistoric or historic archaeological properties. No cultural resources are expected to be affected under the Proposed Action.

In the event that archaeological resources are unexpectedly uncovered during the course of demolition or construction activities, the Dover AFB Cultural Resources Manager would be notified and appropriate actions would be taken in accordance with the procedures outlined in the Dover Air Force Base Integrated Cultural Resources Management Plan. Therefore, impacts to cultural resources are not expected and are not analyzed further in this EA.

Environmental Justice. No socioeconomic impacts are expected under the Proposed Action and alternatives. In addition, no significant environmental impacts were identified on or off base under the Proposed Action and alternatives. No significant impacts to off-base populations would occur. Based on these findings, impacts to low-income and minority populations are not expected and are not analyzed further in this EA.

1.4 FEDERAL, STATE, AND LOCAL PERMITS, LICENSES, AND FEES

The contractor responsible for conducting demolition and construction activities would obtain required federal, state, and local permits. This includes, but is not necessarily limited to, a Construction Site Storm Water National Pollutant Discharge Elimination System (NPDES) permit for construction areas. The contractor would cooperate with the Air Force to ensure compliance with applicable Air Force, federal, state, and local regulations and/or requirements.

1.5 RELATED ENVIRONMENTAL DOCUMENTS

The documents listed below have been prepared for Dover AFB. These documents provided supporting information for the environmental analysis contained within this EA.

The Housing Requirements and Market Analysis 2003-2008 was prepared in 2003 to determine the total MFH requirement for personnel at Dover AFB (Parsons Corporation, 2003). The U.S. Government has the responsibility to ensure that personnel at the installation have access to acceptable housing. Acceptable housing is defined by the Air Force as affordable, within a reasonable commute, of good quality, and with a proper number of bedrooms for a family. Based on the findings of the HRMA, the Dover AFB housing requirement is 980 units; therefore, there is a potential surplus of 242 MFH units within the Eagle Height Housing Area at Dover AFB.

1 The Final Environmental Assessment for the Eagle Meadows and 152 Eagle
2 Heights Units, Military Family Housing Privatization, Dover Air Force Base (Dover
3 AFB, 2003e) analyzed the potential environmental impacts from privatizing MFH
4 units within the Eagle Meadows and Eagle Heights housing areas at Dover AFB.
5 This EA addresses the lease of the land and conveyance of the housing units
6 within these housing areas and provides baseline information for the affected
7 environment within the MFH areas. However, the Air Force has since decided to
8 convey the land and housing units at Eagle Meadows rather than leasing the
9 land. Based on the analysis, there are no threatened or endangered species, no
10 cultural resources, and the area is not within a flood zone; therefore, the findings
11 presented in the EA/FONSI are valid with regard to potential impacts to the Eagle
12 Meadows housing area from conveyance or lease of the land.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The Proposed Action includes the activities associated with the MFH Revitalization Project at Dover AFB. Activities associated with the project will be discussed in three subsections: Housing, Infrastructure and Utilities, and Landscaping, Common Areas, and Recreational Facilities. Project activities would include demolition and construction of MFH units within the Eagle Heights Housing Area on Dover AFB. The Proposed Action and alternatives are described in this chapter.

Under the Proposed Action, the Air Force would convey all of the existing MFH units to a development contractor for demolition and replacement. The Air Force would lease the land to the contractor, but would retain ownership. The land that MFH units occupy would be leased to the contractor for up to 50 years for construction of new MFH units and long-term maintenance and operation of the MFH area. Infrastructure, including utilities, would also be conveyed to the contractor. The contractor would finance, plan, design, and construct improvements, as well as own and manage the MFH units.

The Proposed Action and Alternatives analyzed in this EA were selected because they met all of the selection criteria for the MFH revitalization project for Dover AFB. These criteria include:

- Comply with the OSD DPG requirement to revitalize, divest through privatization, or demolish inadequate housing by or before FY 2010
- Meet the housing requirement identified in the HRMA (i.e., 980 units on base)
- Meet the minimum family housing requirement (Floor Requirement) as established in the HRMA:
 - Provide housing for 10 percent of the military family housing requirement by grade
 - Provide housing for all key and essential military and civilian personnel
 - Preserve U.S. Government-owned housing units listed on or eligible for the National Register of Historic Places
 - Provide housing for personnel whose regular military compensation is less than 50 percent of the local median family income.
- Provide housing in a community where military families will chose to live.

2.1 DESCRIPTION OF THE PROPOSED ACTION

2.1.1 Housing

The Proposed Action would include demolition of 1,010 units and the construction of 768 units within the Eagle Heights Housing Area (Figure 2-1). The Eagle Heights Housing Area contains 1,010 MFH units and 212 units that are currently being constructed; the 212 units being constructed would remain in place for the development contractor. Project activities would begin in 2005, and demolition and construction activities would be completed within 5 years of transaction closing (Table 2-1). Dover AFB would specify certain requirements for the MFH areas, such as minimum square footage for each type of unit and the minimum number and type of amenities (e.g., tot lots, picnic areas). The schedule for project activities, configuration of the housing area, design of housing units, and the incorporation of supplemental amenities to enhance the quality of life would be determined by the Air Force and development contractor.

Table 2-1. Proposed Action, Proposed Demolition and Construction (Housing Units)

Fiscal Year	Current	FY 05	FY 06	FY 07	FY 08	FY 09	Total
Demolition		200	200	200	200	210	1,010
Construction		0	192	192	192	192	768
Total Units ^(a)	1,222	1,022	1,014	1,006	998	980	

Notes: (a) Includes 212 housing units currently being constructed.

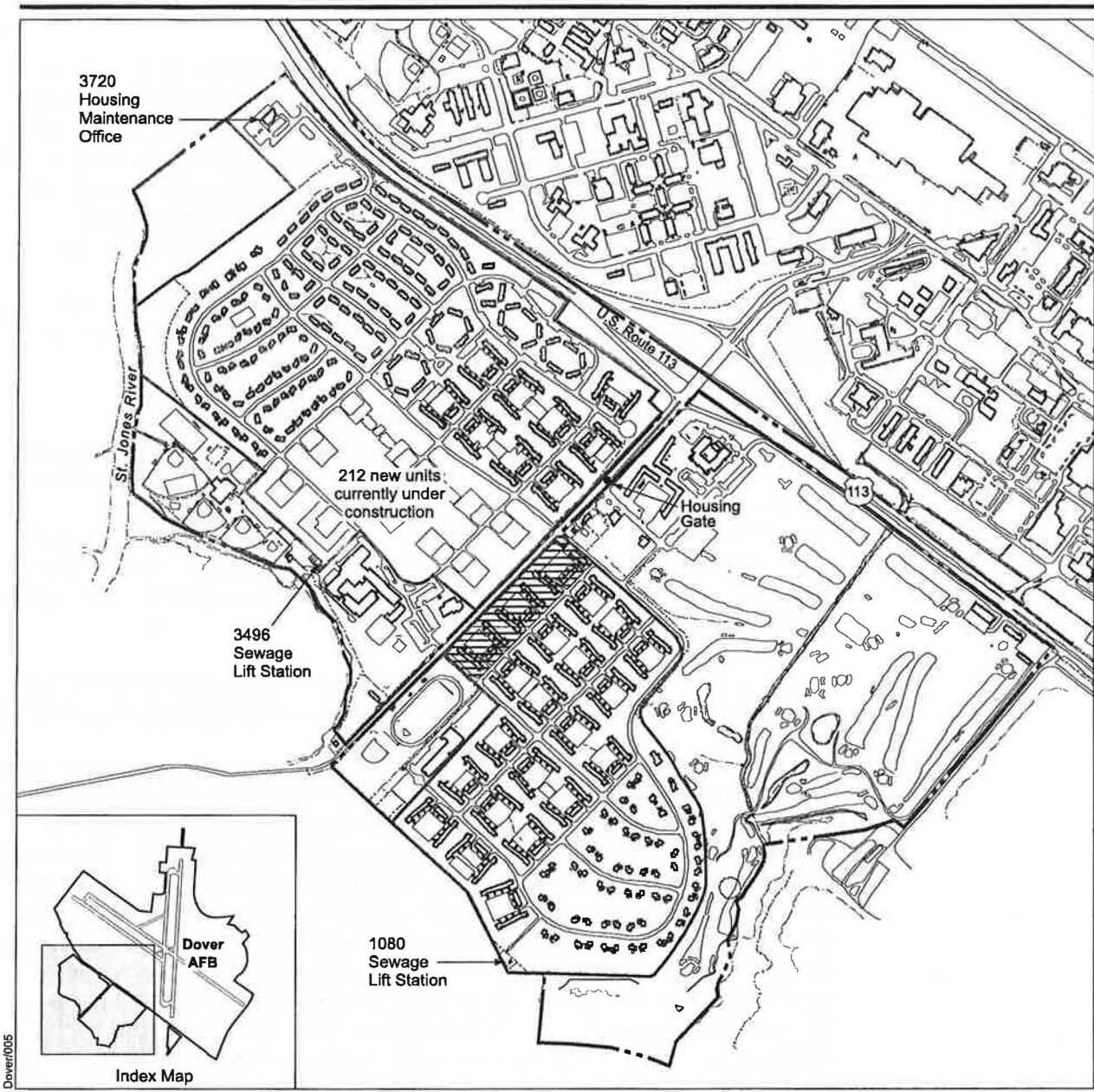
FY = fiscal year

2.1.1.1 Demolition.

The Proposed Action would require the demolition of 1,010 MFH units within the Eagle Heights Housing Area. It has not been determined which units would be demolished each year; however, these activities would be scheduled to minimize or avoid displacement of residents by the prudent scheduling of construction activities and the routine transfer of personnel to and from Dover AFB.

The 212 units currently being constructed would remain in place (see Figure 2-1). The MFH units to be demolished were constructed between 1956 and 1957. The Eagle Heights Housing Area is approximately 250 acres in size; approximately 205 acres would be disturbed during demolition activities. After demolition activities are complete, most of the area would be redeveloped for residential purposes; the area north of the football field and east of Lebanon Road would be developed for a youth center and Temporary Living Facility (TLF) (see Figure 2-1). It is assumed that the paved areas and existing utilities would not be demolished.

There are three non-residential facilities within the Eagle Heights Housing Area: the Housing Maintenance Office (Facility 3720) and two sewage lift stations (Facilities 1080 and 3496). These facilities would remain in their present condition with no improvements.



EXPLANATION

- Base Boundary
- Housing Privatization Areas
- Areas to be Demolished
- Property returned to Air Force after demolition for construction of Youth Center and TLF

0 250 500 1000 Feet



Proposed Action

Figure 2-1

2.1.1.2 Construction.

The Proposed Action includes the construction of 768 MFH units at Dover AFB. The specific location of the new housing units would be determined by the Air Force and development contractor. Although no specific plans or layout for the housing units have been determined, for the purposes of analysis it is assumed that development would occur within the existing housing area and the existing paved areas and utilities would be utilized to the greatest extent possible. Therefore, construction of new roadways and utility lines would not be required.

Under the Proposed Action, a portion of land north of the football field within the Eagle Heights Housing Area would be redeveloped as a youth center and a TLF. These new facilities would remain Air Force property.

Construction Practice Requirements. In accordance with the MFH revitalization requirements, there is a minimum requirement of three-bedroom units for newly constructed housing. Three-bedroom housing units would be a minimum of 1,630 and a maximum of 2,300 square feet in size. At the completion of project activities, there will be a total of 980 MFH units on Dover AFB. Housing units may be constructed as a combination of single-family units, multifamily duplex units, or townhouses. No stacked units (dwelling units above each other) would be constructed.

Traffic associated with the demolition and construction of housing units would enter the housing area from Highway 113 at the Housing Gate (see Figure 2-1).

The contractor would be required to transport and dispose all hazardous material, construction debris, and hazardous waste (including nonregulated waste such as used motor oil) off site to approved or permitted facilities in accordance with federal, state, and local regulations. The contractor would be required to maintain a hazardous waste accumulation point and designate an individual responsible for the management of the site, including the certification, administration, and removal of hazardous wastes. If a spill occurs during activities conducted by the contractor, the spill would be cleaned up immediately by the contractor. If ACM, lead-based paint, or other hazardous materials are identified in areas proposed for demolition, abatement, removal, and disposal would be conducted by the development contractor in accordance with applicable federal, state, and local regulations.

2.1.2 Infrastructure and Utilities

New housing units would be connected to existing utility infrastructure (i.e., natural gas, electric, water, wastewater) through construction of new utilities lines. The housing units would temporarily be connected to the Dover AFB utility systems; however, the housing units would be removed from Dover AFB connections within 5 years of the completion of privatization activities. Infrastructure such as roads, parking areas, sidewalks, street lighting, utilities, and storm water drainage systems within the Eagle Heights Housing Area would be conveyed to the contractor who would be responsible for their operation and maintenance. New access roads to provide direct access between off-base

1 areas and the Eagle Heights Housing Area would not be necessary. The access
2 point from off base is in place.

3 4 **2.1.3 Landscape, Common Areas, and Recreational Facilities**

5
6 Landscaping would be provided within the Eagle Heights Housing Area. Where
7 new MFH units will be constructed, existing healthy landscaping would be
8 retained as much as possible during demolition and construction activities. The
9 area around each housing unit and common areas would be landscaped. The
10 landscaping design and types of plants and materials used would be determined
11 by the Air Force and development contractor and would abide by the Base
12 Beautification Memo.

13
14 Recreational facilities would be configured into the housing areas. These
15 facilities would include tot lots and playgrounds. The design and locations of
16 these facilities would be determined by the development contractor and abide by
17 Dover AFB Instruction (DAFBI) 91-212, Dover AFB Bird/Wildlife-Aircraft Strike
18 Hazard (BASH) Program.

19 20 **2.2 ALTERNATIVES TO THE PROPOSED ACTION**

21 22 **2.2.1 Alternative 1**

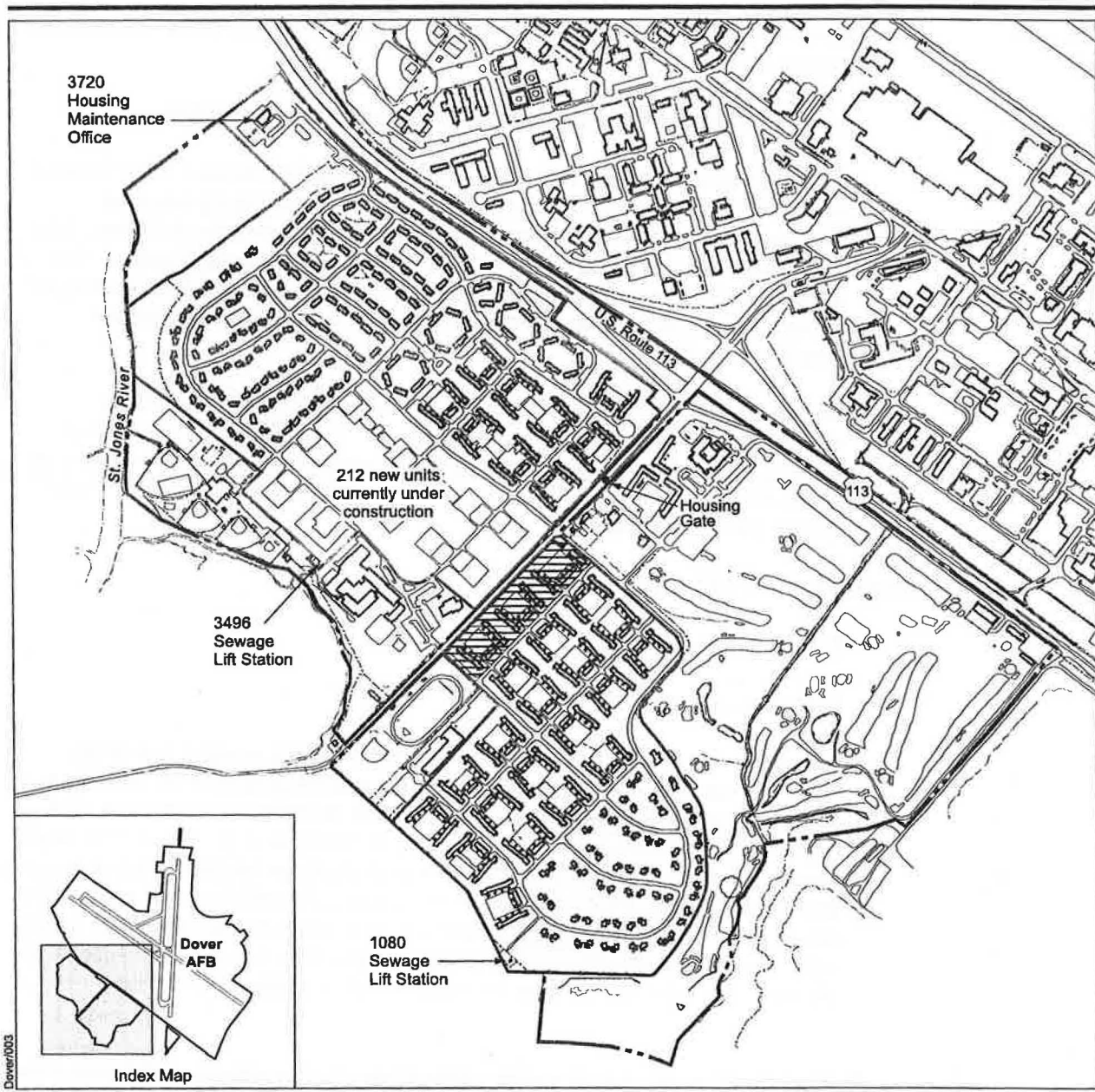
23 24 **2.2.1.1 Housing.**

25
26 Alternative 1 would include demolition of 869 MFH units, construction of 627
27 units, and renovation of 141 units within the Eagle Heights Housing Area (Figure
28 2-2). Project activities would begin in 2005, and demolition, construction, and
29 renovation activities would be completed by 2009 (Table 2-2). Dover AFB would
30 specify certain requirements for the MFH areas such as minimum square footage
31 and the minimum number and type of amenities (e.g., tot lots, picnic areas). The
32 schedule for project activities, configuration of neighborhoods, design of housing
33 units, and the incorporation of supplemental amenities to enhance the quality of
34 life would be determined by the Air Force and development contractor.

