



"Home of the Combat Medic"

Working Draft
Environmental Assessment
For Stakeholders Meeting
Fort Sam Houston
Master Planning Actions

November 2009

Acronyms

AACOG	Alamo Area Council of Governments	MEDCOM	U.S. Army Medical Command
AAP	Army Alternative Procedures	MEDEVAC	Medical Evacuation
ACP	Access Control Point	MGD	millions of gallons per day
AIB	Applied Instruction Building	MLD	millions of liters per day
AMEDD C&S	Army Medical Department Center and School	MI BDE	Military Intelligence Brigade
AMSL	Above Mean Sea Level	NAAQS	National Ambient Air Quality Standards
AMF	Army Modular Force	NAGPRA	Native American Graves Protection and Repatriation Act
AT/FP	Anti-terrorism/Force Protection	NEPA	National Environmental Policy Act
BAMC	Brooke Army Medical Center	NHLD	National Historic Landmark District
BGS	Below Ground Surface	NOA	Notice of Availability
BHT	Battlefield Health & Trauma Center	NPS	National Park Service
BMP	Best Management Practice	NWP	Nationwide Permit
BO	Biological Opinion	ROD	Record of Decision
BRAC	Base Realignment and Closure	RDTE	Research, Design, Testing, and Evaluation
CEQ	Council on Environmental Quality	SAAS	San Antonio Audubon Society
CFR	Code of Federal Regulations	SA IAP	San Antonio International Airport
COF	Company Operations Facility	SAMMC	San Antonio Medical Center
CPS	City Public Service	SAWS	San Antonio Water System
CRM	Cultural Resources Manager	SDWA	Safe Drinking Water Act
CWO	Clean Water Act	SF	square foot/feet
DoD	Department of Defense	SHPO	State Historic Preservation Officer
EA	Environmental Assessment	SVOC	Semi-volatile organic compound
EIS	Environmental Impact Statement	SWPPP	Storm Water Pollution Prevention Plan
EO	Executive Order	TAMU	Texas A&M University
EPCRA	Emergency Planning and Community Right-to-Know Act	TCEQ	Texas Commission on Environmental Quality
ER	Engineering Regulation	TEC	TEC Inc.
FNPA	Finding of No Practicable Alternative	TEMF	Tactical Equipment Maintenance Facility
FNSI	Finding of No Significant Impact	TMDL	Total Maximum Daily Load
FR	Federal Register	TOE	Table of Organization and Equipment
FSH	Fort Sam Houston	TPWD	Texas Parks and Wildlife Department
FY	fiscal year(s)	UPH	Unaccompanied Personnel Housing
HAZMAT	hazardous materials	U.S.	United States
ICRMP	Integrated Cultural Resources Management Plan	USACE	U.S. Army Corps of Engineers
IMCOM	U.S. Army Installation Management Command	USAIR	U.S. Army Institute of Surgical Research
HQ	headquarters	ARNORTH	Fifth U.S. Army
IDG	Installation Design Guidelines	USARSO	Sixth U.S. Army
IH	Interstate Highway	USC	U.S. Code
ISR	Institute for Surgical Research	USEPA	U.S. Environmental Protection Agency
MED LOG CO	Second Medical Logistics Company	USFWS	U.S. Fish and Wildlife Service
METC	Medical Education and Training Campus	VA	Veterans Administration
		VOC	Volatile Organic Compound
		WHMC	Wilford Hall Medical Center

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EXECUTIVE SUMMARY

TEC Inc. (TEC) has prepared this Environmental Assessment for Fort Sam Houston (FSH) in accordance with the National Environmental Policy Act (NEPA) of 1969 and 32 CFR Part 651. This EA describes the potential environmental consequences resulting from the implementation of various master planning actions proposed at FSH, a U.S. Army installation and medical care, training, and research complex located in San Antonio, Texas.

The purpose of the Proposed Action is to meet changing mission support requirements at FSH. The Proposed Action is needed to maintain FSH as an installation that provides world-class medical training, care, and research, and supports headquarters (HQ) and administrative missions. Implementation of the Proposed Action would accommodate anticipated population, materiel, and mission growth actions at FSH resulting from various Department of Defense (DoD) and Army stationing initiatives to modernize, upgrade, expand, and replace facilities on FSH. The Proposed Action includes approximately 30 construction, renovation, and repair actions, including:

- Demolish Building 197
- Construct the MacArthur Field Running Track
- Expand and renovate the Historic Theatre, Building 2270
- Construct Installation Management Command (IMCOM) HQ and associated parking
- Construct Medical Education and Training Campus (METC) parking lot
- Realign Stanley Road between Reynolds Road and New Braunfels Avenue
- Realign Reynolds Road and Widen Scott Road
- Construct the Sixth Army Command and Control Facility
- Construct the Sixth Army Special Troops Command and Control Facility
- Construct the Fifth Army Special Purpose Facility
- Battle Command Training Center Phase II
- Construct an Unaccompanied Personnel Housing (UPH) Permanent Party (PP) building
- Construct a Medical Logistics Company (MED LOG CO) Tactical Equipment Maintenance Facility (TEMF) with Company Operations Facility (COF)
- Drainage system improvements, Scott Road and Wilson Street
- Drainage system improvements, Buildings 2248-2250
- Demolish Chapel Building 1398
- Demolish and replace recreation center Building 1462
- Construct TEMF area development
- Construct 470th Military Intelligence (MI) Brigade (BDE) HQ complex
- Realign and extend Schofield Road
- Construct a Training Aids Center
- Drainage improvements, Patch Road
- Construct the Schofield Road Access Control Point (ACP)
- Construct the 91 W Applied Instruction Building (AIB)
- Construct Chapel
- Construct a student trainee adult sports park
- Drainage system improvements, Winans Road and Nursery Road
- Drainage system improvements, Brooke Army Medical Center (BAMC)

1 This EA analyzed the potential impacts of the Proposed Action and the No-Action Alternative on various
2 environmental resources, including biological resources, cultural resources, water quality, geology,
3 traffic, socioeconomics and environmental justice, and land use. The analyses found that with the
4 implementation of construction best management practices (BMPs) (Section 3.18) and mitigation
5 measures (Section 3.19) that address potential impacts to cultural resources and wetlands, the Proposed
6 Action would not have any unavoidable significant impacts. Implementation of the Proposed Action
7 would support critical expanding mission requirements.

WORKING DRAFT
ENVIRONMENTAL ASSESSMENT
for STAKEHOLDERS MEETING
MASTER PLANNING ACTIONS
FORT SAM HOUSTON, TEXAS
TABLE OF CONTENTS

1
2
3
4
5
6
7
8 ACRONYMS.....Inside Front Cover
9 EXECUTIVE SUMMARY ES-1
CHAPTER 1 PURPOSE AND NEED FOR PROPOSED ACTION 1-1
10 1.1 INTRODUCTION..... 1-1
11 1.2 PURPOSE AND NEED 1-1
12 1.3 SCOPE 1-1
13 1.4 AGENCY COORDINATION AND PUBLIC INVOLVEMENT..... 1-1
14 1.5 APPLICABLE REGULATORY REQUIREMENTS 1-2
15 1.6 DOCUMENT FRAMEWORK 1-3
CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES.....2-1
16 2.1 INTRODUCTION.....2-1
17 2.1.1 Project Area 2-1
18 2.1.2 Background 2-1
19 2.1.3 Missions and Major Tenants 2-1
20 2.1.4 Major Tenants 2-4
21 2.2 DEVELOPMENT OF PROPOSED ACTION AND ALTERNATIVES.....2-6
22 2.2.1 Screening Criteria (Excluding Building 197) 2-6
23 2.2.2 Screening Criteria for Building 197 2-8
24 2.3 PROPOSED ACTION AND ALTERNATIVES 2-9
25 2.3.1 Master Planning Actions Alternative (Proposed Action).....2-10
26 2.3.2 FSH West Actions..... 2-12
27 2.3.3 FSH Central Actions 2-18
28 2.3.4 FSH East Actions 2-22
29 2.3.5 No-Action Alternative..... 2-25
30 2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED 2-28
31 2.4.1 IMCOM Campus Parking Lot East of Reynolds Road 2-28
32 2.4.2 TEMF ADP Alternatives 1, 2, and 3 2-29
33 2.4.3 Training Aids Center, Schofield Road 2-29
34 2.4.4 Training Aids Center, Johnson Circle 2-29
35 2.4.5 Training Aids Center, WW White and Williams Roads 2-29
36 2.4.6 Training Aids Center, Nursery Road 2-29
37 2.4.7 Fifth Army Recruiting Brigade Special Purpose Facility Alternate Location 2-29
38 2.4.8 Golf Course Development 2-30

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1

1 3.1 INTRODUCTION.....3-1

2 3.2 LAND USE 3-1

3 3.2.1 Affected Environment..... 3-1

4 3.2.2 Environmental Consequences3-5

5 3.3 AESTHETICS AND VISUAL RESOURCES..... 3-8

6 3.3.1 Affected Environment..... 3-8

7 3.3.2 Environmental Consequences3-15

8 3.4 AIR QUALITY..... 3-19

9 3.4.1 Definition of Resource..... 3-19

10 3.4.2 Affected Environment..... 3-22

11 3.4.3 Environmental Consequences 3-23

12 3.5 NOISE 3-25

13 3.5.1 Affected Environment..... 3-25

14 3.5.2 Environmental Consequences 3-28

15 3.6 GEOLOGY AND SOILS..... 3-29

16 3.6.1 Affected Environment..... 3-29

17 3.6.2 Environmental Consequences 3-32

18 3.7 WATER RESOURCES 3-32

19 3.7.1 Affected Environment..... 3-32

20 3.7.2 Environmental Consequences 3-35

21 3.8 BIOLOGICAL RESOURCES 3-37

22 3.8.1 Affected Environment..... 3-37

23 3.8.2 Environmental Consequences 3-52

24 3.9 CULTURAL RESOURCES 3-54

25 3.9.1 Affected Environment..... 3-54

26 3.9.2 Environmental Consequences 3-66

27 3.10 SOCIOECONOMICS 3-79

28 3.10.1 Affected Environment..... 3-79

29 3.10.2 Environmental Consequences 3-91

30 3.11 TRANSPORTATION..... 3-92

31 3.11.1 Affected Environment..... 3-92

32 3.11.2 Description of the Relevant Transportation Network 3-95

33 3.11.3 Environmental Consequences 3-99

34 3.12 UTILITIES..... 3-100

35 3.12.1 Affected Environment..... 3-100

36 3.12.2 Environmental Consequences 3-103

37 3.13 HAZARDOUS AND TOXIC SUBSTANCES 3-107

38 3.13.1 Affected Environment..... 3-107

39 3.13.2 Environmental Consequences 3-134

40 3.14 CUMULATIVE EFFECTS SUMMARY..... 3-145

41 3.15 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES..... 3-147

42 3.16 SHORT-TERM USES OF MAN’S ENVIRONMENT AND MAINTENANCE/ENHANCEMENT OF LONG-

43 TERM PRODUCTIVITY 3-148

44 3.17 UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS..... 3-148

45 3.18 REGULATORY REQUIREMENTS AND BEST MANAGEMENT PRACTICES 3-148

1 3.19 MITIGATION SUMMARY 3-150

CHAPTER 4 LIST OF PREPARERS 4-1

CHAPTER 5 REFERENCES 5-1

2

3

4

List of Figures

<u>Figure</u>	<u>Page</u>
Figure 2-1. FSH Regional Area	2-2
Figure 2-2. FSH Mission-related Subareas	2-3
Figure 2-3. Proposed Actions, West Fort Sam Houston	2-13
Figure 2-4. Historic Theatre, Building 2270 Expansion Diagram A	2-14
Figure 2-5. Historic Theatre Building 2270 Expansion Diagram B	2-15
Figure 2-6. Proposed Actions, Central Fort Sam Houston.....	2-19
Figure 2-7. Proposed Actions, East Fort Sam Houston	2-23
Figure 3.2-1. Land Use Zoning Designation Fort Sam Houston	3-3
Figure 3.3-1 Visual Resource Zones of Fort Sam Houston	3-10
Figure 3.3-2 Fort Sam Houston Clock Tower in the Center of the Quadrangle	3-11
Figure 3.3-3. Infantry Post Sally Port	3-12
Figure 3.3-4. Example of the Officers Quarters.....	3-12
Figure 3.3-5 Old BAMC Facility	3-13
Figure 3.3-6 One of Two Medical Facility Buildings Flanking the Old BAMC Building	3-14
Figure 3.3-7. Example of Housing at the Harris Heights Family Housing Area	3-14
Figure 3.3-8. Central Nursing Tower at BAMC Facility	3-15
Figure 3.5-1. Fort Sam Houston Annoyance Buffer Area	3-27
Figure 3.6-1 FSH Floodplain San Antonio, Texas.....	3-30
Figure 3.9-1. FSH Historic Map	3-62
Figure 3.9-2. Building 197, Principal Facade	3-68
Figure 3.9-3. Building 2270, Fort Sam Houston Theatre	3-70
Figure 3.9-4. Location of Proposed New IMCOM HQ, Building 2266 in Background.....	3-71
Figure 3.9-5. IMCOM Campus Area Parking Lots, Currently a Gravel Parking Lot on Parade Field..	3-72
Figure 3.9-6. Current METC Parking Lot with BAMC Building in Background	3-73
Figure 3.10-1. San Antonio MSA	3-80
Figure 3.10-2. 2008 Census Tracts Adjacent to FSH.....	3-81

Figure 3.10-3. 2008 Census Block Groups Adjacent to FSH 3-82

Figure 3.10-4. 2008 Census Minority Percent Population Adjacent to FSH..... 3-89

Figure 3.10-5. 2008 Census Low-income Percent Population Adjacent to FSH..... 3-90

Figure 3.11-1. Transportation Network at FSH 3-96

Figure 3.13-1. Hazardous Waste Storage..... 3-113

Figure 3.13-2. IRP/Landfill/Range 3-116

1 **List of Tables**

2 **Table** **Page**

Table 2-1. Proposed Construction at FSH (FY 09-FY 11) 2-6

Table 2-2. Screening Criteria for Action Alternatives (Excluding Building 197)..... 2-7

Table 2-3. Alternative Analysis for Building 197..... 2-8

Table 2-4. Standoff Distance Requirements for New and Existing Buildings..... 2-10

Table 2-5. Summary of Proposed Action Alternative..... 2-11

Table 2-6. Approximate Footprint for Each Phase of Running Track Construction 2-12

Table 3.4-1. National Ambient Air Quality Standards 3-20

Table 3.4-2. Estimated Annual Emissions at the FSH Installation (tons/year)..... 3-23

Table 3.4-3. Estimated Emissions Resulting from Implementation of the Master Planning Actions..... 3-24

Table 3.5-1. Peak Sound Pressure Level of Heavy Equipment 3-26

Table 3.6-1 Soil Series and Percent Land Area at FSH 3-31

Table 3.7-1 Amount of Pervious Surface Likely Converted to Impervious Surface 3-36

Table 3.8-1. Bexar County State and Federally Listed Species..... 3-41

Table 3.8-2. Bexar County TPWD Sensitive Species..... 3-46

Table 3.8-3. TPWD Rare Plants of Bexar County 3-51

Table 3.8-4. Potential Impacts from the Implementation of the Proposed Action to the Salado Creek
Floodplain 3-52

Table 3.9-1. Central Texas Cultural Sequence*..... 3-54

Table 3.9-2. Identified Historic Cultural Landscape Features 3-63

Table 3.9-3. Previously Recorded Archaeological Sites at FSH 3-65

Table 3.9-4. Summary of Potential Environmental Consequences..... 3-66

Table 3.9-5. Criteria for Analysis of Building 197 3-68

Table 3.10-1 Median Household Income..... 3-83

Table 3.10-2. Percent of Population Below the Poverty Line.....	3-84
Table 3.10-3. Population.....	3-84
Table 3.10-4. Race and Ethnicity.....	3-85
Table 3.10-5. Housing Occupancy.....	3-87
Table 3.10-6. Median Housing Value.....	3-87
Table 3.11-1. Roadway Classification Criteria.....	3-93
Table 3.11-2. Intersection LOS & Delay Ranges	3-94
Table 3.12-1. FSH Average Daily Utility Demand.....	3-101
Table 3.13-1. Summary of Hazardous Material/Waste Satellite Accumulation Sites and Less-than-90-day Storage Areas	3-111
Table 3.13-2. FSH Storage Tanks.....	3-114
Table 3.13-3. CTT Range and Site Details for FSH.....	3-131

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CHAPTER 1

PURPOSE AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

TEC Inc. (TEC) has prepared this Environmental Assessment for Fort Sam Houston (FSH) Army Post in accordance with the National Environmental Policy Act (NEPA) of 1969 as implemented by the regulations promulgated by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR], Parts 1500-1508) and 32 CFR Part 651. This EA describes the potential environmental consequences resulting from implementation of various master planning actions proposed at FSH, (also referred to as “the Post”), a United States (U.S.) Army installation and medical care, research, and training complex located in San Antonio, Texas.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to meet changing mission support requirements at FSH. The Proposed Action is needed to maintain FSH as an installation that provides world-class medical training, care, and research, and supports headquarters (HQ) and administrative missions.

1.3 SCOPE

This EA has been developed in accordance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ) and the Army. The U.S. Congress established the CEQ within the Executive Office of the President as part of the NEPA of 1969. Its purpose is to inform decision makers and the public of the likely environmental consequences of the Proposed Action and Alternatives. This EA identifies documents and evaluates environmental effects of proposed master planning actions at FSH. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians and military technicians has analyzed the Proposed Action and minor siting variations in light of existing conditions, and has identified potential impacts associated with the Proposed Action.

This document analyzes a scope of 30 master planning facility and infrastructure construction, repair, and renovation projects at FSH. Types of actions proposed include new facility construction; road widening, extension, and realignment; storm water drainage system repairs; existing facility renovations and expansion; and bridge construction. The Proposed Action and alternatives are presented in Chapter 2.

1.4 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

Public participation is an important aspect of the NEPA process. The USACE and FSH will proactively foster agency coordination and public involvement by:

- Publishing a Notice of Availability (NOA) announcing the project in two local newspapers when the final draft is ready;
- Posting a copy of the final draft document on the FSH public website, and placing two paper copies of the document in public locations (i.e., libraries) for public access and review;
- Ensuring there is a 30 day public comment period after the NOA has been published and before preparation of the final document;
- Mailing letters announcing the project to relevant agencies and stakeholders and soliciting their input; and

- 1 • Holding a cultural resources stakeholders meeting to involve applicable local, state, and national
2 cultural resource preservation agencies and groups in the project.

3 1.5 APPLICABLE REGULATORY REQUIREMENTS

4 The CEQ, established under NEPA, implements and oversees the federal processes. The CEQ has issued
5 the *Regulations for Implementing Procedural Provisions of NEPA* (40 CFR §§ 1500-1508). These
6 regulations specify that an EA:

- 7 • Briefly provide sufficient evidence and analysis for determining whether to prepare an
8 Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).
9 • Aid-in an agency's compliance with NEPA when no EIS is necessary.
10 • Facilitate the preparation of an EIS when one is necessary.

11 This EA has been prepared in accordance with the following requirements:

- 12 • NEPA of 1969 (42 U.S. Code [USC] § 4321);
13 • 32 CFR Part 651;
14 • CEQ Regulations;
15 • National Historic Preservation Act of 1966, as amended (16 USC § 470);
16 • Clean Air Act of 1970, as amended, (42 USC §§ 7401-7671q);
17 • Endangered Species Act of 1973, as amended (16 USC §§ 1531 et seq.);
18 • Clean Water Act (CWA) of 1972, as amended (33 USC §§ 1251 et seq.);
19 • Migratory Bird Treaty Act of 1918, as amended (16 USC §§ 703 et seq.);
20 • Executive Order (EO) 11514 - Protection and Enhancement of Environmental Quality;
21 • EO 11988 - Floodplain Management;
22 • EO 11990 - Protection of Wetlands;
23 • EO 12088 - Federal Compliance with Pollution Control Standards;
24 • EO 12580 - Superfund Implementation;
25 • EO 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-
26 income Populations;
27 • EO 13045 - Protection of Children from Environmental Health Risks and Safety Risks;
28 • EO 13101 - Greening the Government Through Waste Prevention, Recycling, and
29 Federal Acquisition;
30 • EO 13123 - Greening the Government Through Efficient Energy Management;
31 • EO 13148 - Greening the Government through Leadership in Environmental Management;
32 • EO 13175 - Consultation and Coordination with Indian Tribal Governments;
33 • EO 13186 - Responsibilities of Federal Agencies to Protect Migratory Birds;

- 1 • Safe Drinking Water Act (42 USC § 300 et seq.);
- 2 • Resource Conservation and Recovery Act of 1976, as amended (42 USC §§ 6901 et seq.);
- 3 • Comprehensive Environmental Response, Compensation, and Liability Act (42 USC §§ 9601-
- 4 9675);
- 5 • Historic Sites Act of 1935 as amended (16 USC §§ 461-467);
- 6 • Sikes Act of 1960, as amended (16 USC §§670a to 6700);
- 7 • Emergency Planning and Community Right-to-Know Act of 1986
- 8 (42 USC §§11001 to 11050);
- 9 • Native American Graves Protection and Repatriation Act of 1990; and
- 10 • 25 USC §§3001 to 3013; 43 CFR §10.

11 **1.6 DOCUMENT FRAMEWORK**

12 The organization of this EA is as follows: Chapter 1 defines the Purpose of and Need for the Proposed
13 Action. Chapter 2 describes the Proposed Action and Alternatives. Chapter 3 describes the Affected
14 Environment and presents an analysis of the Environmental Consequences of each action alternative.
15 Chapter 4 provides a list of preparers and Chapter 5 includes the references.

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CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

2.1.1 Project Area

Fort Sam Houston (FSH) is located in the City of San Antonio, Texas, approximately 1 mile northeast of downtown San Antonio (Figure 2-1). Located within the Interstate 410 beltway, FSH is surrounded by highly urbanized development. Adjacent to the Post are the residential communities of Alamo Heights and Terrell Hills. The 2,940-acre installation is surrounded by developed property and widely used highways and arterial roads. There is no room for land expansion, so additional development is confined within the installation's borders.

2.1.2 Background

The following section provides a brief description of FSH's history, mission, support services, and major tenants. It also describes the installation's recent and continuing growth due to Army and Department of Defense (DoD) initiatives such as Grow the Force and Army in Transition.

The U.S. Army began moving its facilities from the City of San Antonio to present-day FSH in 1876 (FSH 2009). Throughout the early 20th century, the Post continued to expand and served as an important Army HQ and garrison. Before the Civil War, FSH's HQ controlled a quarter of the Army's total forces, and from 1910 through the end of World War II (WWII) FSH was the largest Army installation in the Continental U.S. The size of the Post has increased from 92 acres at its inception to its current size of approximately 2,940 acres (USACE 2007).

FSH is one of the oldest military installations in the nation and has more than 800 historic facilities. It was the birthplace of military aviation in 1910, and the earliest U.S. training site for the aeromedical evacuation of casualties (evacuating injured Soldiers in battle by aircraft) in 1917 (FSH 2009). Camp Bullis, located approximately 20 miles northwest of FSH, was first established in 1917. During WWII, Camp Bullis was an important venue for training troops stationed at FSH. Subsequently, the focus of FSH changed to training Army medical personnel, while Camp Bullis continues to be used as an Army field training site. FSH was designated as a National Historic Landmark in 1975 (FSH 2009).

FSH has focused on medical training and research since the end of WWII. The Post's prominence in medical training and research advancement has led to significant tactical and organizational innovations. Today FSH is considered the largest and most important military medical training center in the world (FSH 2009).

2.1.3 Missions and Major Tenants

FSH is organized into four mission-related subareas: 1) patient care; 2) medical and other research, development, testing, and evaluation; 3) medical training; and 4) HQ and administration. Housing, recreational, commercial, and community support facilities are located throughout the installation. Figure 2-2 presents an overview of the Post and the four mission subareas.

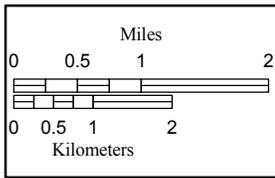
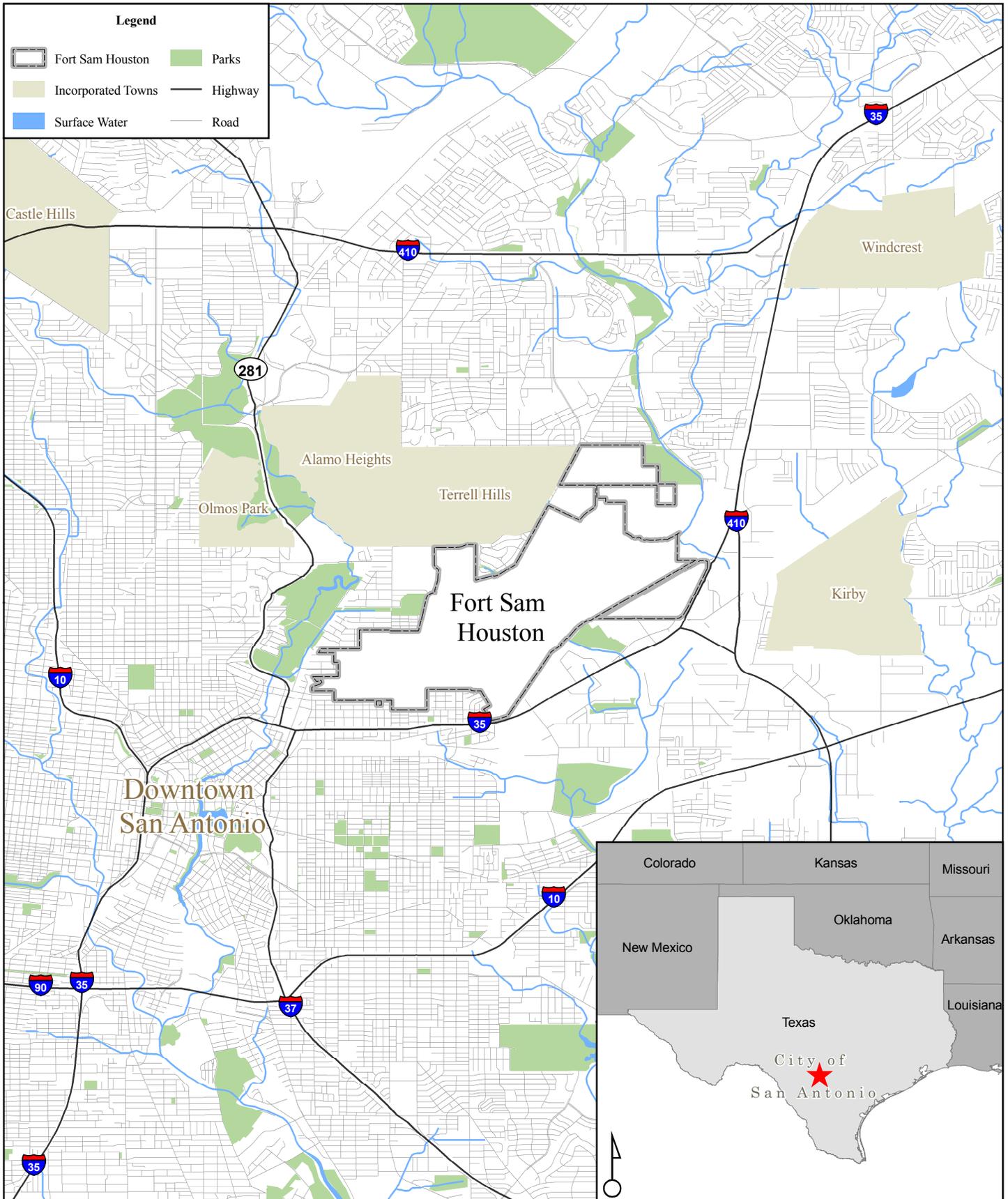
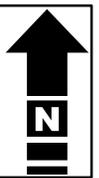


Figure 2-1
FSH Regional Area
San Antonio, Texas

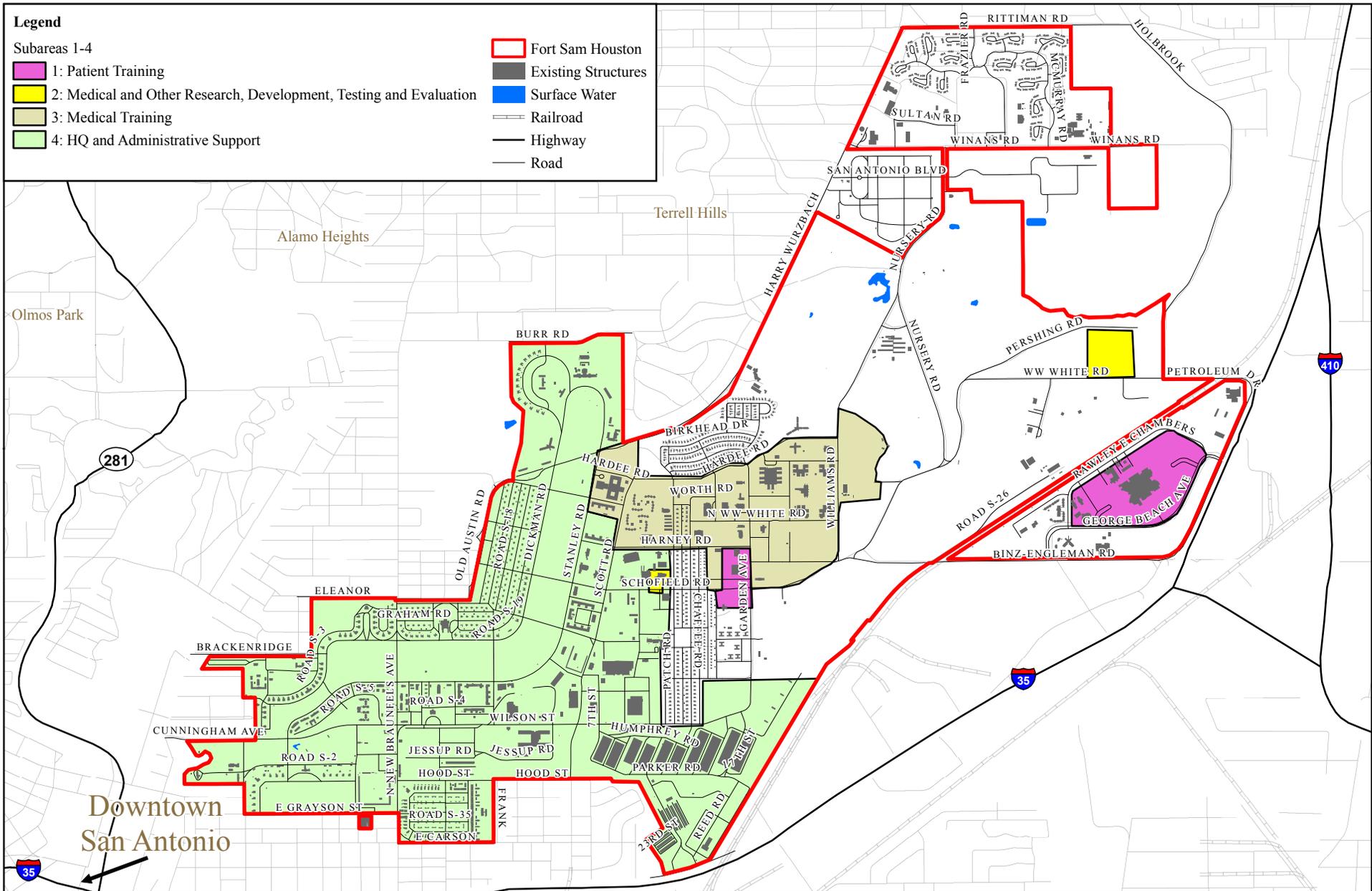


Legend

Subareas 1-4

- 1: Patient Training
- 2: Medical and Other Research, Development, Testing and Evaluation
- 3: Medical Training
- 4: HQ and Administrative Support

- Fort Sam Houston
- Existing Structures
- Surface Water
- Railroad
- Highway
- Road



2-3

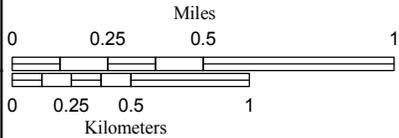


Figure 2-2
FSH Mission-related Subareas
San Antonio, Texas



1 2.1.3.1 Subarea 1: Patient Care

2 This subarea includes the Brooke Army Medical Center (BAMC), which first opened in 1938 with 418
3 operating beds. The 1.5 million square feet (SF) hospital facility provides inpatient and ambulatory care,
4 as well as graduate medical education and research. BAMC has the Army's only certified Level 1 trauma
5 center, and in 2005 opened the DoD's second center for amputee care (San Antonio Military Medical
6 Center [SAMMC] 2009).

7 BAMC and Wilford Hall Medical Center (WHMC), which is operated by the Fifth Medical Wing of the
8 U.S. Air Force and is located in Lackland, Texas, on Lackland Air Force Base, are in the process of
9 consolidating into one medical region with two integrated campuses known collectively as SAMMC.
10 BAMC is becoming SAMMC-North and will provide inpatient care as well as trauma and emergency
11 medical care, while WHMC is becoming SAMMC-South and will serve as a full-service ambulatory care
12 center (SAMMC 2009).

13 In addition to BAMC, the patient care subarea includes medical research activities, Soldier housing,
14 military lodging facilities, housing for patients' families, and company and battalion headquarter areas.

15 2.1.3.2 Subarea 2: Medical and Other Research, Development, Testing, and Evaluation

16 The Medical and Other Research, Development, Testing, and Evaluation subarea is located to the
17 northwest of BAMC (refer to Figure 2-2). In this subarea, human and animal clinical investigations are
18 conducted by BAMC and the U.S. Army Institute of Surgical Research (USAISR), and are collocated at
19 BAMC. BAMC Department of Clinical Investigation is responsible for all human research regulatory
20 requirements at BAMC. USAISR performs laboratory and trauma research to support combat-wounded
21 Soldiers, and completes all regulatory animal research protocol requirements for both BAMC and the
22 USAISR (SAMMC 2009).

23 2.1.3.3 Subarea 3: Medical Training

24 Figure 2-2 shows the medical training subarea at FSH. At present, FSH is the largest military medical
25 training facility in the world. The Army Medical Department Center and School (AMEDDC&S)
26 currently offers 170 officer courses, non-commissioned officer courses, and enlisted courses. As of 2007,
27 35 graduate medical education programs, including 170 courses spanning 14 specialties, were offered at
28 FSH (USACE 2007).

29 2.1.3.4 Subarea 4: Headquarters and Administrative Support

30 The HQ and administration subarea is shown in Figure 2-2. The HQ and administrative support facilities
31 are located in this subarea. This area also includes National Historic Districts with architecture from
32 different periods in history. Privatized military family housing and various community support facilities,
33 including a library, commissary, golf club, bowling center, child development center, and fitness center,
34 are also found in this subarea.

35 **2.1.4 Major Tenants**

36 FSH serves as a research, administrative, academic, and premier medical center for the Army. Major
37 installation tenants include:

- 38 • BAMC/SAMMC-North;
- 39 • U.S. Army Medical Command (MEDCOM);
- 40 • U.S. Army Installation Management Command (IMCOM);

- 1 • AMEDDC&S;
- 2 • Fifth U.S. Army (ARNORTH);
- 3 • Sixth U.S. Army (USARSO);
- 4 • 470th Military Intelligence Brigade (470TH MI BDE);
- 5 • Medical Education and Training Campus (METC); and
- 6 • Institute for Surgical Research (ISR)/Battlefield Health and Trauma Center (BHT).

7 2.1.4.1 Installation Growth and Transformation

8 Army Transformation Overview

9 To meet the new demands of 21st century warfare, the Army is undergoing a comprehensive
10 transformation (Geren and Casey 2008). This transformation includes six major dimensions:

- 11 1. Growth (of military forces)
- 12 2. Modernization
- 13 3. Reorganization
- 14 4. Institutional change
- 15 5. Cyclical Reserve rotations for continuous coverage
- 16 6. Adaptive, multi-organizational leadership

17 The current size of the Army does not meet the warfare needs facing the Nation; therefore, the Army is
18 adding an additional 74,000 Soldiers over the next few years to achieve 76 brigade combat teams by 2011
19 (Geren and Casey 2008). To support these troops, the Army is modernizing its equipment and technology
20 so that the best equipment is available as rapidly as possible to the combat Soldiers who need them.

21 The Army's modular force (AMF) conversion includes reorganizing the operational Army from a
22 division-based force to one based on multi-functional modular brigades that are more versatile,
23 deployable, and sustainable. To support this new operational structure, the Army is transforming its
24 institutional policies and procedures so they are more efficient and effective. Additionally, the Army is
25 changing its Reserve Component from a strategic to an operational reserve that provides continuous
26 support to the active force by serving cyclically. The Army is also developing flexible leaders that
27 execute operations as part of a joint, interagency, and multinational team (Geren and Casey 2008).

28 In March 2002, the Army published its *Programmatic Environmental Impact Statement of Army*
29 *Transformation* for its proposal to conduct a multi-year, phased, and synchronized transformation
30 program. Over a 30-year period, the Army will conduct a series of transformation activities affecting
31 virtually all aspects of Army doctrine, training, leadership development, organizations, installation,
32 materiel, and Soldiers. In April 2002, the Army issued a Record of Decision (ROD) reflecting its intent
33 to move forward with the transformation (USACE 2007).

34 Army Transformation at FSH

35 Army transformation initiatives are well underway at FSH. Initiatives affecting the installation include
36 Grow the Force, AMF, Army in Transition, and Warrior in Transition.

1 The renovation and construction of new facilities and supporting infrastructure is required to sustain this
 2 growth. Table 2-1 indicates that between FYs 09 and 11, over 6 million SF of new construction and
 3 nearly 1.5 million SF of renovation are anticipated to occur at FSH to support the installation's growth.
 4 This construction is anticipated to cost nearly \$2.5 billion (Garr 2009).

Table 2-1. Proposed Construction at FSH (FY 09-FY 11)

<i>Activity</i>	<i>Square Footage (SF)</i>
New Construction	6,442,488
Renovation	1,405,899
Total SF	7,848,387

Source: Garr 2009.

5 **2.2 DEVELOPMENT OF PROPOSED ACTION AND ALTERNATIVES**

6 In order to identify a proposed action and alternative(s), FSH identified screening criteria that potential
 7 action alternatives would need to meet. Table 2-2 indicates the screening criteria and the analysis of
 8 potential action alternatives, with the exception of Building 197, which was evaluated using separate
 9 criteria. Building 197 is a contributing element to a National Historic Landmark District (NHLD).
 10 Consequently, potential actions to this building must be analyzed according to the policies of the Army
 11 Alternate Procedures (AAP), which provides guidelines and requirements for actions that may adversely
 12 affect cultural resources on FSH. The analysis of the demolition of Building 197 was written to fulfill the
 13 requirements of the AAP as well as NEPA. A description of the screening criteria used on all projects
 14 except Building 197 is described below, and the screening criteria for Building 197 are discussed in
 15 Section 2.2.2.

16 **2.2.1 Screening Criteria (Excluding Building 197)**

17 To assist in developing feasible action alternatives, FSH performed a screening analysis (Table 2-2). In
 18 identifying screening criteria for comparing to potential alternatives, FSH was able to eliminate those
 19 alternatives that did not meet all the project requirements early in the NEPA process. The screening
 20 criteria considered for this NEPA document included:

- 21 • Consolidates and/or co-locates facilities used for related and dependent functions.
- 22 • Meets mission requirements.
- 23 • Fulfills purpose and need.
- 24 • Avoids or minimizes development constraints.
- 25 • Is consistent with future post development plans.
- 26 • Fulfills AT/FP requirements.

Table 2-2. Screening Criteria for Action Alternatives (Excluding Building 197)

Action Alternatives	Screening Criteria					
	<i>Consolidates or Co-locates related functions</i>	<i>Meets Mission Requirements</i>	<i>Fulfills Purpose and Need</i>	<i>Avoids or Minimizes Development Constraints</i>	<i>Consistent with Future Post Development Plans</i>	<i>Fulfills AT/FP Requirements</i>
Proposed Action Components	x	x	x	x	x	x
IMCOM Campus parking east of Reynolds Road	x	x	x		x	x
TEMF ADP Alternative 1	x			x	x	x
TEMF ADP Alternative 2	x			x	x	x
TEMF ADP Alternative 3	x			x	x	x
Training Aids Center, Schofield Road	x			x		x
Golf Course Development				x		x
Training Aids Center, Johnston Circle	x	x	x			x
Training Aids Center, White and Williams Roads	x	x		x		x
Training Aids Center, Nursery Road						x
Fifth Army Recruiting Brigade Special Purpose Facility, Taylor Road	x	x				x
No-Action Alternative						

2.2.2 Screening Criteria for Building 197

Initially constructed in 1912, Building 197 is a contributing element to the FSH NHLD. As such, potential actions to this building that may result in an adverse effect that must be analyzed according to the policies in the AAP. For this reason, Building 197 will be examined separately from the other actions proposed in this Environmental Assessment (EA) (Table 2-3).

As Table 2-3 illustrates, the only alternative that meets all screening criteria is demolition. Therefore, this action would be analyzed as the Proposed Action for Building 197.

Table 2-3. Alternative Analysis for Building 197

Action Alternatives	Screening Criteria		
	<i>Meets Purpose and Need</i>	<i>Addresses Health & Safety Issues</i>	<i>Economically Feasible</i>
Demolition	X	X	X
Replacement	X	X	
Rehabilitation	X	X	

According to the *Phase I Existing Conditions Assessment of Building 197 Fort Sam Houston, Texas* (2009), Building 197 is currently unoccupied due to structural instability; the presence of hazardous materials (asbestos and lead); and failing, inadequate, or obsolete mechanical, plumbing, and electrical systems. These conditions are elaborated on in the Cultural Resources section of this EA.

The actions required to remedy this level of disrepair would result in an adverse effect to a contributing element of a NHLD, which requires that action alternatives be reviewed per AAP requirements. A summary of the requirements for evaluating an adverse effect to a NHLD is provided below:

1. The Cultural Resources Manager (CRM) should demonstrate that he is unable to use best management practices (BMPs) to avoid an adverse effect.
2. In the NEPA document, discuss the ways that the CRM has considered:
 - the magnitude of undertaking's harm to the historical and cultural qualities of the NHLD;
 - public interest in the NHLD and in the proposed undertaking; and
 - the effect mitigation would have on meeting the goals of the undertaking (e.g. financial effects).
3. Consider the NHLD in the initial design stages of an undertaking.
4. Design undertakings that, to the maximum extent possible, minimize harm to the NHLD and those properties designated within the boundary formally designated in the Landmark documentation and also takes into consideration the visual and auditory impacts of the undertaking with respect to the designated boundaries.
5. FSH would provide the Advisory Council, the National Park Services (NPS), in addition to other interested parties, including the Texas State Historic Preservation Officer (SHPO) and the public, an opportunity to review undertakings that may affect the NHLD through the NEPA public comment review process during the initial design phase. When buildings within the NHLD are considered for deconstruction or demolition FSH would hold a NEPA scoping meeting to solicit input from the public and interested parties on the methods for applying BMPs, developing

1 alternatives, and/or resolving or treating the adverse effect before preparing NEPA
2 “Environmental Assessment” documentation”.

3 6. Recommendations and guidance provided by these agencies would be considered in the design of
4 the undertaking. FSH would respond to the comments of the Council and the NPS in writing
5 prior to proceeding with the undertaking.”

6 7. “If the CRM determines that an activity will have an adverse effect (SOP 4) on historic
7 properties, this determination will be documented in the NEPA document, along with a review of
8 project alternatives. When the historic property is a building, and the project involves
9 deconstruction or demolition, the evaluation of alternatives will consider the estimated cost of
10 alternatives.”

11 Based on the AAP requirements, the following screening criteria were used by the FSH CRM to evaluate
12 feasible alternatives for Building 197:

- 13 • Meets the purpose and need.
- 14 • Addresses internal and external building health and safety issues.
- 15 • Is economically feasible.

16 Per AAP guidelines, three potential action alternatives were developed for Building 197: rehabilitation,
17 replacement construction, and demolition. The three screening criteria were applied to each alternative to
18 determine their respective feasibility (see Table 2-3).

19 **2.3 PROPOSED ACTION AND ALTERNATIVES**

20 A fundamental principle of NEPA is that an agency should consider reasonable alternatives to a proposed
21 action. Considering alternatives helps avoid unnecessary impacts and allows an analysis of reasonable
22 ways to achieve a stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To
23 be considered reasonable, an alternative must be “ready” for decision-making, affordable, capable of
24 implementation, and able to meet an action’s purpose and need.

25 FSH has excluded from analysis potential alternative(s) that would not satisfy all of the screening criteria
26 (see Table 2-2) because they would not be reasonable alternatives. As Table 2-2 illustrates, no alternative
27 to the Proposed Action would satisfy the screening criteria, largely because additional development
28 opportunities on FSH are extremely limited due to existing dense development and site constraints such
29 as floodplains, historic properties, and security considerations. These existing conditions effectively
30 eliminated the possibility of generating detailed siting alternatives to the Proposed Action that would
31 meet mission requirements and could be developed physically. Because the Post could not identify any
32 reasonable alternatives to the Proposed Action, this EA will examine only the Proposed Action and the
33 No-Action Alternatives.

34 Antiterrorism Force Protection (AT/FP) Building Standards

35 New construction would comply with minimum Antiterrorism Force Protection (AT/FP) measures
36 described in the *Unified Facilities Criteria (UFC) DoD Minimum Antiterrorism Standards for Buildings*
37 (UFC 4-010-01). Anti-Terrorism Force Protection (AT/FP) measures apply a specific level of protection
38 to buildings from possible terrorist attacks based on the building use and extent of inhabitation. Table 2-4
39 summarizes AT/FP conventional construction standoff distances. If incorporating these distances is not
40 possible, the DoD recommends that an engineer with blast-resistant design experience analyze the
41 proposed building and apply building hardening as necessary to mitigate the potential effects of

1 explosives (DoD 2007). New construction must adhere to required minimum standoff distances. For
 2 existing buildings, minimum standoff distances should be incorporated where possible. When this would
 3 be infeasible “lesser standoff distances may be allowed where the required level of protection can be
 4 shown to be achieved through analysis or can be achieved through building hardening or other mitigating
 5 construction or retrofit as described in these standards and in the *DoD Security Engineering Facilities*
 6 *Design Manual*” (DoD 2007).

Table 2-4. Standoff Distance Requirements for New and Existing Buildings

Location	Building Category	Standoff Distance Requirements			
		Applicable Level of Protection	Conventional Construction Standoff Distance	Minimum Standoff Distance ⁽¹⁾	Applicable Explosive Weight ⁽²⁾
Controlled Perimeter or Parking and Roadways without a Controlled Perimeter	Billeting and High Occupancy Family Housing	Low	45 m ⁽³⁾ (148 ft.)	25 m ⁽³⁾ (82 ft.)	I
	Primary Gathering Building	Low	45 m ^{(3) (4)} (148 ft.)	25 m ^{(3) (4)} (82 ft.)	I
	Inhabited Building	Very Low	25 m ⁽³⁾ (82 ft.)	10 m ⁽³⁾ (33 ft.)	I
Parking and Roadways within a Controlled Perimeter	Billeting and High Occupancy Family Housing	Low	25 m ⁽³⁾ (82 ft.)	10 m ⁽³⁾ (33 ft.)	II
	Primary Gathering Building	Low	25 m ^{(3) (4)} (82 ft.)	10 m ^{(3) (4)} (33 ft.)	II
	Inhabited Building	Very Low	10 m ⁽³⁾ (33 ft.)	10 m ⁽³⁾ (33 ft.)	II
Trash Containers	Billeting and High Occupancy Family Housing	Low	25 m (82 ft.)	10 m (33 ft.)	II
	Primary Gathering Building	Low	25 m (82 ft.)	10 m (33 ft.)	II
	Inhabited Building	Very Low	10 m (33 ft.)	10 m (33 ft.)	II

(1) Even with analysis, standoff distances less than those in this column are not allowed for new buildings, but are allowed for existing buildings if constructed/retrofitted to provide the required level of protection at the reduced standoff distance.

(2) See UFC 4-010-02, for the specific explosive weights (kg/pounds of TNT) associated with designations – I and II. UFC 4-010-02 is For Official Use Only (FOUO)

(3) For existing buildings, see paragraph B-1.1.2.2 for additional options.

(4) For existing family housing, see paragraph B-1.1.2.2.3 for additional options.

Source: DoD 2007.

7 2.3.1 Master Planning Actions Alternative (Proposed Action)

8 For this EA, a total of 30 proposed master planning actions are organized into three categories based on
 9 their respective location on-Post (Table 2-5):

- 10 • FSH West Actions
- 11 • FSH Central Actions
- 12 • FSH East Actions

Table 2-5. Summary of Proposed Action Alternative

<i>Area</i>	<i>Proposed Action</i>	<i>Approximate Size</i>
FSH West	Demolish Building 197	16,274 SF
	MacArthur Field Running Track	590,000 SF
	Building 2270 Historic Theatre Expansion	40,000 SF
	Construct IMCOM HQ	175,000 SF
	Realign Stanley Rd. between Reynolds Rd. and New Braunfels Ave.	20,000 SF
	IMCOM Campus Area Parking Lots (Total for all Lots Combined)	769,200 SF
	Construct METC Parking Lot	390,000 SF
	Realign Reynolds Road	20,000 SF
	Construct Sixth Army Command and Control Facility	235,000 SF
	Construct Sixth Army Special Troops Command and Control Facility (HQ and TEMF with COF)	90,000 SF
	Widen Scott Road	20,000 SF
	Construct Fifth Army Special Purpose Facility	35,000 SF
	Battle Command Training Center Phase II	47,000 SF
	UPH PP Barracks	80,000 SF
	MED LOG CO TEMF with COF	18,000 SF
	Drainage System Improvements, Scott Road and Wilson Street	5,000 SF
	Drainage System Improvements, Buildings 2248-2250	400 LF
	FSH Central	Demolish Chapel Building 1398
Demolish and Replace Recreation Center Building 1462		22,000 SF
Construct TEMF Area Development		1,306,800 SF
Construct 470 th MI BDE HQ Complex		100,000 SF
Realign and Extend Schofield Road		20,000 SF
Construct Training Aids Center		40,000 SF
Drainage Improvements, Patch Road		500 LF
FSH East	Construct Schofield Road ACP	88,800 SF
	Construct Salado Creek Crossing	7,800 SF
	Construct George Beach/I-35N ACP/VCP	88,800 SF
	Construct 91 W AIB	200,000 SF
	Construct Chapel	35,000 SF
	Construct Student Trainee Adult Sports Park	1,306,805 SF
	Drainage System Improvements, Winans Road and Nursery Road	3,000 LF
	Drainage System Improvements, BAMC	5,000 SF

1 Due to the constraints of limited developable land; many existing facilities being either occupied or
 2 insufficient for meeting new tenant and mission demands; and rapid, on-going demands to support new
 3 tenants and missions, the Post's Master and Site planning efforts are in flux. Consequently, the precise
 4 final site location and design for many of the proposed actions is not yet known, and minor siting
 5 variations for any of the proposed construction or replacement actions may occur. To analyze the
 6 proposed actions while still allowing for flexibility in site location and design, this EA will focus on
 7 maximum development footprint areas that delineate the limits of a development footprint rather than
 8 specific development projects. Currently proposed projects will be mentioned; however, because project
 9 siting may change, the focus of the impact analysis will be on blocks of areas where development is likely
 10 to occur.

11 **2.3.2 FSH West Actions**

12 These actions are located on the western end of the Post (Figure 2-3).

13 Demolition of Building 197

14 Building 197 is a contributing element to the FSH NHLD (Figure 2-3). According to the *Phase I Existing*
 15 *Conditions Assessment of Building 197 Fort Sam Houston, Texas* (2009), Building 197 is currently
 16 unoccupied due to structural instability; the presence of hazardous materials (asbestos and lead); and
 17 failing, inadequate, or obsolete mechanical, plumbing, and electrical systems. Under the Proposed Action,
 18 FSH would demolish the building, which is the only economical option.

19 MacArthur Field Running Tract

20 To support the physical training of Soldiers on Post, FSH would construct a running track around the
 21 entire periphery of the parade field (Figure 2-3). The track would be approximately 22-foot wide, and
 22 would be constructed in phases (Table 2-6). This action would be part of the Morale, Welfare, and
 23 Recreation (MWR) program, which is an authorized by AR 215-1.

Table 2-6. Approximate Footprint for Each Phase of Running Track Construction

<i>Phase</i>	<i>Square Footage</i>	<i>Acreage</i>
MacArthur Field	100,760	2.31
Phase I	54,384	1.25
Phase II	51,326	1.18
Phase III	62,920	1.44
Phase IV	76,802	1.76
Phase V	104,148	2.39
Phase VI	87,142	2.00
Phase VII	51,678	1.19
Total SF	589,160	14

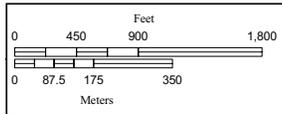
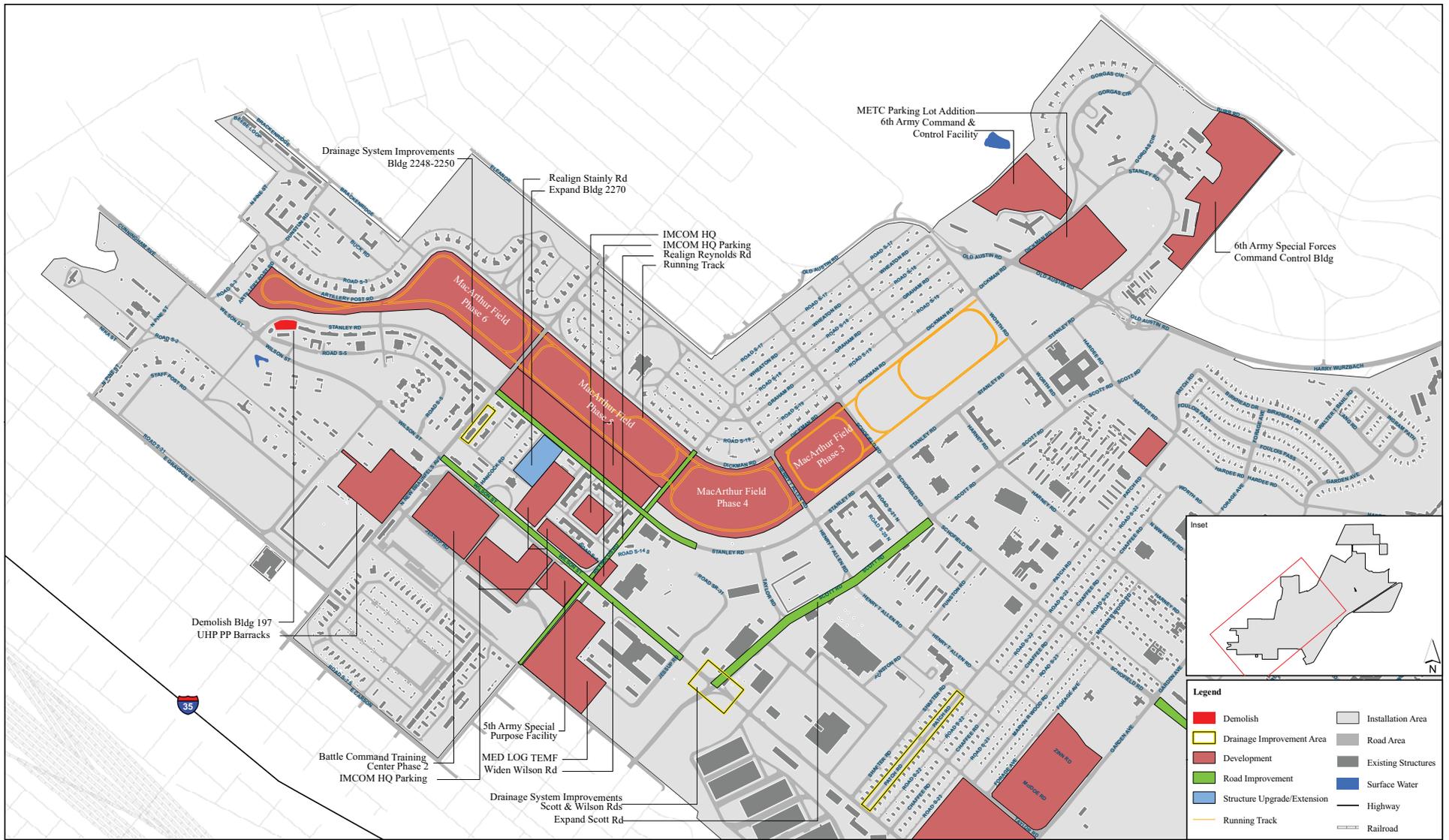


Figure 2-3
Proposed Actions, West FSH
Fort Sam Houston
San Antonio, Texas

1 Renovate and Expand FSH Historic Theatre

2 Building 2270 is a 14,692 SF historic theatre located along Stanley Road. The theatre was constructed in
 3 1935 and seats 1,104 people. The building is currently in substandard condition and cannot be used. It is
 4 being renovated with the inclusion of a large addition to the stage area. The addition includes a "fly
 5 tower" that provides for the use of rigging for lights, backdrops, sets, etc. The addition also provides for
 6 practice and dressing rooms. These alterations provide the Army Entertainment Group with facilities that
 7 will equal those venues around the world when they take their performances on the road (Figures 2-4 and
 8 2-5). The proposed expansion would occur at the rear of the building, and would include the appropriate
 9 AT/FP standoff distances from Roads S-4 and S-11. The new expanded theatre would be approximately
 10 40,000 SF. Appendix B includes Form 1391 that provides specific details on the renovation. Both interior
 11 and exterior elements of the building would be renovated under the Proposed Action.

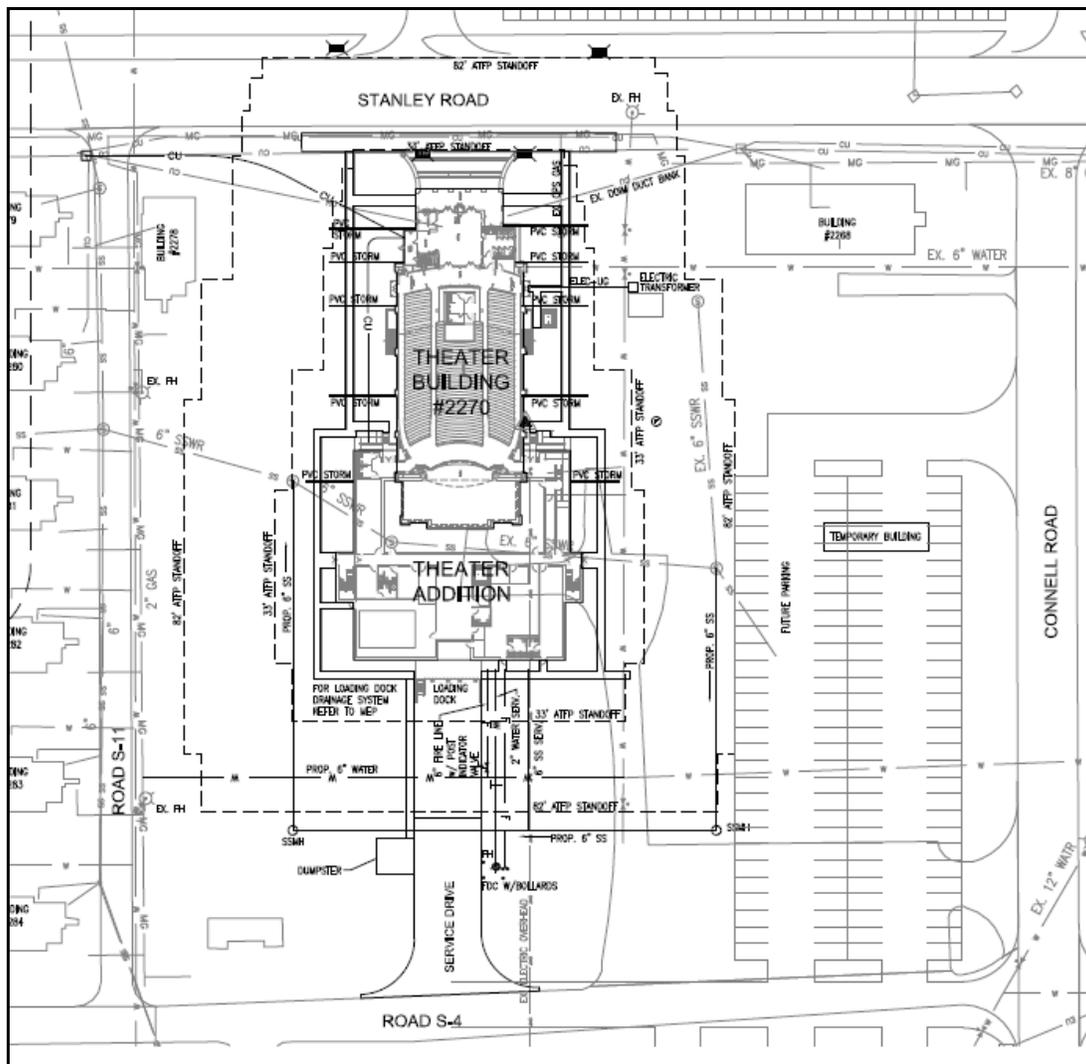


Figure 2-4. Historic Theatre, Building 2270 Expansion Diagram A

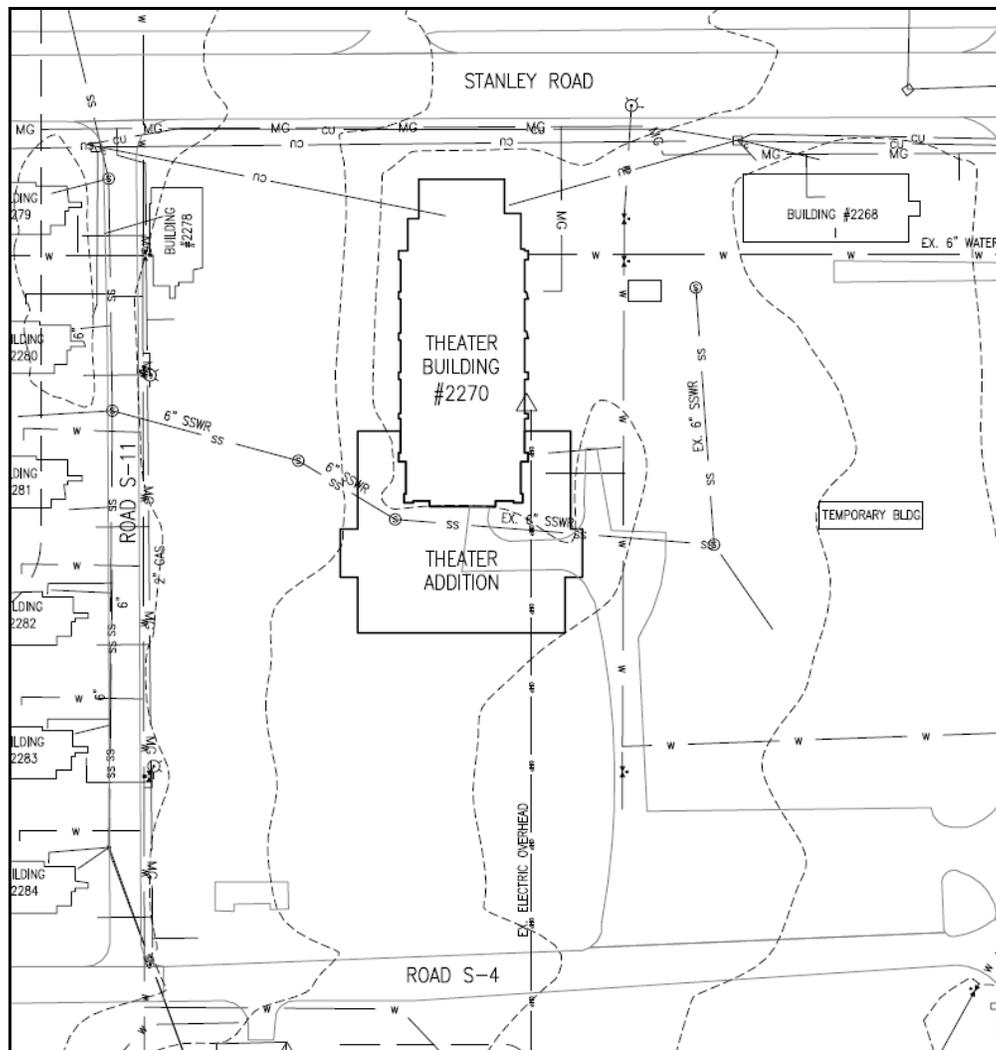


Figure 2-5. Historic Theatre Building 2270 Expansion Diagram B

1 Construct IMCOM Headquarters Building

2 Construction of an IMCOM HQ building in the center of the 2200 block quadrangle (Figure 2-3) has
3 previously undergone environmental review and is included in this EA for historical and continuity
4 purposes only. The site is currently a parking lot. The building would accommodate approximately 732
5 IMCOM HQ personnel who are moving to FSH due to internal stationing and reorganization by IMCOM,
6 known as the IMCOM Transformation. The addition of personnel has not undergone previous
7 environmental analysis and is therefore analyzed in this EA. Adequate on-Post facilities do not exist; all
8 suitable existing facilities are fully utilized. Buildings 2264 and 2266 would be renovated under other
9 projects. The new construction site allows HQ units to be in proximity to one another.

1 Proposed Actions include:

- 2 • Removing the current parking lot infrastructure;
- 3 • Constructing a new three story, approximately 175,000 SF HQ administrative building in the
- 4 center of the 2200 block quadrangle; and
- 5 • Constructing new supporting infrastructure.

6 IMCOM Campus Area Development

7 To fulfill AT/FP requirements and ease traffic congestion, FSH would realign and extend several roads
8 adjacent to the 2200 block quadrangle. FSH would also construct parking in four lots to support the new
9 IMCOM HQ building.

10 The Proposed Action can be viewed on Figure 2-3 and includes:

- 11 • Constructing a 1500-space (450,000 SF) parking lot in the parade ground across the street from
- 12 IMCOM HQ campus north of Stanley Road. What is currently an unpaved parking lot would be
- 13 paved.
- 14 • Constructing a 260-space (78,000 SF) paved parking lot west of Connell Road.
- 15 • Constructing a 100-space (30,000 SF) paved parking lot south of Building 2265.
- 16 • Constructing a 600-space (180,000 SF) paved parking lot south of the proposed MWR building
- 17 site.
- 18 • Constructing a 90-space (29,250 SF) paved parking lot at the northeastern corner of Reynolds
- 19 Road and Wilson Street.
- 20 • Realigning the segment of Stanley Road between Reynolds Road and New Braunfels Avenue into
- 21 the parade grounds (20,000 SF).
- 22 • Widening Wilson Street to five lanes (two lanes each way and a continuous left turn lane) from
- 23 Scott Road to New Braunfels Avenue.
- 24 • Realigning Reynolds Road between Stanley Road and Wilson Street to the east to have AT/FP
- 25 offset distance from Building 2266.
- 26 • Extending Reynolds Road from its intersection at Wilson Street south to Hood Street.
- 27 • Replacing and widening Jessup Road between the extension of Reynolds Road and Second Street.
- 28 • Constructing associated infrastructure and improvements.
- 29 • The realignment of Stanley and Reynolds roads and the widening of Wilson Street are only being
- 30 reviewed as possible options to accommodate the IMCOM Campus Area Development. Other
- 31 minor siting variations may occur within the development footprint as well.

32 METC Parking Lot Addition

33 Under the Proposed Action, FSH would construct an approximately 950-space (390,000 SF) parking lot
34 on the parade grounds in the quadrangular area north of Old Austin Road (see Figure 2-3). Minor siting
35 variations may occur within the development footprint. This action would support the expanded METC.

