Camp Bullis
Joint Land Use Study

City of San Antonio
P.O. Box 839966
San Antonio, Texas 78283-3966

Office of Economic Adjustment
Department of Defense



Adopted by San Antonio City Council on June 18, 2009

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Executive Committee

The Executive Committee served an active and important role in the development of the Camp Bullis Joint Land Use Study (JLUS). The City of San Antonio would like to thank the following individuals for their review, guidance and assistance:

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- **Richard Rust, AICP**
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Acknowledgements

Please see the next page.

Camp Bullis
Joint Land Use Study



"Balancing the Region's Economic Development while Preserving Military Readiness through Compatible Land Use Planning"

What is a Joint Land Use Study?

The Camp Bullis Joint Land Use Study (JLUS) is the result of a collaborative planning process among the City of San Antonio, Bexar, Comal and Kendall Counties, other local jurisdictions/agencies, Camp Bullis/Fort Sam Houston, and land owners. Produced by and for local communities, this JLUS is intended to identify, address and resolve encroachment issues between the military and its civilian neighbors to promote compatible land uses and growth management guidelines.



The ongoing JLUS program establishes and fosters a relationship with the installation and the community to act as a team to avoid conflicts associated with future community growth. This JLUS will be implemented to protect the resident's quality of life, the property owner's rights, and the existing and future mission of Camp Bullis. Its primary objectives are to:

Community

- Protect the health, safety, and welfare of residents and maintain quality of life.
- Manage development in the vicinity of Camp Bullis that would interfere with the continued operations of its facilities.
- Provide for growth in an economically, environmentally, and socially sustainable manner.
- Maintain the economic vitality of the community.



Military

- Promote the health, safety, and welfare of the military and civilian personnel living and working at or near Camp Bullis.
- Ensure the ability of Camp Bullis to achieve its mission, maintain military readiness, and support national defense objectives.
- Preserve the ability of Camp Bullis to expand its mission and maintain its existing installation boundaries.

Why Prepare a Joint Land Use Study?

Even though a positive relationship exists among the local communities and Camp Bullis/Fort Sam Houston, the activities or actions of one entity can potentially negatively impact the other(s). Communities will continue to develop and expand in response to growth and market demands, extending their development pattern toward military installations and their supportive operational areas over time. The result can create land use and other compatibility issues, often referred to as encroachment. Encroachment not only creates negative impacts on community safety and economic development, but also has the potential to erode the sustainment of military activities and readiness. This threat to military readiness activities is currently one of the military's greatest concerns.

Collaboration between military installations and local communities should occur before incompatibility becomes an issue. Incompatibility can affect the military's mission as well as the health of local economies and the quality of life of their residents. The Department of Defense (DOD), through the Office of Economic Adjustment (OEA), recognizes the mutually beneficial relationship that exists among the military installation and county/local jurisdictions. In an effort to mitigate land and air conflicts and enhance its relationship among its civilian partners, the DOD has implemented this JLUS program.

Joint Land Use Study Guiding Principles

The goal of the Camp Bullis JLUS is not only to protect the viability of Camp Bullis's current and future missions, but also to accommodate growth, sustain regional economic health, and protect public health and safety. To meet this goal, three primary guiding principles were identified:

Understanding

Convene community and Camp Bullis representatives to study the issues in an open forum, taking into consideration both community and military viewpoints and needs. This includes public outreach and input.



Collaboration

Encourage cooperative land use and resource planning between Camp Bullis and surrounding communities so that future community growth and development is compatible with the training and operational missions within the installation. At the same time, seek ways to reduce operational impacts on adjacent lands while respecting the private property rights of citizens.

Actions

Provide a set of tools, activities, and procedures from which local jurisdictions, agencies, and the installation can select to implement JLUS recommendations. The actions proposed include both operational measures to mitigate installation impacts and local government and agency approaches to reduce impacts on military operations.

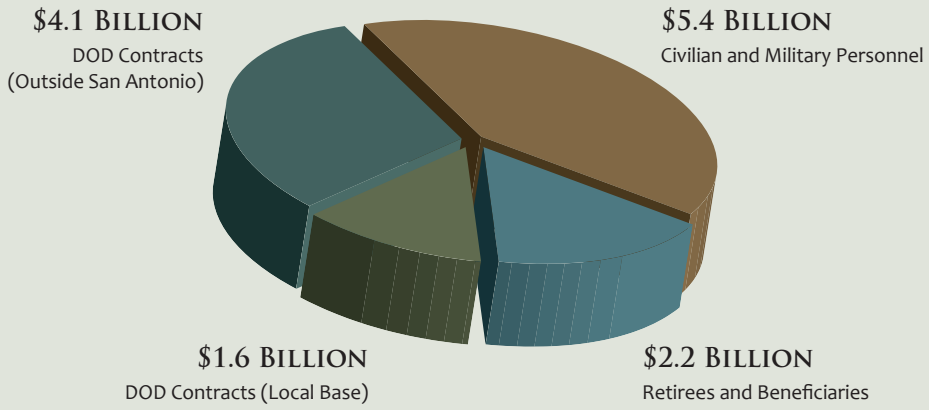
Camp Bullis Strategic Importance

Camp Bullis was created in 1917 as a training site for soldiers stationed at Fort Sam Houston and has evolved as the Army's premier training installation for combat medicine. Fort Sam Houston is the parent command to Camp Bullis and provides overall leadership, management, and oversight for Camp Bullis activities. Fort Sam Houston comprises approximately 3,000 acres in a highly urbanized part of San Antonio. Its urbanized location severely limits its ability to conduct on-site field training, especially during the night. Encompassing approximately 28,000 acres, Camp Bullis provides nearly 22,000 acres of invaluable field training and maneuver areas for Fort Sam Houston as well as multi-service medical training. The types of training activities that are supported by Camp Bullis include small arms and large caliber firing ranges, ground and air operations night training (through the use of night vision equipment), air combat drop zones, and fixed-wing (airplane) and rotary-wing (helicopter) training.



Camp Bullis Economic Influence

The economic impact from the DOD, including Camp Bullis and Fort Sam Houston, on San Antonio and the surrounding region is significant. In 2006, the DOD was the largest employer in the San Antonio Metropolitan Area (SAMA) supporting nearly 195,100 jobs including direct, indirect, and induced employment. Total employment of the military installations within the region was estimated to be 68,700 people, of which 36 percent were comprised of civilians. In 2006, the direct and indirect economic impact of the DOD in the SAMA was over $13.3 billion as identified below:



The implementation of Base Realignment and Closure (BRAC) 2005 will be one of the largest economic development projects in San Antonio's history. San Antonio is expected to receive over 4,000 new personnel, 5,500 new families and $2.8 billion in construction. In 2009, it was forecast that through 2011, BRAC will produce an economic impact of $8.3 billion and support the employment of over 61,000 due to the impact of construction. After 2011, BRAC's impact will support the creation of over 28,000 jobs, provide an additional $1.5 billion in economic impact, and increase earnings by over $1.3 billion.

Military and Community Partnerships



Camp Bullis/Fort Sam Houston, the City of San Antonio, Bexar County, Comal County, Kendall County and other surrounding communities are linked through the services each provides. Due to the fact that many military personnel and their families live in nearby communities, these jurisdictions provide a range of community services to these personnel, from public schools and libraries to police and fire protection. Camp Bullis has been, and continues to be, a contributing partner with its surrounding communities through the involvement of installation personnel in local charities and other civic organizations. It has also responded with critical services when needed, such as mutual aid for fire response, volunteer activities, and emergency services response and relief.

As a result of the Camp Bullis JLUS collaborative planning process, a specific course of action was derived for each identified encroachment issue. The implementation plan proposes 67 recommended strategies that focus on specific compatible land use policies, programs, regulations, and legislation. These strategies are categorized by type as described below.

JLUS Implementation Plan Strategies

Types of Strategies

Acquisition

A land use planning tool used to eliminate land use incompatibilities through market transactions and the local development process.

Bird Wildlife Strike Hazard (BASH)

A United States Air Force program aimed at reducing the potential for collisions between military aircraft and birds.

Capital Improvement Plans (CIP)

A fiscal detailed planning document used to plan and direct a jurisdiction's or agency's investment in public facilities, including infrastructure.

Communications / Coordination

Maintaining open and constant communication between all stakeholders.

Comprehensive plan

A long range general plan that outlines goals and policies to guide the physical development of a city.

Habitat Plans

A plan to conserve natural communities at the ecosystem level while accommodating compatible land use.

Legislation

A law that allows restrictions or limits the tools available to guide land use planning.

Memorandum of Understanding (MOU)

An interagency agreement between two or more government entities to establish a formal framework for coordination and cooperation.

Plans and Programs

A document or program that provides goals and alternatives for land use issues such as light or noise trespass.

Real Estate Disclosure

A document that discloses all actual known facts relating to the condition of the property.

Zoning / Building Codes

Zoning - Zoning is the division of a jurisdiction into districts (zones) within which permissible uses are prescribed and restrictions on building height, bulk, layout and other requirements are defined.

Building Codes - Building Codes set forth the minimum requirements deemed necessary to protect the health, safety, and welfare of the public.

Other

A category that includes additional strategies that support JLUS implementation.

JLUS Implementation Plan Organization

The organization of the Implementation Plan is comprised of three components which are described below:

Strategy Type
Identifies the type of compatibility strategy.

Reference # (Ref. #)
Provides each strategy an alpha-numeric identifier used when referencing a particular strategy.

Strategy
Contains a description of the strategy.

CAMP BULLIS JLUS RECOMMENDED STRATEGIES

STRATEGY TYPE	REF #	STRATEGY
LAND USE COMPATIBILITY STRATEGIES		
Acquisition	ACQ-1	JLUS Land Acquisition Programs
	ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness
	ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee
	ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing Readiness and Environmental Protection Initiative (REPI)
	ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing Army Compatible Use Buffer (ACUB) Program
	ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program
	ACQ-1f	Partnerships with Non-Governmental Organizations to Facilitate Acquisition
	ACQ-1g	Explore Options to Include Threatened and Endangered Species Language in Local Propositions
	ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program
	ACQ-1i	Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits
Capital Improvement Plans	CIP-1	Update Appropriate CIP and Master Infrastructure Plans
	CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness
Communications / Coordination	CC-1	Camp Bullis Awareness Programs
	CC-1a	Develop a Camp Bullis Awareness Program
Legislation	LEG-1	Legislation Addressing Military Encroachment and Protection of Military Missions
	LEG-1a	Military Installation Protection Act Omnibus Bill
	LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection
Memorandum of Understanding	MOU-1	Develop a Formal Development Notification / Consultation Process
	MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis
	MOU-2	Establish a JLUS Implementation Board
	MOU-2a	Develop an MOU Between all the Jurisdictions / Agencies, that Have Land Use Management Authority, to Establish a JLUS Implementation Board
Plans and Programs	PP-1	Develop a Comprehensive Land Use Plan
	PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area
	PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's Extraterritorial Jurisdiction (ETJ)
	PP-1c	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies outside a city's ETJ

CAMP BULLIS JLUS RECOMMENDED STRATEGIES		
STRATEGY TYPE	**REF #**	**STRATEGY**
LAND USE COMPATIBILITY STRATEGIES (continued)		
Plans and Programs	PP-2	Camp Bullis Transportation Plan
	PP-2a	Develop a Camp Bullis Transportation Plan
Real Estate Disclosures	RE-1	Require Real Estate Disclosures within the Military Influence Overlay District
	RE-1a	Amend the Texas Association of Realtors (TAR) Form 1506
	RE-1b	Require that the Texas Association of Realtors Form 1406 include Language that Discloses if a Property is Within the MIOD
	RE-1c	Require Mandatory Real Estate Disclosures that Would Take Place by the Title Company During the Transfer or Sales Transaction
Zoning / Building Codes	ZON-1	Develop a Military Influence Overlay District (MIOD) Zoning Ordinance
	ZON-1a	Develop a Military Influence Overlay District Zoning Ordinance to include all Military Influence Area (MIA) Zones for the Controlled Compatible Land Use Area
	ZON-1b	Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones for the MIOD
	ZON-2	Establish Joint Zoning Boards
	ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board (JAZB)
	ZON-2b	Establish a Camp Bullis Joint Zoning Board (JZB) for the Area Within the MIOD but Located Outside of the City of San Antonio's ETJ
	ZON-2c	Appoint a Camp Bullis Representative as an Ex-Officio Member on the JAZB, JZB, and Planning Commissions
	ZON-3	Compatible Land Use Zoning Ordinance / Order
	ZON-3a	Incorporate AICUZ Compatibility Guidelines
	ZON-3b	Incorporate BASH Compatibility Guidelines
	ZON-4	Subdivision Regulations to Require Appropriate Real Estate Disclosure
	ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure
Other	OTH-1	Require a Note be Recorded as part of the Title of Real Property
	OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval
LIGHT AND GLARE STRATEGIES		
Legislation	LEG-1	Dark Sky Legislation
	LEG-1a	Amend HB 1852
Plans and Programs	PP-1	Lighting Retrofit Program
	PP-1a	Develop a Lighting Retrofit Program for Businesses
	PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency
	PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners
	PP-2	Lighting Studies at Camp Bullis