**Table 2-2. Alternative 1, Proposed Demolition, Construction, and Renovation
(Housing Units)**

Fiscal Year	Current	FY 05	FY 06	FY 07	FY 08	FY 09	Total
Demolition		175	175	175	175	169	869
Construction		125	125	125	125	127	627
Renovation		0	0	50	50	41	141
Total Units ^(a)	1,222	1,172	1,122	1,072	1,022	980	

Notes: (a) Includes 212 housing units currently being constructed.
FY = fiscal year



EXPLANATION

- Base Boundary
 - Housing Privatization Areas
 - Areas to be Demolished
 - Areas to be Renovated
 - ▨ Property returned to Air Force after demolition for construction of Youth Center and TLF
- 113 U.S. Highway

Alternative 1

Figure 2-2

1 **Demolition.** Alternative 1 would require the demolition of 869 MFH units within
2 the Eagle Heights Housing Area. It has not been determined which units would
3 be demolished each year; however, these activities would be scheduled to
4 minimize or avoid displacement of residents by the prudent scheduling of
5 construction activities and the routine transfer of personnel to and from Dover
6 AFB.

7
8 The 212 units currently being constructed and the 141 units identified for
9 renovation would remain in place (see Figure 2-2). The MFH units to be
10 demolished were constructed between 1956 and 1957. The Eagle Heights
11 Housing Area is approximately 250 acres in size; approximately 135 acres would
12 be disturbed during demolition activities. After demolition activities are complete,
13 most of the area would be redeveloped for residential purposes; the area north of
14 the football field and east of Lebanon Road would be developed for a youth
15 center and a TLF (see Figure 2-2). It is assumed that the paved areas and
16 existing utilities would not be demolished.

17
18 The three non-residential facilities within the Eagle Heights Housing Area: the
19 Housing Maintenance Office (Facility 3720) and two sewage lift stations (Facilities
20 1080 and 3496) would remain in their present condition with no improvements.

21
22 **Construction.** Alternative 1 includes the construction of 627 MFH units at Dover
23 AFB. The specific location of the new housing units would be determined by the
24 Air Force and development contractor. Although no specific plans or layout for
25 the housing units have been determined, for the purposes of analysis it is
26 assumed that development would occur within the existing housing area and the
27 existing paved areas and utilities would be utilized to the greatest extent possible.
28 Therefore, construction of new roadways and utility lines would not be required.
29 The construction practice requirements would be the same as discussed under
30 the Proposed Action.

31
32 As discussed under the Proposed Action, a portion of land north of the football
33 field within the Eagle Heights Housing Area would be redeveloped as a youth
34 center and a TLF. These new facilities would remain Air Force property.

35
36 **Renovation.** Alternative 1 would include renovation of 141 housing units. These
37 renovations include the following:

- 38 • Repair basements and foundations
- 39 • Repair drainage/grading
- 40 • Refurbish kitchens and bathrooms
- 41 • Install hard finish flooring in kitchen, dining area, wet areas, and high
- 42 traffic areas
- 43 • Replace carpet in bedrooms and other living areas
- 44 • Replace interior light fixtures

- Replace windows and roofing
- Upgrade wiring
- Install utility meters
- Add interior storage
- Construct exterior storage/expand patio
- Install storm doors
- Replace furnace and air conditioning
- Install minimum of one car garage (Dover AFB, 2003a).

These renovations would be accomplished over a 3-year period in association with proposed demolition and construction activities.

2.2.1.2 Infrastructure and Utilities.

Infrastructure and utility improvements and connections would be the same as described under the Proposed Action.

2.2.1.3 Landscape, Common Areas, and Recreational Facilities.

Landscaping, common areas, and recreational facility construction and improvements would be the same as described under the Proposed Action.

2.2.2 No-Action Alternative

Under the No-Action Alternative, the demolition and construction activities associated with the MFH Revitalization Project would not occur. The Eagle Heights Housing Area would remain in its current location with the current MFH units. No new housing units would be constructed.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

Abandon Inadequate MFH Units Alternative. This alternative would entail placing military families in off-base housing and abandoning inadequate MFH units in place. This alternative was eliminated because abandoning the housing units does not comply with the OSD DPG that inadequate housing be revitalized, divested through privatization, or demolished. Therefore, this alternative was eliminated from further consideration.

Demolish all Housing Units and Construct 980 New Housing Units Alternative. This alternative would entail demolishing all MFH units and constructing all new units. Some of the housing units (212 units) are currently being constructed and will be in excellent condition for occupation. Therefore, this alternative was eliminated from further consideration.

2.4 COMPARISON OF ENVIRONMENTAL IMPACTS

A summary of influencing factors, which are non biophysical elements such as socioeconomics, land use, aesthetics, transportation, and utility systems; hazardous materials and hazardous waste management; and potential impacts to the natural environment associated with the implementation of the Proposed Action and alternatives is provided in Table 2-3. Each resource potentially affected by the Proposed Action and alternatives are listed, and the impacts summarized. Those resources that were briefly analyzed in Chapter 1.0 and those that were determined to require additional analysis and are included in Chapters 3.0 and 4.0 are included in this table.

Table 2-3. Summary of Influencing Factors and Environmental Impacts
Page 1 of 6

Resource	Proposed Action	Alternative 1	No-Action Alternative
Influencing Factors			
Socioeconomics	<ul style="list-style-type: none"> On-base population decrease Increase in the number of military personnel and their families that live off base No significant changes in employment on the base Regional population and military payrolls within the region are not expected to change significantly No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be similar to those described under the Proposed Action 	<ul style="list-style-type: none"> No increase in population or employment No impacts are anticipated
Land Use	<ul style="list-style-type: none"> The newly vacant land within the Eagle Heights Housing Area will remain designated as residential with some recreation Future development in this area would be limited to those uses that would be compatible with residential areas No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be similar to those described under the Proposed Action No impacts are anticipated 	<ul style="list-style-type: none"> No changes in land use No impacts are anticipated
Aesthetics	<ul style="list-style-type: none"> Temporary impacts to the aesthetic quality of the area may occur during the demolition and construction activities Landscaping of common areas and housing unit perimeters would enhance the aesthetic quality of the area Housing designs would be developed with the intent of creating an attractive appearance No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be similar to those described under the Proposed Action 	<ul style="list-style-type: none"> No change to aesthetics No impacts are anticipated
Transportation	<ul style="list-style-type: none"> Traffic within the Eagle Heights Housing Area would decrease A significant increase to the morning and afternoon peak-hour traffic volume at the installation access gate is not anticipated A significant decrease in the level of service on roadways surrounding and providing access to Dover AFB is not anticipated No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be similar to those described under the Proposed Action 	<ul style="list-style-type: none"> No change in traffic volumes or patterns No impacts are anticipated

Table 2-3. Summary of Influencing Factors and Environmental Impacts

Page 2 of 6

Resource	Proposed Action	Alternative 1	No-Action Alternative
Influencing Factors (continued)			
Utilities	<ul style="list-style-type: none"> On-base utility usage is expected to decrease from current conditions Regional utility usage is not expected to change. Impacts to water, wastewater, electricity, and natural gas are not expected Demolition of 1,010 housing units would create approximately 22,240 tons of solid waste; with recycling approximately 2,107 tons would require disposal in a landfill Disposal of the 2,107 tons of debris over the 5-year duration of the project would not significantly affect the service life of the Delaware Central Solid Waste Management Center 	<ul style="list-style-type: none"> Potential impacts would be similar to those described under the Proposed Action Demolition of housing units would create approximately 17,857 tons of solid waste; with recycling approximately 1,335 tons would require disposal in a landfill Disposal of the 1,335 tons of debris over the 5-year duration of the project would not significantly affect the service life of the Delaware Central Solid Waste Management Center 	<ul style="list-style-type: none"> No change in utility usage No impacts are anticipated
Hazardous Materials and Hazardous Waste Management			
Pesticide Usage	<ul style="list-style-type: none"> Pesticide application would be conducted by the development contractor Pesticide application practices and types of pesticides applied would not change It is likely that chlordane was applied within the Eagle Heights Housing Area The development contractor would sample soils for the presence of chlordane prior to disturbing the soil. If chlordane is present, the development contractor would be required to prepare a health and safety plan that would address potential hazards to workers and residents from contaminated soil during demolition and construction activities The contractor/developer would be responsible for properly characterizing and managing the soil in accordance with federal and state regulations No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> No change in pesticide use No impacts are anticipated

Table 2-3. Summary of Influencing Factors and Environmental Impacts

Page 3 of 6

Resource	Proposed Action	Alternative 1	No-Action Alternative
Hazardous Materials and Hazardous Waste Management (continued)			
Polychlorinated Biphenyls	<ul style="list-style-type: none"> • Light ballasts of older light fixtures containing PCBs may be present in the housing units • The development contractor would be notified of the potential presence of PCBs in the light ballasts and would be responsible for managing any items containing PCBs in accordance with applicable regulations • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • No change in PCB status • No impacts are anticipated
Medical/Biohazardous Waste	<ul style="list-style-type: none"> • Medical/biohazardous waste would not be generated within the Eagle Heights Housing Area • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action
Ordnance	<ul style="list-style-type: none"> • Ordnance would not be stored, used, or disposed within the Eagle Heights Housing Area • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action
Radioactive Materials	<ul style="list-style-type: none"> • Radioactive materials have not been stored, used, or disposed of within the MFH area and none would be required • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action
Hazardous Materials/Hazardous Waste Management	<ul style="list-style-type: none"> • Hazardous materials and hazardous waste would continue to be stored, used, and disposed in accordance with applicable regulations • Provisions would be included in the contract between the Air Force and the contractor to ensure continued regulatory compliance • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • Hazardous materials and waste would continue to be stored, used, and generated by the housing maintenance contractor, in accordance with applicable regulations • No impacts are anticipated
Environmental Restoration Program Sites	<ul style="list-style-type: none"> • There are no ERP sites within the Eagle Heights Housing Area • The groundwater plume from the adjacent ERP site Target Area 1 flows beneath the Eagle Heights Housing Area. The Air Force will retain the right of access for any remediation activities • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action

Table 2-3. Summary of Influencing Factors and Environmental Impacts

Page 4 of 6

Resource	Proposed Action	Alternative 1	No-Action Alternative
Hazardous Materials and Hazardous Waste Management (continued)			
Storage Tanks	<ul style="list-style-type: none"> The 37 ASTs associated with the housing units and the ASTs at Building 3720 and Building 1080 would be privatized and conveyed to the contractor Proper management of these ASTs would minimize the potential for impacts No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> Management of the ASTs and USTs within the Eagle Heights Housing Area would remain the responsibility of the Air Force No impacts are anticipated
Asbestos-Containing Material	<ul style="list-style-type: none"> ACM would likely be encountered during demolition activities Demolition activities would be subject to applicable federal, state, and local regulations to minimize the potential risk to human health and the environment The development contractor would be advised, to the extent known, of the type, condition, and amount of ACM present within housing units conveyed No impacts are anticipated 	<ul style="list-style-type: none"> Potential ACM impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> The Air Force would continue to be responsible for management of ACM, and would continue to manage ACM in accordance with Air Force policy and applicable regulations No impacts are anticipated
Lead-Based Paint	<ul style="list-style-type: none"> Lead-based paint would likely be encountered during demolition activities Demolition activities would be subject to applicable federal, state, and local regulations to minimize the potential risk to human health and the environment The development contractor would be advised, to the extent known, of the type, condition, and amount of lead-based paint present within housing units conveyed No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> The Air Force would continue to be responsible for management of lead-based paint, and would continue to manage lead-based paint in accordance with its own policy and applicable regulations No impacts are anticipated
Radon	<ul style="list-style-type: none"> Radon sample results from MFH units at Dover AFB are below the U.S. EPA's recommended mitigation level of 4.0 picocuries per liter No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action

Table 2-3. Summary of Influencing Factors and Environmental Impacts

Page 5 of 6

Resource	Proposed Action	Alternative 1	No-Action Alternative
Natural Environment			
Geology and Soils	<ul style="list-style-type: none"> • Short-term impacts would occur as a result of ground disturbance associated with construction activities • Compliance with Construction Site Storm Water NPDES permit and SWPPP and implementation of standard construction practices would reduce the potential for erosion effects • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • No new construction or demolition of existing facilities would occur • No impacts are anticipated
Water Resources	<ul style="list-style-type: none"> • Temporary impacts in surface water drainage patterns may occur during construction activities • Effects of increased runoff to surface water would be reduced through compliance with the Construction Site Storm Water NPDES permit and the SWPPP • No impacts are anticipated 	<ul style="list-style-type: none"> • Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> • No new construction or demolition of existing facilities would occur • No impacts are anticipated
Air Quality	<ul style="list-style-type: none"> • Construction and demolition activities would result in short-term air quality impacts • Watering of the construction areas, dust suppressants, and monitored speeds on unpaved roads could be used to reduce emissions of dust and particulate matter • Emissions associated with the revitalization activities would not hinder maintenance of the NAAQS 	<ul style="list-style-type: none"> • Potential impacts would be similar to those described under the Proposed Action 	<ul style="list-style-type: none"> • No new construction or demolition of existing facilities would occur • No impacts are anticipated

Table 2-3. Summary of Influencing Factors and Environmental Impacts

Page 6 of 6

Resource	Proposed Action	Alternative 1	No-Action Alternative
Natural Environment (Continued)			
Noise	<ul style="list-style-type: none"> Housing units within the DNL 65-70 dB noise contour would be demolished and reconstructed with appropriate NLR features to achieve an outdoor to indoor NLR of 20 to 25 dB The 212 housing units that are currently being constructed incorporate features to achieve appropriate outdoor to indoor NLR Noise generated from revitalization activities would be intermittent and short term, and would primarily occur at the construction site Once revitalization activities are completed, proposed activities (i.e., residential) would not generate a substantial amount of noise No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be similar to those described under the Proposed Action 	<ul style="list-style-type: none"> No change to the noise environment No impacts are anticipated
Biological Resources	<ul style="list-style-type: none"> Demolition and construction activities would create a short-term impact to wildlife Most species within the Eagle Heights Housing Area are common and are disturbance-tolerant No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> Demolition and construction would not occur No impacts are anticipated
Cultural Resources	<ul style="list-style-type: none"> There are no prehistoric or historic archaeological properties, historic buildings and structures, or traditional resources within the Eagle Heights Housing Area No impacts are anticipated 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> There are no prehistoric or historic archaeological properties, historic buildings and structures, or traditional resources within the Eagle Heights Housing Area No impacts are anticipated
Environmental Justice	<ul style="list-style-type: none"> No significant environmental impacts were identified on or off base; therefore, impacts to low-income and minority populations are not expected 	<ul style="list-style-type: none"> Potential impacts would be the same as those described under the Proposed Action 	<ul style="list-style-type: none"> No new construction or demolition of existing facilities would occur No impacts are anticipated

ACM = asbestos-containing material
 AFB = Air Force Base
 AST = aboveground storage tank
 dB = decibel
 DNL = day-night average sound level
 EPA = Environmental Protection Agency
 ERP = Environmental Restoration Program

MFH = military family housing
 NAAQS = National Ambient Air Quality Standards
 NLR = noise level reduction
 NPDES = National Pollutant Discharge Elimination System
 PCB = polychlorinated biphenyl
 SWPPP = Storm Water Pollution Prevention Plan
 UST = underground storage tank

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3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter describes the existing environmental conditions at the Eagle Heights Housing Area at Dover AFB. It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from demolition and construction of MFH units within the Eagle Heights Housing Area. The environmental components addressed include relevant natural or human environments likely to be affected by the Proposed Action and alternatives.