1 Sixth Army Command and Control Facility

2 The U.S. Army South is being reconfigured into HQ, Sixth U.S. Army. Current HQ USARSO is in old
3 BAMC, which is privatized and is functioning as administrative space. The space is not big enough to
4 support the new requirements and leasing space is costly. Under the Proposed Action, FSH would
5 construct a modified standard design numbered Army command and control facility with associated
6 infrastructure. This would occur in the 1000 area of the Post (see Figure 2-3). Minor siting variations
7 may occur within the development footprint.

8 Sixth Army Special Troops Command and Control Facility

9 This project is needed to support growth within the Sixth Army HQ from Fort Buchanan that had
10 transferred to FSH as a result of Army Transformation Initiative. The Sixth Army's tactical equipment
11 maintenance operations are currently being conducted in a vehicle maintenance facility that is leased from
12 and shared with the USACE, Fort Worth District. All available administrative space is occupied by the
13 USACE, causing Sixth Army administrative functions to be conducted in another facility that is remote to
14 the maintenance facility. In addition, the facility was constructed in the 1960s and is inadequate to serve
15 current needs.

16 Under the Proposed Action, FSH would construct a modified, standard design large battalion HQ facility
17 to hold approximately 500 people. FSH would also construct a standard design tactical equipment
18 maintenance facility (TEMF) for the Sixth Army and the Sixth Army's Geospatial unit in the 1000 area of
19 the Post (see Figure 2-3). The Proposed Action would include oil storage, hazardous materials
20 (HAZMAT) storage, deployment equipment storage, vehicle wash rack, organizational vehicle parking,
21 two oil storage buildings, and associated site improvements and infrastructure. Minor siting variations
22 may occur within the development footprint.

23 Widen Scott Road

24 Scott Road is used to access most major facilities on Post. It crosses five of the most heavily traversed
25 intersections on FSH (see Figure 2-3). This road has traffic congestion and a high level of accidents.

26 Under the Proposed Action, FSH would widen Scott Road from two to four lanes from its intersection
27 with Schofield Road to Wilson Street. The project includes relocation of utilities and improved signal
28 lights, the demolition of 10,000 square yards of pavement under the project footprint, and supporting
29 facilities. No buildings would be demolished for this action.

30 Fifth Army Special Purpose Facility

31 The U.S. Army's Fifth Recruiting Brigade needs a building on FSH to support 365 units nation-wide.
32 Current facilities are substandard and do not meet mission requirements.

33 The proposed site is adjacent to the NHLD and facility design would reflect historical considerations.
34 The project would include a fenced, paved hardstand area for tactical equipment vehicles, supporting
35 facilities, a parking lot, and site improvements. The special purpose facility would include a brigade
36 operations center, battalion operations center, and a computer-training classroom.

37 Battle Command Training Center Phase II

38 Under the Proposed Action, FSH would construct the second phase of the Battle Command Training
39 Center. This would be an approximately 47,000 SF facility located on the southwest corner of Jessup
40 Road and New Braunfels Avenue (see Figure 2-3). Consistent with Army transformation co-location

1 goals, the proposed site would be located in front of the Battle Command Training Center Phase I. Minor
2 siting variations may occur within the development footprint.

3 Unaccompanied Enlisted Personnel Housing, Permanent Party

4 Under the Proposed Action, FSH proposes to construct a standard design 80,000 SF Unaccompanied
5 Personnel Housing (UPH) facility to accommodate 208 permanent party Soldiers. Primary facilities
6 would include living and sleeping quarters, baths, storage, service areas, and information systems.
7 Supporting facilities would include site development and improvements. The proposed site is within the
8 Historic Landmark District (see Figure 2-3); consequently, certain historic architectural features would be
9 incorporated into the barrack's design that conform to the design requirements of the district (see Chapter
10 4, Cultural Resources, for more information. Minor siting variations may occur within the development
11 footprint.

12 Second Medical Logistics Company (MED LOG CO) TEMF with Company Operations Facility (COF)

13 Under the Proposed Action, FSH would construct a standard design TEMF with a COF complex near
14 Building 4055 (see Figure 2-3). The project would include one vehicle maintenance facility,
15 organizational vehicle parking, and a petroleum/oils/lubricants storage building. Minor siting variations
16 may occur within the development footprint.

17 Drainage System Improvements, Intersection of Scott Road and Wilson Street

18 The intersection of Scott Road and Wilson Street is heavily used, yet it also easily floods when it rains
19 resulting in heavy pooling (see Figure 2-3). Under the Proposed Action, FSH would perform
20 improvement work on approximately 5,000 SF of the drainage system at this intersection, including
21 repairing three 36-inch deteriorated pipes.

22 Drainage System Improvements, Buildings 2248-2250

23 Under the Proposed Action, FSH would repair approximately 400 linear feet (LF) of 6-inch drainage pipe,
24 and replace one curb vault around Buildings 2248-2250.

25 **2.3.3 FSH Central Actions**

26 Demolish Chapel Building 1398

27 Installation chapels are currently fully utilized. Chapel 1398 is also outdated. Under the Proposed
28 Action, FSH would demolish the existing Chapel 1398 (Figure 2-6). Under the Proposed Action a new
29 chapel would be constructed to replace Chapel 1398 in a different location, also referred to as the
30 replacement site. For details about the location of the replacement site, see Section 2.3.4, FSH East
31 Actions.

32 Demolish and Replace Recreation Center Building 1462

33 Recreation Center Building 1462 is substandard and too small for the expanding population at FSH.
34 Under the Proposed Action, FSH would demolish Building 1462 and construct a new building and
35 associated infrastructure in the same site location. Minor siting variations may occur within the
36 development footprint.

37

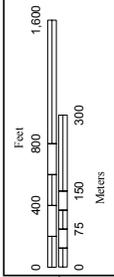


Figure 2-6
Proposed Actions, Central FSH
Fort Sam Houston
San Antonio, Texas



1 Construct 470th Military Intelligence Brigade HQ Complex

2 This project is required to provide a permanent, adequate HQ facility complex to support brigade,
3 battalion, and company command, control, and operational requirements for the 470th Military
4 Intelligence (MI) Brigade (BDE). Due to a lack of available, adequate facilities, BDE HQ was assigned to
5 a leased facility that it shares with other activities along with three additional structures of pre- WWII
6 construction. Continuing personnel increases to both HQs, USARSO, and the 470th MI BDE, coupled
7 with operational limitations of the other structures, has resulted in the requirement for construction of new
8 support facilities.

9 Under the Proposed Action, FSH would construct a BDE HQ complex for the 470th MI BDE consisting of
10 a multi-story BDE HQ building with three battalion HQs and seven company operations facilities within
11 the 1100 area of the Post (see Figure 2-6). This action would include demolition of the existing structures
12 in the 1100 area. Minor siting variations may occur within the development footprint.

13 TEMF Area Development

14 TEMF area development includes the co-location of four TEMFs on a 30-acre lot in the southeast corner
15 of FSH that extends northeastward along the installation boundary (see Figure 2-6). These TEMFs would
16 include:

- 17 • MED LOG CO TEMF with COF
- 18 • USARSO TEMF
- 19 • ARNORTH TEMF with COF
- 20 • 470th MI BDE Vehicle Maintenance Facility

21 Each of these will be discussed below. Minor siting variations may occur within the development
22 footprint.

23 *Second MED LOG CO TEMF with COF*

24 This project is needed to support the administration and maintenance for a Table of Organization and
25 Equipment (TOE) unit stationed at FSH. The existing facility lacks sufficient space for all TOE
26 organizational requirements. The project is designed to modernize and consolidate the organizational
27 level workspace needs of an existing TOE unit organizational TEMF and COF.

28 Under the Proposed Action, FSH would construct a standard design TEMF and COF complex that would
29 include:

- 30 ○ One vehicle maintenance facility (approximately 20,000 SF)
- 31 ○ Organizational vehicle parking (approximately 15,000 SF)
- 32 ○ A petroleum/oils/lubricants storage building (approximately 400 SF)
- 33 ○ A hazardous materials storage building (approximately 400 SF)
- 34 ○ COF covered hardstand lay down area (approximately 2000 SF)
- 35 ○ Demolition of Building 2382 and bunker 4112
- 36 ○ Site Improvements

1 *Sixth Army/USARSO TEMF*

2 This project is needed to support the stationing of the Sixth Army HQ from Fort Buchanan that is being
3 transferred to FSH as a result of Army Transformation. The sixth Army's tactical equipment maintenance
4 operations are currently being conducted in a vehicle maintenance facility that is leased from and shared
5 with the USACE, Fort Worth District. All available administrative space is occupied by the USACE,
6 causing Sixth Army administrative functions to be conducted in another facility that is remote to the
7 maintenance facility. In addition, the existing facility was constructed in the 1960s and is inadequate to
8 serve current needs.

9 Under the Proposed Action, FSH would construct a standard design TEMF (approximately 20,000 SF) for
10 the Sixth Army and the Sixth Army's Geospatial unit. The TEMF would include:

- 11 • oil storage, HAZMAT storage, deployment equipment storage, vehicle wash rack, and
12 organizational vehicle parking; and
- 13 • associated site improvements and infrastructure.

14 *Fifth Army/ARNORTH TEMF with COF*

15 Currently, there are no adequate existing permanent facilities or temporary facilities that have been
16 identified to support the increased requirements of the ARNORTH. This project is needed to provide
17 adequate maintenance facilities and hardstand for the ground vehicle maintenance mission. Adequate
18 permanent facilities are not currently available to support this mission.

19 Under the Proposed Action, FSH would construct a new Vehicle Maintenance Complex and assorted
20 hardstand parking area. This would include an approximately 20,000 SF TEMF shop, a 1,500 SF
21 Deployment Equipment Storage Building, a 10,000 SF Oil Storage Building and a 4,000 SF covered
22 hardstand parking area. Site improvements and infrastructure would also be constructed.

23 *470th MI Brigade Vehicle Maintenance Facility*

24 Neither adequate existing permanent facilities nor buildings of opportunity have been identified at FSH to
25 support the increased requirements of the 470th MI BDE. In support of Army Transformation and the
26 Global War on Terrorism, the CG INSCOM directed the activation of the 470th Military Intelligence
27 Group in 2003 to provide dedicated intelligence support to USARSO and the SOUTHCOM area of
28 responsibility.

29 Under the Proposed Action, FSH would construct a standard design TEMF with COF that would include
30 three small TEMF shops (approximately 60,000 SF), Deployment Equipment Storage Building
31 (approximately 15,000 SF), oil storage buildings (approximately 2,100 SF), wash platform, and
32 associated hardstand Tactical/Organizational Vehicle parking area. The Proposed Action would also
33 include site improvements and associated infrastructure. This action would include the demolition of the
34 1,100 area buildings (see Figure 2-6).

35 Realign and Extend Schofield Road

36 To address road flooding issues, under the Proposed Action FSH would realign and extend Schofield
37 Road up to Salado Creek (see Figure 2-6).

38 Training Aids Center

39 This building would function to prepare and issue training materials and equipment for military units and
40 government organizations at FSH. The current FSH Training Aids facility occupies Buildings 910, 911,

1 912, 913, 914, 2005, and 2267, which are substandard and too small to meet mission requirements. These
2 buildings would not be demolished under this action. This project will consolidate all training materials
3 and personnel into one building, thus improving training efficiency.

4 Under the Proposed Action, FSH would construct an approximately 40,000 SF Training Aids Center near
5 the corner of Patch Road and Hardee Road (see Figure 2-6). Minor siting variations that would not alter
6 the potential environmental impacts may occur within the development footprint.

7 Drainage System Improvements: 700 Patch Road

8 The storm drain located 12-15 feet deep behind the entire block on Patch Road is inoperable (see Figure
9 2-6). Under the Proposed Action, FSH would repair the storm drain, replace several manholes, and
10 replace one section of line full of concrete. The approximate area to be impacted would be 500 LF.

11 **2.3.4 FSH East Actions**

12 Develop Student Trainee Adult Sports Park

13 The adult sports fields at the Post have utilized for viable construction sites due to their proximity to the
14 new METC and student facilities to make room for BRAC 2005 construction actions that are unrelated to
15 the Proposed Action. The remaining youth fields are undersized for adult sports activity. Further, the
16 installation does not have a regulation adult softball field. A sports park would aid in the physical
17 readiness of student trainees assigned to the installation and increase morale. This action would be part of
18 the MWR program, which is authorized by AR 215-1.

19 Under the Proposed Action, FSH would implement the following actions on about 30 acres north of
20 Pershing Road (Figure 2-7).

- 21 • Construct 2 full-sized baseball fields with fencing, bleacher seating, and lighting;
- 22 • Construct 4 dual-striped courts with bleacher seating and lighting for basketball/volleyball;
- 23 • Construct 5 tennis courts with fencing, sand volleyball, and horse shoes;
- 24 • Construct a field house that would provide concessions, work/preparation area for game officials,
25 restroom, and equipment storage;
- 26 • Construct pavilions/shelters throughout the site to better utilize more secluded areas and to add to
27 park's versatility;
- 28 • Construct a 1.5 mile bicycle/jogging track that connects all fields and pavilions and provides
29 access to the two sides of the park by means of a bridge;
- 30 • Build fitness stations spaced along the track for added flexibility;
- 31 • Construct a football field and 400 meter track located adjacent to the planned Warriors in
32 Transition Complex for morning physical training; and
- 33 • Construct supporting infrastructure and site improvements.

34 Minor siting variations that would not alter the potential environmental impacts may occur within the
35 development footprint.

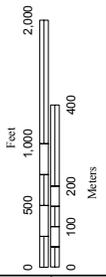
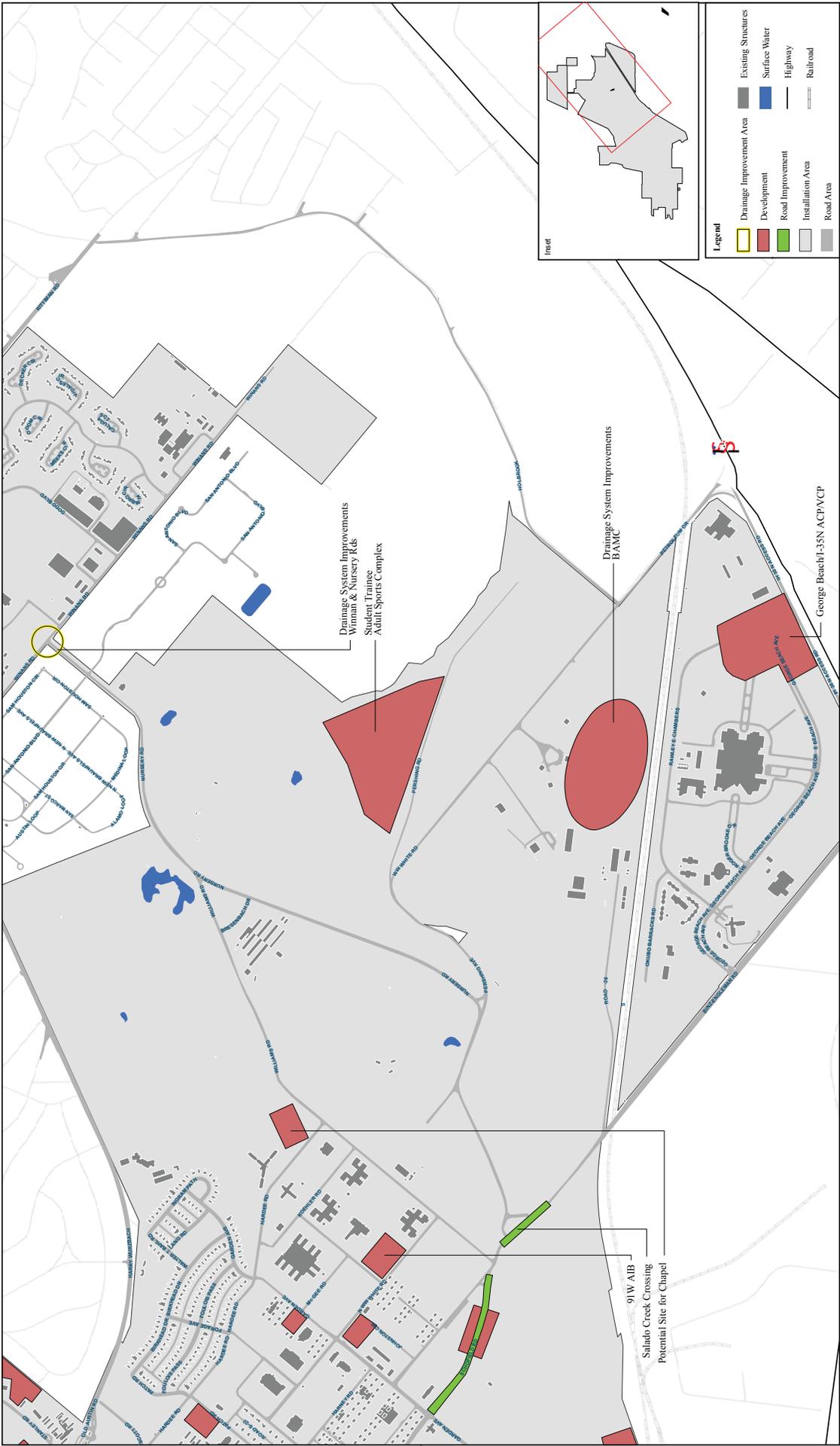
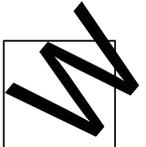


Figure 2-7
Proposed Actions, East FSH
Fort Sam Houston
San Antonio, Texas



1 Schofield Road Access Control Point

2 Under the Proposed Action, FSH would construct an Access Control Point (ACP) on Schofield Road at
3 the Binz-Engleman Gate (see Figure 2-7). This project is needed to prevent unauthorized access to the
4 installation and to comply with the 12 standard categories required by Army Standards for Control Points.
5 Minor siting variations may occur within the development footprint.

6 Salado Creek Crossing

7 To facilitate access for emergency response vehicles over low water crossings, under the Proposed Action
8 FSH would construct an all-weather connection across the Salado Creek floodplain between the
9 intersection of Schofield Road with Garden Avenue and the intersection of Binz-Engleman Road with the
10 Missouri, Kansas, and Texas Division of the Union Pacific Railroad (see Figure 2-7). This action would
11 include the construction of two vehicular bridges with reinforced concrete deck over steel girders and
12 reinforced concrete frame piers on concrete pile foundation. Roadways, of flexible type asphaltic concrete
13 pavement, would be constructed to connect the bridges to the existing road network.

14 George Beach/ I-35N Access Control Point/Vehicle Control Point

15 Under the Proposed Action, FSH would demolish the existing George Beach/I-35N ACP and replace it
16 with a standard design ACP and vehicle control point (see Figure 2-7). This project is needed to prevent
17 unauthorized access to the installation and to comply with the 12 standard categories required by Army
18 Standards for Control Points.

19 Proposed actions would include:

- 20 • Constructing guard booths with overhead canopy, gatehouse, search area building, inspection
21 canopy, over watch position building, entry lanes, turn around lanes, and active and passive
22 vehicle barriers;
- 23 • Construction of supporting facilities;
- 24 • Widening George Beach Avenue to six lanes, four coming into the installation and two leaving;
- 25 • Constructing vehicle parking for vehicle searches, vehicular gates, and personnel gates; and
- 26 • Demolishing existing infrastructure.

27 Construct 91 W Applied Instruction Building (AIB)

28 This project is needed to provide consolidated instructional facilities for the Combat Soldier Medic, 91W,
29 military occupational specialty, AMEDDC&S to educate and train the Army basic Soldier medic.
30 Changes in Army requirements necessitate that AMEDDC&S train combat medics to a higher level than
31 before. Consequently, the present 91B would be renamed 91W, and the course for 91W would lengthen
32 to 16 weeks. This would increase the student load and require more instructional space. The purpose of
33 this action is to provide modern, consolidated facilities that meet mission requirements.

34 Under the Proposed Action, FSH would construct an approximately 200,000 SF medical AIB, which
35 would include general and applied instruction space, administrative space, mock clinical space, and
36 automation-aided classroom space (see Figure 2-7). Construction would also include site improvements
37 and associated infrastructure. Minor siting variations that would not alter the potential environmental
38 impacts may occur within the development footprint.

1 Construct Chapel

2 Under the Proposed Action, a new chapel would be constructed near the intersection of Williams Road
3 and Hardee Road (see Figure 2-7). This would replace Chapel 1398, located in Central FSH, which is
4 being demolished. The new chapel would be a standard design, 600-seat chapel complex, approximately
5 35,000 SF in size. Construction activities include the provision of associated infrastructure. Minor siting
6 variations may occur within the development footprint.

7 Storm Drainage Improvements: Intersection of Winans Road and Nursery Road

8 At the intersection of Winans Road and Nursery Road, approximately one-half mile of 18-inch storm
9 drainage line is deteriorated beyond repair and is causing severe sub-terrain washout. Under the Proposed
10 Action, FSH would replace approximately 3,000 LF of storm drain line at the intersection of Winans
11 Road and Nursery Road (see Figure 2-7).

12 Storm Drainage Improvements: BAMC

13 To function properly, the main BAMC drainage area has excessive growth and needs to be washed out.
14 Under the Proposed Action, FSH would clean out the growth in this area and possibly reset it with 6 inch
15 rock to reduce erosion (see Figure 2-7). The approximate area that would be impacted would be 5,000 SF.

16 **2.3.5 No-Action Alternative**

17 The No-Action Alternative represents the existing conditions on Post. The following describes the
18 conditions that would persist if the Proposed Action is not implemented.

19 2.3.5.1 West FSH

20 Building 197

21 Under the No-Action Alternative, Building 197 would remain in its current state of disrepair. FSH would
22 not have the funding required to repair it, so it would remain unused, obsolete, and continue to
23 deteriorate.

24 Running Track

25 Under the No-Action Alternative, a running track would not be constructed on the parade grounds or
26 anywhere else on Post for physical fitness training. As the population on FSH increases, other resources
27 for Soldier physical activity (e.g. recreation centers) would become overcrowded and would not meet the
28 Post's expanding needs. This may compromise mission-readiness.

29 Building 2270 Historic Theatre

30 Under the No-Action Alternative, the historic theatre would remain in despair and unused. The CFSC
31 Army Entertainment Division would not have a place to hold their events. A source of on-Post
32 entertainment and recreation would not be available to the Soldiers and their families, which may
33 contribute to a deterioration of morale and welfare.

34 IMCOM HQ and IMCOM Campus Area

35 IMCOM would continue to occupy inadequate facilities that do not meet their needs and expanding
36 mission. Workers may be dispersed into quarters that do not meet their needs; further, dispersion may
37 make work efforts less efficient. The existing 2200 area buildings would remain non-AT/FP compliant,
38 which would compromise the safety of employees. Without adequate parking provided, there may be

1 overcrowding in existing lots that leads to delays and traffic issues. All of this would compromise
2 mission-readiness.

3 METC

4 The expanded METC would not have adequate parking to meet its needs. This may cause overcrowding
5 in existing parking lots that could cause delays and traffic issues. This may affect work efficiency and
6 mission-readiness.

7 Sixth Army Command and Control Facility

8 Sixth Army would continue to pay high costs to lease a building that does not meet its needs. Work space
9 would continue to be overcrowded and inadequate. This may compromise work efficiency and mission-
10 readiness.

11 Sixth Army Special Troops Command and Control Facility and TEMF

12 Under the No-Action Alternative, the Sixth Army Special Troops Command would continue to lease a
13 building that does not meet its needs. Work space would continue to be overcrowded and inadequate.
14 There would not be a TEMF that meets the vehicle maintenance needs of the Command. All of this may
15 compromise work efficiency and mission-readiness.

16 Scott Road

17 Under the No-Action Alternative, Scott Road would remain a two-lane road. With the arrival of more
18 personnel, the traffic congestion and potential for traffic delays and accidents would increase. This would
19 affect personnel safety, work efficiency, and mission-readiness.

20 Fifth Army Special Purpose Facility

21 Under the No-Action Alternative, the Fifth Army would stay in substandard facilities that do not meet
22 their mission requirements. This may affect work efficiency and mission-readiness.

23 Battle Command Training Center Phase II

24 Under the No-Action Alternative, the second phase of the Battle Command Training Center would not be
25 built. Because the Post has a shortage of adequate existing facilities, this would likely compromise
26 mission-readiness.

27 UPH PP Barracks

28 Under the No-Action Alternative, the new unaccompanied personnel would not have adequate living
29 quarters on Post. Existing UHP barracks would remain overcrowded. Soldiers may need to find housing
30 off-Post, which would increase traffic in areas of the Post that are already congested. This may
31 compromise safety, productivity, and mission-readiness.

32 MED LOG CO TEMF with COF

33 Under the No-Action Alternative, MED LOG CO would not have sufficient facilities to maintain their
34 vehicles. This could affect safety and mission-readiness.

35 Drainage System at Intersection of Scott Road and Wilson Street

36 Under the No-Action Alternative, the drainage system at the intersection of Scott Road and Wilson Street
37 would continue to deteriorate. Periodic flooding would continue and likely worsen, which may result in
38 accidents and delays. This would affect work productivity and mission-readiness.

1 Drainage System Near Buildings 2248-2250

2 Under the No-Action Alternative, the drainage system near Buildings 2248-2250 would continue to
3 deteriorate. Periodic flooding would continue and likely worsen, which may result in accidents and
4 delays. This would affect work productivity and mission-readiness.

5 2.3.3.2 Central FSH

6 Chapel Building 1398

7 Under the No-Action Alternative, existing chapels would continue to operate at maximum capacity.
8 These chapels would not be able to accommodate the increase in population occurring at FSH, which may
9 affect morale and welfare.

10 Recreation Center Building 1462

11 Under the No-Action Alternative, Building 1462 would remain substandard. It would not meet the
12 increasing demands of the expanding population at FSH, which may affect morale and welfare.

13 TEMF Area Development

14 Under the No-Action Alternative, the Sixth Army, Fifth Army, and 470th MI BDE would not have
15 adequate TEMFs for vehicle maintenance. This may compromise vehicle capability and mission-
16 readiness for these tenants.

17 Schofield Road

18 Under the No-Action Alternative, Schofield Road would not be realigned and extended to minimize
19 flooding. Flooding would persist and likely worsen over time, which would increase road deterioration
20 and make traffic delays and accidents more likely. This would impact safety, productivity, and efficiency,
21 which would also affect mission-readiness.

22 Training Aids Center

23 Under the No-Action Alternative, the training aids component would continue to occupy substandard
24 buildings that do not meet their mission requirements. This would affect productivity, which would also
25 affect mission-readiness.

26 Drainage System, Patch Road

27 Under the No-Action Alternative, the drainage system near Patch Road would continue to deteriorate,
28 causing periodic flooding. As deterioration increases, flooding would likely worsen, which may affect
29 safety and traffic, as well as increase road deterioration. All of this would compromise mission-readiness.

30 2.3.5.2 East FSH

31 Adult Sports Park

32 Under the No-Action Alternative, FSH would continue to not have adequate adult outdoor exercise and
33 recreation amenities for Soldiers and families. This includes wounded Soldiers transitioning back to
34 health, who would use the amenities for physical strength training in addition to recreation. All of this
35 may affect morale and welfare, as well as mission-readiness.

1 Schofield Road ACP

2 Under the No-Action Alternative, Schofield Road ACP would not be constructed. The existing ACP,
3 which does not meet current safety standards, would continue to be used. This may compromise the safety
4 of personnel.

5 Salado Creek Crossing

6 Under the No-Action Alternative, no bridge over the Salado Creek low water crossing in eastern FSH
7 would be constructed. Emergency vehicles traversing to and from BAMC and the rest of the Post would
8 continue to experience delays during periodic flooding. This may delay emergency medical teams from
9 reaching people in need of help, which could be life threatening.

10 George Beach/I-35N ACP/VCP

11 Under the No-Action Alternative, the new George Beach/I-35N ACP would not be constructed. The
12 existing ACP, which does not meet current safety standards, would continue to be used. This may
13 compromise the safety of personnel.

14 91 W AIB

15 Under the No-Action Alternative, the 91 W AIB would not be constructed. The existing facility would not
16 adequately meet the expanding educational program, which may affect the training of medics. This may
17 affect mission-readiness.

18 Storm Drainage System, Intersection of Winans Road and Nursery Road

19 Under the No-Action Alternative, the storm drainage system at the intersection of Winans Road and
20 Nursery Road would continue to deteriorate, causing periodic flooding and road deterioration. This may
21 affect the safety of personnel using these roads and cause traffic delays, which may impact personnel
22 productivity and efficiency. All of this may impact mission-readiness.

23 Storm Drainage System, BAMC

24 Under the No-Action Alternative, excessive growth would continue in the storm drainage system at
25 BAMC, causing it to be less effective. This would likely cause periodic flooding and road deterioration.
26 This may affect the safety of personnel using these roads and cause traffic delays, which may impact
27 personnel productivity and efficiency. All of this may ultimately impact mission-readiness.

28 The No-Action Alternative is not a reasonable action alternative because it does not meet the purpose and
29 need for the Proposed Action. However, as required under CEQ regulations (40 CFR 1502.14[d]), it does
30 provide a measure of the baseline conditions against which the impacts of the Proposed Action and
31 alternatives can be compared. In this EA, the No-Action Alternative represents the baseline conditions
32 described in Chapter 3, Affected Environment, and is carried forward for analysis.

33 **2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED**

34 The following sections present a discussion of the initially considered potential action alternatives and
35 why FSH eliminated them from analysis. As FSH has eliminated the potential alternatives as viable
36 alternatives for the following reasons, this EA does not include an analysis of them.

37 **2.4.1 IMCOM Campus Parking Lot East of Reynolds Road**

38 To provide parking for the proposed IMCOM HQ building, FSH considered constructing a paved parking
39 lot with about 80 spaces near the northeast corner of Reynolds Road and Wilson Street. As Table 2-1

1 indicates, this alternative meets the purpose and need, locates parking in proximity to the HQ building,
2 and fulfills the purpose and need and AT/FP requirements. However, FSH decided that adding those
3 approximately 80 spaces to the proposed lot adjacent to the Morale, Welfare Recreation building and
4 keeping the lot at the northeast corner of Reynolds Road and Wilson Street vacant would provide better
5 storm drainage protection. Therefore, this alternative was eliminated from further consideration.

6 **2.4.2 TEMF ADP Alternatives 1, 2, and 3**

7 The *Fort Sam Houston Tactical Equipment Maintenance Facilities Area Development Plan* (2009)
8 examines three alternatives in addition to the Proposed Action for TEMF area development (TEMF
9 ADP). While the proposed site is consistent for all alternatives, the alternatives examine different layout
10 designs.

11 All of the alternatives except the Proposed Action were eliminated from further consideration because
12 they failed to meet mission requirements. Specifically, all three eliminated alternatives failed to provide
13 essential parking and the co-location of TEMF facilities that would be needed to make the TEMF
14 complex fully functional.

15 **2.4.3 Training Aids Center, Schofield Road**

16 FSH considered locating the new Training Aids Center building near the intersection of Schofield Road
17 and Binz-Engleman Road. While this site would meet mission requirements, a CPS Energy Station is
18 planned for development there. Because using the site for the Training Aids Center would be inconsistent
19 with Post development plans, this alternative was eliminated from further consideration.

20 **2.4.4 Training Aids Center, Johnson Circle**

21 FSH considered locating the new Training Aids Center near Johnson Circle and the 1400 area. While this
22 site would meet mission requirements, the site is already planned for the construction of METC
23 dormitories. Because using the site for the Training Aids Center would be inconsistent with Post
24 development plans, this alternative was eliminated from further consideration.

25 **2.4.5 Training Aids Center, WW White and Williams Roads**

26 FSH considered locating the new Training Aids Center near the corner of WW White Road and Williams
27 Road. While this site would meet mission requirements, the site is already planned for the construction of
28 METC dormitories. Because using the site for the Training Aids Center would be inconsistent with Post
29 development plans, this alternative was eliminated from further consideration.

30 **2.4.6 Training Aids Center, Nursery Road**

31 FSH considered locating the new Training Aids Center near the corner of Williams Road and Nursery
32 Road. However, this site is not developable because it is located in a floodplain. Therefore, this
33 alternative was eliminated from further consideration.

34 **2.4.7 Fifth Army Recruiting Brigade Special Purpose Facility Alternate Location**

35 FSH considered locating the Fifth Army Recruiting Brigade Special Purpose Facility near the corner of
36 Stanley Road and Taylor Road. However, other development is planned for this site. Because using the
37 site for the Training Aids Center would be inconsistent with Post development plans, this alternative was
38 eliminated from further consideration.

1 **2.4.8 Golf Course Development**

2 The FSH golf course is one of the few remaining undeveloped parcels on Post. Due to the rapid demand
3 for expanded development, FSH considered developing on the golf course lot. However, developing on
4 the golf course would eliminate an important source of recreation for military personnel and retirees,
5 which may adversely affect morale and welfare. Further, this action would not be consistent with the
6 Army mission. Therefore, this alternative was eliminated from further consideration.

7 In summary, this chapter has discussed the decision-making strategy used by FSH to evaluate potential
8 alternatives. The evaluation indicated that no reasonable alternatives to the Proposed Action were
9 feasible. Therefore, this EA will study only the Proposed Action and No-Action Alternative. Chapter 3
10 will describe the affected environment and potential environmental consequences of the Proposed Action
11 and No-Action Alternative.

1 **CHAPTER 3**

2 **AFFECTED ENVIRONMENT AND ENVIRONMENTAL**

3 **CONSEQUENCES**

4 **3.1 INTRODUCTION**

5 This chapter will describe the affected environment and potential environmental consequences for each
6 resource area. Potential environmental consequences will be analyzed for both the Master Planning
7 Actions Alternative (the Proposed Action) and the No-Action Alternative.

8 **3.2 LAND USE**

9 AR 210-20, Real Properties Master Planning for Army Installations (2005), describes the purpose and
10 process for real property master planning on Army installations. The master planning process is based on
11 the assigned mission, Army guidance and policies, and available resources. A Land Use Plan for an
12 installation is like a zoning map that represents a long-range organization of land use to provide an
13 efficient, safe and compatible arrangement of activities. As such, it is a tool used for making decisions
14 about redevelopment, siting facility expansions and new facilities and reuse of land and physical assets on
15 the installation. Other sources of information are used to develop the Land Use Plan, and as to make final
16 project-specific siting decisions. These sources include but are not limited to:

- 17 • Environmental quality
- 18 • Natural and cultural resources baseline analyses
- 19 • Utility assessments or studies
- 20 • Transportation plans or traffic analyses
- 21 • The Installation Design Guidelines (IDG) (USAG 2006)
- 22 • The Integrated Natural Resources Management Plan
- 23 • The Integrated Cultural Resources Management Plan (ICRMP)

24 **3.2.1 Affected Environment**

25 3.2.1.1 Regional Geographic Setting and Location

26 FSH is located in south-central Texas in the City of San Antonio, approximately one mile northeast of the
27 central downtown area of the city. Developed property, widely used highways, and arterial roadways
28 surround the installation (USACE 2007).

29 Because the focus of the FSH mission is medical training and practice, installation land uses are primarily
30 administrative, classroom, hospital and clinic space. The installation does not have an airfield or
31 warfighting maneuver or training ranges. Therefore, any potential impact to land use from any proposed
32 activities generally is limited to the immediate adjacent properties. The exception to this spatial limitation
33 is the occasional helicopter operations at the installation in support of regional Medical Evacuation
34 (MEDEVAC) requirements to BAMC and occasional special airlift to and from the main installation
35 (USACE 2007).

1 3.2.1.2 Installation Land/Airspace Use

2 FSH is one of the oldest installations in the Army. Since 1845, FSH has performed important roles for
3 the Army and has served as an HQ, logistical base, mobilization and training site, garrison and medical
4 provider. After construction of the Quadrangle in 1876, the Army began to move facilities to the current
5 site of FSH. The installation has expanded from the original 92 acres to 2,940 acres. It has the largest
6 collection of more than 800 historic facilities located in various historic zones that depict their eras
7 (USACE 2007). The historic structures of the fort are discussed in greater detail in section 4.9, Cultural
8 Resources.

9 The FSH master plan has evolved over time to meet changing mission requirements. The master plan
10 layout of FSH establishes four mission-related subareas:

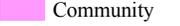
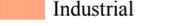
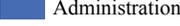
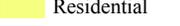
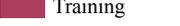
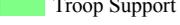
- 11 • Patient care
- 12 • Medical training
- 13 • Medical and other Research, Development, Testing and Evaluation
- 14 • HQ and administration

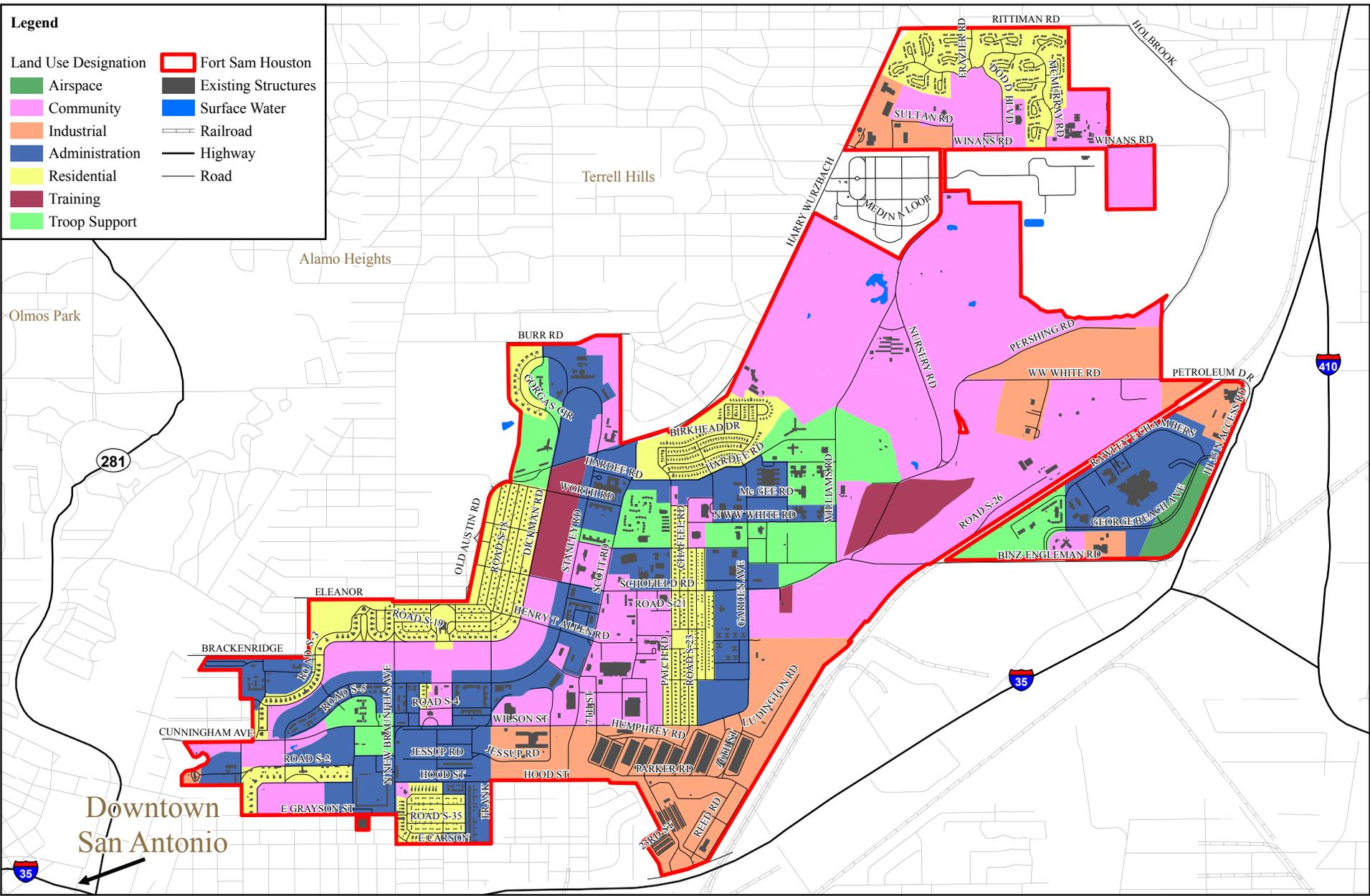
15 Additionally, housing, recreational, commercial and community facilities are located throughout the
16 installation, primarily to serve the active duty military and dependents, and provide limited support for the
17 military retirees and civilian workforce.

18 Figure 3.2-1 displays land use on the installation. Land areas are described according to the dominant use
19 categories, which reflect functions that are typical on military installations. The older and more
20 developed areas occur in the southwestern and south-central portions of the installation. These areas
21 contain most of the HQ/administrative, housing, community support and training facilities. The
22 MacArthur Field is used as parade grounds and athletic fields. The central core of FSH is made up of a
23 variety of land uses, including family housing, troop housing and bachelor officers quarters, intermingled
24 with HQ/administrative, community support, education, and smaller recreation facilities. The south-
25 central part of the installation is an industrial area primarily dedicated to logistics, facilities services,
26 vehicle and equipment maintenance, supply distribution and warehousing.

27 The north end of FSH is less densely developed, with family housing, schools, outdoor recreation and a
28 national cemetery. Salado Creek runs through FSH from north to south along the eastern border of the
29 northern section. Development potential of the floodplain areas is limited, and traditional uses have been
30 limited to training fields and recreational areas. There are two 18-hole golf courses, picnic and camping
31 areas and a riding stable in this area. There are other, smaller, recreation areas throughout the installation.
32 Salado Creek also divides the southwest and south-central main installation from the easternmost portion
33 of the installation that primarily supports patient support and research. FSH is not an Army aviation
34 facility, nor does it include range facilities for launching or firing weapons that would restrict airspace
35 use. Nevertheless, BAMC has a heliport that supports MEDEVAC flights and occasional transport within
36 the San Antonio area. The heliport is located on the southeast perimeter of the BAMC campus.

Legend

- | | |
|--|---|
| Land Use Designation |  Fort Sam Houston |
|  Airspace |  Existing Structures |
|  Community |  Surface Water |
|  Industrial |  Railroad |
|  Administration |  Highway |
|  Residential |  Road |
|  Training | |
|  Troop Support | |



3-3

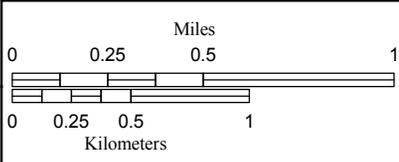


Figure 3.2-1
Land Use Designation
Fort Sam Houston



1 3.2.1.3 Surrounding Land/Airspace Use

2 The City of San Antonio Planning Department oversees the master planning efforts in the city and
3 compliance with existing ordinances, such as Volume I, Part II, of the Unified Development Code, Article
4 3, 2006 Zoning. The Alamo Area Council of Governments (AACOG) is a voluntary association of local
5 governments and organizations that provides technical planning assistance and coordination within the
6 region between parties that include the federal Government. AACOG has the objective to coordinate
7 public and private investments and plans, manage development of communities and minimize conflict
8 between land uses. Although FSH does not fall under the jurisdiction of the City of San Antonio, land
9 use changes on FSH may have impacts on the surrounding community.

10 Land use surrounding FSH is varied and includes single- and multi-family residential, lodging,
11 commercial business, light industrial, office space, warehouse/distribution, institutional, religious and
12 recreational uses. The southeast border of the installation runs parallel to IH-35, a major thoroughfare
13 that defines a corridor of various land uses along the service roads.

14 To the southwest and west of the installation are neighborhoods developed predominantly with older
15 single- and multi-family residential areas interspersed with neighborhood and strip commercial uses at
16 intersections and along primary roadways. To the northwest are the San Antonio Botanical Center, the
17 San Antonio Country Club, single-family residential areas in the City of Terrell Hills and limited office-
18 type commercial along adjacent arterials. Areas to the north are medium-density, single-family
19 residential neighborhoods.

20 Along the eastern boundary of FSH, lands are largely open, with rural land and sporadic houses. Some
21 industrial use is interspersed, but floodplains constrain further development. To the southeast and south,
22 open land along the boundaries and highways is zoned and developed for industrial uses. The city's John
23 James Park and the FSH National Cemetery (owned and administered by the VA) are contiguous with
24 FSH property on the northwest end of the installation (FSH and Camp Bullis Real Property Master Plan
25 Digest 2004).

26 Airspace use in San Antonio is controlled by FAA. There are major flight activities north, east, south and
27 southeast of FSH from San Antonio International Airport (SA IAP), Randolph Air Force Base, Stinson
28 Field and the Kelly Field Annex to Lackland Air Force Base. The aviation activity associated with FSH
29 is helicopter operations for local area MEDEVAC and transport. Takeoffs and approaches generally
30 follow the major adjacent roadways, including IH-35. The centerline of Runway 30L on approach/12R
31 on departure for SA IAP is close to the BAMC site. Turns to and from centerline are approximately
32 4,000 feet north of the BAMC site (USACE 2007).

33 3.2.1.4 Current and Future Development in the Region of Influence

34 Within the installation, the construction analyzed under the BRAC EIS is currently underway. The
35 overall focus of the BRAC EIS is the personnel increases associated with facility development actions in
36 the southwestern, central and easternmost areas of FSH.

37 The patient care facilities primarily are focused in the BAMC campus area on the eastern portion of the
38 installation. Additional outpatient care facilities are sited as satellite facilities in the medical training
39 subarea primarily to support the increased student load. These facilities should serve to decrease travel
40 time and costs to transport students to the BAMC campus.

41 The METC Conceptual Land Use Plan is focused primarily on providing classroom space and student
42 dormitories. The facility work is primarily new construction and associated demolition/deconstruction of
43 aged and inadequate facility space.

1 Outside of FSH, San Antonio has been experiencing rapid growth and development. The increased
2 military population resulting from the realignment, the announcement of Toyota to expand a factory in the
3 vicinity, and the increased presence of the National Security Agency have all combined to fuel rapid
4 growth and development in the San Antonio region. This development has traditionally been in the
5 popular north side of San Antonio; however development now pushes east and west of San Antonio as
6 well (See, e.g. Express-News Staff 2008; Pack 2009).

7 **3.2.2 Environmental Consequences**

8 3.2.2.1 Master Planning Actions Alternative

9 Development at FSH under the Proposed Action would have to consider the presence of historic and
10 cultural assets found on FSH. The potential adverse effects on eligible or potentially eligible historic
11 properties due to the construction, renovation or demolition/deconstruction work would have to comply
12 with the requirements outlined in the FSH Historic Properties Component of the ICRMP so that no
13 significant impacts would occur. The specific facilities potentially impacted are discussed more fully in
14 Section 3.8, Cultural Resources.

15 The demolition of Building 197 would provide additional open space for recreation or for a new building
16 as the installation requires. Building 197 is sited in the “Administrative” land use area. As the building is
17 currently unusable, its demolition would result in a section of land previously inaccessible because of the
18 dilapidated state of the structure. Demolition of the building would thus have an overall positive impact
19 on land use.

20 The construction of MacArthur running track around the field would remove some of the parade ground
21 previously enjoyed as green space and convert it to an improved recreational space. The area within the
22 track would remain green space. This development would have a negative impact inasmuch as it would
23 result in a loss of recreational open space; however, the development is essentially the conversion of one
24 recreational use to another in the form of a more formal running outlet. Thus, there is also a positive
25 impact to land use. The running track is consistent with the “Community” land use designation, and thus
26 the impact is deemed not significant to land use.

27 The expansion of Building 2270 (the Historic Theatre) would renovate and expand the existing building.
28 Currently, the building is in a state of disrepair such that it cannot be used. Renovation and expansion of
29 the building would allow for an inaccessible site to be usable by the public once again. These alterations
30 would provide the Army Entertainment Group with facilities that would equal those venues around the
31 world when they take their performances on the road. As such, the expansion of the theatre would be a
32 positive impact to land use and be consistent with the “Community” land use designation.

33 The construction of IMCOM HQ involves the construction of a three-story administrative building on the
34 current parking lot in the New Post development area. The conversion of a parking lot to an
35 administrative building could be perceived as a beneficial land use impact consistent with the
36 Professional/Institutional zoning designation; the ancillary aspects of the construction include
37 improvement of currently unpaved parking areas and open space into parking facilities for the additional
38 staff. This parking is planned in five different locations, some of which is currently used as unimproved
39 parking. The construction would result in over 738,000 SF of unimproved land being paved for parking;
40 much of the area to be paved is designated “Community” land use. The realignment and widening of
41 Jessup Road, widening of Wilson Street, and realignment of Reynolds Road to support access to the HQ
42 are also part of this Proposed Action. Overall, the parking and road modifications are improvements and

1 expansions to existing land uses, however the Army would be required to review current land use
2 designations for compliance and consistency with the “Community” designation.

3 The expanded METC requires additional parking facilities. These parking facilities are proposed under
4 this alternative at the north end of MacArthur field. The construction of this parking area would convert a
5 gravel lot and part of the green space of the field to a paved parking facility. The site is designated as
6 “Professional/Institutional” land use; the parking facility is consistent with that designation.

7 The Sixth Army Command and Control and the Sixth Army Special Forces Command and Control
8 facilities are sited at the northern end of the MacArthur Parade field. These two constructions represent
9 325,000 SF of additional administrative and instruction facilities. The other buildings in the vicinity are
10 also primarily administrative in nature. The locations where these developments are sited are currently
11 not developed, but are also not managed open space. As such, these developments are expected to be
12 consistent with the surrounding land use. However, the Sixth Army Special Forces Command and
13 Control proposed site is designated “Community” land use and may be inconsistent with that designation.
14 Likewise, the Sixth Army Command and Control facility is sited in the “Troop Support” land use area.
15 The Army would be required to review current land use designations for compliance.

16 This alternative proposes widening and improving Scott Road from its intersection with Schofield Road
17 to Wilson Street. The project includes relocation of utilities and improved signal lights, the demolition of
18 10,000 square yards of pavement under the project footprint, and supporting facilities. No buildings
19 would be demolished for this action. This does not constitute a change to land use, but rather an
20 improvement to an existing land use. Thus, there is no impact to land use.

21 The proposed building for the support of 365 nation-wide units for the U.S. Army’s Fifth Recruiting
22 Brigade is planned adjacent to the NHLD; facility design would reflect historical considerations. The
23 project would include a fenced, paved hardstand area for tactical equipment vehicles, supporting facilities,
24 a parking lot, and site improvements. The special purpose facility would include a brigade operations
25 center, battalion operations center, and a computer-training classroom. The proposed site is currently
26 vacant and designated for “Professional/Institutional” land use. This proposal is likely to be consistent
27 with that designation.

28 The second phase of the Battle Command Training Center would be an approximately 47,000 SF facility
29 located on the southwest corner of Jessup Road and Second Street. The proposed site is currently
30 considered “Profession/Institutional” land use. Pending further review of the activities planned for the
31 Battle Command and Training Center, it is likely that the building is consistent with the designation.

32 This alternative proposes a standard design 80,000 SF Unaccompanied Personnel Housing (UPH) facility
33 to accommodate 208 permanent party Soldiers. Primary facilities would include living and sleeping
34 quarters, baths, storage, service areas, and information systems. Supporting facilities would include site
35 development and improvements. The proposed site is currently vacant and has a land use category
36 “Troop Support.” This use is likely consistent with that designation.

37 The proposed MED LOG CO TEMF with COF construction near Building 4055 includes one vehicle
38 maintenance facility, organizational vehicle parking, and a petroleum/oils/lubricants storage building.
39 The siting location is mostly vacant, and is in the “Industrial” land use category. The vehicle maintenance
40 uses are consistent with Industrial uses, and land use is not adversely impacted by this proposal.

41 The increase in student and permanent personnel as a result of current growth trends and current needs,
42 results in the need to demolish and replace the installation chapel. Under this action, FSH would
43 construct a standard design 600-seat Chapel complex, approximately 35,000 SF, and associated

1 infrastructure. The current chapel is located in the “Professional/Institutional” land use area, and there is
2 no impact anticipated to land use from its demolition. The proposed site for the replacement chapel is
3 vacant and is in the “Troop Support” land use area. The Army would be required to review current
4 zoning designations for compliance before proceeding with the construction.

5 Recreation Center Building 1462 is substandard and too small for the expanding population at FSH.
6 Under the Proposed Action, FSH would demolish Building 1462 and construct a new building and
7 associated infrastructure in the same site location. As the building is being replaced at the same site, there
8 is no change and thus no impact to land use.

9 This alternative also includes the construction of a 30 acre adult sports park in the northeast section of the
10 installation. The land where the park is sited is adjacent to the golf courses on the installation and is
11 currently not developed. The land use designation is “Recreation,” and this development is consistent
12 with that land use. Further, the proximity to the golf courses presents a more centralized orientation for
13 developed outdoor recreation and, as such, may be considered a positive impact to the land use resource.

14 Under the Master Planning Alternative, FSH would construct a MI BDE HQ complex for the 470th MI
15 BDE consisting of a multi-story MI BDE HQ building with three battalion HQs and seven company
16 operations facilities in the 1100 area of the Post. This action would include demolition of the existing
17 structures in the 1100 area. The proposed site is in the land use designation “Administrative” and this
18 action is consistent with that designation.

19 TEMF area development includes the co-location of four TEMFs on a 30-acre lot in the southeast corner
20 of FSH that extends northeastward along the installation boundary. The lot is currently vacant but has
21 been developed in the past. The lot has a land use designation of “Industrial;” the proposed development
22 is consistent with that designation. The lot is also on the border of the installation; FSH should seek to
23 mitigate any adverse impact the development may have to land uses external to the proposed site.

24 To address road flooding issues, under this alternative FSH would realign and extend Schofield Road up
25 to Salado Creek. No buildings would be demolished for this action. This does not constitute a change to
26 land use, but rather an improvement to an existing land use. Thus, there is no impact to land use.

27 FSH would construct an approximately 40,000 SF Training Aids Center near the corner of Patch Road
28 and Hardee Road. The proposed site is currently vacant, and the land use designation is
29 “Administrative.” The Training Center is consistent with that designation and would not cause an adverse
30 impact to land use.

31 Under the Proposed Action, FSH would construct an ACP on Schofield Road at the Binz-Engleman Gate.
32 The proposed site straddles the “Community” and “Troop Support” land use designations. It is likely that
33 the ACP is consistent with those uses. The overall impact to land use would likely be positive, as the
34 control gate would prevent that point from being used for trespassing and improve public safety in
35 general.

36 To facilitate access for emergency response vehicles over low water crossings, the FSH would construct
37 an all-weather connection across the Salado Creek floodplain between the intersection of Schofield Road
38 with Garden Avenue and the intersection of Binz-Engleman Road with the Missouri, Kansas, and Texas
39 Division of the Union Pacific Railroad. This action would include the construction of two vehicular
40 bridges with reinforced concrete deck over steel girders and reinforced concrete frame piers on concrete
41 pile foundation. FSH would construct roadways of flexible type asphaltic concrete pavement to connect
42 the bridges to the existing road network. No buildings would be demolished for this action. This does

1 not constitute a change to land use, but rather an improvement to an existing land use. Thus, there is no
2 impact to land use.

3 FSH would demolish the existing George Beach/IH-35N ACP and replace it with a standard design ACP
4 and vehicle control point. This project is needed to prevent unauthorized access to the installation and to
5 comply with the 12 standard categories required by Army Standards for Control Points. This action is not
6 a change of land use, but instead an expansion of the existing land use. The land use designation is
7 “Administrative,” which is consistent with the Proposed Action.

8 FSH would construct an approximately 200,000 SF medical AIB, which would include general and
9 applied instruction space, administrative space, mock clinical space, and automation-aided classroom
10 space. The site and its vicinity are all developed. This action is not a change of land use, but instead an
11 expansion of the existing land use. The land use designation is “Administrative”, which is consistent with
12 the Proposed Action.

13 In addition to these elements, the Master Planning Actions Alternative includes several improvements to
14 the storm water drainage system throughout the installation. These improvements include rehabilitation
15 of the Patch Road storm drain system, rehabilitation and improvement to the storm drain system at the
16 Scott Road-Wilson Street intersection, repair pipe and replace curbing at Building 2248-2250,
17 rehabilitation of the drainage system at the Winans Road-Nursery Road intersection, and cleaning and
18 rehabilitation of the main BAMC storm drainage system. These projects would all improve flood
19 management at the installation. None of these improvements constitutes a change in land use. Aside
20 from the short term impact of making land inaccessible during the time of improvement, these projects
21 would not have an impact on land use.

22 3.2.2.2 No-Action Alternative

23 The No-Action Alternative represents the existing baseline conditions. With the Proposed Action not
24 implemented, no new impacts would occur; therefore, no significant impacts would occur.

25 3.3 AESTHETICS AND VISUAL RESOURCES

26 3.3.1 Affected Environment

27 FSH lies on a site descending from one of the highest hills in San Antonio on the southern boundary
28 where the Quadrangle Tower was constructed. The tower provides a view for over 30 miles in almost
29 every direction. From the higher elevations in the southeastern area at ground level, FSH offers some
30 open views of the surrounding areas. There are no natural landforms of visual interest. The on-site green
31 spaces include mowed lawns, a variety of landscape features, large parade fields, two golf courses,
32 outdoor picnic areas, street trees, formally landscaped facilities and natural vegetation in those areas
33 unsuitable for building. These features break up the land areas, provide shade, hide or enhance facility
34 features, define routes and walkways and collectively provide a variety of interesting vistas throughout
35 the installation. Future construction on the installation must comply with the requirements set forth in the
36 FSH Installation Design Guidelines (IDG) and the FSH Historic Landscape Master Plan (USACE 2007).

37 Reflecting the changes through history as the Army developed FSH, the architectural styles of FSH
38 facilities vary significantly. The earliest construction was the Quadrangle, followed by the Staff Post
39 development, including the Victorian-style permanent officer’s quarters around a parade field with large
40 shade trees. The next phase of construction included the Long Barracks and Sally Port, extended parade
41 grounds framed by Georgian-Revival-style brick officer’s quarters, and a Band Barracks (Infantry Port)
42 with a third-story belvedere. In 1903, FSH was designated a Military Intelligence Brigade (MI BDE)

1 Post, and the parade fields were extended north in a winding configuration following a ridgeline where
2 additional housing was developed (USACE 2007).

3 In an effort to accommodate expansion and modernization at FSH after WWII, the post architect and
4 planner chose a Spanish Mission style of architecture and landscaping for additional housing for all ranks
5 from Garrison Commander to noncommissioned officers. The light stucco exteriors, tile roofs and palm
6 trees are prominent elements of this style. The construction of the early hospital facilities and additional
7 dormitories, warehouses, administrative and training facilities and community support facilities located
8 throughout the installation carried the Spanish Mission theme with varying degrees of architectural
9 features and landscaping (USACE 2007).

10 FSH uses standardized paint colors, brickwork, signage and other common features to tie the facilities
11 together visually. Nevertheless, the historic preservation requirements have demanded additional
12 attention to detail within the National Historic Districts and their viewsapes (USACE 2007).

13 The high ground of the southwest and central portions of FSH is the most densely developed area of the
14 installation. FSH employs dense, older growth landscaping and canopy trees to obscure most off-
15 installation development to the south and west; high-rise facilities such as the USAA Towers remain
16 visible over the landscaping. The views overlooking the countryside to the east and the north are wide
17 vistas covering miles outside the installation boundaries from certain vantage points. The size and scale
18 of most facilities in the surrounding area blend into a mix of colors, shapes and textures among the
19 landscape foliage. The view from the central installation to the east includes the brick structures of the
20 BAMC campus on the horizon (USACE 2007).

21 The FSH development presented in the BRAC EIS adds, alters, and demolishes/deconstructs facilities on
22 FSH. The Army is implementing these plans consistently with the FSH Master Plan, and with developed
23 plans that effectively deal with historic preservation (the Army Alternate Procedures). The Army also
24 developed an overarching policy for facility development in the IDG, which governs all development on
25 base. These requirements include review of the conceptual, preliminary and final phases of alterations to
26 the landscape within the historic districts. A primary goal of the IDG is to provide guidance for
27 improving the quality of the visual environment by defining the placement and design of the elements of
28 new facilities such as the buildings' architectural styles, features, colors and textures, landscaping, roads,
29 walkways and signage. The IDG divides FSH into six visual zones based on use and dominant aesthetic
30 (Figure 3.3-1). These zones guide the structure of the visual analysis; the following discussion is
31 synthesized entirely from the IDG (FSH 2006).

Figure 3.3-1 Visual Resource Zones of Fort Sam Houston

1

The National Historic Landmark District Visual Zone

The NHLD visual zone includes the developments in the western section of the installation and includes the majority of the historic structures at FSH. The Quadrangle, Staff Post, Infantry Post, and Artillery/Calvary Post are included in this zone.

The Quadrangle represents the initial 40 acres on which the Army built the fort in the 1870s. From its earliest days, the acreage to the north and west of the Quadrangle housed temporary barracks and quarters for units stationed at the depot, until eventually permanent stables were constructed. The construction of the Quadrangle was completed in 1879, and today it serves as HQ for the Fifth U.S. Army. This complex has become a San Antonio landmark over the years with the square-topped clock tower as the main focal point and regional attraction on the post (Figure 3.3-2). The courtyard surrounding the clock tower maintains a quiet, park-like setting with grass, mature oak trees and free roaming wildlife (deer, rabbit, and peacocks). FSH development has not encroached upon the open space in and around the Quadrangle, and thus the historic western frontier fort look has been maintained.

The entire Quadrangle complex has a strong sense of identity, is highly visible and easily accessible. The historic limestone masonry detailing make the clock tower and the main building unique. Keeping motor vehicles out of the courtyard reinforces the historic western frontier fort atmosphere. Lush grass and fine, mature oak trees within the courtyard provide a park-like environment for employees and visitors.

The Staff Post abuts the Quadrangle to the west. The Army sited the post according to the traditions that developed in the planning of the frontier posts in the 1880s. The quarters for staff officers border a central parade ground on the north and west. Centrally located on the north side of the parade ground, the Sam Houston House, Building 48, is set back from the line of officer quarters. The semicircular drive sets it off from the rest of the post. The southern boundary fencing along Grayson Street established a standard for the post with large limestone columns and wrought iron-looking fence material.

The Staff Post development maintains a high level of historic integrity with houses oriented toward the prevailing winds and garages that create a well-defined edge on the west and north sides. Overall, buildings and grounds are in good condition. Outbuildings, both garages and servants quarters, form a complex to the rear of each house. There is surface parking at the southeast corner of the parade ground. Established trees provide a shady atmosphere for outdoor relaxation and entertainment. Landscaping also includes palm trees along the parade ground of varying species and age. The parade ground also displays 20th century military equipment.



Figure 3.3-2
Fort Sam Houston Clock Tower in the Center of the Quadrangle

Source: Fort Sam Houston Fort Wiki, 2007.

1 The Infantry Post, built between 1885 and 1906, was laid out in a horseshoe shape around a large parade
 2 ground. Across the full length of the east end
 3 of the post are eight two-story barracks in a
 4 straight line, separated by fire walls, but
 5 designed to appear as one long building.
 6 Midway between this line of barracks, a three-
 7 story, crenellated sally port structure (See
 8 Figure 3.3-3) acts as a focal point for the entire
 9 complex. Officers' quarters, like their
 10 accompanying outbuildings, line the long sides
 11 of the parade field. Additional barracks
 12 buildings and a band building (damaged by fire
 13 in 1984) face each other at the lower end of the
 14 parade ground between the officer quarters and
 15 the long barracks.



Figure 3.3-3.
Infantry Post Sally Port

Source: FSH 2006.

16 Only two buildings in the Infantry Post have
 17 retained their original visual quality. These two
 18 buildings parallel Grayson Street where the
 19 main entry once was. The contrast between
 20 brick walls and the limestone detail is still
 21 unobscured and the decorative “gingerbread”
 22 detailing on the porches is still intact. The original open space of the Infantry Post has largely been filled
 23 by subsequent development and expansion on the installation. The complex includes the southern and
 24 eastern borders of FSH, and initial development buffers outside the installation have been lost due to
 25 urbanization. Shade trees line the original main street within the Infantry Post. Many buildings in the
 26 post are vacant and in a state of deterioration.



Figure 3.3-4.
Example of the Officers Quarters

Source: FSH 2006.

27 The Artillery/Calvary Post development is oriented around an
 irregularly shaped parade ground in the southwestern Artillery
 Post area, and then widens to a stricter rectangular parade
 ground at Cavalry Post area to the east. Lining the west and
 north sides of the parade grounds are the officers' quarters—
 two-story detached dwellings; the only exceptions being three
 Bachelor Officers' Quarters which have a more apartment—
 like appearance. At the north center of the rectangular parade
 ground area, the consistent setback line is broken as the drive
 loops to the north creating a cul-de-sac with officers' quarters
 oriented around an elliptical open space (see Figure 3.3-4). A
 series of long two-story detached barracks buildings line the
 south edges of the parade ground. With the exception of the
 barracks and support structures on the Cavalry Post portion of
 the parade ground, all the buildings are built of the same buff-

42 colored brick. Rooflines and building silhouettes are relatively consistent in the entire area, although
 43 roofing materials vary. Building setbacks are consistent throughout the district.

44 All houses in this development are sited with deep setbacks and side yards. Each facade parallels the line
 45 of the drive as it curves along the north side of the parade ground. Access roads appear at the rear of the

1 quarters. General vehicular traffic is routed at the front of the quarters on Artillery Post Road, Artillery
2 Post Loop with an elliptical cul-de-sac, and a short section of New Braunfels Avenue. Pedestrian access
3 to all quarters is by a continuous network of sidewalks along the quarters' street frontage.

4 This part of FSH has a high level of integrity with few intrusions to the original scheme. It is one of the
5 Post's most cohesive zones. The highly consistent design quality creates an impressive ensemble of
6 buildings, much like a campus. The central parade ground incorporates rolling terrain and tree-lined
7 drives to create a park-like environment. At the same time, the edges of the development are
8 inconsistently identified with a variety of fences and gates (predominantly chain link/wire fencing).

9 The Conservation Visual Zone

10 The Conservation Visual Zone encompassed the "New Post" developments, e.g. MacArthur Field, the
11 original BAMC hospital (see Figure 3.3-5), and officer housing. The New Post results from the largest
12 permanent building program undertaken at FSH before the current realignment. The construction derives
13 from the Army Housing Act of 1926 with the purpose of constructing a large number of barracks and
14 hospital beds, with a smaller portion of the appropriations going to the construction of officers and
15 noncommissioned officers quarters. MacArthur Field is at the core of the New Post, and Mediterranean-
16 style quarters and mature shade trees line the field.



Figure 3.3-5
Old BAMC Facility

17 The eastern side of the New Post has a mixture of scales and types of buildings. Modern structures, such
18 as the bank, credit union, dental clinic and service club on Stanley Road contrast with the architectural
19 consistency of the western side. The Academy of Health Science constructed in the 1970's is also
20 inconsistent with the overall New Post architecture.

21 Completed in 1937, Building 1000, the former BAMC, rises to an above ground height of eight stories.
22 This building, flanked on either side of the parade ground by two similarly designed four-story buildings
23 (see Figure 3.3-6), is the axial focus of the entire New Post visual zone. Situated on one of the highest
24 points on Post, these three buildings form the northern terminus of MacArthur Field and the focal point of
25 the entire New Post building program. A large circular drive in front provides formal access to all three
26 buildings, while service drives are provided to the rear. Large open space to the front with large buffers
27 between the buildings and the border of the installation reinforce the views and setting for these historic

1 structures. On all three buildings, highly ornate
2 detailing in light-colored cast stone surrounds
3 central openings.

4 The officer-housing portion of New Post
5 completed between 1931 and 1935, consists of
6 one- and two-story, Mission/Spanish Colonial
7 Revival structures organized with service roads
8 and garages to the rear and formal access along
9 wider streets in the front. Completed between
10 1931 and 1934, these double rows of small single-
11 family detached residences share common alleys
12 in a small strip neighborhood separated from the
13 rest of New Post by the former railroad right-of-
14 way. The device of alternating the roof shape and
15 porch openings on every other house provides
16 visual variety.



Figure 3.3-6
One of Two Medical Facility Buildings Flanking the
Old BAMC Building

Source: FSH 2006.

