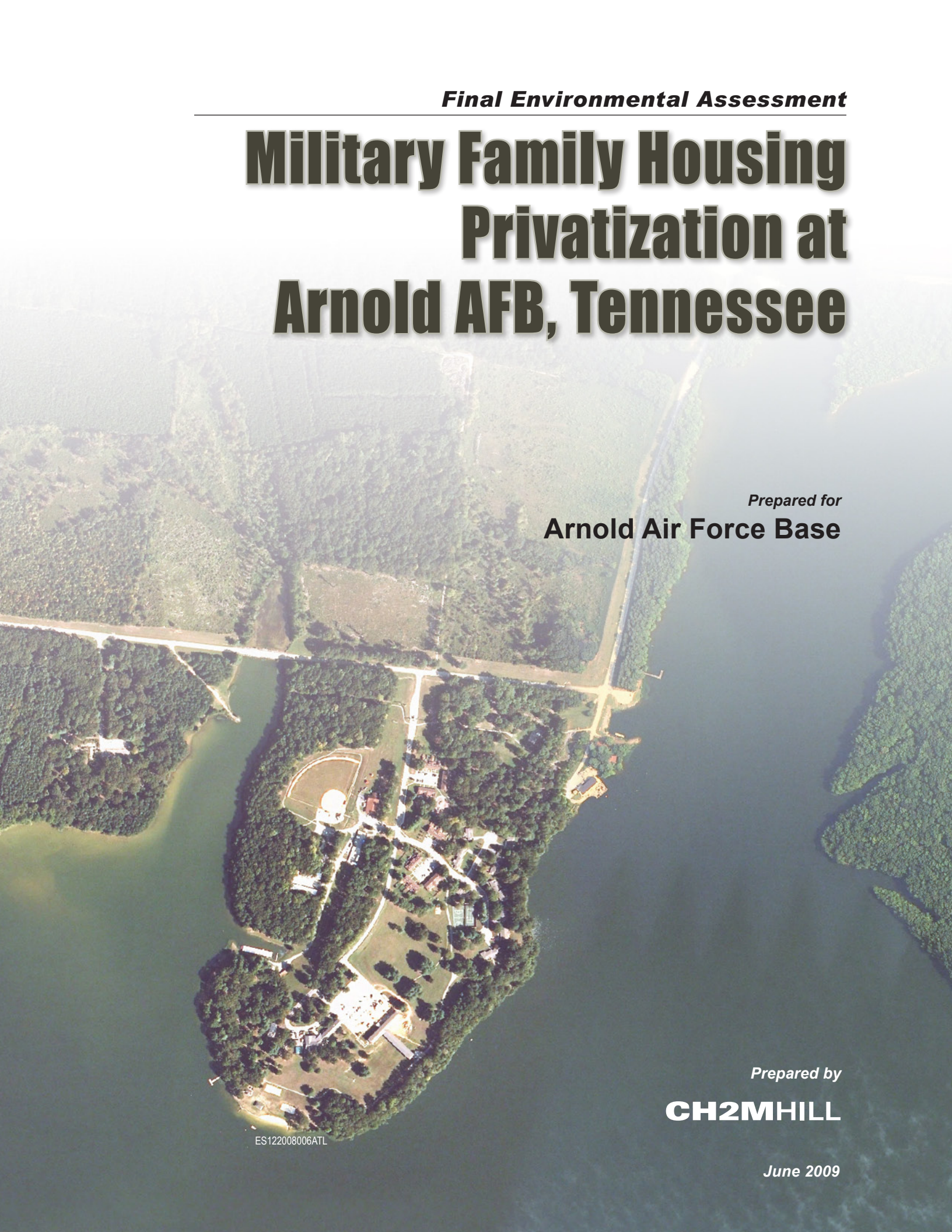
Final Environmental Assessment

Military Family Housing Privatization at Arnold AFB, Tennessee



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Finding of No Significant Impact:
Arnold Air Force Base, Tennessee
Military Family Housing Privatization Environmental Assessment

Arnold Air Force Base (Arnold AFB) has prepared an Environmental Assessment (EA) February 2009 that evaluates the potential environmental and socioeconomic impacts associated with the privatization of Military Family Housing (MFH) at Arnold AFB. MFH is currently owned, operated, and managed by Arnold AFB.

Description of the Proposed Action

The Proposed Action is to evaluate the effects of privatizing MFH, which includes the transfer of management and operations to a private sector project owner (PO) through a 50-year lease. The Proposed Action consists of:

- Privatization of the approximately 18.3-acre MFH area, the approximately 2-acre beach area, and its existing facilities, excluding the Community Activities Center and the Auto Hobby Shop, on the approximately 20-acre parcel west of Westover Road from the MFH area.
- Privatization of utilities that would exclusively serve privatized housing.
- Demolition of the 40 existing MFH units by the PO.
- Construction of 24 new privatized housing units by the PO.

The PO would own the housing units and privatized utilities, but the U.S. Air Force would retain ownership of the land.

The parcel west of Westover Road would be privatized to allow for future expansion in the event that a change in the Arnold AFB mission results in an increase in the number of military personnel assigned to the Base. The Air Force would retain control of the Auto Hobby Shop and the Community Activities Center, because these facilities serve multiple functions and are not exclusive to MFH residents.

No-Action Alternative

The No-Action Alternative is not to privatize MFH and lease the property to a private individual. Arnold AFB would retain management and operations of MFH. There would be no demolition of existing units or construction of new units.

Environmental Consequences

Privatization Alternative

Under the Privatization Alternative, the MFH area, the beach area, and the recreation area would be transferred to a PO through a 50-year lease. The Proposed Action would have no potential to impact air space, geology, land use, protected species, wetlands, cultural resources, recreation, or safety and occupational health. There would be minor temporary impacts to

noise, hydrology, water quality, common fauna, migratory birds, air quality, traffic flow, and utility infrastructure. Use of appropriate best management practices (BMPs) during construction and demolition and prompt revegetation of disturbed areas would minimize the potential for erosion, increased stormwater runoff, and sedimentation to impact hydrology and water quality. There would be a minor temporary benefit to the local economy resulting from demolition and construction activities.

Demolition and construction activities would result in long-term or permanent impacts to soils and vegetation. Use of appropriate BMPs, as described in the attached EA, and prompt revegetation would reduce the potential for indirect impacts from soil disturbance. Arnold AFB has already implemented mitigation for potential impacts to cultural resources resulting from demolition of existing MFH units, assuring that the net impacts to historic resources would be less than significant.

There would be permanent beneficial impacts to hazardous materials and increased protection of children from environmental safety risks. Existing housing units have asbestos-containing materials and the new housing would not contain these materials. All removed asbestos-containing materials would be properly disposed of and children in housing units would not be at risk of exposure to these materials.

No-Action Alternative

Under the No-Action Alternative, Arnold AFB would retain management and operational duties for the MFH. There would be no change from existing conditions and no impacts would occur. Military families would continue to live in inadequate housing and Arnold AFB would continue to have an excess of MFH units.

Conclusion

The attached EA was prepared pursuant to 32 Code of Federal Regulations 989 and U.S. Council on Environmental Quality regulations (Title 40, U.S. Code, Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act. The EA and a draft Finding of No Significant Impact were made available for public review for 45 days. No comments were received. Therefore, the finding of this EA is that the each of the considered alternatives would have no significant impact on the human or natural environment. Accordingly, Arnold AFB may select any of the alternatives for implementation. A Finding of No Significant Impact is issued and no Environmental Impact Statement is required.

Restrictions

No restrictions are necessary for the Proposed Action.

Date: 4 Jun 09

ARTHUR F. HUBER II, Colonel, USAF
Commander

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Acronyms and Abbreviations

ACM	asbestos-containing material
AEDC	Arnold Engineering Development Center
AF	Air Force
AFB	Air Force Base
AFI	Air Force Instruction
AFMC	Air Force Materiel Command
AICUZ	Air Installation Compatible Use Zone
AST	Aboveground storage tank
BCC species	bird species of conservation concern
BG	Block Group
BMP	best management practice
mg/cm^2	milligrams per square centimeter
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CMA	Cooperative Management Agreement
CT	Census Tract
CWA	Clean Water Act
dBa	A-weighted decibel scale
DoD	Department of Defense
DoDI	Department of Defense Instruction
EHR	Eastern Highland Rim
EO	Executive Order
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FR	Federal Register
gpm	gallons per minute
HQ	Headquarters
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
LBP	lead-based paint
Ldn	day-night averaged sound level
MBTA	Migratory Bird Treaty Act

MFH	Military Family Housing
MOM	Measures of Merit
NCGP	No Consumption-General Public
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PDM	Post-Delisting Monitoring Plan
PO	Project Owner
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
SARA	Superfund Amendments and Reauthorization Act of 1986
TDEC	Tennessee Department of Environment and Conservation
TVA	Tennessee Valley Authority
TWRA	Tennessee Wildlife Resources Authority
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	US Fish and Wildlife Service
UST	underground storage tank
WQA	Water Quality Act

1.0 Purpose and Need for Action

1.1 Background

Arnold Air Force Base (AFB; also the Base) is located in Coffee and Franklin Counties in Middle Tennessee. The Base is approximately 70 miles southeast of Nashville, the state capitol, and near the towns of Manchester, Tullahoma, and Winchester. Arnold AFB is the largest employer in the two-county area (Figure 1-1).

The Arnold AFB workforce is approximately 2,600 and consists predominantly of civilian employees, with approximately 300 military and government civilian employees. Arnold AFB occupies 39,081 acres, including the 3,632-acre Woods Reservoir and various sectors of improved, semi-improved, and unimproved grounds. The Base has 5,494 acres of cultivated pine forests and 23,053 acres of hardwood forests (Arnold AFB, 2007). Grasslands and early successional habitats in utility rights-of-way (ROWs) provide 2,219 acres of habitat for numerous rare species. Arnold AFB contains 1,894 acres of jurisdictional wetlands. The remaining 4,683 acres are occupied by wildlife food plots, buildings/structures, mowed/bushhogged areas, and other open areas (Arnold AFB, 2007).