CAMP BULLIS JLUS RECOMMENDED STRATEGIES		
STRATEGY TYPE	**REF #**	**STRATEGY**
LIGHT AND GLARE STRATEGIES (continued)		
Plans and Programs	PP-2a	Conduct a Camp Bullis Shielding / Screening Lighting Study to Control Light Impacts
	PP-2b	Identify Critical Areas On Camp Bullis With Light Impacts From Outside the Installation
Zoning / Building Codes	ZON-1	Exterior Lighting
	ZON-1a	Outdoor Lighting Standards
	ZON-2	Dark Sky Ordinance / Order
	ZON-2a	Develop a Dark Sky Ordinance / Order
	ZON-2b	Amend a Dark Sky Ordinance / Order
NOISE STRATEGIES		
Plans and Programs	PP-1	Sound Attenuation Retrofit Program
	PP-1a	Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses
	PP-1b	Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses
Zoning / Building Codes	ZON-1	Sound Attenuation Building Standards
	ZON-1a	Develop Sound Attenuation Building Standards
	ZON-1b	Develop Sound Attenuation for Noise Sensitive Land Uses
VERTICAL OBSTRUCTION STRATEGIES		
Communications / Coordination	CC-1	Provide Critical Vertical Flight Limit Information
	CC-1a	Provide Critical Flight and Height Information
Comprehensive Plans	CP-1	Coordinate Federal and State Management Plans
	CP-1a	Coordinate Federal and State Management Plans with Camp Bullis
	CP-2	Use Airport Planning Guidance
	CP-2a	Develop Compatible Land Use for Height Issues
Plans and Programs	PP-1	Low Level Flight Route Study
	PP-1a	Review Low Level Military Flight Routes for Incompatible Uses
Zoning / Building Codes	ZON 1	Develop a Height Restrictions Zoning Ordinance / Order
	ZON-1a	State Adopt Part 77 and Any Amendments as State Law to Ensure Federal Aviation Administration Part 77 Compliance by Developing a Height Restrictions Zoning Ordinance / Order
	ZON-1b	Conduct Review of Existing Cellular Phone Tower Locations
	ZON-1c	Amend Chapter 241 to Include Approach and Departure Routes for Helicopter Landing Zones, Both Improved and Unimproved
Other	OTH-1	Use Existing Energy Corridors
	OTH-1a	Ensure New Energy Corridors are Properly Located

CAMP BULLIS JLUS RECOMMENDED STRATEGIES

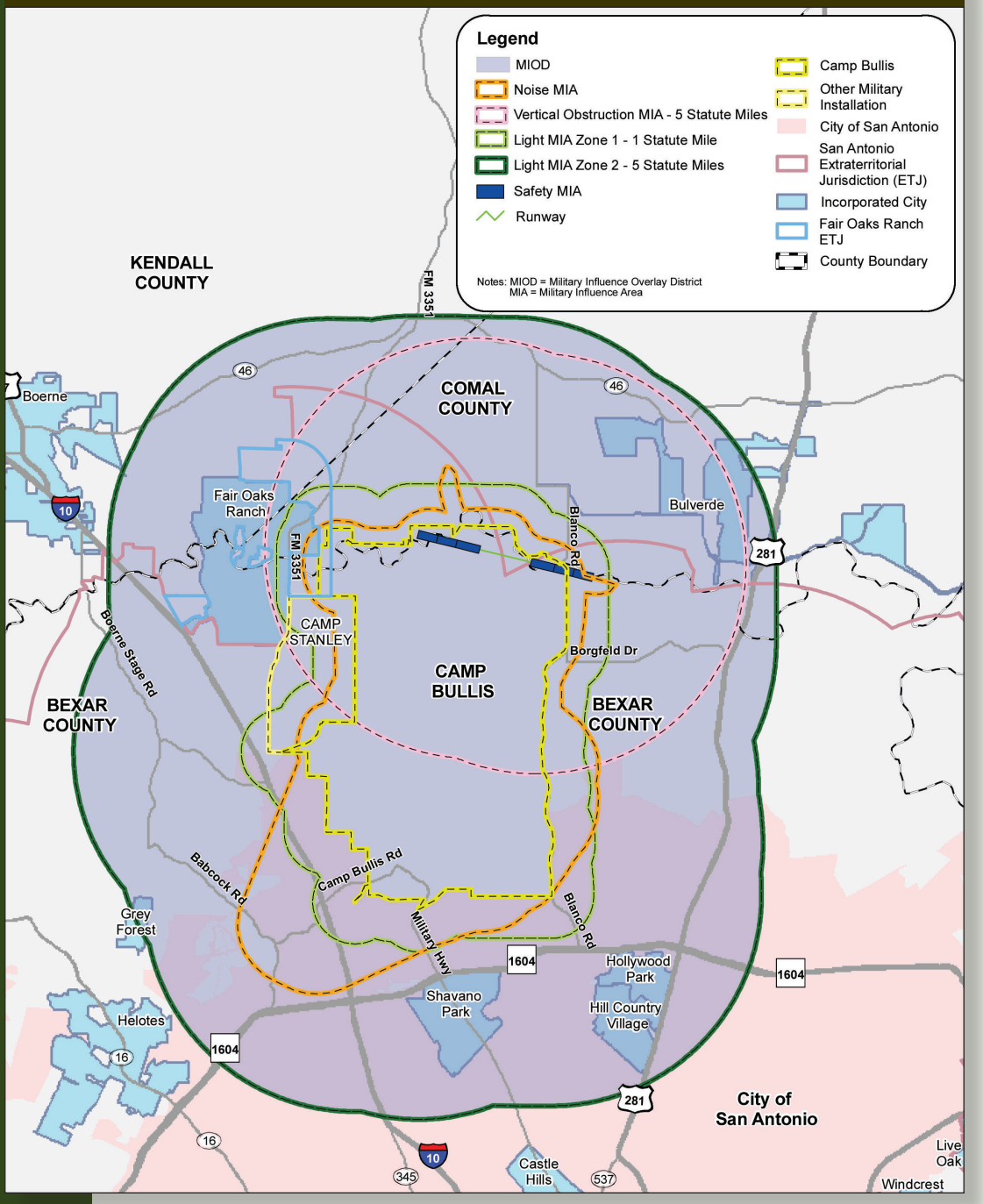
STRATEGY TYPE	REF #	STRATEGY
SAFETY STRATEGIES		
Capital Improvement Plans	CIP-1	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) For Possible Future Upgrade to Class A Runway
	CIP-1a	Consider Increasing Protections Around CALS to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway
BASH	BH-1	Bird Aircraft Strike Hazard (BASH)
	BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials
	BH-1b	Control Bird and Wildlife Attractions near Camp Bullis
Zoning / Building Codes	ZON-1	Compatible Land Use Zoning Ordinance / Order
	ZON-1a	Incorporate AICUZ Land Use Compatibility Guidelines, Part 2 into the Zoning Ordinance (MIOD)
THREATENED AND ENDANGERED SPECIES STRATEGIES		
Acquisition	ACQ-1	Pursue TPWD Texas Parks and Recreation Account (TPRA) Outdoor Recreation Grant
	ACQ-1a	Pursue the TPWD TPRA Grant Program
Communications / Coordination	CC-1	Coordinate Agency Management Plans with Camp Bullis
	CC-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis
Comprehensive Plans	CP-1	Develop Golden-Cheeked Warbler Mitigation Credits for Camp Bullis
	CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis
Habitat Plans	HAB-1	Coordinate Federal and State Management Plans with Camp Bullis
	HAB-1a	Provide Review of Agency Plans to Address Military Concerns
	HAB-1b	Develop a Regional Habitat Conservation Plan (RHCP)
Memorandum of Understanding	MOU-1	Formalize Agency Review Processes Through MOUs
	MOU-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis
	MOU-2	Review Process for Endangered Species Assessments
	MOU-2a	Develop an MOU, or Some Other Method to Ensure Comments are Received From All Affected Agencies, to Formalize an Endangered Species Review Process
	MOU-3	Notification Process
	MOU-3a	Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS
Plans and Programs	PP-1	Develop a Camp Bullis Vegetation Management Plan
	PP-1a	Develop a Camp Bullis Vegetation Management Plan
WATER STRATEGIES		
Capital Improvement Plans	CIP-1	Connect Camp Bullis to the San Antonio Water System (SAWS)
	CIP-1a	Secure a Sustainable Water Source for Camp Bullis
Plans and Programs	PP-1	General Plans - Address Water Issues
	PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns

Military Influence Overlay District (MIOD)

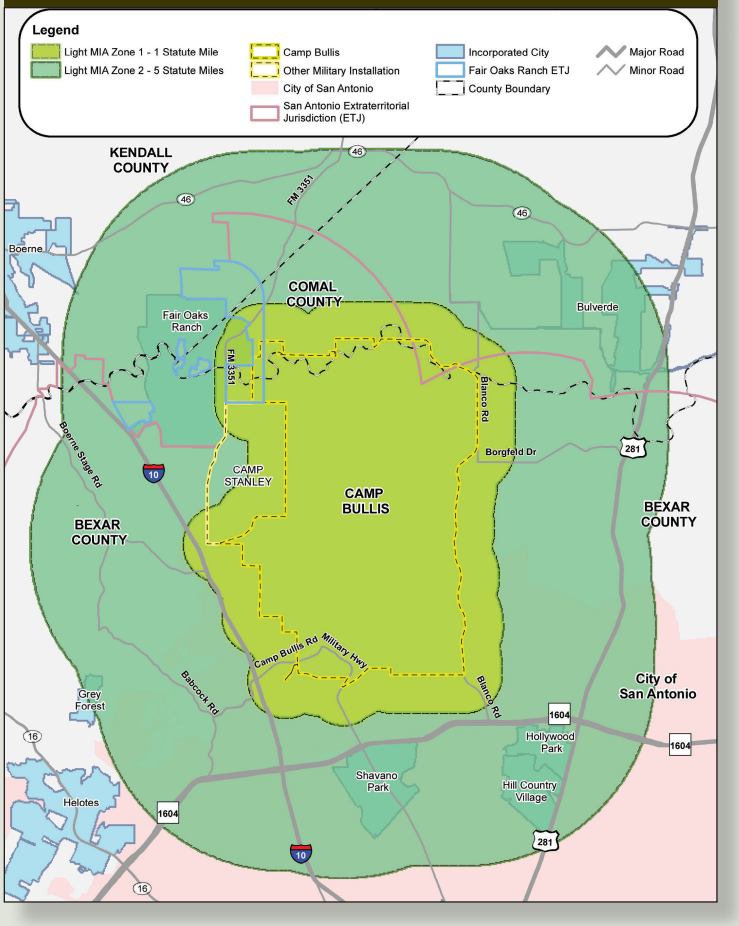
Military Influence Area (MIA)

A **Military Influence Overlay District (MIOD)** is proposed as the zoning tool to implement the policies and regulations associated with each **Military Influence Area (MIA)**. The MIOD is comprised of four MIAs, several of which include smaller areas (zones). The MIAs are defined by the four primary Camp Bullis encroachment compatibility issue categories (noise, vertical obstruction, light, and safety). The boundary of the MIOD is derived from the boundary of the largest MIA, thus acting as an umbrella for the remaining three MIAs. Camp Bullis' largest MIA boundary is the Light MIA Zone 2. The Camp Bullis MIOD is defined as a five statute mile distance from the Camp Bullis installation boundary. For ease of implementation, the formal boundary of the MIOD and associated MIAs will ultimately follow the adjacent and/or proximate roadway network or parcel boundary. The official MIOD boundary will be developed during the implementation stage of this JLUS.

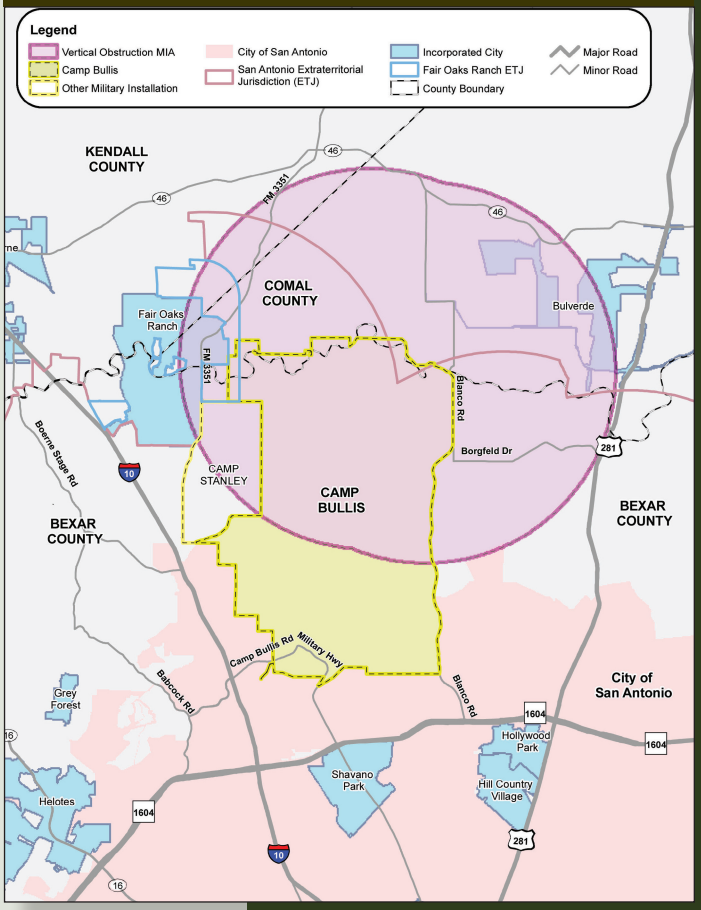
Military Influence Overlay district (MIOD) and Military Influence Area Boundaries (MIA)



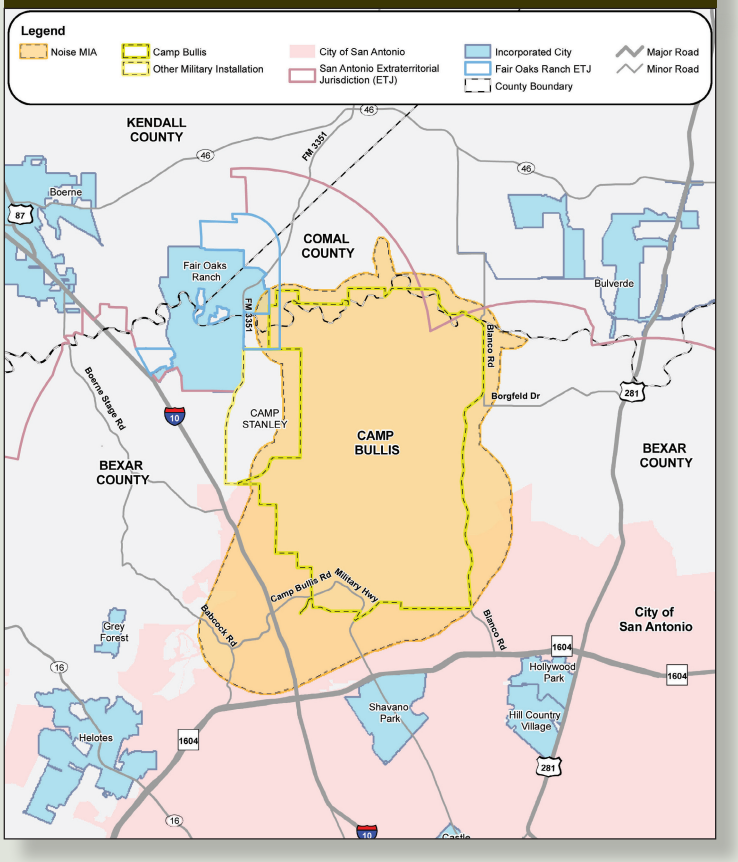
Light Military Influence Area (MIA)