Based upon the nature of the activities that would occur under the Proposed Action and alternatives, it was determined that the potential exists for the following resources to be affected or to create environmental effects: utilities (solid waste), hazardous materials management, hazardous waste management, ERP sites, storage tanks, pesticide usage, ACM, lead-based paint, geology and soils, water resources, air quality, noise, and biological resources.

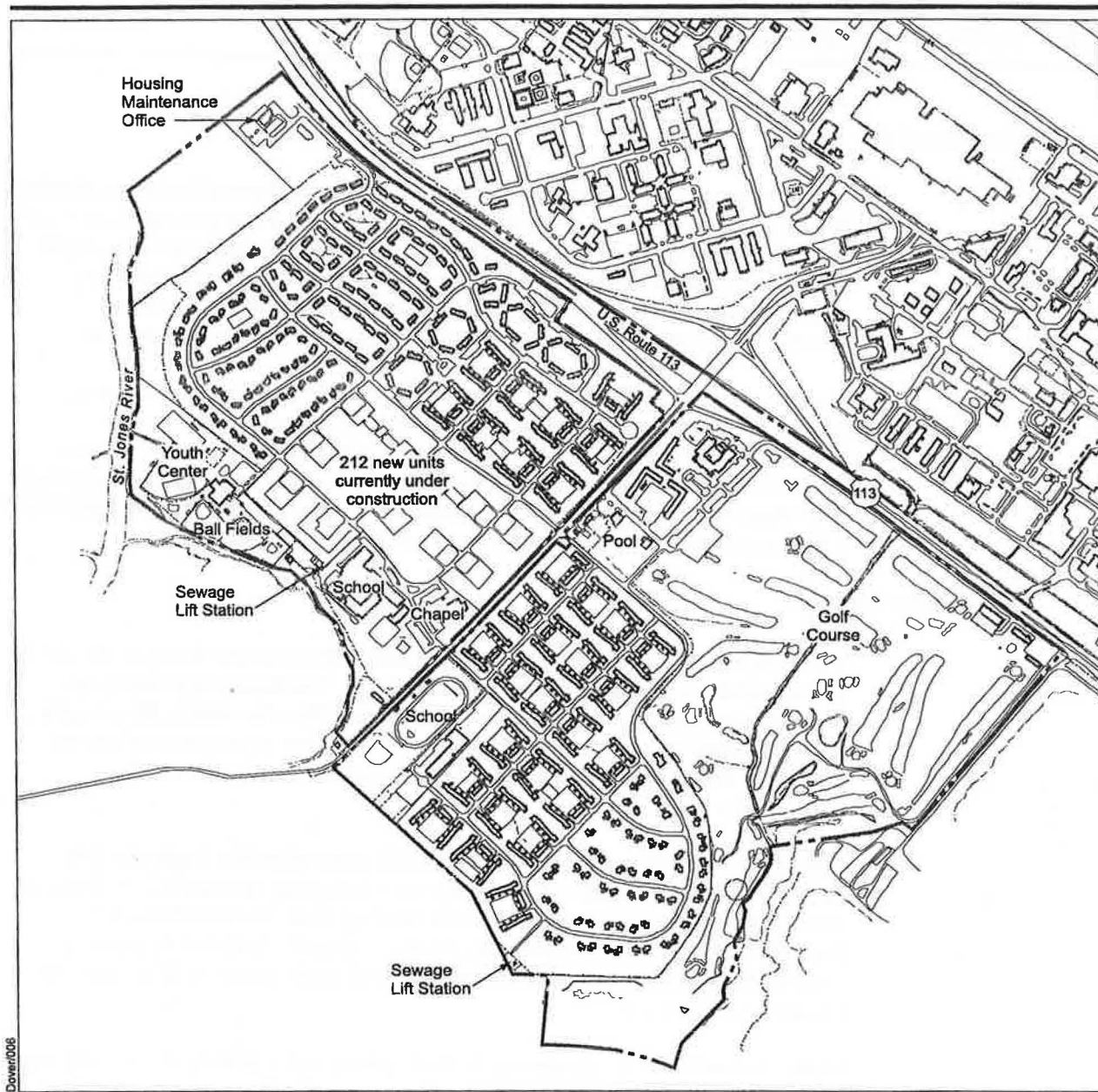
3.2 COMMUNITY SETTING

Dover AFB is in central Delaware partially within the corporate limits of the city of Dover and unincorporated areas of Kent County. The base is approximately 90 miles south of Philadelphia, Pennsylvania, and 90 miles east of Washington, DC (see Figure 1-1). The Eagle Heights Housing Area covers approximately 250 acres and is situated south of the main base across Highway 113 (Figure 3-1).

The Dover AFB MFH property contains 1,222 units within the Eagle Heights Housing Area (see Figure 3-1). There is also a housing maintenance office and two sanitary sewer lift stations within the housing area. In the vicinity of the housing area (but excluded from the privatization action) are two schools, a chapel, shoppette, golf course, community pool, youth center, and recreational fields (see Figure 3-1).

Dover AFB is home to approximately 3,772 personnel and their dependants who live on base in the MFH units and dormitories or within the local communities surrounding the base. The primary local communities include the city of Dover, Frederica, Little Creek, Magnolia, and Bowers Beach. The Dover AFB workforce consists of approximately 6,985 military personnel and civilian employees (Dover AFB, 2000a).

The region of influence (ROI) to be studied will be defined for each resource area affected by the proposed project. The ROI determines the geographical area to be addressed as the Affected Environment. Although the Eagle Heights Housing Area boundary may constitute the ROI limit for some resources, potential impacts associated with certain issues (e.g., air quality) transcend these limits.



Dover/006

EXPLANATION

- Base Boundary
- Housing Privatization Area

Eagle Heights Housing Area and Vicinity



Figure 3-1

3.2.1 Utilities

Solid waste is discussed in this section. The ROI for solid waste includes the service area for the provider that serves the Eagle Heights Housing Area. The major attributes of solid waste include processing, daily/annual disposal, and landfill capacities. These factors are used to determine whether the existing solid waste disposal facilities are capable and adequate to provide services.

Because the Dover AFB housing population would be reduced by approximately 240 families, on-base utility usage is expected to decrease from current conditions. Because these families would be relocated into surrounding communities, regional utility usage is not expected to change. Therefore, impacts to utilities (water, wastewater, electricity, and natural gas) are not expected and are not analyzed further in this EA.

3.2.1.1 Solid Waste.

There are no operating landfills within the Eagle Heights Housing Area. Solid wastes are collected by a private contractor and transported to the Central Delaware Solid Waste Authority Landfill in Sandtown, Delaware. Recyclable materials such as magazines, paper, glass, plastic, and aluminum cans are removed by contractors to recycling centers off base. Industrial materials that can be recycled, including cardboard, scrap metal, and scrap wood, are also collected by a private contractor for recycling (Dover AFB, 2000a).

3.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Dover AFB are governed by specific environmental regulations. For the purposes of analysis, the term "hazardous materials" will refer to those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601, et seq., as amended, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901-6992, as amended. In general, these include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment when released into the environment.

The ROI for hazardous materials and hazardous waste encompasses those areas that could potentially be exposed to a release during demolition and construction activities within the Eagle Heights Housing Area.

3.3.1 Hazardous Materials Management

Dover AFB has an Integrated Contingency Plan that was prepared in accordance with 40 CFR 112. The base also has a Hazardous Materials Plan that includes a hazard analysis for hazardous materials at specific locations throughout the installation. These plans cover hazardous materials emergency planning, training, response, and reporting, and are used to respond to releases on base.

1 The base housing facility maintenance provider occupies a facility within the
2 Eagle Heights Housing Area. The facility stores small quantities of hazardous
3 materials such as paint, adhesives, sealants, and cleaning supplies. These
4 materials are also used by housing maintenance personnel when making repairs
5 to housing units.
6

7 Small quantities of household hazardous materials (e.g., paints, household
8 cleaners) are likely to be stored by residents within the Eagle Heights Housing
9 Area.
10

11 **3.3.2 Hazardous Waste Management**

12

13 Procedures for management of hazardous waste generated at Dover AFB are
14 described in the Dover AFB Hazardous Waste and Used Petroleum Management
15 Plan. This plan fulfills the requirements in Title 40, CFR Parts 260-270, the
16 Delaware Department of Natural Resources and Environmental Control, and Air
17 Force Instruction (AFI) 32-7042, which establishes procedures to achieve and
18 maintain regulatory compliance regarding accumulation, transportation, and
19 disposal of hazardous wastes. Dover AFB has one facility for long-term storage
20 of hazardous wastes. Most hazardous waste is collected and stored for less than
21 90 days at various accumulation points on the base and then transported to the
22 long-term storage facility. Wastes are removed from the long-term storage facility
23 by a contractor (Dover AFB, 2000b).
24

25 There is a used product return area at the Housing Maintenance Office for
26 housing residents so that these items may be reused. There is also a temporary
27 accumulation area at the Housing Maintenance Office for water that is pumped
28 from the fuel oil tanks within the Eagle Heights Housing Area. This water is
29 contaminated with petroleum products and is stored in compliance with
30 hazardous waste regulations at the Dover AFB central accumulation point for
31 processing.
32

33 Small quantities of household hazardous waste may be generated by residents
34 and the housing maintenance facility; however, quantities of waste are minimal,
35 and hazardous waste restrictions and regulations for storage and disposal do not
36 apply.
37

38 **3.3.3 Environmental Restoration Program Sites**

39

40 The Installation Restoration Program (IRP) was established to identify,
41 characterize, and remediate CERCLA/RCRA-related contamination on Air Force
42 installations. The program began with a June 1980 DOD Environmental Quality
43 Program Policy Memorandum (DEQPPM 80-6) requiring identification of past
44 hazardous waste disposal sites. The program was designed to evaluate past
45 disposal sites, control the migration of contaminants, and control potential
46 hazards to human health and the environment. Since the initiation of the IRP, a
47 name change for the program has been directed. The IRP is now referred to as
48 the ERP, based upon terminology used in AFI 32-7020, Environmental

1 Restoration Program, dated February 7, 2001. The term ERP is used throughout
2 this document when discussing the program.

3
4 Dover AFB is listed on the National Priorities List (NPL) and has entered into
5 agreements governing environmental cleanups under CERCLA and/or RCRA. In
6 August 1989, a Federal Facilities Agreement (FFA) was signed to address the
7 environmental condition of Dover AFB property. The FFA is pursuant to Section
8 120 of CERCLA; Sections 6001, 3008(h), and 3004(u) and (v) of RCRA; NEPA;
9 and the Defense Environmental Restoration Program (DERP). The FFA requires
10 facility compliance with the National Oil and Hazardous Substances Pollution
11 Contingency Plan (NCP); CERCLA policy and guidance; RCRA policy and
12 guidance; and applicable state laws (Dover AFB, 2001b).

13
14 A total of 59 ERP sites have been identified at Dover AFB. These sites include
15 landfills, fire training areas, hazardous chemical and/or fuel spill or leak sites,
16 hazardous waste storage areas, storage tanks and tank farms, oil/water
17 separators, engine testing areas, paint stripping areas, a drainage ditch, a former
18 wastewater treatment plant, a sludge spreading area, and a pesticide handling
19 area. Twenty-nine of the ERP sites at Dover AFB require no further action (Dover
20 AFB, 2001b).

21
22 No ERP or AOC sites are situated within the Eagle Heights Housing Area. One
23 adjacent, ERP site, referred to as Target Area 1, affects the environmental
24 condition of the Eagle Heights Housing Area. The Area 6 groundwater plume is
25 an 80-acre area of contaminated groundwater in the Columbia Aquifer and
26 extends beneath a portion of the Eagle Heights Housing Area (Agency for Toxic
27 Substances and Disease Registry, 2003) (Figure 3-2). Target Area 1 is a source
28 area for the groundwater plume. There are three components to Target Area 1:
29 Former Industrial Waste Basins, WP021, and SS059 (U.S. Air Force, 2003).

30
31 Monitored natural attenuation has been implemented as an interim remedy for the
32 portion of the Area 6 groundwater plume under the Eagle Heights Housing Area.
33 A network of groundwater monitoring wells is situated throughout the plume, and
34 groundwater samples are taken from these wells periodically to assess the extent
35 and migration of the plume and to confirm evidence of natural attenuation. Plans
36 are currently under review by the U.S. EPA to implement an accelerated
37 anaerobic bioremediation technology, whereby a source of organic carbon (such
38 as vegetable oil or molasses) will be injected into the groundwater in Target Area
39 1 to accelerate the rate of biodegradation of the contamination. Some carbon
40 injection activities will take place in the Eagle Heights Housing Area over the next
41 5 years, but such activities will be limited to grassy areas and parking lots, with
42 minimal disruption to residents.

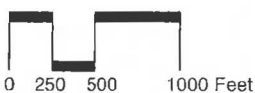
43 44 **3.3.4 Storage Tanks**

45
46 The U.S. EPA has issued federal regulations related to underground storage
47 tanks (USTs) in 40 CFR Parts 280 and 112. Aboveground storage tanks (ASTs)
48 are subject to regulation under the Clean Water Act (CWA) (33 U.S.C. Sections
49 1251-1578) and the Oil Pollution Act (specifically, 40 CFR Part 112). The



EXPLANATION

- Base Boundary
- Housing Area Boundary
- Groundwater Plume (TCE)



Source: Dover AFB, 2003d; U.S. Air Force, 2003

Area 6 Groundwater Plume

Figure 3-2

operation and construction of ASTs is subject to National Fire Protection Association fire codes and the Uniform Fire Code. The base maintains an Integrated Contingency Plan, which establishes responsibilities and provides prevention guidelines, as well as contingency plans, for use in the event of a release.

Dover AFB also complies with the recently passed Jeffrey Davis Aboveground Storage Tank Act, which requires owners of ASTs to register their tanks with the Delaware Department of Natural Resources and Environmental Control, maintain records about the condition of tanks, file inspection reports when a tank is emptied for maintenance, repair, or removal, and report any spills.

There are 41 ASTs and 20 USTs within the Eagle Heights Housing Area that contain fuel oil to heat several of the housing units (Tables 3-1 and 3-2, Figure 3-3). Thirty-nine of the ASTs are associated with housing units. The ASTs are within the basements of the housing units or in the back yards (housing units 3579 and 3581) and are 250 or 275-gallon tanks containing heating fuel for heating the units. Two additional ASTs within the nonresidential areas of the Eagle Heights Housing Area include one AST adjacent to the Housing Maintenance Office (a 1,000-gallon tank containing heating fuel) and one AST at a sewage lift station (a 55-gallon tank containing diesel fuel). There are also four locations where ASTs have been removed.

The 20 USTs that are situated within the Eagle Heights Housing Area are either 1,000-gallon or 1,500-gallon capacity tanks containing fuel oil. In addition, 32 USTs have been removed from the Eagle Heights Housing Area (see Table 3-2 and Figure 3-3). Although USTs with a capacity of 1,500 gallons or greater are eligible for regulation by the State of Delaware, they are exempted from state regulation under 42 U.S.C. Section 6991 (1)(B). This federal law exempts USTs of any volume that are used to store fuel oil for heating structures on the premises from state regulation (Dover AFB, 2003e). The USTs within the Eagle Heights Housing Area are scheduled to be removed and replaced with ASTs by April 2004.