1.1.1 Operations

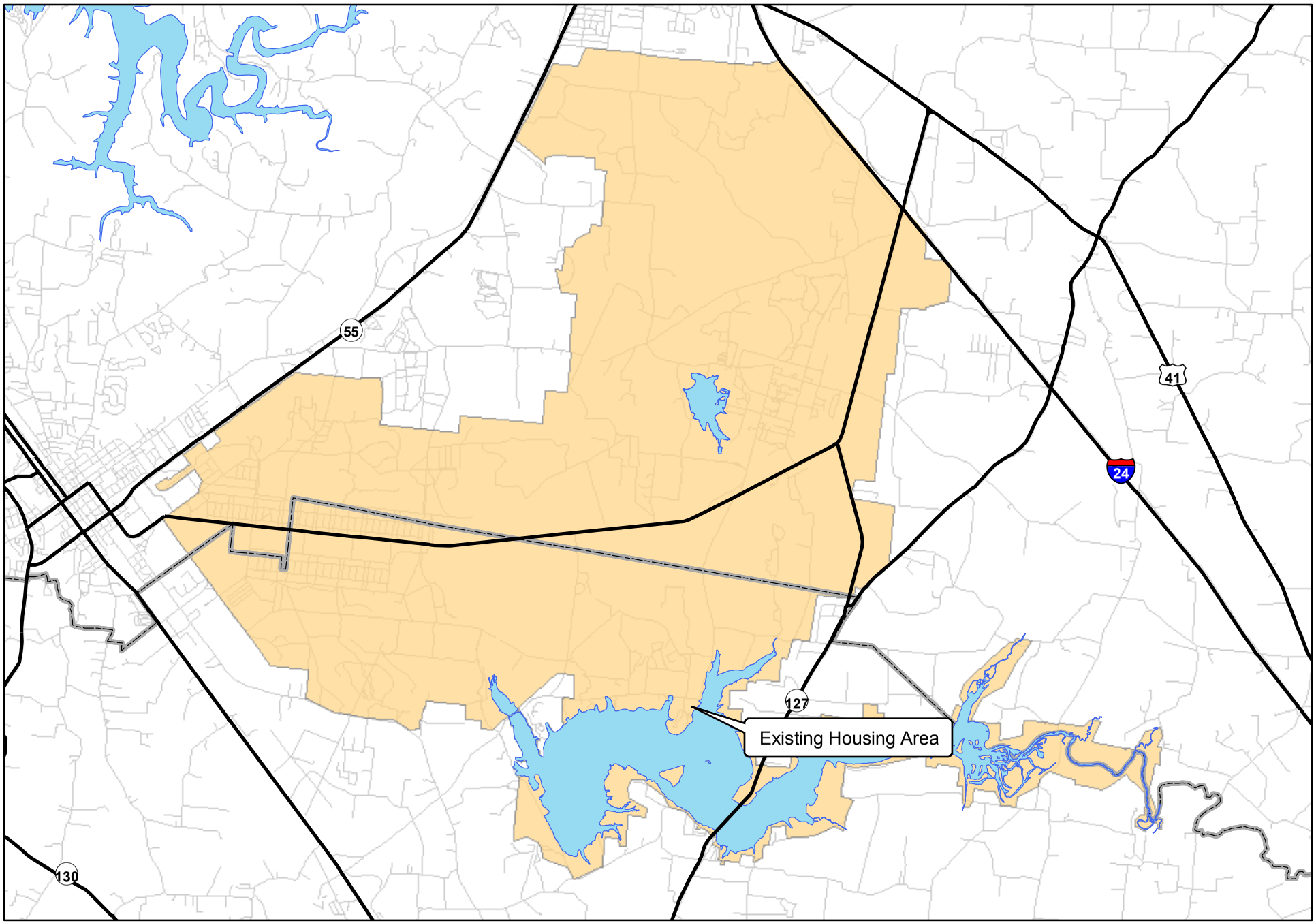
Arnold Engineering Development Center (AEDC), which is located on Arnold AFB, is the most advanced and largest complex of flight simulation test facilities in the world, with 58 aerodynamic and propulsion wind tunnels, rocket and turbine engine test cells, space environmental chambers, arc heaters, ballistic ranges, and other specialized units. Facilities can simulate flight conditions from sea level to altitudes of more than 300 miles, and from subsonic velocities to Mach 20 (Arnold AFB, 2008).

1.1.2 History

Arnold AFB is named for the late General Henry H. "Hap" Arnold, Commander of the Army Air Forces. In 1949, Congress authorized $100 million for the construction of AEDC. On June 25, 1951, one year after General Arnold's death, President Harry S. Truman dedicated AEDC.

1.1.3 Military Mission

The existing military mission is to support the development of aerospace systems by testing hardware in facilities that simulate flight conditions. As part of that mission, combat readiness is founded on the ability of the armed forces to sustain realistic military training now and into the future. Ecosystem management helps maintain natural landscapes for this military training.



Source: Arnold AFB GIS Department

Legend

- Major Roads
- Local Road
- Water Body
- County Boundary
- Base Boundary

N

0 5,000 10,000 15,000 20,000 Feet

Figure 1-1
Arnold Air Force Base and General Vicinity
Housing Privatization Environmental Assessment

1.1.4 Military Family Housing

At present, Arnold AFB has 40 government-owned military family housing (MFH) units located on the western side of a peninsula on the northern shore of Woods Reservoir (Figure 1-2). The MFH units include single units, duplex units, and quadraplex units. The area where MFH is located is called Arnold Village and also includes the Wingo Inn, Community Activities Center, the Auto Hobby Shop, a beach area, a marina, and athletic fields/courts.

1.2 Proposed Action

Privatization is the transfer of government control of an asset and associated activities to the private sector. In addition to previous regulations authorizing privatization of MFH, 10 U.S. Code (USC) §§ 2871 et seq., provides for privatization of MFH through the acquisition or construction of housing units on or near military installations within the United States by qualified entities, who become the Project Owner (PO). The MFH area at Arnold AFB has been evaluated and determined to be suitable for privatization. Under privatization, the government would transfer the MFH units and the utility infrastructure that exclusively serves MFH to the PO. The Air Force (AF) would retain ownership of the land, but would transfer management of the land to the PO through a 50-year lease arrangement.

The Proposed Action consists of:

- Privatization of the approximately 18.3-acre MFH area (Parcel 1, Figure 1-2)
- Privatization of all associated utilities within MFH that will exclusively serve the privatized housing (Parcel 1, Figure 1-2)
- Demolition of the 40 existing MFH units by the PO (Parcel 1, Figure 1-2)
- Construction of new 24 privatized housing units by the PO (Parcel 1, Figure 1-2)
- Privatization of existing facilities, excluding the Community Activities Center and the Auto Hobby Shop, on the approximately 20-acre parcel west of Westover Road from the MFH area (Parcel 3, Figure 1-2)
- Privatization of all associated utilities within the approximately 20-acre parcel that exclusively serve privatized areas (Parcel 3, Figure 1-2)
- Privatization of the approximately 2-acre beach area (Parcel 2, Figure 1-2)
- Privatization of facilities in the beach area (Parcel 2, Figure 1-2)

The parcel west of Westover Road would be privatized to allow for future expansion of housing in the event that a change in the Arnold AFB mission results in an increased number of military personnel assigned to the Base. The AF would retain control of the Auto Hobby Shop and the Community Activities Center because these facilities serve multiple functions and are not exclusive to MFH residents.

Source: Arnold AFB GIS Department

Legend

Parcel

Excluded Area

N

0 200 400 600 800 Feet

Figure 1-2

Location of Military Family Housing on Arnold Air Force Base

Housing Privatization Environmental Assessment

Site design would not be completed until after a private sector management PO is selected. The PO could place the new privatized housing units along the existing roads and use the in-place utility infrastructure or construct new roads in the MFH area and change the site layout. If new roads are constructed, the PO would have to install new utility infrastructure to provide services to privatized housing units that would not be able to connect to the existing utilities. Existing recreational facilities within the MFH area would be retained, replaced, or modified depending on the final site design.

The beach area provides recreational amenities to MFH residents and other Arnold AFB employees. Management of this approximately 2-acre recreational area also would be transferred to the PO. The PO would be responsible for all management and maintenance within the transferred areas, including nuisance animal control.

If during the lease term, the occupancy of the new privatized housing falls below 95 percent for specified periods, the PO can offer vacant housing units to other eligible tenants in accordance with the Rental Rate Management Plan and the Unit Occupancy Plan. However, the PO must allow for immediate rental to target tenants, which include authorized members of the uniformed services and their families (USAF, 2006). If occupancy is below 95 percent for 30 consecutive days, the PO can rent the units to Federal Civil Service employees, Retired Military personnel, and Retired Civil Service employees. After 60 consecutive days with occupancy below 95 percent, the PO can rent to Department of Defense (DoD) contractors. After 90 consecutive days with occupancy below 95 percent, the PO can rent the vacant units to the general public (USAF, 2006).

1.3 Purpose and Need for Proposed Action

The purpose of the Proposed Action is to provide an appropriate number of adequate housing units for military families living on Arnold AFB and to reduce the cost of providing this housing, resulting in economic savings to the AF. Arnold AFB is authorized to have 24 housing units based upon the 2004 Housing Requirements and Market Analysis. At present, Arnold AFB has 40 units and the number of units must be reduced to eliminate the excess.

The MFH units on Arnold AFB are old and are inadequate to meet modern standards. Defense Planning Guidance requires that the DoD upgrade all inadequate housing by fiscal year 2010 (Office of the Secretary of Defense, 2002). The MFH units at Arnold AFB also are beyond economic renovation, necessitating replacement with new units. The DoD lacks sufficient military construction funding to implement renovation and construction at all installations where work is required within the mandated timeframe. The 1996 Defense Authorization Act permits the military to use private capital to meet housing requirements where it is economically feasible. Privatization of the parcel to the west of Westover Drive would allow for future expansion of privatized housing, should it become necessary.

The AF has determined that privatization would enable completion of the new housing units within the specified timeframe with lower life cycle costs than would occur under continued AF management. The Proposed Action is needed to provide the appropriate number of modern standard housing units for military families on Arnold AFB and to provide economically favorable long-term management of these resources.

1.4 Applicable Regulatory Requirements, Permits, and Coordination

The following regulations, permits, or coordination may be applicable to the Proposed Action as described in this Environmental Assessment (EA):

- National Environmental Policy Act (NEPA) of 1969 and implementing regulations in Title 40 Code of Federal Regulations (CFR), Parts 1500-1508 (40 CFR 1500-1508)
- National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq., as amended) and enabling legislation Title 36 (CFR), Part 800 (36 CFR 800)
- 32 CFR Part 989
- Air Force Instruction (AFI) 91-302
- AFI 32-1052
- AFI 32-7042
- AFI 32-7064
- Endangered Species Act (ESA) of 1973 (16 USC 1531-1543)
- Fish and Wildlife Coordination Act (16 USC 661, et seq.)
- Executive Order (EO) 13186, Responsibilities of Federal Agencies to Protect Migratory Birds
- Migratory Bird Treaty Act (MBTA) (16 USC 703, et seq.)
- Clean Water Act (CWA) of 1977 and the Water Quality Act (WQA) of 1987 (33 USC 1251 et seq., as amended)
- EO 11990, Protection of Wetlands
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (as amended by the Superfund Amendments and Reauthorization Act [SARA] of 1986)
- Resource Conservation and Recovery Act (RCRA) of 1976
- Archeological Resources Protection Act of 1979
- EO 11988, Floodplain Management
- Clean Air Act (CAA) (42 USC 7401 et seq., as amended)
- Noise Control Act of 1972
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risk

- EO 13423, Strengthening Federal Environment, Energy, and Transportation Management
- Energy Independence and Security Act of 2007
- Tennessee Department of Environment and Conservation (TDEC) National Pollutant Discharge Elimination System Storm Water Construction Permit (Permit No. TNR100000).

1.5 Authority and Scope of the Environmental Assessment

This document was prepared in accordance with the requirements of the NEPA of 1969, the Council on Environmental Quality (CEQ) regulations of 1978, and 32 CFR Part 989.

1.6 Issues Eliminated from Detailed Analysis

The resource areas discussed below have been eliminated from detailed analysis in this document because there is no potential for the Proposed Action to impact these resources.

1.6.1 Air Installation Compatible Use Zone

Arnold AFB has an active airfield and an exemption from Headquarters (HQ) Air Force Materiel Command (AFMC) for AF regulations regarding Air Installation Compatible Use Zones (AICUZ) because of the limited number and types of flying operations. The MFH area is more than 5 miles from the airfield and is not within any accident potential zones. The activities associated with demolition and construction of housing units and with long-term operation and management of privatized housing and the beach area would not impact airfield operations or management. Therefore, AICUZ was eliminated as an issue warranting further analysis.