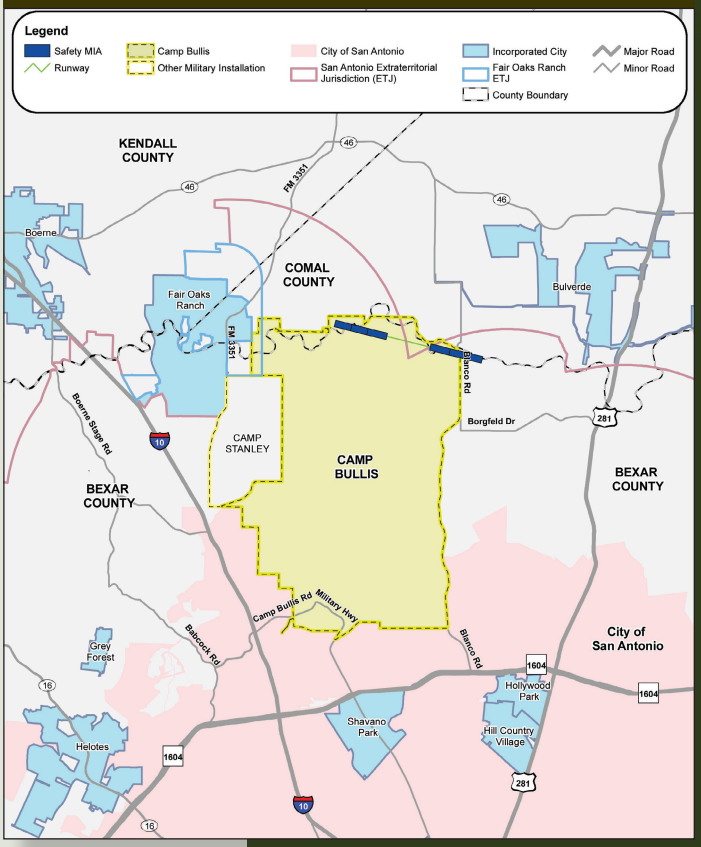
Vertical Obstruction Military Influence Area (MIA)

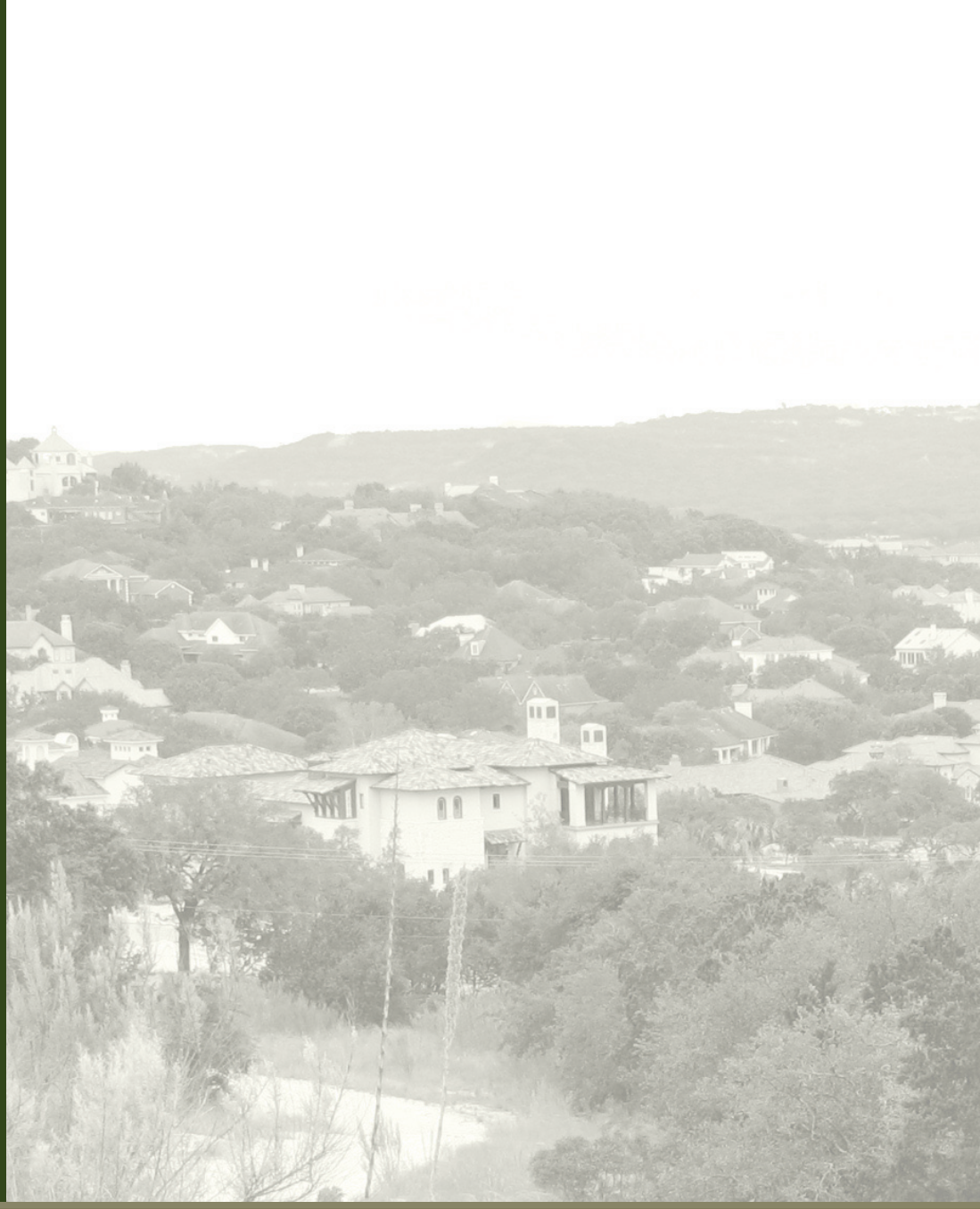


Noise Military Influence Area (MIA)



Safety Military Influence Area (MIA)





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Please see the next page.

Acronyms



A

AACOG ..... Alamo Area Council of Governments
AC ..... Advisory Committee
ACC ..... Air Combat Command
ACUB ..... Army Compatible Use Buffer
ADT ..... Average Daily Traffic
AETC ..... Air Education and Training Command
AFB ..... Air Force Base
AFRC ..... Air Force Reserve Command
AGL ..... Above Ground Level
AGUA ..... Aquifer Guardians in Urban Areas
AICP ..... American Institute of Certified Planners
AICUZ ..... Air Installation Compatible Use Zone (also: Air Installations Compatible Use Zones)
AMEDD ..... Army Medical Department
AMEDD C&S ..... Army Medical Department Center & School
AMF ..... Army Modular Force
APZ ..... Accident Potential Zone
APZ-LZ ..... APZ Landing Zone
AT / FP ..... Anti-Terrorism / Force Protection

B

BAMC ..... Brooke Army Medical Center
BASH ..... Bird / Wildlife Aircraft Strike Hazard
BCT ..... Brigade Combat Team
BCV ..... Black-Capped Vireo
BOR ..... Bureau of Reclamation
BOs ..... Biological Opinions
BRAC ..... Base Realignment and Closure

C

CALS ..... Combat Assault Landing Strip
CDBG ..... Community Development Block Grant
CIP ..... Capital Improvements Program
CUP ..... Conditional Use Permit
CZ ..... Clear Zone

D

dB ..... Decibel
dBA ..... A-weighted Decibel
DEMSET ..... Deployable Medical Systems Equipment for Training
DMSP ..... Defense Meteorological Satellite Program
DNL ..... Day-Night Average Sound Level (see also Ldn)
DOD ..... Department of Defense

E

EA ..... Environmental Assessment
EAA ..... Edwards Aquifer Authority
EC ..... Executive Committee
EIS ..... Environmental Impact Statement (also Environmental Impact Study)
EMS ..... Emergency Medical Service
ENMP ..... Environmental Noise Management Plan
EOD ..... Explosive Ordnance Disposal
ESA ..... Endangered Species Act
ETJ ..... Extraterritorial Jurisdiction

F

F ..... Fahrenheit
FAA ..... Federal Aviation Administration
FCC ..... Federal Communications Commission
FEMA ..... Federal Emergency Management Agency
FHWA ..... Federal Highway Administration
FONSI ..... Finding of No Significant Impact
433 AW ..... 433rd Airlift Wing
FRLPP ..... Farms and Ranch Lands Protection Program
FSH ..... Fort Sam Houston
Ft ..... Foot
FY ..... Fiscal Year

G

GCD ..... Groundwater Conservation District
GCW ..... Golden-Cheeked Warbler
GEAA ..... Greater Edwards Aquifer Alliance
GIS ..... Geographic Information System
GO ..... General Obligation
GVWR ..... Gross Vehicle Weight Rating

H

HB ..... House Bill
HCP ..... Habitat Conservation Plan
HPS ..... High Pressure Sodium Vapor
HUD ..... Housing and Urban Development

I

ICRMP ..... Integrated Cultural Resources Management Plan
ICUZ ..... Installation Compatible Use Zone
IDA ..... International Dark-Sky Association
IDZ ..... Infill Development Zone
IESNA ..... Illuminating Engineering Society of North America
IMCOM ..... Installation Management Command
IGA ..... Intergovernmental Agreement
I ..... Interstate Highway
I-10 ..... Interstate 10
INRMP ..... Integrated Natural Resources Management Plan

J

JAZB ..... Joint Airport Zoning Board
JLUS ..... Joint Land Use Study
JZB ..... Joint Zoning Board

K

km ..... Kilometer

L

Ldn ..... Day-Night Average Sound Level (see also DNL)
LEED ..... Leadership in Energy and Environmental Design
LGC ..... Local Government Code
LUPZ ..... Land Use Planning Zone
LZ ..... Landing Zone

M

MDP ..... Master Development Plan
MEDCOM ..... Medical Command
METC ..... Medical Education Training Campus
MI ..... Military Intelligence
MIA ..... Military Influence Area
MILCON ..... Military Construction
MIOD ..... Military Influence Overlay District

MLOD ..... Military Lighting Overlay District
MOU ..... Memorandum of Understanding
MOUT ..... Military Operations in Urban Terrain
MSCA ..... Military Support to Civil Authorities
MSL ..... Mean Sea Level
MU ..... Municipal Utility

N

NACO ..... National Association of Counties
NCCPs ..... Natural Community Conservation Plans
NEPA ..... National Environmental Policy Act
NGOs ..... Nongovernmental Organizations
NOAA ..... National Oceanic and Atmospheric Administration
NOE ..... Nap of the Earth
NRHP ..... National Register of Historic Properties
NVD ..... Night Vision Device
NVG ..... Night Vision Goggles

O

OE ..... Obstacle Evaluation
OEA ..... Office of Economic Adjustment
ONMP ..... Operational Noise Management Program
OSSF ..... On-Site Sewage Facility

P

PDSD ..... Planning and Development Services Department
PGMA ..... Priority Groundwater Management Area
PRPRPA ..... Private Real Property Rights Preservation Act
PS 1 ..... Planning Scenario 1
PS 2 ..... Planning Scenario 2
PUD ..... Planned Unit Development
PX ..... Post Exchange

R

RC ..... Reserve Component
RCI ..... Residential Communities Initiative
RCS ..... Recovery Credit System
REPI ..... Readiness and Environmental Protection Initiative
RF ..... Radio Frequency
RFI/EFI ..... Radio Frequency Interference / Electromagnetic Frequency Interference
RFQ/P ..... Request for Qualifications / Proposals

RHCP ..... Regional Habitat Conservation Plan
RMA ..... Regional Mobility Authority
ROD ..... Record of Decision
ROM ..... Rough Order of Magnitude
ROW ..... Right of Way

S

SAMA ..... San Antonio Metropolitan Area
SAWS ..... San Antonio Water System
SB ..... Senate Bill
SBA ..... Small Business Administration
SOP ..... Standard Operating Procedure
SPiRiT ..... Sustainable Project Rating Tool
SUP ..... Special Use Permit

T

T&E ..... Threatened and Endangered
TAR ..... Texas Association of Realtors
TARC ..... Texas Association of Regional Councils
TCEQ ..... Texas Commission on Environmental Quality
TDR ..... Transfer of Development Rights
TEF ..... Texas Enterprise Fund
TGRGCD ..... Trinity Glen Rose Groundwater Conservation District
37 TRW ..... 37th Training Wing
TIA ..... Takings Impact Assessment
TMPC ..... Texas Military Preparedness Commission
TNC ..... The Nature Conservancy
TPWD ..... Texas Parks and Wildlife Department
TREC ..... Texas Real Estate Commission
TSSWCB ..... Texas State Soil and Water Conservation Board
TTI ..... Texas Transportation Institute
TWDB ..... Texas Water Development Board
TxDOT ..... Texas Department of Transportation
TXSDC ..... Texas State Data Center

U

UBC ..... Universal Building Code
UDC ..... Unified Development Code
UFC ..... United Facilities Criteria
U.S. ..... United States
USACHPPM ..... U.S. Army Center for Health Promotion and Preventive Medicine

USAG ..... U.S. Army Garrison
USAF ..... United States Air Force
USAR ..... U.S. Army Reserve
USGBC ..... United States Green Building Council
USFWS ..... U.S. Fish and Wildlife Service

Section 1



Introduction

Military installations are critical to local, regional and state economies, generating thousands of jobs and billions of dollars in direct and indirect economic activity annually resulting in significant tax revenue. In the past, incompatible development has been a factor in the curtailment of training operations and/or restructuring of mission-critical components to other installations. To protect the missions of military installations, the health of the economies and industries that rely on them, and preserve rights of adjacent private property owners, collaboration and joint planning between installations and local communities must occur and strike the appropriate balance. This Joint Land Use Study (JLUS) attempts to mitigate both existing and future encroachment issues and improve coordination among the City of San Antonio, Bexar County, Fort Sam Houston, Camp Bullis, and other surrounding jurisdictions.