3.3.5 Pesticide Usage

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. Sections 136-136y) regulates the registration and use of pesticides. Pesticide management activities are subject to federal regulations contained in 40 CFR Parts 162, 165, 166, 170, and 171. Pesticide usage at Dover AFB is coordinated by the 436th Civil Engineering Squadron (CES) Pest Management Shop in accordance with the Installation Pest Management Plan. Only pesticides identified on the Armed Forces Pest Management Board (AFPMB) Standard Pesticides List Available to DOD Components and Agencies may be utilized. Only authorized and certified personnel are permitted to apply pesticides. Pesticides are no longer used for preventative measures. Instead, physical processes (e.g., caulking of screens, cleanliness, etc.) are recommended to prevent infestations of nuisance pests.

Table 3-1. Aboveground Storage Tanks

Building Number/Unit	Capacity (gallons)	Contents	Status
3221B	275	Heating Fuel	Active
3225A	275	Heating Fuel	Active
3326A	275	Heating Fuel	Active
3328A	275	Heating Fuel	Active
3330A	275	Heating Fuel	Active
3421B	275	Heating Fuel	Active
3423B	275	Heating Fuel	Removed
3424A	275	Heating Fuel	Active
3424B	275	Heating Fuel	Active
3425B	275	Heating Fuel	Active
3426A	275	Heating Fuel	Active
3426B	275	Heating Fuel	Active
3536B	275	Heating Fuel	Removed
3537A	275	Heating Fuel	Removed
3538B	275	Heating Fuel	Active
3541B	275	Heating Fuel	Active
3542B	275	Heating Fuel	Active
3543A	275	Heating Fuel	Active
3545B	275	Heating Fuel	Active
3550B	275	Heating Fuel	Active
3551A	275	Heating Fuel	Active
3551B	275	Heating Fuel	Active
3553A	275	Heating Fuel	Active
3559B	275	Heating Fuel	Active
3561A	275	Heating Fuel	Active
3561B	275	Heating Fuel	Active
3567A	275	Heating Fuel	Active
3579A	250	Heating Fuel	Active
3579B	250	Heating Fuel	Active
3579C	250	Heating Fuel	Active
3579D	250	Heating Fuel	Active
3581A	250	Heating Fuel	Active
3581B	250	Heating Fuel	Active
3602A	275	Heating Fuel	Active
3602B	275	Heating Fuel	Removed
3608A	275	Heating Fuel	Active
3608B	275	Heating Fuel	Active
3609B	275	Heating Fuel	Active
3700A	275	Heating Fuel	Active
3703A	275	Heating Fuel	Active
3705A	275	Heating Fuel	Active
3708B	275	Heating Fuel	Active
3713A	275	Heating Fuel	Active
1080	55	Diesel	Active
3720	1,000	Heating Fuel	Active

Source: Dover AFB, 2003g.

Table 3-2. Underground Storage Tanks

Page 1 of 2

Building Number/Unit	Capacity (gallons)	Contents	Status	Notes
1109	1,000	Heating Fuel	Removed	Removed 4/02
1110	1,000	Heating Fuel	Removed	Removed 4/02
1113	1,000	Heating Fuel	Removed	Removed 11/01
1114	1,000	Heating Fuel	Removed	Removed 11/01
3209	1,000	Heating Fuel	Removed	Removed 11/01
3211	1,000	Heating Fuel	Removed	Removed 11/01
3212	1,000	Heating Fuel	Active	To be removed in 1/04
3213	1,000	Heating Fuel	Removed	Removed 11/01
3214	1,000	Heating Fuel	Active	To be removed in 1/04
3215	1,000	Heating Fuel	Removed	Removed 11/01
3216	1,000	Heating Fuel	Active	To be removed in 1/04
3218	1,000	Heating Fuel	Active	To be removed in 1/04
3220	1,000	Heating Fuel	Active	To be removed in 1/04
3222	1,000	Heating Fuel	Active	To be removed in 1/04
3224	1,000	Heating Fuel	Active	To be removed in 1/04
3228	1,000	Heating Fuel	Active	To be removed in 1/04
3230	1,000	Heating Fuel	Active	To be removed in 3/04
3232	1,500	Heating Fuel	Active	To be removed in 3/04
3234	1,500	Heating Fuel	Active	To be removed in 3/04
3238	1,500	Heating Fuel	Active	To be removed in 3/04
3240	1,500	Heating Fuel	Active	To be removed in 3/04
3242	1,500	Heating Fuel	Active	To be removed in 3/04
3244	1,000	Heating Fuel	Removed	Removed 6/03
3246	1,000	Heating Fuel	Removed	Removed 4/02
3300	1,000	Heating Fuel	Removed	Removed 4/01
3301	1,000	Heating Fuel	Removed	Removed 4/02
3303	1,000	Heating Fuel	Removed	Removed 4/01
3304	1,000	Heating Fuel	Removed	Removed 4/01
3311	1,000	Heating Fuel	Removed	Removed 11/01
3313	1,000	Heating Fuel	Removed	Removed 11/01
3315	1,000	Heating Fuel	Removed	Removed 4/01
3316	1,000	Heating Fuel	Removed	Removed 11/01
3317	1,000	Heating Fuel	Removed	Removed 4/01
3318	1,000	Heating Fuel	Removed	Removed 11/01
3320	1,000	Heating Fuel	Removed	Removed 4/02
3402	1,000	Heating Fuel	Removed	Removed 4/02
3404	1,000	Heating Fuel	Removed	Removed 4/02
3410	1,000	Heating Fuel	Removed	Removed 4/02
3412	1,000	Heating Fuel	Removed	Removed 4/02
3417	1,000	Heating Fuel	Removed	Removed 11/01
3420	1,000	Heating Fuel	Removed	Removed 4/01
3519	1,000	Heating Fuel	Removed	Removed 4/01
3521	1,000	Heating Fuel	Removed	Removed 4/01
3532	1,000	Heating Fuel	Removed	Removed 11/01
3554	1,000	Heating Fuel	Active	To be removed in 3/04
3556	1,000	Heating Fuel	Active	To be removed in 3/04
3571	1,000	Heating Fuel	Active	To be removed in 3/04

Table 3-2. Underground Storage Tanks
Page 2 of 2

Building Number/Unit	Capacity (gallons)	Contents	Status	Notes
3575	1,500	Heating Fuel	Active	To be removed in 3/04
3577	1,000	Heating Fuel	Active	To be removed in 3/04
3579	1,500	Heating Fuel	Inactive	To be removed in 1/04
3583	1,000	Heating Fuel	Removed	Removed 6/03
3583	1,000	Heating Fuel	Removed	Removed 6/03

Source: Dover AFB, 2003f, 2003o.

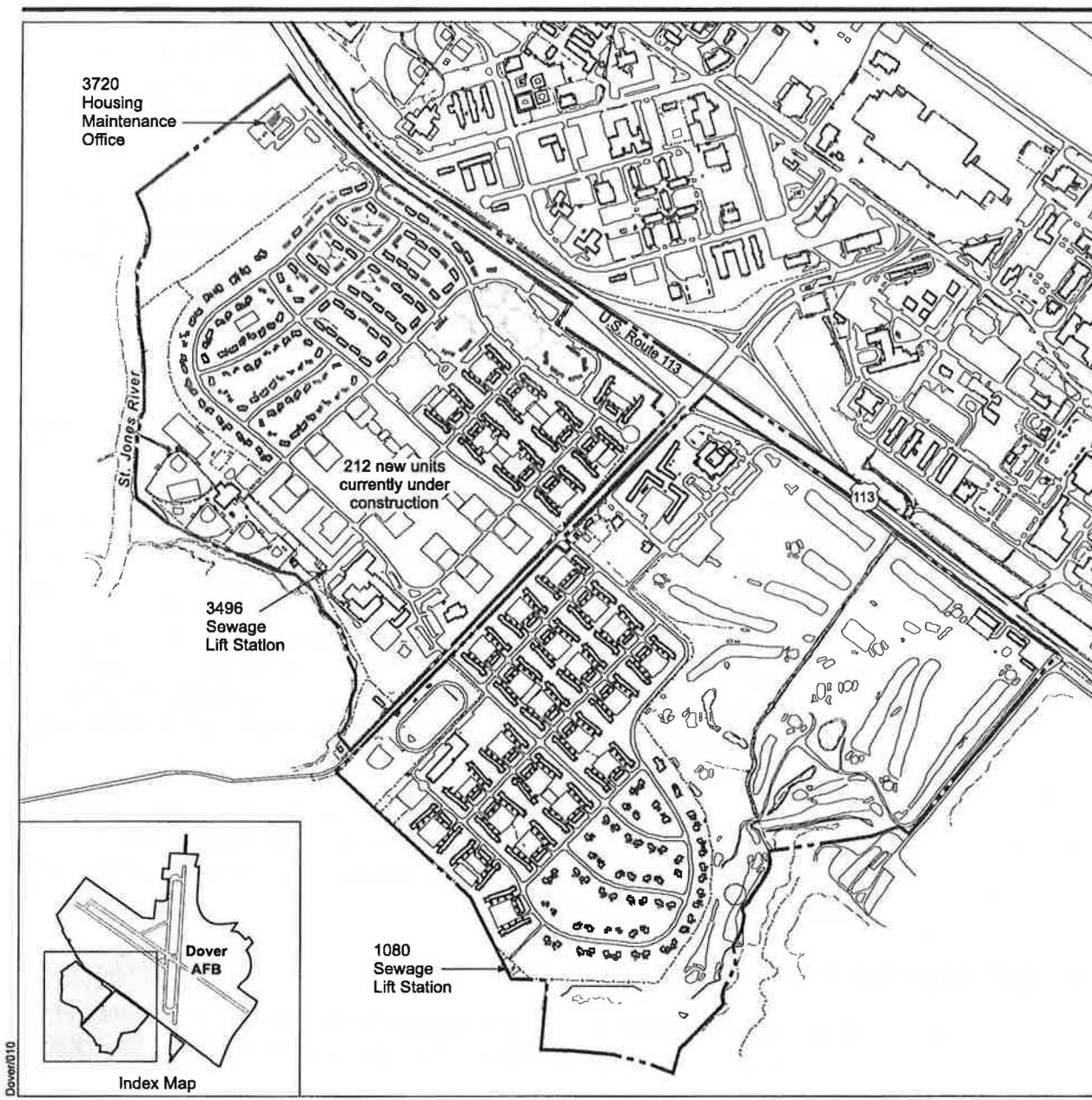
Pest management personnel adhere to the pesticide label directions when handling all pesticides. The 436th CES Pest Management Shop provides treatment for all base buildings and housing areas and maintain and monitor files of building and home treatments.

In 2001, soil samples were collected in the vicinity of 12 housing structures that were scheduled for demolition. Of the 27 soil samples collected, only two exhibited pesticide concentrations above the U.S. EPA Region III Risk-Based Concentration criteria for residential soil. The samples had concentrations of heptachlor epoxide at 200 micrograms per kilogram ($\mu\text{g/kg}$) and 240 $\mu\text{g/kg}$, respectively. Both concentrations are above the U.S. EPA Region III Risk-Based Concentration criteria of 70 $\mu\text{g/kg}$. Alpha and gamma chlordane concentrations were detected at 290 $\mu\text{g/kg}$ and 570 $\mu\text{g/kg}$, respectively, and were both well below the U.S. EPA Region III Risk-Based Concentration criteria of 1,800 $\mu\text{g/kg}$ for both alpha and gamma chlordane (Black & Veatch, 2001).

Based on interviews with civil engineering personnel and previous investigations, the pesticide chlordane was likely applied within the Eagle Heights Housing Area in the past; however, records of past usage are not available. Chlordane was typically applied to the soil around building foundations to control termites. Chlordane is a persistent bioaccumulative and toxic chemical; therefore, it may still be present in the soils within the Eagle Heights Housing Area. All uses of chlordane were banned by the U.S. EPA in 1988.

3.3.6 Asbestos-Containing Material

ACM and ACM abatement are regulated by the U.S. EPA and the Occupational Safety and Health Administration (OSHA). Asbestos fiber emissions into the ambient air are regulated in accordance with Section 112 of the Clean Air Act (CAA), which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). Under NESHAP, the owner of a structure must, prior to demolition or renovation of buildings with ACM, provide notice to the regulator with CAA authority (either the U.S. EPA or its state counterpart). The NESHAP regulations (40 CFR Part 61, Subpart M) address the demolition or renovation of buildings with ACM. The Asbestos Hazard Emergency Response Act (AHERA), Public Law (P.L.) 99-519 and P.L. 101-637, addresses worker protection for employees who work around or remediate ACM.



EXPLANATION

- | | |
|-----------------------------|------------------------------|
| Base Boundary | Facilities Utilizing ASTs |
| Housing Privatization Areas | Facilities Utilizing USTs |
| U.S. Highway | Facilities with Removed USTs |



Eagle Heights Housing Area Storage Tanks

Figure 3-3

Renovation or demolition of buildings with ACM can release asbestos fibers into the air. The current Air Force practice is to manage or abate ACM in active facilities and abate any ACM that has been identified as a hazard to human health, following regulatory requirements and prior to facility demolition or renovation. Removal of ACM occurs when there is a potential for asbestos fiber release that would affect human health or the environment.

Dover AFB is conducting ongoing ACM abatement for the Eagle Heights Housing Area. Approximately 1/3 of the housing units have had ACM removed, the remaining units are scheduled for ACM abatement. ACM has been identified in the floor tile, mastic, piping, and piping insulation (Dover AFB, 2003e). No destructive sampling has been conducted.

3.3.7 Lead-Based Paint

Human exposure to lead has been determined to pose an adverse health risk by agencies such as OSHA and the U.S. EPA. Sources of exposure to lead are dust, soils, and paint. In 1973, the Consumer Product Safety Commission (CPSC) established a maximum lead content in paint of 0.5 percent by weight in a dry film of newly applied paint. In 1978, under the Consumer Product Safety Act (P.L. 101-608, as implemented by 16 CFR Part 1303), the CPSC lowered the allowable lead level in paint to 0.06 percent. The Act also restricted the use of lead-based paint in nonindustrial facilities. DOD implemented a ban of lead-based paint use in 1978; therefore, it is possible that facilities constructed prior to or during 1978 may contain lead-based paint. The Air Force does not actively pursue removal of lead-based paint. Instead, it is managed in place and removed by the Air Force, as necessary.

Due to the date of construction of the Eagle Heights MFH units, between 1956 and 1957, lead-based paint is likely present. Lead-based paint surveys conducted in 1994, noted lead-based paint on ceilings, door frames, walls, and vent covers (Dover AFB, 2003e).

3.4 NATURAL ENVIRONMENT

Aspects of the natural environment discussed in this EA include geology and soils, water resources, air quality, noise, and biological resources.

3.4.1 Geology and Soils

This discussion of geology and soils covers features of the physical environment that may be affected by the proposed activities. These include topography/physiography, geology (including units and structure), the potential for natural hazards, and soils (types and properties). The ROI considered for geology is the regional setting surrounding the base as well as specific localized features on, or proximal to, the Eagle Heights Housing Area.

3.4.1.1 Topography.

Dover AFB is in a relatively flat area with elevations ranging from 10 feet above sea level (asl) at the banks of the St. Jones River to more than 30 feet asl near the northwest boundary. The elevation of the Eagle Heights Housing Area is 20 feet asl with slight sloping to the southwest, towards the St. Jones River (Dover AFB, 2003e).

3.4.1.2 Geology.

Dover AFB is situated in the Atlantic Coastal Plain Physiographic Province, which consists of a wide wedge-shaped belt of Cretaceous to Recent layered sedimentary deposits of sand, gravel, silt, clay, limestone, chalk, and marl dipping to the southeast. From youngest to oldest, the near-surface stratigraphic units underlying Dover AFB are Recent sediments deposited by local rivers, the Pleistocene Columbia Formation, the Miocene Chesapeake Group (which contains only the Calvert Formation in this area), and the Eocene Piney Point Formation. The Eagle Heights Housing Area is underlain by the Columbia Formation (Dover AFB 2000a).

The Columbia Formation consists of poorly sorted medium to coarse sand and gravel, with interbedded silt and clay lenses. This formation ranges from 30 to 70 feet below ground surface (bgs) in the vicinity of the base. The Columbia Formation is underlain by the Calvert Formation, which consists of firm dense clay with thin laminations of silt and fine sand (U.S. Air Force, 2003).

3.4.1.3 Natural Hazards.

No natural hazards have been identified in the vicinity of Dover AFB. There is a potential for tropical storms or hurricanes impacting the area during August and October (Dover AFB, 2000a).