1.6.2 Geology

Demolition and construction of housing units would not result in alteration of the underlying geologic features of Arnold AFB. Any disturbance would be limited to the near-surface area. Operation of the privatized housing and the beach area would not impact geology. Therefore, geology was eliminated as an issue warranting further analysis.

1.7 Issues Studied in Detail

The following resource areas are discussed in detail in this EA:

- Land Use
- Noise
- Geomorphology and Soils
- Hydrology
- Water Quality
- Biological Resources
- Safety and Occupational Health

- Air Quality
- Hazardous Materials
- Cultural Resources
- Socioeconomics
- Environmental Justice and Protection of Children
- Traffic Flow
- Utility Infrastructure

1.8 Document Organization

This EA follows the organization established by the CEQ regulations (40 CFR, Parts 1/500-1508). This document consists of the following sections:

1.0 Purpose and Need for Action
2.0 Description of Proposed Action and Alternatives
3.0 Affected Environment
4.0 Environmental Consequences
5.0 Plan, Permit, and Management Requirements
6.0 List of Preparers
7.0 List of Contacts
8.0 References

2.0 Description of Proposed Action and Alternatives

As required by federal regulations, this EA addresses the possible environmental impacts of a No-Action Alternative and the practicable action alternatives. This section provides a description of the action alternative (Privatization Alternative) and the No-Action Alternative and a brief discussion of the impacts associated with each. While no additional action alternatives are considered, alternatives not carried forward for detailed analysis are briefly discussed.

2.1 Privatization Alternative

The Privatization Alternative consists of:

- Privatization of the approximately 18.3-acre MFH area
- Privatization of all associated utilities within MFH that exclusively serve MFH
- Demolition of the 40 existing MFH units by the PO
- Construction of 24 new privatized housing units by the PO
- Privatization of existing facilities, excluding the Community Activities Center and the Auto Hobby Shop, on the approximately 20-acre parcel west of Westover Road from the MFH area (Parcel 3, Figure 1-2)
- Privatization of all associated utilities within the approximately 20-acre parcel that exclusively serve privatized areas
- Privatization of the approximately 2-acre beach area
- Privatization of facilities in the beach area

Under privatization, the AF would retain ownership of the land, but would transfer management of approximately 40 acres to a private PO through a 50-year lease. The government would transfer ownership of the MFH units and the utility infrastructure that exclusively serves MFH to the private sector PO. Management of existing facilities, excluding the Community Activities Center and the Auto Hobby Shop, but including the utilities exclusively serving privatized areas, would be transferred to the PO. The government also would transfer management of the beach area and ownership of the facilities (restrooms, bathhouses, pavilions) located within the beach area to the private sector PO. Once MFH is privatized, the PO would demolish the 40 existing MFH units and construct 24 new privatized housing units.

Site design would not be completed until after the PO is selected. The PO would have leeway to place the new privatized housing units along the existing roads and use the in-place utility infrastructure or to construct new roads in the MFH area and change the site

layout. If new roads are constructed, the PO would have to install new utility infrastructure to provide services to privatized housing units that would not be able to connect to the existing utilities. Existing recreational facilities (tennis courts, walking trails) within the MFH area would be retained, replaced, or modified depending on the final site design. No new construction is anticipated on the approximately 20-acre expansion parcel, as there is no current need or authorization for additional housing units. However, this site would be available for expansion of privatized housing should additional personnel be assigned to Arnold AFB and create a need for an increased number of units.

The beach area provides recreational amenities to MFH residents and other Arnold AFB employees. Management of this approximately 2-acre recreational area also would be transferred to the PO.

The PO would be responsible for all management and maintenance activities for structures and utility infrastructure transferred to private control. The PO also would be responsible for nuisance animal control within the parcels transferred to private control.

2.2 No-Action Alternative

Under the No-Action Alternative, Arnold AFB would retain control and management of MFH. There would be no demolition of existing units or construction of new units. Military families would continue to live in inadequate housing and Arnold AFB would continue to have an excess of MFH units. The No-Action Alternative would not meet the purpose and need for the project.

2.3 Alternatives Dismissed from Consideration

The Privatization Alternative and the No-Action Alternative are the only alternatives considered in this analysis. Alternatives that were dismissed from consideration included:

- Continued operation of MFH by Arnold AFB with demolition and construction as described for the Proposed Action
- Privatization of MFH without demolition of existing units and construction of new housing units

Continued operation of MFH by Arnold AFB would have the same impacts as privatization but would be more costly to the AF. Therefore, this alternative was dismissed from further consideration.

The MFH units at Arnold AFB are inadequate to meet modern requirements and renovation to meet such requirements would not be economical. Privatization without demolition and construction would result in military families continuing to live in inadequate housing and would not meet the mandate to upgrade inadequate housing by 2010. This alternative also would leave Arnold AFB with more MFH units than authorized by the 2004 Housing Requirements and Market Analysis. Because of these reasons, privatization without demolition and construction was dismissed from further consideration.

3.0 Affected Environment

3.1 Land Use

3.1.1 Regional Geographic Setting and Location

Arnold AFB occupies 39,081 acres, including the 3,632-acre Woods Reservoir. Starting in 1950, the U.S. Army Corps of Engineers (USACE) Tullahoma District acquired 4,246 acres of land in Franklin County to create Woods Reservoir, a retention reservoir, to collect water for use as a cooling agent in support of the mission of Arnold AFB to provide aerospace ground test and evaluation products and services. Approximately 4,683 acres of the installation are occupied by wildlife food plots, buildings/structures, mowed/bushhogged areas, and other open areas, such as landfills, roads, etc. (Arnold AFB, 2007). There are 105 miles of roads on Arnold AFB, approximately 50 percent of which are paved (CH2M HILL, 2002). Approximately 436 acres of Arnold AFB's property consists of paved areas, structures, or water. The remaining lands are considered un-improved and include forest and agricultural lands (AEDC, 2004). These lands include cultivated pine forests totaling approximately 5,494 acres and hardwood forests totaling 23,492 acres. Grasslands and early successional habitats in utility ROWs occupy roughly 1,479 acres on the installation and provide habitat for numerous rare species (Arnold AFB, 2007).

3.1.2 Project Area

The project area includes three parcels: the approximately 18.3-acre MFH area, the approximately 2-acre beach area, and the approximately 20-acre expansion area. At present, Arnold AFB has 40 government-owned MFH units located on the eastern side of a peninsula on an approximately 18.3-acre parcel on the northern shore of Woods Reservoir (Figure 1-2). The grounds around the MFH area consist of a grassed, landscaped lawn with large canopy trees; there is no understory. Picnic tables and grills are located throughout the MFH grounds. The approximately 2-acre beach area is located on the southern end of the peninsula (Figure 1-2). The beach area includes restrooms, bathhouses, and pavilion. The approximately 20-acre expansion area is on the western side of the peninsula and includes athletic fields, buildings to support athletic activities, and a landscaped lawn area with large trees. The Community Activities Center and Auto Hobby Shop/Boat Storage Facilities are within this area, but these facilities would not be privatized. Land use in the project area is predominantly residential and recreational.

3.1.3 Surrounding Land Use

MFH is located immediately adjacent to Woods Reservoir and the beach area is located at the tip of the peninsula where the MFH is located. A recreational area with an athletic field is located just to the west of the MFH units. The parcel across from the MFH units also includes an Auto Hobby Shop and the Community Activities Center. A wastewater treatment facility, and associated land application field, that serves MFH and other facilities on the peninsula is located north of Northshore Road. The Wingo Inn is located between the

MFH and beach area (Lake Maps, 2007). Other surrounding land uses are primarily rural and agricultural.

3.2 Noise

Noise, in the context of this analysis, refers to sounds generated by activities that could affect employees of the Base, on-Base residents, residents of off-Base areas, or wildlife. Human hearing is best approximated by using an A-weighted decibel scale (dBa). When sound pressure doubles, the dBa level increases by three (The Engineering Toolbox, 2007). Psychologically, most humans perceive a doubling of sound as an increase of 10 dBa (U.S. Environmental Protection Agency [USEPA], 1974). Sound pressure decreases with distance from the source. Typically, the sound measured from a point source decreases at a rate of 6 dBa per doubling of distance, and sound from a continuous source decreases at a rate of 3 dBa. However, other factors including ground type, atmospheric conditions, and shielding by vegetation and structures further affect the amount of decrease in sound over distance (Federal Highway Administration [FHWA], 2007).

Noise levels are often expressed as day-night averaged sound level (Ldn), which is the dBa sound level over a 24-hour day and night period. The Ldn also applies a 10-dBA penalty to nighttime sounds occurring between 10 pm and 7 am to account for the desirability of a quieter night than day. A noise level considered low is less than 45 dBa, a moderate noise level is 45-60 dBa, and a high noise level is above 60 dBa. In busy urban areas, noise levels are typically near 75 dBa, and can reach 85 dBa near airports and major freeways (California State Lands Commission, 2005). Sound levels in rural residential areas typically average 40 dBa. Noise levels in suburban neighborhoods typically range from 50 dBa to 60 dBa (dB Engineering, 2004).

No specific data have been compiled for the MFH area. However, background noise levels have been measured on-Base and typically range from 50 dBA to 60 dBA, which is similar to a suburban neighborhood range (CH2M HILL, 2004a).

3.3 Geomorphology and Soils

Geomorphology, as discussed here, refers to landforms, slopes (topography/relief), and soils in the Arnold AFB area. A detailed discussion of the geomorphology occurring on Arnold AFB has been presented (CH2M HILL, 2004b). Analysis of this feature helps to establish the relationships between various elements of the environment (geology, hydrology, vegetation, and wildlife). The topography at Arnold AFB ranges from relatively flat with poor surface drainage in the northern portion of the installation to moderately rolling with defined stream channels in the southern section.

Arnold AFB lies within the Eastern Highland Rim (EHR) physiographic region of Tennessee (Miller, 1974). Elevations range from about 1,100 feet above sea level at the drainage divide to 890 feet above sea level in the valleys. In the areas north and northeast of Arnold AFB, there are many swamps and internally drained depressions. Stream channels there are poorly defined and stay dry through much of the summer and fall (Haugh and Mahoney, 1994).

Soils in the Arnold AFB area vary in composition and permeability characteristics and primarily belong to the Dickson-Mountview-Guthrie Association (Natural Resources Conservation Service [NRCS], 2008. These soils include: the Dickson silt loam series; the Guthrie silt loam soil series; the Lawrence silt loam soils; the Lobelville silt loam soils; the Mountview silt loam soils series; the Mountview gravely silt series; the Purdy silt loam series; and the Waynesboro loam soil series. The Dickson silt loam and Mountview silt loam are the most important soils on well-drained slopes and ridges. The Guthrie silt loam soil series are soils that are poorly drained and are associated with flats, depressions, and floodplain areas. The Lawrence silt loam soils are somewhat poorly drained and are associated with floodplains and foot slopes. The Lobelville silt loam soils are moderately well drained and are associated with floodplains and foot slopes. The Purdy silt loam soils are poorly drained and are associated with flats, depressions, and floodplain areas. The Waynesboro loam soil series are well drained and are associated with upland areas.

The peninsula containing the three parcels extends south into Woods Reservoir. Topographically, the peninsula slopes gently to the east, west, and south (Chapman, 2005). The soils there consist of mainly Mountview silt loam and Baxter Cherty silt loam (NRCS, 2008). The Mountview silt loam soil series are moderately well drained soils and are associated with upland areas. The Baxter Cherty silt loam series is a gravelly, well drained soil that is typically associated with the slide slopes of ridges.