Located adjacent to a predominately urban community, the region surrounding Camp Bullis is expected to continue experiencing economic and population growth in the future. As development pressure increases within proximity of the installation, or its expansion areas, a coordinated effort is needed to ensure growth is managed in a manner that allows the installation to achieve its role in the nation's defense while remaining a vital member of the local community and a major contributor to its economy. Similarly, the military must acknowledge the rights of adjacent private property owners when evaluating mission expansion/contraction or new mission placement.

1.1 What Is a Joint Land Use Study?

A JLUS is a collaborative study including city, county, state, and federal officials, residents, business and land owners, and the military to identify compatible land uses and growth management guidelines near military installations. By examining past, current and projected future growth trends, a JLUS helps to identify, address, and provide recommendations to resolve encroachment issues between the military and civilian communities to promote a compatible future planning program. The future program establishes and fosters a relationship with the installation and the community to act as a team to avoid conflicts associated with future community growth. Essentially, A JLUS is implemented to protect the resident's quality of life, the property owner's rights, and the existing and future mission of the installation. Although primarily funded by the Department of Defense (DOD) Office of Economic Adjustment (OEA), a JLUS is produced by and for local communities. The primary objectives of the JLUS program are as follows:

Community

- Protect the health, safety, and welfare of residents and maintain quality of life.
- Manage development in the vicinity of military installations that would interfere with the continued operations of these facilities.
- Provide for growth in an economically, environmentally, and socially sustainable manner.
- Maintain the economic vitality of the community.

Military

- Promote the health, safety, and welfare of the military and civilian personnel living and working at or near the military installation.
- Ensure the ability of the installation to achieve its mission, maintain military readiness, and support national defense objectives.
- Preserve the ability of the installation to expand its mission and maintain its existing installation boundaries.

JLUS Guiding Principles

The goal of the Camp Bullis JLUS is to protect the viability of current and future missions at Camp Bullis while at the same time accommodating growth, sustaining the economic health of the region, and protecting the public health and safety. To help meet this goal, three primary guiding principles were identified:

- **Understanding**. Convene community and Camp Bullis representatives to study the issues in an open forum, taking into consideration both community and military viewpoints and needs. This includes public outreach and input.
- **Collaboration**. Encourage cooperative land use and resource planning between Camp Bullis and surrounding communities so that future community growth and development are compatible with the training and operational missions within the installation while at the same time seeking ways to reduce operational impacts on adjacent lands while respecting the private property rights of citizens.
- **Actions**. Provide a set of tools, activities, and procedures from which local jurisdictions, agencies, and the installation can select and then use to implement the recommendations developed during the JLUS process. The actions proposed include both operational measures to mitigate installation impacts and local government and agency approaches to reduce impacts on military operations.

1.2 Why Prepare a Joint Land Use Study?

What Is a Compatibility Issue?

Section 3 lists 24 factors commonly used to categorize compatibility issues. As shown in Section 3, compatibility issues can cover a wide range of concerns. Some issues discussed in this JLUS include:

- ***The competition for land as the community surrounding the installation continues to grow and build along the borders***
- ***Light pollution from urban development and the effect it has on the Camp Bullis operational training missions***

In addition to the many positive interactions among the City of San Antonio, Bexar County, Comal County, Kendall County, other jurisdictions, and Camp Bullis, the activities or actions of one entity can potentially negatively impact the other(s) and result in conflicts. As the community develops and expands in response to growth and market demands, urban development continues to expand toward military installations and operational areas. The result can include land use and other compatibility issues, often referred to as encroachment, which can have negative impacts on community safety, economic development, and sustainment of military activities and readiness. This threat to military readiness activities is currently one of the military's greatest concerns.

Collaboration and joint planning between military installations and local communities should occur to protect the military mission and the health of economies and industries of the communities before incompatibility becomes an issue. The DOD recognizes the mutually beneficial relationship that exists between the military installation and the City. In efforts to mitigate land and air conflicts and enhance its relationship among its civilian partners, the DOD has implemented a JLUS program. The JLUS seeks to balance community economic growth by identifying adequate sites for compatible land use while protecting the current and future operations at Camp Bullis.

1.3 A Growing Region

The City of San Antonio is the second largest city in the state of Texas, after Houston. Between the years of 2000 to 2006, it ranked as the fourth fastest growing city in the United States (U.S.), on a percentage basis. The five major contributors to the economy in San Antonio are health care, military, real estate, tourism, and financial services. The Southwest Texas Medical Center is the largest medical research and care provider in South Texas. It is composed of numerous hospitals, clinics, and research and higher educational institutions, and employs over 27,000 people. As a hub for medical research and care, the region will continue to grow in the years to come. The population of San Antonio is continuing to grow, thus the real estate industry is also very important to the area. In 2005, real estate was the second highest employment sector in San Antonio, supporting nearly 131,000 jobs. It also boasted an economic impact of over $19 billion.

San Antonio is connected to other parts of the state and country through road, rail and aviation modes as well as several U.S. highways, State highways, and major interstates, including Interstates 10, 35, and 37. This intermodal connectivity enhances the City's mobility and access for the transportation of goods and people to other nearby areas. Figure 1-1 presents a regional view that demonstrates the proximity of Camp Bullis to the City of San Antonio, Bexar County, Comal County, and Kendall County.

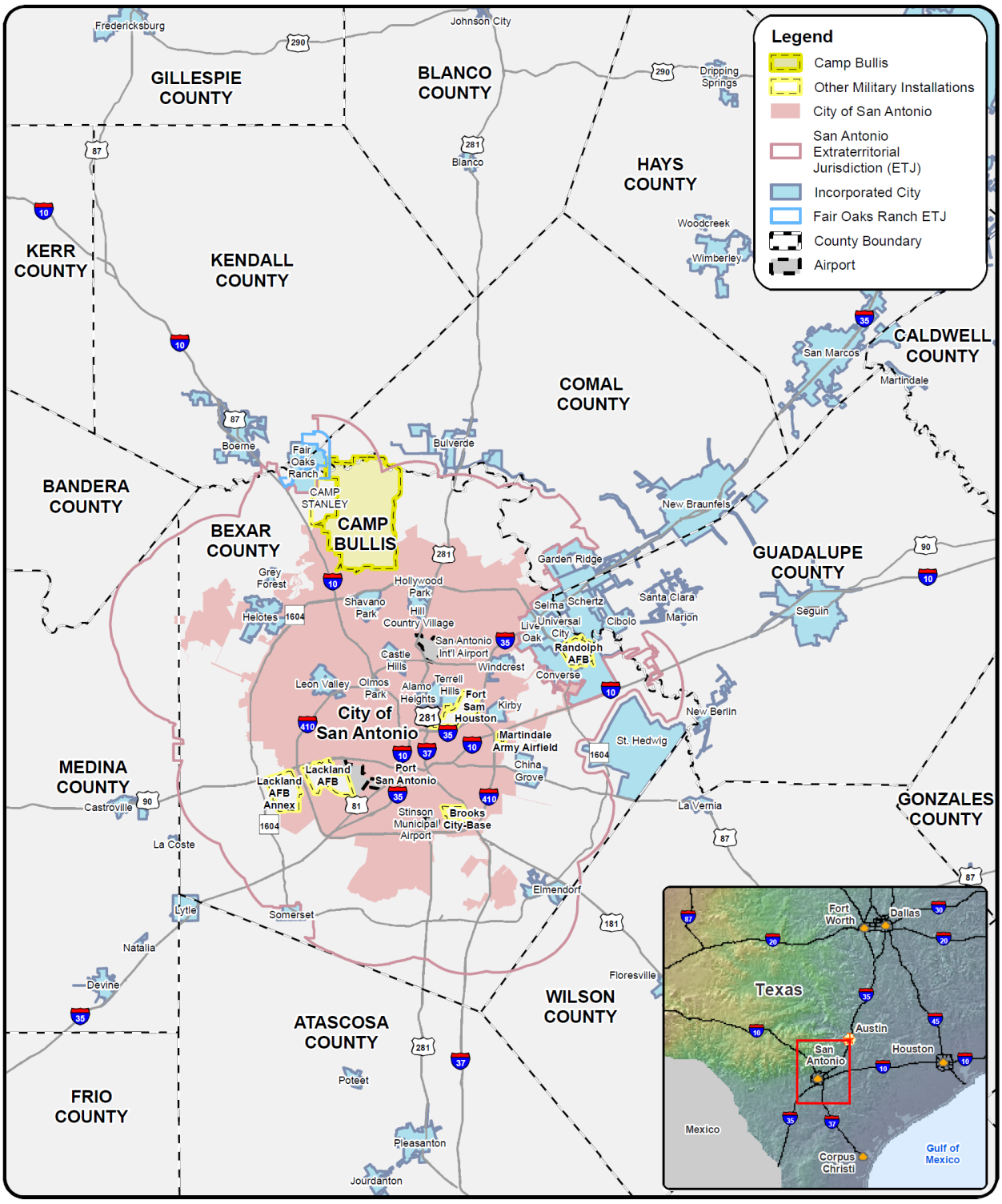


Figure 1-1
Regional Setting

1.4 Camp Bullis JLUS Study Area

The Camp Bullis JLUS is designed to address all lands near Camp Bullis that have resources, activities, or land uses (existing or future) that may impact current or future military operations. Development of a study area that meets the above criteria was accomplished by considering the largest extent of land that will be affected by the operations of Camp Bullis and areas that exhibit significant potential for future development. Near the installation, the primary characteristics evaluated in determining the study area were compatibility issues associated with encroachment by illumination (light and glare), noise, safety, vertical obstructions, aquifer protection, and threatened and endangered species. The defined study area contained all of the compatibility issues identified during the JLUS process and included the Camp Bullis noise contours identified by the Operational Noise Contours for Camp Bullis and Fort Sam Houston report. The Camp Bullis JLUS Study Area is the entire area displayed on Figure 1-2. Geographically, it encompasses all lands within eight miles of the Camp Bullis boundary to the east and west, and ten miles of the Camp Bullis boundary to the north and south. This includes portions of Bexar, Comal, and Kendall counties, portions of the City of San Antonio, as well as the cities and towns of Balcones Heights, Boerne, Bulverde, Castle Hills, Grey Forest, Fair Oaks Ranch, Helotes, Hill Country Village, Hollywood Park, Leon Springs, Leon Valley, Alamo Heights, Shavano Park, and Windcrest.

1.5 Camp Bullis – Strategic Importance

Established in 1917, Camp Bullis was created as a training site for soldiers stationed at Fort Sam Houston (FSH). Today Camp Bullis is the Army's premier training installation for combat medicine. Additionally, it is used by other services such as the Air Force and Marines.

Fort Sam Houston is the parent command to Camp Bullis and provides overall leadership, management, and oversight for Camp Bullis activities and the installation. FSH is fully integrated with Camp Bullis in the coordination, information, and review of the Camp Bullis JLUS. Throughout the report any references to Camp Bullis will represent both Fort Sam Houston and Camp Bullis.

Fort Sam Houston comprises approximately 3,000 acres in a highly urbanized part of San Antonio, severely limiting the ability to conduct on-site field training, especially during the night. Encompassing approximately 28,000 acres, Camp Bullis provides nearly 22,000 acres of invaluable field training and maneuver areas for Fort Sam Houston and multi-service medical training. The types of training activities that are supported by Camp Bullis include small arms and large caliber firing ranges, ground and air operations night training (through the use of night vision equipment), air combat drop zones, and fixed-wing (airplane) and rotary-wing (helicopter) training.

The economic impact from the DOD, including Camp Bullis and Fort Sam Houston, on San Antonio and the surrounding region is significant. In 2006, the DOD was the largest employer in the San Antonio Metropolitan Area (SAMA) supporting a total of 195,075 jobs including direct, indirect, and induced employment. Total employment of the military bases within the region was estimated to be 68,659 people, of which 36 percent were comprised of civilians. In 2006, the direct and indirect economic impact of the DOD in the SAMA was over $13.3 billion which includes $2,183,049,308 in retiree / beneficiary income. The largest contribution was generated by DOD contracts.