3.4.1.4 Soils.

Because of extensive construction-related soil disturbances on much of Dover AFB, the exact nature of existing soil types on many parts of the base is not known and would likely be characterized as "Urban Complex" (Dover AFB, 2000a).

The Sassafras/Fallsington Association comprises approximately 50 percent of the main base area, including the Eagle Heights Housing Area. The Sassafras soils comprise approximately 60 percent of the soil association and are well drained and generally level to gently sloping. The Fallsington soils comprise approximately 25 percent of the soil association and are poorly drained and are moderately erodible. Minor soil types make up the difference within the soil association (Dover AFB, 2000a).

The Tidal Marsh Association is found along the floodplain and shores of the St. Jones River adjacent to the southern boundary of the Eagle Heights Housing

Area. These soils consist of organic silts, clays, and peats and are regularly subjected to flooding. This association is underlain by sandy subsoil and the water table is at or near the surface. This association is not used for development and is mainly used as a wildlife habitat and some recreational development, such as fishing and hunting (Dover AFB, 2000a).

3.4.2 Water Resources

The following subsections describe the existing environment as it relates to surface water and groundwater. The ROI for water resources encompasses the Eagle Heights Housing Area, as well as the surface and groundwater features that proposed activities within these areas have the potential to affect.

3.4.2.1 Surface Water.

There are no surface water bodies within the Eagle Heights Housing Area. Runoff from paved areas enters storm drains that discharge into the St. Jones River. Runoff from non-paved areas either drains into the storm drain system or percolates into the soil to enter the groundwater aquifers (Dover AFB, 2003e).

A 100-year flood plain area is adjacent to the southern boundary of the Eagle Heights Housing Area. This flood plain is associated with the St. Jones River (Dover AFB, 2000a).

3.4.2.2 Groundwater.

Dover AFB utilizes seven on-base wells to provide the potable water used by the base population. The water is treated with chlorine and fluoride to meet the Safe Drinking Water Standards, and pretreatment systems are under design for the treatment of natural arsenic contamination (Dover AFB, 2000a). The water supply for the Eagle Heights Housing Area is the Piney Point aquifer at 360 feet bgs and from the Cheswold aquifer found at 195 to 230 feet bgs, both aquifers underlay Dover AFB (Dover AFB, 2003e). Dover AFB is installing a new well to replace a well that is currently in the Piney Point aquifer. The new well will withdraw water from the Cheswold Aquifer. The existing well in the Piney Point aquifer will be utilized as a back-up water source.

The Eagle Heights Housing Area is underlain by two additional shallow aquifers, the Columbia and the Frederica aquifers. The Columbia aquifer is found from approximately 3 to 20 feet bgs and is contaminated due to the migration of chlorinated solvents from the base industrial areas north of the housing area. The contaminants found within the aquifer include volatile organic compounds (VOCs) tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (DCE), and vinyl chloride (VC). PCE and TCE are solvents used for degreasing and 1,2-DCE and VC are the byproducts created due to the natural breakdown of PCE and TCE. Groundwater contamination poses no current human health risk because the Columbia Aquifer is not used as a potable water supply. However, the contamination requires remediation based on human health risks associated with potential future use of the Columbia Aquifer for

1 drinking water. Monitored natural attenuation has been implemented as an
2 interim remedy to address groundwater contamination underneath the Eagle
3 Heights Housing Area.
4

5 The Frederica aquifer is situated under the Columbia aquifer and is about 22 feet
6 thick. Although there is some leakage of water between the two aquifers, no
7 contamination has been found within the Frederica aquifer. This aquifer is not
8 used to provide water to the base because it is only 22 feet thick and is not
9 considered to be a productive source (Dover AFB, 2001b).
10

11 **3.4.3 Air Quality**

12
13 Air quality in a given location is defined by the concentration of various pollutants
14 in the atmosphere. The ROI for air quality includes the Philadelphia-Wilmington-
15 Trenton Air Quality District.
16

17 The federal CAA, 42 U.S.C. 7401-7671(q), amended in November 1990,
18 stipulates that emissions sources must comply with the air quality standards and
19 regulations that have been established by federal, state, and county regulatory
20 agencies. These standards and regulations focus on (1) the maximum allowable
21 ambient pollutant concentrations and (2) the maximum allowable emissions from
22 individual sources.
23

24 The U.S. EPA established the federal standards for the permissible levels of
25 certain pollutants in the atmosphere. The National Ambient Air Quality Standards
26 (NAAQS) have been established for seven criteria pollutants: ozone, nitrogen
27 dioxide (NO₂), particulate matter equal to or less than 10 microns in diameter
28 (PM₁₀), particulate matter equal to or less than 2.5 microns in diameter (PM_{2.5}),
29 carbon monoxide (CO), sulfur dioxide (SO₂), and lead. Ozone is a secondary
30 pollutant formed in the atmosphere by photochemical reactions of previously
31 emitted pollutants, or precursors. The ozone precursors are nitrogen oxide (NO_x)
32 and VOCs. The NAAQS are outlined in Table 3-3.
33

34 The U.S. EPA designates all areas of the United States as having air quality
35 better than (attainment) or worse than (nonattainment) the NAAQS. Pollutants in
36 an area may be designated as unclassified when there are insufficient ambient air
37 quality data for the U.S. EPA to form a basis for an attainment status. Under the
38 CAA, the nonattainment classifications for CO and PM₁₀ were further divided into
39 moderate and serious categories. Ozone nonattainment was divided into
40 marginal, moderate, serious, severe, and extreme categories.
41

42 Dover AFB is within the Philadelphia-Wilmington-Trenton Air Quality District of the
43 U.S. EPA Region III Air Quality Control Region. This district is classified as
44 severe non-attainment for ozone.
45

46 Dover AFB received a Title V air permit for the State of Delaware on July 4, 2001.
47 The Title V permit includes sources such as the central heat plant, boilers,
48 emergency generators, solvent cleaners, stage I and II vapor recovery systems.
49 Although the Title V permit is active, Dover AFB still maintains various other

Table 3-3. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards ^(a)	
		Primary ^(b,c)	Secondary ^(b,d)
Ozone	1-hour	0.12 ppm (235 µg/m ³)	Same as primary standard
		0.08 ppm (157 µg/m ³)	Same as primary standard
Carbon monoxide	8-hour ^(f)		
	8-hour	9 ppm (10 mg/m ³)	--
	1-hour	35 ppm (40 mg/m ³)	--
Nitrogen dioxide	Annual Arithmetic Mean	0.053 ppm (100 µg/m ³)	Same as primary standard
Sulfur dioxide	1-hour	--	--
	Annual Arithmetic Mean	0.03 ppm (80 µg/m ³)	--
	24-hour	0.14 ppm (365 µg/m ³)	--
	3-hour	--	0.5 ppm (1,300 µg/m ³)
PM ₁₀	1-hour	--	--
	Annual Arithmetic Mean	50 µg/m ³	Same as primary standard
PM _{2.5}	24-hour	150 µg/m ³	Same as primary standard
	Annual Arithmetic Mean	15 µg/m ^{3(e)}	Same as primary standard
Lead	24-hour	65 µg/m ^{3(e)}	Same as primary standard
	30-day	--	--
Sulfates	Quarterly	1.5 µg/m ³	Same as primary standard
	24-hour	--	--
Hydrogen sulfide	1-hour	--	--
Vinyl chloride	24-hour	--	--
Visibility reducing particles	8-hour (10 a.m. to 6 p.m., Pacific Standard Time)	--	--

Notes: (a) National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal policies.

(b) Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°C) and a reference pressure of 760 millimeters (mm) of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to parts per million by volume, or micromoles of pollutant per mole of gas.

(c) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

(d) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of pollutant.

(e) New federal 8-hour ozone and PM_{2.5} standards were promulgated by the U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.

µg/m³ = micrograms per cubic meter

PM_{2.5} = particulate matter equal to or less than 2.5 microns in diameter

PM₁₀ = particulate matter equal to or less than 10 microns in diameter

ppm = parts per million

permits as required by the State of Delaware's air regulations (Dover AFB, 2001b).

The major sources of air emissions at Dover AFB are NO_x and VOCs associated with aircraft and vehicle maintenance. These emissions come from the storage, handling, and use of petroleum products, solvents, paints, thinners, and coatings (Dover AFB, 2001b). Emission sources within the Eagle Heights Housing Area are exhausts from the burning of natural gas and heating oil within the units and the operation of motorized equipment (Dover AFB, 2003e).

In areas where the NAAQS are exceeded, preparation of a State Implementation Plan detailing how the state would attain the standard within mandated time frames is required. Section 176c of the CAA provides that a federal agency cannot support an activity in any way unless the federal agency determines that the activity will conform to the State Implementation Plan's purpose of attaining and maintaining the NAAQS, listed in Table 3-3. In accordance with this part of the CAA, U.S. EPA announced promulgation of its final conformity rule for general federal actions for nonattainment and maintenance areas in the November 30, 1993, Federal Register (40 CFR Part 51). The final rule applies to Dover AFB because the installation is situated within a nonattainment area of the NAAQS for ozone.

If emissions from a federal action do not exceed de minimis thresholds and if the federal action is not considered a regionally significant action, it is exempt from further conformity analysis. De minimis thresholds are specified in the conformity rule for the criteria pollutants based on the degree of nonattainment of the area. The applicable de minimis thresholds for the Philadelphia-Wilmington-Trenton non-attainment area is 25 tons/year for the ozone precursors VOCs and NO_x. A regionally significant action is defined as one whose total emissions meet or exceed 10 percent of the air quality control area's emission inventory for any criteria pollutant. Delaware has two counties, Kent and New Castle counties, that are part of the Philadelphia-Wilmington-Trenton Non-Attainment Area with respect to the 1-hour ozone NAAQS. Dover AFB is within Kent County. Table 3-4 shows the estimated annual emissions of the pollutants in the Delaware portion of the Philadelphia-Wilmington-Trenton Non-Attainment Area.

Table 3-4. Delaware portion of the Philadelphia-Wilmington-Trenton Non-Attainment Area, Estimated Emissions for Ozone Precursors (tons per day)

NO _x	VOC
165.53	151.49

NO_x = nitrogen oxides
VOC = volatile organic compound

Dover AFB holds operational permits for stationary emissions sources such as generators, internal combustion engines, abrasive cleaning, jet engine testing, fuel dispensing, welding, and surface coating. Mobile emission sources such as aircraft and on-road vehicles are not regulated by Title V of the CAA.

3.4.4 Noise

Noise is defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying. The decibel (dB), a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit for the measurement of sound. A-weighted sound levels (dBA) are commonly used to account for the frequency response to the human ear. The day-night average sound level (DNL) was developed to evaluate the total community noise environment and is the accepted unit for quantifying human annoyance to general environmental noise, which includes aircraft noise. It is the most commonly used measurement for the evaluation of community noise impacts.

In accordance with the Air Installation Compatible Use Zone (AICUZ) program, a program designed to achieve compatible uses of public and private lands in the vicinity of military airfields, Dover AFB conducted noise studies in 1999 to evaluate noise levels and other impacts on the surrounding area. Noise contours based on the existing Dover AFB aircraft operations are used as the baseline noise contours for this EA.

Noise guidelines used in the AICUZ are the same as those published by the Federal Interagency Committee on Urban Noise in the "Guidelines for Considering Noise in Land Use Planning and Control."

The ROI for the noise analysis includes the Eagle Heights Housing Area.

The southern portion of the Eagle Heights Housing Area is below the 65 dB contour, the central portion of the property is within the 65-70 dB contours, and the northernmost tip of the property, adjacent to State Route 113, is within the 70-75 dB contour (Figure 3-4).

Residential development is generally not considered favorable within the 65-70 noise contour. Within the 65-75 dB range, measures to achieve outdoor-to-indoor noise level reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building design in order to achieve an indoor noise level that does not exceed 45dB DNL. Normal residential construction can be expected to provide an NLR of 20 dB; thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and assume mechanical ventilation and closed windows year-round. The use of NLR will not eliminate outdoor noise issues. Land use restrictions are not required for areas within DNL of 65 dB or lower.

3.4.5 Biological Resources

Biological resources include the native and introduced plants and animals in the project area. For discussion purposes, these resources have been separated into the following sections: vegetation, wildlife, threatened and endangered species, and sensitive habitats. The ROI for biological resources comprises the

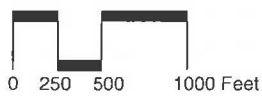


Dover/007

EXPLANATION

- · · — Base Boundary
- — — Housing Area Boundary
- 65 db — DNL Noise Contour (5-db intervals)

Dover AFB Noise Contours



Source: Dover AFB, 2000a

Figure 3-4

Eagle Heights Housing Area. This is the area within which potential impacts could occur, and provides a basis for evaluating the level of impact.

3.4.5.1 Vegetation.

The Eagle Heights Housing Area is sparsely landscaped and has poor soil quality. The majority of the Eagle Heights Housing Area consists of improved urban landscapes containing nonnative vegetation. The southern border of the MFH property is adjacent to the St. Jones River. The salt marshes and palustrine forested wetlands along the river are considered to have the highest quality natural area within the Dover AFB area (Dover AFB, 2001b). Areas along the St. Jones River include wet meadows, freshwater marshes, wet swales, and drainages which generally support red maple saplings, shrubs such as silky dogwood (*Cornus amomum*), buttonbush (*Cephalanthus occidentalis*), and herbaceous species such as rice cutgrass (*Leersia oryzoides*), swamp milkweed (*Asclepias incarnata*), beggar-ticks (*Bidens* spp.), cattails (*Typha* spp.), reed canary-grass (*Phalaris arundinacea*), smartweed (*Polygonum* spp.), and rushes (*Juncus* spp.). Salt marsh habitat along the St. Jones River support species such as smooth cordgrass (*Spartina alterniflora*), common reed (*Phragmites australis*), salt marsh fleabane (*Pluchea purpurescens*), and water hemp (*Amaranthus cannabinus*) (Dover AFB, 2001b).

3.4.5.2 Wildlife.

Wildlife abundance and diversity are low at Dover AFB due to extensive development and degraded natural habitats. Animal species include 45 species of fish, which 22 are freshwater species and 23 are tidal species. Butterflies were the only insects surveyed, and nine were found on base. Approximately 51 species of birds were recorded on base, with 23 of these species considered neotropical migrants. Other species found on the base are groundhogs, skunk, fox, deer, Canada geese, gulls, pigeons, and blackbirds. These species are considered to be pests (Dover AFB, 2001b).

Sections of the St. Jones River bordering the Eagle Heights Housing Area may provide suitable habitat for fish such as striped killifish (*Fundulus majalis*), brown bullhead (*Ictalurus nebulosus*), carp (*Cyprinus carpio*), pumpkinseed (*Lepomis gibbosus*), and American eel (*Anguilla rostrata*). The river may provide habitat for species such as bullfrog (*Rana catesbeiana*), northern water snake (*Nerodia sipedon*), and common snapping turtle (*Chelydra serpentina*). Mammals such as muskrat (*Ondatra zibethicus*) and birds such as green heron (*Butorides striatus*) and belted kingfisher (*Ceryle alcyon*) may inhabit the river areas as well. Additionally, salt marsh areas along the river may provide habitat for the sharp-tailed sparrow (*Ammodramus caudacuta*) or seaside sparrow (*Ammodramus maritima*) (Dover AFB, 2001).

Areas of open water ponds, freshwater marshes, wet meadows, swales, and drainages on base may provide habitats for species such as southern leopard frog (*Rana utricularia*), spring peeper (*Pseudacris crucifer*), painted turtle (*Chrysemys picta*), muskrat, beaver (*Castor canadensis*), willow flycatcher

(*Empidonax traillii*), common yellowthroat (*Geothlypis trichas*), and red-winged blackbird (*Agelaius phoeniceus*) (Dover AFB, 2001b).

Some woodland habitat is adjacent to the Eagle Heights Housing Area. The woodland habitat is highly fragmented on the base. Wildlife species that are adaptable to small and degraded wooded areas that may occur on the base include the gray treefrog (*Hyla versicolor*), gray squirrel (*Sciurus carolinensis*), downy woodpecker (*Picoides pubescens*), eastern pewee (*Contopus virens*), and Carolina chickadee (*Parus caroliniana*) (Dover AFB, 2001b).

3.4.5.3 Threatened and Endangered Species.

There are no federally listed threatened or endangered species found on the base.