3.4 Hydrology

3.4.1 Groundwater

Regional groundwater resources include the Mississippi Carbonate (karst) aquifer (recently named Highland Rim aquifer). This aquifer consists of flat-lying carbonate rocks of Mississippian age and underlies the Highland Rim physiographic province. Well yields commonly range from 5 to 50 gallons per minute (gpm) (TDEC, 2006a).

Karst areas are characterized by sinkholes, springs, disappearing streams and caves, and rapid, highly directional groundwater flow in discrete channels. Since water can travel rapidly over long distances through conduits that lack natural filtering processes of soil and bacteria, karst systems are easily contaminated.

3.4.2 Surface Waters

Hydrologic features include surface waters (lakes, rivers, streams, and springs) and groundwater. Arnold AFB lies within the Duck River and Elk River Basins. The drainage divide between these two watersheds extends southwest to northeast through the AEDC Industrial Complex. The Duck River Basin lies to the north of the divide and receives drainage from Hunt, Huckleberry, Wiley, Crumpton, and Bobo Creeks and the Hickerson Spring Branch. The Elk River Basin, including the MFH and beach areas, is to the south of the divide and collects surface drainage, primarily from Bradley, Brumalow, and Rowland Creeks. Smaller creeks such as Dry Creek, Hardaway Branch, Saltwell Hollow Creek, Spring Creek, and Poorhouse Creek also contribute to the Elk River Basin (Arnold AFB, 2007).

The climate of the EHR varies by season, with generally mild winters and warm summers. Rainfall averages between 50 and 55 inches per year and is heaviest in late winter and early

spring. The average yearly temperature is about 60 degrees Fahrenheit (Smith, 2004). Precipitation is somewhat evenly distributed throughout the year, with slightly less in fall and slightly more in winter. October is typically the driest month (3.44 inches of precipitation) and March has the highest average precipitation (6.24 inches) (Arnold AFB, 2007).

Floodplains have been defined at several locations on Arnold AFB. These areas are located near Sinking Pond and the inlet to Woods Reservoir (Arnold AFB, 2007). There are no floodplains on any of the three parcels.

The MFH area is located within the Elk River Basin. There are no streams in the proposed housing area (Figure 3-1). All drainage within the housing area would flow directly into Woods Reservoir.

3.5 Water Quality

Arnold AFB straddles the upper Elk River and Duck River Basins. The MFH area is located within the Elk River Basin. Fourteen water bodies in the Upper Elk River Basin are included on the 2006 Section 303(d) list (USEPA, 2006). Woods Reservoir, located immediately adjacent to the MFH area, is listed as not supporting its designated uses because of polychlorinated biphenyl (PCB) impairment of sediments resulting from historical PCB releases from AEDC into Woods Reservoir. A "No Consumption-General Public" (NCGP) fishing advisory has been issued for catfish (TDEC, 2006b).

3.6 Biological Resources

Biological resources include the native and introduced terrestrial plants and animals around Arnold AFB. The land areas at Arnold AFB are home to unusually diverse biological resources including several sensitive species, habitats, and wetlands. Arnold AFB developed a system of ecological associations based on floral, faunal, and geophysical characteristics. These ecological associations are described in the Arnold AFB Integrated Natural Resources Management Plan (INRMP) (Arnold AFB, 2007). A comprehensive review of the important species is presented in a previous EA (CH2M HILL, 2004a); therefore, only summary information is provided below.

3.6.1 Eastern Highland Rim Ecological Association

The EHR region is part of the Mississippian Plateau section of the Western Mesophytic Forest region, supporting a mixed oak-tulip-chestnut forest with accessory stands of beech and hemlock. Relic stands of mixed hardwood-white pine occur on some bluffs above streams. The Barrens of the EHR is linked to the karst topography and was once an area of tallgrass prairies.

Source: Arnold AFB GIS Department

Legend

- Sensitive Species
- Gray Bat
- Streams
- Wetland
- Project Area

N

0 1,000 2,000 3,000 4,000 Feet

Figure 3-1
Location of Sensitive Biological Resources Near Military Family Housing
Housing Privatization Environmental Assessment

3.6.2 Wildlife Species

Wildlife species at Arnold AFB are those common to the central southeastern United States. The 2007 INRMP indicates that there are 42 mammals (including 7 species of bats), 35 reptiles, 26 amphibians, and 83 species of fish found on the Base (Arnold AFB, 2007). In addition, AEDC Conservation staff identified 226 species of birds including summer residents, migrants, and wintering species on-Base (Arnold AFB, 2007). Canada geese frequent the beach area and have been a nuisance in the past.

3.6.3 Plant Species

The plant species found at Arnold AFB are those common to the EHR ecological association. Oak-hickory forest, cedar glades, and a mosaic of bluestem prairie and oak-hickory forest dominate this association. The predominant vegetation form is temperate lowland and submontane broad-leaved cold-deciduous forest. Oaks (*Quercus* spp.) are the dominant canopy species. Hickories (*Carya* spp.), including pignut (*C. glabra*), mockernut (*C. tomentosa*), shagbark (*C. ovata*), and bitternut (*C. cordiformis*), form a common but minor component (McNab and Avers, 1994).

Numerous wetlands occur across the Base, with prevailing vegetation ranging from grassland to closed-canopy forest. Several hundred acres of open, prairie-like Barrens occur primarily near the airfield and along powerline and railroad ROWs. The Nature Conservancy and the Tennessee Division of Natural Heritage classified and mapped 33 plant associations on Arnold AFB; 17 of the 33 associations are considered "imperiled" community types.

Vegetated portions of AEDC are composed primarily of landscaped plants and grasses with some areas of mixed hardwoods. A well-developed understory is generally absent due to browsing from deer.

Vegetation on the peninsula, containing MFH, is primarily mixed hardwood forest, dominated by mature oaks. The understory consists of planted grass. The MFH grounds receive a high level of human activity and are routinely maintained and landscaped.

3.6.4 Sensitive Species

Sensitive species include those with federal endangered or threatened status; species proposed for listing as federal endangered or threatened; and state endangered, threatened, and species of special concern status. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is any species that is likely to become endangered in the future throughout all or a significant portion of its range due to loss of habitat, anthropogenic effects, or other causes.

Three federally listed species and one recently delisted species with specific management and monitoring requirements are known to occur, or have the potential to occur, on Arnold AFB (Table 3-1). U.S. Air Force (USAF) projects that could affect federally protected species and species proposed for federal listing are subject to the ESA. One element of the ESA, as identified in Section 4(a)(3)(A), is the designation of critical habitat. No areas on Arnold AFB are designated as critical habitat under the ESA.

The species present on Arnold AFB that are protected under the ESA are listed in Table 3-1.

TABLE 3-1
Federally Protected Species Occurring on Arnold AFB
Housing Privatization Environmental Assessment

Species	Federal Status
Gray bat *(Myotis grisescens)*	Endangered
Indiana bat *(M. sodalis)*	Endangered
Bald Eagle *(Haliaeetus leucocephalus)*	Recently Delisted [a]
Eggert's sunflower *(Helianthus eggertii)*	Recently Delisted [b]

[a] 50 CFR 17; July 9, 2007
[b] Federal Register (FR) 70:159 pp 48482-90

Woods Reservoir is an attraction for wildlife, including sensitive species. There have been no known recorded instances of sensitive species in the proposed housing area (Figure 3-1). Federally protected species that could occur on the three parcels include the gray bat, the Indiana bat, and the bald eagle, which are described below.

3.6.4.1 Gray Bat

The gray bat occupies a limited geographic range in the limestone karst areas of the central and southeastern United States. The gray bat typically uses caves for both winter hibernation and summer roosting/maternity, although different caves are used for these two periods and bats may travel up to 325 miles between winter and summer habitat (Whitaker and Hamilton, 1998). The gray bat has narrow temperature requirements, limiting the number of caves that are suitable for use. The species is particularly vulnerable because 95 percent of the population hibernates in only 9 caves, with more than half the population hibernating in a single cave (Rommé and Reaves, 1999). On Arnold AFB, a maternity colony is located in a gate room at Woods Reservoir Dam.

Gray bats forage primarily on aquatic insects along forested riparian corridors and use other forested corridors as travel routes. The canopy provides protective cover from potential predators (Rommé and Reaves, 1999; Lamb, 2003). Mist net surveys at Arnold AFB have confirmed this life history characteristic, and gray bats have been captured while foraging along Elk River Bottoms, Bradley Creek, Brumalow Creek, and Rowland Creek. Gray bats also have been recorded with AnaBat II™ at Goose Pond, Sinking Pond, Tupelo Swamp, Westall Swamp, and near the Tennessee Valley Authority (TVA) substation. There are no known recorded instances of gray bats in the proposed housing area. The nearest documented gray bat occurrence is on Brumalow Creek, approximately 1.04 miles northeast of the peninsula. There is a possibility for incidental flyover and foraging in the proposed housing area.

3.6.4.2 Indiana Bat

Indiana bats hibernate in caves and typically spend summers under the loose bark of trees in upland and bottomland forests and semi-wooded areas (Whitaker and Hamilton, 1998). Typically, Indiana bats make summer roost in hardwood trees with sloughing bark or cavities (Rommé and Reaves, 1999).

AnaBat II™ surveys in 2003 identified the possible presence of Indiana bats along Bradley and Brumalow Creeks, but the species has never been captured in mist nets on the Base (Lamb, 2004). There are no known recorded instances of Indiana bats in the proposed housing area. However, there is potential for incidental flyover and foraging among the trees in the area.

3.6.4.3 Bald Eagle

The bald eagle is a large raptor found over most of North America. The bald eagle was recently delisted under the ESA (50 CFR 17; July 9, 2007). However, the bald eagle will be monitored for 5 years to determine whether ESA protection should be re-enacted. The bald eagle remains protected under the Bald and Golden Eagle Protection Act and the MBTA, directed by the US Fish and Wildlife Service (USFWS). In the Southeast, bald eagles build their nests in early September. They usually build in high pine trees or bald cypress trees that are 1,000 feet or less from open water. Tennessee's bald eagle population is the highest in winter when birds migrate from the north. In most years, a single pair of bald eagles winters on Woods Reservoir. Occasional sightings of transient eagles occur, but the species has not been documented nesting on Arnold AFB. However, there is a possibility for incidental flyovers or that foraging would take place in the proposed housing area.

3.6.4.4 Eggert's Sunflower

Arnold AFB is home to the largest known population of Eggert's sunflower. This species was, until recently, listed as threatened by the USFWS under the ESA. The TDEC currently lists Eggert's sunflower as threatened. Although it was federally delisted on August 18, 2005 (Federal Register [FR] 70:159 pp 48482-90), the Eggert's sunflower recovery plan requires that monitoring be conducted for a 5-year period after delisting. Arnold AFB has signed a Cooperative Management Agreement (CMA) with the USFWS Cookeville, Tennessee Field Office to continue management and monitoring of this species according to the protocols outlined in the Post-Delisting Monitoring Plan (PDM) for Eggert's sunflower (FR 70:159 48577-79). In addition, management for this species is part of the ongoing INRMP process. While Eggert's sunflower is found on the grounds of Arnold AFB, it does not occur on or near the peninsula containing the MFH area.