17 The Community Visual Zone

18 The Community Visual Zone is the densely developed central region of FSH, encircled by Schofield
19 Road, Scott Road, Wilson Avenue and the Patch-Chaffee housing area. The zone has visual and physical
20 variety; there is no continuity of scale, form and style among the buildings. Surface parking is the
21 dominant land use for the zone, and there is little shade, landscaping, or visual focus. The relative
22 location of the community support activities like the Post Exchange and Commissary has nurtured the
23 “town center” function of the zone.

24 The ACP main entrances into the Community zone
25 are temporary structures. Past the entry points, the
26 Army and Air Force Exchange Service Four
27 Seasons Store typifies “big-box” architecture. The
28 deteriorating old post laundry facility (Building 330)
29 west of Scott Road is located within this zone; there
30 is no landscape treatment in place at its location.

31 The Community Visual Zone also includes family
32 housing at Harris Heights and Watkins Terrace
33 (Figure 3.3-7). These developments are physically
34 separate areas with common characteristics. Both
35 are single-family subdivisions constructed in the
36 early 1950s. The housing areas include an open
37 park-like atmosphere directly integrated into the
38 Fort.



Figure 3.3-7.
Example of Housing at the Harris Heights Family
Housing Area

Source: Lincoln Property Company 2009.

39 The Medical Visual Zone

40 The Medical Visual Zone is located in the eastern section of FSH and incorporates the BAMC
41 developments (Figure 3.3-8). This site is both a visual landmark and functionally located to serve the San
42 Antonio commuting area. Comprised of three main buildings, BAMC is dominated by the seven-story
43 nursing tower. Behind the tower is a five story ancillary building that houses radiology and surgical

1 functions, as well as the burn unit. There are also
2 separate buildings for the energy plant and the
3 three story, 120,000 SF Institute of Surgical
4 Research which oversees the burn unit.

5 The fenced complex has distinct three-side
6 boundaries by Benz Engleman Road, IH-35
7 Access Road and fenced from FSH recreational
8 use and open area. The complex is landscaped and
9 maintained.

10 The Industrial Visual Zone

11 This Industrial Visual Zone lies along the
12 southeastern boundary of FSH and is crossed by
13 Scott Road, the main entrance to Post.
14 Warehouses and depots typify the improvements
15 found within the zone. These facilities include a
16 large consolidated maintenance facility (Building
17 4055) west of Scott Road and WWII vintage warehouses to the east. A large berm screens the western
18 portion of the zone that includes the Consolidated Maintenance facility. There is ample open space
19 between the maintenance and warehouse buildings in this zone and surrounding area. Newer warehouses
20 were all built in one area at the southeast edge of FSH in 1941 as part of the mobilization buildup prior to
21 WWII. The zone is confined to one defined area of development. However, there is little visual
22 screening and no landscape treatment with the zone.

23 The Recreational Visual Zone

24 The Recreational Visual Zone is a predominantly open space that lies between the eastern edge of FSH
25 and the Missouri-Kansas-Texas Railroad. The land is remote from the center of FSH and contains a wide
26 variety of land uses. Much of the area is flood plain, well suited for recreational uses; some is used for
27 training activities; the golf course is convenient to FSH and the rest of the city. In addition to
28 undeveloped areas and developed recreational areas, this zone includes vegetable garden plots and
29 stables. High voltage power lines traverse the otherwise undeveloped zone. Additionally, currently used
30 and closed landfills are sited within the zone.

31 **3.3.2 Environmental Consequences**

32 3.3.2.1 Master Planning Actions Alternative

33 Many of the improvements proposed in the BRAC EIS and in this analysis are sited in the portion of the
34 medical training area that is outside of the Historic Districts. Currently, the facilities in this area feature a
35 mixture of various architectural styles and ages. FSH would located the new dormitory facilities, large
36 classroom facilities, selective demolition/deconstruction of aged facilities, and renovation of maintained
37 facilities in such a way that the visual and aesthetic impact of the improvements in positive overall. All
38 construction would be consistent with the IDG, which would assure a basic level of visual consistency.

39 NHLD Visual Zone

40 The NHLD visual zone would be impacted by three of the proposed projects under this alternative. First,
41 Building 197 southwest of Stanley Road would be demolished. Because of the deteriorated state of
42 Building 197, the demolition of this building and removal of the chain link fence currently around it



Figure 3.3-8.
Central Nursing Tower at BAMC Facility

Source: SAMMC 2009.

1 would improve the aesthetics at that site. Next, the Unaccompanied Personnel Housing (UPH)
2 construction is planned at the intersection of Museum Drive and N. New Braunfels Ave. This
3 construction would interrupt the current sight line to the historic grounds and alter the traditional
4 appearance of the landscape. The Army shall review the IDG for approaches to mitigate the adverse
5 impact this construction may have on the overall visual zone. Lastly, the sixth phase of the MacArthur
6 Field running track would encircle that section of the MacArthur field within the NHLD visual zone.
7 This would adversely impact the overall aesthetics of the parade field. However, the impact would be
8 mitigated by design through landscaping and material used to make the visual affect more subtle.

9 The Conservation Visual Zone

10 The Conservation Visual Zone would be impacted by seven of the proposed projects under this
11 alternative. First, the expansion of Building 2270 (the FSH Historic Theatre). The current plans
12 proposed for the expansion incorporate all external alterations to the back of the theatre building, facing
13 Road S-4. The main entrance of the theatre would be preserved by the renovations, which would in turn
14 preserve the visual aspect from the parade ground. As the alterations would predominantly only be
15 visible from the service road, there is no significant impact to visual resources.

16 The IMCOM HQ building construction and support parking area construction is also located in the
17 Conservation Visual Zone. The siting of the HQ in the center of the four surrounding New Post building
18 is inconsistent with the overall architectural layout of this district. The planned parking areas involve the
19 paving of over 738,000 SF of unimproved parking areas and green space, including a section of the
20 historic parade ground. This is also seen as an adverse visual impact. The realignment and widening of
21 Jessup Road, widening of Wilson Street, and realignment of Reynolds Road to support access to the HQ
22 are also part of this Proposed Action and contribute to any impact. FSH would integrate design elements
23 and landscaping to mitigate the impact, but the break with the general layout would remain.

24 The expanded METC requires additional parking facilities. These parking facilities are proposed under
25 this alternative at the north end of MacArthur field. The construction of this parking area would convert a
26 gravel lot and part of the green space of the field to a paved parking facility, and thus create a potential
27 adverse visual impact. FSH would integrate design elements and landscaping to mitigate the impact.

28 Construction of the Sixth Army Command and Control and the Sixth Army Special Forces Command and
29 Control facilities are sited at the northern end of the zone. These two projects represent 325,000 SF of
30 additional administrative and instruction facilities. The design of these structures would be required to
31 follow the guidance presented in the IDG to minimize any adverse visual impacts and maintain visual
32 consistency among structures. The Army would design these buildings to be consistent with the
33 aesthetics of the 1935 BAMC building as the focal point of construction.

34 This alternative proposes widening and improving Scott Road from its intersection with Schofield Road
35 to Wilson Street. The project includes the relocation of utilities and improved signal lights, the
36 demolition of 10,000 square yards of pavement under the project footprint, and supporting facilities. No
37 buildings would be demolished for this action. This constitutes an expansion of an existing main
38 thoroughfare and would have little to no visual impact.

39 The Medical Visual Zone

40 FSH would demolish the existing George Beach/IH-35N ACP and replace it with a standard design ACP
41 and vehicle control point. This project is needed to prevent unauthorized access to the installation and to
42 comply with the 12 standard categories required by Army Standards for Control Points. This zone is

1 highly developed, and the sight of construction is already in use as an ACP. This action would have little
2 to no adverse visual impact.

3 The Industrial Visual Zone

4 The proposed building for the support of 365 nation-wide units for the U.S. Army's Fifth Recruiting
5 Brigade is planned within the Industrial Visual Zone. The site is adjacent to the NHLD and facility
6 design would reflect historical considerations. The project would include a fenced, paved hardstand area
7 for tactical equipment vehicles, supporting facilities, a parking lot, and site improvements. The special
8 purpose facility would include a brigade operations center, battalion operations center, and a computer-
9 training classroom. The proposed site is currently vacant. The visual character of the Industrial zone
10 does not limit the development potential of the proposed site, as there is little visual uniformity of the
11 zone. However, as the site does abut the Conservation zone, the Army may wish to pursue some degree
12 of consistency with the architectural features on the adjacent sites.

13 The second phase of the Battle Command Training Center would be an approximately 47,000 SF facility
14 located on the southwest corner of Jessup Road and Second Street. The proposed site is currently vacant.
15 The visual character of the Industrial zone does not limit the development potential of the proposed site,
16 as there is little visual uniformity of the zone. However, as the site does abut both the NHLD visual zone
17 and the Conservation zone, the Army may wish to pursue some degree of consistency with the
18 architectural features on the adjacent sites.

19 The proposed MED LOG CO TEMF with COF construction near Building 4055 includes one vehicle
20 maintenance facility, organizational vehicle parking, and a petroleum/oils/lubricants storage building.
21 The siting location is mostly vacant, and the visual character of the Industrial zone does not limit the
22 development potential of the proposed site, as there is little visual uniformity of the zone. The nature of
23 this facility is consistent with the Industrial visual zone and would not have an adverse impact on the
24 visual resource.

25 Under this alternative, FSH would construct a BDE HQ complex for the 470th MI BDE consisting of a
26 multi-story MI BDE HQ building with three battalion HQs and seven company operations facilities in the
27 1100 area of the Post. This action would include demolition of the existing structures in the 1100 area.
28 The visual character of the Industrial zone does not limit the development potential of the proposed site,
29 as there is little visual uniformity of the zone. The nature of this facility is consistent with the Industrial
30 visual zone and would not have an adverse impact on the visual resource. However, the development also
31 abuts both recreational and community visual zones. FSH should be sensitive to this when designing
32 these structures to mitigate any visual impact as seen from neighboring visual zones.

33 TEMF area development includes the co-location of four TEMFs on a 30-acre lot in the southeast corner
34 of FSH that extends northeastward along the installation boundary. The lot is currently vacant. The visual
35 character of the Industrial zone does not limit the development potential of the proposed site, as there is
36 little visual uniformity of the zone. The nature of TEMF facilities is consistent with the Industrial visual
37 zone and would not have an adverse impact on the visual resource. However, FSH should be sensitive to
38 any visual resources outside the installation that may be adversely affected when designing these
39 structures to mitigate any visual impact as seen from neighboring visual zones.

40 The Community Visual Zone

41 The proposed Chapel would be constructed in the Community visual zone to provide an update-to-date
42 facility for the Post. Under the Proposed Action, FSH would construct a standard design 600-seat Chapel
43 complex, approximately 35,000 SF, and associated infrastructure. The current chapel is located in the

1 Professional/Institutional zone, and there is no impact anticipated to land use from its demolition. The
2 proposed site for the replacement chapel is vacant. The Community visual zone lacks a cohesive theme,
3 and as a result, the demolition and replacement of the chapel would not impact the visual resource. The
4 maintenance of the chapel within this visual zone does maintain the overall aesthetic as a community
5 center.

6 Recreation Center Building 1462 is substandard and too small for the expanding population at FSH.
7 Under the Proposed Action, FSH would demolish Building 1462 and construct a new building and
8 associated infrastructure in the same site location. As the building is being replaced at the same site, there
9 is no change and thus no impact to land use. The Community visual zone lacks a cohesive theme, and as
10 a result, the demolition and replacement of the Building 1462 would not impact the visual resource. The
11 maintenance of the recreation center at the same location within this visual zone does maintain the overall
12 aesthetic as a community center.

13 FSH would construct an approximately 40,000 SF Training Aids Center near the corner of Patch Road
14 and Hardee Road. The Community visual zone lacks a cohesive theme, and as a result, the construction
15 would not impact the visual resource. The size of the structure may be sufficient to impact the adjacent
16 Conservation visual zone. FSH may be able to mitigate any negative visual impact through design
17 elements.

18 Under the Proposed Action, FSH would construct an ACP on Schofield Road at the Binz-Engleman Gate.
19 The Community visual zone lacks a cohesive theme, and as a result, the construction would not impact
20 the visual resource.

21 FSH would construct an approximately 200,000 SF medical AIB, which would include general and
22 applied instruction space, administrative space, mock clinical space, and automation-aided classroom
23 space. The site and its vicinity are all developed. The site is currently developed, but several of the
24 adjacent buildings are slated for demolition. The Community visual zone lacks a cohesive theme, and as a
25 result, the construction would not impact the visual resource.

26 The Recreational Visual Zone

27 This alternative also includes the construction of a 30 acre adult sports park in the northeast section of the
28 installation. The land where the park is sited is adjacent to the golf courses on the installation and is
29 currently not developed. Developed recreation is consistent with this visual zone; the proximity to the
30 golf courses presents a more centralized orientation for developed outdoor recreation and a more cohesive
31 visual landscape. There is no adverse impact to the visual resource from this action element.

32 To address road flooding issues, under this alternative FSH would realign and extend Schofield Road up
33 to Salado Creek. No buildings would be demolished for this action. This constitutes an expansion of an
34 existing main thoroughfare and would have little to no visual impact.

35 To facilitate access for emergency response vehicles over low water crossings, the FSH would construct
36 an all-weather connection across the Salado Creek floodplain between the intersection of Schofield Road
37 with Garden Avenue and the intersection of Binz-Engleman Road with the Missouri, Kansas, and Texas
38 Division of the Union Pacific Railroad. This action would include the construction of two vehicular
39 bridges with reinforced concrete deck over steel girders and reinforced concrete frame piers on concrete
40 pile foundation. FSH would construct roadways of flexible type asphaltic concrete pavement to connect
41 the bridges to the existing road network. This constitutes an expansion of an existing crossing and would
42 have little to no visual impact.

1 In addition to these elements, the Master Planning Actions Alternative includes several improvements to
2 the storm water drainage system throughout the installation and in several of the Visual Zones. These
3 improvements include rehabilitation of the Patch Road storm drain system, rehabilitation and
4 improvement to the storm drain system at the Scott Road-Wilson Street intersection, repair pipe and
5 replace curbing at Building 2248-2250, rehabilitation of the drainage system at the Winans Road-Nursery
6 Road intersection, and cleaning and rehabilitation of the main BAMC storm drainage system. These
7 projects would all improve flood management at the installation. None of these improvements constitutes
8 a change in the visual landscape, and most are underground. Aside from the short term impact of making
9 land inaccessible during the time of improvement, these projects would not have an impact on land use.

10 3.3.2.2 No-Action Alternative

11 The No-Action Alternative represents the existing baseline conditions. Barring the exceptions discussed
12 below, no new impacts would occur; therefore, no significant impacts would occur.

13 Under the No Action alternative, the alterations to the visual quality of the NHLD visual zone would not
14 occur. There would be no visual impact from not building the track or from not constructing UPH
15 housing. However, there would be an adverse impact by not demolishing Building 197. As Building 197
16 is unfit for use, and is not slated for repair, the building would continue to decay behind the chain link
17 fence. As the building becomes increasingly dilapidated over time, the negative visual impact would
18 grow.

19 In the Conservation Zone, the current appearance would be maintained. Similarly, the renovation of the
20 Historic Theatre would not be completed. As the theatre is currently in disrepair, it would continue to
21 degrade unless FSH elects some other form of rehabilitation. The decay of the structure over time would
22 be a negative visual impact.

23 3.4 AIR QUALITY

24 3.4.1 Definition of Resource

25 Air quality is defined as the ambient air concentrations of specific pollutants determined by the USEPA to
26 be of concern to the health and welfare of the general public. There are six of these pollutants, also
27 known as “criteria pollutants,” which include ozone (O₃), carbon monoxide (CO), Nitrogen Dioxide
28 (NO₂), Sulfur Dioxide (SO₂), Particulate Matter ≤ 2.5 Microns in Diameter (PM_{2.5}), Particulate Matter ≤
29 10 Microns in Diameter (PM₁₀), and lead (Pb). USEPA’s overall automotive emission control program
30 has gradually reduced the Pb content of gasoline. This program has essentially eliminated violations of
31 the Pb standard in urban areas except those areas with Pb point sources. There are no existing or
32 proposed Pb point sources within the project footprint; therefore, Pb is not carried forward for detailed air
33 quality analysis.

34 The national standards, established by the U.S. Environmental Protection Agency (USEPA), are termed
35 the National Ambient Air Quality Standards (NAAQS). The NAAQS represent maximum acceptable
36 concentrations for pollutants of concern (Table 3.4-1). The State of Texas under the direction of the
37 Texas Commission on Environmental Quality (TCEQ) has adopted the NAAQS; therefore, separate state
38 standards do not exist.

1 3.4.1.1 Criteria Pollutants

2 Ozone

3 The majority of ground-level O₃ (more commonly known as “smog”) is formed as a result of complex
 4 photochemical reactions in the atmosphere between VOCs, nitrogen oxides (NO_x), and oxygen. VOCs
 5 and NO_x are considered precursors to the formation of O₃, a highly reactive gas that can damage lung
 6 tissue and affect respiratory function. While O₃ in the lower atmosphere is considered a damaging air
 7 pollutant, O₃ in the upper atmosphere is beneficial, as it protects the earth from harmful ultraviolet
 8 radiation. However, atmospheric processes preclude ground-level O₃ from reaching the upper atmosphere
 9 (USEPA 2009b).

10 Carbon Monoxide

11 CO is a colorless, odorless, poisonous gas produced by the incomplete combustion of fossil fuels.
 12 Elevated levels of CO can result in harmful health effects, especially for the young and elderly, and can
 13 also contribute to global climate change (USEPA 2009b).

Table 3.4-1. National Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards	
		Primary	Secondary
Ozone (O ₃)	8 Hour	0.075 ppm (147 µg/m ³)	Same as Primary Standards
	1 Hour	•	
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m ³)	•
	1 Hour	35 ppm (40 mg/m ³)	
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.053 ppm (100 µg/m ³)	Same as Primary Standard
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	0.030 ppm (80 µg/m ³)	•
	24 Hour	0.14 ppm (365 µg/m ³)	•
	3 Hour	•	0.5 ppm (1300 µg/m ³)
Particulate Matter ≤ 10 Microns in Diameter (PM ₁₀)	24 Hour	150 µg/m ³	Same as Primary Standards
Particulate Matter ≤ 2.5 Microns in Diameter (PM _{2.5})	Annual Arithmetic Mean	15.0 µg/m ³	Same as Primary Standards
	24 Hour	35 µg/m ³	
Lead (Pb)	Rolling 3-Month Average	0.15 µg/m ³	Same as Primary Standard
	Quarterly Average	1.5 µg/m ³	

Notes: ppm = parts per million; µg/m³ = micrograms per cubic meter; mg/m³ = milligrams per cubic meter; • = no standard established

Source: USEPA 2009a.

14 Nitrogen Dioxide

15 NO₂ is a brownish, highly reactive gas produced primarily as a result of the burning of fossil fuels. NO₂
 16 can also lead to the formation of O₃ in the lower atmosphere. NO₂ can cause respiratory ailments,
 17 especially in the young and elderly, and can lead to degradations in the health of aquatic and terrestrial
 18 ecosystems (USEPA 2009b).

1 Sulfur Dioxide

2 SO₂ is emitted primarily from the combustion of coal and oil by steel mills, pulp and paper mills, and
3 from non-ferrous smelters. High concentrations of SO₂ can aggravate existing respiratory and
4 cardiovascular diseases in asthmatics and others who suffer from emphysema or bronchitis. SO₂ also
5 contributes to acid rain, which can in turn lead to the acidification of lakes and streams (USEPA 2009b).

6 Particulate Matter

7 PM_{2.5} is referred to as fine particulates, which are believed to pose significant health risks as they can
8 lodge deeply into the lungs. Studies have linked increased exposure to PM_{2.5} to respiratory and
9 cardiovascular disease as well as premature death (USEPA 2009b). PM₁₀ is typically comprised of dust,
10 ash, soot, smoke, or liquid droplets emitted into the air. Fires, unpaved roads, construction activities, and
11 natural sources (wind and volcanic eruptions) can contribute to increased PM₁₀ concentrations. PM₁₀
12 particles can be inhaled into the respiratory system, leading to the possible aggravation of lung diseases.
13 Sources of PM_{2.5} and PM₁₀ include crushing or grinding operations and dust from paved or unpaved roads
14 (USEPA 2009b).

15 Lead

16 Sources of lead (Pb) include pipes, fuel, and paint, although the use of Pb in these materials has declined
17 dramatically in recent years. Pb can be inhaled directly or ingested indirectly by consuming Pb-
18 contaminated food, water, or dust. Fetuses and children are most susceptible to Pb poisoning, which can
19 result in heart disease and nervous system damage (USEPA 2009b).

20 3.4.1.2 Regulatory Setting

21 Under the federal CAA, as amended, states are responsible for enforcing the established air quality
22 regulations. The TCEQ enforces air pollution regulations and sets guidelines, as contained in the Texas
23 State Implementation Plan (SIP), to maintain the NAAQS within the state of Vermont. The CAA
24 Amendments of 1990 established new federal nonattainment classifications, new emission control
25 requirements, and new compliance dates for nonattainment areas. The severity of the nonattainment
26 classification drives the associated requirements and compliance dates. The following section provides a
27 summary of the federal and state air quality rules and regulations that apply to the proposed project.

28 Federal Requirements

29 Section 176(c) of the 1990 CAA Amendments contains the General Conformity Rule (40 CFR 51.850-
30 860 and 40 CFR 93.150-160). The General Conformity Rule requires any federal agency responsible for
31 an action in a nonattainment or maintenance area to determine that the action conforms to the applicable
32 SIP. This means that federally supported or funded activities would not (1) cause or contribute to any
33 new air quality standard violation, (2) increase the frequency or severity of any existing standard
34 violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other
35 milestone. The rule allows for approximately 30 exemptions, assuming that they conform to an
36 applicable SIP. Emissions of attainment pollutants are exempt from conformity analyses. Actions would
37 conform to a SIP if their annual direct and indirect emissions remain less than the applicable *de minimis*
38 thresholds. Formal conformity determinations are required for any actions that exceed these thresholds.
39 However, if the total emissions of a pollutant from a federal action exceed 10 percent (%) of a
40 nonattainment area's emissions inventory of that pollutant, the action is considered to be a regionally
41 significant action and it would require a conformity determination.

1 State Requirements

2 The FSH installation is under the jurisdiction of the TCEQ. The TCEQ publishes regulations for air
3 quality control and permitting. Since the State of Texas has adopted the NAAQS, regional air quality is
4 measured in comparison to the NAAQS, and no separate state standards exist. Texas is required by the
5 federal CAA to maintain a SIP for purposes of addressing regional ozone air quality. Only one SIP exists
6 for each state. For Texas, this document was initially approved in May 1972. Rather than re-writing the
7 entire SIP regularly, parts of the SIP are simply revised as needed. The most recent SIP revision occurred
8 in December 2008.

9 **3.4.2 Affected Environment**

10 3.4.2.1 Climate and Meteorology

11 FSH is situated within the city limits of San Antonio, on the edge of the Gulf Coastal Plain and typically
12 experiences a modified subtropical climate that is predominantly continental during the winter months
13 and marine during the summer months. Summers are generally hot, with daily maximum temperatures
14 above 90 degrees Fahrenheit (°F) occurring over 80% of the time during the summer months (City-
15 Data.com 2009). Winters in the region are considered mild with below freezing temperatures occurring
16 an average of 20 days per year (City-Data.com 2009). Relative humidity averages approximately 80%
17 during the early morning hours for most of the year and drops to near 50% in late afternoon. The San
18 Antonio area averages approximately 28 inches of rain a year, with the majority of rain falling in May and
19 September (City-Data.com 2009). Thunderstorms are common from April through September and the
20 most severe weather originates from tropical storms from the Gulf of Mexico (City-Data.com 2009).
21 Measureable snowfall is rare and typically only occurs once every three to four years. Northerly winds
22 predominant during the winter and strong winds occasionally occur in connection with the “northers.”
23 Due to its proximity to the Gulf of Mexico, southeasterly surface winds are commonplace during the
24 summer and winter.

25 3.4.2.2 Regional Setting and Attainment Status

26 FSH is located within Air Quality Control Region (AQCR) 217 (Metropolitan San Antonio Interstate
27 AQCR). All of Bexar County (which encompasses San Antonio and the FSH installation) is in attainment
28 of the NAAQS for all criteria pollutants (USEPA 2009c). In addition, no Prevention of Significant
29 Deterioration (PSD) Class I areas are located within the vicinity of the installation (USEPA 2009d).

30 On April 2, 2008, the USEPA issued final action to designate 13 Early Action Compact (EAC) areas
31 (including San Antonio) as attainment for the eight-hour ozone standard, as they met all milestones of the
32 EAC program and demonstrated attainment of the eight-hour ozone standard by December 31, 2007
33 (TCEQ 2009). In addition, consistent with USEPA's implementing regulations, the 1-hour ozone
34 NAAQS no longer applies in each of these areas as of April 15, 2009 (i.e., one year after the effective
35 date of the designation). Designating the San Antonio area as attainment for eight-hour ozone means that
36 there are no further SIP requirements for the existing standard as long as the area continues to monitor
37 attainment of this standard.

38 3.4.2.3 Air Pollutant Emissions at the FSH Installation

39 Although the installation has several thousand buildings including a large hospital and a small motor
40 pool, most of these buildings serve as administrative functions and the industrial facilities and operations
41 at FSH are very limited. As such, air emissions are those typically associated with activities supporting

1 the maintenance and operations of buildings and vehicles, fuel storage and dispensing, emergency power
 2 generation, and the use of limited laboratory chemicals (e.g., hazardous air pollutants [HAPs]). The 2007
 3 *Air Emissions Inventory Report* for the FSH installation summarizes estimated air emissions and is the
 4 most recent documentation for FSH emissions data (Table 3.4-2).

Table 3.4-2. Estimated Annual Emissions at the FSH Installation (tons/year)

<i>Emissions</i>	<i>CO</i>	<i>NO_x</i>	<i>SO₂</i>	<i>VOCs</i>	<i>PM_{10/2.5}</i>	<i>HAPs</i>
All Air Emission Sources	21.51	26.75	0.63	12.83	2.32	6.20

Source: TCEQ 2007.

5 3.4.3 Environmental Consequences

6 Emission thresholds associated with federal CAA conformity requirements are the primary means of
 7 assessing the significance of potential air quality impacts associated with implementation of a proposed
 8 action under NEPA. A formal conformity determination is required for federal actions occurring in
 9 nonattainment or maintenance areas when the total direct and indirect stationary and mobile source
 10 emissions of nonattainment pollutants or their precursors exceed *de minimis* thresholds. In addition, a
 11 formal conformity determination is required for actions defined as regionally significant (i.e., if the total
 12 emissions from a federal action exceed 10% of a nonattainment area's emission inventory for that
 13 pollutant). Significant air quality impacts would occur if implementation of any of the alternatives would
 14 directly or indirectly:

- 15 1. expose people to localized (as opposed to regional) air pollutant concentrations that violate state
 16 or federal ambient air quality standards;
- 17 2. cause a net increase in pollutant or pollutant precursor emissions that exceeds relevant emission
 18 significance thresholds (such as CAA conformity *de minimis* levels or the numerical values of
 19 major source thresholds for nonattainment pollutants); or
- 20 3. conflicts with adopted air quality management plans, policies, or programs.

21 Criteria to determine the significance of air quality impacts are based on federal, state, and local air
 22 pollution standards and regulations. All of Bexar County (which encompasses San Antonio and the FSH
 23 installation) is in attainment of the NAAQS for all criteria pollutants and as discussed above, *de minimis*
 24 thresholds are not applicable to NAAQS attainment areas. However, for the purposes of this air quality
 25 analysis, project emissions within the project area would be considered significant if project emissions
 26 exceed 100 tons per year of VOCs, NO_x, SO₂, CO, PM₁₀, or PM₁₀.

27 If emissions exceed the significance threshold described above, further analysis of the emissions and their
 28 consequences would be performed to assess whether there was likelihood of a significant impact to air
 29 quality. The nature and extent of such analysis would depend on the specific circumstances. The analysis
 30 could range from simply a more detailed and precise examination of the likely emitting activities and
 31 equipment, to air dispersion modeling analyses. If project emissions were determined to increase ambient
 32 pollutant levels from below to above the NAAQS, these emissions would be considered significant.

1 3.4.3.1 Master Planning Actions Alternative

2 Air quality impacts would occur from the use of heavy equipment during construction activities, other
3 project-related vehicles, and worker commute trips. Total emissions resulting from project activities have
4 been estimated using data presented in Chapter 2, general air quality assumptions, and standard emission
5 factors. Emissions calculations and assumptions are presented in Appendix A.

6 For the purposes of providing “worst-case” estimated emissions, it was assumed that a majority of the
7 project components would occur between 2010 and 2015. For the purposes of establishing compliance
8 with conformity requirements, the estimated emissions for implementation of all Master Planning Actions
9 were then divided over the course of six implementation years, since full implementation of the majority
10 of the Master Planning Actions were assumed to begin in 2010 and be completed by 2015. This approach
11 provides estimated annual construction emissions for 2010 thru 2015. It was further assumed that the
12 “long range” projects would be implemented within two calendar years (i.e., 2016 - 2017).

13 Implementation of Master Planning Actions would result in temporary increases in criteria pollutant
14 emissions associated with construction and demolition activities. Although the FSH Installation is
15 located within an attainment area and *de minimis* thresholds are not applicable to NAAQS attainment
16 areas, annual emissions resulting from proposed activities have been estimated and compared with basic
17 non-attainment area *de minimis* thresholds for planning purposes only (Table 3.4-3).

Table 3.4-3. Estimated Emissions Resulting from Implementation of the Master Planning Actions

Project Emissions Tons Per Year	Pollutant ¹					
	VOCs	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2010 – 2015 Annual Emissions	1.50	10.78	6.54	0.01	5.31	1.08
2016 – 2017 Annual Emissions (Long Range Projects)	2.45	17.16	9.55	0.02	5.76	1.48
<i>de minimis</i> threshold ¹	100	100	100	100	100	100
Exceeds <i>de minimis</i> threshold?	No	No	No	No	No	No

Notes: ¹ The Metropolitan San Antonio Interstate AQCR (including the FSH installation) is in attainment of the NAAQS for all criteria pollutants; *de minimis* thresholds are not applicable to NAAQS attainment areas; however, estimated emissions have been compared with basic non-attainment *de minimis* thresholds for planning purposes only .

Sources: USEPA 2009.

18 Vehicle emissions generated by proposed construction and demolition activities would be temporary and
19 short-term; no long-term increases in vehicle emissions would occur under the proposal. Emissions
20 associated with construction-related vehicles and equipment would be minor, as most vehicles would be
21 driven to and kept at the relevant site until project activities are complete. There would be no long-term
22 increase in mobile or stationary source emissions in the region.

23 Fugitive dust (i.e., PM₁₀ and PM_{2.5}) would increase (as a result of surface disturbances associated with
24 construction and demolition activities) and would temporarily impact local air quality. However, fugitive
25 dust generated by proposed construction and demolition activities would be temporary and short-term; no
26 long-term increases in fugitive dust would occur. Additionally, increases in PM₁₀ and PM_{2.5} and would be
27 moderated through BMPs (i.e., watering exposed soils, soil stockpiling, and soil stabilization), thereby
28 limiting the total quantity of fugitive dust emitted during project implementation.

29 Even though CAA conformity determinations are not required for actions in attainment areas, estimated
30 emissions would be expected to be below *de minimis* levels for conformity. Furthermore, estimated
31 emissions would not be regionally significant, as they would be substantially less than 10% of regional

1 emissions. Therefore, implementation of the Master Planning Actions would not trigger a formal
2 conformity determination under Section 176(c) of the CAA, and no significant impacts to air quality
3 would occur.

4 3.4.3.2 No-Action Alternative

5 Under the No-Action Alternative, the proposed Master Planning Actions would not occur. Existing air
6 quality conditions (as described in Section 3.4) would remain unchanged; therefore, no significant
7 impacts to air quality would occur.

8 3.5 NOISE

9 Section 4(b) of the Noise Control Act (NCA) of 1972 (PL 92-574) directs federal agencies to comply with
10 applicable federal, state and local noise requirements with respect to the control and abatement of
11 environmental noise. Congress defined environmental noise in the NCA to mean the intensity, duration
12 and character of sounds from all sources. The City of San Antonio and the State of Texas have not
13 enacted noise regulations or statutes.

14 3.5.1 Affected Environment

15 Noise can be defined as any sound that interferes with communication, is intense enough to damage
16 hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Although
17 exposure to very high noise levels can cause hearing loss, the principal human response to noise is
18 annoyance. Human response to noise can vary according to the type and source of the noise, the distance
19 between the source and the receptor, the perceived importance of the noise, its appropriateness in the
20 setting, and the sensitivity of the receptor.

21 Noise levels are measured in dB, which are based on a logarithmic scale (e.g., a 10-dB increase
22 corresponds to a 100% increase in perceived sound). Under most conditions, a change of 5 dB is required
23 for humans to perceive a change in the noise environment (USEPA 1972). Common noises range from
24 30 dB for a quiet room to 100 dB for a loud power lawn mower at close range. Normal speech registers
25 at approximately 60 dB. At a constant level of 70 dB, noise can be irritating and disruptive to speech; at
26 louder levels, hearing losses can occur. A difference of 3 dB represents a doubling of sound level in
27 terms of energy. However, because of the mechanics of human hearing, it is necessary to have a 10-dB
28 increase to be *perceived* as a doubling in sound.

29 Noise measurements assessed relative to human exposure are usually expressed using an “A-weighted”
30 scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is
31 common to add the “A” to the unit of measurement (dBA) in order to identify that the measurement has
32 been made with this filtering process. Human hearing ranges from approximately 20 dBA (the threshold
33 of hearing) to 120 dBA (the threshold of pain).

34 When noise is generated spherically from a particular localized source (such as a construction site) it is
35 referred to as a “point source.” Airborne noise from a point source attenuates (declines) over distance at a
36 rate of 6 dBA for each doubling of distance between the noise receptor and the source. Thus, a noise
37 level of 85 dBA at 50 feet would be measured as 79 dBA at 100 feet and 73 dBA at 200 feet from the
38 source.

39 Because noise levels vary widely during the day, they are commonly averaged over a period of time. The
40 term Day-Night Average Level (Ldn) is used to describe the average noise level during a 24-hour day
41 with a penalty of 10 dBA added to nighttime sound levels (10:00 p.m. to 7:00 a.m.). The Community
42 Noise Equivalent Level (CNEL) adds a 5 dBA penalty for noise events that occur in the evening (7:00

1 p.m. to 10:00 p.m.), as well as a 10 dBA penalty for noise events at night (10:00 p.m. to 7:00 a.m.).
 2 Shorter measurement durations (typically 1 hour) are described as Leq, indicating the total energy
 3 contained by the sound over a given sample period. The Leq for 1 hour is the energy average noise level
 4 during the hour; specifically, the average noise based on the energy content (acoustic energy) of the
 5 sound. It can be thought of as the level of a continuous noise that has the same energy content as the
 6 fluctuating noise level. The Leq for a 24-hour period is the Ldn / CNEL without the penalties. Time-
 7 averaged noise levels such as Ldn and CNEL are often used as the basis for land use compatibility
 8 guidelines.

9 Noise sources common to FSH and Camp Bullis include helicopters, non-tactical vehicles and routine
 10 operation of equipment and machinery (e.g., generators; heating, ventilation and air conditioning; and
 11 construction equipment). The primary sources of noise associated with construction activities would be
 12 the use of heavy trucks (dump trucks and concrete mixers), bulldozers, backhoes, generators and ground
 13 compactors. These vehicles and equipment items generate noise during demolition/deconstruction, site
 14 and foundation preparation, construction and finishing work. The levels of noise generated by these
 15 vehicles and equipment during these activities are shown in Table 3.5-1.

Table 3.5-1. Peak Sound Pressure Level of Heavy Equipment

<i>Equipment Type</i>	<i>Typical Noise Levels¹ (dBA)²</i>
Earthmoving:	
Loaders	85
Backhoes	80
Dozers	85
Scrapers	89
Graders	85
Truck	88
Pavers	89
Roller	74
Material Handling:	
Concrete Mixers	85
Concrete Pumps	82
Cranes	83
Derricks	88
Stationary:	
Pumps	76
Generators	81
Air Compressors	81
Impact:	
Pile Drivers (impact)	101
Pile Drivers (Sonic)	96
Jack Hammers	88
Pneumatic Tools	85
Other:	
Saws	76
Rock Drill	98

Notes: ¹ From a single source at a distance of 50 feet

² dBA = "A" weighting

Source: Federal Transit Administration 2006.

16 Descriptions of these sources and other noise sources that are specific to FSH are automobiles and
 17 helicopter Life Flight operations. The Life Flight operations using the BAMC helipad have neither
 18 established routes into/out of the helipad nor altitude restrictions, but the general directions of the Life
 19 Flight routes are to the northeast, southeast and southwest (Figure 3.5-1). Helicopters involved with Life
 20 Flight operations include the Bell 206, Bell 412 and Black Hawk Utility Helicopter (UH-60).

1 Existing ambient (or background) noise levels, particularly in areas where sensitive noise receptors may
2 be located (e.g., residences or schools), provide a useful reference point for the assessment of noise
3 effects from a particular noise source.

4 **3.5.2 Environmental Consequences**

5 Noise impacts would be considered significant if there were expected long-term increases in the number
6 of people highly annoyed by the noise environment or unacceptable increases to the noise environment
7 for sensitive receptors. A sensitive receptor is defined as any person or group of persons in an
8 environment where low noise levels are expected, such as schools, day care centers, hospitals and nursing
9 homes. The City of San Antonio Municipal Code defines noise-sensitive uses to include these noise-
10 sensitive receptors:

- 11 • Residences
- 12 • Religious institutions
- 13 • Libraries
- 14 • Museums
- 15 • Concert halls
- 16 • Bank shells
- 17 • Auditoriums
- 18 • Research facilities
- 19 • Other land uses that require a quiet environment to function effectively

20 3.5.2.1 Master Planning Actions Alternative

21 Construction

22 The primary sources of noise associated with construction activities under the Proposed Action would be
23 the use of heavy trucks (dump trucks and concrete mixers), bulldozers, backhoes, generators and ground
24 compactors. These vehicles and equipment items generate noise levels of 80 to 85 dBA. Noise-sensitive
25 areas at FSH include BAMC and the three schools in the FSH Independent School District (ISD). The
26 ISD schools include the Robert G. Cole Junior/Senior High School, the FSH Elementary School and an
27 alternative education school. Noise effects to occupants of these facilities would not be expected due to
28 the distance from the noise source and the noise level reduction of 20 dB normally provided by
29 permanently constructed buildings.

30 Operation

31 The methodology used for predicting future traffic noise increases assumes that existing noise levels are
32 dominated by, and are a function of, existing traffic volumes adjacent to individual receptors and that
33 future noise levels can be determined based on the proportional increase in traffic. For example, if the
34 current traffic volume on a street is 100 vehicles per hour (vph) and the future volume were to increase by
35 50 vph, for a total of 150 vph, the noise levels would increase by approximately 2 dBA according to
36 standard acoustical principles using a logarithmic relationship. If future traffic were to increase by 100
37 vph to a total of 200 vph, noise levels would increase by 3 dBA.

38 The traffic volumes used for this analysis under various scenarios were obtained from the Comprehensive
39 Traffic Engineering Study, produced by PBS&J, in April 2008. Traffic volumes are not anticipated to
40 increase as direct result of post construction activities and therefore no significant impact is expected.

1 The location most likely to see an increase in noise post construction due to indirect effects is Scott Road.
2 This increase would be due to the widening of the road, which would allow more vehicles to access the
3 roadway.

4 All other actions would comply with existing general plans and therefore would generate noise and noise
5 levels similar to those that currently exist in the area, resulting in no significant impacts.

6 3.5.2.2 No-Action Alternative

7 The No-Action Alternative represents the existing baseline conditions. With the Proposed Action not
8 implemented, no new impacts would occur; therefore, no significant impacts would occur.

9 3.6 GEOLOGY AND SOILS

10 3.6.1 Affected Environment

11 3.6.1.1 Geologic and Topographic Conditions

12 Geological resources are defined as the geology, soils, and topography of a given area. The geology of an
13 area includes bedrock materials, mineral deposits, and fossil remains. The principal geologic factors
14 influencing stability of structures are soil stability and seismic properties. Soil, in general, refers to
15 unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity,
16 strength, shrink-swell potential, and erodibility all determine the ability for the ground to support
17 structures and facilities. Relative to development, soils typically are described in terms of their type,
18 slope, physical characteristics, and relative compatibility or limitations with regard to particular
19 construction activities and types of land use. Long-term geological, erosional, and depositional processes
20 typically influence topographic relief of an area. Topography incorporates the physiologic or surface
21 features of an area and is usually described with respect to elevation, slope, and landforms. The Region
22 of Influence (ROI) for the Proposed Action consists of the project footprint within Fort Sam Houston
23 where proposed ground-disturbing activities would occur.

24 Topography

25 The surface terrain at FSH is moderately rolling. Surface elevations are generally level; however, in the
26 eastern (within and south of eastern Subarea 2), northern, and western (within Subarea 4, west of Chaffee
27 Rd.) portions of the installation. In these level areas, ground surface elevations are approximately
28 between 740 feet above mean sea level (AMSL) and 780 feet AMSL in the western, 680 feet AMSL and
29 720 feet AMSL in the northern, and 640 feet AMSL and 680 feet AMSL in the eastern portions of the
30 installation. Salado Creek and its floodplain pass in a sinuous, approximately north to south direction
31 through the eastern portion of FSH (Figure 3.6-1). The most significant changes in elevation occur
32 between the Salado Creek floodplain and eastern Subarea 4, near Chaffee Rd. Here, elevations range
33 from approximately 625 feet AMSL in the Salado Creek floodplain to 740 feet AMSL in Subarea 4 (FSH
34 2009b).

35 Surface features within FSH consist of developed land that is bounded by an airport to the west, interstate
36 freeway to the south and east, and a golf course to the north. Although Salado Creek remains an
37 undeveloped (not formally channeled) feature within FSH, it is highly disturbed by roads, trails, railroad
38 trestles, and adjacent development.

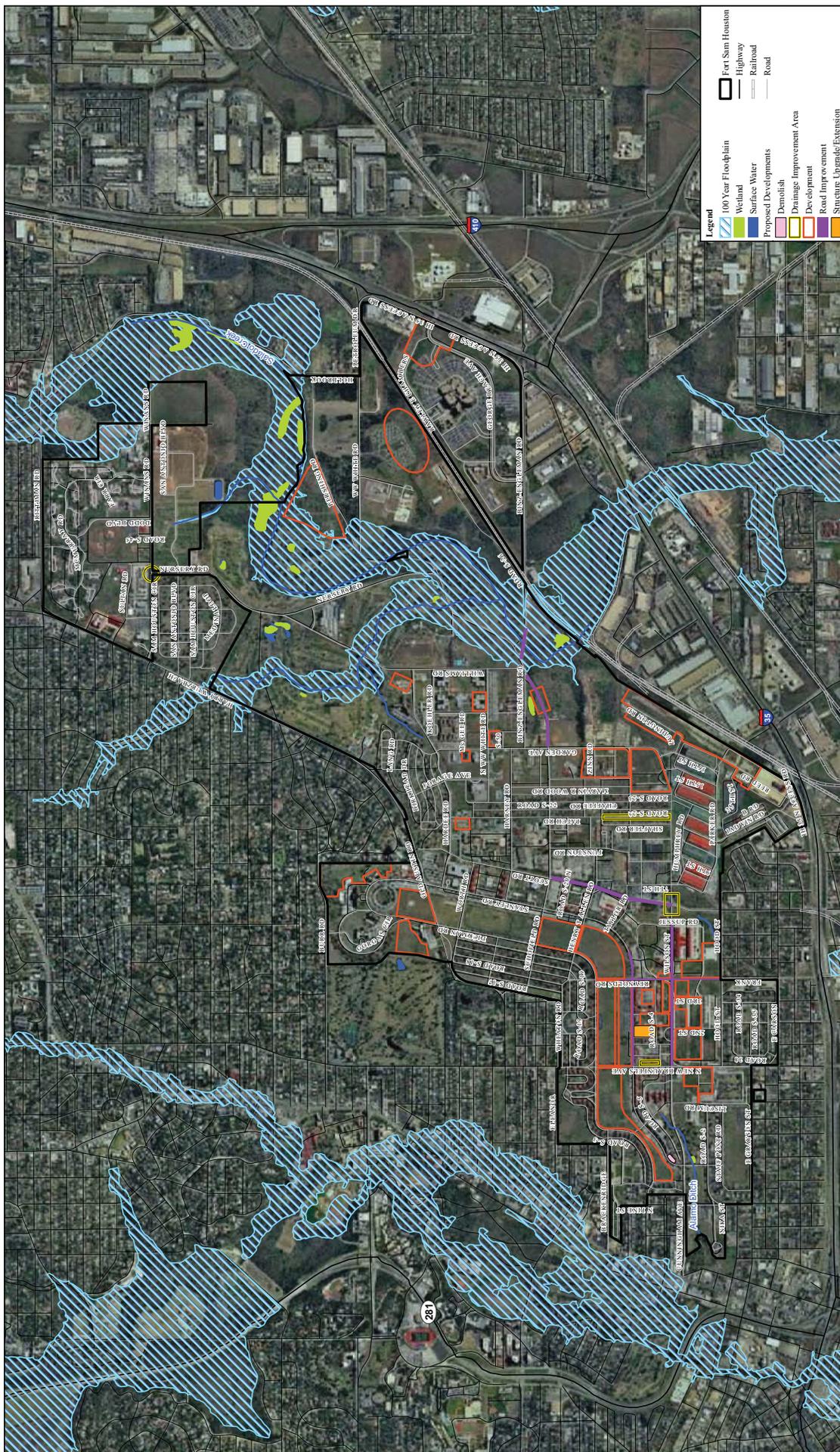


Figure 3.6-1
 FSH Floodplain
 San Antonio, Texas

1 Geology

2 The geology underlying FSH consists of Cretaceous Navarro Group and Marlbrook Marl undifferentiated,
3 overlain with Quaternary terrace deposits. The upper part of the Navarro Group is mostly clay, silty and
4 in parts sandy, and increasingly sandy with depth. This portion is calcareous and glauconitic with
5 calcareous concretions. The lower part of the Navarro Group is sand, silty, clayey and weakly coherent.
6 Marlbrook Marl is slightly glauconitic in the upper part and highly plastic when wet. The Quaternary
7 terrace deposits consist of gravel, sand and silt up to approximately 45 feet thick. The Patient Care,
8 Medical and other RDTE; Medical Training; and HQ and Administrative Support subareas are underlain
9 by Quaternary terrace deposits. The low terrace deposits along the Salado Creek floodplain consist of
10 recent alluvium. No borrow pits or quarries are in operation at FSH (USACE 2007, FSH 2009b).

11 Potential seismic hazards in the ROI include earthquakes and landslides. Earthquakes originating in
12 South-Central Texas are rare and small in magnitude. Perhaps 10-20 earthquakes with magnitudes
13 between 3 and 4.5 will occur each century. A significant fraction of those earthquakes are induced by
14 human activities, notably petroleum production. Earthquakes of this magnitude pose little or no risk
15 unless their foci are extremely close to poorly built or highly sensitive structures (UTIG 2002). There are
16 no known major active (from the Quaternary Period) faults, landslides, or geologic hazards in the vicinity
17 of the ROI (USGS 2009a, b).

18 3.6.1.2 Soils

19 There are 11 soil types within the six soil series mapped at FSH (Table 3.6-1). The most common soil
20 types are HuB and HuC from the Houston Black series, and LvA from the Lewisville series. The eastern
21 portion of FSH, beneath Subarea 1 and Subarea 2 primarily consists of silty clay Lewisville series soils
22 that overlay stream terrace deposits with smaller areas of calcareous clay, and gravelly clay of the
23 Houston Black series soils. Subarea 3 is primarily underlain by Houston Black series soils with smaller
24 areas of Lewisville series soils. Subarea 4 is underlain by Houston Black series soils. Venus series soils
25 consisting of clayey loam are located near Salado Creek. Other soil types present at FSH near Salado
26 Creek include the Tarrant series, Frio series, and the Trinity and Frio series soils. These soil types are
27 generally clays, gravelly clays or cobbly clays (USACE 2007 and FSH 2009b).

Table 3.6-1 Soil Series and Percent Land Area at FSH

<i>Soil Series</i>	<i>Soil Types</i>	<i>Acreage</i>	<i>Percent of Area</i>
Houston Black	HuB	728.66	25%
	HuC	756.02	26%
	HuD	295.33	10%
	HtA	0.06	< 1%
	HtB	10.09	< 1%
Lewisville	LvA	616.24	21%
Tarrant	Tb	57.98	2%
Frio	Fr	152.16	5%
Trinity and Frio	Tf	63.26	2%
Venus	VcA	201.43	7%
	VaA	33.50	1%
Totals		2,914.73	100%

Source: FSH 2009b.

28 The soil types present beneath the subareas of FSH are predominantly clay; therefore, infiltration is
29 generally poor, and runoff can be swift over areas exhibiting 1% or greater slope. Under these conditions,
30 a moderate to severe erosion potential exists on non-vegetated areas. Additionally, the Houston Black

1 series and Lewisville series soils that underlay the majority of the installation exhibit a high corrosivity
2 and a high shrink-swell potential.

3 **3.6.2 Environmental Consequences**

4 3.6.2.1 Master Planning Actions Alternative

5 The protection of unique geologic features, minimization of soil erosion and the location of facilities in
6 relation to potential to geologic hazards are considered when evaluating impacts of a proposed action.
7 Generally, impacts on geological resources are not significant if proper construction techniques and
8 erosion control measures are implemented to minimize or mitigate short- and long-term disturbance to
9 soils and landscape features.

10 Implementation of the proposed construction activities would not significantly affect the geologic units
11 underlying the Proposed Action area. No unique geologic features or geologic hazards are present within
12 the ROI. Excavation for proposed construction would occur in previously developed or previously
13 disturbed areas and are not anticipated to require unusual construction measures during grading activities.
14 The area around the ROI is relatively flat, the areas of relief occur away from the majority of existing or
15 planned structures, and no substantial modification of the relief is necessary for construction activities;
16 therefore, topographic features would not be significantly impacted by the Proposed Action.

17 Soils would be disturbed during grading activities associated with proposed construction. Additionally,
18 planned construction activities would minimally increase impervious surfaces at FSH, which has the
19 potential for increased runoff and erosion of remaining soils. However, increases in erosion potential
20 would be reduced through engineering measures during construction activities and through the use of
21 BMPs for erosion control (i.e. silt fencing, sediment traps, application of water sprays, and revegetation of
22 disturbed soils). Potential significant impacts to subsurface construction from highly corrosive and high
23 shrink-swell Houston Black series and Lewisville series soils would be prevented with the use of
24 established engineering BMPs (i.e. soil treatments, and coating application to and selective choice of
25 construction materials). Therefore, no significant impacts to geological resources would occur with
26 implementation of the Proposed Action.

27 3.6.2.2 No-Action Alternative

28 Under the no action alternative, conditions affecting the geology and soil at FSH would remain the same,
29 and there would be no significant impacts.

30 **3.7 WATER RESOURCES**

31 **3.7.1 Affected Environment**

32 Water resources include both surface and subsurface water. Surface water includes all lakes, ponds,
33 rivers, streams, impoundments, and wetlands within a defined area or watershed. Subsurface water,
34 commonly referred to as groundwater, is typically found in certain areas known as aquifers. Aquifers are
35 areas of mostly high-porosity soil where water can be stored between soil particles and within pore
36 spaces. Groundwater is usually recharged during precipitation events and is withdrawn for domestic,
37 agricultural, and industrial purposes. The Clean Water Act (CWA) of 1972 is the primary federal law that
38 protects the nation's waters, including lakes, rivers, aquifers, and coastal areas. The primary objective of
39 the CWA is to restore and maintain the integrity of the nation's waters.

1 Wetlands are subject to federal regulatory authority under Section 404 of the CWA and EO 11990,
2 *Protection of Wetlands*. Jurisdictional wetlands are defined by the U.S. Army Corps of Engineers
3 (USACE) as:

4 “...those areas that are inundated or saturated by surface or ground water at a frequency
5 and duration sufficient to support, and that under normal circumstances do support, a
6 prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands
7 generally include swamps, marshes, bogs, and similar areas (USACE 1987).”

8 Other issues relevant to water resources include watershed areas affected by existing and potential runoff
9 and hazards associated with floodplains. Floodplains are often belts of low, level ground present on one
10 or both sides of a stream channel and are subject to either periodic or infrequent inundation of floodwater.
11 Inundation dangers associated with floodplains have prompted federal, state, and local legislation that
12 limits development on these areas largely to recreational and preservation activities. Flood hazards
13 associated with the 100-year floodplain are addressed, along with surface water runoff into drainages.

14 Water resources analyzed in this section include the surface and subsurface water, watersheds and
15 aquifers associated with the project footprint where proposed ground-disturbing activities would occur.

16 3.7.1.1 Surface Water

17 The primary drainage for FSH is Salado Creek, a sinuous intermittent creek that flows in an
18 approximately north to south direction through the eastern portion of the installation (see Figure 3.6-1).
19 Salado Creek runs north to south for 35 miles along the north and east side of the City of San Antonio
20 through Bexar County. The Salado Creek watershed encompasses 218 square miles in size and is charged
21 by local precipitation and springs in the artesian zone of the Edwards Aquifer (TCEQ 2003). The western
22 part of FSH is drained by a small intermittent tributary of the San Antonio River known as Alamo Ditch.
23 The southern and central portions of the installation are drained by the City of San Antonio’s municipal
24 separate storm water sewer system (MS4), which discharges to Salado Creek.

25 The watershed within FSH is partially developed. Impervious surfaces, such as pavement and facilities,
26 accumulate dust, debris and soil from atmospheric fallout, automobile traffic and other land-disturbing
27 activities. Runoff from impervious surfaces affects both water quality and recharge of groundwater.
28 Areas with more impervious or nonporous surfaces generate more runoff, which can contaminate and
29 warm stream waters and increase flow volumes and velocities, which in-turn can degrade stream channels
30 and banks. These land use changes generally impact the fish and wildlife that inhabit streams. In general,
31 the impact on streams increases as the percentage of impervious surface in a watershed increases. The
32 total amount of impervious land area at FSH is approximately 20% and the amount of pervious land area
33 is approximately 80% (USACE 2007).

34 BMPs for erosion control were implemented as part of the requirements of a National Pollutant Discharge
35 Elimination System (NPDES) permit (TXR054M458) for industrial activities occurring at FSH. This
36 NPDES permit expired on December 12, 2006; however, two other NPDES permits were activated on
37 December 11, 2006 (TXR05U068) and May 29, 2009 (TXR040353) respectively, and are currently active
38 (TCEQ 2009a). The BMPs are outlined in the Storm Water Pollution Prevention Plan (SWPPP) of June
39 1999 for activities associated with maintenance facilities; a fueling facility; a recycling facility; and
40 several closed landfills, which are considered one industrial activity for the SWPPP (USACE 2007). The
41 SWPPP also includes proposed BMPs for each industrial site and scheduled implementation dates
42 (USACE 2007). As impervious surface area increases, existing BMPs would need to be modified or
43 additional BMPs added to address increased storm water runoff.

1 The state of Texas requires the water quality in Salado Creek (Segment 1910) to be suitable for
2 swimming, wading, fishing, drinking (with treatment), and a healthy aquatic ecosystem. However, water
3 quality tests in the past have found that low oxygen concentrations in Salado Creek may occasionally
4 harm the fish community and other aquatic life. In response to these conditions, a total maximum daily
5 load (TMDL) project was initiated to determine the measures necessary to restore water quality in Salado
6 Creek (TCEQ 2003). The goal of the project was to determine the cause of the low dissolved oxygen in
7 Salado Creek. As a result of the project, it has been determined that there was additional capacity in
8 Salado Creek to assimilate oxygen-demanding materials and therefore the water-quality standards for
9 support of the aquatic life use have been met. An implementation plan approved by the TCEQ was
10 determined not to be necessary since a load reduction is not required to attain the standards. However,
11 local organizations have taken action to preserve and enhance water quality in Salado Creek. Measures
12 included the introduction of reused water to supplement the base flow in the stream, the rehabilitation of
13 the sewage-collection system in the watershed, the establishment of additional park areas along the creek,
14 public education, and continued water-quality monitoring (TCEQ 2009b).

15 3.7.1.2 Hydrogeology/Groundwater

16 FSH is located above the Edwards Aquifer, one of the most permeable and productive carbonate aquifers
17 in the U.S. The Edwards Aquifer extends along the Balcones Fault Zone from Kinney County through
18 Uvalde, Medina, Bexar and Comal Counties, and terminates in Hays County. The contributing zone of
19 the Edwards Aquifer covers an area of approximately 5,400 square miles, is approximately 160 miles
20 long from west to east and ranges from 5 to 40 miles wide north to south (Eckhardt 2009). Within the
21 Edwards Aquifer, water flows from higher elevations in the west toward lower elevations in the east.

22 The Edwards Aquifer consists of a contributing zone, a recharge zone, an artesian zone, and the transition
23 zone. Several rivers drain into the Edwards Aquifer as they pass over the recharge zone accounting for
24 approximately 85% of the Edwards Aquifer recharge. Other forms of recharge come from direct
25 precipitation entering the ground, and surface water reservoirs such as Medina Lake also contribute large
26 volumes of water to the aquifer. Although water easily enters the recharge zone, subsurface drainage is
27 typically inadequate during large rain events, and as a result, the area is prone to flooding. FSH is located
28 above the artesian zone of the aquifer where the groundwater sits above the Glen Rose Formation and
29 below the confining layer of the Del Rio clay layer. FSH obtains its drinking water from five wells in the
30 Edwards Aquifer, which extend to depths of 728 to 1,106 feet below ground surface (USACE 2007).

31 Total water withdrawal from all users of the Edwards Aquifer was limited to 450,000 acre-feet per year
32 until December 31, 2007 when it was adjusted to 400,000 acre-feet per year (USACE 2007). The total
33 withdrawal from DoD facilities dependent on the Edwards Aquifer in the San Antonio area (including
34 FSH, Kelly AFB, Lackland AFB, and Randolph AFB) has ranged from approximately 2% to 3% for all
35 activities. Currently, the total DoD draw from the Edwards Aquifer is 2.1%. The DoD withdrawal cap
36 was set at 10,515 acre-feet per year by a DoD 1999 Biological Opinion (BO) given by the USFWS;
37 however, 2.1% of the adjusted total Aquifer withdrawal, 400,000 acre-feet per year leaves a current
38 withdrawal cap of 8,406 acre-feet per year. FSH draws less than 1% of the total withdrawal from the
39 Edwards Aquifer (2,402 acre-feet in 2003) (USACE 2007).

40 3.7.1.3 Floodplains

41 Activities that result in development in or modification of floodplains are regulated under EO 11988
42 Floodplain Management. FSH averages a major flood every 3 to 4 years, which inundates much of the
43 training area in the eastern portion of FSH along Salado Creek. The western, southern and central
44 portions of FSH do not experience the same frequency or magnitude of flooding; however, some localized

1 flooding has occurred near the western-most extent of the installation at the end of the drainage channel.
2 The area between Binz-Engleman Road and W.W. White Road would be subject to inundation from a
3 flood event as small as a two-year (average return frequency) flood. During such an event, the crossings
4 in this area would be under 8 to 10 feet of water. During the 10-, 25- and 50-year floods, the crossing
5 would be under 15 to 18 feet, 10 to 22 feet and 22 to 23 feet of water, respectively. The bridge
6 connecting Nursery Road and WW White Road maintains the access across Salado Creek when the area
7 between Binz-Engleman and WW White Roads become inaccessible due to flooding (USACE 2007).
8 100- and 500-year floods would inundate portions of the FSH Golf Course to the west of Salado Creek,
9 and the area near the helipad approach east of the creek (USACE 2007) (see Figure 3.6-1).

10 3.7.1.4 Wetlands

11 Activities that result in dredging and/or filling of jurisdictional waters of the U.S. are regulated under
12 Section 404 of the CWA and by EO 11990, Protection of Wetlands. USACE has established Nationwide
13 Permits (NWP) to efficiently authorize common activities that do not impact waters of the U.S.
14 significantly. The NWPs were modified and reissued by USACE in the FR on 12 March 2007. USACE
15 has the responsibility to authorize permitting under an NWP or to require an Individual Permit (IP). Non-
16 jurisdictional wetlands on federal properties also are protected under EO 11990 (USACE 2007).

17 A wetlands inventory of FSH was conducted in 1999 by USFWS (USFWS 1999, FSH 2001). The results
18 of this inventory, visible on the USFWS National Wetland Inventory Mapping Tool (USFWS 2009),
19 identified 22.2 acres of wetlands (less than 1% of the land area of the installation). These wetlands were
20 defined using the USFWS official wetland classification system (Cowardin et al., 1979). The wetlands
21 consisted of 82% (18.9 acres) palustrine forested (PFO) wetlands and 18% (3.3 acres) palustrine
22 unconsolidated bottom (PUB) "ponds" (USFWS 1999, FSH 2001). Figure 3.6-1 shows wetlands mapped
23 at FSH (FSH 2009b). No known recent (within the last three years) wetland delineations (USACE
24 regulatory or other), surveys, or studies have been conducted in the Salado Creek floodplain at FSH.

25 3.7.2 Environmental Consequences

26 3.7.2.1 Master Planning Actions Alternative

27 The analysis of water resources includes all surface and subsurface waters within and surrounding the
28 ROI as well as watershed areas potentially affected by existing and potential runoff. Significant impacts
29 to water resources could occur if the preferred action resulted in: 1) changes to water quality or supply, 2)
30 threatened or damaged unique hydrologic characteristics, 3) endangered public health by creating or
31 worsening health hazards, or 4) violated established laws or regulations. Impacts of flood hazards on the
32 Proposed Action could be significant if it is proposed in areas with high probabilities of flooding.

33 Under the Proposed Action, construction activities would result in a temporary increase in runoff and total
34 suspended particulate matter in nearby surface water features. Construction activities would have
35 localized (i.e. site specific) effects on surface water hydrology. To minimize impacts from proposed
36 construction activities, BMPs for erosion control would be implemented under a SWPPP as part of a
37 Texas Permit Discharge Elimination System (TPDES) general storm water permit required for
38 construction activities. Any construction activity, whether constructed individually or as part of a larger
39 common plan of development, that disturbs 5 or more acres of land must obtain a TPDES general storm
40 water permit.

41 Under the Proposed Action, an increase in impervious surfaces would result from construction activities.
42 The majority of the actions associated with the Proposed Action would occur on land occupied by

1 existing facilities with impervious surfaces. Fifteen of the Proposed Action actions would potentially
 2 occur on surfaces that are currently pervious (Table 3.7-1).

Table 3.7-1 Amount of Pervious Surface Likely Converted to Impervious Surface

<i>Area</i>	<i>Proposed Action</i>	<i>Approximate Action Size</i>	<i>Approximate Area Converted to Impervious Surface</i>
FSH West	IMCOM Campus Area Parking Lots (Total for all Lots Combined)	17.66 ac	17.66 ac
	Construct METC Parking Lot	8.95 ac	8.95 ac
	Construct Sixth Army Command and Control Facility	5.40 ac	5.40 ac
	Construct Sixth Army Special Troops Command and Control Facility (HQ and TEMF with COF)	2.07 ac	2.07 ac
	Construct Fifth Army Special Purpose Facility	0.80 ac	0.80 ac
	Battle Command Training Center Phase II	1.08 ac	1.08 ac
	UPH PP Barracks	1.84 ac	1.84 ac
	MED LOG CO TEMF with COF	0.41 ac	0.41 ac
FSH Central	Demolish and Replace Recreation Center Building 1462	0.51 ac	0.16 ac
	Construct TEMF Area Development	30.00 ac	15.00 ac
	Construct 470 th MI BDE HQ Complex	2.30 ac	1.15 ac
	Construct Training Aids Center	0.92 ac	0.46 ac
FSH East	Construct Schofield Road ACP	2.04 ac	2.04 ac
	Construct George Beach/I-35N ACP/VCP	2.04 ac	0.51 ac
	Construct Student Trainee Adult Sports Park	30.00 ac	15.00 ac
Totals (approximate)		106.02 acres	72.53 acres

3 The amount of impervious surfaces at FSH would likely increase by approximately 72.53 acres. This
 4 could potentially result in an associated increase in storm water discharge volumes and intensities.
 5 Additionally, the Proposed Action would add potential new sources of runoff pollutants to Salado Creek.
 6 The increase in impervious surfaces and associated runoff would require an update the SWPPP associated
 7 with the existing TPDES general permit for FSH, and the notification of planned changes to activities
 8 covered under the existing permit, to be submitted to TCEQ. The new facilities would be accommodated
 9 by engineering BMPs for erosion control (i.e. concrete swales), existing storm water infrastructure, and
 10 the construction of new (and/or upgrades to existing) detention ponds. As previous noted, the soil at FSH
 11 is predominantly clay, infiltration is generally poor, and runoff can be swift over areas exhibiting 1% or
 12 greater slope. Therefore, the additional impervious surfaces will not have a significant effect on existing
 13 runoff conditions at FSH. With the addition of storm water controls, no significant impact to surface
 14 water quality would be expected by implementing the Master Planning Actions Alternative.

15 Three of the Proposed Actions, the Salado Creek crossing, the Schofield Road ACP, and the Adult Sports
 16 Park are within or in close proximity to the Salado Creek floodplain and have the potential to impact
 17 Clean Water Act jurisdictional waters of the U.S., including wetlands. The proposed Salado Creek
 18 crossing would consist of an all-weather connection across Salado Creek. This action would include the
 19 construction of two vehicular bridges with reinforced concrete deck over steel girders and reinforced
 20 concrete frame piers on concrete pile foundation. Roadways of flexible type asphaltic concrete pavement
 21 would be constructed over and within an existing floodplain to connect the bridges to the existing road
 22 network. The Schofield Road ACP is just outside the Salado Creek floodplain but is within or adjacent to

1 a previously mapped wetland (FSH 2009b; USFWS 2009). Portions of the proposed Adult Sports Park
2 are within the Salado Creek floodplain and within or adjacent to wetlands (FSH 2009b; USFWS 2009).

3 At this time, the Schofield Road ACP design is unknown, and wetland avoidance is possible. A USACE
4 jurisdictional wetland delineation will occur prior to design to determine the quality and extent of the
5 wetlands and assist with wetlands impacts avoidance. If final design of the Salado Creek crossing,
6 Schofield Road ACP, and the Adult Sports Park cannot avoid jurisdictional wetlands and waters of the
7 U.S., then construction activities (which would include mechanical excavation or the placement of fill
8 material in wetlands or other waters of the U.S.) associated with these actions would require a Clean
9 Water Act Section 404 permit and Section 401 State Water Quality Certification. The limits of
10 jurisdictional waters with respect to potential construction footprints would need to be determined prior to
11 final designs. As conditions of the Clean Water Act permit, the final project designs would be required to
12 minimize impacts as much as practicable, to restore temporarily impacted areas, and to provide
13 compensatory mitigation for any permanent losses. This would ensure that no significant impact occurs.
14 A Finding of No Practicable Alternative (FNPA) to meet the requirements of EO 11988 and EO 11990
15 has been prepared to document that there are no alternative sites available for the Salado Creek crossing,
16 the Schofield Road ACP, and the Adult Sports Park components of the Proposed Action that are within or
17 in close proximity to the Salado Creek floodplain.

18 3.7.2.2 No-Action Alternative

19 Under the No-Action Alternative, conditions affecting water resources at FSH would remain the same,
20 and there would be no significant impacts.

21 3.8 BIOLOGICAL RESOURCES

22 Biological resources include native or naturalized plants and animals and the habitats in which they occur.
23 For the purpose of this EA, these resources are divided into three categories: vegetation, fish and wildlife
24 including migratory birds, and special-status species including state and federally listed species, candidate
25 species, and other sensitive species listed by the Texas Parks and Wildlife Department (TPWD).