According to the Integrated Natural Resources Management Plan (INRMP) for Dover AFB, there are five state-listed special status plant species that occur or could potentially occur on Dover AFB; however, none of these species has been identified within the Eagle Heights Housing Area. Two of these species are along the shoreline of the St. Jones River adjacent to the northern border of the housing area, the fro-fruit (*Phyla lanceolata*) and the hyssop-leaf hedge-nettle (*Stachys hyssopifolia*). The fro-fruit is found along the bank of the river, in fresh to brackish marshes and shores, or in poorly drained woodlands. There are only two other sites in Delaware that this species is found. The hyssop-leaf hedge-nettle thrives in moist sandy soil along the coast and shoreline and occurs in only one other location within Delaware (Dover AFB, 2001b).

There are six fauna species that are state listed as rare, two of these can be found near the Eagle Heights Housing Area. These species include the mud sunfish (*Acantharcus pomotis*) and great blue heron (*Adrea herodias*) (Dover AFB, 2001b).

3.4.5.4 Sensitive Habitats.

Sensitive habitats include wetlands and plant communities that are designated as unusual or of limited distribution and support important seasonal use for wildlife. Wetland and riparian areas are adjacent to the southern boundary of the Eagle Heights Housing Area. No sensitive habitats are situated within the housing area.

Dover AFB is within the Eastern Flyway for migrating waterfowl and other birds, and is surrounded by rich natural habitat attractive to numerous species of wildlife. The Ted Harvey Wildlife Area operated by the Delaware Department of Natural Resources and Environmental Control (DNREC) encompasses the St. Jones River corridor that is adjacent to the Eagle Heights Housing Area. The river corridor is a tidal estuary that is rich in biodiversity and serves as habitat for a large number of resident and migrant aquatic and avian animal species (Dover AFB, 2001b).

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter presents the results of the analysis of potential environmental effects of the Eagle Heights Housing Area Revitalization Project. The Proposed Action, Alternative 1, and the No-Action Alternative are analyzed. Changes to the natural and human environments that may result from the Proposed Action and alternatives were evaluated relative to the existing environment as described in Chapter 3.0. The potential for significant environmental consequences was evaluated utilizing the context and intensity considerations as defined in CEQ regulations for implementing the procedural provisions of NEPA (40 CFR Part 1508.27).

4.2 COMMUNITY SETTING

4.2.1 Utilities

4.2.1.1 Proposed Action

Solid Waste. Under the Proposed Action, there would be a decrease in the population of the Eagle Heights Housing Area, and a resultant decrease in solid waste generation after completion of the MFH Revitalization Project would be expected. However, building demolition activities would generate solid waste, including wood, drywall, cardboard, metals, concrete, and roofing material. Building materials would be separated and recycled to the extent possible. The types and estimated quantities of building materials expected as a result of the Proposed Action are presented in Table 4-1. Demolition debris that cannot be recycled would be disposed in an approved off-site landfill.

Table 4-1. Estimated Demolition Debris, Proposed Action (tons)

Building Materials	Demolition Factor per 1,000 sq ft ^(a)	Renovation Factor per 1,000 sq ft ^(a)	Eagle Heights (Demolition)	Eagle Heights (Renovation)
			1,442,161 sq ft	0
Wood	1.54	0.385	2,221	0
Drywall	0.12	0.42	173	0
Cardboard	0.045	0.016	65	0
Metals	0.053	0.019	76	0
Concrete	12.5	--	18,025	0
Roofing Material	0.9	--	1,298	0
Other	0.265	0.093	382	0
TOTAL			22,240	0

Note: Based on 1,010 MFH units being demolished totaling 1,442,161 square feet of building space.
sq ft = square feet

Source: (a) Calculated from Peaks to Prairies, 2002.

Demolition of the 1,010 MFH units would create approximately 22,240 tons of solid waste (see Table 4-1). Approximately 80 percent of the material is expected to be concrete from building foundations, which could be stockpiled for future use. The remaining 4,215 tons of solid waste would be drywall, wood, roofing material, metals, glass, and other building materials. Debris from construction activities is typically uncontaminated and is reused or recycled whenever possible; the remainder of the material would be taken to an approved off-site landfill. Debris from demolition activities is often contaminated with nails, rebar, or other building materials that make recycling more difficult. It is expected that over 50 percent of the bulk materials would be recycled. The wood material may be chipped and reused as mulch. Sheet metal, structural steel, and glass would be sold as scrap. Miscellaneous building materials such as electrical wire, outlet boxes, metallic tubing, light fixtures, pipe, plumbing fixtures, and heating systems would be salvaged and reused or sold as scrap. Even though a recycling program would be used, it would be impractical to accomplish complete source separation, and approximately 50 percent, or 2,107 tons, of the building materials would require disposal in a landfill. Because the Delaware Solid Waste Authority's Central Solid Waste Management Center (CSWMC) has a permitted daily through put of 395 tons per day, disposal of the 2,107 tons of demolition debris over the duration that demolition and construction activities would occur (i.e., 5 years) is not expected to significantly affect the service life of the landfill.

Buildings with the potential to contain ACM and/or lead-based paint would be sampled prior to demolition activities to ensure proper disposal and abatement of these materials. The development contractor would be required to dispose construction debris in accordance with applicable federal, state, and local regulations. No significant impacts are anticipated.

4.2.1.2 Alternative 1.

Impacts to the utility systems, including water, wastewater, electricity, natural gas, and solid waste, would be similar to those described under the Proposed Action.

Solid Waste. Solid waste generation under Alternative 1 would be similar to that described under the Proposed Action except that slightly less solid waste would be generated from renovation of 141 MFH units. The types and estimated quantities of building materials expected as a result of Alternative 1 are presented in Table 4-2.

Building demolition and renovation activities would create approximately 17,857 tons of solid waste. Approximately 85 percent of the material is expected to be concrete from concrete foundations, which could be stockpiled for future use. The remaining 2,669 tons of solid waste would be drywall, wood, roofing material, metals, glass, and other building materials. It is expected that over 50 percent of the bulk materials would be recycled. Even though a recycling program would be used, approximately 50 percent or 1,335 tons of the building materials would require disposal in a landfill. Because the CSWMC has a permitted daily through put of 395 tons per day, disposal of the 1,335 tons of demolition debris over the duration that construction, demolition, and renovation

Table 4-2. Estimated Demolition and Renovation Debris, Alternative 1, (tons)

Building Materials	Demolition Factor per 1,000 sq ft ^(a)	Renovation Factor per 1,000 sq ft ^(a)	Eagle Heights (Demolition)	Eagle Heights (Renovation)
			1,215,682 sq ft	226,479 sq ft
Wood	1.54	0.385	1,871	87
Drywall	0.12	0.42	146	95
Cardboard	0.045	0.016	55	4
Metals	0.053	0.019	64	4
Concrete	12.5	--	15,188	0
Roofing Material	0.9	--	1,094	0
Other	0.265	0.093	322	21
TOTAL			17,646	211

Note: Based on 869 MFH units being demolished and 141 units being renovated totaling 1,442,161.
sq ft = square feet

Source: (a) Calculated from Peaks to Prairies, 2002.

activities would occur (i.e., 5 years) is not expected to significantly affect the service life of the landfill.

4.2.1.3 No-Action Alternative.

No changes to utilities usage or solid waste generation are expected under the No-Action Alternative; therefore, no significant impacts are anticipated.

4.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

This section provides a discussion of the hazardous materials, hazardous waste, ERP sites, storage tanks, pesticide usage, ACM, and lead-based paint associated with the Proposed Action and alternatives.

4.3.1 Hazardous Materials Management

4.3.1.1 Proposed Action.

During demolition and construction activities, small amounts of hazardous materials are expected to be utilized by the development contractor; therefore, the potential for spills would exist. Hazardous materials likely to be utilized during project activities could include adhesives, motor fuels, paints, thinners, solvents, and petroleum, oil, and lubricants. Storage, handling, and transportation of hazardous materials would be conducted in accordance with applicable regulations and established procedures. Any spills or releases of hazardous materials would be cleaned up by the contractor.

Hazardous materials utilized and stored at the housing maintenance facility would be stored and used in accordance with applicable regulations. Occupants of the family housing areas would primarily use paints and household cleaning products.

1 Because hazardous materials would be managed in accordance with applicable
2 regulations, no significant impacts are anticipated.

3
4 **4.3.1.2 Alternative 1.**

5
6 Management of hazardous materials would be similar to that described under the
7 Proposed Action. Because hazardous materials would be managed in
8 accordance with applicable regulations, no significant impacts are anticipated.

9
10 **4.3.1.3 No-Action Alternative.**

11
12 Under the No-Action Alternative, small quantities of hazardous materials would
13 continue to be stored and utilized by residents in the housing areas.
14 Management of hazardous materials at the housing maintenance facility would
15 continue in accordance with applicable regulations. No significant impacts are
16 anticipated.

17
18 **4.3.2 Hazardous Waste Management**

19
20 **4.3.2.1 Proposed Action.**

21
22 Small quantities of hazardous waste would be generated during demolition and
23 construction activities. The development contractor would be responsible for
24 following applicable regulations for management of any hazardous waste
25 generated. Any spills or releases of fuel or oil from construction equipment would
26 be cleaned up by the contractor. The contractor would be responsible for the off-
27 site disposal of any hazardous waste (including demolition debris) generated on
28 the property in accordance with applicable regulations. Minimal quantities of
29 hazardous waste generated by housing residents are exempt from storage or
30 disposal regulations and reporting requirements. Because hazardous waste
31 would be managed in accordance with applicable regulations, no significant
32 impacts are anticipated.

33
34 **4.3.2.2 Alternative 1.**

35
36 Management of hazardous waste would be similar to that described under the
37 Proposed Action. Because hazardous waste would be managed in accordance
38 with applicable regulations, no significant impacts are anticipated.

39
40 **4.3.2.3 No-Action Alternative.**

41
42 Under the No-Action Alternative, small quantities of household hazardous waste
43 (not subject to regulations) would continue to be generated by housing residents.
44 Management of hazardous wastes generated during housing maintenance
45 activities would continue in accordance with applicable regulations. No significant
46 impacts are anticipated.

4.3.3 Environmental Restoration Program Sites

4.3.3.1 Proposed Action.

No ERP sites are situated within the Eagle Heights Housing Area. One adjacent ERP site, referred to as Target Area 1, affects the environmental condition of the Eagle Heights Housing Area. Target Area 1 is a source area for the groundwater plume known as Area 6. Area 6 is an 80-acre area of contaminated groundwater in the Columbia Aquifer and extends beneath a portion of the Eagle Heights Housing Area. A network of groundwater monitoring wells is situated throughout the plume area to assess the extent and migration of the plume in addition to confirming evidence of natural attenuation.

The Air Force would retain right-of-access to the Eagle Heights Housing Area to inspect monitoring wells or conduct other remedial activities, if necessary. No impacts are anticipated to ERP sites or to conveyance of housing units or lease of land as planned under the Proposed Action.

4.3.3.2 Alternative 1.

Potential impacts from ongoing investigations and remedial actions at ERP sites would be the same as those described under the Proposed Action. No significant impacts are anticipated.

4.3.3.3 No-Action Alternative.

Under the No-Action Alternative, the Eagle Heights Housing Area would not be privatized and the Air Force would continue ERP activities as currently planned. No significant impacts are anticipated.

4.3.4 Storage Tanks

4.3.4.1 Proposed Action.

Under the Proposed Action, the 20 USTs associated with MFH units within the Eagle Heights Housing Area would be removed prior to conveyance of the MFH units. Any investigations or remedial actions at these tank locations would remain the responsibility of the Air Force.

The 37 ASTs (within basements), the AST associated with a back-up generator at Building 1080 (sewage pump station), and the AST used to store fuel oil for heating Building 3720 (Housing Maintenance Office) would continue to be used. These ASTs would continue to be managed in accordance with applicable regulations. The housing contractor would be required to develop a Spill Prevention, Control, and Countermeasures Plan (SPCCP) to establish responsibilities, requirements, and contingency plans in the event a release occurs. The SPCCP would be coordinated with the 436th CES/CEV. Management of these ASTs in accordance with applicable regulations would

1 minimize the potential for impacts; therefore, no significant impacts are
2 anticipated.

3
4 **4.3.4.2 Alternative 1.**

5
6 Management of storage tanks would be the same as those described under the
7 Proposed Action. No significant impacts are anticipated.

8
9 **4.3.4.3 No-Action Alternative.**

10
11 Under the No-Action Alternative, the ASTs and USTs within the Eagle Heights
12 Housing Area would continue to be the responsibility of the Air Force. Proper
13 management of these tanks would minimize the potential for impacts. No
14 significant impacts are anticipated.

15
16 **4.3.5 Pesticide Usage**

17
18 **4.3.5.1 Proposed Action.**

19
20 Under the Proposed Action there would be a reduction in pesticide usage at the
21 Eagle Heights Housing Area due to the reduction in the number of homes. All
22 pest control services within the Eagle Heights Housing Area leased property
23 would be the responsibility of the development contractor and would be
24 performed by a licensed/certified pesticide applicator. All pesticide applications
25 would be coordinated through the 436th CES Pest Management Shop and
26 approved by the Major Command (MAJCOM) Pest Management Consultant
27 (PMC).

28
29 The lessee would prepare an Integrated Pest Management Plan (IPMP) for
30 coordination through the 436th CES Pest Management Shop and approval from
31 the MAJCOM PMC. The IPMP would incorporate the requirements listed in DOD
32 Instruction 4150.7, *DOD Pest Management Program*, AFI 32-1053, *Civil*
33 *Engineering Pest Management Program*, and comply with federal, state, and local
34 laws and regulations. The IPMP would outline all pests, pesticides, pesticide
35 application methods, application equipment, to be used throughout the term of
36 the lease or updated annually. The IPMP would include a copy of the Material
37 Safety Data Sheet (MSDS) and specimen label for proposed pesticides to be
38 used.

39
40 All pesticides used must be identified on the AFPMB-approved pesticide list or
41 fully justified, in writing, as to why deviation from this list is necessary. All
42 deviations from the AFPMB-approved list must receive MAJCOM PMC approval
43 prior to their use on Dover AFB. The lessee would provide the 436th CES Pest
44 Management Shop application records for all applications made. Application
45 records will include the location, targets pest, pesticide name, U.S. EPA
46 registration number, concentration used, total area treated, application method,
47 application duration, total amount applied, applicators name, and applicators
48 certification number.

1 It is likely that chlordane was applied within the Eagle Heights Housing Area.
2 Standard procedures for chlordane treatment of buildings entailed direct
3 application of chlordane to the soils surrounding building foundations. Because
4 chlordane is a persistent chemical, it may still be present in the soils in the Eagle
5 Heights Housing Area. Testing for the presence of chlordane has not been
6 conducted; therefore, the presence of chlordane in the soils and its
7 concentrations, if present, are not known. The Proposed Action would involve
8 disturbance of the soils in the housing area. If chlordane is present in disturbed
9 soils, there is a potential for construction workers and residents to be exposed to
10 chlordane through contaminated soil and dust.

11
12 The development contractor would sample soils in the housing area for the
13 presence of chlordane prior to disturbing the soil. If the results of the sampling
14 indicate that chlordane is present at concentrations that exceed U.S. EPA
15 preliminary remediation goals (PRGs) for soils in residential areas, the
16 development contractor would be required to prepare a health and safety plan in
17 accordance with OSHA requirements that would address potential hazards to
18 workers and residents from contaminated soil during demolition and construction
19 activities. If soils where pesticides are detected are to be excavated, the
20 development contractor would be responsible for conducting any additional
21 sampling and health screening to determine levels of worker safety, potential
22 exposure levels of excavated soils retained on site, and to properly characterize
23 and manage the soil in accordance with federal and state regulations. After
24 construction activities are completed, the development contractor would retest
25 soils in areas not covered by paved surfaces or building foundations for the
26 presence of pesticides. Pesticide concentrations would be required to be less
27 than their respective residential PRGs. It is not anticipated that soils would be
28 removed off site as part of the MFH revitalization activities; however, should any
29 soils containing pesticide concentrations greater than RCRA hazardous waste
30 levels need to be disposed off site, they would be handled and treated as
31 hazardous waste. No significant impacts are anticipated.

32 33 **4.3.5.2 Alternative 1.**

34
35 Potential impacts from pesticide usage would be the same as those described
36 under the Proposed Action. No significant impacts are anticipated.