3.6.4.5 Other Sensitive Species

The sharp-shinned hawk, which has been designated as in need of management by the Tennessee Wildlife Resources Authority (TWRA), and Bachman's sparrow, listed as endangered by TWRA (TWRA, 2007), may also occur near the three parcels that would be privatized (Figure 3-1). The sharp-shinned hawk may forage or incidentally pass through the area, but the level of human activity would preclude extensive use or nesting in the proposed housing area. The habitat within the three parcels is unsuitable for Bachman's sparrow and it would not be expected to inhabit or forage in the area.

3.6.5 Migratory Bird Treaty Act

DoD installations are required to comply with the MBTA. The 2003 Defense Authorization Act required the USFWS to reduce restrictions on military readiness training caused by migratory birds. DoD has agreed to work to conserve bird species of conservation concern (BCC species) on installations. The BCC species list was developed by the North American

Bird Conservation Initiative, with species that occur in the Central Hardwoods Region, which include the sharp-shinned hawk and the Bachman's sparrow.

Arnold AFB participates in the Federal Partner-In-Flight Program for the conservation of neotropical migratory birds. Natural areas within Arnold AFB may serve as habitat for species which migrate through the region. In accordance with the MBTA and EO 13186, (Responsibilities of Federal Agencies to Protect Migratory Birds), efforts are made to avoid and to minimize negative impacts upon migratory birds. Through its Barrens mosaic restoration and Woods Reservoir Waterfowl Refuge, Arnold AFB has taken steps to protect birds and restore and enhance habitat. Arnold AFB works to prevent or abate pollution or detrimental alteration of the environment, as practicable, and incorporates migratory bird conservation into agency planning processes. Arnold AFB also has a process in place to notify the USFWS if unintentional taking of migratory birds resulting from Arnold AFB actions has occurred. Additionally, Arnold AFB notifies the USFWS if its actions are likely to have a measurable negative effect on migratory bird populations. Arnold AFB implements conservation measures as specified in EO 13186, Section 3 (e)(9).

3.6.5.1 Woods Reservoir Waterfowl Refuge

The Woods Reservoir Waterfowl Refuge is located on the upstream side of the Rowland Creek Causeway near the Woods Reservoir Dam. This area is managed as a feeding area for waterfowl. In the spring, corn is planted, cultivated, and sprayed with herbicide as needed for weed control. Strips of corn are mowed down and left in the field after the corn is mature and before waterfowl hunting season begins. Strips continue to be mowed throughout the entire waterfowl season. Hunting and trespassing are not allowed in the refuge fields during the waterfowl season. The peninsula where privatization is to occur is not in the Waterfowl Management Area (TWRA, 2008).

3.6.6 Wetland Habitats

Wetlands are inundated areas, or areas where water is present either at or near the surface of the soil for distinguishable periods throughout the year.

Wetland flats and depressions are the two primary wetland types on Arnold AFB. The USFWS completed a wetlands inventory and mapping project on Arnold AFB in 1998 and documented 1,894 acres of wetlands in 220 sites. Two hundred wetlands on Arnold AFB totaling about 1,775 acres are classified as either flats or depressions (Arnold AFB, 2007). No wetlands occur in the areas that would be privatized (Figure 3-1).

3.7 Safety and Occupational Health

The MFH and beach recreation area is operated in compliance with all applicable federal laws, codes, and regulations and with all applicable laws, ordinances, codes, and regulations of the State of Tennessee and Franklin County with regard to construction, health, safety, water supply, sanitation, licenses and permits to do business, and all other matters.

3.8 Air Quality

Arnold AFB is located in the Tennessee Valley-Cumberland Mountains Interstate Air Quality Region, which occupies portions of Alabama and Tennessee. Although activities at Arnold AFB result in various sources and volumes of air emissions, the regional air quality is good.

The USEPA maintains a listing of all locations in the United States that are classified as nonattainment areas based on air quality for all criteria pollutants. As of August 15, 2008, there are three areas covering portions of Tennessee that are listed as nonattainment areas (USEPA, 2008):

- Knoxville
- Memphis
- Chattanooga

Arnold AFB is not located within any of these areas.

Air pollutants are emitted from mobile and stationary sources and general maintenance activities, government and privately owned vehicles, jet engine testing, aircraft operations, prescribed burning, wildfires, and mission test and training operations (USAF, 2000). The Tennessee Air Pollution Control Board of the TDEC issued AEDC a Title V Operating Permit in May 2002. There are currently 26 emission sources covered under this permit, and all are in compliance (Sherril, 2008).

Since Arnold AFB is within an attainment area for all criteria pollutants, major new or modified stationary sources on and near the Base are subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without causing significant deterioration of regional air quality. A major new source is defined as one that has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specific major source thresholds: 100 or 250 tons/year based on the source's industrial category.

There are no permitted emission sources on the peninsula where privatization would occur (Sherril, 2008). Any proposed activities would be reviewed to determine whether they would be subject to PSD review.

3.9 Hazardous Materials

Arnold AFB has an active Installation Restoration Program (IRP) designed to protect human health and the environment, and to restore areas for future use. Arnold AFB executes the IRP in consultation with TDEC in accordance with CERCLA and RCRA. Twenty-six IRP sites have been identified on Arnold AFB, 11 of which have been closed after determinations of no further action required.

Over the past 5 years, Arnold AFB has generated 556,389 pounds of hazardous wastes (Partin, 2008). These wastes are typically generated from painting and paint removal activities, cleaning operations, chemical laboratory analytical work, environmental leaks, IRP activities, and unused hazardous materials.

No lead-based paint (LBP) with lead levels of 0.5 percent or higher remains in Arnold AFB MFH units. A 1996 LBP survey indicated the presence of LBP outside and inside the units. Between 1996 and 2000, MFH was renovated and during this work much of the LBP was removed (Bragg, 2008). Arnold AFB then conducted a LBP survey in August of 2005 and determined that there were no lead levels over 0.5 percent or 1.0 milligrams per square centimeter (mg/cm^2) (PSI, 2005).

Asbestos-containing materials (ACMs) are present in some MFH units. Ceiling materials, tan sheeting material, and brown floor mastic in MFH may units contain asbestos (CH2M HILL, 2008).

The three parcels are considered Category 1 property, meaning that there has been no release or disposal of hazardous or petroleum substances, including no migration of these substances from adjacent areas (CH2M HILL, 2008). There are no underground storage tanks (USTs) in the MFH or beach area. In addition, there is no history of any USTs or aboveground storage tanks (ASTs) being located on the any of the three parcels or any documented spills (CH2M HILL, 2008). Minor quantities of cleaners are used at the site for cleaning and maintaining beach area facilities.

The Auto Hobby Shop, located off of Access Trail near MFH, collects used oil. In addition, the Community Center located off of Westover Road between Parcels 1 and 3 collects fluorescent bulbs for recycling. These areas are not to be privatized and these activities will continue after privatization of the three parcels.

3.10 Cultural Resources

Section 106 of the NHPA requires that federal agencies analyze the effects of federal activities on historic properties. Areas potentially affected by mission activities are surveyed as needed. Arnold AFB also follows the principles of Department of Defense Instruction (DoDI) 4710.02, "DoD Interactions with Federally-Recognized Tribes" (September 14, 2006).

Previous surveys conducted on Arnold AFB have identified 117 prehistoric and historic sites dating back to Early Archaic times (AMEC, 2008; AAC, 2009). These include 49 prehistoric sites, 55 historic sites, and 13 mixed prehistoric and historic sites. Of these 117 sites, 5 have been determined eligible for listing on the National Register of Historic Places (NRHP) and 43 are considered potentially eligible. The prehistoric sites include open habitations, isolated projectile points/knives, and a midden mound. The historic sites include the remains of houses, outbuildings, wells, cemeteries, and trash dumps (AMEC, 2008).

Most of the archaeological sites are located along Woods Reservoir. Although, according to a December 2, 2008, Phase I Archaeological Survey, no archaeological sites are located on the peninsula where MFH is located (AAC, 2009). The nearest archaeological site to the MFH area is 40FR209, a late 19th early 20th century historic well, which is located approximately 0.5 mile to the north of the peninsula containing the MFH area. This site was determined not eligible for listing on the NRHP (AMEC, 2008).

No historic buildings or structures have been identified within the three parcels that would be transferred or on the remainder of the peninsula. MFH units on Arnold AFB are not Wherry-Capehart era housing, but mitigation for impacts to Arnold AFB MFH units was

addressed through the Program Comment issued by the Advisory Council on Historic Preservation to address Wherry-Capehart era housing (Appendix A of Advisory Council on Historic Preservation, 2004).

3.11 Socioeconomics

Currently all facilities on the peninsula are operated and maintained by Arnold AFB. At present, 23 units (approximately 58 percent) of the MFH units are occupied (Sherril, 2008) Because Arnold AFB has more MFH units than it is authorized, new residents would not be allowed to increase the number of occupied units above 24. Rent for military personnel is paid by the members from their individual Basic Allowance for Housing.

3.12 Environmental Justice and Protection of Children

3.12.1 Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. "Fair treatment" means that no group, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the adverse environmental consequences resulting from industrial, municipal, or commercial operations or the execution of federal, state, local, and tribal programs and policies.

In February 1994, President Clinton issued EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629). This order directs federal agencies to incorporate environmental justice as part of their missions. Federal agencies are specifically directed to identify and, as appropriate, to address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. CEQ has issued guidance to federal agencies to assist them with their NEPA procedures so that environmental justice concerns are effectively identified and addressed (CEQ, 1997).

The U.S. 2000 Census was used to determine the low-income and minority population characteristics of the area. U.S. Census data on minority and low-income populations are reported every 10 years with each decennial census. Census data are reported for a variety of geographic areas depending on availability of data. For purposes of environmental justice calculations, the largest geographic area is the Census Tract (CT), which can range in size from several to many miles depending on the density of the local population. Each CT consists of several Block Groups (BGs). Each BG in turn consists of multiple Blocks, which sometimes coincide with geographies as small as a city block or several acres of land area.

For purposes of the Proposed Action, a detailed census analysis was not completed. The area assessed is restricted from the civilian public population. The MFH, recreational, and beach areas are occupied and/or used by military families and/or Arnold AFB employees and their families only. The MFH units are currently not completely occupied. Typically, the MFH units provide housing to military families who are temporarily based at Arnold AFB.

A sparse civilian population is located across Woods Reservoir from the MFH area and around the Arnold AFB perimeter. The Preferred Alternative would be implemented within CT 9602, BG 1. CT 9602 BG 1 extends from almost the eastern tip of Woods Reservoir west to Tullahoma Highway 41A and into parts of Tullahoma and the City of Winchester, straddling the northern edge of Franklin County and the southern edge of Coffee County.

Table 3-2 presents the race, ethnicity, and poverty data for the Proposed Action BG and adjacent CT/BGs. CT 9602, BG 1, has a lower minority percentage than the State of Tennessee and surrounding counties, which include Franklin and Coffee Counties. The adjacent CT/BGs exhibit similar minority numbers with the exception of CT 9601 BG 3 and CT 9606 BG 1, which contain a higher percentage of minorities. The Hispanic population of the Proposed Action CT/BG is 1.3 percent, which is lower than those of the State and the two surrounding counties. The other adjacent CT/BGs have Hispanic percentages that are comparable to those of the State and the surrounding counties.

In CT 9602 BG 1, 11.4 percent of residents are classified as living below the poverty level, which is lower than those of the adjacent CT/BGs, the surrounding counties, and the State. The highest poverty rate is within CT 9601 BG 3, which contains a 19.4 percent population of individuals living below the poverty level. This is 7.5 percent higher than Franklin County and 4.9 percent higher than Coffee County.