26 3.8.1 Affected Environment

27 The Proposed Action includes 30 master planning facility and infrastructure construction, repair, and
28 renovation projects within the 2,940 acres of FSH. The Proposed Action includes 6,442,488 SF of
29 proposed new construction and 1,405,899 SF of proposed renovation (See Table 2-2). The description of
30 existing conditions applies to the proposed project area, i.e. areas directly or indirectly affected by the
31 Proposed Action. FSH is located in an urban setting in Bexar County, and much of FSH was developed
32 for military purposes. Approximately 30% of FSH is undeveloped along the floodplain of Salado Creek
33 (USACE 2007). In the 2007 FSH Integrated Natural Resource Management Plan, a goal was to maintain
34 Salado Creek and adjacent recreation park as a greenbelt and to develop a management plan for Salado
35 Creek (U.S. Army 2007).

36 3.8.1.1 Vegetation

37 FSH is within the Blackland Prairie ecoregion of Texas (Griffith et al. 2004). Surface topography of the
38 Blackland Prairie is generally level to gently rolling. Soils consist of black, alkaline, organic clays
39 overlying Cretaceous limestone. Pre-settlement conditions of this region were that of a true prairie
40 grassland community dominated by a diverse assortment of perennial and annual grasses and forbs
41 (weeds) with sparsely scattered trees or small stands of oaks. The dominant grass of the true tall grass
42 prairie is little bluestem (*Schizachyrium scoparium*), but big bluestem (*Andropogon gerardii*), yellow

1 Indiangrass (*Sorghastrum nutans*), eastern gamagrass (*Tripsacum dactyloides*), switchgrass (*Panicum*
2 *virgatum*), and side oats grama (*Bouteloua curtipendula*) can also be found. Common forbs include asters
3 (*Aster* sp.), prairie bluet (*Stenaria nigricans*), prairie clovers (*Dalea* spp.), and black-eyed Susan
4 (*Rudbeckia hirta*). Forested or wooded areas are restricted to bottomlands along major rivers and
5 streams, ravines, protected areas, or certain soil types (Texas Parks and Wildlife Department [TPWD]
6 2007). Stream bottoms often are wooded with bur oak (*Quercus macrocarpa*), Shumard oak (*Quercus*
7 *shumardii*), sugar hackberry (*Celtis laevigata*), elm (*Ulmus* spp.), ash (*Fraxinus* spp.), eastern cottonwood
8 (*Populus deltoides*), and pecan (*Carya illinoensis*) (USACE 2007, TPWD 2007).

9 Less than one-half of 1% of the Blackland Prairie remains in a relatively undisturbed state, and the
10 majority of the remnants are relatively small and isolated (TPWD 2007). Most of the prairie has been
11 converted to cropland, non-native pasture and expanding urban areas around Dallas, Waco, Austin and
12 San Antonio (USACE 2007).

13 The vegetation at FSH is primarily urbanized and altered Blackland Prairie grasslands with some
14 undeveloped areas (USACE 2007). Approximately 30% of FSH is undeveloped land along the floodplain
15 of Salado Creek (USACE 2007). The USFWS National Wetlands Inventory Program conducted a
16 wetlands inventory of FSH in 1999 (USFWS 1999). This inventory identified 22 acres of wetlands (less
17 than 1% of the land area of the installation) within the Salado Creek floodplain (USACE 2007). The
18 wetlands are shown on Figure 3.6-1 in Section 3.7 Water Resources (USACE 2009). The majority of the
19 wetlands, 18.9 acres (82%) were forested, and 3.3 acres (18%) were pond wetlands. Six species of plants
20 were documented in the forested wetlands during the 1999 wetland survey Cedar Elm (*Ulmus*
21 *crassifolia*), water oak (*Quercus nigra*), hackberry (*Celtis occidentalis*), willow (*Salix* sp), pecan (*Carya*
22 *illinoensis*), and Texas red oak (*Quercus texana*) (USFWS 1999). In addition to Salado Creek, on the
23 western edge of FSH, Alamo Ditch, a small intermittent tributary of the San Antonio River, occurs (See
24 Figure 3.6-1).

25 The majority of the vegetation within the proposed project area at FSH is developed, disturbed,
26 landscaped, and disturbed grasslands. Three Proposed Action items are within or in close proximity to
27 the Salado Creek Floodplain. A proposed 2.04-acre building, the Schofield Road Access Control Point
28 (ACP), is just outside the Salado Creek floodplain but is adjacent to a previously mapped wetland.
29 Portions of the proposed 30-acre Student Trainee Adult Sports Park are within the floodplain and are near
30 the Salado Creek channel and wetlands. The proposed 0.18-acre Salado Creek Crossing and road
31 improvement are within the Salado Creek floodplain and cross Salado Creek (see Figure 3.6-1) (USFWS
32 1999, USACE 2009).

33 3.8.1.2 Fish and Wildlife

34 Bexar County has a rich diversity of fauna; however, due to the urbanization of FSH there is limited
35 habitat for fish and wildlife within the proposed project area. Fish and wildlife at FSH include species
36 typical of developed areas and those that occur in the floodplain of Salado Creek.

37 The San Antonio Audubon Society (SAAS) lists over 400 species of birds in Bexar County, 120 of which
38 nest in the county (SAAS 2004). During the 2008-2009 San Antonio Christmas Bird Count 156 resident
39 and wintering bird species were documented in the San Antonio area (Audubon 2009). Birds most likely
40 to occur at FSH are migratory birds, birds tolerant of development, and birds found along Salado Creek.
41 Common species found in the urbanized setting of the installation include house sparrow (*Passer*
42 *domesticus*), grackle (*Quiscalus* spp.), American robin (*Turdus migratorius*) and, during winter months,
43 white-winged dove (*Zenaida asiatica*) and northern cardinal (*Cardinalis cardinalis*) (USACE 2007).

1 Salado Creek supports a diverse bird fauna, including nesting, migrating, and wintering species (USACE
2 2007). Common wintering waterfowl which could use the Salado Creek floodplain include wood duck
3 (*Aix sponsa*), green-winged teal (*Anas carolinensis*), pintail (*Anas acuta tztizhoa*), American widgeon
4 (*Mareca americana*), canvasback (*Aythya valisineria*), ruddy duck (*Erismatur jamaicensis rudida*),
5 American coots (*Fulica americana*), and mallards (*Anas platyrhynchos*)(U.S. Army 2007). Common
6 waterbirds which could use Salado Creek floodplain throughout the year include egrets, great-blue heron
7 (*Ardea herodias*), pied-billed grebe (*Podilymbus podiceps*), and killdeer (*Charadrius vociferus*) (USACE
8 2007, U.S. Army 2007, National Geographic 2006).

9 In Texas, 181 species of mammals have been documented (TPWD 1994); however, only a small number
10 of mammal species are expected to be found on FSH due to the urbanization of the installation. Some of
11 the intermediate to larger mammals with the potential to occur on FSH include coyote (*Canis latrans*),
12 gray fox (*Urocyon cinereoargenteus*), and white-tailed deer (*Odocoileus virginianus*). Common smaller
13 mammals with the potential to occur on the installation include fox squirrels (*Sciurus niger*), black-tailed
14 jackrabbit (*Lepus californicus*), eastern cottontail (*Sylvilagus floridanus*), opossum (*Didelphis*
15 *virginiana*), and striped skunk (*Mephitis mephitis*). Potential common rodents include the white-footed
16 mouse (*Peromyscus leucopus*), Encinal mouse (*Peromyscus pectoralis*), fulvous harvest mouse
17 (*Reithrodontomys fulvescens*), pygmy mouse (*Baiomys taylori*), hispid cotton rat (*Sigmodon hispidus*),
18 Merriam's pocket mouse (*Perognathus merriami*), and Mexican ground squirrel (*Spermophilus*
19 *mexicanus*). The roof rat (*Rattus rattus*) and house mouse (*Mus musculus*) could occur in the more built-
20 up areas (USACE 2007). Mammals such as beaver (*Castor canadensis*), armadillo (*Dasypus*
21 *novemcinctus*) and opossum (*Didelphis virginiana*) inhabit the bottomlands of Salado Creek (USACE
22 2007, National Audubon Society 1996).

23 In Bexar County 97 species of reptiles and amphibians have been reported including 6 species of
24 salamanders, 19 species of toads and frogs, 11 species of turtles, 1 alligator, 1 anole, 19 species of lizards,
25 and 40 species of snakes (Texas A&M University [TAMU 2009]). The common frogs and toads with the
26 potential to occur within or along Salado Creek include the cricket frog (*Acris crepitans*), red-spotted toad
27 (*Bufo punctatus*), gulf coast toad (*Bufo valliceps*), the southern leopard frog (*Rana utricularia*), and
28 Couch's spadefoot toad (*Scaphiopus couchi*). Yellow mud turtle (*Kinosternon flavescens*) and red-eared
29 turtle (*Chrysemys scripta elegans*) could occur in Salado Creek. Snakes common to Bexar County which
30 could occur on FSH include the bullsnake (*Pituophis melanoleucus*), western coachwhip (*Masticophis*
31 *flagellum testaceus*), checkered garter (*Thamnophis marcianus*), Texas coral snake (*Micrurus fulvius*
32 *tenere*), and western diamondback (*Crotalus atrox*). Lizards likely to occur in the project area include
33 Texas spotted whiptail (*Cnemidophorus gularis*), southern prairie lizard (*Sceloporus undulatus*), Texas
34 spiny lizard (*Sceloporus olivaceus*), rosebelly lizard (*Sceloporus variabilis*), little brown (ground) skink
35 (*Scincella lateralis*), and tree lizard (*Urosaurus ornatus*) (U.S. Army 2007, TAMU 2009, Stebbins 2003).

36 Eight species of fish have been reported in Salado Creek, the black bullhead (*Ictalurus melas*),
37 mosquitofish (*Gambusia affinis*), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus*
38 *salmoides*), sailfin molly (*Poecilia latipinna*), warmouth (*Lepomis gulosus*), Rio Grande perch
39 (*Cichlasoma cyanoguttatum*), and the Mozambique tilapia (*Tilapia mossambica*) (U.S. Army 2007).

40 3.8.1.3 Special-Status Species

41 Federally and State Listed Species

42 Twenty-eight state and/or federally listed threatened and endangered species occur in Bexar County
43 (Table 3.8-1) (TPWD 2009). These include two species of state threatened salamanders, six federally
44 endangered arachnids, eight federally and/or state listed birds, two state threatened fish, three federally
45 endangered insects, two federally and state endangered mammals, one federally and state threatened

1 mammal, and four state threatened reptiles. No federally or state listed species have been documented at
2 FSH, but transient occurrences of some species are possible, especially along Salado Creek (USACE
3 2007). No critical habitat occurs on FSH (USACE 2007).

4 Two amphibians, the state threatened cascade Caverns salamander (*Eurycea latitans complex*) and the
5 comal blind salamander (*Eurycea tridentifera*), occur in springs and caves in Bexar County (TPWD
6 2009). Neither salamander occurs on FSH due to lack of habitat.

7 No federally endangered karst/invertebrate species, six cave arachnids and cave beetles, are known to
8 occur on FSH, nor does FSH contain potential habitat for these species. Critical habitat was for these
9 species and no critical habitat occurs on FSH (U.S. Army 2007, TPWD 2009).

10 Of the seven listed bird species in Bexar County, two TPWD threatened bird species, the American
11 peregrine falcon (*Falco peregrinus anatum*) and the white-faced ibis (*Plegadis chihi*) could use portions
12 of the installation during migration, (TPWD 2009, SAAS 2004). The American peregrine falcon, which
13 is rarely observed in Bexar County, has a low potential to migrate through FSH (TPWD 2009, SAAS
14 2004). The white-faced ibis could potentially transit through FSH and use the Salado Creek floodplain
15 during migration (TPWD 2009).

Table 3.8-1. Bexar County State and Federally Listed Species

Common Name	Scientific Name	Habitat	Federal Status	State Status	Known to Occur on FSH
AMPHIBIANS					
Cascade Caverns salamander	<i>Eurycea latitans complex</i>	Endemic; subaquatic; springs and caves in Medina River, Guadalupe River, and Cibolo Creek watersheds within Edwards Aquifer area.		T	No
Comal blind salamander	<i>Eurycea tridentifera</i>	Endemic; semi-troglobitic; found in springs and waters of caves.		T	No
ARACHNIDS					
Braken Bat Cave meshweaver	<i>Cicurina venii</i>	Small, eyeless, or essentially eyeless spider; karst features in north and northwest Bexar County.	E		No
Cokendolpher cave harvestman	<i>Texella cokendolpheri</i>	Small, eyeless harvestman; karst features in north and northwest Bexar County.	E		No
Government Canyon Bat Cave meshweaver	<i>Cicurina vespera</i>	Small, eyeless, or essentially eyeless spider; karst features in north and northwest Bexar County.	E		No
Government Canyon Bat Cave spider	<i>Neoleptoneta microps</i>	Small, eyeless, or essentially eyeless spider; karst features in north and northwest Bexar County.	E		No
Madla Cave meshweaver	<i>Cicurina madla</i>	Small, eyeless, or essentially eyeless spider; karst features in north and northwest Bexar County.	E		No
Robber Baron Cave meshweaver	<i>Cicurina baronia</i>	small, eyeless, or essentially eyeless spider; karst features in north and northwest Bexar County	E		No
BIRDS					
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in U.S. and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	DL	T	Low potential to migrate through FSH, rare in Bexar county

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Federal Status</i>	<i>State Status</i>	<i>Known to Occur on FSH</i>
Black-capped Vireo	<i>Vireo atricapilla</i>	Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer.	E	E	No-rare in Bexar County and no oak-juniper woodlands occur on FSH.
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	Juniper-oak woodlands; dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer.	E	E	No-rare in Bexar County and no oak-juniper woodlands occur on FSH.
Interior Least Tern	<i>Sterna antillarum athalassos</i>	Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	E	E	No-rare in Bexar County
White-faced Ibis	<i>Plegadis chihi</i>	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.		T	Potential to migrate through FSH
Whooping Crane	<i>Grus americana</i>	Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.	E	E	No-very rare in Bexar County
Wood Stork	<i>Mycteria americana</i>	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960.		T	No-rare in Bexar County

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Federal Status</i>	<i>State Status</i>	<i>Known to Occur on FSH</i>
Zone-tailed Hawk	<i>Buteo albonotatus</i>	Arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions.		T	No-rare in Bexar County
FISH					
Toothless blindcat	<i>Trogloglanis pattersoni</i>	Troglobitic, blind catfish endemic to the San Antonio Pool of the Edward's Aquifer.		T	No
Widemouth blindcat	<i>Satan eurystomus</i>	Troglobitic, blind catfish endemic to the San Antonio Pool of the Edward's Aquifer.		T	No
INSECTS					
A ground beetle	<i>Rhadine exilis</i>	Small, essentially eyeless ground beetle; karst features in north and northwest Bexar County.	E		No
A ground beetle	<i>Rhadine infernalis</i>	Small, essentially eyeless ground beetle; karst features in north and northwest Bexar County.	E		No
Helotes mold beetle	<i>Batrisodes venyivi</i>	Small, eyeless mold beetle; karst features in northwestern Bexar County and northeastern Medina County.	E		No
MAMMALS					
Black bear	<i>Ursus americanus</i>	Bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear, treat all east Texas black bears as federal and state listed Threatened.	T	T	No
Gray wolf	<i>Canis lupus</i>	Extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands.	E	E	No
Red wolf	<i>Canis rufus</i>	Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies.	E	E	No
REPTILES					
Indigo snake	<i>Drymarchon corais</i>	Texas south of the Guadalupe River and Balcones Escarpment; thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows, for shelter.		T	No

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Federal Status</i>	<i>State Status</i>	<i>Known to Occur on FSH</i>
Texas horned lizard	<i>Phrynosoma cornutum</i>	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.		T	Low potential to occur on FSH
Texas tortoise	<i>Gopherus berlandieri</i>	Open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November.		T	No
Timber/Canebrake rattlesnake	<i>Crotalus horridus</i>	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto.		T	No

Notes: E=endangered, T=threatened, DL=delisted. Bold=Potential occurrence on FSH.

Source: TPWD 2009 and SAAS 2004.

1 The other five listed bird species, which occur in Bexar County, are unlikely to occur on FSH. The
2 federally endangered black-capped vireo (*Vireo atricapilla*) and golden-cheeked warbler (*Dendroica*
3 *chrysoparia*) occur in juniper-oak woodlands in Bexar County (TPWD 2009). Neither the vireo nor the
4 warbler occurs on FSH due to lack of habitat. The state and federally endangered interior least tern
5 (*Sternula antillarum athalassos*) is rare in Bexar County and is not likely to occur on FSH due to lack of
6 preferred habitat. Least terns prefer sand and gravel bars along braided streams (TPWD 2009). The
7 federally and state endangered whooping crane (*Grus Americana*) has been documented in Bexar County
8 during fall migration but is very rare and is unlikely to be observed on FSH (TPWD 2009 and SAAS
9 2004). The primary migration route for the whooping crane is east of FSH (Campbell 2003). The TPWD
10 threatened wood stork (*Mycteria americana*) is rare in Bexar County and prefers coastal marshes, bays,
11 ponds, and lakes; therefore, it is unlikely to occur on FSH (TPWD 2009, SAAS 2004). The TPWD
12 threatened zone-tailed hawk (*Buteo albonotatus*) is rare in Bexar County and is unlikely to transit across
13 the installation. It prefers open arid country to forage and desert, riparian, or coniferous trees to nest
14 (TPWD 2009, SAAS 2004).

15 The TPWD identified two species of fish as state threatened, the toothless blindcat (*Trogloglanis*
16 *pattersoni*) and widemouth blindcat (*Satan eurystomus*). These cave dwelling catfish are endemic to the
17 San Antonio area, and have been found in five wells in the Edwards Aquifer at depths of 976 to 1,862 feet
18 (U.S. Army 2007). These species are not expected to be found on FSH due to lack of habitat.

19 None of the three listed mammals, the federally and state endangered red and gray wolf (*Canis lupus and*
20 *C. rufus*, respectively), and state threatened black bear (*Ursus americanus*) occur on FSH. Red and gray
21 wolves historically occurred in Texas, the red wolf in the eastern half of the state and the gray wolf in the
22 western two-thirds of the state. The black bear occurs in bottomland hardwoods and other large tracts of
23 forests (TPWD 2009).

24 Four state threatened reptile species occur in Bexar County. Of the four, only the Texas horned lizard
25 (*Phrynosoma cornutum*) has a low potential to occur on FSH (TPWD 2009). The Texas horned lizard is
26 widespread and apparently secure in some areas of south-central U.S. and northern Mexico (NatureServe
27 2009). The horned lizard is declining in the Blackland Prairie ecoregion due to urbanization, intensive
28 agriculture, and imported red fire ants (*Solenopsis invicta*) (TPWD 2008). The preferred habitat of the
29 Texas horned lizard is open, arid and semi-arid regions with sparse vegetation, including grass, cactus,
30 scattered brush or scrubby trees; soil may vary in texture from sandy to rocky. The horned lizard burrows
31 into soil, enters rodent burrows, or hides under rock when inactive (TPWD 2009). Based on the lack of
32 prior documentation of its occurrence and habitat conditions in the affected areas, it has a low potential to
33 occur within the Proposed Action area. The indigo snake's (*Drymarchon corais*) is not likely to occur on
34 FSH. The indigo snake requires large undeveloped areas, home ranges can be up to 566 acres (229
35 hectares), and FSH is near the northern boundary of the snake's range. The Texas tortoise (*Gopherus*
36 *berlandieri*) occurs mostly in the South Texas Plains south of San Antonio, and is not likely to be found
37 on FSH due to lack of preferred habitat (U.S. Army 2007). Bexar County is the western edge of the
38 Texas timber (canebreak) rattlesnake (*Crotalus horridus*) and the rattlesnake prefers floodplains next to
39 upland woodlands; therefore, the timber rattlesnake is not likely to occur on FSH (TPWD 2009).

40 TPWD Sensitive Species

41 Twenty-one non-listed TPWD sensitive species which occur in Bexar County include one amphibian,
42 three birds, one crustacean, three mammals, eight mollusks, one fish, two insects, and two reptiles (Table
43 3.8-2) (TPWD 2009).

Table 3.8-2. Bexar County TPWD Sensitive Species

Common Name	Scientific Name	Habitat	Known to Occur on FSH
AMPHIBIANS			
Texas salamander	<i>Eurycea neotenes</i>	Endemic; troglobitic; springs, seeps, cave streams, and creek headwaters; often hides under rocks and leaves in water; restricted to Helotes and Leon Creek drainages.	No
BIRDS			
Arctic Peregrine Falcon	<i>Falco peregrinus tundrius</i>	Migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Low potential to migrate through FSH, rare in Bexar county
Mountain plover	<i>Charadrius montanus</i>	Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.	No
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows.	No
CRUSTACEAN			
Cave obligate crustacean	<i>Monodella texana</i>	Subaquatic, subterranean obligate; underground freshwater aquifers.	No
FISH			
Guadalupe bass	<i>Micropterus treculii</i>	Endemic to perennial streams of the Edward's Plateau region; introduced in Nueces River system.	No
INSECTS			
Manfreda giant-skipper	<i>Stallingsia maculosus</i>	Most skippers are small and stout-bodied; name derives from fast, erratic flight; at rest most skippers hold front and hind wings at different angles; skipper larvae are smooth, with the head and neck constricted; skipper larvae usually feed inside a leaf shelter and pupate in a cocoon made of leaves fastened together with silk.	No
Rawson's metalmark	<i>Calephelis rawsoni</i>	Moist areas in shaded limestone outcrops in central Texas, desert scrub or oak woodland in foothills, or along rivers elsewhere; larval hosts are <i>Eupatorium havanense</i> , <i>E. greggi</i> .	No

Common Name	Scientific Name	Habitat	Known to Occur on FSH
MAMMALS			
Cave myotis bat	<i>Myotis velifer</i>	Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (<i>Hirundo pyrrhonota</i>) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum caves of Panhandle during winter; opportunistic insectivore.	Potential
Ghost-faced bat	<i>Mormoops megalophylla</i>	Colonially roosts in caves, crevices, abandoned mines, and buildings; insectivorous; breeds late winter-early spring; single offspring born per year.	Potential
Plains spotted skunk	<i>Spilogale putorius interrupta</i>	Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie.	Potential
MOLLUSKS			
Creeper (squawfoot)	<i>Strophitus undulates</i>	Small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio, Neches (historic), and Trinity (historic) River basins.	Potential
False spike mussel	<i>Quincuncina mitchelli</i>	Substrates of cobble and mud, with water lilies present; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins	No
Golden orb	<i>Quadrula aurea</i>	Sand and gravel in some locations and mud at others; intolerant of impoundment in most instances; Guadalupe, San Antonio, and Nueces River basins	Potential
Mimic cavesnail	<i>Phreatodrobia imitate</i>	Subaquatic; only known from two wells penetrating the Edwards Aquifer.	No
Pistolgrip	<i>Tritogonia verrucosa</i>	Stable substrate, rock, hard mud, silt, and soft bottoms, often buried deeply; east and central Texas, Red through San Antonio River basins	Potential
Rock pocketbook	<i>Arcidens confragosus</i>	Mud, sand, and gravel substrates of medium to large rivers in standing or slow flowing water, may tolerate moderate currents and some reservoirs, east Texas, Red through Guadalupe River basins.	No
Texas fatmucket	<i>Lampsilis bracteata</i>	Streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and coarse gravel or sand in moderately flowing water; Colorado and Guadalupe River basins	No
Texas pimpleback	<i>Quadrula petrina</i>	Mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins	No

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Known to Occur on FSH</i>
REPTILES			
Spot-tailed earless lizard	<i>Holbrookia lacerate</i>	Central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground.	Potential
Texas garter snake	<i>Thamnophis sirtalis annectens</i>	Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August.	Potential

Notes: Bold=Potential occurrence on FSH.

Source: TPWD 2009 and SAAS 2004.

- 1 The Texas salamander (*Eurycea neotenes*), a TPWD sensitive amphibian, occurs in Helotes and Leon
2 Creek drainages north of FSH (TPWD 2009).
- 3 Three TPWD sensitive bird species occur in Bexar County. The Arcric peregrine falcon (*Falco*
4 *peregrinus anatum*) has a low potential to migrate through FSH (TPWD 2009; SAAS 2004). According
5 to the SAAS, the mountain plover (*Charadrius montanus*) and the western burrowing owl (*Athene*
6 *cunicularia hypugaea*), two TPWD sensitive bird species, are very rare in Bexar County (SAAS 2004).
7 The mountain plover prefers native shortgrass prairie habitat and is not likely to occur on FSH due to lack
8 of habitat (TPWD 2009). The western burrowing owl (*Athene cunicularia hypugaea*), prefers open
9 grasslands and is unlikely to occur on FSH due to lack of habitat (TPWD 2009).
- 10 Three mammal species found in Bexar County are listed by TPWD as sensitive and could occur on FSH,
11 the cave myotis bat (*Myotis velifer*), the ghost-faced bat (*Mormoops megalophylla*), and the plains
12 spotted skunk (*Spilogale putorius interrupta*) (TPWD 2009). The cave myotis bat is colonial and cave
13 dwelling but also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned
14 Cliff Swallow (*Hirundo pyrrhonota*) nests. It hibernates in limestone caves of Edwards Plateau and
15 gypsum caves of Panhandle during winter (TPWD 2009). The cave myotis bat has the potential to occur
16 on FSH during the spring through fall. The ghost-faced bat colonially roosts in caves, crevices,
17 abandoned mines, and buildings and Bexar County is on the eastern edge of its range (TPWD 2009). The
18 ghost-faced bat could occur on FSH in abandoned buildings.
- 19 There is potential for the plains spotted skunk to occur on FSH. The spotted skunk prefers wooded,
20 brushy areas and tallgrass prairie but would use open fields and farmland (TPWD 2009).
- 21 The TPWD sensitive cave obligate crustacean (*Monodella texana*) occurs in underground freshwater
22 aquifers in three counties, Bexar, Hays, and Uvalde. Habitat for this species is not known or likely to
23 occur on FSH (TPWD 2009).
- 24 The only TPWD sensitive fish in Bexar County is the Guadalupe bass (*Micropterus treculii*). It is
25 endemic to perennial streams of the Edward's Plateau region north of FSH and is not likely to occur on
26 FSH (TPWD 2009).
- 27 Two TPWD sensitive butterflies occur in Bexar County, the Manfreda giant-skipper (*Stallingsia*
28 *maculosus*) and the Rawson's metalmark (*Calephelis rawsoni*). The Manfreda giant-skipper is found in
29 southern Texas and south of the border in northern Mexico, including the state of Nuevo Leon. The full
30 extent of the range in Mexico is not known but it is apparently very restricted. Its habitat is subtropical
31 thorn and pine forests. It is likely that most populations have already been lost to development. The
32 larval host plant (Texas tuberose) is itself restricted to southern Texas and northern Mexico, and is in
33 competition with guinea grass (*Panicum maximum*) in many places (The Xerces Society. 2009). The
34 Manfreda giant-skipper is not likely to occur on FSH due to lack of preferred habitat. The Rawson's
35 metalmark occurs in moist areas in shaded limestone outcrops in central Texas, desert scrub or oak
36 woodland in foothills, or along rivers elsewhere; larval hosts are *Eupatorium havanense* and *E. greggi*,
37 and is not likely to occur on FSH due to lack of preferred habitat (TPWD 2009).
- 38

1 Eight TPWD sensitive species of mollusks occur in Bexar County, Creeper (squawfoot) (*Strophitus*
2 *undulates*), False spike mussel (*Quincuncina mitchelli*), Golden orb (*Quadrula aurea*), Mimic cavesnail
3 (*Phreatodrobia imitate*), Pistolgrip (*Tritogonia verrucosa*), Rock pocketbook (*Arcidens confragosus*),
4 Texas fatmucket (*Lampsilis bracteata*), and Texas pimpleback (*Quadrula petrina*). See Table 3.8-2 for
5 habitat description for each species of mollusk. Creeper (squawfoot), goldern orb, and Pistolgrip occur in
6 the San Antonio River basin and could potentially occur in Salado Creek or the Alamo ditch; however,
7 both Salado Creek and the Alamo ditch are intermittent drainages that flow to the San Antonio River
8 (TPWD 2009).

9 Two TPWD sensitive reptile species the spot-tailed earless lizard (*Holbrookia lacerate*) and the Texas
10 garter snake (*Thamnophis sirtalis annectens*) occur in Bexar County and could occur on FSH. The spot-
11 tailed earless lizard occurs in central and southern Texas and adjacent Mexico; moderately open prairie-
12 brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small
13 invertebrates; eggs laid underground (TPWD 2009). This lizard could occur on FSH. FSH is on the
14 western boundary of the Texas garter snake indicating there may be a low probability of occurrence on
15 the installation (U.S. Army 2007).

16 Seven species of plants in Bexar County endemic to Texas are listed as sensitive by TPWD, big red sage
17 (*Salvia pentstemonoides*), bracted twistflower (*Streptanthus bracteatus*), Correll's false dragon-head
18 (*Physostegia correllii*), Elmendorf's onion (*Allium elmendorffii*), hill country wild-mercury (*Argythamnia*
19 *aphoroides*), Parks' jointweed (*Polygonella parksii*), and sandhill woollywhite (*Hymenopappus*
20 *carrizoanus*) (TPWD 2009). Habitat descriptions for each species are included in Table 3.8-3. None of
21 these plants is likely to occur on FSH due to lack of habitat.

Table 3.8-3. TPWD Rare Plants of Bexar County

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Known to Occur on FSH</i>
Big red sage	<i>Salvia pentstemonoides</i>	Texas endemic; moist to seasonally wet, steep limestone outcrops on seeps within canyons or along creek banks; occasionally on clayey to silty soils of creek banks and terraces, in partial shade to full sun; basal leaves conspicuous for much of the year; flowering June-October.	No
Bracted twistflower	<i>Streptanthus bracteatus</i>	Texas endemic; shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer.	No
Correll's false dragon-head	<i>Physostegia correllii</i>	Wet, silty clay loams on streambanks, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creeks in central Texas; flowering May-September.	No
Elmendorf's onion	<i>Allium elmendorfi</i>	Texas endemic; grassland openings in oak woodlands on deep, loose, well-drained sands; in Coastal Bend, on Pleistocene barrier island ridges and Holocene Sand Sheet that support live oak woodlands; to the north it occurs in post oak-black hickory-live oak woodlands over Queen City and similar Eocene formations; one anomalous specimen found on Llano Uplift in wet pockets of granitic loam; flowering March-April, May.	No
Hill country wild-mercury	<i>Argythamnia aphoroides</i>	Texas endemic; mostly in bluestem-grama grasslands associated with plateau live oak woodlands on shallow to moderately deep clays and clay loams over limestone on rolling uplands, also in partial shade of oak-juniper woodlands in gravelly soils on rocky limestone slopes; flowering April-May with fruit persisting until midsummer.	No
Parks' jointweed	<i>Polygonella parksii</i>	Texas endemic; mostly found on deep, loose, whitish sand blowouts (unstable, deep, xeric, sandhill barrens) in Post Oak Savanna landscapes over the Carrizo and Sparta formations; also occurs in early successional grasslands, along right-of-ways, and on mechanically disturbed areas; flowering June-late October or September-November.	No
Sandhill woollywhite	<i>Hymenopappus carrizoanus</i>	Texas endemic; disturbed or open areas in grasslands and post oak woodlands on deep sands derived from the Carrizo Sand and similar Eocene formations; flowering April-June	No

Source: TPWD 2009.

1 **3.8.2 Environmental Consequences**

2 3.8.2.1 Master Planning Actions Alternative

3 3.8.2.2 Vegetation

4 No impacts to sensitive vegetation would occur within the previously developed areas of FSH; however,
 5 three of the Proposed Actions, the Salado Creek Crossing, the Schofield Road ACP, and the Student
 6 Trainee Adult Sports Park, are within or in close proximity to the Salado Creek floodplain and could
 7 impact CWA jurisdictional waters of the U.S., including wetlands (see Figure 3.6-1). As much as 6.22
 8 acres within the Salado Creek Floodplain could be impacted by the implementation of the Proposed
 9 Action (Table 3.8-4). A proposed 2.04-acre building, the Schofield Road ACP, is just outside the Salado
 10 Creek floodplain but is near a previously mapped wetland. As stated in Section 2, minor siting variations
 11 may occur within the development footprint; therefore, it could be possible to avoid the wetland. Six
 12 acres of the proposed 30-acre Student Trainee Adult Sports Park are within the floodplain and near
 13 Salado Creek and mapped wetlands. The proposed 0.18-acre Salado Creek Crossing and road
 14 improvement are within the Salado Creek floodplain and cross Salado Creek (see Figure 3.6-1). The
 15 proposed Salado Creek Crossing would consist of an all-weather connection across Salado Creek. This
 16 action would include the construction of two vehicular bridges with reinforced concrete deck over steel
 17 girders and reinforced concrete frame piers on concrete pile foundation. Roadways, of flexible type
 18 asphaltic concrete pavement, would be constructed to connect the bridges to the existing road network.
 19 BMPs in a SWPPP would be followed during construction to minimize impacts to sensitive resources.

Table 3.8-4. Potential Impacts from the Implementation of the Proposed Action to the Salado Creek Floodplain

<i>Proposed Action</i>	<i>Approximate size (acres)</i>	<i>Area within the floodplain (acres)</i>	<i>Potential impact to sensitive area</i>
Schofield Road ACP	2.04	0	Near a wetland
Salado Creek Crossing	0.18	0.18	Within the floodplain and crosses Salado Creek
Student Trainee Adult Sports Park	30.00	6.04	Within the floodplain, near Salado Creek and wetlands
Total	32.22	6.22	

20 Final design of the Salado Creek Crossing, the Schofield Road ACP, and the Student Trainee Adult
 21 Sports Park would avoid and/or minimize impacts to the floodplain, waters of the U.S., and wetlands to
 22 the maximum extent possible. If final design of the Salado Creek Crossing, Schofield Road ACP, and the
 23 Student Trainee Adult Sports Park cannot avoid jurisdictional wetlands and waters of the U.S., than
 24 mechanical excavation or the placement of fill material in wetlands or other waters of the U.S. would
 25 require a CWA Section 404 permit and the related Section 401 State Water Quality Certification. The
 26 limits of jurisdictional waters with respect to potential construction footprints would need to be
 27 determined prior to final designs. As conditions of the CWA permit, the final project designs would be
 28 required to minimize impacts as much as practicable, to restore temporarily impacted areas, and to
 29 provide compensatory mitigation for any permanent losses. This would ensure that no significant impact
 30 occurs.

1 Fish and Wildlife

2 The majority of the proposed project area is within the urbanized previously developed area of FSH;
3 however, three of the Proposed Actions, the Salado Creek Crossing, the Schofield Road ACP, and
4 Student Trainee Adult Sports Park are within or in close proximity to the Salado Creek floodplain and
5 potential wetlands. The Salado Creek Crossing could temporarily impact 0.18 acres of fish and wildlife
6 habitat in Salado Creek and its floodplain. There is potential habitat within the proposed Salado Creek
7 Crossing for migratory birds to nest. If an active bird nest is encountered during construction, it would be
8 avoided. The proposed 2.04 acre Schofield Road ACP is within disturbed grasslands but near a wetland.
9 BMPs would be implemented to avoid impacts to the wetland and surrounding habitats. As much as 6.04
10 acres of the 30-acre Student Trainee Adult Sports Park are within the Salado Creek Floodplain but outside
11 the Salado Creek channel. The majority of the proposed Student Trainee Adult Sports Park including the
12 area with the floodplain is disturbed grasslands. Impacts to fish and wildlife would be minimized;
13 therefore, impacts to fish and wildlife in these areas would be less than significant.

14 Implementation of the Proposed Action would disturb or displace wildlife from the areas of construction
15 and immediately surrounding areas. These activities could destroy individuals of the smaller, less mobile
16 and burrowing species, whereas mobile species would disperse to surrounding areas. Individuals
17 dispersing away from the activity are likely to experience increased risks of predation, reduced foraging
18 or reproductive success, and energetic costs. The overall impact on wildlife populations would be
19 relatively small, proportional to the relatively small areas of habitat affected. In areas temporarily
20 impacted, wildlife species would re-colonize the area after construction. No long-term impacts to wildlife
21 populations are likely. If an active bird nest is encountered during the implementation of the Proposed
22 Action, it would be avoided. Due to the low quality of the majority of proposed project area and the small
23 area of impact to the Salado Creek floodplain, the impacts to fish and wildlife, including migratory birds,
24 would be less than significant.

25 Special-Status Species

26 The majority of the proposed project area is within the urbanized previously developed area of FSH;
27 however, three of the Proposed Actions, the Salado Creek Crossing, the Schofield Road ACP, and
28 Student Trainee Adult Sports Park are within or in close proximity to the Salado Creek floodplain and
29 potential wetlands.

30 No listed species have been documented on FSH; therefore, no impacts to listed species are expected to
31 occur. Two TPWD threatened bird species, the American peregrine falcon and white-faced ibis, could
32 potentially migrate through FSH, but the proposed project would not interfere with their movement
33 through the area, any occurrence of these species is likely to be transient since the project area does not
34 contain prey or habitat resources that would attract either species. As such no impact on either of these
35 bird species would be anticipated.

36 Habitat in undeveloped areas near Salado Creek could be suitable for the Texas horned lizard, although
37 there is no documentation of its occurrence in this area. The species is not federally protected and its
38 overall conservation ranking is "secure" (not threatened or endangered) (NatureServe 2009). Given the
39 low likelihood of impact and, if the species were to occur, the relatively small potential effect on habitat
40 or numbers, there would not be a significant impact on this species.

41 Nine TWPD sensitive species, one bird species, the Arctic peregrine falcon, three mammal species, two
42 bats and a skunk, three mollusks, and two reptiles could occur on FSH. These species are not known to
43 occur and have a low potential to occur on FSH (see Table 3.8-2). Old buildings should be checked for

1 the cave myotis bat and ghost-faced bats before they are demolished. Due to the low quality of the
 2 majority of the proposed project area and the small area of impact to the Salado Creek floodplain, the
 3 potential impacts to TWP sensitive would be less than significant.

4 No TPWD rare plants are known to occur on FSH; therefore, there would not be any impacts to these
 5 species from the implementation of the Proposed Action.

6 3.8.2.3 No-Action Alternative

7 Under the No-Action Alternative, existing conditions as described in Section 3.8.1 would remain
 8 unchanged. Therefore, implementation of the No-Action Alternative would not result in significant
 9 impacts to biological resources.

10 3.9 CULTURAL RESOURCES

11 3.9.1 Affected Environment

12 3.9.1.1 Prehistoric and Historic Background

13 This section presents the prehistory and history of the project area with currently accepted archaeological
 14 chronologies and historic summaries of the region.

15 Prehistoric Context

16 A regional cultural sequence for the developed area of Central Texas is summarized in Table 3.9-1.
 17 Located in Bexar County, FSH is part of the southern area of the Central Texas archaeological region that
 18 has evidence of human occupation over a period of 12,000 years. The four stages of this occupation are
 19 the Paleo-Indian, Archaic, Late Prehistoric, and Historic. The earliest peopling of the San Antonio
 20 region, and large-scale hunting activities signal the beginning of the Paleo-Indian Stage. The Archaic
 21 stage is characterized by the emergence of a growing variety of tools and the beginning of Central
 22 Texas's distinctiveness as a region. The adoption of ceramics and the return of the bison to the region
 23 identifies the Late Prehistoric stage. The Historic stage begins with the period since interaction with
 24 European explorers.

Table 3.9-1. Central Texas Cultural Sequence*

<i>Stage</i>	<i>Cultural-Historical Period</i>	<i>Date</i>
Paleo-Indian	Early	11,500-10,000 B.P.
	Late	10,000-8,800 B.P.
Archaic	Early	8,800-6,000 B.P.
	Middle	6,000-4,000 B.P.
	Late	4,000-1,200 B.P.
Late Prehistoric	Austin Phase	1,200-750 B.P.
	Toyah Phase	750-450 B.P.
Historic		450 B.P. - Present

* Information obtained from the November 2007 *Fort Sam Houston Military Reservation ICRMP*.

1 *Paleo-Indian (11,500 – 8,800 B.P.)*

2 Known for the cooler, wetter climate associated with the Pleistocene epoch, the Paleo-Indian stage ranges
3 from 11,500 – 8,800 B.P. and includes the earliest human occupation of North America. Often
4 characterized by its mobile bands of foragers and lack of diversity of projectile point, this culture also
5 specialized in hunting Pleistocene megafauna. This stage is divided into two periods within Central
6 Texas, the Early period (11,500-10,000 B.P.) and the Late period (10,000-8,800 B.P.). These two periods
7 encompass three distinct complexes, the Llano, Folsom, and Plano. Each complex, or group, is
8 recognized by its specific collection of traits or artifacts. The Llano and Folsom complexes are identified
9 with the Early period while the Plano complex is associated with the Late period (Newcomb 1999: 9).

10 The Clovis projectile point is associated with the Llano complex and is the oldest point type found in
11 North America. The Clovis point is important not only due to its early date but as a result of its large
12 distribution area ranging from Alaska to Texas with a few discoveries in Central America. The Llano
13 complex ranged from New Mexico and the Great Plains to the Great Lakes as well as the Northeast and
14 Southeast. The material record of the Llano people is typically limited to hunting activities. These
15 peoples known for hunting large animals and Clovis tools associated with the Llano complex were
16 discovered alongside extinct horses, antelopes, and bison (Josephy 1991: 43-44). Several sites with
17 Clovis components were recorded in Central Texas, including Kincaid Rockshelter, Wilson-Leonard,
18 Gault, Horn Shelter No. 2, Pavo Real, and Crockett Gardens (Clow et al. 2007, C-8).

19 Around 11,000 B.P. the climate of the Pleistocene epoch, known for its glacial climate gave way to the
20 warming and drying trends of the Holocene epoch. The resulting extinction of the megafauna hunted
21 during the Pleistocene is concurrent with the earliest recorded habitation of the Folsom complex.
22 Associated with the Folsom projectile point, the Folsom complex is well known for the relationship of
23 extinct bison remains with Folsom points at early kill sites (Wedel 1986: 62-64).

24 The Late period is associated with the Plano complex, a subsistence pattern based on deer and other small
25 prey. The Plano complex replaced the Folsom complex and while the Folsom complex is associated with
26 the Folsom point, the Plano complex is associated with a high level of diversity in its projectile points. It
27 was during this time that the changing climate began to exhibit more moderate conditions. Ranging from
28 the Great Plains across the eastern U.S. and into the Great Lakes, the Plano complex is known for its
29 association with the modern bison (Josephy 1991: 46).

30 *Archaic (8,800-1,200 B.P.)*

31 Occurring during the changing Holocene epoch, the Archaic stage is typically divided into three
32 subperiods, the Early, Middle, and Late. These subperiods were defined through diagnostic projectile
33 point styles and radiocarbon dating of organic material recovered from sites. Overall, the Archaic is
34 known for its stemmed and side-notched projectile points combined with a generalized style of hunting
35 and gathering. It was during this period that the warming temperatures of the Holocene allowed people to
36 begin forming semi-permanent settlements (Wedel 1986: 72-80).

37 The smooth transition from the Late Paleo-Indian period into the Early Archaic is noted by the move from
38 lanceolate points to stemmed and side-notched projectile points. There are four defined phases of point
39 types associated with the Early Archaic, Circleville, San Geronimo, Jarrell, and Oakalla and are the main
40 source of information regarding this period. Very few intact sites dating to the Early Archaic have been
41 located, leading to questions regarding this period. The typical Early Archaic site is small, leading to the
42 belief that these were highly mobile populations with low densities. Additionally, sites associated with

1 the Early Archaic are generally described as being lithic procurement stations or open campsites (Prewitt
2 1985: 217).

3 The Middle Archaic (6,000-4,000 B.P.) exhibits a larger variety of sites than the Early Archaic and is the
4 period in which Central Texas is first identified as its own archaeological region. This period experienced
5 a population growth which allowed distinct cultural patterns to emerge and saw changes in settlement
6 patterns leading to semi-permanent settlements. Sites associated with the Middle Archaic in Central
7 Texas are typically rockshelters, campsites, lithic quarries, kill sites, and burned-rock middens (Clow et al
8 2007: C-10).

9 Although the Late Archaic resembles the Middle Archaic, during this period new cultural patterns
10 emerged, including increased trading among groups. Sites associated with the Late Archaic include
11 rockshelters, campsites, and the emergence of large cemeteries. Additionally, a number of hearth features
12 appear during this period. The Late Archaic period is also known for its point styles which are some of
13 the most widely distributed points of the prehistoric era (Clow et al 2007: C-11).

14 *Late Prehistoric (1,200 – 450 B.P.)*

15 The Late Prehistoric period is identified by its adoption of ceramics and the replacement of the atlatl and
16 projectile points with the bow and arrow. Predominant features associated with Late Prehistoric sites
17 include basin-shaped and flat hearths as well as clay and charcoal lenses and pits. The burial practices
18 developed during the Archaic period continue during the Late Prehistoric. The Late Prehistoric is
19 identified in central Texas by two phases, the Austin (1,200 – 750 B.P.) and the Toyah (750-450 B.P.)
20 (Clow et al 2007: C-12).

21 The Austin phase signals the move from the atlatl and dart to the bow and arrow. This period utilized
22 broad-based hunting and gathering and showed significant social violence and increased nutritional stress.
23 Although the Austin phase continued the burial practices of the Late Archaic, the mortuary goods and
24 adornments exhibit less investment in the process of burial (Clow et al 2007: C-12).

25 The Toyah phase is known for the contracting stem arrow points and the increasing numbers of ceramics
26 found at sites. In addition to points and pottery, perishable artifacts have been recovered from a number
27 of sites including cords, basketry, and corncobs. The artifacts discovered associated with this phase
28 indicate these people had an extensive trade route. During this period the climate experienced a shift to
29 moister conditions which allowed grasslands and savannas to increase leading to the return of the bison.
30 With this return, subsistence strategies shifted back toward hunting (Newcomb 1999: 135-136).

31 Historic Context (1525 to Present)

32 The historic period of Texas begins in 1525 with early Spanish exploration of the region. The Spanish
33 exploration and missionization of the region occurred between 1525 and 1718. Following exploration,
34 the Spanish began colonizing the region. This period lasted from 1718 until 1821 when the Mexican
35 Revolution transferred control of the region to the newly formed Mexican government. Modern-day
36 Texas was under Mexican rule until 1836. While under Mexican control, roughly 300 Euro-American
37 families, immigrated to Texas to settle the mostly uninhabited area. Control of Texas transferred to the
38 Republic of Texas in 1836 when Texians and Tejanos rose up against Mexican rule during the Texas
39 Revolution. The new Republic controlled Texas until 1845 when the country was annexed by the U.S. as
40 the 28th state. When the American Civil War broke out in 1861, Texas voted overwhelmingly to join the
41 Confederate States of America, and seceded from the Union in March 1861. With the conclusion of the
42 Civil War in 1865, Texas sought re-admittance to the U.S. which was granted in 1870.

1 *Early Spanish Exploration and Missionization*

2 In 1519, Spanish explorer Alonso Alvarez de Pineda arrived on the Texas coast, where he proceeded to
3 explore the Gulf of Mexico in search of the city of gold. The following year another expedition led by
4 Diego Antonio de Camargo traveled to the coast in an effort to colonize the Gulf coast; however, this
5 colony was later abandoned. A 1527 expedition led by Panfilo de Navaraz landed in Florida, marooning
6 a portion of the expedition, including Cabeza de Vaca who, along with two other Sailors were left behind
7 as the original crew set off to find Panuco, the site of a Spanish colony which had been abandoned.
8 DeVaca left the island he was marooned on in 1532 and eventually crossed the Continental Divide on his
9 quest to reach Panuco (Clow et al 2007: C-14).

10 By 1550 the Spanish determined there was no city of gold in Texas and lessened their expeditions to the
11 area. Although expeditions through Texas slowed in the following century, Spanish interest in Texas
12 continued. As a result, a local Friar, Juan Larios began ministering to the Indian groups south of the Rio
13 Grande in 1671, leading to the expansion of Spanish holdings in Texas and the growth of the Mission
14 system. The Spanish utilized the construction of missions as their primary means of settling Texas, and
15 although this expansion slowed with the Pueblo Revolt of 1680, and was subjected to the smallpox
16 epidemic of 1690-1691, missionization of Texas continued. A French expedition that explored the Red
17 River in 1700 sparked a renewed interest in Texas by the Spanish. In 1714, the Mission San Francisco
18 Solano moved into the San Antonio Valley. Two years later, the Spanish sent an expedition to East Texas
19 to reestablish the mission effort in that area. Led by former French explorer Louis Juchereau de St.
20 Denis, the expedition established five missions: San Francisco de los Neches, Nuestra Senora de los
21 Dolores de los Tejas, Nuestra Senora de las Purisma Concepcion, Nuestra Senora de Guadalupe, and San
22 Jose de lost Nazones. Founded in 1716, new additional missions were constructed within the year. Two
23 new missions were built near the San Antonio River beginning in 1719, Mission San Antonio de Valero
24 and Villa de Bexar (Fehrenbach 2000: 49).

25 *Spanish Colonial Settlement*

26 When Spain decided to colonize Mexico and Texas in the 1700s, they went about doing so with a three
27 pronged approach consisting of presidios, missions, and civilian settlements. Presidios, or fortified
28 settlements, typically developed to serve as protection for the missions. Settlement around San Antonio
29 began with the creation of five missions, Mission San Antonio de Valero (later known as the Alamo) was
30 completed in 1718, Mission San Jose (1720), Mission Nuestra Senora de las Purisima Concepcion (1731),
31 Mission San Juan Capistrano (1731), and Mission San Francisco de la Espada (1731). Founded in 1718
32 by Martin de Alarcon, the settlement of San Antonio included an “engineer, stone mason, blacksmith, and
33 women and children” (Clow et al 2007: C-17). The settlement of San Antonio consisted of wood and
34 mud huts during its early years, with everyone depending on the garrison for their protection. El Camino
35 Real, also known as Kings Highway or Old San Antonio Road established access to the region shortly
36 after the arrival of a group of Spaniards from the Canary Islands. This group quickly took control of the
37 government as well as the land previously claimed by Mexican settlers to the region. This new group of
38 settlers aroused anger with the Mexican settlers who had previously controlled the government and land.
39 Although the location of the Old San Antonio Road varied due to seasonal by season and year, the road
40 opened opportunities for the region and San Antonio in particular (Clow et al 2007: C-17).

41 The lands outside the boundaries of San Antonio were utilized as large-scale ranching ventures during the
42 18th century. At the end of the Seven Years War in 1762, Spain received the Louisiana Territory,
43 including current-day Texas from France and proceeded to expand the Spanish influence in the region.
44 The American Revolution encouraged growth in Spanish-held Texas and settlers of the region discovered

1 they could sell their cattle to not only the Spanish, but also settlers in Louisiana. By 1793, the missions
2 were secularized and the mission system largely abandoned. As a result of the Louisiana Purchase of
3 1803, a “no-man’s land” of sorts was created between Texas and Louisiana, leading to increased tensions
4 between settlers and invading Indians. By 1810 Spanish rule was rapidly deteriorating in Texas and
5 Mexico, leading to Mexican Independence in 1821 (Fehrenbach 2000: 130).

6 *Mexican Statehood*

7 While under Spanish rule, immigration to Texas was almost non-existent due to a fear that American
8 settlers would take control of the lands. Under Mexican authority, the laws regarding American
9 immigration to Mexico and Texas changed to allow for Euro-American settlement in the region. These
10 new settlements were established with the hope that the new settlers would form a barrier between
11 established settlements and the threat of Indian attack. Moses Austin received permission from the
12 Mexican government to bring 300 families to Texas in 1821, a goal completed by his son Stephen F.
13 Austin, for whom Austin is named (Anderson 1999: 255).

14 In 1824, the newly issued Republic Constitution of Mexico turned the former Spanish provinces into
15 sovereign states and combined Texas with Coahuila with Saltillo named as the capital. The now
16 sovereign legislature of Coahuila passed a colonization law in 1825 that continued the open policy toward
17 Euro-American settlement. At that time, there were 26 empresarios in Texas and over 20,000 Euro-
18 Americans and their slaves in the state of Coahuila (Clow et al 2007: C-20). A part of this large increase
19 in settlement was the opening and improvement of roadways throughout Mexico.

20 The increase in Euro-American settlers in Mexico and their power within the country led Mexican
21 officials to pass the Decree of April 6, 1830 which prohibited further colonization of Mexican territory by
22 citizens of adjacent countries as well as the importation of slaves (Fehrenbach 2000: 165). A series of
23 conflicts between the Mexican government and Euro-American settlers caused marked unrest from 1832-
24 1835 and led to the event that sparked a revolution. In 1835, the Mexican Army crossed the Rio Grande
25 River headed to San Antonio to stop the revolts of the Euro-American settlers; however, on their journey
26 they caused havoc in several towns, leading to a full-scale revolt. On March 2, 1836 the Texas
27 Declaration of Independence was signed at Washington-on-the-Brazos, signifying an end to Mexican rule
28 over Texas. The Battle of the Alamo began on February 23, and resulted in a 13-day siege against the
29 Texian and Tejanos defending the Alamo from the Mexican Army. Although the Battle of the Alamo was
30 lost to the Mexican Army, it served as another rallying cry for the newly formed Republic of Texas (Clow
31 et al 2007: C-21).

32 *The Republic of Texas*

33 Following the creation of the Republic of Texas in 1836, the newly formed government held its first
34 election, where an overwhelming majority voted for annexation to the U.S. However, the issue of slavery
35 kept the U.S. from making an offer to the fledgling nation. The result was the election of Sam Houston to
36 the Presidency of the Republic of Texas. That same year, Bexar County was formed
37 (<http://www.tshaonline.org/handbook/online/articles/BB/hcb7.html>).

38 The Texans and Mexicans fought continued battles in the area around San Antonio for the next decade.
39 In 1842, a Mexican general by the name of Rafael Vasquez occupied San Antonio for a brief time, and in
40 September of that same year Adrian Wolf led a Mexican invasion into San Antonio which actually seized
41 the city (Clow et al 2007: C-22). As a result of these continued tensions, the population of San Antonio
42 was dramatically decreased. The annexation of the Republic of Texas to the U.S. in December 1845
43 began a period of renewed growth in San Antonio.

1 *Early Statehood*

2 During the early years of statehood, Texas, and more importantly San Antonio, was known for their
3 development and industrialization as well as their improved commerce. San Antonio became the center
4 of stagecoach traffic in central Texas and grew to a population of 3,500 by 1850. Six years later, San
5 Antonio boasted a population of 10,000 and a continued importance in the production of goods and
6 manufacturing industries (Clow et al 2007: C-22). When the south voted to secede from the U.S., Texas
7 sided with the southern states and joined the Confederate States of America. In 1862, as part of Texas'
8 role in the Civil War, San Antonio was named the Confederate Army HQ.

9 *Post Civil War and the Twentieth Century*

10 Although chosen as the Confederate Army HQ, the San Antonio region was minimally impacted by the
11 Civil War as a result of its distance from the heavy fighting. However, the economic impacts of the Civil
12 War were felt within the city. The more pressing issues in San Antonio during the war years was the
13 drought which began in 1863 and continued throughout the end of the war. Shortly after the war, the city
14 was struck by a cholera epidemic that forced many people from their homes in the city in search of a
15 healthier environment. These two events, when combined with the Civil War were devastating to the
16 economy of San Antonio. San Antonio's economic recovery began with the large number of cattle
17 running free-range around the city. These cattle formed the basis for the South Texas ranching industry
18 and led to San Antonio serving as a staging ground for the trade and land speculation. Additionally, the
19 development of the local wool industry added to San Antonio's position of power in agronomics. The
20 last pivotal aspect of the economic recovery of San Antonio lay with the decision of many freed Blacks to
21 remain in San Antonio, giving the city a populous labor market to populate the growing industries.
22 Although the area surrounding San Antonio was largely agricultural by the 1840s, a large portion of the
23 rest of the state was served by large-scale and small-scale ranching endeavors. An economic depression
24 in the 1880s changed the face of Texas agriculture permanently, due to the subdivision of many ranches
25 lost to foreclosure or subdivision into smaller farms.

26 Another key step in the economic recovery of San Antonio came with the arrival of the railroad in 1877.
27 It improved transportation for people and goods and allowed for easier immigration. By 1900 five
28 railroads crossed in San Antonio, allowing for consistent population growth. San Antonio became the
29 HQ of oil producers and operations in the twentieth century and due to the deposits of stone, clay, sand,
30 and gravel, the city continues to support the construction industry. While industry continued to grow in
31 San Antonio, land use in Bexar County was undergoing a change from ranching to farming. By 1930
32 crop production surpassed livestock production in Bexar County as a result of the changing face of
33 agriculture (Clow et al 2007: C-23-24). Within Bexar County, 70% of the land is still utilized by
34 agriculture and stock raising (Clow et al 2007: C-25).

35 3.9.1.2 Fort Sam Houston

36 As early as 1845, the U.S. Army operated a post at San Antonio. In the early days, the post served as a
37 center for operations against Native American aggression and the Mexican War; however, none of the
38 facilities utilized by the Army were owned by the government. Following the Treaty of Guadalupe
39 Hidalgo, which ended the Mexican-American War in 1848, San Antonio became the HQ of the U.S.
40 Army Eighth Military District. Over the next three years, San Antonio offered land to the U.S.
41 government six times in their bid to obtain a permanent military installation. The government accepted
42 an offer of land for an arsenal in 1852; however, construction of the arsenal did not begin until 1858
43 (Clow et al 2007: C-25).

1 The U.S. military left San Antonio during the Civil War and did not return until 1866. The return of
2 federal troops to San Antonio led the city to resume its push for a permanent installation, and between
3 1870 and 1875, the government accepted three land donations totaling 92 acres
4 (<http://www.samhouston.army.mil/pdf/FSHBackground.pdf>). Funding for a permanent Quartermaster
5 Depot was completed in 1875 and construction began the following year. The Depot officially opened for
6 use in 1879, although the building had been housing personnel and supplies since 1877. Permanent
7 housing was virtually complete by 1881 in the area surrounding the current Staff Post.

8 Congress's 1884 decision to consolidate military installations led to continued growth at FSH. The
9 majority of buildings associated with this phase of construction were completed by 1890 and a 310-acre
10 site was acquired by the Fort to house a rifle range. Between 1895 and 1913, FSH experienced rapid
11 growth. In 1898 the Department of Texas was replaced with the Fifth Military District out of Atlanta,
12 Georgia, causing the citizens of San Antonio to worry about continued growth at FSH. This fear eased
13 when the Department of Texas was reestablished in 1899 and headquartered at Fort Sam Houston.
14 Around this same time, troops deploying to the Spanish American War were undergoing training and
15 equipping at FSH, including Theodore Roosevelt and his Rough Riders (FSH NHLD Nomination).

16 As a result of the increased utilization and population of Fort Sam, the Post installed sewer and plumbing
17 systems in 1901-1902 and proceeded to construct new officer's quarters, a parade ground, cavalry
18 barracks, mess halls, kitchens, lavatories, artillery barracks and a hospital between 1904 and 1906. In part
19 due to this continuous expansion of services Fort Sam was chosen as one of seven brigade-sized Posts
20 during this era. Further land was purchased in order to increase the capabilities of the Fort and by 1910
21 the original buff-colored brick construction was replaced by red-brick buildings.

22 The Army's permanent flight station was established in San Antonio in 1909 and the Signal Corps'
23 airplane moved to the Fort in 1910 (FSH NHLD Nomination). The following year, approximately 1,200
24 troops arrived at FSH for maneuver drills in what was referred to as the "largest peacetime assembly of
25 troops that had ever occurred" (Clow et al 2007: C-27). Included in these maneuvers were Douglas
26 MacArthur and George C. Marshall. By 1914 FSH was the largest Army installation in the U.S.
27 measuring around 600 acres with continued expansion. From 1913-1916 an aviation center was
28 constructed at FSH to house the First Aero Squadron. This squadron, originally housed at Fort Sill,
29 Oklahoma, was dispatched to New Mexico as part of Pershing's expedition against Pancho Villa in 1916
30 (Clow et al 2007: C-27).

31 The National Army Cantonment at FSH, known as Camp Travis, was constructed in 1917 following a
32 plan designed by well-known landscape architect and planner George E. Kessler. Both Fort Sam and
33 Camp Travis served as demobilization centers in 1918. Following World War I, permanent construction
34 at Fort Sam included the expansion of the Quartermaster Depot and the construction of the New General
35 Supply Depot. In 1921 the Southern Department of the Army was reorganized into the Eighth Corps
36 Area (consisting of Texas, Oklahoma, Colorado, New Mexico, and Arizona) whose new offices were
37 housed in the Quadrangle at FSH. The need for new housing led to the construction of four new barracks
38 and garages during the late 1920s and early 1930s (Clow et al 2007: C-28).

39 The 1930s were a time of growth at FSH when the Post and Camp Bullis became one of 73 conditioning
40 camps for the Civilian Conservation Corps. Additionally, during this era the FSH Cemetery was made
41 part of the San Antonio National Cemetery, and over thirteen new buildings were completed, including a
42 new theater. During the years between 1935 and WWII, while the Second Division was garrisoned at
43 Fort Sam, the installation constructed new medical facilities new (FSH HPC 2006: 31).

1 The outbreak of WWII resulted in a massive construction effort at FSH, including over 400 barracks and
2 the necessary offices, fire stations, clinics, shops, and other facilities to accommodate the increased
3 number of Soldiers on the installation. During the war, the Fort Worth and San Antonio Quartermaster
4 Procurement Districts combined and moved their HQ to FSH, while Brooke Army Hospital served as an
5 important medical and training facility. Following the war, Fort Sam served as a separation center and
6 moved its focus to its medical mission. As such, the Medical Field Service School (MFSS) transferred to
7 FSH in 1945 from its previous location in Carlisle, Pennsylvania. The following year, the Institute of
8 Surgical Research relocated to Fort Sam, placing FSH in the forefront of Army Medicine. The Army
9 chose to reactivate the Medical Replacement Training Center (MRTC) in 1950 at Brooke Army Medical
10 Center (BAMC) and in 1954 the center was re-designated as the Medical Training Center (MTC) (Clow
11 et al 2007: C-30).

12 During the Korean War, BAMC treated over 5,000 casualties and established two emergency Medical
13 Treatment Units that were tested at FSH. The growing focus on medicine necessitated further growth at
14 Fort Sam, and by 1960 a hanger-heliport and applied instruction had been added to the facility. FSH
15 prepared troops for mobilization to Cuba in the 1960s, and deployed the 57th Medical Detachment to
16 Vietnam in 1962. The first operational Medical Unit Self-Contained Transportable (MUST) hospital was
17 used by a unit from Fort Sam in 1966, although this unit was later replaced (Clow et al 2007: C31). Each
18 MUST contained all necessary functions of a hospital to provide care for up to 250 individuals in a war
19 zone. Unlike a typical hospital, the MUST could be broken down and transported to various locations. In
20 addition to providing medical support to the war in Vietnam, FSH and Camp Bullis also provided the
21 Soldiers with a working knowledge of Vietnamese culture prior to their deployment.

22 The MFSS Center and MTC Dormitory Complex were constructed during the Vietnam War, with the
23 MFSS Complex designed in the International Style. In 1973, the Army Medical Department reorganized
24 and the consolidated command was then headquartered at FSH. The new BAMC was completed in 1995
25 housing the Institute of Surgical Research, an inpatient psychiatric unit, and a medical research lab while
26 the original BAMC constructed in 1937 was adapted for re-use. Construction at FSH continued during
27 the Cold War with the addition of school buildings, a swimming pool complex, Child Support Service
28 Center, Youth Center, Army Reserve Center and Army Reserve Maintenance Shop, a Museum, Cafeteria,
29 and gas station (Clow, et al 2007: C-31-32).

30 National Historic Landmark District, National Register of Historic Places, and Landscape Features

31 FSH was designated a NHLD on May 15, 1975. Additionally, five structures were individually listed on
32 the National Register of Historic Places (NRHP). They are:

- 33 • Quadrangle (Building 16)
- 34 • Clock Tower (Building 40)
- 35 • Pershing House (Quarters 6)
- 36 • Gift Chapel (Building 2200)
- 37 • Old BAMC (Building 1000).

38 As delineated, the NHLD contains 257 eligible properties that are also determined to be contributing
39 elements to the NHLD (Figure 3.9-1). Outside the boundaries of the NHLD 627 buildings and 21
40 structures on FSH are considered eligible for nomination to the NRHP.

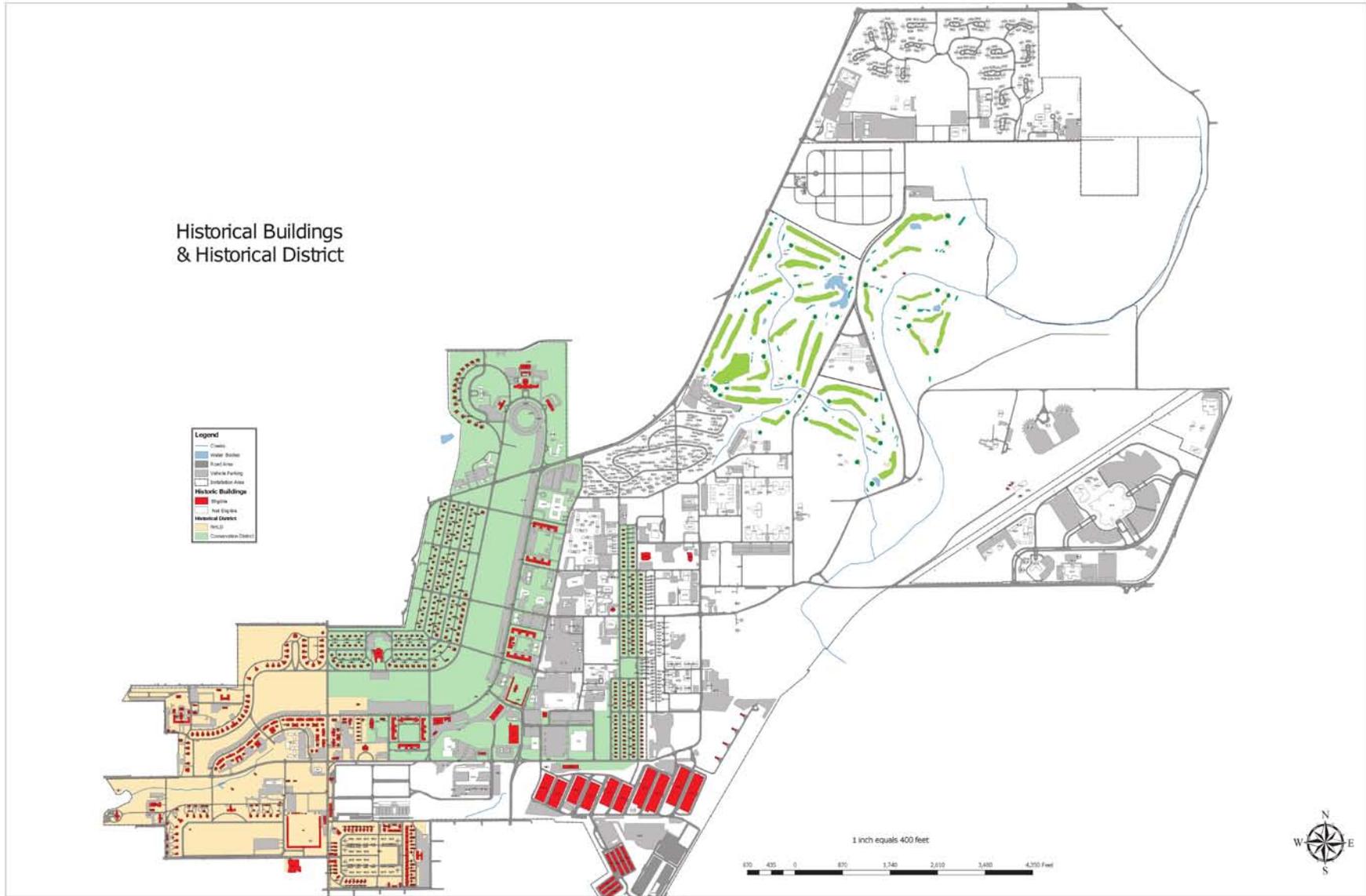


Figure 3.9-1. FSH Historic Map

1 In addition to the buildings and structures that are considered eligible for nomination to the NRHP,
 2 historic cultural landscapes are another aspect of a historic site which is eligible for nomination. A
 3 cultural landscape is defined by the National Historic Preservation Act (NHPA) of 1966 as “a geographic
 4 area, including both cultural and natural resources and the wildlife or domestic animals therein, associated
 5 with a historic event, activity, or person or exhibiting other cultural or aesthetic values” (Preservation
 6 Brief 36). The landscapes at FSH have been identified as historic vernacular landscapes associated with a
 7 historic site. A historic vernacular landscape is defined as a landscape that evolved through the use of
 8 people whose activities shaped the land (Preservation Brief 36). Two landscape surveys conducted at
 9 FSH determined the number and eligibility of any landscape features located at the Fort. A 1996
 10 USACERL study and a 1997 Cultural Resource Management Plan identified the areas of the installation
 11 where historic landscapes are present (Table 3.9-2). These surveys identified fourteen different
 12 landscapes, thirteen of which are considered eligible for nomination to the NRHP, and thus are
 13 contributing elements to the NHLD and Conservation District.