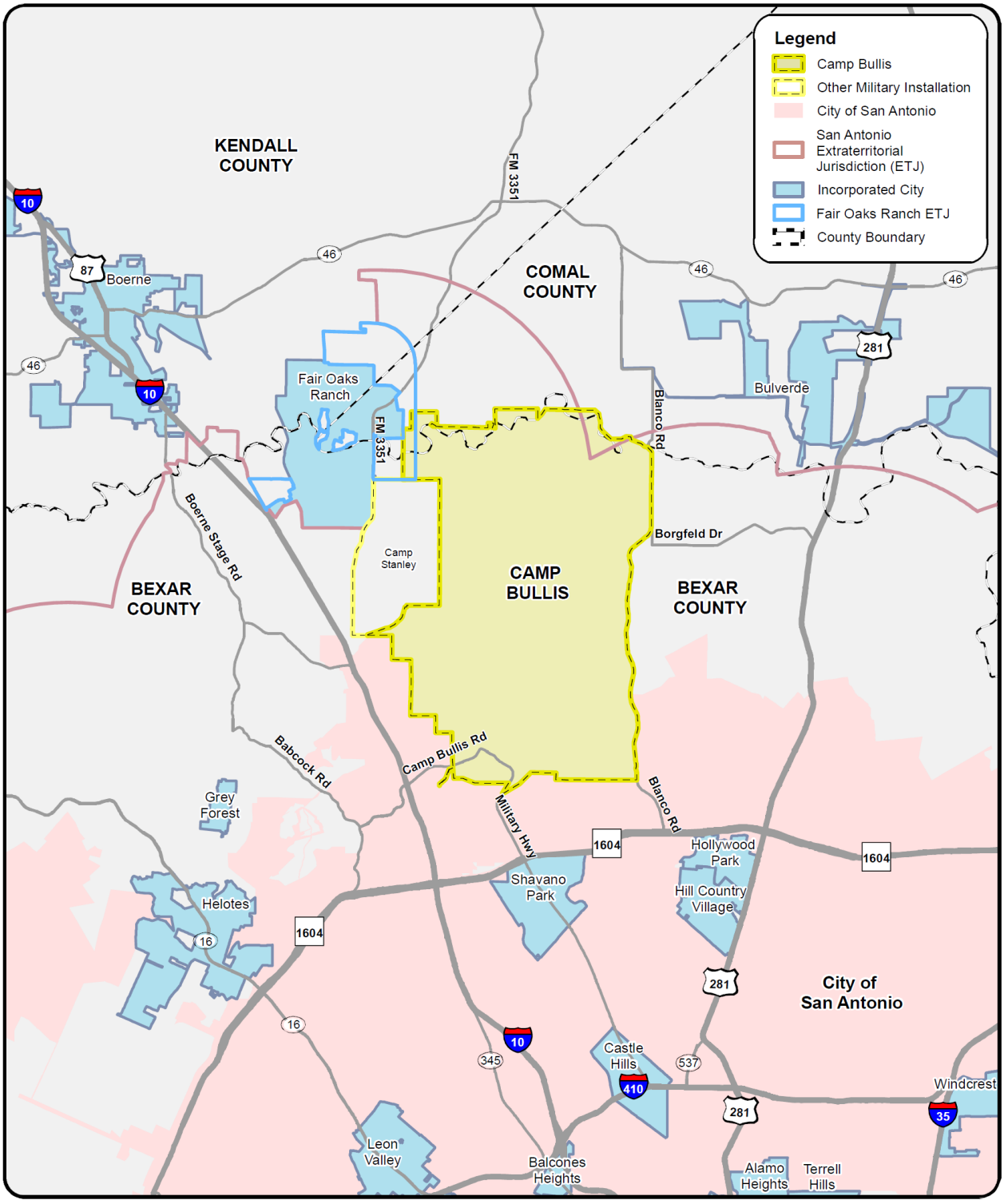


Figure 1-2
Study Area

Camp Bullis / Fort Sam Houston and Local Communities Working Together

Camp Bullis, the City of San Antonio, Bexar County, Comal County, Kendall County and other surrounding communities are linked through the services each provides. Due to the fact that many military personnel and their families live in the nearby communities, the City provides a range of services to these personnel, from public schools and libraries to police and fire protection. Camp Bullis has been, and continues to be, a contributing partner with its surrounding communities through the involvement of base personnel in local charities and other civic organizations. It has responded with critical services when needed, such as mutual aid for fire response, volunteer activities, and emergency services response and relief.

1.6 Public Outreach

One of the most critical principles of the JLUS process is to create a community-based plan that builds consensus and obtains buy-in for implementation from varied interests, including residents and property owners, local elected officials, business interests, and military representatives. To achieve its comprehensive and collaborative principles, the Camp Bullis JLUS process utilized a public outreach program that included a variety of opportunities for interested parties to contribute. This began with stakeholder identification and continued with executive and advisory committees, public forums and public outreach materials as identified below, all contributing significantly to the development of this study.

Stakeholders

Identifying stakeholders is a key component to any planning process. Informing or involving them early in the project is instrumental in the identification of stakeholder issues and the development of plans to resolve them. Stakeholders include individuals, groups, organizations, and political entities interested in, affected by, or affecting the outcome of a decision or project. Stakeholders identified for the Camp Bullis JLUS included, but were not limited to:

- DOD officials (including OEA representatives) and military installation personnel
- City and county elected officials, representatives, and staff
- Local, regional, and state planning regulatory, and land management agencies
- Environmental advocacy organizations
- Nongovernmental organizations (NGOs)
- Private landowners and other interested persons
- Special interest groups

Executive and Advisory Committees

The development of the Camp Bullis JLUS was sponsored and funded by the OEA and the City of San Antonio. The JLUS process was guided by two committees, the Executive Committee (EC) and the Advisory Committee (AC). The EC was established at the beginning of the project to provide guidance and input on policy issues, provide overall direction to the process, and review study findings. The AC was established to provide technical expertise to the EC and the project team. The AC consisted of city and county planners, military planners and technical specialists, state agency representatives, and others with technical expertise critical to creating a plan that could be implemented. The AC identified issues to be addressed, provided feedback on report development, and evaluated implementation options for the EC.

The responsibilities and participants for the JLUS sponsors, Executive Committee, and Advisory Committee are presented in Table 1-1, Table 1-2, and Table 1-3, respectively.

Table 1-1. JLUS Sponsor Responsibilities and Sponsors

Responsibilities	JLUS Sponsors
▪ Coordination ▪ Accountability ▪ Grant Management ▪ Financial Contribution	▪ City of San Antonio ▪ Department of Defense, Office of Economic Adjustment

Table 1-2. Executive Committee Responsibilities and Participants

Responsibilities	Participants
▪ Policy Direction ▪ Study Oversight ▪ Monitoring ▪ Report Adoption	▪ Air Education and Training Command, Randolph Air Force Base ▪ Bexar County Commissioner, Precinct 3 ▪ Builders' Association ▪ City of Fair Oaks Ranch, Mayor ▪ City of San Antonio Councilwoman, District 8 ▪ City of San Antonio Councilman, District 9 ▪ City of San Antonio, Deputy City Attorney ▪ City of San Antonio, Deputy City Manager ▪ City of San Antonio International Airport ▪ Comal County Commissioner, Precinct 2 ▪ Department of Defense, Office of Economic Adjustment ▪ Dominion Homeowners Association ▪ Edwards Aquifer Authority ▪ Federal Aviation Administration, Southwest Region ▪ Fort Sam Houston, Deputy to Commanding General ▪ Fort Sam Houston, Garrison Commander ▪ Kendall County Commissioner, Precinct 2 ▪ Pape Dawson Engineers, Inc. ▪ San Antonio Board of Realtors ▪ Texas Parks and Wildlife Department, Program Manager ▪ Texas Military Preparedness Commission ▪ Texas State Representative, District 122 ▪ Texas State Senator, District 25 ▪ United States Congressman, District 23

Note: JLUS partners are defined specifically as the City of Fair Oaks Ranch, the City of San Antonio, Bexar County, Comal County, and Kendall County

Table 1-3. Advisory Committee Responsibilities and Participants

Responsibilities	Participants
▪ Identify Issues ▪ Provides Expertise to Address Technical Issues ▪ Evaluate and Recommend Implementation Options to the EC ▪ Provide Draft and Final Report Recommendations to the EC	▪ Airfield Encroachment/Waiver, Randolph Air Force Base ▪ Bexar County (2) ▪ City of San Antonio, Deputy City Attorney ▪ City of San Antonio, Planning and Development Services (2) ▪ City of San Antonio, Office of Military Affairs (2) ▪ Comal County Engineer ▪ Cow Creek Groundwater Conservancy District ▪ CPS Energy ▪ Dugas Diversified Development Company ▪ Edwards Aquifer Authority ▪ Deputy to the Fort Sam Houston Garrison Commander/Camp Bullis ▪ Fort Sam Houston ▪ Fort Sam Houston, Joint Program Management Office ▪ Fort Sam Houston, Training Support Commander ▪ Green Space Alliance of South Texas ▪ Jacobs Engineering Group, Inc. ▪ Kendall County, Development Manager ▪ Military Transformation task Force, Legislative Affairs Committee ▪ Military Transformation Task Force, Mission Readiness Committee (2) ▪ Northside Neighborhoods for Organized Development ▪ Oak Hills Church ▪ Pape-Dawson Engineers, Inc. ▪ Red Robin Homeowners Association ▪ San Antonio Board of Realtors ▪ San Antonio Water System ▪ Texas Parks and Wildlife Department ▪ Trinity Glen Rose Groundwater Conservation District ▪ United States Congressional District 23 Representative ▪ United States Fish and Wildlife Service

The EC and AC represented the stakeholder groups within the study area. Members served as liaisons to their respective stakeholder groups and were charged with conveying committee activities and information to their organizations or constituencies and relaying their organization's comments and suggestions to both committees for consideration. EC members were encouraged to conduct meetings with the organizations or constituencies they represented to facilitate this input. AC and EC meetings were held throughout the process in order to ensure the JLUS identified and appropriately addressed



EC Meeting # 2 on September 24, 2008

local issues. Objectives accomplished at each meeting are highlighted as follows:

- **Meeting #1** – This meeting was conducted to educate the committee members on military and community activities, as well as to identify encroachment issues/compatibility factors.
- **Meeting #2** – This meeting reintroduced the project to the committees, presented information on potential encroachment issues, and introduced draft Military Influence Area (MIA) zones for review.
- **Meeting #3** – This meeting presented an assessment of the identified encroachment issues, including their priority, and discussed initial strategies and tools to address them.
- **Meeting #4** – This meeting refined the draft strategies and implementation tools.
- **Meeting #5** – At this meeting, the committee continued to review the draft JLUS report, reviewed committee and public comments on the draft JLUS, and provided direction on how to proceed with incorporating comments into the Final JLUS.
- **Meeting #6 –** At this meeting, the remaining public comments and revisions were reviewed. Upon final review of the revised JLUS, the committee voted to provide consensus to the City Council for adoption of the JLUS and its recommendations and strategies therein.

EC and AC Meetings

Executive Committee (EC)
Meeting #1, July 1, 2008
Meeting #2, September 24, 2008
Meeting #3, October 21, 2008
Meeting #4, February 17, 2009
Meeting #5, March 31, 2009
Meeting #6, May 19, 2009

Advisory Committee (AC)
Meeting #1, June 30, 2008
Meeting #2, September 23, 2008
Meeting #3, October 7, 2008
Meeting #4, November 18, 2008
Meeting #5, April 20, 2009

Public Forums

In addition to the EC and AC meetings, a series of public forums were held throughout the development of the JLUS. These forums provided an opportunity for information exchange with the greater community, assisted in identifying the issues to be addressed in the JLUS, and provided input on the proposed strategies. Each forum included a traditional presentation and comment session preceded by an informal open house. These meetings included facilitated exercises providing a "hands on" interactive opportunity for stakeholders to participate in the development of the plan.

- **September 23, 2008** – This forum introduced the JLUS program and process to the public, defined the project, presented the initial land use analysis, and collected information from the public on encroachment issues. During this meeting, residents were encouraged to voice their issues and thoughts on the JLUS process.
- **November 20, 2008** – This forum presented the draft recommendations, strategies and implementation tools. Input was solicited from the public to allow incorporation of comments into the Draft JLUS.
- **February 18, 2009** – This forum was the official presentation of the Draft JLUS to the public.



- **April 1, 2009** – This forum presented the final JLUS results to the public prior to submission of the report to the San Antonio City Council.



The project website included the JLUS Fact Sheet

Public Outreach Materials

At the beginning of the JLUS program, a Fact Sheet was developed that described the JLUS program and objectives, described methods for the public to provide input into the process, and identified the proposed Camp Bullis JLUS study area. This Fact Sheet was provided at all meetings and to all interested members of the public, and was available on the project website.

In addition to the Fact Sheet, a project website was developed to provide stakeholders, the public, and media representatives with access to project information. This website was maintained and updated throughout the entire project to ensure 24/7 information accessibility by the public. Information contained on the website included: program points of contact, schedules, documents, maps, public meeting information, and electronic comment forms.

1.7 JLUS Organization

The following is a brief overview of the organization of the Camp Bullis JLUS report, including the contents of each section.

- **Section 1, Introduction.** Section 1 provides an introduction and context for the Camp Bullis JLUS. This section describes the principles and objectives used to guide development of the JLUS, the participants involved in making the JLUS a success, public outreach methods, and the organization of the document.
- **Section 2, Study Area Profile.** In developing a JLUS, an intimate understanding of the installation and local jurisdictions within the study area is necessary. For the Camp Bullis JLUS, this section provides: an overview of the installation's history; a description of the current mission and operations; the installation setting, demographic profile, economic impact, and housing; the study area profile and growth trends and an overview of current development; and an assessment of regional issues including transportation systems and environmental conditions.
- **Section 3, Compatibility.** Compatibility, in relationship to military readiness, can be defined as the balance or compromise between community needs and interests and military needs and interests. The goal of compatibility planning is to promote an environment where both entities can coexist successfully. To develop potential solutions, it is critical to understand the nature of existing and potential compatibility issues. In this section, the JLUS presents the compatibility issues identified for the Camp Bullis JLUS. These issues were identified based on input from the EC and AC, members of the public, the review of existing plans and technical reports, and the

overall installation evaluation by the project team. This section provides a detailed analysis of the applicable man-made, natural and competition for scarce resource compatibility factors in the Camp Bullis Study Area.

- **Section 4, Existing Plans & Programs.** This section provides a comprehensive overview of relevant plans, programs, and studies currently used to address compatibility issues in the study area. This includes plans utilized within Camp Bullis as well as within the surrounding area through local and state planning tools, legislation and federal initiatives.
- **Section 5, Implementation Plan.** The final section of the JLUS presents a specific course of action that has been developed cooperatively with representatives from local jurisdictions, Fort Sam Houston/Camp Bullis, state and federal agencies, local organizations, and interested individuals and landowners. The result of a collaborative planning process, the recommendations in this section represent the majority opinion of the members of the Advisory Committee and the Executive Committee based on a comprehensive analysis of the strategies, responsibilities, funding, and timing to implement the JLUS, which could only occur with the support of the Sponsors, Executive Committee, Advisory Committee and other community stakeholders involved in this process.

Section 2



Study Area Profile

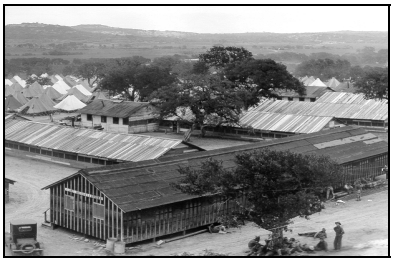
This section provides important information about the military and civilian entities within the Camp Bullis Joint Land Use Study (JLUS) study area. The following section presents an overview of the history and current operations at Camp Bullis. Profiles and analyses of development trends and growth potential in the jurisdictions within the Camp Bullis JLUS study area are also provided.

Identifying and describing the activities performed on the military installation provides valuable insight into the importance of Camp Bullis as a national strategic asset. This information will enable stakeholders to make informed decisions about the future development and economic growth of their communities, which ultimately impacts the continued existence and future role of Camp Bullis. It also provides the military with a baseline understanding of the types of activities occurring outside the installation when considering future missions and operations.