TABLE 3-2
Race, Ethnicity, and Poverty Data for the Proposed Action Census Block Group and Adjacent Census Tract and Block Groups
Housing Privatization Environmental Assessment

Race	Proposed Action BG 1, CT 9602	BG 2, CT 9601	BG 1, CT 9601	BG 3, CT 9601	BG 1, CT 9606	Franklin County	Coffee County	Tennessee
White alone	2,141	1,338	1,124	907	1,768	36,206	44,858	4,563,310
Black or African American alone	62	21	6	247	240	2,157	1,724	932,809
American Indian and Alaska Native alone	3	2	0	4	6	78	146	15,152
Asian alone	24	1	0	1	1	162	353	56,662
Native Hawaiian and Other Pacific Islander alone	1	0	0	0	1	13	15	2,205
Some other race alone	12	10	2	3	8	237	438	56,036
Two or more races	24	10	0	0	44	417	480	63,109
Hispanic[c]	30	33	7	8	9	620	1,051	123,838
Total Population	2,267	1,382	1,132	1,181	2,068	39,270	48,014	5,689,283
Minority Population	5.90%	3.20%	0.07%	21.50%	14.50%	7.80%	6.60%	19.80%
Hispanic	1.30%	2.40%	0.06%	0.07%	0.40%	1.60%	2.20%	2.20%

TABLE 3-2

Race, Ethnicity, and Poverty Data for the Proposed Action Census Block Group and Adjacent Census Tract and Block Groups

Housing Privatization Environmental Assessment

Race	Proposed Action BG 1, CT 9602	BG 2, CT 9601	BG 1, CT 9601	BG 3, CT 9601	BG 1, CT 9606	Franklin County	Coffee County	Tennessee
White alone	2,141	1,338	1,124	907	1,768	36,206	44,858	4,563,310
Black or African American alone	62	21	6	247	240	2,157	1,724	932,809
American Indian and Alaska Native alone	3	2	0	4	6	78	146	15,152
Population[a]								
Income below poverty level[b]	BG 1, CT 9602	BG 2, CT 9601	BG 1, CT 9601	BG 3, CT 9601	BG 1, CT 9606	Franklin County	Coffee County	Tennessee
Number of population below poverty level by CT/BG	258	243	138	227	311	4,953	6,803	746,789
Percentage of population below poverty level[b]	11.40%	18.20%	12.20%	19.20%	15.00%	11.70%	14.30%	13.10%

Source: U.S. Census Bureau (USCB), 2000

[a] Hispanic: The 2000 Census included a category for Hispanic or Latino. This category is for individuals who classify themselves in one of the specific Hispanic or Latino categories such as “Mexican,” Puerto Rican,” or “Cuban,” as well as those who indicate that they are “other Spanish, Hispanic, or Latino.” Origin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person’s parents or ancestors before arrival in the United States. People who identify their origin as Spanish, Hispanic, or Latino may be of any race.

[b] Poverty data taken from U.S. Census Bureau Summary File 3. Summary File 3 data have different total population than rest of table, which was taken from Summary File 1.

3.12.2 Protection of Children

Guidelines for the protection of children are specified in EO 13045, Protection of Children from Environmental Health Risks and Safety Risk (FR: 23 April 1997, Volume 62, Number 78). This EO requires that federal agencies make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and ensure that policies, programs, and standards address disproportionate risks to children that result from environmental health or safety risks.

There is no concentration of children in the project vicinity. As indicated by Table 3-3, the Proposed Action CT/BG, the adjacent CT/BGs, the surrounding counties, and the State all exhibit a similar percentage of population under the age of 18. However, these populations are located outside of the Arnold AFB boundary and the MFH area is located on a peninsula in Woods Reservoir within the boundaries of Arnold AFB and is physically isolated from

the general public. Children in MFH have the potential to be exposed to ACM in ceilings and floor mastic.

TABLE 3-3
Children Under 18 Data for the Proposed Action Census Block Group, Adjacent Census Tract Block Groups, Franklin County, Coffee County, and State of Tennessee

Housing Privatization Environmental Assessment

Population	Proposed Action BG 1, CT 9602	Proposed Action BG 2, CT 9601	BG 1, CT 9601	BG 3, CT 9601	BG 1, CT 9606	Franklin County	Coffee County	Tennessee
Children Under 18	598	311	255	274	594	9,043	12,046	1,398,521
Total Population	2,267	1,382	1,132	1,181	2,068	39,270	48,014	5,689,283
Percentage of population under the age of 18	26.40%	22.50%	22.50%	23.20%	28.70%	23.00%	25.10%	24.60%

Source: USCB, 2000

3.13 Traffic Flow

The Base road network consists of approximately 105 miles of improved roads—50 percent gravel and 50 percent asphalt and concrete. There are 42.35 acres of parking area comprising more than 5,000 parking spaces. About 70 percent of the lot surfaces are asphalt, 25 percent are stone, and 5 percent are concrete (AEDC, 2004).

The entrance to the MFH area is located off of Northshore Road. The nearest major highway to the MFH area is Interstate 24, which can be accessed from Wattendorf Memorial Highway. Pumping Station Road connects the MFH area with Wattendorf Memorial Highway (Google Maps, 2008).

Currently, parking occurs in designated parking lots located in front of the MFH units. The beach area is accessed by foot and parking is available at the Wingo Inn and Arnold Lakeside Club parking lots.

3.14 Utility Infrastructure

Utility services on the peninsula currently are owned by Arnold AFB. Utilities serving the MFH area include water for fire protection, potable water, sanitary sewer, and electricity.

4.0 Environmental Consequences

4.1 Land Use

4.1.1 Privatization Alternative

Under the Privatization Alternative, Arnold AFB would lease the property to a PO. All 40 existing MFH units would be demolished and 24 new privatized housing units would be constructed. The PO would then be responsible for the management and operation of the new privatized housing units, the beach area, and all outdoor recreation in Parcels 1, 2, and 3, including the athletic field, tennis courts, and walking trails. The PO may retain, upgrade, or replace recreational amenities. However, no change in designated land use would result. The area used for housing and recreation and those uses would be retained.

4.1.2 No-Action Alternative

There would be no change from current conditions under the No-Action Alternative. Individual MFH units might be demolished over time to reduce the number of units to 24, but the land use would remain residential. There would be no impacts to land use.

4.2 Noise

4.2.1 Privatization Alternative

No long-term noise impacts would result. A minor short-term increase in noise from demolition and construction-related activities would be expected, but these impacts would cease when construction is complete. Disturbance from noise would be reduced by limiting construction activities to the times of day when persons would be away from home or awake at home. After construction is complete, the noise level at the location of the new privatized housing may be reduced because the number of residents would be lower.

4.2.2 No-Action Alternative

Under the No-Action Alternative there would be no changes in noise levels from current conditions. There would be no noise impacts.

4.3 Geomorphology and Soils

4.3.1 Privatization Alternative

Soil disturbance would result from demolition and construction activities. Grading to prepare sites for new construction may alter site topography.

Because Arnold AFB would retain ownership of the land, Arnold AFB would require that the PO implement all demolition and construction consistent with the *Tennessee Erosion &*

Sediment Control Handbook (TDEC, 2002) and comply with the Tennessee Water Quality Control Act of 1977 to minimize the potential for impacts to soils during demolition and construction activity.

During construction, grading plans would be prepared to identify how sites would be graded, how drainage patterns would be directed, and how runoff velocities would affect Woods Reservoir. The grading plans also would include information regarding when earthwork would start and stop, establish the degree and length of finished slopes, and specify where and how excess material would be disposed of or where borrow materials would be obtained if needed. Berms, diversions, and other stormwater practices that require excavation and filling also would be incorporated into the grading plan. The grading plan would be designed to address erosion and sediment control and stormwater management goals. Grading crews would be supervised to ensure that the plans are implemented as intended.

Soil disturbance could result in increased erosion potential from loss of ground cover and exposure of bare soils to precipitation and runoff. Potential temporary impacts to water quality from these factors are discussed in Section 4.5. However, potential impacts would be controlled and avoided through the use of appropriate best management practices (BMPs) and soil stabilization/revegetation techniques following construction. The PO would be required to implement appropriate BMPs, as identified in the AEDC Stormwater Pollution Prevention Plan (AEDC, 2007a), to address site-specific conditions. These BMPs could include, but would not be limited to:

- Sediment barriers (silt fence or straw bales)
- Temporary detention basins
- Grade stabilization with seed and mulch
- Geotextile slope stabilization

Because rainfall is distributed fairly evenly throughout the year, no particular time of year would be likely to reduce the erosion potential. Therefore, it is unlikely that timing of construction could be used to offset potential erosion impacts.

The Proposed Action would have minimal impact on geomorphology. Most areas where demolition and construction would occur are on lands previously cleared and graded.

Should construction of new privatized housing units occur in areas not currently developed, the amount of construction would be increased and would include placement of new roadways and utility infrastructure. If 1 acre or more of land is disturbed during construction, a construction stormwater general permit would be required, which is further discussed in Section 5.0 (TDEC, 2007). However, the same protective requirements would be implemented and any impacts to geomorphology would be minor.

4.3.2 No-Action Alternative

There would be no change in geomorphology or soils on the three parcels under the No-Action Alternative. No impacts to these resources would result.

4.4 Hydrology

4.4.1 Privatization Alternative

Any direct impacts to hydrology under the Privatization Alternative would be negligible. The size of individual new housing units would increase but the number of housing units overall would decrease. It is anticipated that there would be no net increase in impervious area under this alternative. Use of BMPs during demolition and construction would minimize the potential for indirect impacts to hydrology as a result of construction.

Should construction of new privatized housing units occur in areas not currently developed, the amount of impervious surface would increase as new roads are constructed. However, the same protective requirements would be implemented during construction and the PO would be required to construct appropriate post-construction stormwater controls to prevent an increase in post-construction stormwater runoff. Any impacts to hydrology would be minor.

4.4.2 No-Action Alternative

There would be no change from current conditions on the three parcels under the No-Action Alternative. No impacts to hydrology would result.

4.5 Water Quality

4.5.1 Privatization Alternative

Construction activities that result in soil disturbance and exposed soil could lead to water quality impacts associated with the downslope transport of sediment and soil-bound pollutants into Woods Reservoir. Potential water quality impacts would be temporary and limited to the duration of construction. Use of appropriate construction stormwater BMPs, as noted in Section 4.3, would contain or treat stormwater to prevent off-site impacts to water quality. Because the amount of impervious surface is not expected to increase, no post-construction impacts to water quality are anticipated. Any impacts to water quality would be temporary and minor.

Should construction of new privatized housing units occur in areas not currently developed, the amount of disturbed and exposed soil would increase during construction. There is a regulatory requirement to obtain a construction stormwater general permit if 1 acre or more of land is disturbed during construction (TDEC, 2007). However, the same protective requirements would be implemented during construction and the PO would be required to construct appropriate post-construction stormwater controls to prevent an increase in post-construction stormwater runoff as required by the regulations. Any impacts to water quality would be minor.

4.5.2 No-Action Alternative

There would be no changes to the three parcels. Therefore, no impacts to water quality would be anticipated from the No-Action Alternative.

4.6 Biological Resources

4.6.1 Privatization Alternative

4.6.1.1 Impacts to Common Flora and Fauna

The three parcels provide limited suitable habitat for flora and fauna because of the landscaped and maintained nature of the grounds and the high level of human activity in the area. Any impacts to vegetation would be limited to the immediate demolition and construction sites and would be limited to maintained landscaped vegetation that would be replaced during final landscaping of the area. Any impacts to wildlife would be limited to temporary displacement during construction. Any impact to common flora and fauna would be expected to be minor.