Table 3.9-2. Identified Historic Cultural Landscape Features

<i>Historic Landscape</i>	<i>Eligibility Recommendation</i>	<i>Date Constructed</i>
Quadrangle	Eligible	1876-1946
Staff Post	Eligible	1881-1946
Infantry Post	Not Eligible	1885-1946
Cavalry/Light Artillery Post	Eligible	1906-1946
Channel Pastures	Eligible	1875-1946
New Post	Eligible	1926-1946
Gorgas Circle	Eligible	1930s-1946
Depot	Eligible	1917-1946
NCO Housing*	Eligible	1930s-1946
Golf Course	Eligible	1930s-1946
National Cemetery	Eligible	1931-1946

14 In addition to housing a NHLD, and thirteen NRHP eligible landscape features, FSH also contains a
 15 Conservation District. According to the NHPA, a historic conservation district is defined as an area
 16 which contains any of the following: historic properties, buildings having similar or related architectural
 17 characteristics, cultural cohesiveness, or any combination of these features. FSH’s Conservation District
 18 is comprised of the New Post area of the Fort that was constructed between 1918-1939. The buildings
 19 located within the New Post are all of a Mission/Spanish Colonial Revival style and are sympathetic to
 20 the design of the earlier construction at the Fort. Additionally, as a result of choosing this style of
 21 architecture, builders and architects were able to take advantage of locally available materials which were
 22 suited to the climate.

23 The New Post Conservation District was part of a 2002 draft nomination to expand the current NHLD at
 24 FSH. This nomination, completed in part to serve as a management tool for the installation also sought to
 25 clarify the contributing and noncontributing properties within the NHLD for future reference.

26 3.9.1.3 Status of Cultural Resource Inventories and Section 106 Consultations

27 Section 106 of the NHPA of 1966 as amended, requires that all federal agencies take into account the
 28 effects of their undertakings on historic properties. These properties can include buildings, structures,
 29 locations, features, and objects older than 50 years and which are currently listed on, or eligible for
 30 nomination to, the NRHP.

1 The NHPA defines a historic property as “any prehistoric or historic district, site, building, structure, or
2 object included in, or eligible for inclusion on the National Register...” (16 USC 470w). Under the
3 NHPA as amended, only significant historic cultural resources, known or unknown, warrant consideration
4 with regard to adverse impacts from a proposed action. Archaeological and architectural resources
5 generally must be more than 50 years old to be considered for protection under the NHPA. However,
6 more recent structures, such as Cold War era military buildings, may warrant protection if they are
7 “exceptionally significant.” To be considered significant, archaeological or architectural resources must
8 meet one or more criteria as defined in 36 CFR 60.4 for inclusion in the NRHP. These criteria include
9 association with an important event, association with a famous person, embodiment of the characteristics
10 of an important period in history, or the ability to contribute to scientific research. Resources must also
11 possess integrity (i.e., important historic features must be present and recognizable).

12 Traditional Cultural Resources or Properties (TCPs) can be evaluated for NRHP eligibility as well.
13 However, even if a traditional resource is determined to be not eligible for the NRHP, it may still be
14 significant to a particular community or Native American tribe and protected under other laws and
15 regulations discussed below. The significance of a TCP is usually determined by consulting with the
16 appropriate group.

17 Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other
18 physical evidence of human activity considered important to a culture, subculture, or community for
19 scientific, traditional, religious, or other reasons. Cultural resources can be divided into three major
20 categories: archaeological resources, architectural resources, and TCPs.

21 Archaeological resources are locations where human activity measurably altered the earth or left deposits
22 of physical remains (e.g. stone flakes, arrowheads, or bottles). Archaeological resources can be classed as
23 either sites or isolates, and may be either prehistoric or historic in age. Isolates often contain only one or
24 two artifacts, while sites are usually larger and contain more artifacts. These resources can include
25 campsites, roads, fences, trails, dumps, battlegrounds, mines, and a variety of other features.

26 Architectural resources are standing buildings, dams, canals, bridges, and other structures of historic or
27 architectural significance.

28 TCPs are resources associated with the cultural practices and beliefs of a living community that link that
29 community to its past and help maintain its cultural identity. Traditional cultural resources can
30 encompass a variety of subjects including archaeological resources and architectural resources, as well as
31 sacred areas or objects, sources of raw materials, and traditional hunting and gathering areas. In the
32 project area, TCPs are generally associated with Native American groups.

33 Several other federal laws and regulations have been established to manage cultural resources, including
34 the Archaeological and Historic Resources Preservation Act (1974), the Archaeological Resources
35 Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990). In
36 addition, coordination with federally recognized Native American tribes must occur in accordance with
37 the American Indian Religious Freedom Act (1978); EO 13007, *Indian Sacred Sites*; EO 13175,
38 *Consultation and Coordination with Indian Tribal Governments*; and the DoD requirements relating to
39 the *Annotated American Indian and Alaska Native Policy* (1999), which emphasizes the importance of
40 respecting and consulting with tribal governments on a government-to-government basis. This policy
41 requires an assessment through consultation of the effect of proposed DoD actions that could significantly
42 affect tribal resources, tribal rights, and Indian lands before decisions are made by the respective services.

1 In 2006, an ICRMP was completed for FSH and concurred with by the State Advisory Council. For Sam
 2 Houston implemented the Army Alternate Procedures (AAP) in March 2006, replacing the Section 106
 3 consultation requirements previously utilized by the Fort. Section 106 is part of the NHPA of 1966 and
 4 Army Regulation 200-4. In its place, the AAP provides a set of Standard Operating Procedures (SOPs)
 5 that are a guideline for FSH's Cultural Resource Staff in evaluating the cultural resources and managing
 6 the undertakings that may impact archaeological sites and historic properties located on FSH. Although
 7 the AAP eliminates the need for consultation prior to any proposed undertaking, it stipulates that the
 8 installation conduct biannual monitoring meetings to insure the appropriate application of the AAP with
 9 the state and other interested parties.

10 3.9.1.4 Native American Resources

11 Numerous archaeological surveys have been conducted to assess the archaeological resources located at
 12 FSH. To date, 13 archaeological sites have been recorded within the boundaries of FSH (Table 3.9-3).

Table 3.9-3. Previously Recorded Archaeological Sites at FSH

<i>Site Number</i>	<i>Type</i>	<i>NRHP Eligibility</i>
41BX194	Prehistoric	Not Eligible
41BX389	Prehistoric	Not Eligible
41BX422	Prehistoric	Not Eligible
41BX778	Historic	Not Eligible
41BX779	Historic	Not Eligible
41BX779.2	Historic	Not Eligible
41BX780	No information	Not Eligible
41BX880	Prehistoric and Historic	Not Eligible
41BX1209	No information	Not Eligible
41BX1405	Prehistoric	Not Eligible
41BX1406	Prehistoric	Not Eligible
41BX1407	Prehistoric and Historic	Not Eligible
41BX1408	Historic	Not Eligible

Note: Information from the Texas Restricted Cultural Resource Information System

13 As a result of the high disturbance of lands at FSH, the potential for discovery of additional prehistoric
 14 archaeological sites is low (Clow et al 2007: 3-14). The possible exception to this are the two floodplain
 15 areas along Salado Creek. Previously recorded sites 41BX1209 and 41BX1407 are located within this
 16 area leading archaeologists to believe there could be further sites located in these floodplains (Clow et al
 17 2007: 3-14).

18 Due to the long history of FSH, it is possible that historic archaeological sites remain within the
 19 boundaries of the post. Over the course of expansion, many structures at the installation have been
 20 removed or demolished. A large number of these structures were associated with the Quadrangle, Staff
 21 Post, Cavalry Post, and Infantry Post. Additionally, it is possible that unrecorded farmsteads remain at
 22 FSH.

23 To date no studies have been conducted concerning TCPs of importance to federally recognized Indian
 24 Tribes. At this time, no culturally affiliated tribes have indicated any TCPs are located within FSH (Clow
 25 et al 2007: C-17).

1 **3.9.2 Environmental Consequences**

- 2 The following Table 3.9-4 summarizes the potential environmental consequences of the master planning
 3 actions alternative and the No-Action Alternative.

Table 3.9-4. Summary of Potential Environmental Consequences

Project	Master Planning Actions Alternative				No-Action Alternative			
	<i>Direct</i>	<i>Indirect</i>	<i>Adverse</i>	<i>No Impact</i>	<i>Direct</i>	<i>Indirect</i>	<i>Adverse</i>	<i>No Impact</i>
Building 197	X		X		X		X	
McArthur Field Running Track	X		X		X		X	
Historic Theatre, Building 2270	X		X		X		X	
IMCOM HQ	X		X					X
IMCOM Campus Area Development	X		X					X
METC Parking Lot	X		X		X		X	
Sixth Army Command and Control Center		X	X					X
Sixth Army Special Troops Command and Control Center		X	X					X
Widen Scott Road				X				X
Fifth Army Special Purpose Facility		X	X					X
Battle Command Training Center Phase II		X						X
UPH PP Barracks	X		X					X
Second Medical Logistics Company TEMF with Company Operations Facility				X				X
Drainage System Improvements, Scott Road and Wilson Street				X				X
Drainage System Improvements, Buildings 2248-2250	X		X					X
Chapel Building 1398				X				X
Recreation Center Building 1462				X				X
Student Trainee Adult Sports Park				X				X
TEMF Area Development				X				X
470th ME BDE HQ Complex				X				X
Schofield Road				X				X

Project	Master Planning Actions Alternative				No-Action Alternative			
	Direct	Indirect	Adverse	No Impact	Direct	Indirect	Adverse	No Impact
Training Aids Center				X				X
Drainage Improvements, Patch Road				X				X
Schofield Road ACP				X				X
Salado Creek Crossing				X				X
George Beach/I-35 ACP/VCP				X				X
91 W AIB				X				X
Drainage System Improvements, Winans Road and Nursery Road				X				X
Drainage System Improvements, BAMC				X				X

1 3.9.2.1 Master Planning Actions Alternative

2 Building 197

3 Constructed in 1912, Building 197 is part of the Cavalry and Light Artillery Post. It is a two-story,
 4 stucco-clad structure with a rectangular, concrete foundation. A hipped, red-clay tile roof with
 5 ornamental wood rafter tails covers the building. The primary façade has a two-tiered veranda while the
 6 rear façade contains veranda porches. The building contains multi-light double-hung sash windows with
 7 wood and metal frames. Building 197 is one of three buildings of the Stucco Barracks and Mess Hall
 8 type identified as Type 6 by the FSH Maintenance and Repair Plan (FSH Maintenance and Repair Plan).

9 Located near the intersection of Wilson Street and Stanley Road, Building 197 has been determined to be
 10 a contributing element to the FSH NHLD (Figure 3.9-2). The building has a fair historic physical
 11 integrity, maintaining its integrity of setting, location, materials, feeling, and association. However, the
 12 integrity of design and workmanship of the building have been altered by the infill of several windows,
 13 replacement doors, fire escapes, as well as alterations to the rear first floor porch. A Phase I Existing
 14 Conditions Assessment for Building 197 was completed in May 2009 in accordance with the Army
 15 Alternate Procedures (AAP) Historic Properties Component (HPC) of the ICRMP for historic buildings.
 16 This assessment was conducted in order to determine the feasibility of demolition, rehabilitation, or
 17 leaving the building as it currently sits.



Figure 3.9-2. Building 197, Principal Facade

1 As a result of the Phase I study, it was determined the most feasible and cost effective option for Building
 2 197 is demolition. The results of the Phase I assessment are located in Table 3.9-5.

Table 3.9-5. Criteria for Analysis of Building 197

Action Alternatives	Alternative Analysis for Building 197		
	<i>Meets Purpose and Need of the Installation</i>	<i>Addresses Health & Safety Issues</i>	<i>Economically Feasible</i>
Demolition	X	X	X
Replacement	X	X	
Rehabilitation	X	X	

*See Phase I Existing Conditions Assessment of Building 197, Fort Sam Houston, Texas for further information on this assessment.

3 Based on the three criteria identified for evaluation of Building 197, the only feasible option for the
 4 building is demolition. The demolition of this building is considered a direct impact and an Adverse
 5 Effect to an individually eligible NRHP property and contributing element to the NHLD. Implementation
 6 of the mitigation measures in Section 3.9.2.3 of this EA would reduce the impacts to lessen their
 7 significance by preserving the building’s historic features and heritage in a record that would be made
 8 available to the public.

1 MacArthur Field Running Track

2 In order to support the Soldiers on Post, FSH proposes constructing a running track around the entire
3 periphery of the parade ground. Constructed in phases, the track would measure approximately 22 feet in
4 width and be associated with the Morale, Welfare, and Recreation (MWR) program authorized by AR
5 215-1. Completed as part of the expansion of the Fort between 1904 and 1906, the portion of the parade
6 ground located within the NHLD is a contributing element, while the portion located in the Conservation
7 District is a contributing element of the district and eligible for nomination to the NRHP as a landscape
8 feature. The parade ground runs between Artillery Post Road and Building 1000 (Brooke Army Medical
9 Center). This action would result in the removal of 22 feet of the parade ground on its perimeter and can
10 be considered a direct adverse impact to the historic parade ground landscape. As a result of the parade
11 ground's horizontal nature, the construction of the running track would occur over the resource. Despite
12 this, the visual aspect of the parade ground would not be impacted, thus due to the lack of impact on the
13 traditional viewshed of this resource, it is determined the potential adverse impact would be lessened.

14 Renovate and Expand FSH Historic Theatre, Building 2270

15 Constructed in 1935, the FSH Historic Theatre is a 14,692-SF building seats 1,104 people (Figure 3.9-3).
16 Built in the Mission/Spanish Colonial Revival style and clad in stucco, the theatre is associated with the
17 construction of the New Post (1926-1946). According to the FSH Maintenance and Repair Plan, the FSH
18 Historical Theatre is Type 11 under the New Post. The building has a primary three-story rectangular
19 construction with a four-story Mission-style tower. Both roofs have flat, built-up roofs with parapets.
20 The principal façade contains a projecting five-bay, one-story porch with arched, open entries. At the
21 center of the porch is an octagonal, wood and stucco ticket booth. Additionally, a Spanish Baroque-
22 influenced cast-stone ornamentation is located around a centered second-story window on the principal
23 façade that accents the tower parapet. The sides of the theatre are typically plain with no openings except
24 their entries.

25 Building 2270 is a contributing element to the FSH Conservation District, as well as individually eligible
26 for nomination to the NRHP under Criterion A and C. Currently the building is not utilized due to its
27 inability to meet current entertainment needs and its substandard condition. The theatre is not large
28 enough to handle the needs of the Army Entertainment Division. Under the Proposed Action, thus the
29 theatre would be renovated and expanded at the rear. The expansion, which is slated to support the CFSC
30 Army Entertainment Division, would comply with AAP regulations regarding alterations and additions to
31 buildings which are considered NRHP eligible, and contributing elements to the Conservation District.
32 Once completed, the renovated theatre would be 40,000-SF.



Figure 3.9-3. Building 2270, Fort Sam Houston Theatre

1 The Proposed Action alternative includes renovating the current theatre as well as increasing its square
2 footage by roughly 25,000 SF to reach 40,000 total SF. The conceptual design of the addition will wrap
3 around the back of the building to the rear doors and only impact the original building along the rear
4 façade and the back of the stage area. The addition to this building is a direct, adverse impact to a NRHP
5 eligible building, which is also a contributing element to the Conservation District. However, the
6 proposed design follows the National Park Preservation Brief 14: New Exterior Additions to Historic
7 Buildings. As a result of the careful planning involved in the addition and adherence to both the National
8 Park Service standards and the AAP, this project is being mitigated as it is completed, with the
9 restoration, retention, and replication of the character defining features associated with this property.

10 *IMCOM HQ*

11 The proposed construction of a new IMCOM HQ is located in the center of the 2200 block quadrangle.
12 This location is situated within the Conservation District between four buildings: 2263, 2264, 2265, 2266
13 (Figure 3.9-4). Construction of Buildings 2263, 2264, and 2266 was completed in 1928, while building
14 2265 was finished in 1929. Each of these buildings are identified as Type 8 – Stucco, Stone, and Tile-
15 Roofed Barracks within the New Post by the FSH Maintenance and Repair Plan. Built to house battalion
16 size troops and their HQ, each of these buildings are stucco-clad, three-story structures with Mission
17 barrel tile roofs. Their foundations are reinforced round columns with semi-conical footings and
18 reinforced concrete columns and beams support their superstructures along with hollow tile walls.

19 Each building has a central entrance with cast-stone surrounds located on all entries and second-story
20 windows above the entries. Three-story veranda porches are located across the rear of the buildings.



**Figure 3.9-4. Location of Proposed New IMCOM HQ,
Building 2266 in Background**

1 The proposed Action is to construct a new IMCOM HQ building in the middle of these four buildings.
2 The action would include the removal of the concrete parking infrastructure as well as construction of the
3 new three-story IMCOM HQ designed to accommodate the administrative needs of IMCOM within its
4 175,000-SF design. The location of the proposed construction is within the Conservation District and is
5 considered an indirect, adverse impact to the district. Located within the quad created by buildings 2263,
6 2264, 2265, and 2266, the new construction would not be seen from the roadway, thus not directly
7 impacting the viewshed of the Conservation District. Additionally, the proposed construction is guided
8 by the installation's design guidelines and the AAP, ensuring the new building would comply with new
9 construction guidelines within the Conservation District.

10 IMCOM Campus Area Development

11 In order to fulfill the necessary AT/FP requirements as well as to ease traffic congestion, FSH proposes to
12 realign and extend a number of roads adjacent to the proposed IMCOM HQ in the 2200 block quadrangle.
13 The proposed road projects include widening Wilson Street to five lanes between Scott Road and New
14 Braunfels Avenue, realigning Reynolds Road between Stanley Road and Wilson Street, Extending
15 Reynolds Road from Wilson Street to Hood Street, and replacing and widening Jessup Road between the
16 extended Reynolds Road and Second Street. The realignment of Stanley Road is meant to create proper
17 AT/FP stand-off space for buildings in the area. However, this realignment would move Stanley Road
18 into the parade ground. Additionally, a 1500-space parking lot would be constructed on the parade
19 ground, a 260 space paved parking lot would be added west of Connell Road, a 100 space paved parking
20 lot would be added south of Building 2265, and a 600 space paved parking lot would be added south of
21 the proposed MWR building.

1 Currently the area comprising the Proposed Action is a gravel parking lot with concrete parking stops that
2 form a barrier between the parking area and the parade ground (Figure 3.9-5). The Proposed Action is
3 located within the FSH Conservation District, and be a direct, adverse impact to the NRHP eligible parade
4 ground. The Proposed Action results in the removal of a portion of a historic landscape feature. Due to
5 the linear nature of the resource, the proposed construction of a parking area on the parade ground would
6 have a direct, adverse effect to the parade ground itself; however, the project would not impede the
7 viewshed of the resource as a whole.



**Figure 3.9-5. IMCOM Campus Area Parking Lots,
Currently a Gravel Parking Lot on Parade Field**

8 METC Parking Lot

9 The proposed location of the METC Parking Lot is located north of Building 2270 on the parade ground.
10 Located along Austin Road, the proposed parking lot would accommodate approximately 950 vehicles on
11 its 390,000-SF expanse. The location is currently a gravel-covered parking lot (Figure 3.9-6). The
12 Proposed Action would entail paving this section of the parade ground. This action is located within the
13 FSH Conservation District and would be a direct, adverse impact to the NRHP eligible parade ground.
14 The Proposed Action results in the paving of a portion of the parade ground, thus having a direct, adverse
15 impact to the resource itself. However, the Proposed Action would result in the paving of an area of the
16 parade ground which is currently being utilized as a parking lot. Thus, the effects of the proposed action
17 would not serve as a new alteration to the resource.



Figure 3.9-6. Current METC Parking Lot with BAMC Building in Background

1 Construct Sixth Army Command and Control Facility

2 The proposed construction of the Sixth Army Command and Control Facility is located at the northern
3 edge of the FSH Conservation District adjacent to the BAMC and the proposed METC parking lot. The
4 location of this Proposed Action is currently an empty lot and would not result in the demolition of any
5 structures. The Proposed Action would have an indirect, adverse, visual impact on the 1935 BAMC
6 building. This building is NRHP eligible and is located within the Conservation District. However, due
7 to the large expanse of space between the original BAMC building and the proposed construction, the
8 effect would be lessened. Additionally, the new construction would follow design guidelines as detailed
9 in the AAP and follow the necessary steps to construct a new building within the Conservation District.

10 Construct Sixth Army Special Troops Command and Control Facility (HQ and TEMF with COF)

11 The proposed construction of the Sixth Army Special Troops Command and Control Facility is located to
12 the east of the 1935 BAMC building at the northern edge of the FSH Conservation District. The land
13 designated for this action is currently vacant. The Proposed Action would have an indirect, adverse,
14 visual impact on the NRHP eligible BAMC building and the NRHP eligible parade ground. Due to the
15 distance between the BAMC and parade ground and the proposed construction, the effect of the new
16 construction on the BAMC would be lessened. Additionally, the new construction would follow design
17 guidelines as detailed in the AAP and follow the necessary steps to construct a new building within the
18 Conservation District.

19 Widen Scott Road

20 The Proposed Action entails widening the portion of Scott Road between Schofield Road and Wilson
21 Street from two to four lanes in order to accommodate traffic needs. The majority of Post facilities are

1 accessible via Scott Road. In addition to widening Scott Road, this project would require relocating
2 utilities, improving signal lights, demolishing 10,000 square yards of pavement below the project
3 footprint as well as supporting facilities. This action does not affect any known cultural resources and
4 therefore would not have a direct or adverse impact on cultural resources at FSH.

5 Construct Fifth Army Special Purpose Facility

6 The proposed construction site of the Fifth Army Special Purpose Facility is located at the corner of
7 Reynolds Road and Wilson Street, adjacent to the FSH NHLD and the FSH Conservation District.
8 Because the Proposed Action would be located outside the two districts it would have an indirect adverse
9 effect the districts due to visual impacts.

10 Battle Command Training Center Phase II

11 The proposed Battle Command Training Center Phase II construction is located Jessup Road and Second
12 Street and is located adjacent to the FSH Conservation District. This action would have an indirect effect,
13 not resulting in an adverse impact on the Conservation District.

14 Unaccompanied Enlisted Personnel Housing, Permanent Party Barracks

15 The proposed Unaccompanied Enlisted Personnel Housing, Permanent Party (UPH PP) barracks is
16 located in an unoccupied area within the NHLD. Although the action will not demolish any supporting
17 element to the NHLD, the action would have a direct, adverse visual impact to the NHLD. The proposed
18 construction is located directly adjacent to a large stone wall which is part of the Quadrangle section of
19 the installation and is a contributing element of this landscape feature. The construction of this 80,000 SF
20 building would alter the sight line of the district, obstruct the view of the historic wall and diminish the
21 integrity of the landscape and district, causing a direct adverse impact.

22 The proposed UPH PP has already undergone a level of mitigation during its design phase. Originally,
23 plans called for the construction of three barracks to accommodate the housing needs of the installation;
24 however, it was decided two buildings would be able to accomplish this objective. The decision to
25 construct two buildings instead of three reduced the footprint of the proposed construction, and served as
26 mitigation for the project. Additionally, the proposed construction would follow the installation's AAP
27 and design guidelines associated with building within the National Register Historic Landmark District.
28 The mass, scale, and exterior appearances of the proposed building would be carefully designed and built
29 in order to maintain a sense of cohesiveness between the new construction and the old construction within
30 the Landmark District.

31 Second Medical Logistics Company TEMF with Company Operations Facility

32 The proposed construction of the Second Medical Logistics Company TEMF with Company Operations
33 Facility would have no direct or indirect impacts on cultural resources located at FSH.

34 Drainage System Improvements, Scott Road and Wilson Street

35 The proposed drainage system improvements at the intersection of Scott Road and Wilson Street would
36 have no direct or indirect impacts on cultural resources located at FSH.

37 Drainage System Improvements, Buildings 2248-2250

38 Buildings 2248-2250 are located within the FSH NHLD and are NRHP eligible. As such, the proposed
39 drainage system improvements around Buildings 2248-2250 would have a direct, adverse effect to the
40 buildings during the completion of the improvements; however, upon completion the adverse effect
41 would no longer exist.

1 Demolish and Replace Chapel Building 1398

2 Chapel Building 1398 is not located within the FSH NHLD or Conservation District and is not
3 recommended eligible for nomination to the NRHP as noted by the 2007 ICRMP. As such, the proposed
4 demolition of the building would not have an adverse effect on any eligible NRHP resource at FSH.

5 Demolish and Replace Recreation Center Building 1462

6 Building 1462 is not considered NRHP eligible and is not located within the viewshed of either the
7 NHLD or Conservation District. The proposed demolition and replacement of the building would not
8 have an impact on any NRHP eligible resource at FSH.

9 Construct Student Trainee Adult Sports Park

10 The development of the proposed student trainee adult sports park is located outside the NHLD and
11 Conservation Districts and would have no impact on any NRHP eligible resource at the installation.

12 Construct TEMF Area Development

13 The proposed co-location of four TEMF's on a 30-acre lot in the southeast corner of the installation
14 would have no direct or indirect impact on the two districts located at the Fort or any NRHP eligible
15 resource.

16 Construct 470th ME BDE HQ Complex

17 The construction of a HQ facility for the 470th Military Intelligence Brigade HQ Complex would have no
18 direct or indirect impact on any NRHP eligible resource at FSH or on the two districts located at the
19 installation.

20 Realign and Extend Schofield Road

21 The realignment and extension of Schofield Road is located at the outer edge of the southeast end of the
22 installation and would have no effect on any NRHP eligible historic resources at FSH or either of the two
23 districts.

24 Training Aids Center

25 The proposed Training Aids Center would consist of a 40,000 SF building located at the corner of Patch
26 Road and Hardee Road. This Proposed Action would have no direct or indirect impact on any known
27 cultural resources.

28 Drainage Improvements, Patch Road

29 The proposed improvements to the drainage system at 700 Patch Road would have no direct or indirect
30 impact on any known cultural resources.

31 Construct Schofield Road ACP

32 Located at the Schofield Road and Binz-Engleman Gate, the proposed construction of an access control
33 point would have no impact on any known cultural resources.

34 Construct Salado Creek Crossing

35 The construction of the Salado Creek Crossing between the intersection of Schofield Road and Garden
36 Avenue and the intersection of Binz-Engleman Road with the Missouri, Kansas, and Texas Division of
37 the Union Pacific Railroad would have no direct or indirect impact on any known cultural resources at
38 FSH. Previous archaeological surveys completed along Salado Creek have emphasized the possibility of

1 subsurface cultural deposits along the creek bed. As such, it is possible cultural resources would be
2 encountered during construction.

3 Construct George Beach/I-35N ACP/VCP

4 The proposed construction of an access control point and vehicle control point at the George Beach/I-35
5 exchange would have no direct or indirect impacts on any known cultural resources.

6 Construct 91 W AIB

7 The construction of a 91 W AIB building measuring approximately 200,000 SF would have no direct or
8 indirect impact on any known cultural resources.

9 Drainage System Improvements, Winans Road and Nursery Road

10 The proposed storm drainage improvements at the intersection of Winans Road and Nursery Road would
11 have no direct or indirect impacts on known cultural resources.

12 Drainage System Improvements, BAMC

13 The proposed drainage improvements at the 1995 BAMC would have no direct or indirect impacts to any
14 known cultural resources.

15 3.9.2.2 No-Action Alternative

16 Building 197

17 Under the No-Action Alternative, Building 197 would remain in its current state. Currently Building 197
18 is sitting vacant behind a chain-link fence due to structural instability and the need for asbestos-containing
19 materials (ACM) and lead-containing paint (LCP) abatement. Due to the building's status as uninhabited,
20 it is not required to meet AT/FP criteria. At the time of a May 2009 Phase I existing conditions
21 assessment of Building 197, the structure had been sitting empty since December 2008 due to structural
22 instability issues. Additionally, a number of architectural issues were discovered during the assessment
23 including: flaking, peeling, and cracked stucco, water intrusion and rot on exposed rafters and decking,
24 water intrusion throughout the building, cracked and peeling paint on windows, as well as sagging,
25 stained, and collapsed ceilings. The building is also not up to code concerning its plumbing and electrical
26 systems.

27 Due to the structural instability and overall deterioration of the building, a selection of the No-Action
28 Alternative would be considered a direct adverse impact. If the building is allowed to deteriorate due to
29 neglect, an adverse effect would occur.

30 MacArthur Field Running Track

31 Under the No-Action Alternative, the McArthur Field Running Track would not be constructed on the
32 parade grounds. Additionally, should the No-Action Alternative be chosen a running track would not be
33 constructed anywhere else on the Post resulting from land constraints. The No-Action Alternative keeps
34 the parade ground complete, without the loss of a 22-foot wide corridor needed to construct the running
35 track. As such, the No-Action Alternative would result in no indirect or direct impact to the parade
36 ground.

37 Renovate and Expand FSH Historic Theatre, Building 2270

38 Under the No-Action Alternative, the FSH Theatre would remain in its current state of disrepair.
39 Additionally, should the No-Action Alternative be chosen, the theatre would remain unused due to its

1 substandard condition. Due to the substandard condition of this building, the result of the No-Action
2 Alternative would result in a direct, adverse impact. Because the building is vacant, it is also not
3 undergoing scheduled maintenance and general upkeep. As such, the building would continue to
4 deteriorate resulting in a direct, adverse effect to this historic structure.

5 IMCOM HQ

6 Under the No-Action Alternative, the historic buildings surrounding the proposed IMCOM HQ and
7 Campus Area would not sustain a direct, adverse visual effect.

8 IMCOM Campus Area Development

9 Under the No-Action Alternative, the parade ground would not sustain any direct or indirect adverse
10 effects and the integrity of the historic landscape feature would remain intact.

11 METC Parking Lot

12 The proposed location of the METC parking lot is currently utilized as a grass parking lot. Under the No-
13 Action Alternative, the parade ground would continue to serve this purpose without any changes to the
14 surface of the feature. However, due to the nature of the parade ground as a grass-covered expanse, its
15 continued use as an unpaved, non-graveled parking lot would result in continued direct, adverse effects to
16 the resource.

17 Construct Sixth Army Command and Control Facility

18 Under the No-Action Alternative there would be no historic properties affected.

19 Construct Sixth Army Special Troops Command and Control Facility (HQ and TEMF with COF)

20 Under the No-Action Alternative there would be no historic properties affected.

21 Widen Scott Road

22 Under the No-Action Alternative there would be no historic properties affected.

23 Construct Fifth Army Special Purpose Facility

24 Under the No-Action Alternative there would be no historic properties affected, and there would be no
25 visual impact to the NHLD or Conservation Districts.

26 Battle Command Training Center Phase II

27 Under the No-Action Alternative there would be no historic properties affected, and there would be no
28 visual impact to the Conservation District.

29 UPH PP Barracks

30 The No-Action Alternative would result in a finding of no direct, adverse impact to the NHLD.

31 MED LOG CO TEMF with COF

32 Under the No-Action Alternative there would be no historic properties affected.

33 Drainage System Improvements, Scott Road and Wilson Street

34 Under the No-Action Alternative there would be no historic properties affected.

35 Drainage System Improvements, Buildings 2248-2250

36 Under the No-Action Alternative there would be no historic properties affected.

-
- 1 Demolish and Replace Chapel Building 1398
 - 2 Under the No-Action Alternative there would be no historic properties affected.
 - 3 Demolish and Replace Recreation Center Building 1462
 - 4 Under the No-Action Alternative there would be no historic properties affected.
 - 5 Construct Student Trainee Adult Sports Park
 - 6 Under the No-Action Alternative there would be no historic properties affected.
 - 7 Construct TEMF Area Development
 - 8 Under the No-Action Alternative there would be no historic properties affected.
 - 9 Construct 470th ME BDE HQ Complex
 - 10 Under the No-Action Alternative there would be no historic properties affected.
 - 11 Realign and Extend Schofield Road
 - 12 Under the No-Action Alternative there would be no historic properties affected.
 - 13 Drainage Improvements, Patch Road
 - 14 Under the No-Action Alternative there would be no historic properties affected.
 - 15 Construct Schofield Road ACP
 - 16 Under the No-Action Alternative there would be no historic properties affected.
 - 17 Construct Salado Creek Crossing
 - 18 Under the No-Action Alternative there would be no historic properties affected.
 - 19 Construct George Beach/I-35N ACP/VCP
 - 20 Under the No-Action Alternative there would be no historic properties affected.
 - 21 Construct 91 W AIB
 - 22 Under the No-Action Alternative there would be no historic properties affected.
 - 23 Drainage System Improvements, Winans Road and Nursery Road
 - 24 Under the No-Action Alternative there would be no historic properties affected.
 - 25 Drainage System Improvements, BAMC
 - 26 Under the No-Action Alternative there would be no historic properties affected.
 - 27 3.9.2.3 Cultural Resources Mitigation
 - 28 Cultural resources mitigation would be required to compensate for adverse impacts to historic resources at
 - 29 FSH. Listed below are possible mitigation measures which could be undertaken to lessen the significance
 - 30 of direct, adverse impacts to historic cultural resources impacted by the Proposed Action.
 - 31 Building 197
 - 32 The proposed demolition of Building 197 would be a direct, adverse impact to a building that is both
 - 33 NRHP-eligible and a contributing element to an NHL. A possible mitigation for this impact is the
 - 34 completion of a Historic American Building Survey/Historic American Engineering Survey

1 (HABS/HAER) document. While the building would be demolished, the HABS/HAER documentation
2 would serve to record it for posterity. Additionally, the HABS/HAER document would serve as an
3 informational document detailing the building's history and importance to the landscape of the NHLD.

4 **3.10 SOCIOECONOMICS**

5 Socioeconomics concerns the potential impacts of a proposed action on the social and economic health of
6 the local surrounding community. A proposed action's Region of Influence (ROI) is an area in proximity
7 to a project site that may be impacted by the Proposed Action due to its location. Socioeconomic analyses
8 typically assess demographic statistics and trends within a ROI, including population, income,
9 employment, and housing conditions, and the potential impacts that the Proposed Action would have on
10 the ROI's social and economic health.

11 This chapter would analyze potential socioeconomic and environmental justice impacts related to the
12 Proposed Action.

13 **3.10.1 Affected Environment**

14 As Figure 3.10-1 indicates, FSH is located in Bexar County, which is one of eight counties that comprise
15 the San Antonio MSA. The City of San Antonio is about 1 mile south of FSH. Because these areas are in
16 proximity to, or include, FSH, they are the most likely communities to be affected by actions conducted
17 on Post. Therefore, the ROI for this EA will include Bexar County, the San Antonio MSA, and the City of
18 San Antonio. The Environmental Justice section of this chapter will also examine the racial characteristics
19 and income levels of the census tracts¹ and block groups² adjacent to FSH. Figure 3.10-2 depicts the
20 Census tracts adjacent to FSH and Figure 3.10-3 shows the adjacent Census block groups.

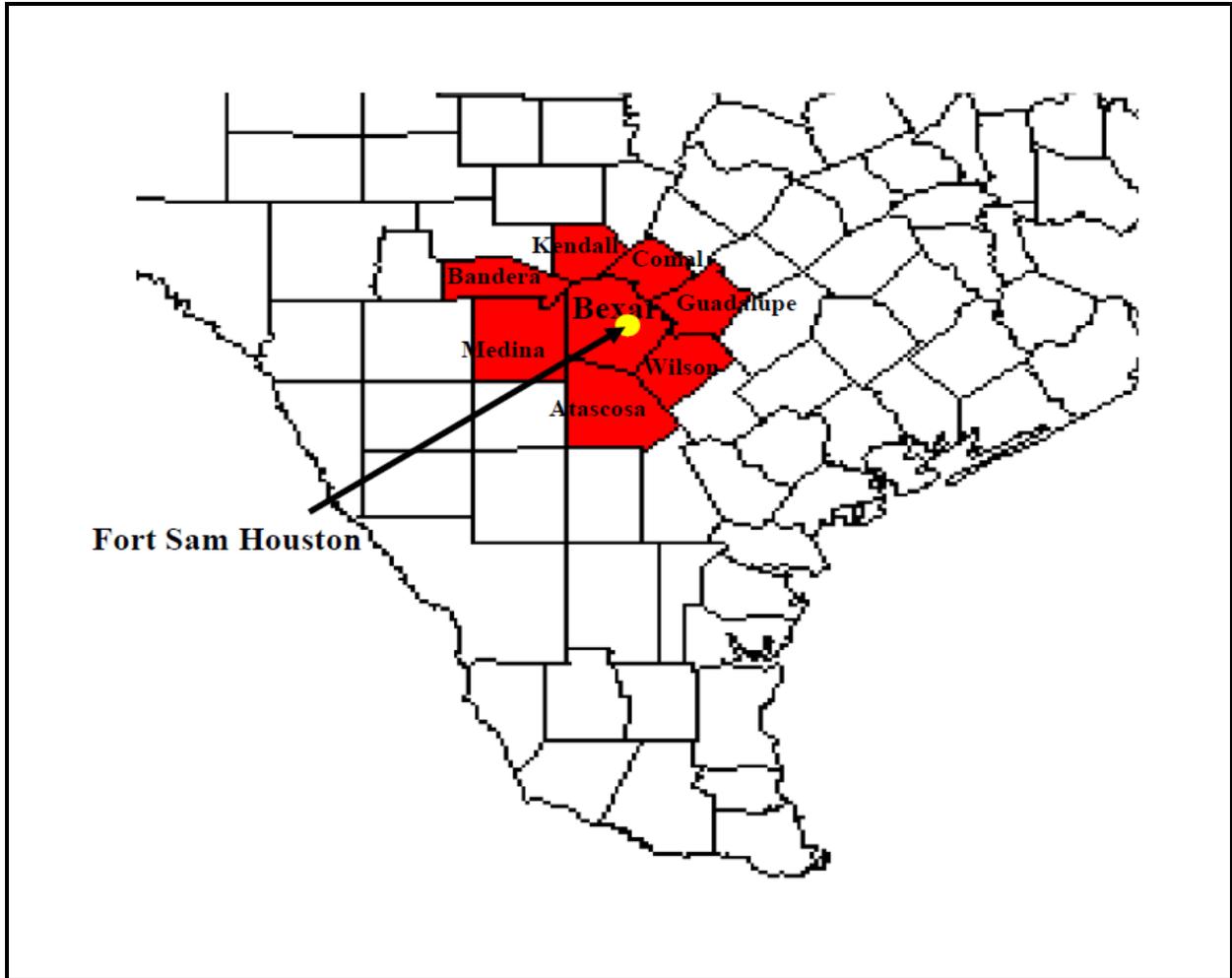
21 This EA will analyze the following variables for the ROI:

- 22 • Economic Development
- 23 • Demographics
- 24 • Housing
- 25 • Public Services
- 26 • Environmental Justice and the Protection of Children

27 The most widely available source of economic and demographic data is the U.S. Census 2000, which will
28 be the primary data source for this section. However, because the 2000 data is nearly a decade old, more
29 recent data will be used to supplement the Census 2000 data where available. For a more meaningful
30 comparison, the ROI is also compared to the U.S. as a whole.

¹ "Census tracts are small, relatively permanent geographic entities within counties (or the statistical equivalent of counties) delineated by a committee of local data users" (USCB 1994).

² "Census blocks, the smallest geographic area for which the Bureau of Census collects and tabulates decennial census data, are formed by streets, roads, railroads, streams and other bodies of water, other visible physical and cultural features, and the legal boundaries shown on Census Bureau maps" (USCB 1994).



Source: Wikipedia 2009.

Figure 3.10-1. San Antonio MSA

Legend

- Tracts
- Fort Sam Houston
- Railroad
- Highway
- Road

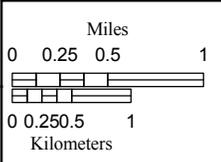
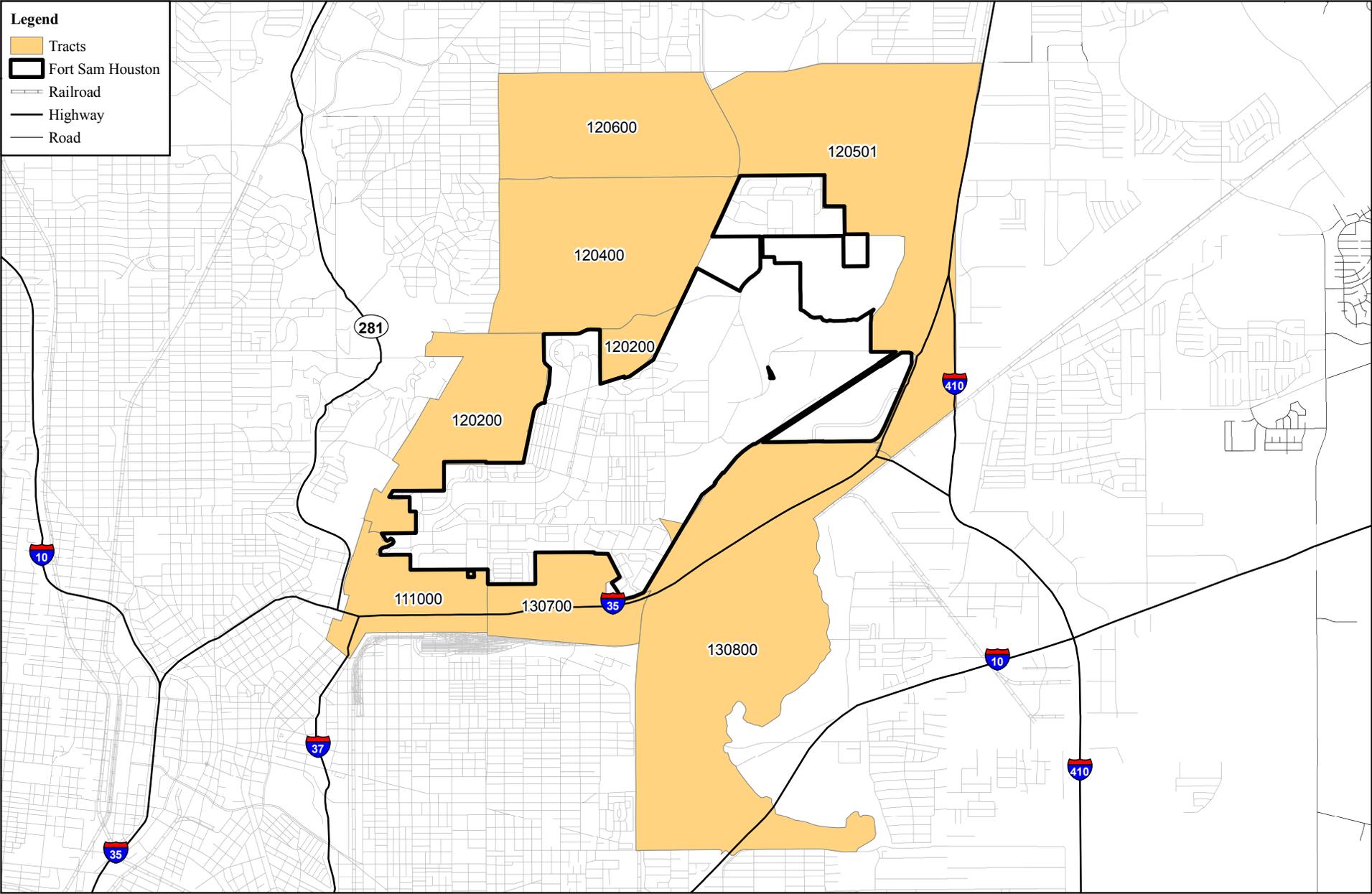


Figure 3.10-2
2008 Census Tracts Adjacent to FSH
San Antonio, Texas



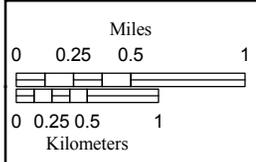
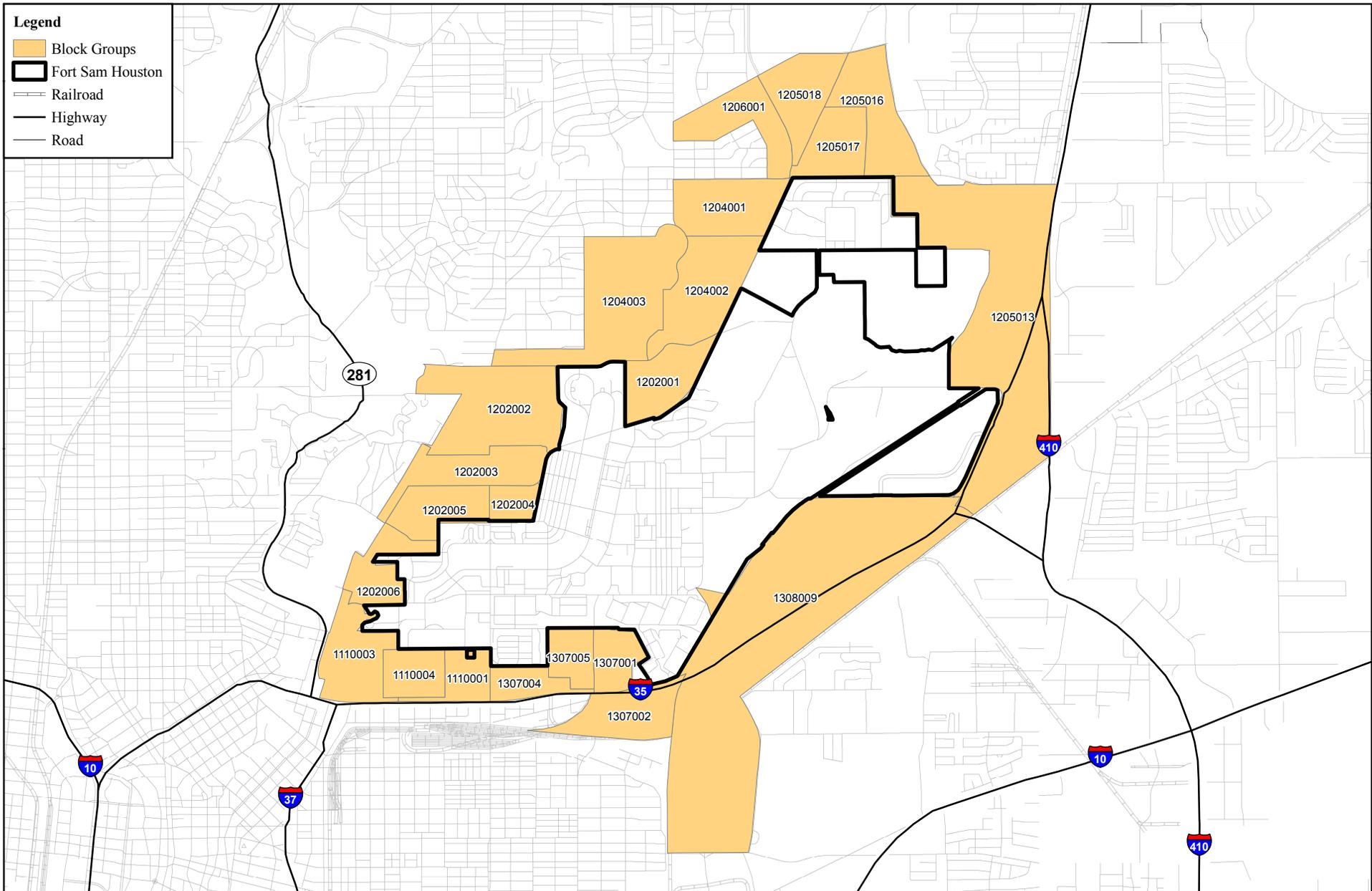


Figure 3.10-3
2008 Census Block Groups Adjacent to FSH
San Antonio, Texas



1 3.10.1.1 Economic Development

2 Indicators of the health of a local economy include which employment sectors are the largest, which
3 sectors are anticipated to grow, median household income, and the local poverty rate. The existing
4 conditions of each of these indicators are provided below. The most current data available are from 2005,
5 unless indicated otherwise.

6 Employment Sectors

7 The largest employment sectors in San Antonio include government, services, and manufacturing (City-
8 data 2005). San Antonio has a high concentration of government workers due to its proximity to four
9 military installations: Brooks Air Force Base (AFB), Lackland AFB, Randolph AFB, and FSH Army
10 Post. In 2005, these four installations combined employed approximately 74,500 military and civilian
11 personnel, and had a \$4.9 billion economic impact on the local community (City-data 2005). In fiscal year
12 (FY) 2008, FSH alone had a population of about 28,000³ (FSH 2009). According to the *Fort Sam*
13 *Houston Real Property Master Plan Digest* (2009), in 2008 FSH had an annual payroll and operating
14 budget of \$1.9 billion and local purchases by installation activities total nearly \$23 million each year.

15 The service sector is the largest and fastest growing employment sector in San Antonio. The medical and
16 biomedical industries contributed approximately \$11.9 billion to the city in 2003, and account for the
17 largest part of the city's economy (City-data 2005). Medical industry employees comprise approximately
18 14% of all employees in San Antonio. San Antonio also has a strong tourist industry; approximately 8
19 million tourists visit San Antonio each year, and the tourism industry contributes an estimated \$4 billion
20 to the City's economy (City-data 2005).

21 In 2001, what was then Kelly AFB in San Antonio was closed and redeveloped as KellyUSA, a master
22 planned, 1900-acre (769-hectare) commercial port that has since been renamed Port San Antonio (City-
23 data 2005, Port San Antonio 2009). Port San Antonio is an aerospace industrial complex and multi-
24 modal transportation center, with an airport and railport (a railway-served business park). Global
25 aerospace leaders such as Boeing and Lockheed Martin currently occupy industrial space at Port San
26 Antonio (Port San Antonio 2009). In 2005, Port San Antonio employed over 12,000 people and
27 contributed \$2.5 billion to the San Antonio economy (City-data 2005).

28 Median Household Income

29 The median household incomes of the City of San Antonio, Bexar County, and the San Antonio MSA are
30 comparable. Table 3.10-1 compares the median household income in both 2000 and 2006, which are
31 similar for the areas comprising the ROI. The household incomes for these areas are slightly lower than
32 that of the U.S. as a whole for both 2000 and 2006 (Table 3.10-1)

Table 3.10-1 Median Household Income

<i>Year</i>	<i>City of San Antonio</i>	<i>Bexar County</i>	<i>San Antonio MSA</i>	<i>U.S.</i>
2000 ⁴	\$36,214	\$38,328	\$39,140	\$41,994
2006	\$40,650	\$42,860	\$45,937	\$48,200

Source: City of San Antonio 2009, San Antonio Express News 2009, U.S. Census Bureau 2007, Census Bureau 2000.

³ Including military, civilians, and Army Reserve

⁴ The median household income for the U.S. is for the year 1999.

1 Poverty Rate

2 The poverty rate of an area describes the percent of the population that has an income level below the
 3 federal poverty line. Poverty rate information for both the City of San Antonio and Bexar County were
 4 available from 2007, but the most recent poverty rate data available for the San Antonio MSA was from
 5 2003 (Table 3.10-2). Bexar County and the San Antonio MSA have very similar poverty rates, while the
 6 City of San Antonio’s poverty rate is slightly higher (Table 3.10-2). However, the FSH ROI’s poverty
 7 rates are between 4% and 6% higher than that of the U.S. for that same year, which was 12.7% in 2003
 8 and 12.0% in 2007 (CIA World Factbook 2008).

Table 3.10-2. Percent of Population Below the Poverty Line

<i>City of San Antonio 2007</i>	<i>Bexar County 2007</i>	<i>San Antonio MSA 2003⁵</i>
18.2%	16.4%	16.0%

Source: City of San Antonio 2009, Texas Association of Counties 2009.

9 3.10.1.2 Demographics

10 The demographic profile of an area generally includes variables such as population, race, and age.

11 *Population*

12 Table 3.10-3 shows the ROI’s estimated population growth between 2000 and 2009, as well as a
 13 comparison of the percent change in population growth between the ROI and the U.S. While the City of
 14 San Antonio and Bexar County had a similar percentage of population growth between 2000 and 2009,
 15 the San Antonio MSA’s population growth was 3-4% greater than that of the city and county. The ROI’s
 16 population growth exceeded that of the nation as a whole between 2000 and 2009, and the San Antonio
 17 MSA’s population growth was twice as much (17.5%) as that of the U.S as a whole (8.4%).

Table 3.10-3. Population

<i>Year</i>	<i>City of San Antonio</i>	<i>% Change</i>	<i>Bexar County</i>	<i>% Change</i>	<i>San Antonio MSA</i>	<i>% Change</i>	<i>U.S.</i>	<i>% Change</i>
2009	1,316,976	13.1%	1,622,592	14.2%	2,073,954	17.5%	307,227,179	8.4%
2000	1,144,646		1,392,931		1,711,703		281,421,906	

Source: U.S. Census Bureau 2000, City of San Antonio 2009, Texas Association of Counties 2009.

18 *Race and Ethnicity*

19 According to the CEQ (1997), a minority population is generally defined as a group that exceeds 50% of
 20 the population in an area. Further, a minority group is typically composed of the following population
 21 groups: Black, American Indian or Alaskan Native, Asian, or Pacific Islander. A minority population can
 22 be defined by race, ethnicity, or a combination of these. The USCB defines ethnicity as being either of
 23 Hispanic origin or not of Hispanic origin, and race as the following:

- 24 • White – a person having origins from any of the original peoples of Europe, the Middle East, or
 25 North Africa;

⁵ The most recent data available is from 2003.

- 1 • Black or African American – a person having origins in a Black racial group of Africa;
- 2 • American Indian or Alaska Native – a person having origins in any of the original peoples of
- 3 North and South America, and who maintain tribal affiliation or community ties;
- 4 • Asian – a person having origins in any of the original peoples of the Far East, Southeast Asia, or
- 5 the Indian subcontinent (e.g. Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, or the
- 6 Philippine Islands); and
- 7 • Native Hawaiian and Other Pacific Islanders – a person having origins in any of the original
- 8 peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

9 Table 3.10-4 compares the racial and ethnic profiles of the ROI with that of the U.S. in 2000 and between
 10 2005-2007⁶. The ROI has a similar racial profile to that of the U.S.; more Whites than racial minorities,
 11 followed by Blacks, Asians, Native Hawaiian and Pacific Islanders, and American Indian or Alaska
 12 Natives. The relative percentages of each of these groups are also similar. Further, the percentage
 13 increase between 2000 and 2005/2007 for most racial categories are similar between the City of San
 14 Antonio and Bexar County; and the percentage increases of the MSA are similar to those of the U.S. as a
 15 whole (Table 3.10.4).

16 However, the ROI has a very different ethnic profile than that of the U.S. as a whole: over 50% of the
 17 ROI populations are Hispanic, while less than 15% of the total U.S. population is Hispanic (Table 3.10-
 18 4).

Table 3.10-4. Race and Ethnicity

<i>Race/Ethnicity</i>	<i>City of San Antonio</i>		<i>Bexar County</i>		<i>San Antonio MSA</i>		<i>U.S.</i>	
	2000	2005-2007	2000	2005-2007	2000	2005-2007	2000	2005-2007
White	67.7%	74.1%	68.9%	74.1%	70.6%	70.9%	75.1%	75.7%
Black/African American	6.8%	12.4%	7.2%	12.4%	6.6%	6.4%	12.3%	12.6%
American Indian or Alaska Native	0.8%	0.8%	0.8%	0.8%	0.8%	0.6%	0.9%	0.8%
Asian	1.6%	4.3%	1.6%	4.3%	1.5%	1.9%	3.6%	4.4%
Native Hawaiian/Pacific Islander	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Hispanic	58.7%	61.0%	54.3%	57.0%	51.2%	52.6%	12.5%	14.7%

Source: U.S. Census Bureau 2000, U.S. Census Bureau American Factfinder 2005-2007.

19 3.10.1.3 Housing

20 Table 3.10-5 shows the housing occupancy trends in the ROI and U.S. between 2000 and 2005-2007
 21 timeframe. The ROI and the U.S. experienced a decline in occupied housing units during this time. While
 22 the decline in the U.S. as a whole was slightly less than that of the ROI, it was relatively similar.

⁶ The most recent data came from the U.S. Census' American Factfinder community survey that spans a 3-year time period (2005-2007).

1 Table 3.10-6 shows the median housing value of the ROI and the U.S. in 2000 and 2005-2007, as well as
2 the amount of change in dollars during this time. The median housing values in the ROI were similar in
3 both 2000 and 2005-2007; further, the increase in value during this time was similar (between \$26,000
4 and \$29,000). However, the ROI's median housing values were less than that of the U.S. as a whole both
5 in 2000 and during the 2005-2007 timeframe. Further, the median housing value for the nation as a whole
6 increased more than twice as much as those of the ROI (Table 3.10-6).

7 3.10.1.4 Public Services

8 The sections below describe the fire, medical, and police services supporting FSH and the ROI.

9 Fire Services

10 The Fire and Emergency Services Division at FSH provides fire and rescue services on the Post. This
11 division also provides fire and rescue support to the surrounding San Antonio community, when needed.
12 The Fire and Emergency Services Division has approximately 50 personnel located at two fire stations on
13 FSH and at substations on Camp Bullis and Camp Stanley, both located northwest of FSH in northern
14 Bexar County. The department is equipped for fire-fighting and rescue, hazardous materials response
15 services, first responder support, and fire inspection programs (FSH 2007).

16 The San Antonio Fire Department (SAFD) has a 400 square mile service area, 48 fire stations, and over
17 1,000 uniformed firefighters. SAFD also includes three special operations units: the Hazardous Materials
18 Response Team with approximately 35 members, the Technical Rescue Team with approximately 46
19 members, and the Airport Crash Rescue Team with approximately 26 members. There are 23 fire stations
20 within a 5-mile radius from any FSH boundary point (FSH 2007).

21 Medical Services

22 FSH utilizes contracted Emergency Medical Services (EMS) from BAMC. Further, the Fire and
23 Emergency Services Department on FSH serves as a first responder in medical emergencies until BAMC
24 EMS can arrive on scene. EMS services from BAMC primarily respond to FSH emergencies during the
25 week, and expand their services into the community as needed on weekends (FSH 2007).

26 The San Antonio Emergency Medical Services (SAEMS) operates approximately 26 full-time
27 ambulances within a 471-square mile service area. The City of San Antonio is served by nine major
28 hospitals in the South Texas Medical Center area and 25 short-term (acute) hospitals throughout the city.
29 San Antonio also has two psychiatric rehabilitation hospitals, two physical rehabilitation centers, two
30 children's psychiatric hospitals, two state hospitals, and two DoD hospitals (WHMC and BAMC, which
31 are becoming SAMMC South and SAMMC North, respectively). BAMC provides a 450-bed healthcare
32 facility with Level I trauma services and graduate medical education for DoD and the San Antonio region.
33 WHMC provides 275 beds and Level I trauma services (FSH 2007).

Table 3.10-5. Housing Occupancy

<i>City of San Antonio</i>			<i>Bexar County</i>			<i>San Antonio MSA</i>			<i>U.S.</i>			
	2000	2005-2007	% Change	2000	2005-2007	% Change	2000	2005-2007	% Change	2000	2005-2007	% Change
Occupied Units	405,474 (93.6%)	438,703 (90.2%)	-3.4%	456,525 (93.4%)	531,371 (90.2%)	-3.2%	559,946 (93.4%)	660,410 (89.5%)	-3.9%	105,480,101 (91.0%)	111,609,629 (88.4%)	-2.6%
Vacant Units	27,648 (6.4%)	48,965 (9.8%)	3.4%	32,417 (6.6%)	57,587 (9.8%)	3.2%	39,826 (6.6%)	77,324 (10.5%)	3.9%	10,424,540 (9.0%)	14,628,255 (11.6%)	2.6%
Total Units	433,122	486,560		488,942	588,958		588,958	737,734		115,904,641	126,239,884	

Source: U.S. Census Bureau 2000, U.S. Census Bureau American Factfinder 2005 – 2007.

Table 3.10-6. Median Housing Value

<i>City of San Antonio</i>			<i>Bexar County</i>			<i>San Antonio MSA</i>			<i>U.S.</i>		
2000	2005-2007	Amount of Change	2000	2005-2007	Amount of Change	2000	2005-2007	Amount of Change	2000	2005-2007	Amount of Change
\$68,800	\$96,100	\$27,300	\$74,100	\$100,800	\$26,700	\$77,100	\$106,100	\$29,000	\$119,600	\$181,800	\$62,200

Source: U.S. Census Bureau 2000, U.S. Census Bureau American Factfinder 2005-2007.

1 Police Services

2 FSH and Camp Bullis are supported by an on-installation police force of approximately 98 police officers
3 and 15 non-officer employees. These officers are federal employees, not military police. Installation
4 access control points (ACPs) are serviced by approximately 150 contracted security personnel. The FSH
5 police force is a fully equipped department with the added capabilities of a special reaction team (FSH
6 2007).

7 As of December 2005, the City of San Antonio employed over 2,000 police officers. The ratio of officers
8 to 1,000 individuals is between 1.55 and 1.57. In 2005, emergency call response times average 5.18
9 minutes, and the average response time to all calls was 15.77 minutes (FSH 2007).

10 FSH is surrounded by patrol districts in three police substations: North, Central, and East. The patrol
11 districts immediately adjacent to FSH include 3320, 3340, and 3360 (North); 2230 (Central); and 4110,
12 4130, 4120, and 4140 (East).

13 3.10.1.5 Environmental Justice and the Protection of Children

14 In 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in*
15 *Minority Populations and Low-Income Populations*, in response to growing concern that minority and
16 low-income populations bear adverse health and environmental effects disproportionately. EO 12898
17 requires federal agencies to assess the potential for their actions to have disproportionately high and
18 adverse environmental and health impacts on minority and low-income populations.

19 In April 1997, EO 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*) was
20 signed. This EO requires that all federal agencies “(a) shall make it a high priority to identify and assess
21 environmental health risks and safety risks that may disproportionately affect children, and (b) shall
22 ensure that its policies, programs, activities, and standards address disproportionate risks to children that
23 result from environmental health risks or safety risks.” The EO considered environmental health and
24 safety risks to mean risks attributable to products or substances that the child is likely to ingest or come in
25 contact with (e.g. by being exposed to contaminated air, food, water, soil, or products).

26 This section of the EA will focus on racial minorities, low-income populations, and children living in the
27 census tracts and census blocks adjacent to the FSH boundary. Due to their proximity to the installation,
28 they may be affected by actions on FSH. Figure 3.10-4 indicates that the Census blocks adjacent to the
29 southern and western sides of the installation. Figure 3.10-5 indicates that many of the census blocks with
30 high populations of racial minorities also have a poverty rate at or greater than 20% (FSH 2007).

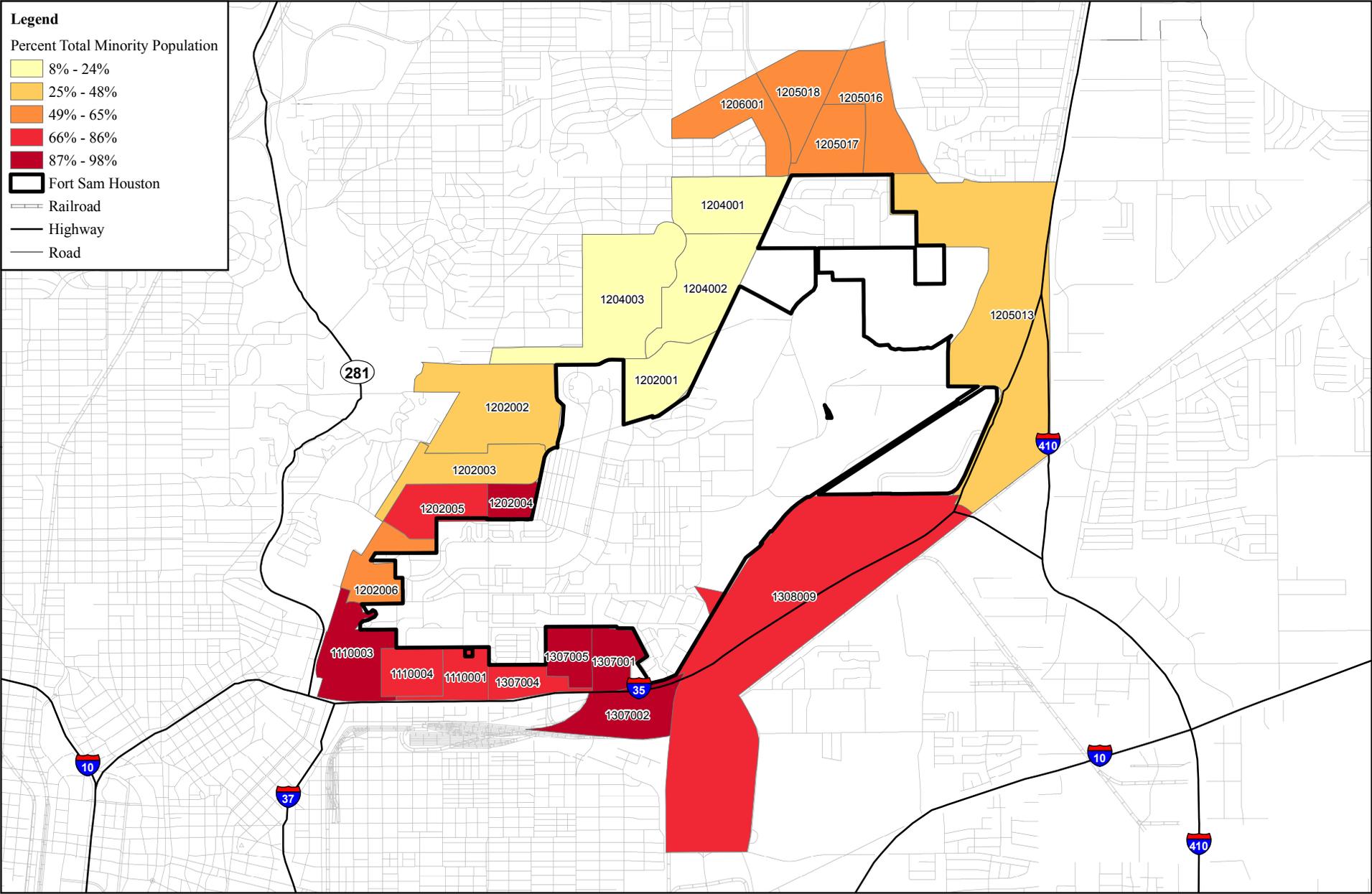
31 Children who live on the Post or are expected to move onto the installation within a given school year
32 attend one of three schools in the FSH Independent School District (ISD). The district includes FSH
33 Elementary School, Robert G. Cole Junior/Senior High School, and an alternative education school.
34 Enrollment at these schools was approximately 1,172 students during the 2005 – 2006 school year (FSH
35 2007). Children of affiliated personnel who live off-installation are enrolled in either an area public
36 school or a private school. The federal government provides “impact aid” to the applicable school district
37 to subsidize the education of children associated with a military installation, per the requirements of 20
38 USC 70, §VII, Subsection 7703 (FSH 2007).