37 38 **4.3.5.3 No-Action Alternative.**

39
40 Under the No-Action Alternative, pesticides would continue to be applied in the
41 Eagle Heights Housing Area, as necessary. Potential chlordane-contaminated
42 soils would not be disturbed by activities associated with the demolition and
43 construction of MFH units. No changes in pesticides usage would occur. No
44 significant impacts are anticipated.

4.3.6 Asbestos-Containing Material

4.3.6.1 Proposed Action.

Under the Proposed Action, ACM would likely be encountered during demolition activities. Demolition activities would be subject to applicable federal, state, and local regulations to minimize the potential risk to human health and the environment. ACM waste generated as a result of demolition activities would be disposed of in accordance with applicable regulations. Management of ACM and ACM waste in accordance with applicable regulations would preclude any significant impacts. The development contractor would be responsible for ensuring the proper management of asbestos and maintaining continued regulatory compliance. Additionally, the development contractor would be advised, to the extent known, of the type, condition, and amount of ACM present within housing units conveyed. No significant impacts are anticipated.

4.3.6.2 Alternative 1.

Potential impacts from ACM would be similar to those described under the Proposed Action. No significant impacts are anticipated.

4.3.6.3 No-Action Alternative.

Under the No-Action Alternative, the Air Force would continue to be responsible for the management of structures containing ACM within the Eagle Heights Housing Area. The Air Force would continue to manage ACM in accordance with current Air Force policy and applicable regulations. Management of ACM and ACM waste in accordance with applicable regulations would preclude any significant impacts.

4.3.7 Lead-Based Paint

4.3.7.1 Proposed Action.

Under the Proposed Action, lead-based paint would likely be encountered during demolition activities. Demolition activities would be conducted in accordance with applicable federal, state, and local regulations to minimize potential risks to human health and the environment. Waste is defined as hazardous under 40 CFR Part 261 if it contains levels of lead exceeding a maximum concentration of 5.0 milligrams per liter (mg/l), as determined using the U.S. EPA Toxic Characteristic Leaching Procedure (TCLP). The development contractor would be required to perform a TCLP scan on the construction debris prior to disposal to ensure it is not hazardous. If a waste is classified as hazardous, disposal must take place in accordance with U.S. EPA and state hazardous waste rules. Management of lead-based paint and lead-based paint waste in accordance with applicable regulations would preclude any significant impacts. The development contractor would be responsible for ensuring the proper management of lead-based paint and maintaining continued regulatory compliance. No significant impacts are anticipated.

1 **4.3.7.2 Alternative 1.**

2
3 Potential impacts from lead-based paint would be similar to those discussed
4 under the Proposed Action. No significant impacts are anticipated.

5
6 **4.3.7.3 No-Action Alternative.**

7
8 Under the No-Action Alternative, the Air Force would continue to be responsible
9 for the management of lead-based paint within the Eagle Heights Housing Area.
10 The Air Force would continue to manage lead-based paint in accordance with
11 current Air Force policy and applicable regulations. Appropriate management of
12 lead-based paint and lead-based paint waste in accordance with applicable
13 regulations would preclude any significant impacts.
14

15 **4.4 NATURAL ENVIRONMENT**

16
17 **4.4.1 Geology**

18
19 **4.4.1.1 Proposed Action.**

20
21 The Proposed Action is unlikely to affect the local geology of the Dover AFB area.
22 No sedimentation patterns would be significantly altered, and no structural
23 movements or changes in seismicity would result. No significant impacts are
24 anticipated.
25

26 **4.4.1.2 Alternative 1.**

27
28 Potential impacts would be similar to those described under the Proposed Action.
29 No significant impacts are anticipated.
30

31 **4.4.1.3 No-Action Alternative.**

32
33 Under the No-Action Alternative, no demolition or construction would occur in the
34 housing area. Therefore, no significant impacts to geology are anticipated.
35

36 **4.4.2 Soils**

37
38 **4.4.2.1 Proposed Action.**

39
40 Impacts to soil within the Eagle Heights Housing Area from the Proposed Action
41 would be minimal and would result primarily from ground disturbance associated
42 with the demolition of existing structures and the construction of new buildings or
43 infrastructure. These activities could alter soil profiles and local topography, as
44 grading is required for both the demolition and construction activities.
45

46 The development contractor would be required to obtain a Construction Site
47 Storm Water NPDES permit before initiating any construction activity. The
48 contractor would also be required to prepare a Storm Water Pollution Prevention
49 Plan (SWPPP) for the construction activity. The Construction Site Storm Water
50 NPDES permit, together with the required SWPPP, would outline strict

1 construction site management practices designed to protect the quality of the
2 surface water, groundwater, and natural environment through which they flow.
3 The SWPPP would identify specific areas of existing and potential soil erosion,
4 location of structural measures for sediment control, and management practices
5 and controls. Use of these management practices and controls would reduce the
6 potential for erosion of disturbed soils.

7
8 Under the Proposed Action, demolition and construction activities would disturb
9 approximately 205 acres within the Eagle Heights Housing Area.

10
11 Short-term erosion impacts could occur during ground-disturbing activities, such
12 as demolition of existing facilities, removal of vegetative cover, or grading.
13 Potential impacts would be minimized through proper management practices
14 defined within the approved SWPPP. Standard construction practices that could
15 be implemented to minimize soil erosion include:

- 16
17 • Use of protective cover, such as mulch, straw, plastic netting, or a
18 combination of these protective coverings
- 19
20 • Implementation of site grading procedures to limit the time soils are
21 exposed prior to being covered by impermeable surfaces or
22 vegetation
- 23
24 • Implementation of storm water diversions to reduce water flow
25 through exposed sites
- 26
27 • Maintenance of a buffer strip of vegetation around a pond or
28 drainage, where possible, to filter sediments
- 29
30 • Retention of as many trees and shrubs as possible adjacent to
31 exposed ground areas for use as natural windbreaks.

32
33 Once disturbed areas have been covered with pavement, buildings, or vegetation,
34 their susceptibility to erosion would be significantly reduced. Upon completion of
35 the construction phase, maintenance of a vegetative cover or covering
36 undeveloped areas with gravel would serve as effective, long-term erosion control
37 strategies for areas not covered with impervious surfaces. Soils underlying
38 facilities and pavements are not subject to erosion.

39
40 Because management practices required by the developer's Construction Site
41 Storm Water NPDES permit and SWPPP would be implemented during
42 demolition and construction activities, no significant impacts to soils are
43 anticipated.

44 45 **4.4.2.2 Alternative 1.**

46
47 Potential impacts would be similar to those described under the Proposed Action
48 except that less acreage would be disturbed. Because 141 units would be
49 renovated under this alternative, approximately 135 acres would be disturbed
50 during demolition, construction, and renovation activities. Standard construction

practices, as discussed under the Proposed Action would be implemented; therefore, no significant impacts to soils are anticipated.

4.4.2.3 No-Action Alternative.

Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. Therefore, no significant impacts to soils are anticipated.

4.4.3 Surface Water

4.4.3.1 Proposed Action.

Construction of fewer new housing units than currently exist within the Eagle Heights Housing Area would decrease the amount of impervious surfaces and result in a slight decrease in storm water runoff. The construction of replacement housing units in currently developed MFH areas is not expected to substantially alter the surface runoff from these areas.

As discussed in Section 4.4.1, Geology, and 4.4.2, Soils, the proposed activities would be subject to Construction Site Storm Water NPDES permit requirements for storm water discharge during the construction period. Issuance of a Construction Site Storm Water NPDES permit is contingent on the development of an SWPPP by the permittee, which would then be subject to approval by the regional water authority. SWPPP requirements under the Construction Site Storm Water NPDES permit include an outline of the storm water drainage system for each discharge point, actual and potential pollutant contact, and surface water locations. The SWPPP would also incorporate storm water management controls and preventive maintenance for buildings. Compliance with the Construction Site Storm Water NPDES permit and the SWPPP would minimize potential impacts to surface water quantity and quality.

4.4.3.2 Alternative 1.

Potential impacts would be similar to those described under the Proposed Action. No significant impacts to surface water are anticipated.

4.4.3.3 No-Action Alternative.

Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. Therefore, no significant impacts to surface water are anticipated.

4.4.4 Groundwater

4.4.4.1 Proposed Action.

Under the Proposed Action, there is no potential for direct contamination of groundwater. There are no major sources of potential contamination within the

Eagle Heights Housing Area. Activities associated with the demolition and construction activities would not introduce any contaminants with the potential to affect groundwater. A portion of the Columbia Aquifer beneath the Eagle Heights Housing Area is contaminated as a result of activities occurring outside the housing area boundary. Monitored natural attenuation has been implemented as an interim remedy for the groundwater plume. A network of groundwater monitoring wells is situated throughout the plume area to assess the extent and migration of the plume and to confirm evidence of natural attenuation. No significant impacts to groundwater are anticipated.

4.4.4.2 Alternative 1.

Potential impacts would be similar to those described under the Proposed Action. No significant impacts to groundwater are anticipated.

4.4.4.3 No-Action Alternative.

Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. Therefore, no significant impacts to groundwater are anticipated.

4.4.5 Air Quality

4.4.5.1 Proposed Action.

Activities associated with the Proposed Action, including demolition and construction activities would not result in significant air quality impacts.

Demolition activities associated with the Proposed Action would result in short-term impacts to air quality from emissions generated by demolition of 1,010 existing MFH units. Following demolition activities, construction of 768 MFH units would occur. Impacts are expected to be primarily from fugitive dust associated with building demolition, clearing and grading of the land for new building construction, and construction vehicles traveling on unpaved surfaces at the site. Dust emissions would also be generated through construction of new vehicle parking and common areas, driveways, sidewalks, and recreational areas.

Emissions of PM₁₀ generated by building demolition and construction, grading, and landscaping were calculated using emission factors and methodology from the U.S. EPA's AP-42 document (U.S. Environmental Protection Agency, 1995) and the URBEMIS model (URBEMIS7G for Windows, Version 5.1.0, 2000), which uses emission factors listed in the South Coast Air Quality Management District's (SCAQMD's) California Environmental Quality Act (CEQA) Air Quality Handbook. These emission factors are representative for the Kent County area. For mobile construction equipment, the Sacramento Metropolitan Air Quality Management District (SMAQMD) Air Quality Thresholds of Significance (1994) was used to calculate emissions of CO, NO_x, and VOCs. Emissions of CO, NO_x, and VOCs would be produced in exhaust from both on-site construction equipment and

workers' vehicles traveling to and from the work site. The air emission calculations are provided in Appendix A.

In order to calculate the potential annual air emissions from the Proposed Action, a schedule for demolition and construction was developed. This schedule, presented in Table 4-3, was developed for purposes of analysis only and does not represent an actual construction timetable. Table 4-4 presents the total construction emissions calculated for each year of the Proposed Action.

Table 4-3. Proposed Action, Assumed Project Demolition and Construction Schedule

Year(s)	MFH Units Demolished per Year	MFH Units Constructed per Year	Acres Disturbed
2005	200	0	41
2006	200	192	41
2007	200	192	41
2008	200	192	41
2009	210	192	41
Total	1,010	768	205

MFH = military family housing

Table 4-4. Proposed Action Construction Emissions for Criteria Pollutants (tons per year)

Year	PM ₁₀	CO	NO _x	VOC	SO ₂
2005	76.7	neg.	7.5	1.2	neg.
2006	80.1	10.4	55.1	4.4	neg.
2007	80.1	10.4	55.1	4.4	neg.
2008	80.1	10.4	55.1	4.4	neg.
2009	80.1	10.4	55.1	4.4	neg.
De minimis threshold	NA	NA	25	25	NA
10-percent of DE portion of the PWTNAA Inventory	NA	NA	6,038	5,529	NA

Notes: (a) PM₁₀ emissions include combustion and fugitive emissions.

CO = carbon monoxide
 NA = not applicable
 Neg = negligible
 NO_x = nitrogen oxides
 PM₁₀ = particulate matter equal to or less than 10 microns in diameter
 PWTNAA = Philadelphia-Wilmington-Trenton Non-Attainment Area
 SO₂ = sulfur dioxide
 VOC = volatile organic compound

The emissions for the Proposed Action shown in Table 4-4 assume use of standard construction mitigation practices, such as watering exposed surfaces twice per day or frequently enough to keep the surface moist at all times, and watering haul roads three times per day to reduce dust and particulate emissions. According to the CEQA Handbook, regular watering of construction and demolition areas decreases PM₁₀ emissions by up to 75 percent. Proper vehicle maintenance is also assumed, which would reduce emissions of NO_x, PM₁₀, and VOCs by 5 percent. Construction emissions would cause an elevated, short-term increase in emissions at receptors close to the construction areas. However, the

Federal Register (40 CFR Part 70) considers fugitive (associated with construction activities) and mobile sources exempt from a facility's emissions inventory.

The increase in emissions from the Proposed Action is considered minimal when compared to the total emissions for the Philadelphia-Wilmington-Trenton Non-Attainment Area (see Table 3-4). The emissions associated with the Proposed Action would increase air basin emissions by far less than 1 percent annually and would not hinder maintenance of the NAAQS within the ROI. Based on these findings, no significant impacts to air quality would occur from construction or demolition activities associated with the Proposed Action.

Because Dover AFB is in a nonattainment area of the NAAQS for ozone, an air conformity applicability analysis was conducted for the Proposed Action. Based on the severe nonattainment status for ozone, the threshold for significant air pollutants is 25 tons/year for each of the ozone precursors NO_x and VOCs. As shown in Table 4-4, emissions generated by the Proposed Action do not exceed 10 percent of the Delaware portion of the Philadelphia-Wilmington-Trenton Non-Attainment Area air emission inventory for these pollutants and therefore would not be regionally significant. Because these emissions would not be regionally significant, a conformity determination is not required.

4.4.5.2 Alternative 1.

Impacts to air quality would be similar to those described under the Proposed Action except that air emissions would be less due to fewer units being demolished and less acres being of disturbed.

In order to calculate the potential annual air emissions from Alternative 1, a schedule for demolition and construction was developed. This schedule, presented in Table 4-5, was developed for purposes of analysis only and does not represent an actual construction timetable. Table 4-6 presents the total construction emissions calculated for each year of Alternative 1.

Table 4-5. Alternative 1 Assumed Project Demolition and Construction Schedule

Year(s)	MFH Units Demolished per Year	MFH Units Constructed per Year	MFH Units Renovated per Year	Acres Disturbed
2005	175	125	0	27
2006	175	125	0	27
2007	175	125	50	27
2008	175	125	50	27
2009	169	127	41	27
Total	869	627	141	135

MFH = military family housing

**Table 4-6. Alternative 1 Construction Emissions for Criteria Pollutants
(tons per year)**

Year	PM ₁₀	CO	NO _x	VOC	SO ₂
2005	52.9	6.7	36.0	2.9	neg.
2006	52.9	6.7	36.0	2.9	neg.
2007	53.7	9.4	48.4	3.7	neg.
2008	53.7	9.4	48.4	3.7	neg.
2009	53.7	9.1	46.6	3.6	neg.
De minimis threshold	NA	NA	25	25	NA
10-percent of the DE portion of the PWTNAA Inventory	NA	NA	6,038	5,529	NA

Notes: (a) PM₁₀ emissions include combustion and fugitive emissions.

CO = carbon monoxide

NA = not applicable

Neg = negligible

NO_x = nitrogen oxides

PM₁₀ = particulate matter equal to or less than 10 microns in diameter

PWTNAA = Philadelphia-Wilmington-Trenton Non-Attainment Area

SO₂ = sulfur dioxide

VOC = volatile organic compound

The increase in emissions from Alternative 1 is considered minimal when compared to the total emissions for the Delaware portion of the Philadelphia-Wilmington-Trenton Non-Attainment Area (see Table 3-4). The emissions associated with Alternative 1 would increase air basin emissions by far less than 1 percent annually and would not hinder maintenance of the NAAQS within the ROI. Based on these findings, no significant impacts to air quality would occur from construction or demolition activities associated with Alternative 1.

As shown in Table 4-6, emissions generated by Alternative 1 would not exceed 10 percent of the Delaware portion of the Philadelphia-Wilmington-Trenton Non-Attainment Area air emission inventory for these pollutants and therefore would not be regionally significant. Because these emissions would not be regionally significant, a conformity determination is not required.

4.4.5.3 No-Action Alternative.

Under the No-Action Alternative, no demolition or construction activities associated with the MFH Revitalization Project would occur in the Eagle Heights Housing Area. No significant impacts to air quality are anticipated.