There is the possibility of incidental animal mortality during construction. However, the MFH is in an area of high vehicle traffic and pedestrian activity. Large aggregations of animals would not be expected. Any losses would not seriously affect regional animal population levels. Impacts would be minor.

Should new privatized housing be constructed away from existing roads, there would be a loss of trees from construction of homes, roadways, and utility infrastructure. Because of the desirability of the large trees as an amenity feature, design would minimize encroachment into areas with trees. This would constitute a minor impact on common wildlife and vegetation. There is ample forested habitat available in the vicinity to support common wildlife without affecting regional population levels. Any impacts would be minor.

4.6.1.2 Impacts to Sensitive Species

Because of the level of development and human activity, there is limited habitat value for sensitive species on the three parcels that would be privatized. Because any use of the area by sensitive species would be either incidental or for foraging, any impacts would be expected to be limited to temporary exclusion from the area during demolition and construction due to the level of activity. This impact would be negligible.

Should new privatized housing be constructed away from existing roads, there would be a loss of trees from construction of homes, roadways, and utility infrastructure. Gray bats may forage around these trees and there would be a minor loss of potential foraging area. Because of the desirability of the large trees as an amenity feature, design for expanded housing would minimize removal of trees. This could constitute a minor impact on gray bat foraging.

4.6.1.3 Impacts to Wetlands

There are no wetlands in or adjacent to the areas that would be privatized (Figure 3-1). Therefore, no impacts to wetlands would result.

4.6.2 No-Action Alternative

4.6.2.1 Impacts to Common Flora and Fauna

There would be no change from existing conditions under the No-Action Alternative. No impacts to common flora and fauna would result.

4.6.2.2 Impacts to Sensitive Species

There would be no change from existing conditions. No impacts to sensitive species would occur under the No-Action Alternative.

4.6.2.3 Impacts to Wetlands

There would be no change from existing conditions. No impacts to wetlands would result.

4.7 Safety and Occupational Health

4.7.1 Privatization Alternative

Two issues are associated with worker safety and building demolition. Workers would have the potential for accidents as a result of operating heavy equipment during demolition activities, and workers could be exposed to ACM.

Demolition workers would use appropriate protection and would follow Occupational Safety and Health Administration (OSHA) standards and procedures. OSHA requires worker protection and monitoring for activities that disturb paint that contains lead in any amount. The demolition contractor would be responsible for ensuring that all contractor employees (and subcontractors) comply with all applicable OSHA standards. Therefore, the safety and occupational health of demolition workers and other persons in the demolition areas would not be impacted.

Job Safety Assessments would be prepared prior to performing the work, and the workers would review and sign these documents before working on the job site. This would minimize the potential to encounter unknown site conditions and operational practices.

A safety instruction has been prepared by AEDC at Arnold AFB to provide guidance in the removal and disposal of ACMs: AEDC Safety, Health, and Environmental Standard E7 – Asbestos. Because the demolition and construction would occur on Arnold AFB property, the contractor chosen by the PO would be provided the guidance in this instruction to minimize worker exposure to the hazards that could be encountered during removal of these materials.

After the transfer of management duties and the leasing the property to a PO, the PO would be responsible for pest management and nuisance animal control. Pest management would include regular treatment of houses and outbuildings for insects and vermin by a certified applicator. The PO would be required to report any usage of pesticides or other chemical applications at the newly privatized areas to the AEDC Pest Management Coordinator for inclusion in the Pest Management Measures of Merit (MOM) Report.

Nuisance animal control would entail removal of nuisance animals, which pose a health risk due to the potential for transmission of rabies, and control of geese in the beach area. Geese

routinely are a nuisance at the beach area and can contribute to health and safety hazards through aggressive behavior and deposits of excrement. The PO would be responsible for obtaining a Depredation Permit, or other appropriate permit depending on the nature of the management needed, from the USFWS Migratory Bird Regional Permit Office for management of the resident Canada goose population. The PO could seek assistance in goose management from the U.S. Department of Agriculture Wildlife Services Office. Because the PO would assume responsibility for nuisance animal control and pest management, no adverse impacts to health or safety would be expected.

4.7.2 No-Action Alternative

There would be no change to existing conditions. There would be no safety and occupational health impacts associated with the No-Action Alternative.

4.8 Air Quality

4.8.1 Privatization Alternative

A minor short-term impact to air quality would be expected during demolition and construction. Air quality impacts could occur from dust carried offsite and combustive emissions from construction equipment. The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind.

Measures that would be implemented to reduce or eliminate fugitive dust emissions would include the following:

- *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist is an effective dust control method for haul roads and other traffic routes (Smolen et al., 1988). This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, ultimately increasing the dust problem.
- *Vegetative Cover*. In areas not expected to handle vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and reduces wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.

A minor long-term improvement to air quality would be expected as a result of 16 fewer housing units consuming energy, reduced traffic volume as a result of the reduction in the number of housing units, and the use of more energy-efficient building materials and appliances in the new units.

4.8.2 No-Action Alternative

There would be no change from existing conditions. No impact to air quality would result under the No-Action Alternative.

4.9 Hazardous Materials

4.9.1 Privatization Alternative

Buildings containing ACMs could potentially release asbestos fiber into the air during demolition (CH2M HILL, 2008). However, a qualified contractor would be required to contain, remove, and properly dispose of any ACM. The risk of exposure to ACMs would be minor and short-term and would occur only during demolition. The chance for long-term exposure to ACMs would be eliminated by the Proposed Action.

Demolition workers would use appropriate protection and would follow OSHA standards and procedures. The demolition contractor would be responsible for ensuring that all contractor employees (and subcontractors) comply with all applicable OSHA standards. Therefore, the safety and occupational health of demolition workers and other persons in the demolition areas would not be impacted.

Asbestos and ACMs (containing greater than 0.1 percent by weight asbestos) that are not hazardous waste and that contain no free liquid may be disposed of in the Arnold AFB Asbestos Landfill. On December 2, 1992, TDEC issued authorization for AEDC to begin using this landfill for disposal of asbestos waste under landfill registration IDL-16 102 0081. The Asbestos Landfill is dedicated to asbestos waste from Arnold AFB. Because the ACM would be removed from USAF-constructed buildings on Arnold AFB, the Arnold AFB Asbestos Landfill could be used for disposal of this material.

The Auto Hobby Shop would continue to collect used oil and the Community Center would continue to collect fluorescent bulbs for recycling. These activities would not change and would have no impact on the Privatization Alternative.

There would be no change in types of activities in the privatized housing area following construction. Typical household quantities of cleaners and solvents could be stored in privatized housing units, but these would not be expected to differ from pre-privatization levels. The absolute volume of in-home use of these substances would be reduced as a result of the elimination of 16 housing units. There would be an overall minor beneficial impact, because of the removal of ACMs in the MFH area and the reduction of household quantities of cleaners and solvents.

4.9.2 No-Action Alternative

No impact would be expected from the No-Action Alternative, as no change would occur. However, there would be a continued risk of exposure to ACM for MFH families and maintenance staff.

4.10 Cultural Resources

4.10.1 Privatization Alternative

The USAF has completed advance mitigation for impacts to Wherry-Capehart era housing, as specified in the Program Comment issued by the Advisory Council on Historic Preservation (Appendix A; Advisory Council on Historic Preservation, 2004). USAF listed the Arnold MFH units as applicable to the Capehart-Wherry Housing Program. As a result of the mitigation implemented, impacts to potentially historic housing structures would be less than significant.

There are no archaeological sites located on the peninsula containing the MFH area (AAC, 2009). No additional impacts to cultural resources are anticipated under the Privatization Alternative.

4.10.2 No-Action Alternative

There would be no demolition or construction under the No-Action Alternative and no associated land disturbance. No impacts to cultural resources would result.

4.11 Socioeconomics

4.11.1 Privatization Alternative

Demolition and construction activities would result in a minor short-term benefit to the local economy. Construction-related jobs and secondary spending related to construction would provide a temporary benefit in the region.

The transfer of operation and management of MFH and the associated recreational facilities would be a negligible impact to the local economy. These positions are held by civilian contract personnel and the jobs would remain in the private sector.

The AF would realize a long-term benefit from the privatization. Economic analyses conducted by DoD have indicated that there would be a reduced cost to the military resulting from privatization of MFH.

4.11.2 No-Action Alternative

Under the No-Action Alternative, there would be no changes and therefore no impact to socioeconomics.

4.12 Environmental Justice and Protection of Children

4.12.1 Privatization Alternative

CEQ guidance identifies the following metrics for measuring low-income and minority populations. A low-income population is defined as an area where the poverty rate is 20 percent or 40 percent (extreme poverty) based on the Bureau of the Census Current Population Reports.

Similarly, minority populations are identified where (a) a minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (CEQ, 1997).

For purposes of this EA, a detailed Census analysis was not conducted. The population at the MFH area consists entirely of military personnel and their families. No minority or low-income populations live on Arnold AFB. The Privatization Alternative would have no disproportionate impacts on minority or low-income populations.

There are no areas, such as schools or libraries, within or adjacent to the MFH area where children would congregate. ACM would no longer be present in housing units, eliminating a potential environmental health risk to children. No other environmental health and safety risks to children would be created. Implementation of the Privatization Alternative would have a positive impact on the environmental health of children.

4.12.2 No-Action Alternative

Conditions would remain as they are now. No impacts to minority or low-income populations, or to children, would occur with the No-Action Alternative.

4.13 Traffic Flow

4.13.1 Privatization Alternative

There would be a temporary increase in traffic during demolition and construction. This increase in traffic may result in local short-term delays. To the extent practicable, removal of demolition debris and delivery of construction materials would be conducted outside of peak traffic periods. Any traffic impacts from demolition and construction would be minor and temporary.

No negative traffic impacts would be expected once construction is complete. Traffic volume would be expected to decrease from pre-privatization levels proportional to the reduction in housing units. The long-term reduction in traffic volume could result in minor beneficial impacts to traffic.

Should the PO decide to build houses away from the existing roads, new access drives would be required. The PO would be responsible for constructing and maintaining these new roadways.

4.13.2 No-Action Alternative

Under the No-Action Alternative, there would be no change from current conditions regarding traffic flow and volume. No impacts to traffic would result.

4.14 Utility Infrastructure

4.14.1 Privatization Alternative

Under the Privatization Alternative, most utilities in the MFH area would be transferred to the PO. All utilities that exclusively serve MFH would be transferred to the PO except for the fire control water system. Arnold AFB would retain control of the fire hydrants and the lines supplying the hydrants. Utility infrastructure that serves facilities outside of the MFH would not be transferred and would be retained by Arnold AFB. Therefore, the PO would acquire the sewer lines serving MFH, but not the main trunk line leading to the wastewater treatment plant because the main trunk line provides service to facilities that would remain AF property. Because the Proposed Action would only result in transfer of ownership and management of the utility services, no impact to utility service would be expected from the transfer to the PO.

Should the PO decide to build houses away from the existing utility lines, new utility infrastructure would be required. The PO would be responsible for installing and operating this infrastructure. The new utility infrastructure would extend service to the new houses that would not directly connect to existing utilities.

A long-term decrease in the use of utilities would be expected from the reduction from 40 to 24 housing units and from the higher efficiency of the new units.