39 In October 2005, approximately 327,926 students enrolled in 507 public educational institutions in the
40 San Antonio MSA. In 2005, 27 school districts with 376 schools serving nearly 300,000 students (FSH
41 2007). San Antonio has 14 institutions of higher learning, including four schools within the Alamo
42 Community College District and 10 four-year colleges and universities (FSH 2007).

Legend

Percent Total Minority Population

- 8% - 24%
- 25% - 48%
- 49% - 65%
- 66% - 86%
- 87% - 98%
- Fort Sam Houston
- Railroad
- Highway
- Road



3-11

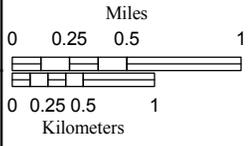


Figure 3.10-4
2000 Census Minority Percent Population Adjacent to FSH
San Antonio, Texas



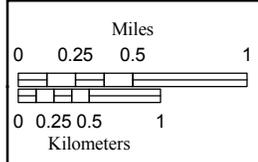
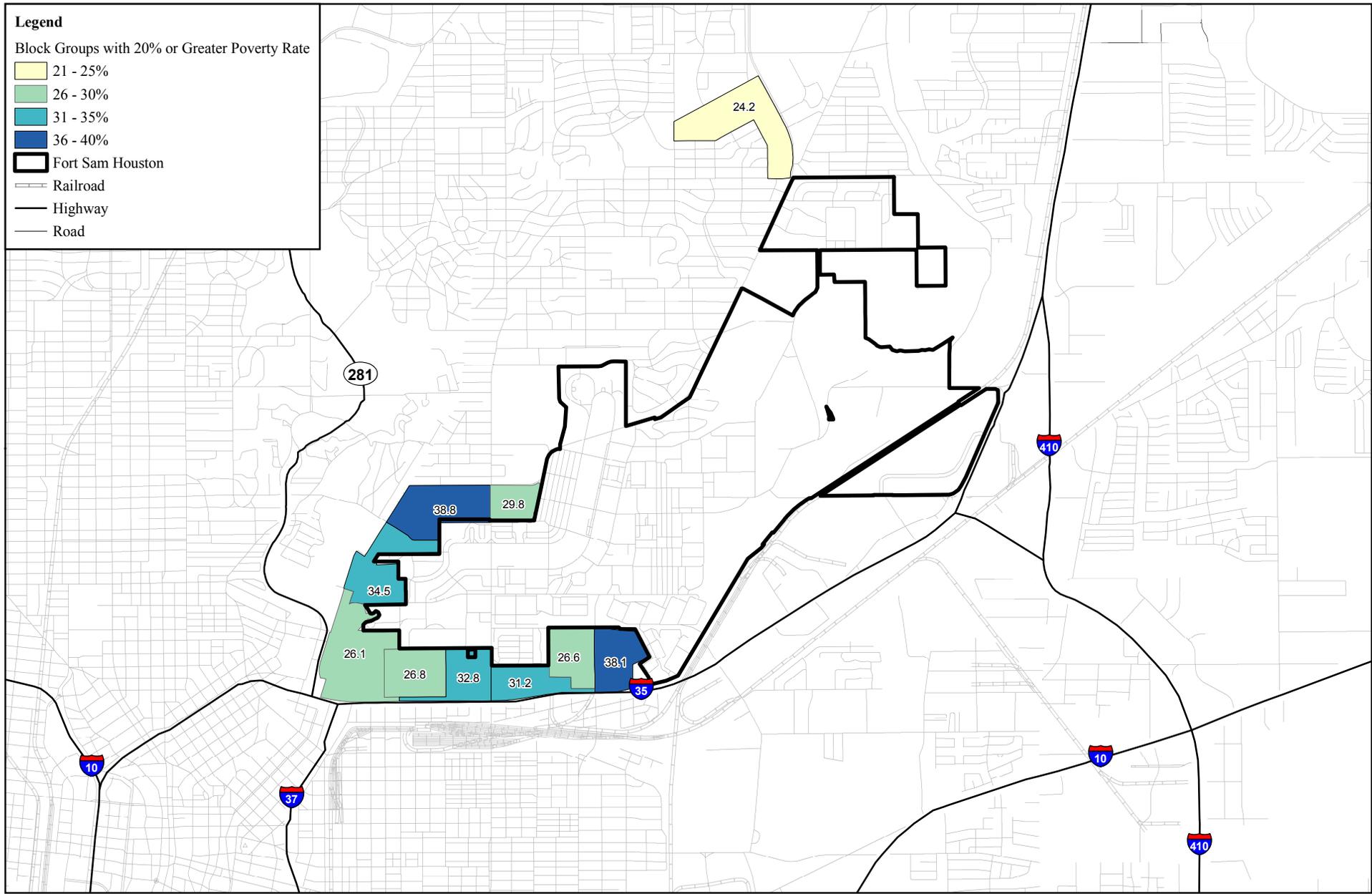


Figure 3.10-5
 2000 Census Low-Income Percent Population Adjacent to FSH
 San Antonio, Texas



1 **3.10.2 Environmental Consequences**

2 This section examines the potential impacts of the Proposed Action and No-Action Alternative on each of
3 the socioeconomic variables described in Section 3.10.1, including Environmental Justice and the
4 Protection of Children.

5 3.10.2.1 Master Planning Actions Alternative

6 The Master Planning Actions Alternative includes approximately 30 facility and infrastructure repair,
7 renovation, and/or construction activities at various locations on Post (please see Chapter 2 for a complete
8 description of the Master Planning Actions Alternative).

9 Economic Development

10 Generally, a project would impact a local economy if it involves a temporary or permanent population
11 increase or decrease. An increase in population, whether on or off-installation, tends to increase the
12 demand for local goods and services in the surrounding community. The impact of this on a local
13 economy depends on the current health of the economy and its ability to support the additional demand.
14 A decrease in population tends to decrease the demand for local goods and services. The impact of this
15 on a local economy also depends on the current health of the economy. Nonetheless, changes in
16 population are a key factor that may affect a local economy.

17 The proposed construction, repair, and renovation projects would occur on Post and construction work
18 would be performed by local companies. The project would not cause any change in the Post or local
19 community's population. With an increase in demand for local construction work, the Proposed Action
20 would actually have the beneficial effect of creating local construction jobs for the San Antonio
21 metropolitan area. Therefore, the Master Planning Actions Alternative would have a beneficial impact on
22 the local economy.

23 Demographics

24 With no change in population associated with the Proposed Actions, the Proposed Action would not cause
25 a change in local demographics. Therefore, the Master Planning Actions Alternative would have no
26 impact on demographics.

27 Housing

28 With no population change associated with the Proposed Actions, there would be no change in housing
29 supply or demand related to the Proposed Action. Further, the UHP barracks would be constructed to
30 house Soldiers on-Post, so they would not need to seek housing in the local community. Therefore, there
31 would be no impact to the local housing market.

32 Public Services

33 The Proposed Action does not include any population change or change in the demand for public
34 services. Therefore, there would be no impact to public services.

35 Environmental Justice and the Protection of Children

36 The Proposed Actions would only occur on Post and would not be within the vicinity of the surrounding
37 local community. Standard BMPs and construction practices would be implemented to ensure that any
38 potential construction and/or operation-related contaminants on Post are properly controlled.

39 The Proposed Actions would not cause an increase in the on or off-Post population, and would not alter
40 environmental conditions off-Post. There would be no disproportionate impacts to the racial minorities

1 and low-income people living adjacent to the Post. There would also not be any disproportionate
2 environmental impacts or health risks to children.

3 3.10.2.2 No-Action Alternative

4 Under the No-Action Alternative, the proposed facility and infrastructure, construction, repair, and
5 renovation projects would not occur. Building 197 would remain in a dilapidated condition, and the
6 historic theatre would remain in disrepair. IMCOM would not have adequate facilities for its HQ, the
7 METC campus would lack sufficient parking, and the various tenants needing new and expanded TEMF
8 facilities would continue using inadequate facilities. FSH's currently inadequate drainage system would
9 remain in disrepair. The UPH PP barracks would not be constructed, resulting in the need for
10 unaccompanied Soldiers to seek housing off-Post, potentially increasing traffic and commuting time.
11 Soldiers would continue to use substandard exercise facilities and would not have a running track to
12 support physical fitness training. The current non-AT/FP compliant ACPs would remain a safety hazard.

13 3.11 TRANSPORTATION

14 3.11.1 Affected Environment

15 Transportation is defined for this analysis as the movement of vehicles from one place to another through
16 a roadway network. The focus of this particular transportation analysis is the road network within the
17 boundaries of FSH and Camp Bullis and in the areas immediately adjacent to the boundaries of each
18 installation.

19 The Affected Environment from a transportation perspective includes:

- 20 1. major on-installation roads that provide the corridors for movement of vehicles to and from and
21 within subareas of the installation that would support the Proposed Action and other anticipated
22 organizational changes; and
- 23 2. arterial roads that provide direct access to and from the installation and the surrounding areas
24 through ACPs

25 3.11.1.1 Overview of Traffic Study Terminology

26 In April 2008, the USACE completed a comprehensive Post-wide traffic study. The 2008 Traffic Study
27 included an in-depth analysis of historic traffic trends, current baseline traffic conditions, and projected
28 future traffic conditions. The study discusses traffic trends and current conditions on key road segments
29 and intersections serving FSH, as well as traffic at the primary access gates serving FSH (USACE 2008).
30 This section introduces the standard terminology used to describe road networks and the metrics used to
31 evaluate network utilization and levels of traffic congestion.

32 Roadway classifications used in the 2008 Traffic Study and in this EA include principal arterials, minor
33 arterials, and collector streets (Table 3.11-1). Principal arterials carry large volumes. A principal arterial
34 is defined as a four-lane divided roadway, with a typical right-of-way width of 80 feet and a curb to curb
35 pavement width between 48 feet (one-way road) and 64 feet (two-way road). Principal arterials are
36 designed to accommodate more than 15,000 daily trips on average, with speed limits of 25 to 55 miles per
37 hour (mph).

Table 3.11-1. Roadway Classification Criteria

<i>Criterion</i>	<i>Principal Arterial</i>	<i>Minor Arterial</i>	<i>Collector</i>	<i>Local Streets</i>
Functional Role	<ul style="list-style-type: none"> Mobility is primary, access is secondary. Connects freeways and other arterials. 	<ul style="list-style-type: none"> Connects freeways, principal arterials and lower classification roadways. Access is secondary. 	<ul style="list-style-type: none"> Collects traffic destined for the arterial network. Connects arterial to local streets. Provides access. 	<ul style="list-style-type: none"> Access is primary. Little through movement
Continuity	<ul style="list-style-type: none"> Connects major activity centers 	<ul style="list-style-type: none"> Connects freeways, principal arterials and lower classification roadways. 	<ul style="list-style-type: none"> Continuous between arterials. May extend across arterials. 	<ul style="list-style-type: none"> Discontinuous. Connects to collectors
Traffic Volume	20,000 to 60,000 VPD	5,000 to 30,000 VPD	1,000 to 15,000 VPD	0 to 5,000 VPD
Posted Speed	40 to 55 MPH	30 to 45 MPH	30 to 35 MPH	15 to 30 MPH
Access	<ul style="list-style-type: none"> Intersections. Restricted driveway access. 	<ul style="list-style-type: none"> Intersections. Limited driveway access. 	<ul style="list-style-type: none"> Intersections. Driveways permitted. 	<ul style="list-style-type: none"> Intersections. Driveways permitted.
Parking	Restricted	Restricted	Normally Permitted	Permitted
Sidewalks	Yes	Yes	Yes	Yes
Bikeways	No	Limited	Yes	Yes

Source: USACE 2008.

1 Minor arterials connect state highways to collectors. A minor arterial is defined as a 2-lane undivided
2 roadway, with a typical right-of-way width of 80 feet and a curb to curb pavement width of around 48
3 feet. Minor arterials are designed to accommodate from 7,500 to 15,000 daily trips on average, with
4 speed limits of 25 to 30 mph.

5 Collector streets support and connect the arterial street system. Collector streets permit local traffic
6 access to or from the arterial street system. A collector street is defined as a 2-lane undivided roadway,
7 with a typical right-of-way width of 80 feet and a curb to curb pavement width of around 48 feet.
8 Collector streets are designed to accommodate from 2,500 to 7,500 daily trips on average, with speed
9 limits of 25 to 30 mph.

10 Roadway capacity and the amount of traffic congestion that occurs on roadways is typically measured and
11 evaluated in terms of average daily traffic (ADT) or annual average daily traffic (AADT). ADT is the
12 average number of vehicles that use a roadway segment within a 24-hour period. The AADT is the
13 average number of vehicles that use a roadway segment within a 24-hour period over an entire year. The
14 AADT presents a broader view of roadway use and eliminates seasonal fluctuations in traffic volumes.

15 Operating conditions on roadways and intersections under various traffic volume loads are described in
16 terms of Level of Service (LOS). The LOS is a qualitative measure of the effect of a number of factors,

1 including roadway geometries, speed, travel delay, freedom to maneuver, and safety. LOS provides an
 2 index to the operational qualities of a roadway segment or an intersection. LOS designations range from
 3 A to F, with LOS A representing free flowing operating conditions and LOS F representing heavy
 4 congestion and delay.

5 Intersection LOS is based on morning (A.M.) and afternoon (P.M.) peak hour data and calculated delay (in
 6 seconds) per vehicle. Peak hours are those hours of the day during which the bulk of commute trips occur
 7 and traffic impacts are likely to be the greatest.

8 The LOS for signalized intersections is defined in terms of delay, which is a measure of driver
 9 discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria are stated in
 10 terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed.
 11 The average control delay includes initial deceleration delay, queue move-up time, and final acceleration
 12 time in addition to the stop delay. The LOS for unsignalized intersections is determined by the computed
 13 or measured control delay and is defined for each minor movement. At an all-way stop-controlled
 14 intersection, the delay reported is the average control delay of the intersection. At a one-way or two-way
 15 stop-controlled intersection, the delay reported represents the worst movement, which is typically the left-
 16 turns from the minor street approach. In addition to reporting the worst delay for the minor street
 17 approach at an unsignalized intersection, all delays for each approach, as well as the overall delay of the
 18 intersection, were evaluated in the traffic study to more completely describe the operations at each
 19 unsignalized intersection.

20 Along roadway segments, LOS is based on the ADT volume on a roadway and the volume-to-capacity
 21 (V/C) ratio. ADT is the average number of vehicles that use a roadway segment within a 24-hour period.
 22 V/C ratios represent the ratio of the actual traffic volume to the design capacity of the roadway and are
 23 used to provide an evaluation of the level of service along a roadway segment.

24 Average vehicle delay for the study intersections was determined utilizing the methodology and
 25 thresholds provided in Chapter 16 of the *2000 Highway Capacity Manual* and as shown in Table 3.11-2.
 26 Average vehicle delay (in seconds) for each intersection was qualified with a corresponding intersection
 27 LOS. These standards for acceptable intersection and roadway segment operation were applied in all
 28 traffic-related analyses presented in this EA (including the projected cumulative 2012 conditions
 29 presented in Section 3.14).

Table 3.11-2. Intersection LOS & Delay Ranges

LOS	Delay (seconds per vehicle)	
	<i>Signalized Intersections</i>	<i>Unsignalized Intersections</i>
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board 2000

1 3.11.2 Description of the Relevant Transportation Network

2 3.11.2.1 Installation Transportation

3 Roadway Segments and Classifications

4 The following is a brief description of the current roadway system in the project study area. Figure 3.11-1
5 illustrates the transportation network at FSH.

6 The intersections included in the traffic analysis are shown in Figure 3.11-1. Peak hour counts were
7 generated using the Synchro models at the following intersections:

- 8 • Wilson Street/Scott Road
- 9 • Henry T. Allen Road/Scott Road
- 10 • Henry T. Allen Road/Stanley Road
- 11 • Schofield Road/Scott Road
- 12 • Schofield Road/Stanley Road
- 13 • Schofield Road/Garden Road
- 14 • Wilson Street/New Braunfels Avenue
- 15 • Stanley Road/New Braunfels Avenue
- 16 • Artillery Post Road/New Braunfels Avenue
- 17 • Stanley Road/Reynolds Road
- 18 • Harney Road/Scott Road
- 19 • Hardee Road/Scott Road
- 20 • Old Austin Road/Dickman Road
- 21 • Old Austin Road/Stanley Road
- 22 • Henry T. Allen Road/Funston Road
- 23 • Taylor Road/Patch Road
- 24 • Harney Road/Patch Road
- 25 • Winans Road/Nursery Road
- 26 • Wilson Street/Stanley Road
- 27 • Wilson Street/Reynolds Road
- 28 • Dickman Road/Reynolds Road
- 29 • Taylor Road/Scott Road
- 30 • Taylor Road/Stanley Road
- 31 • Henry T. Allen Road/Dickman Road
- 32 • Schofield Road/Dickman Road

33



3.11-1 Fort Sam Houston Transportation Network

- 1 • Harney Road/Stanley Road
- 2 • Worth Road/Stanley Road
- 3 • Worth Road/Dickman Road
- 4 • Stanley Road/Hardee Road
- 5 • Wilson Street/7th Street
- 6 • Wilson Street/Commissary Access
- 7 • Wilson Street/Funston Road
- 8 • Henry T. Allen/Funston Road (West)
- 9 • Schofield Road/Funston Road
- 10 • Wilson Street/Patch Road
- 11 • Henry T. Allen Road/Patch Road
- 12 • Schofield Road/Patch Road

13 In general, the installation has enough intersection and roadway capacity to meet existing AM and PM
14 peak hour demands; approximately 98% of all the above mentioned intersections operate at or above a
15 LOS C in the AM peak hour and approximately 94% of all the above mentioned intersections operate at
16 or above a LOS C in the PM peak hour. Of the nine signalized intersections evaluated, all but two
17 intersections operate at an overall LOS C or better during both the AM and PM peak hours.

18 The Wilson Street/Scott Road intersection, the most capacity-constrained signalized intersection, operates
19 at a LOS D during both peak hours. The only other intersection that operates below a LOS C is the IH-35
20 northbound frontage road and George Beach Avenue intersection, which operates at a LOS D during the
21 PM peak hour. While this intersection is located outside the installation's boundaries, its capacity
22 constraints affect access to and from the BAMC Triangle and, possibly, the Binz-Engleman ACP.

23 Of the 13 all-way stop-controlled intersections, all operate at an overall LOS C or better during both peak
24 periods. All minor approaches at two-way stop controlled intersections operate at a LOS C or better
25 during the AM peak hour; however, during the PM peak hour, all but two operate at a LOS C or better.

26 Although most intersections and roadways operate at adequate capacity during the both peak hours,
27 several existing problems were identified and documented, including:

- 28 • The Wilson Street and Scott Road intersection, just north of the Walters ACP, operates at LOS D
29 during the AM and PM peak hours. During the PM peak hour when high traffic volumes are
30 leaving the installation, the eastbound and southbound movements operate at LOS E. The
31 capacity constraints at the intersection result in queuing, high delays on the approaches, and
32 interference with adjacent intersections.
- 33 • The northbound minor approach at the Wilson Street and 7th Street intersection operates at LOS
34 D during the PM peak hour. The high volume of conflicting eastbound and westbound traffic on
35 Wilson Street limits the opportunities for turning movements from 7th Street. In addition,
36 observed queuing on Wilson Street from the downstream intersection at Scott Road limits the
37 number of vehicles that can turn left from 7th Street between cycles.

- 1 • The Hardee Road segment between Stanley Road and Scott Road functions as a route for vehicles
2 traveling on and off the installation, due to the closure of the Scott Road ACP north of Hardee.
3 This segment is better served as parking lot access. The through traffic creates operational and
4 safety problems due to interactions with pedestrians and vehicles using the parking facilities.
- 5 • The intersections of Binz-Engleman Road with Williams Road, Garden Road, and Schofield
6 Road are too closely spaced, with minor roadways at skewed angles creating potential safety and
7 operational problems. Geometric issues in the area are exacerbated by the uniform dispersion of
8 vehicles entering from the Binz- Engleman ACP to the east, leaving few gaps for minor street
9 traffic.
- 10 • The Schofield Road segment in the vicinity of Patch Road has sight distance issues, creating
11 potential safety issues for southbound minor, stop-controlled approaches. The elevated, detached
12 sidewalk facilities along the north side of Schofield Road should include a stop bar set back from
13 the edge of Schofield Road; however, this set back, combined with grade differences on the
14 roadside, would contribute to even greater sight distances for stopped vehicles on those
15 approaches.
- 16 • In the BAMC Triangle, the eastbound approach to the John C. Glen Road and George Beach
17 Avenue intersection operates at LOS F during the PM peak hour. The high volume of vehicles
18 using John C. Glen Road to exit the eastern parking lots results in long queues and undesirable
19 delays on the eastbound stop-controlled approach. The high volume of conflicting northbound
20 and southbound traffic on George Beach Avenue limits the opportunities for left turn movements
21 from John C. Glen Road. Additionally, the metering effect of the upstream ACP uniformly
22 disperses the southbound traffic on George Beach Avenue, making it difficult for traffic on the
23 minor approach to complete a turn.
- 24 • The proximity of the IH35 BAMC ACP to the southbound frontage road of IH35, combined with
25 the high volumes entering the ACP during the AM peak, results in heavy queuing that spills back
26 onto the IH35 southbound frontage road, causing operational and safety problems at the IH35
27 frontage roads with George Beach Avenue intersection.
- 28 • Not all traffic control devices on the installation conform to Manual of Uniform Traffic Control
29 Design (MUTCD) criteria, particularly signal heads and signage for protected left turn phasing at
30 several traffic signals, and the use of stop signs at intersections with non-functioning traffic signal
31 equipment.

32 3.11.2.2 Off-Installation Transportation

33 FSH is located within a well-developed roadway network system composed of all levels of roads. The
34 primary access to the main area is through Walters Street, which is currently a four-lane road, two lanes in
35 each direction. There are ongoing plans to improve and widen Walters Street to IH-35 to four incoming
36 (northbound) lanes and two outgoing (eastbound) lanes. Included would be bridge and ramp
37 modifications at the interchange. While these improvements are in the planning and development phase
38 and not yet scheduled specifically, they can be classified as short-range (three to six years).

39 The BAMC campus has direct access to IH-35 and Loop 410. This provides convenient access to the
40 major roadway infrastructure on the east side of San Antonio, as well as the downtown area. To alleviate
41 the queuing at the BAMC-IH-35 ACP during the a.m. peak, studies have been performed to improve the
42 frontage road and access ramps and develop other improvements and modifications to the ACP and

1 adjacent roadways, although no specific improvements currently are scheduled. The future traffic
2 planning and modeling efforts would address conditions at this location.

3 There are no other specific planned or programmed projects in the immediate areas beyond the ACPs
4 connecting to the local roadway networks. The local agencies and the Texas Department of
5 Transportation, however, regularly update their respective transportation improvement plans to
6 accommodate continued regional and local growth.

7 3.11.2.3 Public Transportation

8 The City of San Antonio is serviced by VIA, the metropolitan transit system, with bus routes throughout
9 the metropolitan and surrounding areas. Based on their current schedules and routes, they do not provide
10 services on the installation itself, but there are numerous routes in the immediate surrounding off-
11 installation areas. Several routes provide access at the Walters and New Braunfels ACPs. The area
12 adjacent to the northern portion of the installation also has select bus routes with full connectivity and
13 coverage for the entire VIA transit network.

14 3.11.3 Environmental Consequences

15 3.11.3.1 Master Planning Actions Alternative

16 Widen Scott Road

17 Construction activities associated with this project would have a short-term impact on the traffic using
18 this and surrounding roads, while the road is being widened, due to lane closures, rerouting of traffic and
19 possible traffic stoppages to allow construction traffic movement. Where possible, construction would
20 not occur during peak traffic times to minimize the impact on traffic flows. Once completed, the
21 Proposed Action would double the capacity of the existing road, alleviating the marginal LOS conditions
22 (D) at Wilson and Scott. This improvement would aid in alleviating congestion on surrounding roads as
23 well, as traffic flows use the route of least resistance. With the beneficial effect the Proposed Action
24 would have a less than significant effect.

25 Realign and Extend Schofield Road

26 Construction activities associated with this project would have a short-term impact on the traffic using
27 this and surrounding roads, while the road is being realigned and extended, due to lane closures, rerouting
28 of traffic and possible traffic stoppages to allow construction traffic movement. Where possible,
29 construction would not occur during peak traffic times to minimize the impact on traffic flows. Once
30 completed, this action would have minimal impact on the day-to-day traffic in the area, as the road is not
31 being expanded to increase its capacity and current LOS along this road are greater than D. However,
32 during time of flooding this project would allow the road to stay open longer and alleviate pressures
33 closing the road would create on other surrounding roadways.

34 Schofield Road Access Control Point

35 Construction activities associated with this project would have a short-term impact on the traffic using
36 this and surrounding roads while the access control point is being developed, due to lane closures,
37 rerouting of traffic and possible traffic stoppages to allow construction traffic movement. Where
38 possible, construction would not occur during peak traffic times to minimize the impact on traffic flows.
39 Based upon traffic volumes in 2008 Traffic Study, implementation of this project during FPCON Normal
40 conditions would not adversely affect traffic flow in the area. However, during FPCON Delta conditions

1 the access point may become a choke point for traffic on and off FSH causing back-up onto surrounding
2 streets

3 Salado Creek Crossing

4 Construction activities associated with this project would have a short-term impact on the traffic using
5 this and surrounding roads while the road is upgraded, due to lane closures, rerouting of traffic and
6 possible traffic stoppages to allow construction traffic movement. Where possible, construction will not
7 occur during peak traffic times to minimize the impact on traffic flows. Once completed, this action
8 would have minimal impact on the day-to-day traffic in the area, as the road is not being expanded to
9 increase its capacity and current LOS along this road are greater than D. However, during time of
10 flooding this project would allow the road to stay open longer and alleviate pressures closing the road
11 would create on other surrounding roadways.

12 George Beach/ I-35N Access Control Point/Vehicle Control Point

13 Construction activities associated with this project would have a short-term impact on the traffic using
14 this and surrounding roads while the access control point is being developed, due to lane closures,
15 rerouting of traffic and possible traffic stoppages to allow construction traffic movement. Where
16 possible, construction would not occur during peak traffic times to minimize the impact on traffic flows.
17 Under the Proposed Action, FSH would demolish the existing George Beach/I-35N ACP and replace it
18 with a standard design ACP and vehicle control point (see Figure 2-7). This project is needed to prevent
19 unauthorized access to the installation and to comply with the 12 standard categories required by Army
20 Standards for Control Points.

21 All Other Activities Associated with the Proposed Action

22 Construction activities associated with the remaining projects would have short-term impacts on the
23 traffic using this and surrounding roads while construction at each site is underway, due to lane closures,
24 rerouting of traffic and possible traffic stoppages to allow construction traffic movement. Where
25 possible, construction would not occur during peak traffic times to minimize the impact on traffic flows.
26 All construction traffic would enter and exit the Post during off peak hours so as not to add to existing
27 peak hour conditions

28 3.11.3.2 No-Action Alternative

29 The No-Action Alternative represents the existing baseline conditions. With the Proposed Action not
30 implemented, no new impacts would occur nor would any existing deficiencies, such as the LOS at
31 Wilson and Scott, addressed by the Proposed Action be remedied.

32 **3.12 UTILITIES**

33 **3.12.1 Affected Environment**

34 The analysis for utilities was derived entirely from the BRAC EIS (USACE 2007). The EIS included the
35 most current data available at the time of the preparation of this assessment.

36 The utility systems addressed in this analysis include the facilities and infrastructure used for:

- 37 • Water pumping, treatment, storage and distribution
- 38 • Recycled water distribution
- 39 • Wastewater collection, pumping, treatment, storage and discharge

- 1 • Storm water collection and discharge
- 2 • Energy generation and distribution, including electricity and natural gas
- 3 • Communications systems
- 4 • Solid waste collection and disposal

5 Table 3.12.1 displays the average daily utility demand (consumption and/or generation) at FSH in 2007.

Table 3.12-1. FSH Average Daily Utility Demand

<i>Utility (Units)</i>	<i>Average Usage</i>
Water Generation (MGD)	1.4
Recycled Water (MGD) (Sep 05 – Jan 06)	2.3
Wastewater Generation (MGD)	0.8
Electrical Consumption (MWh/day)	604.2
K-therms Solid Waste Generation (tons/day)	23.2
Natural Gas Consumption (K-therms/day)	108.7

Notes:

MGD = Millions of Gallons/day

MWh/day = Megawatt-hour/day

K-therms – 1 million Btu (British thermal units)

6 3.12.1.1 Potable Water Supply

7 Potable water for FSH is supplied by five wells. These wells can produce a total of 14 MGD (52.99
 8 million liters per day [MLD]) from the artesian zone of the Edwards Aquifer. Two treatment plants at the
 9 installation chemically treat well water prior to storage and distribution across FSH. Potable water
 10 treatment for all five wells consists of the injection of chlorine, fluoride and a corrosion inhibitor
 11 (phosphate) into the raw water supply prior to pumping to elevated storage tanks. The infrastructure has a
 12 total storage capacity of 2.05 million gallons (7.76 million liters); average daily consumption is
 13 approximately 1.4 MGD (5.30 MLD).

14 The structural elements of the potable water supply include:

- 15 • The Southwest Water Treatment Plant, Water Well Nos. 1, 2 and 7, located in the southwestern
 16 portion of the installation. These facilities include Facilities 2190 (potable water pump house for
 17 Water Well No. 7) and 2194 (potable water pump house and treatment facility for Well Nos. 1
 18 and 2). Other structures without facility numbers include three temporary storage containers, a
 19 tin shed, an auxiliary diesel pump engine, a fluoride tank and a corrosion inhibitor (phosphate)
 20 tank. The southwest water treatment plant is located on an unnamed road in the
 21 southwesternmost corner of FSH, north of Nika Street and west of Pine Street.
- 22 • South Potable Water Storage Tank (Facility 2600), a one million gallon (3.785 million liters),
 23 elevated water storage tank located in the center of the installation at the intersection of Schofield
 24 Road and Patch Road.
- 25 • North Potable Water Storage Tank (Facility 1565), a one million gallon (3.785 million liters)
 26 elevated water storage tank in the northwest portion of the installation at the intersection of
 27 Winans Road and Harry Wurzbach Highway near the FSH National Cemetery.
- 28 • Water Well Nos. 5 and 6, located within Facility 3186 (potable water pump house) in the
 29 northeastern portion of the installation next to Salado Creek, east of Nursery Road.

- The Northeast Water Treatment Plant, located near Water Well Nos. 5 and 6 in the northeastern portion of the installation on the golf course east of Nursery Road. This area includes Facility 3190 (potable water chlorinator facility) and Facility 3194 (electrical control facility). Other structures located on the parcel do not have facility numbers and include electrical transformers, an auxiliary diesel generator, a fluoride tank and a phosphate tank.

As part of the Texas Commission on Environmental Quality (TCEQ) requirements for public supply water wells, FSH conducts periodic testing of the water quality from the five water wells. The water testing includes analysis for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, herbicides and inorganic chemical constituents (including lead). Based on testing of the system to date, all five water wells currently comply with the Safe Drinking Water Act (SDWA).

Aside from the potable water supply, FSH currently purchases recycled water from San Antonio Water System (SAWS) for use in irrigation systems and cooling towers. Areas of FSH irrigated by recycled water include the RV park, the golf course, 1600 area, 3800 area, the Youth Center and the Medical Museum. Cooling towers using recycled water include BAMC, AMEDDC&S, Medical Laboratories 1 and 2, MEDCOM HQ, 2791 barracks, the main Post Exchange and the 1300 area plant. Recycled water distribution has been installed to irrigate BAMC, AMEDDC&S, MEDCOM HQ, 1300 Area and the Centers for Disease Control /Chapel area but has not been connected.

In total, FSH has approximately 24,000 linear feet of recycled water lines throughout the installation. The SAWS water recycling program has the capacity to deliver 35,000 acre-feet of water per year (11,404.8 million gallons) to users throughout San Antonio. Recycled water usage on FSH in 2005 amounted to 0.73 MGD (2.24 acre-feet/day; 2.76 MLD).

3.12.1.2 Wastewater System

The wastewater collection system consists of approximately 262,000 linear feet of main pipelines. These pipelines are constructed of terra cotta, concrete, cast iron, asbestos concrete, and polyvinyl chloride pipe in various diameters ranging from 6 to 48 inches. Wastewater collected through the system is delivered, in general, via gravity flow into sewer mains owned and maintained by SAWS. One well-type lift station, located to the north and east of the FSH National Cemetery, pumps wastewater from the Watkins Terrace Housing Area to connect with the gravity flow system. The FSH National Cemetery is an adjacent federal (Department of Veterans Affairs) installation and not part of FSH. No wastewater is treated at FSH.

FSH currently maintains wastewater discharge permits with SAWS covering the discharges from the installation. The wastewater discharges are monitored under Industrial Wastewater Discharge Permit No. HV-0299. The requirements of this permit include sampling for inorganic chemicals, fats, oils and grease, pH, temperature, solids, biochemical oxygen demand and total suspended solids at several manholes where the wastewater leaves the installation and enters the SAWS system. Wastewater quantity from FSH is not measured directly, but rather is based on a percentage of the water consumption, currently 59.5%, or 0.8 MGD (3.03 MLD).

3.12.1.3 Storm Water System

FSH is drained primarily by Salado Creek. The creek runs north to south through the eastern portion of the installation and drains into the San Antonio River. Flow from FSH into the creek is primarily from surface runoff. The western part of FSH is drained by the Alamo Ditch, a tributary of the San Antonio River. The southern and central portions of FSH proper are drained by the City of San Antonio's storm water drainage system. FSH experiences major flooding every three to four years. Flood conditions

1 inundate a large portion of the training area, including Facility 3186 (which houses Water Well Nos. 5
2 and 6) and the western water treatment facility (Facilities 3190 and 3194). Because of the reoccurring
3 flood events, pumps for Water Well Nos. 5 and 6 were converted from surface-mounted to submersible
4 pumps.

5 3.12.1.4 Energy Sources

6 As part of utility privatization, electrical power systems at FSH were privatized in September 2000 and
7 City Public Service (CPS) is the current electrical power provider. CPS owns lines that supply power to
8 the substation and then distribute power to various facilities. Power usage is metered at each individual
9 facility. In addition to the electrical power provided by CPS, FSH has several auxiliary generators to
10 supply emergency power to BAMC and other critical mission facilities during emergencies.

11 As part of utilities privatization, natural gas supply at FSH was privatized in September 1999. CPS owns
12 and maintains the gas distribution lines throughout the installation. In 2005, FSH natural gas usage was
13 39,691.6 K-therms (39,691,620 therms).

14 3.12.1.5 Communications

15 FSH currently has over 96,000 linear feet (18 miles) of jell-filled copper telephone communications
16 cabling and 131,000 linear feet (25 miles) of jell-filled fiber optic cabling to support secure telephone and
17 data communications on-installation.

18 3.12.1.6 Solid Waste

19 All solid waste from FSH is collected and disposed off-site by contract disposal services. Solid waste is
20 disposed at an approved and certified TCEQ solid waste landfill. For calendar year 2005, FSH produced
21 approximately 8,500 tons of solid waste.

22 **3.12.2 Environmental Consequences**

23 3.12.2.1 Master Planning Action Alternative

24 Prior to demolishing Building 197, the Army would ensure that demolition would not damage
25 infrastructure (e.g. buried pipes or power lines). This would prevent impact to utilities from this action
26 element. Additionally, if the land remains undeveloped, demolition and subsequent landscaping would
27 allow for increased pervious surface for the drainage of storm water.

28 The MacArthur Field Track has the potential to have a negative impact on the storm water drainage
29 system. This has the potential to put increased stress on the drainage system. The MacArthur Field Track
30 would be constructed of materials that do not adversely affect the drainage system.

31 The renovation and expansion of Building 2270 (the FSH Historic Theatre) would convert an unused
32 building with little or no utility demands to a larger full service building which would require electricity,
33 water, gas, wastewater, solid waste, and potential fiber optic services.

34 The construction of the IMCOM HQ represents 175,000 SF of additional administrative facilities for an
35 estimated 2,384 personnel. As such, these facilities would require electricity, natural gas, potable water,
36 wastewater, fiber optic and solid waste services. As the building would be sited on a parking lot, a
37 significant change to the storm water drainage is not anticipated. The parking planned to support the HQ
38 would convert 738,000 SF of unimproved land to paved surface. Any recycled water currently used for
39 irrigation in the proposed construction locations would no longer be necessary. The improvements on
40 undeveloped land would increase impervious surfaces and increase the runoff to the storm water drainage
41 system. The realignment and widening of Jessup Road, widening of Wilson Street, and realignment of

1 Reynolds Road to support access to the HQ would add to the impact by decreasing the need for recycled
2 water but increasing storm water runoff.

3 The expanded METC requires additional parking facilities. These parking facilities are proposed under
4 this alternative at the north end of MacArthur field. The construction of this parking area would convert a
5 gravel lot and part of the green space of the field to a paved parking facility, and thus a pervious surface
6 to an impervious one. Any recycled water currently used for irrigation in the proposed construction
7 locations would no longer be necessary. The improvements on undeveloped land would increase
8 impervious surfaces and increase the runoff to the storm water drainage system.

9 The construction of the Sixth Army Command and Control Complex and the Sixth Army Special Forces
10 Command and Control facilities represent 325,000 SF of additional administrative and instruction
11 facilities. The purposes of these facilities include training and administration. The Special Force
12 Command and Control Complex also anticipates the use of garages, hazardous material and oil storage,
13 and vehicle and equipment washing facilities. As such, these facilities would require electricity, natural
14 gas, potable water, wastewater, fiber optic and solid waste services. Any recycled water currently used
15 for irrigation in the proposed construction locations would no longer be necessary; if the design
16 incorporates landscaping irrigation would still be needed. Additionally, the improvements on
17 undeveloped land would increase impervious surfaces and increase the runoff to the storm water drainage
18 system.

19 This alternative proposes widening and improving Scott Road from its intersection with Schofield Road
20 to Wilson Street. The project includes the relocation of utilities and improved signal lights, the
21 demolition of 10,000 square yards of pavement under the project footprint, and supporting facilities. No
22 buildings would be demolished for this action. This realignment has the potential to have significant
23 impacts on utilities during the construction phase, since utilities cross Scott Road. The Army would
24 review all pre-existing utilities in the area to ensure that any interruption of service is limited to those
25 times when it is necessary and is for as brief a time as possible. This element of the alternative requires
26 additional power supplies to the street as signal lights are added to promote a safer and less congested
27 thoroughfare.

28 The proposed building for the support of 365 nation-wide units for the U.S. Army's Fifth Recruiting
29 Brigade is planned adjacent to the NHLD; facility design would reflect historical considerations. The
30 project would include a fenced, paved hardstand area for tactical equipment vehicles, supporting facilities,
31 a parking lot, and site improvements. The special purpose facility would include a brigade operations
32 center, battalion operations center, and a computer-training classroom. As such, these facilities would
33 require electricity, natural gas, potable water, wastewater, fiber optic and solid waste services. Any
34 recycled water currently used for irrigation in the proposed construction locations would no longer be
35 necessary; if the design incorporates landscaping irrigation would still be needed. Additionally, the
36 improvements on undeveloped land would increase impervious surfaces and increase the runoff to the
37 storm water drainage system.

38 The second phase of the Battle Command Training Center would be an approximately 47,000 SF facility
39 located on the southwest corner of Jessup Road and Second Street. The proposed site is currently vacant.
40 Thus, this facility would require electricity, natural gas, potable water, wastewater, fiber optic and solid
41 waste services. Any recycled water currently used for irrigation in the proposed construction locations
42 would no longer be necessary; if the design incorporates landscaping irrigation would still be needed.
43 Additionally, the improvements on undeveloped land would increase impervious surfaces and increase
44 the runoff to the storm water drainage system.

1 This alternative proposes a standard design 80,000 SF UPH facility to accommodate 208 permanent party
2 Soldiers. Primary facilities would include living and sleeping quarters, baths, storage, service areas, and
3 information systems. Significant improvements to the utilities would be required to provide necessary
4 improvements to the housing. Supporting facilities would include site development and improvements.
5 The proposed site is currently vacant. Thus, this facility would require electricity, natural gas, potable
6 water, wastewater, fiber optic and solid waste services. Any recycled water currently used for irrigation
7 in the proposed construction locations would no longer be necessary. Additionally, the improvements on
8 undeveloped land would increase impervious surfaces and increase the runoff to the storm water drainage
9 system.

10 The proposed MED LOG CO TEMF with COF construction near Building 4055 includes one vehicle
11 maintenance facility, organizational vehicle parking, and a petroleum/oils/lubricants storage building.
12 The siting location is mostly vacant. Thus, this facility would require electricity, natural gas, potable
13 water, wastewater, fiber optic and solid waste services. Any recycled water currently used for irrigation
14 in the proposed construction locations would no longer be necessary. Additionally, the improvements on
15 undeveloped land would increase impervious surfaces and increase the runoff to the storm water drainage
16 system.

17 The increase in student and permanent personnel, as a result of current growth trends and current needs,
18 results in the need to demolish and replace the installation chapel. Under the Proposed Action, FSH
19 would construct a standard design 600-seat Chapel complex, approximately 35,000 SF, and associated
20 infrastructure. The impact to utilities from the demolition of the chapel would draw from the need to
21 ensure that no infrastructure (e.g. buried pipes or power lines) is damaged in the demolition process.
22 Additionally, if the land remains undeveloped, demolition and subsequent landscaping would allow for
23 increased pervious surface for drainage of storm water. At the same time, the replacement chapel site is
24 currently vacant. Thus, this chapel would require electricity, natural gas, potable water, wastewater, solid
25 waste, and potentially fiber optic services. Any recycled water currently used for irrigation in the
26 proposed construction locations would no longer be necessary. Additionally, the improvements on
27 undeveloped land would increase impervious surfaces and increase the runoff to the storm water drainage
28 system.

29 Recreation Center Building 1462 is substandard and too small for the population at FSH. Under the
30 Proposed Action, FSH would demolish Building 1462 and construct a new building and associated
31 infrastructure in the same site location. As the building is being replaced at the same site, the impact to
32 utilities is likely minimal. The expansion would result in an increase use of electricity, gas, potable water,
33 wastewater systems, and solid waste systems. However, the utility access would not be at issue, as the
34 services are at the site for the current building.

35 This alternative also includes the construction of a 30-acre adult sports park in the northeast section of the
36 installation. The land where the park is sited is adjacent to the golf courses on the installation and is
37 currently not developed. The intended development would have a significant utility impact, especially in
38 terms of storm water drainage. The site currently is not served by utilities, and as such, the construction
39 of the facilities would require new electrical, gas, potable water, wastewater, and potentially recycled
40 water and fiber optic services. The sport park facility construction would represent a loss of pervious
41 surfaces within the floodplain and thus a significant, adverse impact to the storm water drainage system.
42 FSH may elect to incorporate design elements to mitigate this impact through the use of pervious track
43 and field surfaces, improved building drainage, and the usage of culverts and other such engineering
44 solutions to disperse storm water. Additionally, the recreational fields may require additional irrigation

1 services. FSH would review the water usage to determine if additional recycled water must be purchased
2 for irrigation of this proposed element.

3 FSH proposes to construct a BDE HQ complex for the 470th MI BDE consisting of a multi-story BDE
4 HQ building with three battalion HQs and seven company operations facilities in the 1100 area of the
5 Post. This action would include demolition of the existing structures in the 1100 area. The expansion
6 would result in an increase use of electricity, gas, fiber optic, potable water, wastewater systems, and
7 solid waste systems. However, the utility access would not be at issue, as the services are at the site for
8 the current building.

9 TEMF area development includes the co-location of four TEMFs on a 30-acre lot in the southeast corner
10 of FSH that extends northeastward along the installation boundary. The lot is currently vacant, but aerial
11 photography indicates that it has been developed in the past. The expansion would result in an increase use
12 of electricity, gas, fiber optic, potable water, wastewater systems, and solid waste systems. However, the
13 utility access would not be at issue, as the services are at the site for the adjacent buildings.

14 To address road flooding issues, under this alternative FSH would realign and extend Schofield Road up
15 to Salado Creek. No buildings would be demolished for this action. This realignment has the potential to
16 temporarily disrupt utility service during the construction phase, especially if there are utility crossings at
17 the construction point. The Army would review all pre-existing utilities in the area to ensure that any
18 interruption of service is limited to those times when it is necessary and is for as brief a time as possible.
19 Additionally, this element of the alternative may require additional power supplies to the street if signal
20 lights are added to the thoroughfare. The intention of this element is to reduce storm water flooding
21 potential and resolve associated street flooding.

22 FSH would construct an approximately 40,000 SF Training Aids Center near the corner of Patch Road
23 and Hardee Road. The site is currently vacant. The expansion would result in an increase use of
24 electricity, gas, fiber optic, potable water, wastewater systems, and solid waste systems. However, the
25 utility access would not be at issue, as the services are at the site for the buildings in the immediate
26 vicinity.

27 Under the Proposed Action, FSH would construct an ACP on Schofield Road at the Binz-Engleman Gate.
28 The expansion would result in a minor increase in the use of electricity, gas, potable water, wastewater
29 systems, solid waste systems and possibly fiber optic services. However, the utility access would not be
30 at issue, as the services are at the site for the buildings in the vicinity.

31 To facilitate access for emergency response vehicles over low water crossings, the FSH would construct
32 an all-weather connection across the Salado Creek floodplain between the intersection of Schofield Road
33 with Garden Avenue and the intersection of Binz-Engleman Road with the Missouri, Kansas, and Texas
34 Division of the Union Pacific Railroad. This action would include the construction of two vehicular
35 bridges with reinforced concrete deck over steel girders and reinforced concrete frame piers on concrete
36 pile foundation. FSH would construct roadways of flexible type asphaltic concrete pavement to connect
37 the bridges to the existing road network. This construction has the potential to have significant impact on
38 utilities during the construction phase, especially if there are utility crossings at the construction point.
39 The Army would review all pre-existing utilities in the area to ensure that any interruption of service is
40 limited to those times when it is necessary and is for as brief a time as possible.

41 FSH would demolish the existing George Beach/IH-35N ACP and replace it with a standard design ACP
42 and vehicle control point. This project is needed to prevent unauthorized access to the installation and to
43 comply with the 12 standard categories required by Army Standards for Control Points. As the building is

1 being replaced at the same site, the impact to utilities is likely minimal. The expansion would result in an
2 increase in the use of electricity, gas, potable water, wastewater systems, solid waste systems and possibly
3 fiber optic services. However, the utility access would not be at issue, as the services are at the site for
4 the existing buildings to be demolished.

5 FSH would construct an approximately 200,000 SF medical AIB, which would include general and
6 applied instruction space, administrative space, mock clinical space, and automation-aided classroom
7 space. Construction would also include site improvements and associated infrastructure. The expansion
8 would result in an increase use of electricity, gas, fiber optic, potable water, wastewater systems, and
9 solid waste systems. However, the utility access would not be at issue, as the services are at the site for
10 the buildings in the immediate vicinity.

11 In addition to these elements, the Master Planning Actions Alternative includes several improvements to
12 the storm water drainage system throughout the installation and in several of the Visual Zones. These
13 improvements include rehabilitation of the Patch Road storm drain system, rehabilitation and
14 improvement to the storm drain system at the Scott Road-Wilson Street intersection, repair pipe and
15 replace curbing at Building 2248-2250, rehabilitation of the drainage system at the Winans Road-Nursery
16 Road intersection, and cleaning and rehabilitation of the main BAMC storm drainage system. These
17 projects would all improve flood management at the installation. This construction has the potential to
18 have significant impact on utilities during the construction phase, especially if there are utility crossings at
19 the construction point. The Army would review all pre-existing utilities in the area to ensure that any
20 interruption of service is limited to those times when it is necessary and is for as brief a time as possible.
21 Additionally, these actions would have a significant positive impact on the storm water drainage system.
22 The action elements would repair defunct infrastructure and improve maintenance overall. As a result,
23 the drainage improvements would result in a more effective and efficient storm water drainage system.

24 3.12.2.2 No-Action Alternative

25 The No-Action Alternative represents the existing baseline conditions. Barring the exception discussed
26 below, no new impacts would occur; therefore, no significant impacts would occur.

27 Without the implementation of the drainage system improvements, the storm water drainage system
28 would continue to degrade. As much of the installation is in the floodplain, storm water drainage is vital
29 to the daily functioning and effectiveness of FSH. Additionally, improper drainage during a flood could
30 have ramifications for other utilities, by shorting out electrical services, over loading water treatment
31 facilities, and eroding infrastructure. Thus, the No-Action Alternative, as applied to the drainage
32 improvement elements, would result in a significant adverse impact.

33 3.13 HAZARDOUS AND TOXIC SUBSTANCES

34 3.13.1 Affected Environment

35 A hazardous substance is any item or agent (biological, chemical, physical) which has the potential to
36 cause harm to humans, animals, or the environment, either on its own or through interaction with other
37 factors. The terms “hazardous material,” “toxic substance,” and “hazardous waste” are used in this
38 section, first to emphasize that they are all hazardous substances that may present a substantial threat to
39 public health, welfare, and the environment, and second, to define the terms in reference to their unique
40 applications under specific federal regulations.

41 Hazardous substances are defined and regulated in the U.S. primarily by laws and regulations
42 administered by the U.S. Occupational Safety and Health Administration (OSHA), the USEPA, and the

1 U.S. Department of Transportation (DOT). Each agency incorporates hazardous substance terminology
2 in accordance with its unique Congressional mandate; therefore, the OSHA regulations categorize
3 substances in terms of their impacts on employee and workplace health and safety, the DOT regulations
4 in terms of the safety in transportation, and the USEPA regulations in terms of protection of the
5 environment and the public health.

6 In terms of their environmental impacts, hazardous materials, toxic substances, and hazardous wastes are
7 regulated under federal programs administered by USEPA, including the Comprehensive Environmental
8 Response Compensation and Liability Act (CERCLA), Emergency Planning and Community Right-to-
9 Know Act (EPCRA), Toxic Substances Control Act (TSCA), and Resource Conservation and Recovery
10 Act (RCRA). DoD installations are required to comply with these laws and all other applicable federal,
11 state and DoD regulations, as well as CFR 112, EOs 13101 and 13148.

12 The OSHA Hazard Communication regulation (29 CFR 1910.1200) defines a hazardous chemical as any
13 chemical which is a physical or health hazard. The definition includes chemicals which are carcinogens,
14 toxins, toxic agents, irritants, corrosives, and sensitizers; agents which act on the hematopoietic system;
15 agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible,
16 explosive, flammable, unstable (reactive), or water-reactive; oxidizers; pyrophorics; and chemicals which
17 in the course of normal handling, use, or storage may produce or release dusts, gasses, fumes, vapors,
18 mists, or smoke that may have any of the previously mentioned characteristics. Currently, OSHA
19 regulates workplace exposure to approximately 400 substances, including dusts, mixtures, and common
20 materials such as paints, fuels, and solvents (OSHA 2006).

21 In CERCLA Section 101(14), the USEPA defines the term “hazardous substance” by reference to
22 provisions in other environmental statutes that identify substances as hazardous (e.g., the OSHA
23 definition as described above). The USEPA definition includes any item or chemical which can cause
24 harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting,
25 emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment and any
26 substance for which a reportable quantity is established in 40 CFR 302.4.

27 The DOT Hazardous Materials Regulations (49 CFR 171) define a hazardous material as a substance or
28 material that has been determined to be capable of posing an unreasonable risk to health, safety, and
29 property when transported in commerce. The DOT definition includes hazardous substances, hazardous
30 wastes, and marine pollutants.

31 The promulgation of TSCA represented an effort by the federal government to address those chemical
32 substances and mixtures for which it was recognized that the manufacture, processing, distribution, use,
33 or disposal may present an unreasonable risk of injury to health or the environment, and to effectively
34 regulate these substances and mixtures in interstate commerce. Toxic chemical substances regulated by
35 USEPA under TSCA include asbestos, lead, polychlorinated biphenyls (PCBs), and radon, and the TSCA
36 Chemical Substances Inventory lists information on more than 62,000 chemicals and substances.

37 In regulations promulgated under RCRA, the USEPA defines hazardous waste as a solid waste which is
38 not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) and exhibits any of the
39 characteristics (ignitability, corrosivity, reactivity, toxicity) described in 40 CFR 261; or is listed in 40
40 CFR 261 Subpart D; or is a mixture containing one or more listed hazardous wastes. Hazardous wastes
41 may take the form of solid, liquid, contained gaseous, or semi-solid wastes (e.g., sludges), or any
42 combination of wastes, that pose a substantial present or potential hazard to human health or the
43 environment and have been discarded or abandoned.

1 3.13.1.1 Hazardous Materials

2 Section 4.0 of AR 200-1, Environmental Protection and Enhancement, outlines Army policy for HM
3 management and related P2. The Army and USEPA encourage a reduction in the use of hazardous and
4 toxic materials due to their toxicity. Activities and maintenance processes at FSH require the use of
5 hazardous and toxic materials. The most commonly used hazardous materials include aviation and motor
6 fuels, various grades of petroleum products, paints, solvents, thinners, adhesives, cleaners, batteries,
7 acids, bases, refrigerants, compressed gases and pesticides. The management and distribution to shops of
8 hazardous materials at FSH are accomplished primarily through the Director of Logistics supply channels
9 based on forecast and immediate needs. Special hazardous materials, including pesticides, medical
10 supplies and fuels, are maintained and distributed through alternative channels. In addition, approved
11 individuals or organizations may obtain small quantities of hazardous materials from off-installation
12 sources with International Merchant Purchase Authorization Cards (IMPACs). The Directorate of Public
13 Works (DPW) performs hazardous material reporting for compliance with EPCRA and other regulations.

14 3.13.1.2 Hazardous Waste

15 General

16 FSH is categorized by USEPA as a large-quantity hazardous waste generator, which means that the
17 installation generates more than 2,204 pounds of hazardous waste per month. FSH is regulated under
18 RCRA as a hazardous waste management facility. It is the responsibility of the DRMO to dispose of
19 hazardous wastes generated on the installations (USACE 2004). In accordance with state and federal
20 waste regulations, hazardous waste is transported off-site for proper disposal within 90 days. No
21 hazardous waste is disposed on the installation.

22 Recycling efforts and procedural changes, including product substitutions, have been implemented where
23 feasible to reduce the need for hazardous waste disposal from installation activities. Some of the current
24 activities for hazardous waste reduction at FSH include:

- 25 • Direct exchange of used vehicle batteries for new ones and use of rechargeable batteries where
26 applicable.
- 27 • Limited recycling of used antifreeze.
- 28 • Used oil recycling.
- 29 • Occasional off-spec fuel reuse.
- 30 • Closed-loop biodegradable parts washers at some maintenance facilities.
- 31 • Dry chemical photographic processing at BAMC and the graphics shop.
- 32 • Significant solvent recovery efforts at BAMC.
- 33 • Prime vendor pharmaceuticals contract at dental and medical activities.
- 34 • Partial implementation of hazardous substances management system (HSMS) and hazardous
35 materials pharmacy operations at the DOL to reduce excess storage of hazardous materials that
36 may become waste.

37 Future opportunities for further hazardous waste reduction as outlined in the P2 Plan include:

- 38 • More widespread efforts to recycle all types of batteries.
- 39 • Used antifreeze recycling.

- 1 • Used oil, off-spec fuel and other waste (petroleum, oil and lubricant [POL]) -related generation
- 2 reduction initiatives.
- 3 • Pollution-reducing weapons maintenance techniques and methods.
- 4 • Further reduction in solvent generated from parts washers.
- 5 • Reuse of shop rags.
- 6 • Alternatives to paint-related wastes.
- 7 • Paint thinner recycling.
- 8 • Miscellaneous maintenance waste (brakes, filters, cans, dry sweep and materials segregation).
- 9 • Additional solvent recovery and distillation for hospital wastes.
- 10 • Miscellaneous medical-related wastes (mercury, regulated medical waste and pharmaceuticals).
- 11 • Installation wide comprehensive use of HSMS and hazardous material pharmacy implementation
- 12 for the entire installation for good housekeeping.

13 Special Hazards

14 Certain regulated non-hazardous wastes and RMWs, while not defined by RCRA and TCEQ as hazardous
15 substances, require special management procedures. These wastes are the result of common FSH
16 activities and processes associated with hazardous waste generation.

17 Used tires, used compressed gas cylinders and fluorescent light bulbs are not considered “hazardous” by
18 the regulatory definition; nonetheless, they are regulated wastes. Currently, these materials are disposed
19 through the DRMO and recycled or disposed off-installation.

20 3.13.1.3 Storage and Handling Areas

21 Most hazardous materials at FSH are used in small to moderate quantities with limited spill potential.
22 Some materials and chemicals, however, are stored in larger quantities depending on the needs of specific
23 facilities.

24 Hazardous Waste Storage

25 Hazardous wastes at FSH are accumulated at satellite accumulation sites around the installation. Satellite
26 accumulation sites are areas near the point of waste generation where up to 55 gallons of a hazardous
27 waste stream, or 1 quart of an acutely hazardous waste stream, may be accumulated. More than one drum
28 may be present; however, more than 55 aggregate gallons may not be present at any satellite
29 accumulation site. More than one waste stream, and therefore more than one drum, may be accumulated,
30 but no more than one drum of any waste stream may be accumulated. Once accumulation volume limits
31 are reached, wastes subsequently are moved within the installation to Facility 3600, a regulated, less-than-
32 90-day hazardous waste storage area. Facility 3600 accommodates the storage of hazardous waste
33 containers for up to 90 days until they can be collected by a USEPA-licensed transporter and delivered to
34 an approved off-site disposal facility. Off-site transport is contracted by the DRMO. Table 3.13-1 lists
35 the hazardous material/waste accumulation sites and storage areas on FSH. Each of these facilities is
36 shown in Figure 3.13-1.

Table 3.13-1. Summary of Hazardous Material/Waste Satellite Accumulation Sites and Less-than-90-day Storage Areas

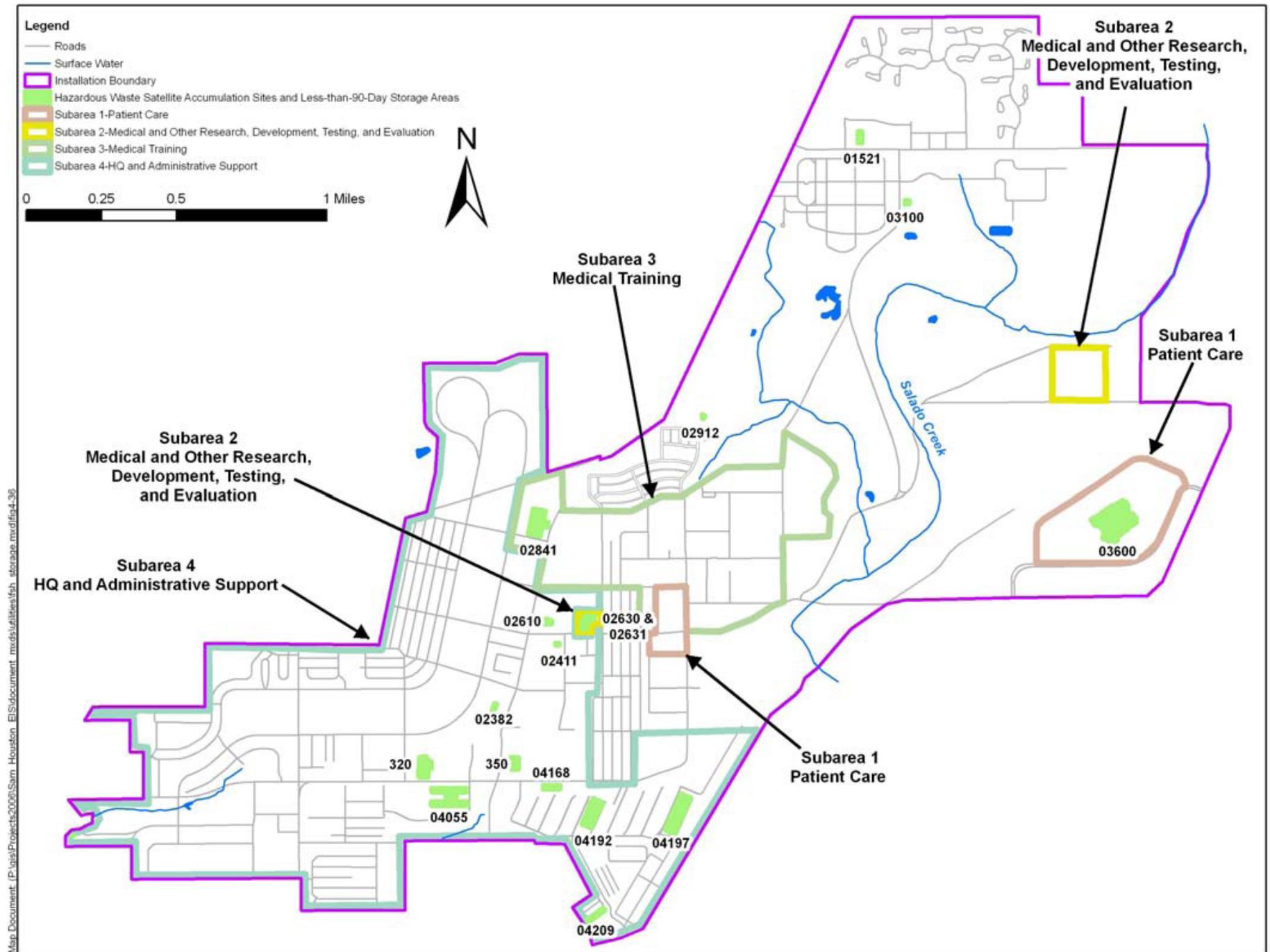
<i>Facility Number</i>	<i>Facility Name</i>	<i>Contents</i>	<i>Container Type</i>
320	Gymnasium Pool	Chlorine	150-pound cylinder
350	Toyland/Four Seasons	Pesticides, fertilizers, paints	Various containers
1521	90th U.S. Army Reserve Support Command	Automotive gasoline (MOGAS), paint, oil, diesel, brake fluid, antifreeze, mineral spirits, sulfuric acid	55- and 30-gallon drums, 5-gallon containers
2190	Water Treatment Plant	Chlorine, calcium hypochlorite, paint, hydraulic oil	150-pound cylinder, 5-gallon containers
2382	147th Medical Logistics Motor Pool	Antifreeze, oils, brake fluids, hydraulic fluid	Various containers
2411	Auto Hobby Shop	Paint-related waste, oil, antifreeze	55-gallon drums
2610	Army and Air Force Exchange Service (AAFES) Fueling Station	Mineral spirits	55-gallon drum
2630	Veterinary Laboratory	Spent solvents	1-gallon jars
2631	Veterinary Laboratory	Ethyl acetate, acetone, methyl alcohol, formaldehyde, hexane	1-gallon, 1-liter containers
2841	AMEDD School Radiology and Photo Laboratory	Developer fixative, acetic acid	1-gallon containers
2912	MWR Golf Cart Maintenance	Waste oil, waste antifreeze, mineral spirits, paints	Various containers
3100	MWR Golf Course Maintenance	Oils, mineral spirits, diesel fuel, algaecides, herbicides, insecticides, pesticides, lead acid batteries, antifreeze, paint thinners	Various containers
3600	BAMC Cytology Laboratory	Waste ethanol, formalin, sulfuric acid	5-gallon container
3600	BAMC Histology Laboratory	Alcohol, xylene	5-gallon container
3600	BAMC Chemistry Laboratory	Methanol	5-gallon container
3600	BAMC Photo Laboratory	Waste developer fixative	5-gallon container
3600	Clinical Investigation Laboratory	Solvents, acids, bases	5-gallon container
3600	Morgue	Formaldehyde	1-gallon container
3882	Roads and Grounds	Contaminated gasoline, oil, used batteries, antifreeze	55-gallon drums, 1-to 5-gallon containers
4055	DOL Maintenance	Paint-related waste, contaminated gasoline, antifreeze, sodium iodate, formaldehyde	Various containers
4168	Self Help Store	Household hazardous waste	Plastic containers
4168	Pest Control Shop	Insecticides, rodenticides, herbicides, fungicides	Various containers
4192	AAFES Warehouse	Paints, thinners	Quart and gallon containers
4197	Refrigeration Sign Shop	Oil, mineral spirits	5-gallon container, 30-gallon unit
4209	DPW Maintenance	Transmission fluid, contaminated gas and diesel, transmission oil, hydraulic fluid, motor oil, antifreeze, mineral spirits	55-gallon drums
Less-than-90-day Storage Area			
3600	BAMC 90-day Hazardous Waste Storage Area	Various from BAMC operations	Multiple containers
4055	90-day Hazardous Water Storage Area	Various hazardous and petroleum wastes	Multiple containers

Source: Weston 2003.

1 3.13.1.4 Storage Tanks

2 Section 4.5 of AR 200-1, Environmental Protection and Enhancement, outlines Army storage tank
3 management policy and incorporates federal regulations. Environmental Office DPW manages storage

1 tanks and storage tank releases at FSH in accordance with AR 200-1 and the FSH SPCC Plan and ISCP
2 (Weston 2003, 2006).
3 These plans provide prevention and control measures to reduce the potential for spills from storage tanks
4 and to establish plans and procedures for controlling and managing sudden releases of petroleum products
5 or hazardous materials. Petroleum fuels and products, as well as waste POL products, are stored in
6 various tanks throughout FSH. Materials stored include No. 2 diesel fuel (DF-2), gasoline, jet propellant
7 (JP-8), motor oil and waste oil.



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Figure 3.13-1 Fort Sam Houston Hazardous Waste Storage Locations

- 1 Table 3.13-2 summarizes information regarding storage tanks at FSH.

Table 3.13-2. FSH Storage Tanks

<i>Tank Identification</i>	<i>Building Number</i>	<i>Size (gallons)</i>	<i>Contents</i>	<i>Year Installed</i>	<i>Tank Material</i>	<i>Type of Tank</i>
None	16	250	DF-2	Unknown	Steel	AST
None	16	250	DF-2	Unknown	Steel	AST
Unknown	331	10,000	Gasoline	Unknown	FRP	UST
Unknown	331	10,000	Gasoline	Unknown	FRP	UST
Unknown	331	10,000	Gasoline	Unknown	FRP	UST
None	1521	55	Waste Oil	Unknown	Steel	Drum
None	2190	500	DF-2	Unknown	FRP	AST
None	2190	500	DF-2	Unknown	Steel	Day Tank
None	2382	55	Waste Oil	Unknown	Steel	Drum
None	2382	55	DF-2	Unknown	Steel	Drum
None	2411	300	Waste Oil	Unknown	FRP	AST
38	2610	10,000	DF-2	1993	FRP	UST
39	2610	10,000	Gasoline	1993	FRP	UST
40	2610	10,000	Gasoline	1993	FRP	UST
41	2610	10,000	Gasoline	1993	FRP	UST
None	2610	500	Waste Oil	Unknown	FRP	AST
None	2610	250	Motor Oil	Unknown	Steel	AST
46	2630	500	DF-2	1980	FRP	UST
None	2630	50	DF-2	Unknown	Steel	Day Tank
None	2912	1,000	Gasoline	Unknown	Steel	AST
None	3100	550	Waste Oil	Unknown	FRP	UST
None	3100	550	DF-2	Unknown	Steel	AST
None	3100	550	DF-2	Unknown	Steel	AST
None	3600	55	Gasoline	Unknown	Steel	Drum
None	3882	55	Waste Oil	Unknown	Steel	Drum
None	3882	55	Gasoline	Unknown	Steel	Drum
58	4050	10,000	JP-8	1983	FRP	UST
59	4050	10,000	JP-8	1983	FRP	UST
60	4050	10,000	JP-8	1983	FRP	UST
61	4050	10,000	JP-8	1983	FRP	UST
None	4055	55	Waste Oil	Unknown	Steel	Drum
None	4209	300	Waste Oil	Unknown	FRP	AST

Notes:

AST – Aboveground storage tank
 Day Tank – Emergency generator day use tank
 DF-2 – No. 2 diesel fuel
 Source: Weston 2003

UST – Underground storage tank
 FRP – Fiberglass, reinforced plastic
 JP-8 – Jet propellant

1 3.13.1.5 Site Contamination and Cleanup

2 Installation Restoration Program

3 Contamination of groundwater and soil is tracked and mitigated through the Army Environmental
4 Database for Restoration (AEDB-R). Three Installation Restoration Program (IRP) sites are located on
5 FSH. These include FTSH-26 (which includes Landfills 8A, 8B, 10 and 12), FTSH-29 (which includes
6 Landfills 4A, 6 and 7) and FTSH-30 (which includes Landfills 2, 3, 4B and 5) (U.S. Army Environmental
7 Center [USAEC] 2006b). Figure 3.13-2 shows the locations of the FSH IRP sites.