4.4.6 Noise

4.4.6.1 Proposed Action.

A portion of the Eagle Heights Housing Area is situated within the DNL 65-70 dB noise contour zone. Residential uses are not considered a compatible land use within this DNL unless measures to achieve outdoor to indoor NLR are incorporated into building construction.

1 Under the Proposed Action, the MFH units within this area would be demolished
2 and reconstructed with appropriate NLR features to achieve an outdoor to indoor
3 NLR of 20 to 25 dB; therefore, these residential areas would be compatible with
4 their location within the 65-70 dB DNL noise contour. The 212 housing units
5 currently under construction have incorporate features to achieve an outdoor to
6 indoor NLR of 20 to 25 dB; therefore, these new MFH units are compatible with
7 their location within the 65-70 dB DNL noise contour. Because normal
8 construction can be expected to provide an NLR of 20 dB, the requirement would
9 be to achieve an NLR of 5 dB over standard construction.

10
11 Temporary impacts from construction noise could occur during demolition and
12 construction activities within the housing area. Noise generated by construction
13 equipment could produce localized noise events of 100 dBA or higher at the
14 construction site, with noise levels decreasing with distance from the site.
15 According to OSHA, a recent study of construction noise found noise levels
16 ranging from 93 dBA to 107 dBA at construction sites. Typical noise levels
17 generated by construction tools range from 65 dBA to 110 dBA. A heavy truck
18 would typically create a noise level of approximately 90 dBA at a distance of
19 50 feet, and a "backup" alarm on a truck could range from 90 to 95 dBA. These
20 noise levels are not comparable to the noise levels discussed for aircraft noise.
21 Within this document, aircraft noise has been discussed in terms of an average
22 sound level that evaluates the total daily community noise environment, while the
23 construction noise is discussed in terms of the noise level of the equipment while
24 in operation or the activity at a certain distance. As these noises are temporary,
25 and only affect areas close to the construction area, they are not averaged as
26 part of the DNL.

27
28 Enforcement of OSHA guidelines for hearing protection for workers on the
29 construction site would be the responsibility of the development contractor. Noise
30 from construction activities would decrease with distance through divergence,
31 atmospheric absorption, shielding by intervening structures, and absorption and
32 shielding by ground cover. Signs warning residents of high noise levels would be
33 posted at the construction site by the development contractor, if construction
34 noise levels warrant this measure. While noise may be a temporary source of
35 annoyance for residents, it would not be at levels that would require hearing
36 protection measures.

37
38 Noise generated from proposed demolition and construction activities would be
39 intermittent and short term, and would primarily occur at the construction site.
40 Once development activities are completed, proposed activities (i.e., residential)
41 are not expected to generate a substantial amount of noise. Therefore, no
42 significant impacts are anticipated.

43 **4.4.6.2 Alternative 1.**

44
45 Potential noise impacts under Alternative 1 would be similar to those described
46 under the Proposed Action. No significant impacts are anticipated.
47

4.4.6.3 No-Action Alternative.

Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. No changes to the noise environment would occur. No impacts from noise are anticipated under the No-Action Alternative.

4.4.7 Biological Resources

4.4.7.1 Proposed Action

Vegetation. Vegetation would be disturbed during demolition and construction activities associated with the Proposed Action. Within the Eagle Heights Housing Area, the majority of the vegetation consists of landscaped areas containing nonnative grasses, ornamental shrubs, and shade trees associated with residential development. Impacts to such highly disturbed, human-created habitats are considered to be insignificant. Existing landscaping would be retained during demolition and construction activities to the extent possible, and the housing area would be landscaped upon completion of construction activities. No significant impacts to vegetation are anticipated.

Wildlife. Under the Proposed Action, demolition and construction activities within the Eagle Heights Housing Area could temporarily affect some individual wildlife species. However, because most of the land associated with the housing area has been developed, this area lacks suitable wildlife habitat. Most of the species known to inhabit the housing area are common and/or disturbance tolerant. Potential impacts to wildlife include displacement of individuals to adjacent areas and direct mortality to burrowing species (e.g., mice and rats) or individuals that are less mobile. These impacts to the common wildlife species are not expected to be significant.

Threatened and Endangered Species. There are no federally listed threatened or endangered species at Dover AFB; therefore, no impacts are anticipated.

Sensitive Habitat. There are no sensitive habitats within the Eagle Heights Housing Area that could be affected by the Proposed Action. No significant impacts are anticipated.

4.4.7.2 Alternative 1

Vegetation. Potential impacts to vegetation would be similar to those described under the Proposed Action. No significant impacts are anticipated.

Wildlife. Potential impacts to wildlife would be similar to those described under the Proposed Action. No significant impacts are anticipated.

Threatened and Endangered Species. Potential impacts to threatened and endangered species would be the same as those described under the Proposed Action. No significant impacts anticipated.

Sensitive Habitat. Potential impacts to sensitive habitats would be the same as those described under the Proposed Action. No significant impacts anticipated.

4.4.7.3 No-Action Alternative

Vegetation. Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. No changes to vegetation would occur. No significant impacts are anticipated.

Wildlife. Under the No-Action Alternative, the displacement of local wildlife to adjacent areas and direct mortality to burrowing species (e.g., mice and rats) or individuals that are less mobile would not occur. No significant impacts are anticipated.

Threatened and Endangered Species. Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. Because there are no federally listed threatened or endangered species at Dover AFB, no impacts are anticipated.

Sensitive Habitat. Under the No-Action Alternative, no demolition or construction activities would occur in the Eagle Heights Housing Area. No changes to sensitive habitats would occur. No significant impacts are anticipated.

4.5 COMPATIBILITY OF THE PROPOSED ACTION WITH OBJECTIVES OF FEDERAL, STATE, REGIONAL, AND LOCAL LAND USE PLANS AND POLICIES

The Proposed Action and alternatives promote the Air Force's intention to improve MFH at Dover AFB. The Proposed Action and alternatives would not adversely affect federal, state, regional, or local land use plans and policies.

4.6 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

The Proposed Action and alternatives would not affect the long-term productivity of the environment because no significant environmental impacts are anticipated, provided standard construction practices identified in this EA are implemented, and natural resources would not be depleted.

4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Action would result in a net decrease of 242 housing units on Dover AFB. However, the HRMA prepared for Dover AFB has identified a requirement of only 980 units resulting in this decrease. The analysis provided in the HRMA indicates that the removal of these housing units will not adversely affect the housing availability for Dover AFB personnel or the local community. The only other irreversible or irretrievable commitment of resources would be for labor, fuel, and construction materials.

4.8 CUMULATIVE ENVIRONMENTAL CONSEQUENCES

Cumulative impacts result from "the incremental impact of actions when added to other past, present, and reasonably foreseeable future actions, regardless of what agency undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (Council on Environmental Quality, 1978).

Residential, commercial, and industrial development and population growth would occur in Kent County and the vicinity of Dover AFB. In addition, the Eagle Meadows Housing Area would be privatized and various military construction projects may also occur on Dover AFB during the 5-year time frame for the Eagle Heights Revitalization Project.

The Final Environmental Assessment for the Eagle Meadows and 152 Eagle Heights Units, Military Family Housing Privatization, Dover Air Force Base analyzed the potential environmental impacts from privatizing MFH units within the Eagle Meadows and Eagle Heights housing areas at Dover AFB. This EA addresses the lease of the land and conveyance of the housing units within these housing areas. However, the Air Force has since decided to convey the land and housing units at Eagle Meadows rather than leasing the land. Based on the analysis in the EA, there are no threatened or endangered species, no cultural resources, and the area is not within a flood zone; therefore, the findings presented in the EA/FONSI are valid with regard to potential impacts to the Eagle Meadows housing area from conveyance or lease of the land. No cumulative impacts have been identified from privatization of the Eagle Meadows Housing Area when combined with proposed activities associated with the Eagle Heights Revitalization Project.

Impacts from other Dover AFB development projects, and population growth in the region in conjunction with the impacts from the Eagle Heights Revitalization Project present the potential for cumulative impacts. With the implementation of standard construction practices identified in this EA, no significant impacts would occur from revitalization activities. However, for some resources, the impact of the Eagle Heights Revitalization Project when combined with other projects may be cumulatively significant. For other resource areas, either no impacts were identified (e.g., ERP sites), and/or potential impacts are limited to the project site (e.g., storage tanks); therefore, no cumulative impacts would occur to these resources.

Air quality is the only resource area for which potential cumulative impacts could occur; however, based on the emission levels from proposed revitalization activities, potential cumulative impacts to regional air quality (when combined with other activities in the region) are not anticipated. The Philadelphia-Wilmington-Trenton Air Quality District would review emissions generated by development projects and implement control measures required for the region to demonstrate attainment of the NAAQS.

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5.0 AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED

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APPENDIX A
AIR EMISSION CALCULATIONS

Proposed Action, MFH Privatization, Dover AFB, Delaware

Proposed Action Construction Emission for Criteria Pollutants

CY	FY	VOC	NOx	CO	PM10	SO2
2005	FY 05	1.2	7.5	0.0	76.7	NS
2006	FY 06	4.4	55.1	10.4	80.1	NS
2007	FY 07	4.4	55.1	10.4	80.1	NS
2008	FY 08	4.4	55.1	10.4	80.1	NS
2009	FY 09	4.4	55.1	10.4	80.1	NS

Square Footage

Complex	Units	Sq Ft/Unit	Total Sq Ft
Eagle Heights HA	1,010	1,428	1,442,179
Total	1,010	-	1,442,179

Average Unit Size 1,427.90 sq ft

Emissions of PM10 Due to Demolition

PM10 Results:

Year	FY 05	FY 06	FY 07	FY 08	FY 09	Total
Unit for Demolition	200	200	200	200	210	1,010
Total sq ft	285,580	285,580	285,580	285,580	299,859	1,442,179
Average Height of Building:	12	12	12	12	12	--
Total Building Volume:	3,426,960	3,426,960	3,426,960	3,426,960	3,598,308	17,306,148
Number of days	240	240	240	240	240	1,200
Emissions, lbs/day	6.00	6.00	6.00	6.00	6.30	30.29
Emissions, tons/yr	0.72	0.72	0.72	0.72	0.76	3.63

Emission Factors

	SCAQMD Emission Factor
Source	PM ₁₀
Building Demolition	4.20E-04 lbs/dy

Reference: CEQA Handbook, SCAQMD, 1993.

Proposed Action, MFH Privatization, Dover AFB, Delaware

Emissions Due to Construction

Phase I Construction Emissions

Grading Equipment Emissions

	Year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09
	Acres Disturbed	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00	41.00
	Emission Factor	Lbs/day					Tons/Year					Tons/Year with mitigation (5% reduction)				
ROG	0.25	10.25	10.25	10.25	10.25	10.25	1.23	1.23	1.23	1.23	1.23	1.17	1.17	1.17	1.17	1.17
NO _x	1.60	65.60	65.60	65.60	65.60	65.60	7.87	7.87	7.87	7.87	7.87	7.48	7.48	7.48	7.48	7.48
PM ₁₀	0.28	11.48	11.48	11.48	11.48	11.48	1.38	1.38	1.38	1.38	1.38	1.31	1.31	1.31	1.31	1.31

lbs/acre/day

Source: Air Quality Thresholds of Significance, SMAQMD, 1994

Fugitive Emissions

	Year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09
	Emission Factor	Lbs/day					Tons/Year					Tons/Year with mitigation (75% reduction)				
PM ₁₀	60.70	2,488.70	2,488.70	2,488.70	2,488.70	2,488.70	298.64	298.64	298.64	298.64	298.64	74.66	74.66	74.66	74.66	74.66

lbs/acre/day

Source: Air Quality Thresholds of Significance, SMAQMD, 1994

Phase II Construction Emissions

Total Construction Emissions (include on-site construction equipment and worker' travel)

	Year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09
	Unit	0	192	192	192	192	0	192	192	192	192
	1,000 GFA	0	274	274	274	274	0	274	274	274	274
	Emission Factor	Lbs/Year					Tons/Year				
ROG	23.66	-	6,487	6,487	6,487	6,487	-	3.24	3.24	3.24	3.24
NO _x	347.74	-	95,335	95,335	95,335	95,335	-	47.67	47.67	47.67	47.67
CO	75.62	-	20,732	20,732	20,732	20,732	-	10.37	10.37	10.37	10.37
PM ₁₀	24.69	-	6,769	6,769	6,769	6,769	-	3.38	3.38	3.38	3.38

lbs/1,000 sq ft GFA

Source: CEQA Air Quality Handbook, SCAQMD, 1993

Alternative 1, MFH Privatization, Dover AFB, Delaware

Alternative 1 Construction Emission for Criteria Pollutants

CY	FY	VOC	NOx	CO	PM10	SO2
2005	FY 05	2.9	36.0	6.7	52.9	NS
2006	FY 06	2.9	36.0	6.7	52.9	NS
2007	FY 07	3.7	48.4	9.4	53.7	NS
2008	FY 08	3.7	48.4	9.4	53.7	NS
2009	FY 09	3.6	46.6	9.1	53.7	NS

Square Footage

Complex	Units	Sq Ft/Unit	Total Sq Ft
Eagle Heights HA	1,010	1,428	1,442,179
Total	1,010	-	1,442,179

Average Unit Size 1,428 sq ft

Emissions of PM₁₀ Due to Demolition

PM₁₀ Results:

Year	FY 05	FY 06	FY 07	FY 08	FY 09	Total
Unit for Demolition	175	175	175	175	169	869
Total sq ft	249,883	249,883	249,883	249,883	241,315	1,240,845
Average Height of Building:	12	12	12	12	12	--
Total Building Volume:	2,998,590	2,998,590	2,998,590	2,998,590	2,895,781	14,890,141
Number of days	240	240	240	240	240	1,200
Emissions, lbs/day	5.25	5.25	5.25	5.25	5.07	26.06
Emissions, tons/yr	0.63	0.63	0.63	0.63	0.61	3.13

Emission Factors

Source	SCAQMD Emission Factor
	PM ₁₀
Building Demolition	4.20E-04 lbs/dy

Reference: CEQA Handbook, SCAQMD, 1993.

Alternative 1, MFH Privatization, Dover AFB, Delaware

Emissions Due to Construction

Phase I Construction Emissions

Grading Equipment Emissions

	Year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09
	Acres Disturbed	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00	27.00
	Emission Factor	Lbs/day					Tons/Year					Tons/Year with mitigation (5% reduction)				
ROG	0.25	6.75	6.75	6.75	6.75	6.75	0.81	0.81	0.81	0.81	0.81	0.77	0.77	0.77	0.77	0.77
NO _x	1.60	43.20	43.20	43.20	43.20	43.20	5.18	5.18	5.18	5.18	5.18	4.92	4.92	4.92	4.92	4.92
PM ₁₀	0.28	7.56	7.56	7.56	7.56	7.56	0.91	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.86

lbs/acre/day

Source: Air Quality Thresholds of Significance, SMAQMD, 1994

Fugitive Emissions

	Year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09
	Emission Factor	Lbs/day					Tons/Year					Tons/Year with mitigation (75% reduction)				
PM ₁₀	60.70	1,638.90	1,638.90	1,638.90	1,638.90	1,638.90	196.67	196.67	196.67	196.67	196.67	49.17	49.17	49.17	49.17	49.17

lbs/acre/day

Source: Air Quality Thresholds of Significance, SMAQMD, 1994

Phase II Construction Emissions

Total Construction Emissions (include on-site construction equipment and worker' travel)

	Year	FY 05	FY 06	FY 07	FY 08	FY 09	FY 05	FY 06	FY 07	FY 08	FY 09
	Unit	125	125	175	175	168	125	125	175	175	168
	1,000 GFA	178	178	250	250	240	178	178	250	250	240
	Emission Factor	Lbs/Year					Tons/Year				
ROG	23.66	4,223	4,223	5,912	5,912	5,676	2.11	2.11	2.96	2.96	2.84
NO _x	347.74	62,067	62,067	86,894	86,894	83,418	31.03	31.03	43.45	43.45	41.71
CO	75.62	13,497	13,497	18,896	18,896	18,140	6.75	6.75	9.45	9.45	9.07
PM ₁₀	24.69	4,407	4,407	6,170	6,170	5,923	2.20	2.20	3.08	3.08	2.96

lbs/1,000 sq ft GFA

Source: CEQA Air Quality Handbook, SCAQMD, 1993