2.1 Camp Bullis

History

In 1890, the Army Post at San Antonio was renamed Fort Sam Houston. At the time, it was one of the largest garrison sites for the United States (U.S.) Army, but lacked an adequate firing range and maneuver area. The Leon Springs Military Reservation was established on 17,273 acres, to the north of San Antonio, in 1906 and 1907. This site allowed for artillery firing. The facilities at Leon Springs Military Reservation were redesignated as Camp Stanley in 1917.



The early years at Camp Bullis

Established in 1917, Camp Bullis added 16,000 additional acres to the Leon Springs Military Reservation. The original purpose of Camp Bullis was to train soldiers when the threat of war in Europe was growing. The installation was named after Brigadier General John Lapham Bullis. John L. Bullis earned his reputation as a lieutenant who led the Seminole-Negro scouts in clashes against hostile Indians during the Indian Wars in the 1870's. Although no units were stationed at Camp Bullis during World War I, it provided small arms and rifle firing ranges, as well as maneuver areas for troops stationed at Fort Sam Houston, which did not have the capacity for large-area training. In total, the government owned and leased over 33,000 acres at the time. Following World War I, Camp Stanley was used primarily for storage and testing of ordnance materials, while Camp Bullis was used as a site for demobilization.

As the years passed, Camp Stanley and Camp Bullis became permanent fixtures for the Army and the installations were equipped with cantonment areas and new construction and development projects. The relocation of the old arsenal from downtown San Antonio to Camp Stanley in 1931, essentially stopped the use of the camp for soldier training. Meanwhile, improvements on Camp Bullis included a 10-bed infirmary, an officers' mess, vehicle sheds, a landing field, a post exchange, and a swimming pool, as well as improved firing ranges. It continued to be used by various units and groups as a training site through World War II.

During and following World War II, many changing medical needs in the Army brought several new activities and missions to Fort Sam Houston and Camp Bullis. New medical training missions were brought to Camp Bullis and the Brooke Army Medical Center was established at Fort Sam Houston. Training included basic training for Army nurses, combat obstacle courses for stretcher field training and combat medicine, as well as small arms. Camp Bullis was used for medical, combat, and security training throughout the Korean and Vietnam Wars. The Air Force Security Police Training Site, known as Victor Base, was built in 1977 and the Air Force was the largest single user of Camp Bullis until 1987. Since then, the Army has become the primary user of Camp Bullis as a military training site.

Units

Camp Bullis

As the primary training site for Fort Sam Houston, Camp Bullis is under the control of the Commanding General of Fort Sam Houston, U.S. Army Medical Department Center & School (AMEDD C&S) (see Figure 2-1). Installation management for both Fort Sam Houston and Camp Bullis is provided by the U.S. Army Installation Management Command (IMCOM). Activated in October 2006, IMCOM is a single organization with six regional offices worldwide with the mission of overseeing all facets of installation management such as construction; barracks and family housing; family care; food management; environmental programs; well-being; soldier and family morale, welfare and recreation programs; logistics; public works and installation funding. Fort Sam Houston and Camp Bullis are part of IMCOM's West Region, which encompasses 14 states from the west coast to the Midwest.

As of June 2008, the Camp Bullis training site is the host for 745 personnel from the AMEDD C&S, other Active Army units, the Army Reserve, Texas Army National Guard, the U.S. Air Force, and other Department of Defense (DOD) units. Approximately 15 percent of the permanently assigned personnel are military (115) with the remaining 85 percent (630) comprised of DOD civilians, and contractors assigned to the Camp Bullis staff. The Camp Bullis staff performs the functions necessary to coordinate training operations, maintain the training site, and support the overall installation training mission.

The operation of Camp Bullis is under the command of the Fort Sam Houston Garrison Commander, located 21 miles to the southeast. However, according to the Camp Bullis Garrison Manager, Paul Dvorak, this relationship strives to be seamless, making the physical separation between Fort Sam Houston and Camp Bullis transparent. The personnel assigned to the various functions of the Camp Bullis staff are employees of their parent directorates based at Fort Sam Houston, but their place of duty is Camp Bullis with the Camp Bullis Garrison Manager maintaining operational control.

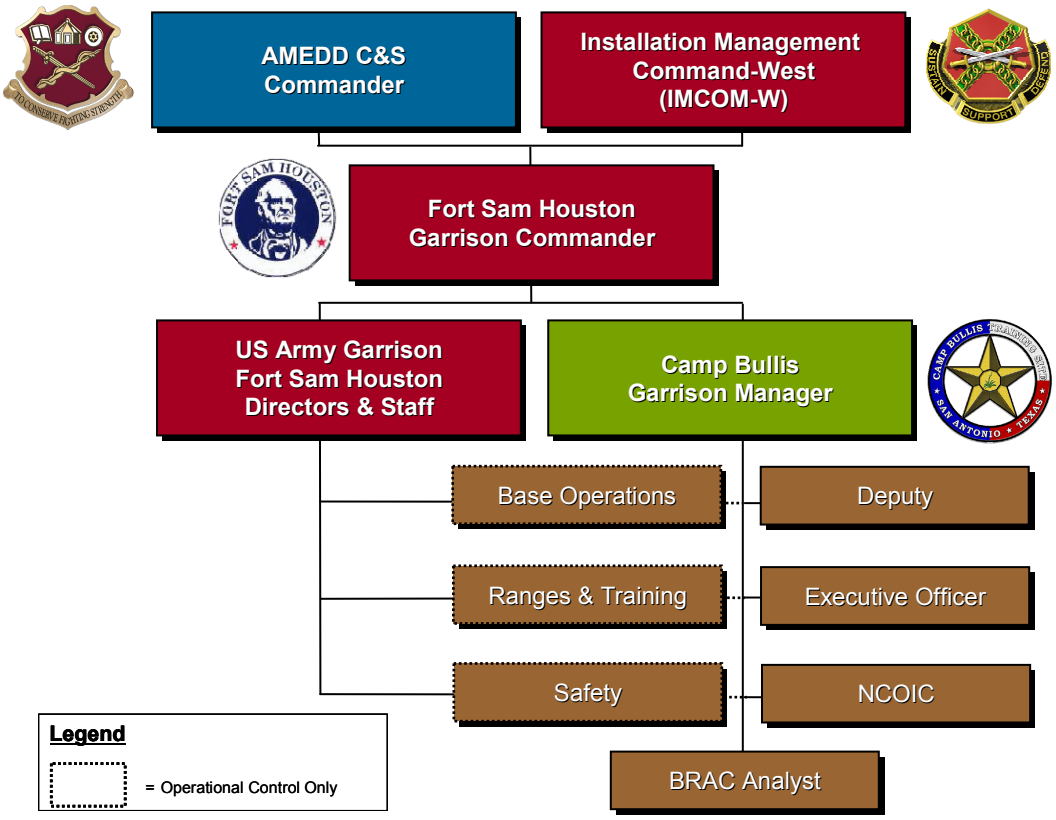


Figure 2-1. Camp Bullis Organization Chart

Fort Sam Houston

Fort Sam Houston's major units include the following:

Headquarters, U.S. 5th Army

The U.S. 5th Army is headquartered in the historic Quadrangle at Fort Sam Houston, Texas, in San Antonio, with the majority of its personnel forward deployed throughout its 21-state area of responsibility. The command's mission is to assist, evaluate and synchronize all training support activities of Reserve Component (RC) units located west of the Mississippi (excluding Minnesota). The command also plans for and coordinates Military Support to Civil Authorities (MSCA).

U.S. Army 5th Recruiting Brigade

The Brigade's mission is to recruit with integrity the high quality men and women necessary to meet the needs of the U.S. Army and Army Reserve, including Army Medical Department (AMEDD), Chaplains, Officer Candidates, Warrant Officer Flight Candidates, and Technical Warrant Officers (USAR).

Headquarters, U.S. 6th Army

The U.S. 6th Army is the Army Service Component of the U.S. Southern Command and is in charge of all Army operations within the Command's 26 million square mile area of operations, which includes Central

America, South America, and the Caribbean. Its mission is to conduct Operations and Theater Security Cooperation to detect, deter, and disrupt transnational threats to protect the United States.

Brooke Army Medical Center (BAMC)

Brooke Army Medical Center serves a regional mission as one of only five Army Medical Centers providing regional integration, specialty supervision and Army command and control of health care operations. BAMC oversees the Great Plains Health Care Support area, which encompasses 14 states and Panama.

U.S. Army Medical Department Center & School (AMEDD C&S)

Occupying more than 300 buildings in its complex at Fort Sam Houston, the AMEDD C&S is the largest health care training center in the world. Its primary mission is to train and educate Army medical department officers and enlisted personnel.

U.S. Army Medical Command (MEDCOM)

The MEDCOM provides the Surgeon General with direct command authority, for the first time, over all Army medical activities and operations in the U.S. and Europe, except field medical units.

U.S. Army Garrison (USAG)

The USAG missions include command and support of assigned and attached U.S. Army Force Command (FORSCOM) activities. It also provides base operation support and other support (i.e., information systems, security programs, motor pool, contracting, legal services, and civilian personnel services) to Department of the Army, DOD, and other government activities, which are tenants on, supported by, or satellites of the installation. The USAG also develops, establishes and conducts Morale Support Activities programs.

U.S. Army Center Brigade

The Center Brigade provides the U.S. Army with trained and ready medical soldiers capable of sustaining the force and surviving on the battlefield.

470th Military Intelligence (MI) Brigade

The 470th MI Brigade provides the U.S. Army South, the U.S. Southern Command, and other national intelligence agencies with intelligence support. It is comprised of the 14th MI Battalion (human intelligence operations), the 204th MI Battalion (aerial exploitation), the 314th MI Battalion, the 377th MI Battalion (communications and electronic battalion), and the 201st MI Battalion (interrogation).

2.2 Current Mission – Operations

Camp Bullis

The official mission statement of Camp Bullis is "To provide an unparalleled training infrastructure offering quality range, training facilities, and maneuver areas that facilitate tough, realistic training for military and government agencies."

Camp Bullis currently supports training for several branches of the military, including the U.S. Army, Air Force, and the National Guard, as well as for other federal and local agencies, such as the U.S. Secret Service, U.S. Marshals Service, and the San Antonio Police Department. It supports a wide range of

training operations including small arms and large caliber firing ranges, simulation facilities, maneuver areas, combat medicine, and combat air-drop training. According to the Draft Environmental Assessment (EA) for the Camp Bullis Reserve Center, the installation supported 705,309 person-days of training in Fiscal Year (FY) 2005, with a daily average of 1,932. In FY08, 150,852 personnel were trained at Camp Bullis. The anticipated growth of personnel (in response to Base Realignment and Closure [BRAC]), Army Modular Force [AMF], and other activities) are expected in increase these training numbers to reach 1,000,000 person-days annually and a 2,740 daily average.

To support its training mission, Camp Bullis' nearly 22,000 acres of training and maneuver areas occupy the vast majority of the installation's land. A small cantonment area is located in the southwestern portion of the installation near the Camp Bullis entrance and Interstate 10 (I-10) with facilities and personnel to support permanently assigned and training populations.



U.S. Air Force C-130 on assault strip

Camp Bullis currently has one airfield, the Combat Assault Landing Strip (CALS), which was constructed in 1982. The CALS is used primarily by Air Force C-130 Hercules aircraft, but is also capable of supporting the C-17 Globemaster. These fixed-wing aircraft use the CALS to practice combat assault operations, landings under simulated tactical conditions, loading troops, and deploying them over designated flight paths inside the confines of Camp Bullis. The Camp Bullis CALS is the only certified combat assault landing strip in the state of Texas. In 2008, there were a total of 20 flight operations using the Camp Bullis CALS. This number is limited due to the extensive coordination needed for crash fire rescue support. Because Fort Sam Houston/Camp Bullis does not currently maintain the crash fire rescue equipment required to support C-130 landings at the Camp Bullis CALS, the only crash fire rescue equipment/crew that will provide support is the Air Force crew at Randolph Air Force Base (AFB). The number of CALS operations could reportedly double if the Fort Sam Houston Fire Department obtains the needed equipment.

Located in the far northeastern portion of Camp Bullis, the CALS is in close proximity to the installation's northern and eastern fence lines. Except for a very small portion near the northeast end of the airstrip, the majority of the C-130 noise contours are contained within the installation's boundary. Noise contours for the C-17 extend outside of the Camp Bullis boundaries approximately two miles to the east over land that is currently undeveloped. The C-17's 60 A-weighted day-night sound level (ADNL)noise contours extend over eight miles north of the installation over land that is zoned industrial or is undeveloped, according to the City of San Antonio. (See the discussion and maps in Section 3, Compatibility Factor 7, Noise, for additional information.)

There also exists a gas line approximately 400 yards north of the CALS. This gas line is buried several feet underground and is not located within any of the existing clear zones or accident potential zones associated with the airstrip. These areas are zones determined and designated to be at the most risk for accidents involving aircraft operations at the runway. As such, current CALS operations do not pose a threat to public health or safety in relation to the placement of this gas line.

The Army has investigated the possibility of relocating the CALS to another part of Camp Bullis, where it would not be as close to the boundary and be less of an issue for public concerns, however it was determined not to be feasible to move it elsewhere. Much of the middle portion of Camp Bullis is

composed of hilly terrain, which would hinder development of a flat runway as well as cause potential safety issues. Furthermore, the flight tracks for San Antonio International Airport are in the way of a move south. The southern third of Camp Bullis contains the 6,000 acre "no fly" impact area where the firing ranges are located. This area also contains many hills, several flood control dams, and low flood prone valleys that lead into them.


Army UH-60 conducting night training

The primary rotary-wing aircraft used at Camp Bullis for flight training and air-drop operations is the UH-60 Blackhawk helicopter. Helicopter flights operating on Camp Bullis originate primarily from Martindale Army Airfield located southeast of Fort Sam Houston. There are four designated points for helicopters to enter and exit Camp Bullis airspace – the northwest corner near the City of Fair Oaks Ranch (County Line Road – West), the northeast corner along Blanco Road (County Line Road – East), the south-central boundary southeast of the cantonment area (Military Highway), and the southwestern corner just west of the cantonment area (Bullis Road). Within the Camp Bullis boundaries, there are 29 medical evacuation landing zones (LZ), which are located at key locations across the training area. Helicopter missions occur in both daytime and nighttime and include nap of the earth (NOE) (low-level) flights, point-to-point flights, and combat air-drops of paratroopers. The NOE flight corridor extends from the cantonment area north along the installation's west boundary, along the north boundary, and south along the east boundary to the northern extent of the impact area/no fly zone. The NOE noise buffers extend outside of Camp Bullis as well as the extreme southern portion of the air drop flight corridor (see the discussion and maps in Section 3, Compatibility Factor 7, Noise, for additional information).