8 The following paragraphs summarize the FSH environmental investigations conducted at each IPR site as
9 taken from the *Fort Sam Houston, Texas, Army Defense Environmental Restoration Program Installation*
10 *Action Plan, 7 February 2006* (USAEC 2006).

11 *Landfill 2 (FTSH-30)*

12 Landfill 2 is located within the east-central portion of FSH in the Salado Creek floodplain. The AEDB-R
13 designation changed from FTSH-26 to FTSH-30. It is approximately 6 acres and is collocated with
14 Landfill 3. Landfill 2 is reported to have received domestic, medical and construction wastes from 1954
15 to 1979.

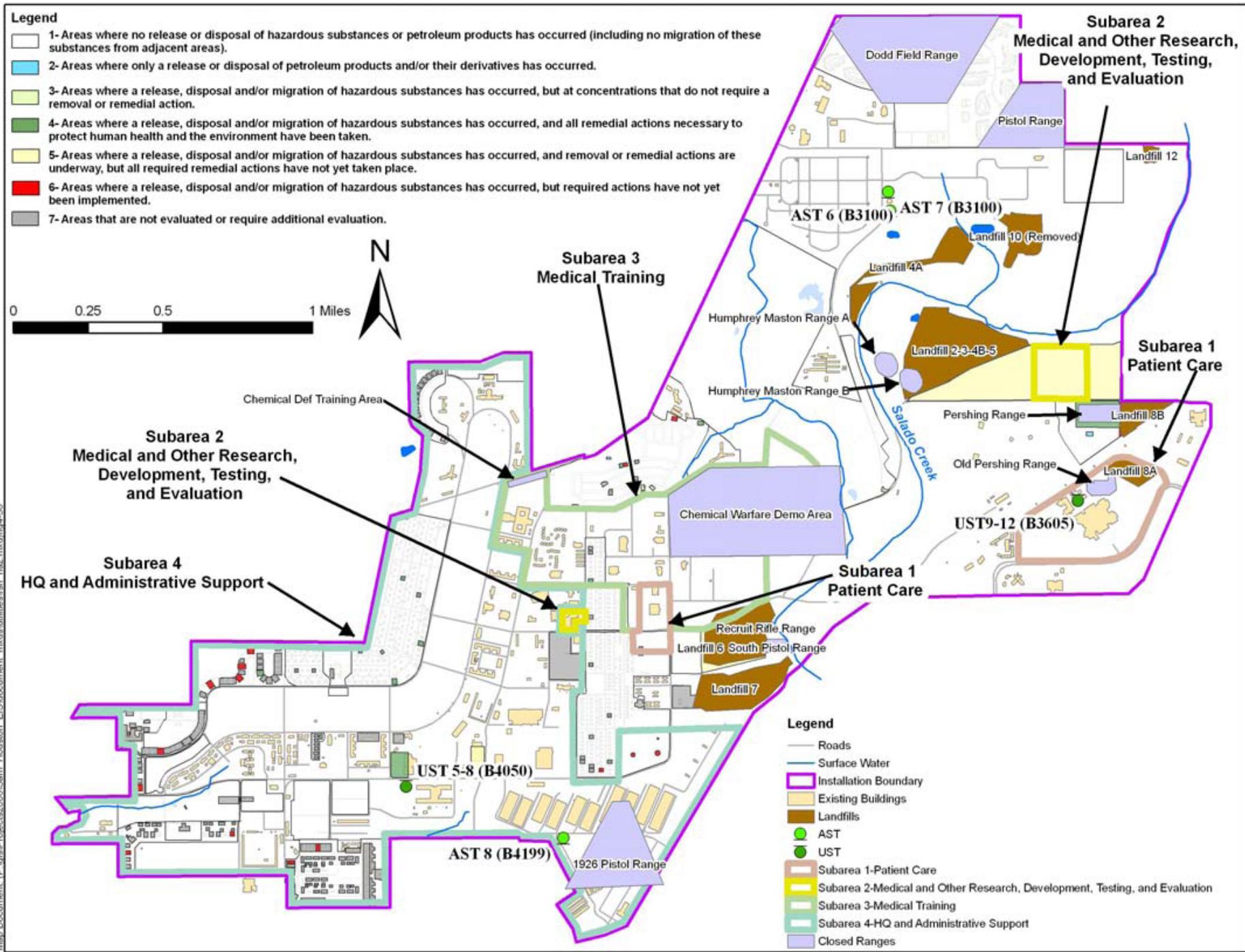
16 A landfill assessment was performed in 1994 and 1995 and included a geophysical survey, surface and
17 subsurface soil sampling and monitoring well installation. Exploratory trenching was completed in June
18 2000 for remedial investigation and design purposes.

19 Groundwater sampling for MW-0201 conducted in October 2004 was included in the combined Affected
20 Property Assessment Report (APAR). No concentrations exceeding the protective concentration limits
21 (PCLs) were detected. An APAR was submitted on 31 August 2005, recommending a Remedy Standard
22 B closure (waste left in place) with long-term management. A Response Action Plan (RAP) would be
23 required to document planned monitoring and maintenance activities along with LUCs (USAEC 2006).

24 *Landfill 3 (FTSH-30)*

25 Landfill 3 is located along the east-central portion of FSH in the Salado Creek floodplain. It is
26 approximately 3.3 acres and is collocated with Landfill 2. Landfill 3 is reported to have received
27 domestic, medical and construction wastes until its closure in 1979.

28 A landfill assessment was performed in 1994 and 1995 and included a geophysical survey, surface and
29 subsurface soil sampling and monitoring well installation. Exploratory trenching was completed in June
30 2000 for remedial investigation and design purposes.



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3.13-2 Fort Sam Houston IRP/Landfill/Range Locations Accordingly

1 Groundwater concentrations exceeding the PCL for lead and arsenic were detected in samples collected in
2 October 2004. The results were included in the combined APAR submitted to TCEQ on August 31,
3 2005, recommending a Remedy Standard B closure with long-term management. A RAP would be
4 required to document planned monitoring and maintenance activities along with LUCs (USAEC 2006).

5 *Landfill 4A (FTSH-29)*

6 Landfill 4A is located within the east-central portion of FSH. The AEDB-R designation changed from
7 FTSH-26 to FTSH-29. This landfill is located north and west of Salado Creek, which also separates it
8 from Landfill 4B and is approximately 14 acres. This area-fill is reported to have received construction
9 debris from 1960 to approximately 1975.

10 A landfill assessment was performed in 1994 and 1995 and included geophysical and soil gas surveys,
11 surface and subsurface soil sampling and monitoring well installation. Exploratory trenching was
12 completed in June 2000 for remedial design purposes. In August 2000, measures were taken to control
13 erosion. The results have been included in the combined APAR, which was reviewed by TCEQ. A
14 response to comments was submitted in February 2006 (USAEC 2006).

15 *Landfill 4B (FTSH-30)*

16 Landfill 4B is located along the east-central portion of FSH in the Salado Creek floodplain and is
17 approximately 15 acres. Landfill 4B is reported to have received medical and construction wastes from
18 1960 to approximately 1975.

19 A landfill assessment was performed in 1994 and 1995 and included a geophysical survey, surface and
20 subsurface soil sampling and monitor well installation. Metals and SVOCs were detected in two surface
21 soil samples at concentrations above maximum background. Subsequently, groundwater sampling was
22 performed, which revealed metals above the MCL. Exploratory trenching was completed in June 2000
23 for remedial investigation and design purposes. Two additional wells were installed and sampled in
24 October 2004. Arsenic was detected at concentrations exceeding the PCL.

25 A combined APAR was submitted to TCEQ on 31 August 2005, recommending a Remedy Standard B
26 closure with long-term management. A RAP would be required to document planned monitoring and
27 maintenance activities along with LUCs (USAEC 2006).

28 *Landfill 5 (FTSH-30)*

29 Landfill 5 is located within the east-central portion of FSH in the Salado Creek floodplain, was designated
30 under FTSH-26 in the AEDB-R and has been re-designated as FTSH-30. The landfill is estimated to be
31 19 acres. This trench and fill landfill is reported to have received domestic, medical and construction
32 wastes from 1953 until 1975.

33 A landfill assessment was performed in 1994 and 1995 and included a geophysical and soil gas surveys,
34 surface and subsurface soil sampling and monitoring well installation. Metals, SVOCs and TPH
35 constituents were detected in four surface soil samples at concentrations above maximum background.
36 Subsequently, groundwater sampling was performed, which revealed metals above the MCL.
37 Exploratory trenching was completed in June 2000 for remedial design purposes. One new well was
38 installed in October 2004, and one existing well was replaced due to damage. No concentrations
39 exceeding the PCLs were detected in groundwater samples collected in October 2004 (USAEC 2006b). A
40 combined APAR was submitted to TCEQ on 31 August 2005, recommending a Remedy Standard B
41 closure with long-term management. A RAP would be required to document planned monitoring and
42 maintenance activities along with LUCs (USAEC 2006).

1 *Landfill 6 (FTSH-29)*

2 Landfill 6 is located within the southeastern portion of FSH. This landfill is located west of Salado Creek
3 and east of Garden Avenue and is estimated to be 23 acres. This trench and fill landfill is reported to have
4 received domestic, construction and incinerator residue and debris from the mid-1950s until 1973.

5 A landfill assessment was performed in 1994 and 1995 and included a geophysical and soil gas surveys,
6 surface and subsurface soil sampling and monitoring well installation. Metals and SVOCs were detected
7 in four surface soil samples and VOCs in one subsurface soil sample, at concentrations above maximum
8 background. Subsequently, groundwater sampling was performed, which revealed metals above the
9 MCL. Installation wide metals background concentrations were established in January 2005, and the
10 report was approved by TCEQ on 7 April 2005.

11 Exploratory trenching was completed in June 2000 for remedial design purposes. In August 2000,
12 measures were taken to control erosion. Groundwater samples collected in October 2004 indicated the
13 presence of lead concentrations exceeding the PCL in two monitoring wells along Salado Creek, along
14 with minor erosion issues. The results have been included in the combined APAR and reviewed by
15 TCEQ. A response to comments was submitted in February 2006 (USAEC 2006).

16 *Landfill 7 (FTSH-29)*

17 Landfill 7 is located within the southeastern portion of FSH. This landfill is located west of Salado Creek
18 and east of Garden Avenue. An unnamed tributary of Salado Creek separates Landfill 7 from Landfill 6.
19 The landfill is estimated to be 22 acres. This trench and fill landfill is reported to have received domestic,
20 construction, organic material and chemical debris from the mid-1950s until 1979. This site currently is
21 being used to store plant mulch.

22 A landfill assessment was performed in 1994 and 1995 and included a geophysical and soil gas surveys,
23 surface and subsurface soil sampling and monitoring well installation. Metals and SVOCs were detected
24 in surface soil samples at concentrations above maximum background. Subsequently, groundwater
25 sampling was performed, which revealed metals above the MCL. Installation wide metals background
26 concentrations were established in January 2005, and the report was approved by TCEQ on 7 April 2005.
27 Exploratory trenching was completed in June 2000 for remedial design purposes. In August 2000,
28 surface debris was removed and measures were taken to control erosion. In 2004, erosion of the western
29 end of the landfill and the presence of exposed debris were noted during sampling. Samples collected in
30 October 2004 revealed the presence of lead in groundwater at concentrations exceeding the PCL. The
31 results have been included in the combined APAR and reviewed by TCEQ. A response to comments was
32 submitted in February 2006.

33 *Landfill 8A (FTSH-29)*

34 Landfill 8A is located within the eastern portion of FSH. This landfill currently is located beneath the
35 north end of the new BAMC parking lot and is estimated to be 6.5 acres. This cover and compact landfill
36 is reported to have received construction debris into the 1970s.

37 A landfill assessment was performed in 1994 and 1995 and included surface and subsurface soil sampling
38 and monitoring well installation. Metals were detected in surface soil samples at concentrations above
39 maximum background. Subsequently, groundwater sampling was performed, which revealed metals
40 above the MCL.

41 In June 2000, 12 soil borings were installed to provide sufficient data to define the approximate limits of
42 the landfill and to determine the characteristics of the waste. On 25 January 2001, FSH received a

1 TNRCC response letter recommending further investigation and reporting. Only one of 12 borings drilled
2 found measurable quantities of groundwater.

3 TCEQ verbally agreed that no further action was acceptable in a February 2004 meeting. In August 2004,
4 FSH submitted a Technical Memorandum documenting evidence that waste disposal activities did not
5 occur on a large scale at Landfill 8A. The memorandum requested declassification of the site as a
6 landfill. On 1 October 2004, FSH received TCEQ concurrence with the declassification of Landfill 8A.
7 Three groundwater monitoring wells were plugged and abandoned in September 2005. Any further
8 investigation would be conducted under the Military Munitions Response Program (MMRP). This site
9 has been identified as an MMRP site and is referred to as the "FTSH-008-R-01 Old Pershing Range." All
10 further cleanup actions would be managed under the MMRP.

11 *Landfill 8B (FTSH-29)*

12 Landfill 8B is located within the eastern portion of FSH. This landfill also is known as the Explosive
13 Ordnance Detonation and Disposal (EOD) area at the Pershing Firing Range (FTSH-13) and is located
14 due east of the former firing range. This landfill is approximately 4 acres. This cover and compact
15 landfill is reported to have received construction debris and potentially exploded and unexploded
16 ordnance during the 1970s.

17 A landfill assessment was performed in 1994 and 1995 and included subsurface soil sampling and
18 monitoring well installation. Metals were detected at concentrations above maximum background.
19 Subsequently, groundwater sampling was performed, which revealed metals above the MCL. In 1996, a
20 preliminary assessment screening was performed at this site and identified that SVOCs and metals
21 concentrations in the soil were above the PCL. In 1999, an unexploded ordnance (UXO) and geophysical
22 survey was performed, which identified potentially explosive debris.

23 Site characterization fieldwork by way of exploratory trenching was completed in June 2000, and an
24 APAR was submitted in December 2000, recommending a future removal action. Further evaluation,
25 however, is expected to show that the site does not pose a significant environmental risk. This, coupled
26 with the potential UXO hazard, has led to a reassessment of the need for any removal.

27 An installation wide metals background study was performed in late 2004. Two additional monitoring
28 wells were installed to improve delineation and gradient definition. Samples collected from all wells in
29 October 2004 showed no contaminants of concern (COCs) exceeding the critical PCLs. A combined
30 APAR was prepared and submitted to TCEQ in July 2005. TCEQ provided comments on the APAR in
31 October 2005. A response to comments was submitted in February 2006.

32 *Landfill 10 (FTSH-29)*

33 Landfill 10 is located within the northeastern portion of FSH. This landfill is located east-southeast of the
34 national cemetery. This landfill is approximately 10 acres in size. This covered, surface dump landfill
35 contained construction and cemetery debris. It is unknown when this surface dump was in use.

36 A landfill assessment was performed in 1994 and 1995 and included subsurface soil sampling and
37 monitoring well installation. Metals were detected at concentrations above maximum background.
38 Subsequently, groundwater sampling was performed, which revealed metals above the MCL.

39 A removal action was performed between November 1999 and February 2000. The final report was
40 submitted to TNRCC in October 2000. TCEQ review comments on the field summary report were sent to
41 FSH on 11 January 2001, requiring additional investigation and reporting. Confirmation sampling was
42 performed in May 2001. An APAR recommending no further action was prepared and submitted to

1 TNRCC on 5 November 2001. TCEQ disagreed with the classification of groundwater as a Class 3
2 resource (not usable for potable water supply). Further testing indicates that the groundwater was a Class
3 2 resource.

4 The APAR was revised to reflect the change in classification and the associated PCLs and resubmitted to
5 TCEQ on 18 February 2005. This report was approved by TCEQ on 21 April 2005 with the condition that
6 Landfill 10 be deed recorded. The deed recording for the landfills, to include LUCs, was performed on 15
7 July 2005 to complete the closure process. Four groundwater monitoring wells were plugged and
8 abandoned in September 2005.

9 *Landfill 12 (FTSH-29)*

10 Landfill 12 is located within the northeastern portion of FSH. This landfill is approximately 1 acre in size.
11 This landfill was reported to be an area fill with no control. It received construction debris and domestic
12 refuse during the 1950s.

13 A landfill assessment was performed in 1994 and 1995 and included soil gas and geophysical surveys,
14 surface soil sampling and monitoring well installation and sampling. Minimal concentrations of metals
15 were detected above maximum background. Subsequently, groundwater sampling was performed, which
16 revealed metals above the MCL.

17 A removal action was performed between February and March 2000. The final report was submitted to
18 TNRCC in October 2000.

19 TNRCC review comments on the field summary report were sent to FSH on 10 January 2001, requiring
20 additional information to be submitted. An APAR recommending no further action was prepared and
21 submitted to TNRCC on 5 November 2001. TCEQ disagreed with the classification of the aquifer as a
22 Class 3 groundwater source and therefore did not approve the APAR.

23 The APAR was revised to reflect the change in classification and the associated PCLs and resubmitted to
24 TCEQ on 18 February 2005. This report was approved by TCEQ on 21 April 2005, with the condition
25 that Landfill 12 be deed recorded. The deed recording for the landfills, to include LUCs, was performed
26 on 15 July 2005, in order to complete the closure process. Five groundwater monitoring wells were
27 plugged and abandoned in September 2005.

28 Military Munitions Response Program (MMRP)

29 The MMRP was established in 2001 to manage the environmental, health and safety issues presented by
30 UXO, discarded military munitions (DMM) and munitions constituents (MC). The MMRP is an element
31 of the Defense Environmental Restoration Program (DERP), under which the Secretary of Defense carries
32 out environmental restoration resulting from historical activities.

33 Twenty-six sites have been identified for inclusion under the MMRP at FSH. MMRP preliminary
34 assessments have been completed; however, further assessments are planned for all MMRP sites. All
35 MMRP site data for FSH were taken from the *Fort Sam Houston, Texas, Army Defense Environmental*
36 *Restoration Program Installation Action Plan, 7 February 2006* (USAEC, 2006b).

37 *Chemical Defense Training Area (FTSH-001-R-01)*

38 This is a multi-use range/site with potential for groundwater contamination. In the late 1930s, three
39 chemical munitions magazines were located on what

1 is now the northern parking lot at the AMEDDC&S, just south of Harry Wurzbach Highway. Some
2 chemical defense exercises (gas mask drills) were conducted in this area before WWII. This 2.69-acre
3 area currently contains medical and office buildings.

4 *Dodd Field Small Arms Range (FTSH-002-R-01)*

5 This is a small arms range site. In 1888, a small arms target range was constructed in the western portion
6 of a parcel of land just north of FSH that later would become Dodd Field. The target butts were located
7 just south of Rittiman Road and east of Harry Wurzbach Highway in an area that is currently the Watkins
8 Terrace family housing area. The contours of the target butts still are portrayed on maps dated 1926 and
9 1940. The firing points were to the south, with the 600-yard line east of Road S-43 and north of Dashiell
10 Road. Use of the range likely was discontinued in 1915 with the construction of barracks, hangars and a
11 runway for the development of an aviation post that operated until 1917. This closed range is 87.24 acres
12 in size.

13 *Meade Field (FTSH-003-R-01)*

14 This is a multi-use range site with potential for groundwater contamination. During the mobilization for
15 World War I, this 114.82-acre area was a multi-use area used to train troops for combat. This would have
16 involved the use of grenades (smoke and practice), small arms and artillery simulators and demolitions.
17 Riot control agents were used between the 1960s and 1970s to simulate toxic chemical agents. Through
18 1997, the area was used for operational readiness training for combat medics that involved aeromedical
19 evacuations and the use of small arms, smoke and simulators.

20 Development of the area for other purposes began in 1941, when horse stables were constructed in the
21 southwest corner of the site. In 1961, the Charles Kelly Heliport was constructed in the northwest corner
22 of Meade Field. In 1991, an RV park was constructed in the northeast corner of the site.

23 *1926 Pistol Range (FTSH-004-R-01)*

24 This is a small arms range site. A 1926 training map shows a pistol range located south of Wilson Street
25 along the extension of Chaffee Road between Buildings 4193 and 4194 in the former Kelly AFB Annex.
26 The approximate dates of use for this range are 1926 through 1938. Warehouses and office buildings
27 currently are located on this former 31.84-acre range.

28 *Staff Post Firing Range (FTSH-005-R-01)*

29 This is a small arms range site. The earliest known small arms firing range on FSH was located in the
30 Staff Post area near the intersection of Wilson Street and Liscom Road. The target butts would have been
31 located near the west end of Building 230. This range was in use from about 1867 to 1887, when troop
32 strength at the installation varied between 80 and 200 Soldiers. The former site is approximately 615.1
33 acres in size. Part of the former firing range contains office buildings, while the rest remains
34 undeveloped.

35 *Chemical Warfare Demonstration Area (FTSH-006-R-01)*

36 This is a multi-use range site. In 1920, a chemical warfare demonstration was conducted in the area
37 between Salado Creek and Garden Street. Unknown numbers of 4-inch Stokes mortars and 8-inch Livens
38 projectors were fired during the demonstration. The mortars fired thermite and white phosphorus rounds.
39 The Livens projectors fired oil-filled incendiary drums and titanium tetrachloride rounds to simulate
40 mustard gas. The range fan for the 200-yard rifle range overlies this site. Total acreage of the area is
41 128.79 acres. It is currently a recreation area.

1 *Closed Pershing Field (FTSH-007-R-01)*

2 This is a multi-use range site. During the mobilization for WWI, this area was a multi-use area used to
3 train troops for combat. This would have involved the use of grenades (smoke and practice), small arms
4 and artillery simulators or demolitions. A 1926 training map depicts a machine gun range at the western
5 end of Pershing Field. Records indicate that from 19 July 1938 to 23 November 1938, the machine gun
6 range was redeveloped as a “1,000-inch range” and renamed the “Humphrey-Maston Range.” During the
7 1930s, a pistol range was opened just south of the Humphrey-Maston Range in the western end of
8 Pershing Field. The use of the range was discontinued in November 1939. In 1955, the U.S. Modern
9 Pentathlon Training Center moved to FSH. Shortly thereafter, the former pistol range was designated as
10 the “Pentathlon Range.” This 100.88-acre training area was used from 1917 until approximately 1962.
11 The current FSH golf course was constructed over part of this former training area, while other parts of
12 the area were used for landfills from 1953 to 1979, with the rest remaining undeveloped. Subsurface
13 sampling conducted in May 2006 showed no explosives contamination in the subsurface soils.

14 *Old Pershing Range (FTSH-008-R-01)*

15 This is a small arms range site. The 4.93-acre small arms range was built in 1960 and was used until the
16 replacement range, the New Pershing Range, was built in 1970. The proximity of the National Guard
17 Armory complex, built in 1974, limited the amount and type of training conducted in this area. This
18 former range area is currently the location of BAMC and office buildings.

19 *Fire Training Area (FTSH-009-R-01)*

20 This is a multi-use range site with potential for groundwater contamination. This 55.36-acre area is part of
21 the land acquired for the construction of Camp Travis in 1917 to prepare for WW I troop buildup; the
22 western boundary of the training area was along the edge of the cantonment barracks. Camp Travis later
23 became part of FSH in 1922. The area was used primarily for small arms training from 1917 to 1945. A
24 “recruit rifle range” was reported to have existed in 1940 toward the east end of the area. The range fan
25 for the former 200-yard rifle range also overlies this area. A fire station, fire training facilities and
26 softball fields currently are located on a portion of this site.

27 *Pentathlon Range-TD (FTSH-010-R-01)*

28 This is a small arms range site. This 7.7-acre site is part of the range fan of the former pentathlon pistol
29 range and lies to the east of the current installation boundaries. The pentathlon pistol range was used from
30 approximately 1930 through 1939, and then again from 1955 until approximately 1962. Currently, this
31 area is used for residential areas and undeveloped floodplain. This property never was owned by the U.S.
32 Army and is not being considered under the Formerly Used Defense Sites (FUDS) inventory. U.S. Army
33 use of this property ended in 1962.

34 *Salado Creek Training Area (FTSH-011-R-01)*

35 This is a multi-use range site with potential for groundwater contamination. In 1917, the area was used for
36 World War I training that included grenades, mortars and practice bombs from aircraft. From 1946 to
37 1997, the 45.46-acre Salado Creek training area was used for individual training of medical officers and
38 enlisted personnel and unit training, primarily military police and Army Medical Department
39 organizations. This training would have involved small arms, artillery simulators, smoke and practice
40 grenades and riot control agents. A 1926 training map shows a 200-yard rifle range located on the western
41 edge of the Salado Creek training area east of Salado Creek and south of the current bridge over the creek

1 on Binz-Engleman Road. The range also is depicted on site maps dated 1938, 1943 and 1951. This area
2 currently is undeveloped.

3 *200-yard Rifle Range (FTSH-012-R-01)*

4 This is a small arms range/site. A 1926 training map shows a 200-yard rifle range located in the southern
5 portion of the Salado Creek training area east of Salado Creek and the current bridge over the creek on
6 Binz-Engleman Road. The range also is depicted on site maps dated 1938, 1943 and 1951. According to
7 available records, there is no evidence of the range being used in 1951. The 0.89-acre area is currently an
8 undeveloped area within the floodplain of Salado Creek.

9 *Stonewall Jackson Field-TD (FTSH-013-R-01)*

10 This is a multi-use range/site. This 76.13-acre site was formerly part of the Stonewall Jackson Field
11 training area. During the mobilization for WWI, this area was a multi-use area used to train troops for
12 combat. From 1925 to 1931, the area also was used as a practice bombing range for aircraft flying out of
13 Dodd Field. Black powder practice bombs have been found in Stonewall Jackson Field as recently as
14 1983. A 1926 training map does not depict any training areas within this former area of Stonewall
15 Jackson Field. In 1941, troop barracks were constructed in this area as part of the Dodd Field Recruit
16 Reception Center; barracks still are depicted on a 1956 map. The range fans for the Humphrey-Maston
17 Machine Gun Range and the Stonewall Jackson Field Pistol Range overlay this site. In 1980, 31.68 acres
18 of this site were transferred to the Department of Veterans Affairs for development as a national
19 cemetery. In 1998, the remaining 45.1 acres of land also were transferred to the Department of Veterans
20 Affairs for further development of the national cemetery.

21 *Landfill 8B (FTSH-015-R-01)*

22 This is a multi-use range/site. The landfill (AEDB-R Site FTSH-26), also known as the EOD area, is
23 approximately 4.86 acres and located east of the Pershing Firing Range. According to the March 2002
24 Installation Action Plan (IAP) and the May 2000 Site Characterization Work Plan, it is reported to have
25 received construction debris and potentially exploded and unexploded ordnance from 1970 to 1985. The
26 area was surface cleared by a UXO team in 1999 and 2000 prior to geophysical surveys being conducted
27 across the site. Only UXO-related items that included hand grenade spoons, one empty M-16 mine casing
28 and expended small arms rounds have been located and removed; no UXO has been detected. The
29 remedial investigation for Landfill 8B recently was completed under the IRP. The landfill currently is
30 surrounded by an 8-foot chain-link fence topped with barbed wire.

31 *Pistol Range-TD (FTSH-016-R-01)*

32 This is a small arms range/site. The Pistol Range-TD is the 36.34-acre section of the original range fan of
33 the pistol range that extends past the installation boundary. A 1926 training map and a map dated May
34 1940 based on 1938 aerial photographs depict a pistol range located in the southeast corner of the
35 Stonewall Jackson Field training area. The pistol range does not appear on a map dated July 1943 or any
36 other available historical maps. Currently, the property contains the City of San Antonio Park and
37 residential areas. This property never was owned by the U.S. Army and is not being considered under the
38 FUDS inventory. U.S. Army use of this property ended in 1943.

39 *Stonewall Jackson Field (FTSH-017-R-01)*

40 This is a multi-use range/site. During the mobilization for WWI, this 283.78-acre area was a multi-use
41 area used to train troops for combat. From 1925 to 1931, the area also was used as a practice bombing
42 range for aircraft flying out of Dodd Field. Black powder practice bombs have been found at the site as

1 recently as 1983. The training area also was used during WWII for various types of training, including the
2 use of practice landmines. The presence of the Fourth Army antenna farm in this area in 1947 would
3 have limited the use of the training area as a live-fire training range. A 1926 training map and a map dated
4 May 1940 based on 1938 aerial photographs depict a pistol range located in the southeast corner of the
5 Stonewall Jackson Field training area. The pistol range does not appear on a map dated July 1943 or any
6 other available historical maps. No additional information on this pistol range was located during the
7 records review. The range fans for the Humphrey-Maston Machine Gun Range and the pentathlon pistol
8 range also overlay the Stonewall Jackson Field training area. Parts of this site currently are used for
9 utility/ground improvements and landfills, with the rest remaining undeveloped.

10 *Trench Warfare Complex (FTSH-018-R-01)*

11 This is a multi-use range/site with potential for groundwater contamination. Beginning in 1917, this
12 65.77-acre area was used for combat training during the troop buildup for World War I. This training
13 included practice grenades, small arms, rifle grenades, smoke and demolitions. After 1970, training was
14 limited to field training exercises with small arms, simulators and smoke and riot control agents. Training
15 was curtailed further in the area after 1974 with the construction of the National Guard Armory Complex
16 in the northeast portion of the site. BAMC and office buildings currently are located on this former
17 training site.

18 *1926 Pistol Range (FTSH-019-R-01)*

19 This is a small arms range site. The 1926 Pistol Range-TD is the 1.23-acre section of the original range
20 fan of the 1926 pistol range that extends past the installation boundary. A 1926 training map shows a
21 pistol range located south of Wilson Street along the extension of Chaffee Road between Buildings 4193
22 and 4194 in the former Kelly AFB Annex. The approximate dates of use for this range are 1926 through
23 1938. The property currently is used for railroad right-of-way. This property never was owned by the
24 U.S. Army and is not being considered under the FUDS inventory. U.S. Army use of this property ended
25 in 1938.

26 *200-yard Rifle Range-TD (FTSH-020-R-01)*

27 This is a small arms range site. The 200-yard Rifle Range-TD is the 253.22-acre section of the original
28 range fan of the 200-yard rifle range that extends past the installation boundary. A 1926 training map
29 shows a 200-yard rifle range located in the southern portion of the Salado Creek training area east of
30 Salado Creek and the current bridge over the creek on Binz-Engleman Road. The range also is depicted
31 on site maps dated 1938, 1943 and 1951. According to available records, there is no evidence of the
32 range being used in 1951. This former range currently is used as a residential area and the San Antonio
33 Country Club. This property never was owned by the U.S. Army and is not being considered under the
34 FUDS inventory. U.S. Army use of this property ended in 1951.

35 *Dodd Field Small Arms Range-TD (FTSH-021-R-01)*

36 This is a small arms range site. The Dodd Field Small Arms Range-TD is the 1,153.47-acre section of the
37 original range fan of the Dodd Field Small Arms Range that extends past the installation boundary. In
38 1888, a small arms target range was constructed in the western portion of a parcel of land just north of
39 FSH that would later become Dodd Field. Use of the range likely was discontinued in 1915 with the
40 construction of barracks, hangars and a runway for the development of an aviation post that operated until
41 1917. Light commercial development and residential areas currently are located on this site. This
42 property never was owned by the U.S. Army and is not being considered under the FUDS inventory. U.S.
43 Army use of this property ended in 1915.

1 *Staff Post Firing Range-TD (FTSH-022-R-01)*

2 This is a small arms range site. The Staff Post Firing Range-TD is the 317.17-acre section of the original
3 range fan of the Staff Post Firing Range that extends past the installation boundary. The earliest known
4 small arms firing range on FSH was located in the Staff Post area near the intersection of Wilson Street
5 and Liscom Road. This range was in use from about 1867 to 1887. This area currently is used for
6 commercial warehouses, railroad and utility right-of-way. This property never was owned by the U.S.
7 Army and is not being considered under the FUDS inventory. U.S. Army use of this property ended in
8 1887.

9 *Staff Post Firing Range-TD2 (FTSH-023-R-01)*

10 This is a small arms range site. The Staff Post Firing Range-TD2 is the 118.9-acre section of the original
11 range fan of the Staff Post Firing Range that extends past the installation boundary. The earliest known
12 small arms firing range on FSH was located in the Staff Post area near the intersection of Wilson Street
13 and Liscom Road. This range was in use from about 1867 to 1887. This area currently is used for
14 residential and commercial activities. This property never was owned by the U.S. Army and is not being
15 considered under the FUDS inventory. U.S. Army use of this property ended in 1887.

16 *Staff Post Firing Range-TD3 (FTSH-024-R-01)*

17 This is a small arms range site. The Staff Post Firing Range-TD3 is the 0.79-acre section of the original
18 range fan of the Staff Post Firing Range that extends past the installation boundary. The earliest known
19 small arms firing range on FSH was located in the Staff Post area near the intersection of Wilson Street
20 and Liscom Road. This range was in use from about 1867 to 1887. A residential area currently is located
21 on this property. This property never was owned by the U.S. Army and is not being considered under the
22 FUDS inventory. U.S. Army use of this property ended in 1887.

23 *200-yard Firing Range 2 (FTSH-025-R-01)*

24 This is a small arms range site. A 1926 training map shows a 200-yard rifle range located in the southern
25 portion of the Salado Creek training area east of Salado Creek and the current bridge over the creek on
26 Binz-Engleman Road. The range also is depicted on site maps dated 1938, 1943 and 1951. According to
27 available records, there is no evidence of the range being used in 1951. This 417.3-acre area currently
28 contains the PX, Commissary, office buildings and houses. Staff Post Firing Range 2 (FTSH-026-R-01):
29 This is a small arms range site. The Staff Post Firing Range 2 is a 20.44-acre section of the original range
30 fan of the Staff Post Firing Range. The earliest known small arms firing range on FSH was located in the
31 Staff Post area near the intersection of Wilson Street and Liscom Road. The target butts would have been
32 located near the west end of Building 230. This range was in use from about 1867 to 1887.

33 *Pistol Range (FTSH-027-R-01)*

34 This is a small arms range site. The pistol range is the 34.89-acre section of the original range fan of the
35 pistol range that extends past the Stonewall Jackson Field training area. A 1926 training map and a map
36 dated May 1940 based on 1938 aerial photographs depict a pistol range located in the southeast corner of
37 the Stonewall Jackson Field training area. The pistol range does not appear on a map dated July 1943 or
38 any other available historical maps. Currently, the property contains the FSH Middle School and High
39 School, a football stadium and a few residential areas.

1 Compliance-related Cleanup

2 Compliance-related cleanup (CC) includes actions to address the cleanup of contaminated sites not
3 funded under the DERP (IRP or MMRP) and the cleanup of contaminated sites at Army facilities
4 overseas, and is managed by IMA.

5 *Former Dry Cleaning Facility (CC FSH330)*

6 Building 330 is a former dry cleaning facility located in the south-central portion of FSH near the
7 intersection of Scott Road and Wilson Street. The building was used as a dry cleaning facility formerly
8 known as the Camp Travis Laundry Facility. It was constructed in 1922 and is considered a historic
9 building. The building partially has been demolished, with only a small portion of the building
10 remaining, including the saw-tooth roof and frame. The site is approximately 16,000 SF.

11 There is TCE and perchloroethylene (PCE) contamination at the site. In 2003, Halff Associates
12 performed a geotechnical investigation that included 12 soil samples from 5 soil borings for VOC and
13 TPH analysis. PCE and TCE were found in two of the soil borings as deep as 8 feet below ground
14 surface, exceeding the corresponding State Regulatory TRRP Tier 1, 30-acre Soil PCLs for these
15 chemicals. In June 2004, 10 additional soil borings and 3 temporary monitoring wells were installed.
16 Fifty-five soil samples and three groundwater samples were collected. Analytical results indicated that
17 PCE, TCE, trichloropropane and dichloropropane are present in soil above residential TRRP PCLs. PCE
18 also was reported in groundwater above the residential TRRP PCL. In August 2005, an APAR was
19 submitted to TCEQ. Comments were received from the State in December 2005 and are being addressed
20 by the installation. In December 2005, an additional 11 soil boring and groundwater samples were
21 collected to delineate the groundwater plume further. The plume is estimated to be 2 acres in size. In
22 February 2006, abandoned sewer lines were removed to reduce/eliminate preferential exposure pathways.

23 Other Areas with Known Environmental Conditions

24 *Pershing Firing Range*

25 The Pershing Firing Range is south of the eastern portion of Pershing Field between the Missouri, Kansas
26 and Texas railroad line and Petroleum Drive. Records indicate that the range was used between 1985 and
27 1996. The range was divided into a small arms firing range and an EOD area. The EOD portion now is
28 identified as Landfill 8B (FTSH-26). In the 1998 Preliminary Assessment/Site Investigation (PA/SI)
29 Report, lead was identified in surficial soil at concentrations greater than the media-specific background
30 concentrations for metals. In 1999, the affected soil was excavated, and confirmation sampling indicated
31 that the soil containing elevated lead concentrations was removed and disposed. FSH requested closure
32 of this site to residential standards under the TRRP. This closure request has been accepted by TCEQ and
33 would be removed from further studies (USACE 2004).

34 *Former Medical Waste Incinerators (Facility 3824)*

35 The former medical waste incinerator site is in the southeast-central portion of the installation within the
36 borders of Landfill 6. The site consisted of a concrete structure with two incinerators and an office
37 structure. The incinerators operated between 1976 and 1991 to dispose of medical waste generated at the
38 various medical facilities on the installation (USACE 2004). The incinerators were demolished in 1999. A
39 radiological constituent, inorganic materials and SVOCs were identified in surface soil at concentrations
40 greater than the media-specific background concentrations for metals and TCEQ's default closure criteria
41 for SVOCs during the 1998 PA/SI. No other investigation or remedial efforts have been initiated at the
42 site (USACE 2004).

1 *Fire Training Facility (Facility 3826)*

2 This active fire training facility is located in the southeast-central portion of the installation. The facility
3 is located within the area that previously contained the former medical waste incinerator inside Landfill 6.
4 According to the IAP, the facility consists of a four-story concrete facility and slab that is surrounded by a
5 chain-link fence. During the 1998 PA/SI, several metals constituents were detected in surficial soil at
6 concentrations greater than the media-specific background concentrations for metals. No other
7 investigation or remedial efforts have been initiated at the site (USACE 2004).

8 *Former Radioactive Waste Storage Facility (Facility 238) (FTSH-17)*

9 According to installation documents, Facility 238 (FTSH-17) was used as a radioactive waste storage
10 facility between 1975 and 1996. A radiation and contamination survey was conducted on the interior of
11 the facility in April 1998, and no contaminants were detected above method detection levels. Following
12 the survey, it was concluded that the facility did not present a radiological hazard to the public or to
13 demolition/deconstruction workers, and the facility was recommended for decommissioning. To date,
14 Facility 238 has not been decommissioned by NRC (USACE 2004).

15 *Indoor Ranges – Facilities 605A and 606A (FTSH-12)*

16 The indoor firing ranges are non-residential facilities within the infantry installation in the southwest
17 portion of the installation. The ranges are currently inactive; however, they were formerly used for firing
18 small arms (USACE 2004). The 2006 IAP for FSH lists the site as active and as a site requiring action,
19 but not addressable under the IRP or MMRP.

20 3.13.1.6 Specifically Regulated Hazards

21 Oil/Water Separators

22 Six oil/water separators are located within FSH (USACE 2004). Two of the oil/water separators are on
23 the east and west sides of the Hazardous Waste Storage Facility (Facility 4055), which is south of Wilson
24 Street and north of Third Street. Three oil/water separators are located within the MedLog Motor Pool
25 near Facility 2380 off Scott Road, and one is next to the Golf Cart Maintenance Facility (Facility 3100).
26 The oil/water separators are reported to be connected to the City of San Antonio sanitary sewer system
27 (USACE 2004).

28 Asbestos

29 Asbestos is the name for a group of natural minerals that separate into strong, fine, heat-resistant fibers.
30 The material has long been used in a variety of forms for thermal protection, acoustical and decorative
31 purposes, boiler and pipe insulation and in construction materials and appliances. When asbestos
32 degrades into microscopic fibers, it becomes a health hazard. This can happen when ACM is disturbed,
33 typically during renovation or demolition/deconstruction of older structures. Degraded or crumbled
34 asbestos is termed “friable” asbestos. Once emitted to the atmosphere, asbestos fibers can remain
35 suspended in the air for long periods and, when inhaled, easily can lodge in body tissues. Asbestos fibers
36 cause asbestosis, a chronic disease of the lungs that makes breathing progressively more difficult, and
37 mesothelioma, a cancer of the chest and abdominal membranes. Other cancers, primarily of the digestive
38 tract and lungs, also have been associated with exposure to asbestos.

39 Facilities most likely to contain friable asbestos are those built or remodeled between 1945 and 1978,
40 when asbestos and its impacts to the environment and human health were beginning to be understood.
41 Further renovation or demolition/deconstruction of such facilities with asbestos has potential to release

1 asbestos fibers into the air. Asbestos fibers could be released by disturbance or damage to building
2 materials such as pipe and boiler insulation; acoustical ceiling; sprayed-on fire proofing; and other
3 materials used for soundproofing, insulation, siding, roofing and flooring.

4 ACM remediation is regulated by USEPA and OSHA. Asbestos fiber emissions into the ambient air are
5 regulated in accordance with Section 112 of the CAA. NESHAP regulations address the
6 demolition/deconstruction or renovation of facilities with ACM. The Toxic Substances Control Act
7 (TSCA), the Asbestos Hazard Emergency Response Act (AHERA) and the Asbestos School Hazard
8 Abatement Reauthorization Act (ASHARA) provide the regulatory basis for handling ACM in
9 kindergarten through 12th grade school facilities. ASHARA extended AHERA regulations to cover
10 commercial and public buildings as well. AHERA and OSHA regulations cover worker protection for
11 employees who work around or remediate ACM.

12 The Department of State Health Services (DSHS) regulates asbestos through 25 TAC §§295.31 to 295.71,
13 *Texas Asbestos Health Protection Rules*. The State rules adopt existing OSHA and USEPA regulations
14 and apply them to all public facilities in which activities involving the disturbance or removal of ACM
15 may occur. The regulations also address remediation worker certification, training, notification and
16 recordkeeping.

17 According to the 2003 Environmental Performance Assessment System (EPAS) report, approximately
18 65% of 1,500 facilities combined at FSH and Camp Bullis contain ACM (USACE 2004)⁷.

19 Army asbestos policy is established in Section 8.0 of AR 200-1, *Environmental Protection and*
20 *Enhancement*. ACM is managed at FSH by the DPW. DPW maintains a current inventory of all facilities
21 surveyed for ACM.

22 Lead-based Paint

23 Under the LBP Poisoning Prevention Act (42 USC 4822) (LBPPPA), as amended, public housing
24 authorities were required, by 1994, to inspect their projects for LBP. Under the statute, LBP hazards
25 equal to or greater than 1 microgram per cubic centimeter ($\mu\text{g}/\text{cm}^2$) must be abated. Although this does
26 not pertain to military installations directly, USEPA, through the Residential LBP Hazard Reduction Act
27 of 1992, has developed testing and abatement requirements for residential facilities, including military
28 family housing (FSH 1999).

29 Current Army policy calls for controlling LBP using in-place management (as opposed to mandated
30 removal procedures). In-place management is used to prevent deterioration over time of surfaces likely to
31 contain LBP, followed by replacement as necessary. Maintenance staff are given instructions for routine
32 cleaning procedures leading to capture of LBP fragments from suspected locations. Future renovation,
33 construction and demolition/deconstruction projects at existing facilities would need to include LBP
34 abatement.

35 RCRA environmental regulations require that demolition/deconstruction debris be characterized to
36 determine proper disposal criteria. State regulations that require more stringent disposal criteria also may
37 exist. The installation is responsible for ensuring that demolition/deconstruction debris, whether from
38 entire structures or individual components from renovation projects, is disposed properly.

⁷ Two categories are used to describe ACM. Friable ACM is defined as any material containing more than 1% asbestos (as determined by polarized light microscopy) that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. Non-friable ACM is material that contains more than 1% asbestos and does not meet the criteria for friable ACM.

1 Suspected lead contamination and characterization activities should be carried out using the installation's
2 Lead Hazard Management Plan. This plan also specifies sampling, abatement, storage, transportation,
3 manifest and disposal procedures.

4 Polychlorinated Biphenyls

5 PCBs are used in electrical equipment, primarily in capacitors and transformers, because they are
6 electrically non-conductive and stable at high temperatures. PCBs persist in the environment, accumulate
7 in organisms and concentrate in the food chain.

8 The disposal of PCBs is regulated under TSCA, which banned the manufacture and distribution of PCBs
9 except for those used in closed systems. By federal definition, "PCB equipment" is that which contains
10 500 ppm of PCBs or more. "PCB-contaminated equipment" is defined as containing PCB concentrations
11 of 50 ppm or greater but less than 500 ppm. "Non-PCB equipment" is equipment with a PCB
12 concentration less than 50 ppm. USEPA, under TSCA guidance, regulates the removal and disposal of all
13 sources of PCBs containing 50 ppm or more. The regulations are more stringent for PCB equipment than
14 for PCB-contaminated equipment.

15 Army PCB management policy is outlined in Section 4.4 of AR 200-1, *Environmental Protection and*
16 *Enhancement*. PCBs are managed at FSH by the DES in accordance with AR 200-1 and the *Hazardous*
17 *Waste Management Plan, Fort Sam Houston, Texas* (USACHPPM 1999b). The DES maintains a current
18 inventory of all equipment containing PCBs on each installation. Under the *Hazardous Waste*
19 *Management Plan, Fort Sam Houston, Texas*, the DES is required to oversee the management of PCBs,
20 including monitoring of storage procedures and maintenance of the installation PCB inventory. The
21 Exterior Electric section (Operation and Maintenance [O&M] Division) of the DPW is responsible under
22 the plan for updating the installation PCB inventory whenever a transformer or other electrical device is
23 removed from service. Devices are sampled prior to being placed in a storage facility.

24 As of January 2000, the last three transformers containing PCBs were removed from FSH (PES 1999).

25 Pesticides

26 The Federal Insecticide, Fungicide, and Rodenticide Act (7 USC §136 et seq.) (FIFRA) of 1972 (amended
27 in 1996 by the Food Quality Protection Act) regulates the registration and use of pesticides to protect
28 applicators, consumers and the environment. Pesticide management activities are subject to federal
29 regulations contained in 40 CFR Parts 162, 165, 166, 170 and 171. Texas regulations are promulgated
30 under Act 171, the Pesticide Control Act of 1976 (as amended). FSH follows an Integrated Pest
31 Management Plan (IPMP) as mandated by public law (PL 104-170, Section 303). The control strategies in
32 the IPMP include structural and procedural modifications to reduce food and habitat used by pests; non-
33 pesticide technologies, including traps and monitoring devices; and application of chemical compounds
34 that present the lowest potential hazard to human health and the environment.

35 Pest management is administered by the DPW Pest Control Shop (five certified applicators) and the FSH
36 Golf Course (three certified applicators). Additionally, contractors may perform pest management
37 activities through contracted services as needed (Green 2004).

38 Pesticides are ordered as required to maintain at least a three-month supply, but not more than a one-year
39 supply. Pesticide inventories (other than those authorized for self-help use and at retail sources) and
40 pesticide application equipment are maintained by personnel at the DPW, the FSH Golf Course and the
41 Veterinary Service Activity. Pesticides are stored and maintained in accordance with applicable DoD and
42 Army regulations. Pesticides that are required for seasonal use are ordered in a timely manner to ensure

1 effective application and minimal storage requirements. Pesticides used by the DPW are stored at Facility
2 4168 of FSH. Pesticides used by the FSH Golf Course are stored in prefabricated hazardous materials
3 storage facilities adjacent to Facility 3100. These facilities have an emergency shower and eyewash as
4 required by federal, State and local laws and regulations (Green, 2004). The normal application of
5 pesticides is not regulated by TCEQ and is not considered a waste as defined by the SWDA, Texas Health
6 and Safety Code §361.

7 No pesticides or herbicides have been stored or disposed on FSH beyond usable quantities. Pesticides
8 were applied at FSH by contractors licensed to apply these products by the State of Texas.

9 Medical/Bio-hazardous Waste

10 Medical-related hazardous wastes are managed along with industrial hazardous wastes under the
11 *Hazardous Waste Management Plan, Fort Sam Houston, Texas* (USACHPPM 1999a). AMEDD has
12 responsibility for properly managing and disposing of RMW. Healthcare facilities within the Army
13 generally have their own regulations, which reflect State and local requirements. These regulations are
14 reviewed, and the actions described are monitored regularly through various AMEDD inspections. Other
15 medical-related wastes include waste photographic and X-ray materials, waste drugs, regulated
16 biohazards and biological wastes and low-level radioactive waste (LLRW).

17 A significant quantity of medical-related hazardous waste is generated at FSH, primarily through BAMC
18 and AMEDDC&S. A large portion of these wastes consists of laboratory packs. Laboratory packs are
19 consolidated containers of appropriately labeled and segregated, expired or off-specification laboratory
20 chemicals that are generated by various clinics and laboratories throughout FSH. Additional wastes can
21 include contaminated linens, surgical equipment and other medical items.

22 All RMW is stored near the point of generation in containers with appropriate biohazard markings.
23 Approximately twice weekly, the waste is collected by a licensed contractor and transported off-
24 installation for disposal or destruction as appropriate. All RMW is treated as manifested waste and
25 tracked from “cradle to grave” (U.S. Army 2001a).

26 Ordnance

27 Inventories of closed, transferring and transferred (CTT) ranges and UXO, discarded military munitions
28 and/or munitions constituents (UXO-DMM-MC) were conducted in January 2003 for FSH (USACE,
29 2003a). The CTT inventory includes all non-active/inactive areas within the installation boundaries, and
30 areas that may have been used in the past for ordnance-related testing or training. The main driver for the
31 CTT inventory is the DERP as amended by the Defense Authorization Act of 2002 (PL 107-107). The
32 CTT inventory process involved mapping of CTT ranges, data collection for the Army Range Inventory
33 Database (ARID), conducting a risk assessment for explosive hazards as specified by the Risk
34 Assessment Code (RAC) and determination of sites that qualify for the MMRP. The RAC portion of the
35 inventory ranks each range with UXO-DMM-MC on a scale of 1 to 5 that estimates explosives safety and
36 risk. The ranking system for the RAC is as follows:

- 37 • RAC 1 – High Risk – Highest priority for further action;
- 38 • RAC 2 – Serious Risk – Priority for further action;
- 39 • RAC 3 – Moderate Risk – Recommend further action;
- 40 • RAC 4 – Low Risk – Recommend further action; and
- 41 • RAC 5 – Negligible Risk – No DoD action necessary.

1 Because the installation has been used since the 1800s, there is a small possibility that UXO may be
 2 encountered. Much of the property has been disturbed during construction and maintenance activities over
 3 the years.

4 U.S. Army EOD personnel would dispose of UXO, if discovered.

5 The results of the CTT inventory (USACE, 2003a) show the following estimated acreage for CTT
 6 military ranges and UXO-DMM-MC sites at FSH:

- 7 • Closed sites: 2,020 total acres, which includes 17 ranges (2,015 acres) and 1 UXO-DMM-MC (5
 8 acres);
- 9 • No sites designated as transferring; and
- 10 • Transferred sites: 1,965 acres, which includes nine ranges.

11 Eight of the 17 closed ranges are small arms ranges, while the rest were training areas that used a variety
 12 of munitions. The one closed UXO-DMM-MC site was used as a landfill (Landfill 8B) for the disposal of
 13 UXO and exploded ordnance. Eight of the nine transferred sites include parts of several small arms
 14 ranges that extended beyond installation boundaries. The remaining transferred site was given to the VA
 15 for use as a cemetery. Site details and current status are provided in Table 3.13-3.

16 Additional information on the MMRP sites has been provided previously in this report.

Table 3.13-3. CTT Range and Site Details for FSH

<i>Range/Site</i>	<i>Classification</i>	<i>Area (acres)</i>	<i>Munitions Type(s)</i>	<i>Munitions Constituents</i>	<i>RAC Score</i>	<i>DERP Eligibility</i>
Pentathlon Range-TD	Transferred	7.7	Small Arms	Unknown	5	MMRP
Pershing Firing Range	Closed	5.2	Small Arms	Yes	5	IRP
Pistol Range	Closed	34.9	Small Arms	Unknown	5	MMRP
Pistol Range-TD	Transferred	36.3	Small Arms	Unknown	5	MMRP
Salado Creek Training Area	Closed	45.5	Flares, signals, simulators or screening smoke (other than white phosphorus); hand grenades; pyrotechnics; riot control agents; small arms	Unknown	1	MMRP
Staff Post Firing Range	Closed	615.1	Small Arms	Unknown	5	MMRP
Staff Post Firing Range 2	Closed	20.4	Small Arms	Unknown	5	MMRP
Staff Post Firing Range-TD	Transferred	317.2	Small Arms	Unknown	5	MMRP
Staff Post Firing Range-TD2	Transferred	118.9	Small Arms	Unknown	5	MMRP
Staff Post Firing Range-TD3	Transferred	0.8	Small Arms	Unknown	5	MMRP
Stonewall Jackson Field	Closed	283.8	Bombs (practice), landmine (practice), small arms	Unknown	2	MMRP

<i>Range/Site</i>	<i>Classification</i>	<i>Area (acres)</i>	<i>Munitions Type(s)</i>	<i>Munitions Constituents</i>	<i>RAC Score</i>	<i>DERP Eligibility</i>
Trench Warfare Complex	Closed	65.8	Flares, signals, simulators or screening smoke (other than white phosphorus); hand grenades; pyrotechnics; riot control agents; small arms	Unknown	4	MMRP
1926 Pistol Range	Closed	31.8	Small Arms	Unknown	5	MMRP
1926 Pistol Range-TD	Transferred	1.2	Small Arms	Unknown	5	MMRP
200-yard Rifle Range	Closed	0.9	Small Arms	Unknown	5	MMRP
200-yard Rifle Range 2	Closed	417.3	Small Arms	Unknown	5	MMRP
200-yard Rifle Range-TD	Transferred	253.2	Small Arms	Unknown	5	MMRP
Chemical Defense Training Area	Closed	2.7	Riot Control Agents	Unknown	3	MMRP
Chemical Warfare Demonstration Area	Closed	128.8	Mortars (white phosphorus [WP], incendiary, illumination, smoke) and toxic chemical munitions	Unknown	2	MMRP
Closed Pershing Field	Closed	100.9	Demolition/deconstruction materials; flares, signals, simulators or screening smoke (other than white phosphorus); hand grenades (smoke, WP, incendiary); hand grenades (practice); small arms	Yes	3	MMRP
Dodd Field Small Arms Range	Closed	87.2	Small Arms	Unknown	5	MMRP
Dodd Field Small Arms Range-TD	Transferred	1,153.5	Small Arms	Unknown	5	MMRP
Fire Training Area	Closed	55.4	Riot control agents, small arms	Unknown	4	MMRP
Landfill 8B	Closed	4.9	Landmine, practice (with spotting charges), small arms	Yes	4	MMRP

<i>Range/Site</i>	<i>Classification</i>	<i>Area (acres)</i>	<i>Munitions Type(s)</i>	<i>Munitions Constituents</i>	<i>RAC Score</i>	<i>DERP Eligibility</i>
Meade Field	Closed	114.8	Demolition/deconstruction materials; flares, signals, simulators or screening smoke (other than white phosphorus); hand grenades (smoke, WP, incendiary, practice); riot control agents; small arms	Unknown	2	MMRP
Old Pershing Field	Closed	4.9	Small Arms	Unknown	5	MMRP

1 Notes: MMRP Military Munitions Response Program.

2 IRP Installation Restoration Program.

3 Source: USACE 2003a.

4 The area mapped for the 1926 pistol range overlaps the location for the vehicle maintenance shop. The
 5 Directed Energy Laboratory location is in the eastern portion of the Closed Pershing Field. The Old
 6 Pershing Range and Trench Warfare Complex are beneath existing pavement adjacent to BAMC. The
 7 Fire Training Area is in the dormitory expansion footprint that would be considered as a minor siting
 8 variation for METC. The Chemical Warfare Demonstration Area includes some of the footprints for the
 9 METC barracks and GIBs.

10 Radioactive Materials

11 Low Level Radioactive Waste (LLRW) is radioactive material that has a half-life of 35 years or less, or
 12 fewer than 10 nanocuries per gram of transuranics. LLRW is produced by nuclear power plants,
 13 hospitals, certain industries, research institutions and universities. LLRW includes uranium, thorium,
 14 cesium, tritium and other radioactive metals from industrial and medical processes; protective clothing
 15 used by workers; and machinery parts, tools and other contaminated equipment.

16 Disposal of LLRW is regulated federally under provisions of the Low-level Radioactive Waste Policy Act
 17 of 1980. This Act requires each state to dispose of LLRW generated within its borders by either
 18 constructing a disposal facility or entering into an interstate compact with another state for waste disposal.
 19 Texas created the Low-level Radioactive Waste Disposal Authority in 1981 to provide for the permanent
 20 disposal of LLRW generated in Texas. The authority's mission is to protect the environment and human
 21 health from unacceptable exposure to radioactive materials and to allow the continued beneficial uses of
 22 radioactive materials in Texas.

23 LLRW at FSH consists of a variety of items, including medical equipment, exit signs, smoke detectors,
 24 watches and other equipment with radioactive components. FSH compartmentalizes the storage of
 25 LLRW through BAMC Radiation Safety. As military equipment containing low-level radioactive
 26 components is removed from service (e.g., during demolition/deconstruction), the equipment is
 27 manifested as waste and delivered to BAMC Radiation Safety, where it is stored in a designated
 28 containment area. Occasionally, small components such as watches with tritium face enhancements may
 29 be disassembled to store only the portion with the radioactive material. Based on quantity in the storage
 30 area, BAMC Radiation Safety would contact a licensed contractor used by FSH to pick up and deliver the
 31 waste to an off-installation, licensed storage facility. LLRW removed from civilian facilities, such as
 32 smoke detectors removed from family housing, is disposed directly in accordance with the Low-Level
 33 Radioactive Waste Policy (LLRW) Act and Texas regulations.

1 Radon

2 Radon is a naturally occurring, colorless and odorless radioactive gas that is produced by radioactive
3 decay of naturally occurring uranium. Uranium decays to radium, producing radon gas as a byproduct.
4 Radon is found in high concentrations in uranium-containing rocks, such as granite, shale, phosphate and
5 pitchblende. Atmospheric radon is diluted to insignificant concentrations. Radon in soil; however, can
6 enter a building through small spaces and openings and accumulate in enclosed areas such as basements.
7 The cancer risk caused by exposure through the inhalation of radon is currently a topic of concern.

8 Radon is not known to be a problem in the FSH area of San Antonio. According to USEPA's
9 categorization of radon zones, Bexar County and Comal County are qualified as Zone 3, where the
10 predicted average indoor radon screening level is less than 2 pico curies per liter (pCi/L). This level is
11 below USEPA's action level of 4 pCi/L for radon (USEPA 1993a, 1993b).

12 **3.13.2 Environmental Consequences**

13 3.13.2.1 Impact Analysis Criteria

14 Hazardous Material/Waste

15 In terms of their environmental impacts, hazardous materials, toxic substances, and hazardous wastes are
16 regulated under federal programs administered by USEPA, including the Comprehensive Environmental
17 Response Compensation and Liability Act (CERCLA), Emergency Planning and Community Right-to-
18 Know Act (EPCRA), Toxic Substances Control Act (TSCA), and Resource Conservation and Recovery
19 Act (RCRA). DoD installations are required to comply with these laws and all other applicable federal,
20 state and DoD regulations, as well as CFR 112, EOs 13101 and 13148.

21 The OSHA Hazard Communication regulation (29 CFR 1910.1200) defines a hazardous chemical as any
22 chemical which is a physical or health hazard. The definition includes chemicals which are carcinogens,
23 toxins, toxic agents, irritants, corrosives, and sensitizers; agents which act on the hematopoietic system;
24 agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible,
25 explosive, flammable, unstable (reactive), or water-reactive; oxidizers; pyrophorics; and chemicals which
26 in the course of normal handling, use, or storage may produce or release dusts, gasses, fumes, vapors,
27 mists, or smoke that may have any of the previously mentioned characteristics. Currently, OSHA
28 regulates workplace exposure to approximately 400 substances, including dusts, mixtures, and common
29 materials such as paints, fuels, and solvents (OSHA 2006).

30 In CERCLA Section 101(14), the USEPA defines the term "hazardous substance" by reference to
31 provisions in other environmental statutes that identify substances as hazardous (e.g., the OSHA
32 definition as described above). The USEPA definition includes any item or chemical which can cause
33 harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting,
34 emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment and any
35 substance for which a reportable quantity is established in 40 CFR 302.4.

36 The DOT Hazardous Materials Regulations (49 CFR 171) define a hazardous material as a substance or
37 material that has been determined to be capable of posing an unreasonable risk to health, safety, and
38 property when transported in commerce. The DOT definition includes hazardous substances, hazardous
39 wastes, and marine pollutants.

40 The promulgation of TSCA represented an effort by the federal government to address those chemical
41 substances and mixtures for which it was recognized that the manufacture, processing, distribution, use,
42 or disposal may present an unreasonable risk of injury to health or the environment, and to effectively

1 regulate these substances and mixtures in interstate commerce. Toxic chemical substances regulated by
2 USEPA under TSCA include asbestos, lead, polychlorinated biphenyls (PCBs), and radon, and the TSCA
3 Chemical Substances Inventory lists information on more than 62,000 chemicals and substances.

4 In regulations promulgated under RCRA, the USEPA defines hazardous waste as a solid waste which is
5 not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) and exhibits any of the
6 characteristics (ignitability, corrosivity, reactivity, toxicity) described in 40 CFR 261; or is listed in 40
7 CFR 261 Subpart D; or is a mixture containing one or more listed hazardous wastes. Hazardous wastes
8 may take the form of solid, liquid, contained gaseous, or semi-solid wastes (e.g., sludges), or any
9 combination of wastes, that pose a substantial present or potential hazard to human health or the
10 environment and have been discarded or abandoned.

11 Asbestos

12 Federal and state laws address the health risks of exposure to asbestos and asbestos-containing materials.
13 These laws are discussed below.

14 Toxic Substances Control Act (1976)

15 Implemented by the USEPA, the Toxic Substances Control Act (TSCA) provides restrictions on the
16 manufacture, production, and sale of asbestos. Amendments of TSCA have focused specifically on the
17 hazards of asbestos in schools and in other public and commercial buildings, and imposed training and
18 accreditation requirements for asbestos workers.

19 Occupational Safety and Health Act

20 The federal Occupational Safety and Health Act (OSHA) provides protection to most workers exposed to
21 asbestos in their workplace. These requirements are implemented in the state by OSHA.

22 Clean Air Act (Section 112, as amended, 42 U.S.C. § 7401 et seq.)

23 The USEPA regulates asbestos as a hazardous air pollutant under the federal CAA, and has issued a
24 National Emissions Standards for Hazardous Air Pollutants (NESHAP) for asbestos that includes the
25 following:

- 26 • Requirement of control devices and fugitive emission monitoring, recordkeeping, and reporting
27 for asbestos milling, manufacturing, and fabricating operations.
- 28 • Regulation of the demolition and renovation of facilities containing ACM.
- 29 • Establishment of comprehensive asbestos waste disposal requirements.

30 The asbestos NESHAP requires zero visible emissions to the outside air from activity relating to the
31 transport and disposal of asbestos waste. ACM waste must be wet and sealed in leak-proof containers.
32 The containers must be marked with OSHA-specified labels. Federal RCRA does not regulate ACM
33 waste as hazardous. Asbestos waste may be disposed at landfills that are permitted to receive such waste.

34 Polychlorinated Biphenyls (PCB)

35 PCBs are compounds that are a subset of synthetic organic chemicals known as chlorinated hydrocarbons.
36 There are 209 PCB isomers and compounds (congeners), which range from oil liquids to crystalline solids
37 and hard resins. PCBs have unique properties that include non-flammability, chemical stability, low
38 electrical conductance, and high lipophilicity. A mix of these various properties have historically made
39 PCBs suitable for use as dielectric fluids, heat transfer fluids, hydraulic fluids, oils, solvents, paints,

1 coatings, and carbonless paper. PCBs also are found as impurities in manufacturing byproducts and in
2 materials on which they are applied, such as sludge's, slurries, and sediments.

3 PCBs and PCB waste are subject to the TSCA and regulations (40 C.F.R. Part 761) implemented by the
4 USEPA. However, in accordance with federal and state laws, these items can remain in use as long as
5 they are not leaking and meet certain other requirements. PCB-contaminated waste items are disposed in
6 accordance with TSCA and applicable federal RCRA regulations as well as corresponding state
7 regulations.

8 Underground and Aboveground Storage Tanks

9 Underground storage tanks (USTs) of petroleum, petroleum products, and other hazardous substances are
10 subject to federal regulations under RCRA (40 C.F.R. § 280), as mandated by HSWA. USTs containing
11 hazardous waste, specifically, also fall under state (and federal) RCRA standards. State standards now
12 conform to evolving federal standards under the federal UST law, while retaining additional unique state
13 requirements. Aboveground storage tanks (ASTs) are regulated under the Uniform Fire Code and the
14 National Fire Protection Association regulations. ASTs containing hazardous wastes also fall under state
15 (and federal) RCRA standards. Texas's UST and AST law adopted under Texas Administrative Code.
16 Title 30. Environmental Quality. Part 1. Texas Commission On Environmental Quality. Chapter 334.
17 Underground And Aboveground Storage Tanks was originally adopted in September, 1989 and has been
18 amended many times since.

19 The USEPA is formally responsible for administering federal UST requirements in Texas. However, the
20 USEPA leaves the day-to-day regulation to the state. State water resource control board provides
21 statewide guidance for UST regulation, which are administered by regional water quality control boards
22 in cooperation with local certified unified program agency s. Federal and state UST regulations establish
23 technical requirements for registration, installation, monitoring and leak detection, release reporting and
24 corrective action, recordkeeping, and closure.

25 Pesticides

26 Federal law requires comprehensive regulation of the manufacture, transport, storage, and use of
27 pesticides. The USEPA, in cooperation with state and local agencies, implements the basic federal
28 regulatory framework governing pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act
29 (FIFRA; 40 C.F.R. § 152 et seq). This law initially was enacted in 1947 and has been amended several
30 times, most recently in 1996. FIFRA requires the registration and classification of pesticides and
31 prescribes controls over their application and use.

32 Texas's pesticide laws are contained in Texas Administrative Code. Title 4. Agriculture. Part 1.
33 Department of Agriculture. Chapter 7. Pesticides, and incorporate FIFRA's federal standards and
34 definitions and provide additional detailed state regulations that complement FIFRA.

35 Lead

36 On the federal level, the use and management of lead paint is regulated under Section 1017 of the
37 Residential Lead-Based Paint Hazard Reduction Act of 1992. Section 1017 is often referred to as Title X
38 ("Title Ten") because it was enacted as Title X of the Housing and Community Development Act of
39 1992. Section 1017 requires the Secretary of the U.S. Department of Housing and Urban Development to
40 issue "guidelines for the conduct of federally supported work involving risk assessments, inspections,
41 interim controls, and abatement of lead-based paint hazards." This document is known as "Guidelines for

1 the Evaluation and Control of Lead-Based Paint Hazards in Housing.” The maximum lead content was
2 reduced to 0.06% of newly applied dry paint.