4.14.2 No-Action Alternative

Under the No-Action Alternative, there would be no change to the current operation and management of utilities. No impact to utilities would result.

4.15 Cumulative Impacts

The most severe environmental impacts may not result from the direct effects of any particular action, but from the combination of effects of multiple, independent actions over time. As defined in 40 CFR 1508.7, a cumulative impact is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." Principles of cumulative impacts analysis are described in the CEQ guide *Considering Cumulative Effects under the National Environmental Policy Act* (CEQ, 2007.)

Impacts from the Privatization Alternative would be limited to the peninsula containing MFH. There would be no potential to interact with Arnold AFB projects that occur on other parts of the installation. The project is entirely within the boundaries of Arnold AFB and would not interact with private sector projects in the surrounding area. The only recently completed action with potential to interact with the Proposed Action r is the replacement of the Arnold Village wastewater treatment plant. No other projects have been implemented that would interact with MFH privatization. In addition to past projects, the Proposed Action could interact with future projects with regard to recreational activities.

4.15.1 Privatization Alternative

The recent replacement of the Arnold Village wastewater treatment plant resulted in better treatment of sanitary wastewater generated in Arnold Village, including MFH. This will result in long-term environmental benefits from the increased quality of treatment. Woods Reservoir no longer receives the discharge from the Arnold Village wastewater treatment plant, as the new plant is a no-discharge system. All treated wastewater is land applied rather than discharged to Woods Reservoir. Because all sanitary wastewater from the privatized housing would be sent to the Arnold Village wastewater treatment plant, the long-term quality of Woods Reservoir should benefit from this change.

4.15.2 No-Action Alternative

Because there would be no change from current operations, no cumulative impacts would be anticipated under the No-Action Alternative.

5.0 Plan, Permit, and Management Requirements

The PO may be required to obtain a Depredation Permit, or other permit depending on the nature of management needed, from the USFWS, Migratory Bird Regional Permit Office, to manage the resident Canada goose population. The PO could seek to obtain nuisance geese management services from the U.S. Department of Agriculture Wildlife Services Office.

Notification to the State is required for demolition of buildings whether they contain asbestos or not. A completed Form CN-1055, "Notification of Asbestos Demolition or Renovation Application," must be submitted to the Tennessee Division of Air Pollution Control at least 10 working days before the asbestos stripping or removal work begins (TDEC, 2008).

There is a regulatory requirement to obtain a construction stormwater general permit if 1 acre or more of land is disturbed during construction (Tennessee Water Quality Control Act of 1977 [T.C.A. 69-3-101 et seq.]) (TDEC, 2007). The construction must comply with stormwater regulations, which includes a Notice of Intent to TDEC, preparation of a Stormwater Pollution Prevention Plan, payment of fees, and submittal of Notice of Termination. Construction cannot begin until TDEC has approved the project and issued the permit. It is likely that the Privatization Alternative would involve over 1 acre of ground disturbance and thus a construction stormwater permit (TNR100000) would be required.

Any new connections or modifications to the potable water system or sewage collection system would have to be approved by TDEC before construction. Plans should be submitted to TDEC for approval.

The entire North Shore area, which includes MFH, is considered a separate water system that is exempt from regulations because no water treatment is performed and because no water is sold to consumers. If the PO were to sell water to the privatized housing, the exemption from drinking water regulations may no longer be valid and this system could become a Consecutive Public Water System that is subject to drinking water regulations. A Consecutive Public Water System is a public water system that receives some or all of its finished water from one or more wholesale systems and the delivery may be a direct connection or through the distribution system of one or more consecutive systems (TDEC, 2006c). The AF is in the process of obtaining a TDEC interpretation.

Timber rights are reserved by the government and are not conveyed to the PO. The government will sell any commercial timber designated for disposal by the PO, and the proceeds will be distributed in accordance with 10 USC 2665 and Department of Defense regulations." Ref: 10 USC 2665 (a) - (f), DODI 4715.3 para. F.2.d., and AFI 32-7064 para. 8.3.

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Appendix A
Program Comment for Wherry and Capehart Era Family Housing at Air Force and Navy Bases

Preserving America's Heritage

Program Comment

for

Wherry and Capehart Era Family Housing At Air Force and Navy Bases

I. Introduction

This Program Comment, adopted pursuant to 36 CFR § 800.14(e), demonstrates Department of the Air Force (Air Force) and Department of the Navy (Navy) compliance with their responsibilities under Section 106 of the National Historic Preservation Act with regard to the following actions in the management of the Wherry and Capehart Era family housing: maintenance, repair, layaway, mothballing, privatization and transfer out of federal agency ownership, substantial alteration through renovation, demolition, and demolition and replacement of Wherry and Capehart Era housing, associated structures and landscape features that may be eligible for listing on the National Register of Historic Places.

II. Treatment of Wherry and Capehart Properties

A. Eligibility

The Department of the Army (Army) conducted a historic context of its Wherry and Capehart properties and documented these in a report entitled *For Want of a Home: A Historic Context for Wherry and Capehart Military Family Housing.* On May 22, 2001, the Army sponsored a

symposium on Wherry and Capehart era housing management as it related to historic preservation. The symposium was attended by preservation experts, including the National Trust for Historic Preservation (Trust), the National Conference of State Historic Preservation Officers (NCSHPO), the Advisory Council on Historic Preservation (ACHP), and nationally recognized experts in the field of historic preservation from academia and industry. Symposium participants recommended a programmatic approach to complying with Section 106, and these approaches were part of the Army's Program Comment which was approved by the ACHP in 2002 (67 FR 39332; June 7, 2002).

The Air Force and the Navy have gathered data on their inventory of Wherry and Capehart properties which will be appended to the Army's context study, as outlined below, to provide a comprehensive understanding of the Department of Defense (DoD) inventory for this property type. As with the Army, the Air Force and the Navy consider their inventory of Wherry and Capehart properties, including any associated structures and landscape features, to be eligible for the National Register of Historic Places for the purposes of Section 106 compliance.

B. Treatment

The Air Force and the Navy have requested a Program Comment as a service-wide Section 106 compliance action related to management of Wherry and Capehart Era housing, associated structures and landscape features. This programmatic approach will facilitate management actions for maintenance, repair, layaway, mothballing, privatization and transfer out of Federal agency ownership, substantial alteration through renovation, demolition, and demolition and replacement of Wherry and Capehart Era housing, associated structures and landscape features. Such actions present a potential for adverse effects to historic properties.

Based on the Program Comment previously approved for the Army for this property type, and following meetings with the ACHP, the Trust and NCSHPO, the Air Force and the Navy agree to the following six-step approach to the treatment of its Wherry and Capehart properties:

(i) The Air Force and the Navy will:

> (a) revise the Army's historic context, *The Wherry and Capehart Era Solutions to the Postwar Family Housing Shortage (1949–1962): A Historic Context,* to include information pertinent to Air Force and Navy bases where this information differs from that provided in the Army's context study, including information on Navy and Air Force Capehart and Wherry Era Housing architects, sponsors and bidders, & projects. The expanded context study will provide a more complete picture of Wherry and Capehart Era family housing across DoD, and
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> (b) upon completion of the revised context study, the Air Force and the Navy will use it and any resulting oral histories recorded in accordance with section II(B)(vi), below, to prepare a report suitable for release to the general public. The report to the public will extract that information which may be deemed sensitive or inappropriate for release to the public; the resulting context study will be placed on a publicly accessible web site and

copies of the report will be provided to all the SHPOs, NCSHPO, the Trust and the ACHP.

(ii) The Navy and Air Force will review the results of the expanded and revised context study and determine whether any of those properties identified under Section II(B)(i)(a) are of particular importance. The Navy and Air Force will notify the Council of the results of this review, and the Council will forward the results to the NCSHPO, and the Trust.

(iii) The Air Force and Navy will use, or modify for their own use, the Army's design guidelines: *Neighborhood Design Guidelines for Army Wherry and Capehart Housing.* Modified design guidelines will be provided to ACHP for review. Copies of the Air Force and Navy guidelines will be provided to the NCSHPO, the Trust and the ACHP. These Neighborhood Design Guidelines will be distributed by Headquarters, Air Force and Navy to those offices that manage and maintain this housing type and they will be encouraged to consider the design guidelines in planning actions that affect their Wherry and Capehart Era housing, associated structures and landscape features.

(iv) For Wherry and Capehart properties that have been determined to be of particular importance, as defined in the revised context study, the Air Force and the Navy will:

(a) consider the need to conduct additional historical documentation, and

(b) within funding and mission constraints, consider the preservation of these properties through continued use as military housing.

(v) The Air Force and the Navy will advise developers involved in housing privatization initiatives that Wherry and Capehart properties may be eligible for historic preservation tax credits.

(vi) The Air Force and the Navy will attempt to locate and conduct oral interviews with military families who lived in Wherry and Capehart housing (which may include Army families), and other people who were involved with design and construction of Capehart and Wherry Era housing. Prior to conducting any interviews, the Air Force and the Navy will seek advice from appropriate government offices such as the Library of Congress' *Veterans History Project* and the military service historical centers to develop a set of appropriate interview questions and proper formats in which interviews would be recorded. Upon completion of the oral histories, the Air Force and the Navy will provide a copy of all written and recorded documentation to the Library of Congress.

III. Applicability

This Program Comment does not apply to the following properties that are listed, or eligible for listing, on the National Register of Historic Places:

(i) archeological sites,

(ii) properties of traditional religious and cultural significance to federally recognized Indian tribes or Native Hawaiian organizations, or

(iii) historic properties other than Air Force and Navy Wherry and Capehart Era housing, associated structures and landscape features.

V. Schedule for Completion:

(i). Within 12 months from Council approval of the Program Comment, the Air Force and Navy shall complete:

(a). the expanded and revised context study for Capehart and Wherry Era housing as described in Section II(B)(i)(a), above;

(b). review of the context study for properties of particular importance as described in II(B)(ii), above; and

(c). adoption of the design guidelines as described in Section II(B)(iii), above.

(ii) Within 24 months from Council approval of the Program Comment, the Navy and Air Force shall complete:

(a). its consideration of properties of particular importance as described in Section II(B)(iv), above;

(b). completion of the oral history segment of the mitigation, as described in Section II(B)(vi), above, and

(c). completion of the context study suitable for release to the general public, as described in Section II(B)(i)(b), above.

IV. Effect of Program Comment

The ACHP believes that this six-step approach will ensure that the Air Force and the Navy take into account the effects of management of their Wherry and Capehart era housing. By following this comment and outlined six-step approach, the Air Force and the Navy will have met their responsibilities for compliance under Section 106 regarding management of their Wherry and Capehart era housing. Accordingly, Air Force and Navy bases will not have to follow the case-by-case Section 106 review process for each individual management action.

The Air Force and the Navy may carry out management actions prior to the completion of all of the six treatment steps outlined above, so long as such management actions do not preclude the eventual successful completion of those six steps.

This Program Comment will remain in effect until such time as the Air Force or the Navy determines that such comments are no longer needed and notifies ACHP, in writing, or the ACHP determines that the consideration of Wherry and Capehart properties is not being carried out in a manner consistent with this Program Comment. The ACHP may withdraw this Program Comment in accordance with 36 CFR §800.14(e)(6). Following such withdrawal, the Air Force and the Navy would comply with the requirements of 36 CFR §§ 800.3 through 800.7 for each individual management action.

The ACHP Membership approved this Program Comment on November 18, 2004.

John L. Nau, III
Chairman

November 18, 2004
Date