Another important facet of training at Camp Bullis is the use of night vision devices (NVD). Electronic night vision tools allow near-daylight operations in complete darkness. Night vision capabilities currently make it possible for U.S. forces to operate with less risk at night when the enemy is visually impaired. To remain proficient in using NVDs during combat operations, the U.S. military (aviators and ground-based personnel) must train with the devices in situations that closely resemble the combat environment so that they can be prepared for ever changing war-time conditions.


Army helicopter pilot wearing NVD

Helicopter pilots supporting Camp Bullis training missions use light-amplifying night vision goggles, which are electro-optical devices that intensify (or amplify) existing light instead of relying on an internal light source. The devices are sensitive to a broad spectrum of light, from visible through infrared. Thus, any amount of on or off-installation light pollution degrades NVD effectiveness and can blind the NVD user. Troops operating on the ground also use light-amplifying monocular or binocular NVDs that may be worn on the head/helmet, held in the hands, or mounted on a weapon.

Fort Sam Houston and Camp Bullis provide premier medical training installations for the Army. Fort Sam Houston is known as the "Home of Army Medicine" and "Home of the Combat Medic." While Fort Sam Houston includes the AMEDD C&S, which trains over 26,000 students per year, Camp Bullis provides the field training and ranges that are unable to be accommodated on Fort Sam Houston due to size constraints. Fort Sam Houston includes many other medical educational facilities including the Brooke Army Medical Center, the Great Plains Regional Medical Command, Headquarters Dental Command, Headquarters Veterinary Command, the Institute for Surgical Research, the Defense Medical Readiness Training Institute, and the Army Medical Department NCO Academy.

Lackland Air Force Base (AFB)

Lackland AFB is considered the "Gateway to the Air Force" providing basic training to all Air Force enlisted personnel and joint services training for the Air Force, Army, Navy, and Marines. The installation and the 37th Training Wing (37 TRW) conduct the Air Force's only enlisted recruit training program, ensuring an orderly transition from civilian to military life. Over 86,000 recruits are trained annually in the fundamental skills necessary to be successful in an Expeditionary Air Force. This includes basic war skills, military discipline, physical fitness, drill and ceremonies, Air Force core values and a comprehensive range of subjects relating to Air Force life.



USAF Basic Training at Lackland AFB

Over 120 units call Lackland AFB home. Of those units, 36 are assigned to the 37 TRW and another 22 comprise Air Force Reserve Command's (AFRC) 433d Airlift Wing (433 AW). Additionally, 18 Air Combat Command (ACC) units are stationed at Lackland under the Air Force Intelligence, Surveillance, and Reconnaissance Agency and the 67th Network Warfare Wing. The remaining units at Lackland are part of the 59th Medical Wing, the Texas Air National Guard's 149th Fighter Wing, and other tenant units, agencies, centers, and battlelabs.

2.3 Future Mission – Operations



Medical training at Camp Bullis

The 2005 BRAC Committee Report was publicly released on May 13, 2005, and became law on November 9, 2005. All BRAC actions must be completed by September 15, 2011. The BRAC Committee presented a number of recommendations that impact the San Antonio metropolitan area. Many of these changes are related to the missions performed at Fort Sam Houston/Camp Bullis, Lackland AFB, Randolph AFB, and Brooks City-Base. The BRAC 2005 requirement for Fort Sam Houston entails consolidating medical enlisted personnel training at the installation to create the world's largest medical education and training institution. The BRAC consolidation includes training currently conducted by the AMEDD C&S; the Navy Corps School in Great Lakes, Illinois; the Navy School of Health Science in San Diego, California; the Navy School of Health Science in Portsmouth, Virginia; and the 882d Training Group at Sheppard AFB, Texas. The Navy medical training to

relocate to Fort Sam Houston brings an average daily student load of 2,700 students, a maximum student load of 3,032 students, and another 29 courses of which 11 are inter-service. The Air Force training to move to Fort Sam Houston includes an average daily student load of 1,667 students, a maximum student load of 2,375 students, and another 73 courses of which 13 are inter-service. The 2005 BRAC Joint Basing results in the transfer of property and installation support responsibility from the Army to the Air Force. This applies to both Fort Sam Houston and Camp Bullis. Full implementation will occur on 1 October 2010.



Artist's rendering of the Camp Bullis Armed Forces Reserve Center

Numerous facilities are under construction, in design, or under consideration for Camp Bullis. These include new and improved ranges to support enhanced missions, a new medical clinic, a Medical Education Training Campus (METC) Field Site, and an Armed Forces Reserve Center (AFRC). The METC will be located in the Camp Bullis training area north of the cantonment area. It is projected to contain approximately 19 buildings on 125 acres. The buildings include classrooms, dormitories, dining facilities, administration, a warehouse, and other support structures. The Armed Forces Reserve Center is a BRAC--related military construction (MILCON) project located in the Camp Bullis cantonment area. This facility is scheduled to support 19 National Guard and Army Reserve units (approximately 1,200 drilling soldiers) and is to have a staff of over 70 people.

2.4 Installation Setting

Camp Bullis and Camp Stanley are contiguous Army facilities located approximately 21 miles northeast of downtown San Antonio. They were once managed as one installation, known as the Leon Springs Military Reservation; however, they are now separate facilities, each with their own mission and managed by separate commands (see Figure 2-2). Camp Stanley is not a field training facility; rather, it is a weapons and munitions supply, maintenance, test, and storage facility. The site includes 4,000 acres with 630,000 square feet of storage space and supports many military activities. Camp Stanley's workforce has no active duty military personnel, so is supported by civil service employees and contractors. Camp Stanley has industrial buildings, ammunition storage structures, and small arms ranges to facilitate weapons and ammunition testing for quality assurance purposes. Since the facilities and mission at Camp Stanley are so different than those of Camp Bullis, encroachment affects it

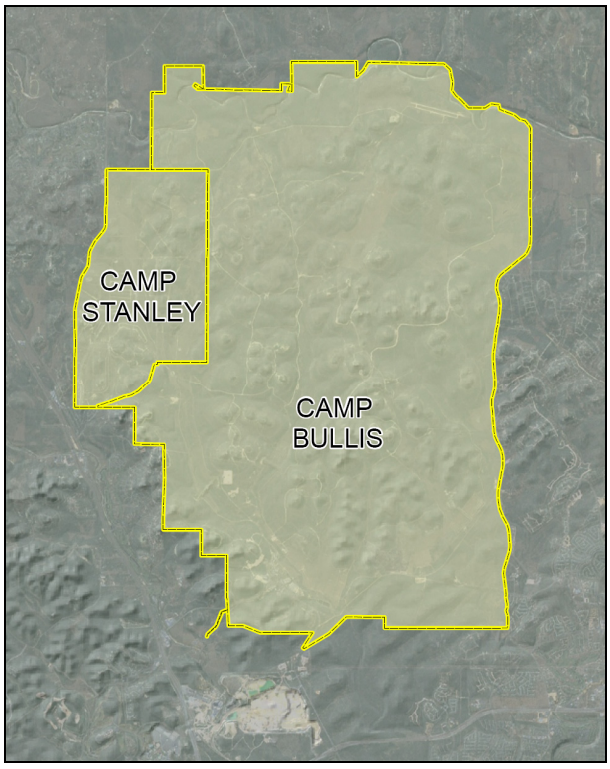


Figure 2-2. Camp Bullis and Camp Stanley Location

quite differently. For this reason, Camp Stanley is generally omitted from this JLUS analysis. However, the land area occupied by Camp Stanley has been included on all maps in relation to Camp Bullis for the purposes of this JLUS.

Camp Bullis is comprised of approximately 28,000 acres and is located about 21 miles northwest of Fort Sam Houston. It is generally bounded by I-10 to the west, Farm-to-Market Road 2696/Blanco Road to the east, Loop 1604 to the south, and West Ammann Road to the north. It is situated on the edge of the Edwards Plateau Land Resource Area in a hilly region known as the Texas Hill Country and locally called the Balcones Canyonlands. Camp Bullis is used for firing ranges, maneuver areas for Army, Air Force, and Marine combat units, and for field training of the various medical units from Fort Sam Houston.

Camp Bullis has two primary areas – a cantonment area and the training/maneuver area. The cantonment area contains the majority of the installation's 362 buildings. The facilities in the cantonment area support administrative and industrial uses. The training area includes 26 field training areas, 14 direct fire ranges (largest caliber is 7.62mm), two automated rifle ranges, one automated pistol range, a live-fire convoy range, grenade launcher range, demolition range, land navigation areas, leader reaction courses, rappel towers, obstacle courses, multiple landing zones for helicopters, and four drop zones (three for cargo and one for personnel). Figure 2-3 illustrates Camp Bullis' training and cantonment areas.

2.5 Installation Demographics

As a DOD training site, Camp Bullis maintains staff levels to plan and conduct training, provide installation support, and to properly maintain the installation's assets. As of 10 October 2008, the full-time personnel strength reported for Camp Bullis was 745 people. This includes 115 installation staff, 158 Active Duty Army, 169 AMEDD C&S personnel, 84 Army Reserve, 51 Texas Army National Guard, 88 Air Force, and 80 others assigned to various tenant units. The most recent forecast would add nearly 180 people to current Camp Bullis staffing as a result of BRAC mission increases to Fort Sam Houston and the training area. The number of personnel at Camp Bullis for training varies depending on the needs of the DOD; however, the total personnel trained in FY08 were nearly 151,000 people. Table 2-1 summarizes the personnel trained in FY08.

The total 2007 population for Fort Sam Houston (including employment, students, and dependents) was 56,789 persons. The overall population is expected to increase by over 12,000 people (due to BRAC and AMF initiatives/realignment plans and other moves) although the exact number of additional personnel destined for the installation remains fluid. The installation will receive additional medical training functions, research functions, medical care functions, Reserve/National Guard facilities, and major headquarters. Although the exact number may change prior to execution of the pending changes, there is an anticipated increase of approximately 10,200 personnel related to BRAC.

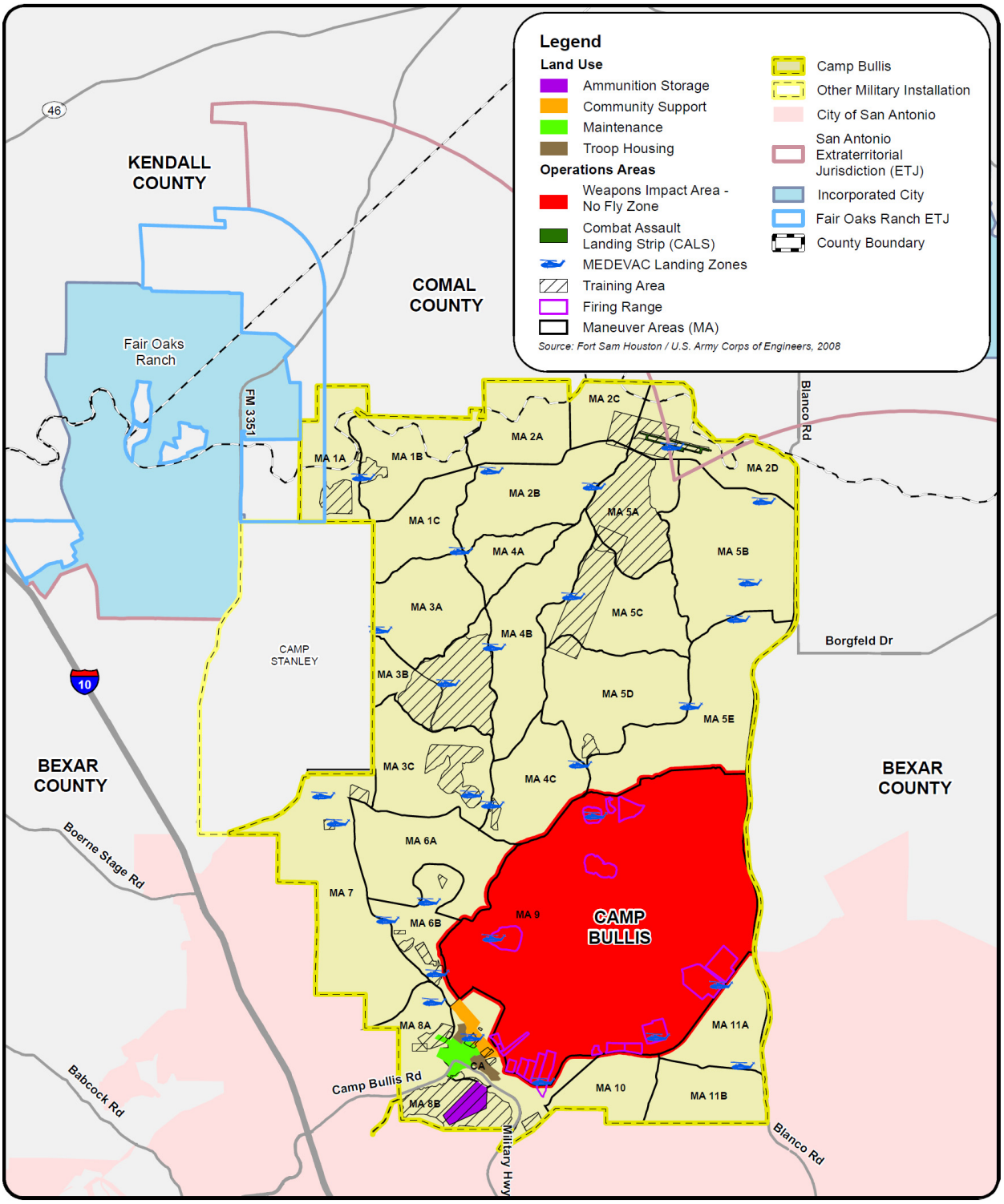


Figure 2-3
Camp Bullis Land Use / Operations Areas

Table 2-1. Transient Personnel, Camp Bullis FY08

	AMEDD C&S	Active Army	Army Reserve	Texas Army National Guard	Air Force	Other DOD	Other Non-DOD	Total
2007								
October	8,333	279	220	350	2,024	579	1,682	13,467
November	9,699	616	1,045	780	2,101	464	935	15,640
December	3,305	169	45	15	1,400	72	407	5,413
2008								
January	5,721	182	699	427	1,457	242	467	9,195
February	6,126	271	1,250	1,095	1,779	500	637	11,658
March	5,479	401	1,163	1,060	1,520	513	831	10,967
April	10,171	383	1,011	697	1,837	681	1,179	15,959
May	7,409	355	1,088	555	1,531	212	763	11,913
June	10,768	521	175	720	1,528	175	2,097	15,984
July	6,555	327	305	834	1,892	167	225	10,305
August	10,741	325	1,443	974	1,894	137	425	15,939
September	9,732	322	1,031	641	1,882	255	549	14,412
FY Total	**94,039**	**4,151**	**9,475**	**8,148**	**20,845**	**3,997**	**10,197**	**150,852**