3 Lead-contaminated waste items are disposed in accordance with applicable federal RCRA regulations and
4 corresponding state regulations.

5 3.13.2.2 Master Planning Actions Alternative Construction

6 Hazardous Materials

7 During implementation of the Proposed Action construction activities, the contractor is likely to
8 encounter existing hazardous materials. Additional hazardous materials such as fuels, lubricants, and
9 architectural coatings would be brought to the site to support construction activity. FSH would require
10 the contractor to comply with applicable permits and would require the contractor to use BMPs for
11 handling hazardous materials needed for construction, including fuels, lubricants, compressed gasses,
12 architectural coatings, etc. designed specifically to minimize the risk of environmental contamination and
13 harm to human health. FSH would require the contractor to implement a Spill Prevention, Control and
14 Countermeasure (SPCC) Plan during construction, as applicable, given volumes of petroleum products
15 on-site. The contractor would also be required to comply with Phase I and Phase II Storm Water
16 regulations under the Federal CWA to prevent exposure of storm water runoff to construction materials or
17 sediments. Additional information is provided below on the storage tanks, pesticides, small arms
18 ammunitions/explosives storage, and construction materials management.

19 During operation activities, additional hazardous materials in excess of current FSH volumes would be
20 required. This material would be handled and stored in accordance all current FSH plans and policies.
21 Impacts associated with operational activities are less than significant to these sites.

22 Hazardous Waste

23 New quantities of hazardous waste would be generated during the construction phases of the Proposed
24 Action. These wastes would be handled in accordance with applicable Army regulations and the Oil and
25 Hazardous Substances Emergency Contingency Plans for FSH. If an unknown or unidentified waste,
26 such as contaminated soil, is encountered during construction, all construction in the area would stop and
27 the appropriate FSH personnel would be notified.

28 FSH would also require the contractor to implement a SPCC Plan during construction, as applicable. The
29 contractor would also be required to comply with Phase I and Phase II Storm Water regulations under the
30 Federal CWA to prevent exposure of storm water runoff to construction wastes or spoiled sediments.

31 During operation activities, additional hazardous waste would be generated. This waste would be handled
32 and stored in accordance all current FSH plans and policies. By following the existing plans, impacts
33 associated with operational activities would be less than significant.

34 Storage Tanks

35 None of the known ASTs or USTs at FSH are anticipated to be impacted by the Proposed Actions.
36 Therefore, impacts are anticipated to be less than significant to these sites. However, undocumented
37 USTs or pipelines maybe encountered during ground disturbance activities. These items may contain
38 product which may be hazardous to the environment or human health and so if encountered during
39 construction, all construction in the area would stop and the appropriate FSH personnel would be notified.

1 Storage and Handling Areas

2 *Hazardous Waste Storage*

3 None of the Hazardous Waste Storage sites are anticipated to be directly impacted by the Proposed
4 Actions. Hazardous Waste Storage sites 04197 and 350 are adjacent to areas of construction. Prior to
5 construction activities beginning, FSH would determine if access to these sites would be impeded by the
6 proposed construction. If it is determined that an impediment would occur, all existing hazardous waste
7 at the impeded site would be removed from the site in an appropriate manner and all new waste would be
8 redirected to an appropriate nearby hazardous waste storage sites. Impacts associated with construction
9 would be less than significant to these sites.

10 During operation activities, additional hazardous waste would be generated. This waste would be handled
11 and stored in accordance all current FSH plans and policies. Impacts associated with operational
12 activities are less than significant to these sites.

13 Site Contamination and Cleanup

14 *Installation Restoration Program*

15 Landfill 2 (FTSH-30)

16 Per closure documents for this landfill (Shaw Environmental 2005), no penetration of the cap over the
17 landfill is allowed. This includes any penetration associated with tree roots. The Student Trainee Adult
18 Sports Complex would require the laying of utilities, footing for stands and amenities and landscaping.
19 All of this actions would require disturbance of the ground associated with this landfill. This would be in
20 direct conflict with the stipulations associates with the closure of this landfill. This conflict would, by
21 definition, be a significant impact.

22 Mitigation:

- 23 1) Landscaping would not include trees or scrubs placed directly in the ground. Containerized plants
24 are acceptable as long as the root system of the trees or shrubs has no means of direct contact to
25 the existing soil.
- 26 2) Fill would be used over the existing cap to lay utilities. Utility trenches would not penetrate the
27 existing ground.
- 28 3) Fill would be used over the existing cap for the siting of footings and foundations. Footings and
29 foundations would not penetrate the existing ground.
- 30 4) No digging or penetration of the soil would be allowed beyond the depth of fill placed upon the
31 cap in that area.

32 With the implementation of these mitigations and the stipulations set out in the closure document impacts
33 associated with this action would be reduced to less than significant.

34 Landfill 3 (FTSH-30)

35 Per closure documents for this landfill (Shaw Environmental 2005), no penetration of the cap over the
36 landfill is allowed. This includes any penetration associated with tree roots. The Student Trainee Adult
37 Sports Complex would require the laying of utilities, footing for stands and amenities and landscaping.
38 All of these actions would require disturbance of the ground associated with this landfill. This would be
39 in direct conflict with the stipulations associates with the closure of this landfill. This conflict would, by
40 definition, be a significant impact.

1 Mitigation:

- 2 1) Landscaping would not include trees or scrubs placed directly in the ground. Containerized plants
3 are acceptable as long as the root system of the trees or shrubs has no means of direct contact to
4 the existing soil.
- 5 2) Fill would be used over the existing cap to lay utilities. Utility trenches would not penetrate the
6 existing ground.
- 7 3) Fill would be used over the existing cap for the siting of footings and foundations. Footings and
8 foundations would not penetrate the existing ground.
- 9 4) No digging or penetration of the soil would be allowed beyond the depth of fill placed upon the
10 cap in that area.

11 With the implementation of these mitigations and the stipulations set out in the closure document impacts
12 associated with this action would be reduced to less than significant.

13 Landfill 4A (FTSH-29)

14 This IRP site is not anticipated to be impacted by the actions associated with the proposed projects.
15 Therefore, impacts are anticipated to be less than significant to this site.

16 Landfill 4B (FTSH-30)

17 Per closure documents for this landfill (Shaw Environmental 2005), no penetration of the cap over the
18 landfill is allowed. This includes any penetration associated with tree roots. The Student Trainee Adult
19 Sports Complex would require the laying of utilities, footing for stands and amenities and landscaping.
20 All of this actions would require disturbance of the ground associated with this landfill. This would be in
21 direct conflict with the stipulations associates with the closure of this landfill. This conflict would, by
22 definition, be a significant impact.

23 Mitigation:

- 24 1) Landscaping would not include trees or scrubs placed directly in the ground. Containerized plants
25 are acceptable as long as the root system of the trees or shrubs has no means of direct contact to
26 the existing soil.
- 27 2) Fill would be used over the existing cap to lay utilities. Utility trenches would not penetrate the
28 existing ground.
- 29 3) Fill would be used over the existing cap for the siting of footings and foundations. Footings and
30 foundations would not penetrate the existing ground.
- 31 4) No digging or penetration of the soil would be allowed beyond the depth of fill placed upon the
32 cap in that area.

33 With the implementation of these mitigations and the stipulations set out in the closure document impacts
34 associated with this action would be reduced to less than significant.

35 Landfill 5 (FTSH-30)

36 Per closure documents for this landfill (Shaw Environmental 2005), no penetration of the cap over the
37 landfill is allowed. This includes any penetration associated with tree roots. The Student Trainee Adult
38 Sports Complex would require the laying of utilities, footing for stands and amenities and landscaping.
39 All of these actions would require disturbance of the ground associated with this landfill. This would be

1 in direct conflict with the stipulations associates with the closure of this landfill. This conflict would, by
2 definition, be a significant impact.

3 Mitigation

4 1) Landscaping would not include trees or scrubs placed directly in the ground. Containerized plants
5 are acceptable as long as the root system of the trees or shrubs has no means of direct contact to
6 the existing soil.

7 2) Fill would be used over the existing cap to lay utilities. Utility trenches would not penetrate the
8 existing ground.

9 3) Fill would be used over the existing cap for the siting of footings and foundations. Footings and
10 foundations would not penetrate the existing ground.

11 4) No digging or penetration of the soil would be allowed beyond the depth of fill placed upon the
12 cap in that area.

13 With the implementation of these mitigations and the stipulations set out in the closure document impacts
14 associated with this action would be reduced to less than significant.

15 Landfill 6 (FTSH-29)

16 This IRP site is not anticipated to be impacted by the actions associated with the proposed projects.
17 Therefore, impacts are anticipated to be less than significant to this site.

18 Landfill 7 (FTSH-29)

19 This IRP site is not anticipated to be impacted by the actions associated with the proposed projects.
20 Therefore, impacts are anticipated to be less than significant to this site.

21 Landfill 8A (FTSH-29)

22 Per the CTT inventory Landfill 8A is rated a negligible risk for explosive probability based upon its
23 current condition. Though the risk is negligible, as this site was once an active range the chance of
24 unexploded ordinances/ammunition through ground disturbance activities, though small, does still exist.
25 All guidelines and precautions set out in the MMRP and DERP are to be followed during any ground
26 disturbance activities at the site, such as grading, setting foundations and utility trenching. If any
27 ordinances are discovered during ground disturbing activities all work in the area is to immediately stop
28 and the appropriate FSH personnel are to be notified immediately. By following the guidelines set out in
29 the MMRP and DERP and due to the negligible risk associated with the site the anticipated impacts
30 associated with the construction of George Beach/I-35N ACP/VCP on Landfill 8A is less than significant.

31 Landfill 8B (FTSH-29)

32 This IRP site is not anticipated to be impacted by the actions associated with the proposed projects.
33 Therefore, impacts are anticipated to be less than significant to this site.

34 Landfill 10 (FTSH-29)

35 This IRP site is not anticipated to be impacted by the actions associated with the proposed projects.
36 Therefore, impacts are anticipated to be less than significant to this site.

1 Landfill 12 (FTSH-29)

2 This IRP site is not anticipated to be impacted by the actions associated with the proposed projects.
3 Therefore, impacts would be less than significant to this site.

4 *Military Munitions Response Program*

5 Chemical Defense Training Area (FTSH-001-R-01)

6 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
7 Therefore, impacts are anticipated to be less than significant to this site.

8 Dodd Field Small Arms Range (FTSH-002-R-01)

9 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
10 Therefore, impacts are anticipated to be less than significant to this site.

11 Meade Field (FTSH-003-R-01)

12 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
13 Therefore, impacts are anticipated to be less than significant to this site.

14 1926 Pistol Range (FTSH-004-R-01)

15 Per the CTT inventory the 1926 Pistol Range is rated a negligible risk for explosive probability based
16 upon its current condition. Though the risk is negligible, as this site was once an active range the chance
17 of unexploded ordnance/ammunition through ground disturbance activities, though small, does still
18 exist. All guidelines and precautions set out in the MMRP and DERP are to be followed during any
19 ground disturbance activities at the site, such as grading, setting foundations and utility trenching. If any
20 ordnance are discovered during ground disturbing activities all work in the area is to immediately stop
21 and the appropriate FSH personnel are to be notified immediately. By following the guidelines set out in
22 the MMRP and DERP and due to the negligible risk associated with the site the anticipated impacts
23 associated with the construction of TEMF on the 1926 Pistol Range is less than significant.

24 Chemical Warfare Demonstration Area (FTSH-006-R-01)

25 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
26 Therefore, impacts are anticipated to be less than significant to this site.

27 Closed Pershing Field (FTSH-007-R-01)

28 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
29 Therefore, impacts are anticipated to be less than significant to this site.

30 Old Pershing Range (FTSH-008-R-01)

31 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
32 Therefore, impacts are anticipated to be less than significant to this site.

33 Fire Training Area (FTSH-009-R-01)

34 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
35 Therefore, impacts are anticipated to be less than significant to this site.

36 Penthalon Range-TD (FTSH-010-R-01)

37 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
38 Therefore, impacts are anticipated to be less than significant to this site.

1 Salado Creek Training Area (FTSH-011-R-01)

2 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
3 Therefore, impacts are anticipated to be less than significant to this site.

4 200-yard Rifle Range (FTSH-012-R-01):

5 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
6 Therefore, impacts are anticipated to be less than significant to this site.

7 Stonewall Jackson Field-TD (FTSH-013-R-01)

8 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
9 Therefore, impacts are anticipated to be less than significant to this site.

10 Landfill 8B (FTSH-015-R-01)

11 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
12 Therefore, impacts are anticipated to be less than significant to this site.

13 Pistol Range-TD (FTSH-016-R-01)

14 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
15 Therefore, impacts are anticipated to be less than significant to this site.

16 Stonewall Jackson Field (FTSH-017-R-01)

17 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
18 Therefore, impacts are anticipated to be less than significant to this site.

19 Trench Warfare Complex (FTSH-018-R-01)

20 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
21 Therefore, impacts are anticipated to be less than significant to this site.

22 1926 Pistol Range (FTSH-019-R-01)

23 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
24 Therefore, impacts are anticipated to be less than significant to this site.

25 200-yard Rifle Range-TD (FTSH-020-R-01)

26 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
27 Therefore, impacts are anticipated to be less than significant to this site.

28 Dodd Field Small Arms Range-TD (FTSH-021-R-01)

29 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
30 Therefore, impacts are anticipated to be less than significant to this site.

31 Staff Post Firing Range-TD (FTSH-022-R-01)

32 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
33 Therefore, impacts are anticipated to be less than significant to this site.

34 Staff Post Firing Range-TD2 (FTSH-023-R-01)

35 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
36 Therefore, impacts are anticipated to be less than significant to this site.

1 Staff Post Firing Range-TD3 (FTSH-024-R-01)

2 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
3 Therefore, impacts are anticipated to be less than significant to this site.

4 200-yard Firing Range 2 (FTSH-025-R-01)

5 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
6 Therefore, impacts are anticipated to be less than significant to this site.

7 Pistol Range (FTSH-027-R-01)

8 This munitions site is not anticipated to be impacted by the actions associated with the proposed projects.
9 Therefore, impacts are anticipated to be less than significant to this site.

10 *Compliance-related Cleanup*

11 Former Dry Cleaning Facility (CC FSH330)

12 *[Site location could not be determined with existing data. Request that site location information be*
13 *provided. Information will be incorporated into next draft].*

14 3.13.2.3 Other Areas with Known Environmental Conditions

15 Pershing Firing Range

16 Per the CTT inventory, the Pershing Firing Range is rated a moderate risk for explosive probability based
17 upon its current condition. As this site was once an active range the chance of finding unexploded
18 ordinances/ammunition during ground disturbance activities, though small, does still exist. All guidelines
19 and precautions set out in the MMRP, IRP and DERP are to be followed during any ground disturbance
20 activities at the site, such as grading and utility trenching. If any ordinances are discovered during ground
21 disturbing activities all work in the area is to immediately stop and the appropriate FSH personnel are to
22 be notified immediately. By following the guidelines set out in the MMRP, IRP and DERP associated
23 with the site, the anticipated impacts with the construction of Drainage System Improvements BAMC on
24 the Pershing Firing Range is less than significant.

25 Former Medical Waste Incinerators (Facility 3824):

26 *[Site location could not be determined with existing data. Request that site location information be*
27 *provided. Information will be incorporated into next draft].*

28 Fire Training Facility (Facility 3826)

29 *[Site location could not be determined with existing data. Request that site location information be*
30 *provided. Information will be incorporated into next draft].*

31 Former Radioactive Waste Storage Facility (Facility 238) (FTSH-17)

32 *[Site location could not be determined with existing data. Request that site location information be*
33 *provided. Information will be incorporated into next draft].*

34 Indoor Ranges – Facilities 605A and 606A (FTSH-12)

35 The indoor ranges (Facilities 605A and 606A) sites are not anticipated to be impacted by the actions
36 associated with the proposed projects. Therefore, impacts are anticipated to be less than significant to
37 these sites.

1 Specifically Regulated Hazards

2 *Oil/Water Separators*

3 No new oil/water separators are anticipated nor are any existing oil/water separators anticipated to be
4 impacted by the Proposed Actions. The Proposed Actions are expected to have no significant
5 environmental impact on oil/water separators.

6 *Asbestos*

7 Prior to any building renovation or demolition on building built prior to 1985 a complete asbestos survey
8 would be completed, sampling all materials to be impacted. When removal of ACM is required (*e.g.*,
9 during demolition/deconstruction or renovation), FSH and those contractors performing the renovation or
10 demolition, would follow industry and Army standards for the encapsulation, removal and disposal of
11 ACM. No significant impact to the environment would be expected as long as appropriate asbestos
12 abatement and removal procedures are followed.

13 *Lead-based Paint*

14 Prior to any building renovation or demolition on building a complete LBP survey would be completed,
15 sampling all materials to be impacted. When removal of LBP is required (*e.g.*, during
16 demolition/deconstruction or renovation), FSH and those contractors performing the renovation or
17 demolition, would follow industry and Army standards for the encapsulation, removal and disposal of
18 LBP. No significant impact to the environment would be expected as long as appropriate LBP abatement,
19 removal and disposal procedures are followed.

20 *Polychlorinated Biphenyls*

21 As of January 2000, the last three transformers containing PCBs were removed from FSH (PES, 1999).
22 Buildings undergoing renovation or demolition would require a PCB survey or inspection to ensure that
23 no PCB-containing materials would be impacted. When removal of PCBs is required (*e.g.*, during
24 demolition/deconstruction or renovation), FSH and those contractors performing the renovation or
25 demolition, would follow industry and Army standards for the removal and disposal of PCBs. No
26 significant impact to the environment would be expected as long as appropriate PCB abatement, removal
27 and disposal procedures are followed.

28 *Pesticides*

29 Pesticide usage at FSH already complies with all applicable local, state and federal regulations, and would
30 continue to do so. Minimal environmental consequences are expected to result from any changes in
31 pesticide usage as a result of the Proposed Action. Pesticides are currently and would continue to be
32 applied at FSH by contractors licensed by the State of Texas to apply these products. No significant
33 impact to the environment would be expected with the implementation of the current requirements under
34 the bases pest management plan.

35 *Medical/Bio-hazardous Waste*

36 No new or increased volume of medical/bio-hazardous waste would be anticipated due to the Proposed
37 Actions nor are the storage facilities associated with this waste anticipated to be impacted by the Proposed
38 Actions. The Proposed Actions are expected to have no significant environmental impact on medical/bio-
39 hazardous waste.

1 *Ordnance*

2 No significant environmental impacts are anticipated from the presence of UXO within construction
3 footprints on FSH with the exception of the 1926 Pistol Range and Pershing Firing Range. Anticipated
4 impacts associated with these two ranges are discussed in Section 3.13.2.2.5.2 - Military Munitions
5 Response Program (1926 Pistol Range) and 3.13.2.2.5.5 - Other Areas with Known Environmental
6 Conditions (Pershing Firing Range).

7 Due to the age of FSH and its historic uses, not all UXO may be accounted for. If UXO are encountered
8 during site development, U.S. Army EOD support personnel would be available to eliminate a potential
9 explosive hazard prior to the resumption of construction activities.

10 *Radioactive Materials*

11 The volume of LLRWs is not expected to increase due to the Proposed Action. The Proposed Action
12 would not hinder the current LLRW disposal authority, which would continue to regulate LLRW medical
13 waste disposal and reuse. The DRMO would continue to dispose of LLRW through licensed disposal
14 facilities. The Proposed Action is expected to have no significant environmental impact on radioactive
15 materials.

16 *Radon*

17 Radon levels are not expected to increase, nor is the risk of radon exposure expected to increase due to the
18 Proposed Action because FSH is not in high radon-prone areas of Texas.

19 3.13.2.4 No-Action Alternative

20 The No-Action Alternative represents the existing baseline conditions. With the Proposed Action not
21 implemented, no new impacts would occur; therefore, no significant impacts would occur.

22 **3.14 CUMULATIVE EFFECTS SUMMARY**

23 Cumulative effects are defined as the “impacts on the environment that result from the incremental impact
24 of the action when added to other past, present, and reasonably foreseeable future actions regardless of
25 what agency or person undertakes such other actions (40 CFR 1508.7).” To address potential cumulative
26 impacts, there needs to be a determination of spatial and temporal boundaries of the impact area.

27 The environmental analysis revealed that with implementation of the BMPs in Section 3.18 and
28 mitigation measures in Section 3.19, the Proposed Action would have no long-term significant impacts on
29 the environment of FSH or the surrounding areas. Potential minor impacts to land use, traffic, and visual
30 resources from implementation of the Proposed Action generally would occur within the physical
31 boundaries of FSH. There would be an increase in the use of utilities, including water, and generation of
32 hazardous and non-hazardous wastes at the installation. Potentially significant impacts to wetlands,
33 hydrology, cultural resources, and hazardous waste management would be mitigated as proposed in the
34 analysis to reduce or eliminate any such impact. Minor air, noise and transportation impacts also would
35 occur during the short-term construction activities under the Proposed Action, and continue after final
36 construction and occupancy. No significant impacts to biological resources (vegetation, wildlife and
37 threatened and endangered species) are expected due to the implementation of the Proposed Action.

38 The history of FSH has revealed that this installation has transformed since its birth in the late 1880s and
39 is continuing in that vein in the 21st Century. The preferred action does not deviate from the core use of
40 FSH. It expands the HQ and administrative nature of the installation as well as the medical services and
41 medical training. The community services projects directly support these mission transitions.

1 With implementation of the BMPs in Section 3.18 and mitigation measures in Section 3.19, the Proposed
2 Action, in combination with other planned activities in the region, would not affect any natural resources,
3 cultural resources, social or economic units or ecosystems significantly, or contribute to levels of
4 pollutants to cause regional, national or global public concern. As with any growth, there would be
5 increased energy use and utilities consumption, waste increases, added traffic and other results of
6 increased activity in the community. Implementation of the Proposed Action within the context of the
7 San Antonio metropolitan area would be minor considering the general evolution of the regional growth.
8 FSH's small contribution to air pollution; storm water runoff; historical, cultural and natural resource
9 impacts; and added water consumption is evaluated in this analysis. With continued implementation of
10 the FSH Master Plan using environmental awareness as an integral planning factor, the overall cumulative
11 impacts would be insignificant regionally.

12 According to the Texas Real Estate Center at Texas A&M University *Real Estate Center Market*
13 *Overview 2009, San Antonio, Texas*, (TAMU 2009) the population in the San Antonio metropolitan area
14 is expected to increase from 1.89 million in 2006 to 1.95 million in 2010.

- 15 • Single-family housing permits in the city of San Antonio averaged approximately 5,900 per year
16 from 1998 to 2001 and grew to 6,281 in 2002 and to a peak of 8,266 in 2005. Since 2005, there
17 has been a downward trend of 7,266 in 2006, 4,253 in 2007, and 2,665 in 2008.
- 18 • In the metropolitan area, retail space absorption rose from nearly 500,000 SF in 2002 to 2.2
19 million SF in 2005, and 2.7 million in 2008, ending with an inventory of 36 million SF of retail
20 space.
- 21 • In the metropolitan area hotel space rose from 33,500 rooms in 2003 to 38,100 rooms in 2008.
- 22 • In the metropolitan area, office space increased by 490,000 SF in 2004 and 360,000 SF in 2005,
23 ending with an inventory of 23 million SF of office space. As of the beginning of 2009, the
24 inventory was 26 million SF of office space, but declining.
- 25 • In the metropolitan area, industrial space absorption rose from 564,000 SF in 2004 to 773,000 SF
26 in 2005. As of the beginning of 2009, the industrial space inventory is 30.8 million SF.

27 In addition to the above, San Antonio has had growth in construction and facility renovations in medical
28 facilities, public and private schools, public facilities and utility systems. With the increase in population
29 and employment, the traffic volume in San Antonio has increased. To help relieve some of the
30 congestion, the Texas DOT has a capital improvement program for San Antonio that includes:

- 31 • A feasibility study for a commuter rail between San Antonio and Austin.
- 32 • A \$117 million project to widen Loop 410 from Nacogdoches Road to Austin Highway from
33 2006 to 2010.
- 34 • A \$23 million project to replace the Walters Street Bridge from the current 64 feet to a proposed
35 101 feet with turnarounds. This would incorporate architectural enhancements to replicate historic
36 features unique to Fort Sam Houston and provide a consistent transition zone between the more
37 historic areas into the downtown area. Also included are operational improvements on the
38 frontage roads, main lanes and pedestrian amenities such as sidewalks. The project has a planned
39 completion date in December 2010.

40 The construction and related utilities and road improvement projects discussed as part of the Proposed
41 Action are considerably smaller than the recent development in the San Antonio area, which is expected

1 to continue with an average of 2% or more annual increase in population and employment. Based on the
2 economic downturns of 2008 and 2009, the level of construction is difficult to predict. The construction
3 permits in San Antonio in 2004 were \$2.4 billion. Historically, the permits have been in the range of \$1.4
4 billion to \$1.6 billion per year (USACE 2007).

5 Air quality, primarily the ozone parameter, is of concern regionally. Air quality issues must continue to be
6 addressed regionally through cooperative efforts. FSH participates fully with these regional initiatives.
7 Significant contributors to ozone production are vehicles, which generally correlates with population. The
8 traffic improvements and the developments at FSH improve traffic flow and thus ozone production; thus
9 even with the increase in personnel, the contributions to air quality resulting from the Master Plan would
10 be insignificant as compared to those from regional growth in San Antonio.

11 Water withdrawn from the Edwards Aquifer is a point of regional concern. FSH has promoted
12 conservation measures and has implemented the use of recycled water produced by SAWS. New
13 construction is designed using the Unified Building Criteria and would meet or exceed international
14 building code requirements for water-saving design. The military imposes caps on pumpage as a
15 planning tool. The current projected water use from the Edwards Aquifer for all DoD installations in San
16 Antonio in 2011 is 7,200.3 acre-feet, which is below the last four years' average of 7,603.47 acre-feet per
17 year, and both are below the current cap of 8,400 acre-feet per year. The planned increase in water
18 withdrawal is within its system's planned capacity.

19 San Antonio is one of the older cities in the U.S. and has a rich history. San Antonio's history and culture
20 are key elements of the city's value to the human environment, and FSH contributes to that history.
21 Therefore, significant impacts to the historic and cultural assets at FSH would have a significant impact
22 on the overall community. FSH has in place strong programs to comply with legal requirements
23 concerning cultural resources and have strong master planning and facility design criteria to preserve the
24 historic and cultural assets on each installation. Each project would be evaluated to determine the proper
25 course of action in coordination with the SHPO. Any potential adverse impacts to cultural resources
26 would be mitigated, as discussed in Sections 3.9 and 3.19.

27 The increase in solid waste generation temporarily during construction would be reduced by the Army
28 policy of avoiding the demolition of existing usable structures in the master planning process. The DoD
29 activities associated with the Proposed Action are primarily administrative and institutional activities that
30 would not be categorized as major waste generators. San Antonio is not land-locked like many other
31 major urban regions in the country and has the capacity to handle increased waste generation due to
32 regional growth. Additionally, recycling initiatives have been added and would continue to reduce
33 existing and limit new solid waste generation. FSH fully participates in waste minimization and recycling
34 opportunities (USACE 2007).

35 **3.15 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

36 Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-
37 term or permanent basis. This includes the use of non-renewable resources such as metal and fuel. These
38 resources are irretrievable in that they would be used for a project when they could have been used for
39 other purposes. Human labor is also considered an irretrievable resource. In addition, the unavoidable
40 destruction of natural resources that could limit the range of potential uses of that particular environment
41 is also considered an irreversible commitment of resources.

42 Implementation of the Proposed Action would require the consumption of materials typically associated
43 with construction activities (e.g. concrete). In addition, the use of vehicles and emergency generators

1 would result in the consumption of fuel, oil, and lubricants. An undetermined amount of human energy
2 for construction would also be expended and irreversibly lost. However, the amount of these resources
3 used would be negligible and these resources are readily available in large quantities. Therefore,
4 implementation of the Proposed Action would not result in significant irreversible or irretrievable
5 commitment of resources.

6 **3.16 SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE/ENHANCEMENT OF LONG-** 7 **TERM PRODUCTIVITY**

8 NEPA requires an analysis of the relationship between a project's short-term impacts on the environment
9 and the effects that these impacts may have on the maintenance and enhancement of the long-term
10 productivity of the affected environment. Impacts that narrow the range of beneficial uses of the
11 environment are of particular concern. This refers to the possibility that choosing one development
12 option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other
13 resource to a certain use often eliminates the possibility of other uses being performed at that site.

14 Under the Proposed Action, short-term effects would be primarily related to construction activities and
15 the use of associated vehicle and equipment that are currently used for other purposes. In the long-term,
16 the proposed construction and renovation projects would support critical mission requirements. With
17 implementation of the BMPs in Section 3.18 and mitigation measures in Section 3.19, the Proposed
18 Action would not result in any impacts that would reduce environmental productivity or narrow the range
19 of beneficial uses of the environment.

20 **3.17 UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS**

21 With implementation of the regulatory requirements and BMPs in Section 3.18, and the mitigation
22 measures in Section 3.19, there would be no unavoidable significant environmental impacts associated
23 with the Proposed Action.

24 **3.18 REGULATORY REQUIREMENTS AND BEST MANAGEMENT PRACTICES**

25 This section describes the regulatory requirements and BMPs that would be incorporated into the
26 Proposed Action to avoid or prevent any potential adverse resource impacts. Regulatory requirements
27 and BMPs include the following:

- 28 • The design of all new construction would be consistent with the IDG.
- 29 • Construction BMPs would be implemented to moderate the spread of fugitive dust (e.g. watering
30 exposed soils, soil stockpiling, and soil stabilization).
- 31 • Potential impacts from highly corrosive and high shrink-well soils would be prevented with the
32 use of established engineering BMPs.
- 33 • The increase in impervious surfaces and associated runoff would require an update to the SWPPP
34 associated with the existing TPDES general permit for FSH, and the notification of planned
35 changes to activities covered under the existing permit, to be submitted to TCEQ.
- 36 • The new facilities would be accommodated by engineering BMPs for erosion control (i.e. concrete
37 swales), existing storm water infrastructure, and the construction of new (and/or upgrades to
38 existing) detention ponds.
- 39 • Construction BMPs would be implemented to reduce the increase of pollution into Salado Creek
40 potentially resulting from the construction activities.
- 41 • The construction of the Salado Creek Crossing could temporarily impact 0.18 acres of fish and
42 wildlife habitat in Salado Creek and its floodplain. There is potential habitat within the proposed

- 1 Salado Creek Crossing for migratory birds to nest. If an active bird nest is encountered during
2 construction, it would be avoided.
- 3 • As practicable, roadway construction work and construction on Salado Creek Crossing would not
4 occur during peak traffic times to minimize the impact on traffic flows.
 - 5 • Prior to any demolition, the construction contractor would ensure that demolition would not
6 damage existing utility infrastructure (e.g. buried pipes or power lines).
 - 7 • All of the storm water drainage improvement projects have the potential to significantly impact
8 utilities during the construction phase, especially if there are utility crossings at the construction
9 point. The construction contractor would review all pre-existing utilities in the area to ensure that
10 any interruption of service is limited and for as brief a time as possible.
 - 11 • For the handling of hazardous materials needed for construction, the construction contractor would
12 comply with all applicable permits and use standard BMPs designed specifically to minimize the
13 risk of environmental contamination and harm to human health. The construction contractor
14 would implement a Spill Prevention, Control, and Countermeasure (SPCC) Plan during
15 construction, as applicable, given the volumes of petroleum products on site. The construction
16 contractor would comply with Phase I and II Storm Water regulations under the Federal CWA to
17 prevent exposure of storm water runoff to construction materials or sediment.
 - 18 • Hazardous wastes would be handled in accordance with applicable Army regulations and the FSH
19 Oil and Hazardous Substances Emergency Contingency Plan. If an unknown or unidentified waste,
20 such as contaminated soil, is encountered during construction, all construction in the area would
21 stop and the appropriate installation personnel would be notified.
 - 22 • Undocumented USTs or pipelines may be encountered during ground disturbance activities.
23 These items may contain products which are hazardous to the environment or human health. If
24 they are encountered during construction, all construction in the area would stop and the
25 appropriate installation personnel would be notified.
 - 26 • Prior to any building renovation or demolition on a building construction prior to 1985, a complete
27 asbestos survey would be completed. When removal of ACM is required, the construction
28 contractor would follow industry and Army standards for the encapsulation, removal, and disposal
29 of ACM.
 - 30 • Prior to any building renovation or demolition, a complete LBP survey would be completed.
31 When removal of LBP is required, FSH would follow industry and Army standards for the
32 encapsulation, removal, and disposal of LBP. Buildings 890, 910 -914, 961,1222, 1278, 1279,
33 1281, 1290, 1105, 1111, 1462, 2263, 2264, 2266, 2270, 4168, and 4197 would require a LBP
34 survey.
 - 35 • Buildings 890, 910-914, 961, 1222, 1278, 1279, 1281, 1290, 1105, 1111, 1462, 2263, 2264, 2266,
36 2270, 4168, and 4197 would also require a PCB survey or inspection to ensure that no PCB-
37 containing materials would be impacted.
 - 38 • Due to the age of the installation and its historic uses, not all UXO may be accounted for. If UXO
39 are encountered during site development, U.S. Army EOD support personnel would assess and
40 eliminate any potential explosive hazard prior to resuming construction activities.
 - 41 • The proposed site of the Training Aids Center would be adjacent to the Conservation visual zone.
42 The size of the building may be sufficient to impact the Conservation visual zone. Therefore, the
43 Training Aids Center would be designed to minimize visual impacts to the Conservation visual
44 zone.

- 1 • The MacArthur Field Track would be constructed of materials that do not adversely affect the
2 drainage system.
- 3 • To avoid or minimize potential impacts to utilities during construction, the construction contractor
4 would review all pre-existing utilities in this area to ensure that any interruption in service is
5 limited to those times when it is necessary and for as brief a time as possible. If necessary, portable
6 power would be provided to signal lights.
- 7 • The Student Trainee Adult Sports Park construction would represent a loss of pervious surfaces
8 within the floodplain, which may impact the storm water drainage system. Any potential adverse
9 impact may be avoided by incorporating design elements to mitigate this impact through the use of
10 pervious track and field surfaces, improved building drainage, and the use of culverts and other
11 such engineering solutions to disperse storm water. Additionally, the recreational fields may
12 require additional irrigation services. The construction contractor would review the water usage to
13 determine if additional recycled water can be purchased for irrigation.

14 **3.19 MITIGATION SUMMARY**

15 Floodplain Development and Wetlands

16 Three of the Proposed Actions, the Salado Creek crossing, the Schofield Road ACP, and the Adult Sports
17 Park are within or in close proximity to the Salado Creek floodplain and have the potential to impact
18 CWA jurisdictional waters of the U.S., including wetlands. A Finding of No Practicable Alternative
19 (FNPA) to meet the requirements of EO 11988 and EO 11990 has been prepared to document that there
20 are no alternative sites available for the Salado Creek crossing, the Schofield Road ACP, and the Adult
21 Sports Park Proposed Actions. At this time, the Salado Creek Crossing, Schofield Road ACP, and Adult
22 Sports Park designs are unknown, and wetland avoidance is possible. A USACE jurisdictional wetland
23 delineation would occur prior to design to determine the quality and extent of the wetlands and assist with
24 wetlands impacts avoidance. If final design of the Salado Creek crossing, Schofield Road ACP, and the
25 Adult Sports Park cannot avoid jurisdictional wetlands and waters of the U.S., then construction activities
26 (which would include mechanical excavation or the placement of fill material in wetlands or other waters
27 of the U.S.) associated with these actions would require a CWA Section 404 permit and Section 401 State
28 Water Quality Certification. The limits of jurisdictional waters with respect to potential construction
29 footprints for these three projects would need to be determined prior to final designs. As conditions of the
30 CWA permit, the final project designs would be required to minimize impacts as much as practicable, to
31 restore temporarily impacted areas, and to provide compensatory mitigation for any permanent losses.

32 Hazardous Materials

- 33 • To avoid an adverse impact associated with Landfill 2 FTSH-29, Landfill 3 FTSH-30, Landfill 4B
34 FTSH-30, and Landfill 5 FTSH-30:
- 35 ○ Landscaping would not include trees or scrubs placed directly in the ground. Containerized
36 plants are acceptable as long as the root system of the trees or shrubs has no means of direct
37 contact to the existing soil.
- 38 ○ Fill would be used over the existing cap to lay utilities. Utility trenches would not penetrate
39 the existing ground.
- 40 ○ Fill would be used over the existing cap for the siting of footings and foundations. Footings
41 and foundations would not penetrate the existing ground.

- 1 ○ No digging or penetration of the soil would be allowed beyond the depth of fill placed upon
2 the cap in that area.
- 3 • Prior to any building renovation or demolition on building built prior to 1985 a complete asbestos
4 survey would be completed, sampling all materials to be impacted. When removal of ACM is
5 required (*e.g.*, during demolition/deconstruction or renovation), FSH and those contractors
6 performing the renovation or demolition, would follow industry and Army standards for the
7 encapsulation, removal and disposal of ACM.
- 8 • Prior to any building renovation or demolition on building a complete LBP survey would be
9 completed, sampling all materials to be impacted. When removal of LBP is required (*e.g.*, during
10 demolition/deconstruction or renovation), FSH and those contractors performing the renovation or
11 demolition, would follow industry and Army standards for the encapsulation, removal and disposal
12 of LBP.
- 13 • Buildings undergoing renovation or demolition would require a PCB survey or inspection to
14 ensure that no PCB-containing materials would be impacted. When removal of PCBs is required
15 (*e.g.*, during demolition/deconstruction or renovation), FSH and those contractors performing the
16 renovation or demolition, would follow industry and Army standards for the removal and disposal
17 of PCBs.

18 Cultural Resources

19 *Building 197*

20 The proposed demolition of Building 197 would be a direct, adverse impact to a building that is both
21 NRHP-eligible and a contributing element to an NHL. A possible mitigation for this impact would be
22 the completion of a Historic American Building Survey/Historic American Engineering Survey
23 (HABS/HAER) document. While the building would be demolished, the HABS/HAER documentation
24 would serve to record it for posterity. Additionally, the HABS/HAER document would serve as an
25 informational document detailing the building's history and importance to the landscape of the NHL.

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CHAPTER 5

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Appendix A

Air Quality Calculations

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Emissions Summary

CONSTRUCTION EMISSIONS SUMMARY

FSH Master Planning Actions	Emissions (tons)					
	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Emissions per year (2010-2015)	6.54	1.50	10.78	0.01	5.31	1.08
Long Range Projects (2016-2017)	9.55	2.45	17.16	0.02	5.76	1.48

Note: Project emissions have been estimated per project implementation year from information provided in Table A-1 below. Project durations are based on estimates provided in Table A-1 below. Since a majority of the Master Planning Actions are assumed to begin in 2010 and be completed by 2015, the total project emission have combined and divided over 6 implementation years. This allows for flexibility and overlap of the construction implementation schedule. It was further assumed that the “long range” projects would be implemented within two calendar years (i.e., 2016 - 2017).

Emissions Summary

Table A-1. FSH Master Planning Actions Estimated Implementation Schedule

<i>Area</i>	<i>Proposed Action</i>	<i>Approximate Size</i>	<i>Estimated Implementation Year</i>
FSH West	Demolish Building 197	16,274 SF	2010-2015
	McArthur Field Running Track	590,000 SF	2010-2015
	Building 2270 Historic Theatre Expansion	40,000 SF	2010-2015
	Construct IMCOM HQ	175,000 SF	2010-2015
	IMCOM Campus Area Parking Lots (Total for all Lots Combined)	740,000 SF	2010-2015
	Construct METC Parking Lot	390,000 SF	2010-2015
	Construct Sixth Army Command and Control Facility	235,000 SF	2010-2015
	Construct Sixth Army Special Troops Command and Control Facility (HQ and TEMF with COF)	90,000 SF	2010-2015
	Widen Scott Road	20,000 SF	Long Range 2006 -2007
	Construct Fifth Army Special Purpose Facility	35,000 SF	2010-2015
	Battle Command Training Center Phase II	47,000 SF	Long Range 2006 -2007
	UPH PP Barracks	80,000 SF	2010-2015
	MED LOG CO TEMF with COF	18,000 SF	2010-2015
	Drainage System Improvements, Scott Road and Wilson Street	5,000 SF	Long Range 2006 -2007
	Drainage System Improvements, Buildings 2248-2250	400 LF	Long Range 2006 -2007
	FSH Central	Demolish and Replace Chapel Building 1398	35,000 SF
Demolish and Replace Recreation Center Building 1462		22,000 SF	2010-2015
Construct TEMF Area Development		1,306,800 SF	2010-2015
Construct 470 th MI BDE HQ Complex		100,000 SF	2010-2015
Realign and Extend Schofield Road		20,000 SF	Long Range 2006 -2007
Drainage Improvements, Patch Road		500 LF	2010-2015
FSH East	Construct Schofield Road ACP	88,800 SF	Long Range 2006 -2007
	Construct Salado Creek Crossing	7,800 SF	Long Range 2006 -2007
	Construct George Beach/I-35N ACP/VCP	88,800 SF	2010-2015
	Construct 91 W AIB	200,000 SF	2010-2015
	Construction Student Trainee Adult Sports Park	6,000 SF	2010-2015
	Drainage System Improvements, Winnans Road and Nursery Road	3,000 LF	Long Range 2006 -2007
	Drainage System Improvements, BAMC	5,000 SF	Long Range 2006 -2007

Construction Equipment Emissions

Master Planning Projects - 2010 thru 2015 (20 Projects Total)

Master Planning Projects	Fuel	HP	Load Factor	Emission Factors, g/bhp-hr								No of Equipment			Emissions, lbs/day								Emissions, tons/year							
				CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4	Equipment	Hrs/day	Months	CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4	CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4
Tractors/Loaders/Backhoes	Diesel	108	55	4.07	1.19	7.16	0.007	0.654	0.58206	568.3	0.108	2	4	80	4.26	1.25	7.50	0.01	0.69	0.61	595.38	0.11	4.43	1.30	7.80	0.01	0.71	0.63	619.19	0.12
Dump Trucks	Diesel	479	57	1.82	0.57	5.55	0.006	0.295	0.26255	568.3	0.051	1	4	80	4.38	1.37	13.36	0.01	0.71	0.63	1368.31	0.12	4.56	1.43	13.90	0.02	0.74	0.66	1423.04	0.13
Bulldozers	Diesel	357	59	4.25	0.83	7.51	0.006	0.32	0.2848	568.3	0.075	1	4	3	7.89	1.54	13.95	0.01	0.59	0.53	1055.59	0.14	0.31	0.06	0.54	0.00	0.02	0.02	41.17	0.01
Excavator	Diesel	168	57	2.19	0.59	6.15	0.006	0.229	0.20381	568.3	0.053	2	4	80	3.70	1.00	10.39	0.01	0.39	0.34	959.82	0.09	3.85	1.04	10.80	0.01	0.40	0.36	998.21	0.09
Bobcat	Diesel	44	55	6.07	2.25	5.68	0.007	0.578	0.51442	568.3	0.203	2	4	80	2.59	0.96	2.42	0.00	0.25	0.22	242.56	0.09	2.69	1.00	2.52	0.00	0.26	0.23	252.26	0.09
Trencher	Diesel	63	75	4.35	1.47	8.72	0.007	0.734	0.65326	568.3	0.133	1	4	40	1.81	0.61	3.63	0.00	0.31	0.27	236.80	0.06	0.94	0.32	1.89	0.00	0.16	0.14	123.13	0.03
Compactor	Diesel	8	43	3.47	0.68	4.33	0.009	0.274	0.24386	568.3	0.061	2	4	40	0.21	0.04	0.26	0.00	0.02	0.01	34.48	0.00	0.11	0.02	0.14	0.00	0.01	0.01	17.93	0.00
Compressor	Diesel	106	48	4.08	1.32	7.76	0.007	0.686	0.61054	568.3	0.119	2	4	80	3.66	1.18	6.96	0.01	0.62	0.55	509.98	0.11	3.81	1.23	7.24	0.01	0.64	0.57	530.38	0.11
Paver	Diesel	100	62	4.4	1.5	8.75	0.007	0.759	0.67551	568.3	0.135	2	4	60	4.81	1.64	9.57	0.01	0.83	0.74	621.44	0.15	3.75	1.28	7.46	0.01	0.65	0.58	484.72	0.12
TOTAL														33.33	9.60	68.05	0.06	4.39	3.91	5624.34	0.86	24.45	7.67	52.30	0.05	3.59	3.19	4490.03	0.69	

Annual Totals (divide by 6 years) = 4.076 1.278 8.716 0.009 0.598 0.532 748.3 0.115

Long Range Projects - 2016 thru 2017 (11 Projects Total)

Master Planning Projects	Fuel	HP	Load Factor	Emission Factors, g/bhp-hr								No of Equipment			Emissions, lbs/day								Emissions, tons/year							
				CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4	Equipment	Hrs/day	Months	CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4	CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4
Tractors/Loaders/Backhoes	Diesel	108	55	4.07	1.19	7.16	0.007	0.654	0.58206	568.3	0.108	2	4	44	4.26	1.25	7.50	0.01	0.69	0.61	595.38	0.11	2.44	0.71	4.29	0.00	0.39	0.35	340.55	0.06
Dump Trucks	Diesel	479	57	1.82	0.57	5.55	0.006	0.295	0.26255	568.3	0.051	1	4	44	4.38	1.37	13.36	0.01	0.71	0.63	1368.31	0.12	2.51	0.79	7.64	0.01	0.41	0.36	782.67	0.07
Bulldozers	Diesel	357	59	4.25	0.83	7.51	0.006	0.32	0.2848	568.3	0.075	1	4	2	7.89	1.54	13.95	0.01	0.59	0.53	1055.59	0.14	0.21	0.04	0.36	0.00	0.02	0.01	27.45	0.00
Excavator	Diesel	168	57	2.19	0.59	6.15	0.006	0.229	0.20381	568.3	0.053	2	4	44	3.70	1.00	10.39	0.01	0.39	0.34	959.82	0.09	2.12	0.57	5.94	0.01	0.22	0.20	549.02	0.05
Bobcat	Diesel	44	55	6.07	2.25	5.68	0.007	0.578	0.51442	568.3	0.203	2	4	44	2.59	0.96	2.42	0.00	0.25	0.22	242.56	0.09	1.48	0.55	1.39	0.00	0.14	0.13	138.74	0.05
Trencher	Diesel	63	75	4.35	1.47	8.72	0.007	0.734	0.65326	568.3	0.133	1	4	22	1.81	0.61	3.63	0.00	0.31	0.27	236.80	0.06	0.52	0.18	1.04	0.00	0.09	0.08	67.72	0.02
Compactor	Diesel	8	43	3.47	0.68	4.33	0.009	0.274	0.24386	568.3	0.061	2	4	22	0.21	0.04	0.26	0.00	0.02	0.01	34.48	0.00	0.06	0.01	0.08	0.00	0.00	0.00	9.86	0.00
Compressor	Diesel	106	48	4.08	1.32	7.76	0.007	0.686	0.61054	568.3	0.119	2	4	44	3.66	1.18	6.96	0.01	0.62	0.55	509.98	0.11	2.09	0.68	3.98	0.00	0.35	0.31	291.71	0.06
Paver	Diesel	100	62	4.4	1.5	8.75	0.007	0.759	0.67551	568.3	0.135	2	4	44	4.81	1.64	9.57	0.01	0.83	0.74	621.44	0.15	2.75	0.94	5.47	0.00	0.47	0.42	355.46	0.08
TOTAL														33.33	9.60	68.05	0.06	4.39	3.91	5624.34	0.86	14.17	4.46	30.20	0.03	2.10	1.86	2563.19	0.40	

Annual Totals (divide by 2 years) = 7.087 2.23 15.1 0.015 1.048 0.932 1282 0.201

Construction Truck Emissions

Vehicle Class	No. of Trucks Per Construction Year	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO _x Running Exhaust (g/mi)	VOC Running Exhaust (g/mi)	SO _x Running Exhaust (g/mi)	PM10			PM2.5			CO ₂ Running Exhaust (g/mi)	CH ₄ Running Exhaust (g/mi)	Emissions, lbs/day								Emissions, tons/year							
								Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)	Running Exhaust (g/mi)	Tire Wear (g/mi)	Brake Wear (g/mi)			CO	NO _x	VOCs	SO _x	PM10	PM2.5	CO ₂	CH ₄	CO	NO _x	VOCs	SO _x	PM10	PM2.5	CO ₂	CH ₄
Heavy-duty diesel truck	10	27	40	6.303	17.209	1.262	0.019	0.713	0.036	0.028	0.656	0.009	0.012	1992.669	0.059	5.56	15.18	1.11	0.02	0.69	0.60	1757.24	0.05	0.69	1.90	0.14	0.00	0.09	0.07	219.66	0.01

Emission Factors from EMFAC2007, Year 2009, 60 F, 27 mph

Unpaved Road Emissions		PM10	PM2.5
E = k(s/12) ^a a(W/3) ^b	k	1.5	0.15
Assume s = 8.5	a	0.9	0.9
Assume W = 10	b	0.45	0.45
Assume 5 miles of travel per vehicle per day			
Emission Factor		1.8906	0.18906
Control Efficiency		61%	61%
Emissions, lbs/day		36.8668	3.68668
Emissions, tons/year		4.60835	0.46083

Appendix B

Building 2270 Renovation 1391

ARMY 2010 64182 W REVISION DATE: 06 SEP 2008
BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
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Fort Sam Houston
Texas

REP
Repair Building 2270

64182

Description of Proposed Construction: (CONTINUED)

exterior lamp posts. 2. Demolish latrine fixtures, accessories and stalls. 3. Remove carpet. 4. Remove doors, frames and hardware as required (salvage historical front doors for repairs and reuse). Retain attic access doors. 5. Remove metal window and frame in office area. 6. Remove ceramic tile floor & base /mortar. 7. Remove steps from front stage area. 8. Remove all acoustical materials from auditorium area walls. 9. Remove theater seating. 10. Remove all existing plumbing fixtures, and fittings, hot water heater, janitor's sink and drinking fountains. 11. Remove metal guardrail. 12. Remove damaged walkway. 13. Remove and salvage post indicator valve for relocation. 14. Abandon subsurface storm drain system from roof downspouts. 15. Remove and salvage metal ladder system and relocate. 16. Protect existing wall murals in auditorium. 17. Remove damaged plaster, gypboard walls and ceilings. 18. Remove Proscenium curtain. 19. Remove speakers, support, wiring, movie screen. 20. Retain wood handrails and balustrades for renovation. 21. Remove all roofing, flashings, deteriorated decking and insulation. 22. Remove tree limbs as required to complete roof replacement. 23. Remove concrete platform. 24. Replace all glazing with AT/FP complaint glazing. 24. Remove wood louver and frame. 26. Repair and repaint interior walls and ceilings throughout the building. Provide vapor barriers in walls. Provide loading dock at the rear of the facility. Supporting facilities include fire protection and alarm system. Remove Stanley Rd. from West of building 2278 to East of Reynolds Rd.

11. REQ: 30,128 SF ADQT: 15,435 SF SUBSTD: NONE

PROJECT:

Renovate Theater (New mission/Discretionary BRAC move)

REQUIREMENT:

This project is in support of the BRAC realignment of CFSC Army Entertainment Division. The removal of Stanley Rd is to satisfy standoff requirements for Force Protection.

ADDITIONAL:

27. Replace toilet fixtures and fittings. Provide handicap hardware and stalls. Provide new janitor's sink. 28. Upgrade the power to the building and the power distribution system within the facility. 29. Replace carpet and repair all flooring. 30. Repair and paint exterior walls. Repair and seal all exterior joints at concrete steps. Repair existing handrails. Power clean/wash exterior concrete walking surfaces. The sidewalk, street curbs and sidewalk drainage box outlets that are part of the underground drainage system will be repaired. 31. Replace all the existing roofing, deteriorated decking, roof insulation and all flashings. Repair parapet walls. The existing roof and ceiling structure shall be surveyed for rust and water damage to existing

Fort Sam Houston
Texas

REP
Repair Building 2270

64182

ADDITIONAL: (CONTINUED)

structural steel members. Design to include repairs if survey documents damage is present. The roof replacement shall be prepared as a separate project in order to effect repairs to prevent further damage to the interior. 32. Provide new Communications Room adjacent the front office area with cipher locks on doors and separate climate control. Provide home run wiring/conduits from Communications Room to all multi media sources. Provide new conduit from DOIM manhole #75 and electrical power per ITBC requirements. Provide new plywood backboards for communications equipment. 12. Replace doors, frames and hardware as required. Restore historical doors and provide new hardware. 33. Provide new ceramic tile floors and walls in toilet areas. 34. Provide new solid plastic toilet partitions. 35. Provide new vanities in toilets. 36. Repair windows in latrines to operable condition. 37. Provide new drinking fountains. 38. Provide new lighting fixtures and wall sconces. 39. Refurbish / repair salvaged metal grilles. Provide new HVAC grilles as required. 40. The existing ticket booth area shall be repaired and restored to its' original historical appearance. 41. Refurbish and paint existing diffuser/light fixtures. 42. Construct new chases as required. 43. Refurbish attic access door, frame and provide new hardware. 44. Refurbish window cabinet. 45. Provide new wood steps and metal handrails at stage area. 46. Refurbish metal railings and post. 47. Recess light fixture and rewire. 48. Provide new seating and tables in auditorium and balcony. 49. Replace all acoustical materials from auditorium area walls. Repair damaged capital, freeze and pilasters. Replace existing damaged "gingerbread" as required. Replace base materials.

This project will be coordinated with the installation physical security plan, and all required physical security and/or combating terrorism (CBT/T) and force protection measures. This project complies with the scope and design criteria of DOD 4270.1-M, Construction Criteria, that were in effect 3 June 2005.

The facility will be designed in accordance with the Unified Facilities Criteria (UFC) 4-010-01, DOD Minimum Antiterrorism Standards for Buildings, (UFC) 4-021-1, Mass Notification System, (UFC) 4-023-03 Design of Buildings to resist Progressive Collapse, and the Uniform Federal Accessibility Standards/Americans with Disability Act Accessibility Guidelines (UFAS/ADAAG). Coordination With SHPO is required as part of the design.

ARMY 2010 64182 W REVISION DATE: 06 SEP 2008
BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
LAF= .94 UM=E

Fort Sam Houston
Texas

REP
Repair Building 2270

64182

WENDY L. MARTINSON
Colonel, MS
Commanding

ESTIMATED CONSTRUCTION START:	MAR 2010	INDEX: 2524
ESTIMATED MIDPOINT OF CONSTRUCTION:	SEP 2010	INDEX: 2549
ESTIMATED CONSTRUCTION COMPLETION:	MAR 2011	INDEX: 2575

2010 64182 W REVISION DATE: 06 SEP 2008
 ARMY BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
 LAF=.94 UM=E

Fort Sam Houston
 Texas

REP
 Repair Building 2270

64182

U/M	Qty	Unit Cost	Cost (\$000)
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PRIMARY FACILITY.

GENERAL.

1 0)	17119	Repair Building	LS	--	--	(797)
1)		Repair or replace floors and wa	LS	--	--	203
2)		Metal Railings	LF	260	40.20	10
3)		New Door, Windows and Frames	LS	--	--	51
4)		Theater Seating	LS	--	--	319
5)		Audio/ Visual System	LS	--	--	6
6)		Plumbing Fixtures	LS	--	--	29
7)		Electrical Fixture and Panels	LS	--	--	146
8)		Elevator	LS	--	--	32
2 0)	88041	Antiterrorism Measures	LS	--	--	(53)
1)	88041	Antiterrorism Protection Inside	LS	--	--	27
2)	88042	Antiterrorism Protection Outsid	LS	--	--	27

INFORMATION SYSTEMS.

1 0)	80800	Building Information Systems	LS	--	--	(254)
------	-------	------------------------------	----	----	----	-------

SUPPORTING FACILITIES

Paving, Walks, Curbs And Gutters		LS	--	--	(212)	
1)	85220	Sidewalks and Walkways, Surface	SF	5,000	42.31	212
Storm Drainage		LS	--	--	(3)	
1)	87110	Storm Sewer	LF	600	4.20	3
Site Improvement/Demolition		LS	--	--	(192)	
1)	85220	Sidewalks and Walkways, Surface	SY	633	16.68	11
2)		Doors & Windows D	LS	--	--	12
3)		Remove Wall and Floor Finishes	LS	--	--	11
4)		Theater Seating D	LS	--	--	28
5)		Plumbing Fixtures D	LS	--	--	10
6)		Electrical Fixtures D	LS	--	--	4
7)	85110	Roads, Surfaced D	SY	5,229	16.02	84
8)	93220	Landscape Planting	SY	5,229	6.40	33
Information Systems		LS	--	--	(129)	
1)	80800	Information Systems	LS	--	--	129
Antiterrorism Measures		LS	--	--	(69)	
1)	88042	Pop Up Bollard System	EA	1	69,411	69

2010 64182 W REVISION DATE: 06 SEP 2008
 BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
 LAF=.94 UM=E

DATE 26 MAY 2005 FY 2010 PROGRAM
 PROJECT NUMBER: 64182
 PROJECT TITLE: Repair Building 2270
 INSTALLATION: Fort Sam Houston
 LOCATION: Texas

TAB B - PLANNING AND DESIGN DATA (ESTIMATE)

1. STATUS

A. DESIGN START DATE
 B. PERCENT COMPLETE AS OF 15 SEP 2008 (DSCN YR) 0.00
 C. PERCENT COMPLETE AS OF 01 JAN 2009 (BDGT YR) 0.00
 D. PERCENT COMPLETE AS OF 01 OCT 2009 (PROG YR) 0.00
 E. CONCEPT COMPLETE DATE
 F. DESIGN COMPLETE DATE
 G. TYPE OF DESIGN CONTRACT: Design-build

2. BASIS

A. STANDARD OR DEFINITIVE DESIGN (YES/NO) N
 B WHERE DESIGN WAS MOSI RECENTLY USED:

 C. PERCENTIAGE OF DESIGN UUILIZING STANDARD DESIGN 0.00

3. COST (TOTAL \$000)

A. PRODUCTION OF PLANS AND SPECS 0
 B. ALL OTHER DESIGN COST 0
 C. TOTAL DESIGN COST (C) = (A)+(B) OR (D)+(E) ... 0
 D. CONTRACT 0
 E. IN HOUSE 0

4. CONSIRUCIION CONTRACT AWARD

5. CONSTRUCTION SIART DATE (PLANNED)

6. CONSTRUCTION COMPLETION DATE

7. LEED RATING (at Design)

2010 64182 W REVISION DATE: 06 SEP 2008
 BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
 LAF= .94 UM=E

DATE 26 MAY 2005 FY 2010 PROGRAM
 PROJECT NUMBER: 64182
 PROJECT TITLE: Repair Building 2270
 INSIALATION: Fort Sam Houston
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TAB C - QUANTITATIVE DATA

TYPE OF DESIGN: This facility does not include unusual construction features that require extra design effort.

UNIT OF MEASURE: SF

A.	TOTAL REQUIREMENT	30,128	
B.	EXISTING SUBSTANDARD	0	
C.	EXISTING ADEQUATE	15,435	
D.	FUNDED, NOT INVENTORY	0	
E.	ADEQUATE ASSETS	15,435	
	//////////////////////////////////////	AUTHORIZED	FUNDED
F.	UNFUNDED PRIOR AUTHORIZATION	0	//////////////////////////////////////
G.	INCLUDED IN FY PROGRAM	0	
H.	DEFICIENCY (A-E-F-G)	14,693	14,693

2010 64182 W REVISION DATE: 06 SEP 2008
BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
LAF=.94 UM=E

DATE 26 MAY 2005 FY 2010 PROGRAM
PROJECT NUMBER: 64182
PROJECT TITLE: Repair Building 2270
INSTALLATION: Fort Sam Houston
LOCATION: Texas

TAB C - GENERAL JUSTIFICATION DATA

TRAFFIC ANALYSIS (TEXT)

Based on the anticipated increase in traffic volumes, a traffic analysis in support of this project appears mandatory. If an analysis can not be performed prior to the start of design, an analysis must be performed as part of the design process.

2010 64182 W REVISION DATE: 06 SEP 2008
BCA (AS OF 05/11/2009 AT 14:18:43) 26 MAY 2005
LAF=.94 UM=E

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TAB J - ENERGY AND UTILITY REQUIREMENTS

SUMMARY OF ENERGY REQUIREMENTS

ENERGY REQUIREMENTS APPRAISAL

1. PROJECT DESCRIPTION:

- A. Installation: Fort Sam Houston
- B. Project Number: 64182
- C. Project Title: Convert Repair 2270 to Theater
- D. Geographical Location: San Antonio, Texas

E. Brief Physical Description: Permanent facility contains theater with 14,692 square feet of floor area. The facility shall be provided with air conditioning, heating, and ventilation system.

2. Estimated Energy Consumption: Estimated Energy Consumption: This project will not have an impact on the existing utility system of the installation. Energy consumption will remain basally unchanged with this project completion.

A. Heating: Heating is required throughout occupied spaces.

B. Air Conditioning: Air conditioning is required throughout occupied spaces for personal comfort.

C. Water Supply: Water will be for incidental cleaning and latrine use by the approximate 15 employees

D. Electrical Power: Electrical energy will be required for interior lighting, exterior area lighting, HVAC systems operation, and power for stage and theatrical equipment.

E. Sewerage generation will be from incidental cleaning and latrine use by the approximate 15 employees and personal usage by 1000 personnel when theater is in use. Sewage flows by gravity to the city of San Antonio sewage collection and treatment system. No energy is consumed in transferring the sewage to the City of San Antonio.

2010 64182 W REVISION DATE: 06 SEP 2008
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PROJECT NUMBER: 64182
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TAB J - ENERGY AND UTILITY REQUIREMENTS

SUMMARY OF ENERGY REQUIREMENTS (Contd..)

3. ENERGY SOURCES:

A. Heating: There is no existing central heating plant located supporting this site. The project will therefore, incorporate an independent heating plant. The primary fuel will be natural gas. Natural gas is provided by sole source utility contract through the San Antonio City Public Service (CPS). CPS purchases natural gas from multiple suppliers. The CPS owns and operates the on-post gas distribution system. Supplier reserves are adequate to support the proposed facility. CPS has operated without gas supply curtailment since 1983 when, during an extended cold period, there was a five day curtailment of supplies to their residential and medical customers. At that time CPS was utilizing a single natural gas supplier. Dual fuel capability should be considered. The preferred alternative is heating oil.

3. Electrical power: Electrical power is provided by sole source utility contract through the San Antonio CPS. CPS generates electrical power by burning natural gas, heating oil, and low sulfur coal. The bulk of the power generated is produced by burning coal. CPS is a participating partner in the operation of the South Texas Nuclear Project (STNP). The STNP is a regional, nuclear power generation plant. The region covered by the participating partners roughly matches the Fort Sam Houston support (AR 5-9) area. CPS long range planning includes a program for construction of additional power plants to meet anticipated growth and continue a policy of fuel diversification. Future plans call for construction of lignite fired generating plant and conversion of a reserve heating oil fired plant to refuse derived fuel (RDF). Natural gas is purchased by CPS from multiple regional suppliers. Fuel oil is purchased by CPS from multiple suppliers. Coal is purchased in Wyoming and shipped by rail to San Antonio. CPS owns extensive lignite mineral rights in the South Texas area. CPS owns and operates the on-post electrical distribution system. CPS has sufficient generation capacity to support the proposed facility. Generation and fuel reserves are adequate to insure a continued supply. The CPS 135 KV to 13.2 KV electrical substation on the installation has @ 80 MVA capacity and is loaded at approximately 80% of capacity. CPS has numerous alternative 13.2 connection points between the on post and off post.

D. Air Conditioning: There is no existing central heating plant supporting this facility. There is not an existing central air conditioning plant to support this facility. The primary energy source for the air conditioning plant

2010 64182 W REVISION DATE: 06 SEP 2008
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LAF=.94 UM=E

DAIE 26 MAY 2005 FY 2010 PROGRAM
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TAB J - ENERGY AND UTILITY REQUIREMENTS

SUMMARY OF ENERGY REQUIREMENTS (Contd..)

will be purchased electric.

4. ENERGY USE IMPACT: The activities to be supported in the proposed structure are already located on the installation.

5. ENERGY CONSERVATION: The facility design shall comply with the criteria of the UFC 3-400-01, AR 11-27, and AR 420-49. It shall incorporate all reasonable energy efficient design alternatives. As a minimum, the following will be considered:

A. Waste Heat Recovery: This includes not only the use of air conditioning waste heat but the use of waste generated by equipment, body heat from the facility occupants and lighting loads.

B. Outside Air: The HVAC system should be capable of benefiting from the use of outside air when outside temperatures are appropriate.

C. Operating Voltages: Higher operating voltages for interior and exterior lighting, as well as electrical motor systems, should be utilized if justified by life cycle cost analysis.

D. High intensity discharge fixtures: High pressure sodium is preferred for use along roads, security fences and parking area. Fluorescent lighting is preferred for interior use where color registration is important. Color registration is important in the maintenance and dwelling areas. The most cost efficient fixtures, consistent with operational requirements and the Installation Design Guide, shall be used.

E. Glazing: Tinted glass and/ or double glazing must be considered on the Southern and Western exposures as a minimum.

F. Insulation: Insulation in excess of minimums established by criteria (super insulation) should be provided if justifiable by life cycle cost analysis.

6. ENERGY ALTERNATIVES: Waste heat recovery applications offer potential alternatives for reduction of purchased energy. Selection of these energy alternatives must be supported by engineering analysis.

2010 64182 W REVISION DATE: 06 SEP 2008
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TAB J - ENERGY AND UTILITY REQUIREMENTS

SUMMARY OF ENERGY REQUIREMENTS (Contd..)

7. ENERGY EFFECTS: The heating system will result in discharges covered by the clean air act. Natural gas is the most energy efficient source available as well as the easiest to make comply with discharge standards. Degradation of the environmental standards would not result in a more efficient energy source.

Worker Vehicle Emissions

Category	Vehicle Class	No. POVs		Speed (mph)	VMF (mi/vehicle-day)	CO		NO _x		VOCs				SO _x		PM ₁₀				PM _{2.5}				CO ₂		CH ₄		Emissions, lbs/day								Emissions, tons/year								
		Per Year				Running Exhaust (g/mi)	Start-Up (g/start)*	Running Exhaust (g/mi)	Start-Up (g/start)*	Running Exhaust (g/mi)	Start-Up (g/start)*	Hot-Soak (g/trip)	Refueling Loss (g/hr)	Running Evaporative (g/mi)	Diurnal Evaporative (g/hr)	Running Exhaust (g/mi)	Start-Up (g/start)*	Running Exhaust (g/mi)	Start-Up (g/start)*	Tire Wear (g/mi)	Brake Wear (g/mi)	Running Exhaust (g/mi)	Start-Up (g/start)*	Tire Wear (g/mi)	Brake Wear (g/mi)	Running Exhaust (g/mi)	Start-Up (g/start)*	Running Exhaust (g/mi)	Start-Up (g/start)*	CO	NO _x	VOCs	SO _x	PM ₁₀	PM _{2.5}	CO ₂	CH ₄	CO	NO _x	VOCs	SO _x	PM ₁₀	PM _{2.5}	CO ₂
2010-2017 Construction Per Year	Light-duty truck, catalyst	50	33	40	2,924	11,289	0.284	0.56	0.055	0.816	0.183	0.024	0.047	0.054	0.004	0.002	0.013	0.016	0.008	0.013	0.011	0.014	0.002	0.005	399,538	203,967	0.027	0.046	14.14	1.31	0.65	0.02	0.15	0.08	1784.2	0.12	1.77	0.16	0.08	0.00	0.02	0.01	223.02	0.02

Assume startup after 8 hours
 Assume 45 minutes run time total
 2009 Emission Factors from EMFAC2007
 * Assume 250 days of driving during construction year