Source: Phil Morgan, BRAC Analyst, Headquarters, Camp Bullis, 5 January 2009

2.6 Installation Economic Impact

In 2006, the City of San Antonio Economic Development Department conducted an analysis of the economic impacts of the DOD on the City. This study determined that the economic impact from the DOD, which includes Camp Bullis and Fort Sam Houston, on San Antonio and the surrounding region was significant. In 2006, the DOD was the largest generator of employment in the San Antonio metropolitan area, supporting the employment of 195,075 people including direct, indirect and induced jobs. Employment at the local military bases was estimated to be 68,659, comprised of 44,255 military personnel and 24,404 civilian personnel. The total economic impact of the DOD in San Antonio was over $13.3 billion in 2006 which includes $2,183,049,308 in retiree / beneficiary income. This impact is summarized as follows and is illustrated on Figure 2-4:

- Civilian and Military Personnel - $5,404,922,849
- Retirees and Beneficiaries - $2,183,049,308
- DOD Contracts - $5,709,781,270
    - Local Base Contracts – $1,584,866,872
    - DOD Contracts outside San Antonio – $4,124,914,398

The 2006 study concluded that the economic activities of the DOD in San Antonio produced the additional benefit of providing diversity and stability to the local economy, as well as a rich source of highly skilled labor. Additionally, the military in San Antonio provides many other non-economic benefits to the local community, such as the world class medical care provided by the military health care facilities at Lackland AFB and Fort Sam Houston, which serves many San Antonio citizens.

According to City Economic Development Department's 2006 economic impact study, the future economic impact on the City (resulting from BRAC activities) would be significant. The study identified

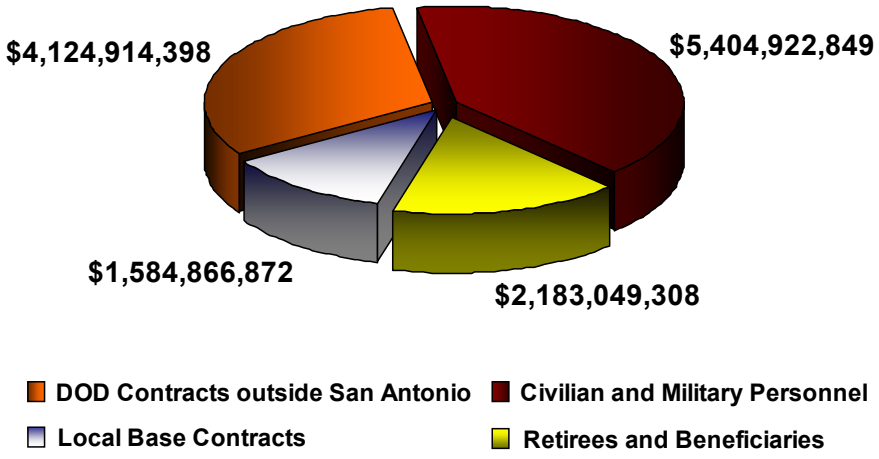


Figure 2-4. Economic Impact of DOD in San Antonio

that BRAC activities scheduled to take place by September 2011, "could arguably be one of the largest economic development projects the city has ever seen."

The projected economic impact of BRAC through 2011 is $5,652,821,961, most of which will result from BRAC-related construction activities. Spending by new personnel will produce an impact of about $488,658,075, and the impact from the new operations is estimated to be $132,505,886 once they begin. The economic impact generated by the 9,000 military students that will flow through San Antonio annually were not part of the projections identified above; however, spending by these personnel is anticipated to increase the projected economic benefits.

Employment resulting from the new operations is anticipated to increase by another 4,886 direct jobs, and the spending of these new personnel will support an additional 4,853 jobs. Additionally, the spending from the new operations will support another 1,363 jobs. The employment resulting from the construction period through 2011 is estimated to contribute 46,339 jobs. This does not mean that 46,339 new jobs will be created from the construction activity, but rather, the activity will support this number of full-time equivalent positions over the period of the construction. Table 2-2 provides a summary of the projected economic impacts to San Antonio through 2011 in the categories of Economic, Employment, and Earnings.

Table 2-2. BRAC-Related Economic Impacts to San Antonio through 2011

	Economic Impact	Employment Impact	Earnings Impact
New Personnel	N/A	4,886	$324,876,979
New Personnel Spending	$488,658,075	4,853	$148,289,119
Construction	$5,031,658,000	46,339	$1,656,364,000
Operations	$132,505,886	1,363	$45,098,471
Total	**$5,652,821,961**	**57,411**	**$2,174,628,569**

Source: Economic Impact of the U.S. Department of Defense in San Antonio: 2006, San Antonio Economic Development Department

2.7 Military Housing

Camp Bullis

On Base Family Housing

Camp Bullis has no family housing located within the installation for permanently assigned personnel. Assigned personnel reside either in Fort Sam Houston family housing or in the local communities. There are, however, 127 huts (1,524 beds total) for use by personnel training at the Camp. These are used approximately 310 days per year.

Fort Sam Houston

On Base Family Housing

The installation's on-post family housing was privatized in March 2005 under the Residential Communities Initiative (RCI). Under this initiative, Fort Sam Houston and Lincoln Military Housing entered into a 50-year partnership for the management of the installation's family housing assets. Table 2-3 provides an overview of family housing assets at Fort Sam Houston, and Table 2-4 provides a distribution of housing usage by rank as of June 2008.

Table 2-3. On-Base Family Housing Inventory by Location

Housing Area Location	Total Inventory
Staff Post	15
Infantry	69
Artillery Post/Hancock	54
Wheaton/Graham Dickman	141
Gorgas	15
Harris Heights	181
Patch/Chaffee	200
Watkins Terrace	250
Total	**925**

Source: Fort Sam Houston Real Property Master Plan, undated

Table 2-4. On-Base Family Housing Inventory by Rank (Fort Sam Houston)

Rank	2 Bedroom Units	3 Bedroom Units	4 Bedroom Units	5 Bedroom Units	Total Inventory
Officer	15	160	94	0	269
Enlisted	72	339	227	18	656
Total	**87**	**499**	**321**	**18**	**925**

Source: Allyson McKay, Operations Director, Lincoln Military Housing, 25 June 2008

According to the Lincoln Military Housing Operations Director, the pending BRAC changes at Fort Sam Houston have not resulted in any plans to increase the overall number of family housing units on the installation from the current number of 925.

As planned at the inception of privatization, renovations will occur to 140 units in Patch/Chaffee and Artillery Post housing areas to revert the layouts back to their historic floor plans. This will include

renovating some 3-bedroom units into 2-bedrooms and renovating 5-bedroom units into 4-bedrooms. Completion of these renovations is scheduled for 2010.

Army Lodging

Army lodging at Fort Sam Houston consists of nine buildings offering a total of 706 spaces. Six of the buildings have less than 20 spaces each, and the remaining three buildings have between 150 and 300 spaces.

There is a proposed project to construct a new 690-room hotel in either a one or four building complex. The preferred project by the installation is a single facility located north of the existing Post Exchange (PX). The project site is bordered by Allen Road to the south, Funston Road to the east, Schofield Road to the north, and Scott Road to the west.

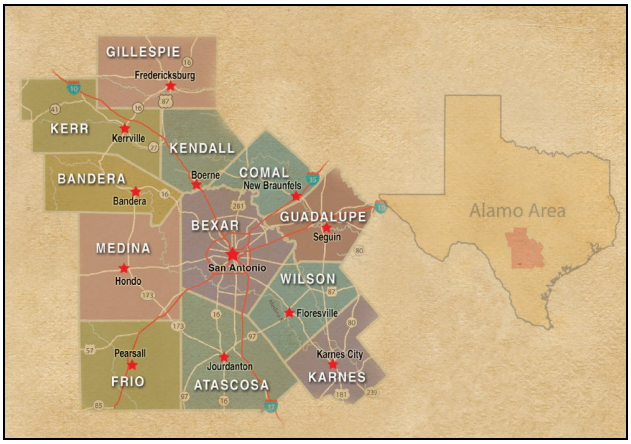
2.8 Study Area Profile and Growth Trends

The Camp Bullis JLUS involves the jurisdictions of Bexar County, Comal County, and Kendall County, as well as the City of Boerne, the City of Bulverde, the City of Fair Oaks Ranch, the Town of Hollywood Park, the City of Hill Country Village, and portions of the City of San Antonio. The JLUS study area is delineated according to the various compatibility issues identified during the JLUS process. For example, the focus area for light pollution extends five miles from the installation's perimeter, while the area of focus for threatened and endangered species is irregularly shaped according to the locations of the identified species and their habitats.

Study Area Overview

Alamo Area Council of Governments

Based in San Antonio, the Alamo Area Council of Governments (AACOG) is a voluntary association of cities, counties, and special governmental districts. AACOG serves the Alamo Area/State Planning Region 18, which covers 11,354 square miles and the 12 counties of Atascosa, Bandera, Bexar, Comal, Frio, Gillespie, Guadalupe, Karnes, Kendall, Kerr, Medina, and Wilson.



AACOG Member Counties
Source: 2008 AACOG Annual Report

Local governments organized AACOG as a regional planning commission in 1968 under Chapter 391, Local Government Code. Defined as a political subdivision of the state, AACOG serves as a centralized staff for planning, research, information distribution, and coordination of activities for the twelve regions and membership organizations. AACOG is a clearinghouse for state and federal funding, and it provides technical assistance and administration of funds for local, state, or federal grant fund proposers and recipients. Although AACOG can plan, assist local governments, and deliver public services, it has no power to tax or to regulate. State law requires that the governmental body of AACOG be composed primarily of local government officials.

The AACOG is a member of the Texas Association of Regional Councils. The Texas Association of Regional Councils (TARC) is a state organization composed of Texas' 24 regional councils of governments. Regional councils of governments are voluntary associations of local governments formed under Texas law. These associations address the issues and planning needs that cross the boundaries of individual local governments or are concerns that require regional attention.

Study Area Trends

Population

There are two different entities in the State of Texas that provide population statistics for the state, counties, and cities. These two agencies are the Texas State Data Center (TXSDC) and the Texas Water Development Board (TWDB). Each of these two agencies uses different methods to calculate their population projections and estimates. Thus, they provide population data that varies from one another, and sometimes even from U.S. Census data. Neither one of these entities is necessarily more accurate than the other, and so it is important to consider data from both sources when analyzing population trends in the study area. The following population estimates and analysis shown in Table 2-5, TXSDC data was used since it is based on post-2000 U.S. Census data and other enhanced data bases.

Table 2-5. Existing Regional Population Estimate (2000–2008)

Location	2000 Population	2008 Population[1]	Number Change	Percent Change
Texas	20,851,820	23,614,468	3,253,597	15.6%
Atascosa County	38,628	45,004	4,784	12.4%
Bandera County	17,645	20,814	2,241	12.7%
Bexar County	1,392,931	1,528,964	200,928	14.4%
Comal County	78,021	93,698	30,149	38.6%
Guadalupe County	89,023	103,404	30,061	33.8%
Kendall County	23,743	28,575	8,731	36.8%
Medina County	39,304	45,719	4,803	12.2%
Wilson County	32,408	38,916	8,942	27.6%
TOTAL (All Counties)	**1,711,703**	**1,905,094**	**290,639**	**17.0%**
TOTAL (Study Area)	**1,494,695**	**1,651,237**	**239,808**	**16.0%**

Note: 1) Scenario 0.5 used. TXSDC states 'From our analyses of these projection scenarios, we believe that the 0.5 scenario is the most appropriate scenario for most counties for use in long-term planning.
Source: Texas State Data Center (http://txsdc.utsa.edu/tpepp/txpopest.php)

Population – Counties

The three counties included in the study area have experienced differing amounts of growth over the last couple of decades. Between the years 1990 to 2000, Bexar County had the lowest rate of growth of the three with 1.8 percent annually, which was lower than the overall State's rate of 2.3 percent annually. Comparatively, Comal County and Kendall County experienced annual growth rates of 5.0 percent and 6.3 percent, respectively.

Over the past several years, all three counties have continued to grow but at lower annual rates. Between the years of 2000 and 2008, Bexar County maintained a slightly lower annual growth rate of 1.2 percent, while Comal and Kendall counties both declined with a rate of 2.3 percent each. In comparison, the State of Texas had a 1.6 percent annual increase over that same eight-year period.

Both the TXSDC and the TWDB anticipate that continued growth will occur in the three counties that comprise the study area. Currently, Comal and Kendall Counties have the potential to capture a larger percentage of growth, due to the fact that they have a significantly smaller population than Bexar County. Therefore, although Bexar County continues to grow and will continue to exhibit a larger population than the other two counties, its annual percentage of growth will be smaller, even though it will gain more people.

In the case of the three counties that are part of the study area, the TWDB tends to project greater population increases than the TXSDC, due to the different methodologies used to calculate the data. The benefit of these differing forecasts is that they provide a range of potential growth, rather than absolute numbers given any small-area forecast that extends beyond a few years. Table 2-6 provides a side-by-side comparison of the TXSDC and TWDB population forecasts. Figure 2-5 illustrates the counties' growth change trends compared to the overall population change trends of the State Texas (as shown by the orange line).

Table 2-6. Long Range Regional Population Forecast

Location	2000			2010		
	TXSDC	TWDB	Difference	TXSDC	TWDB	Difference
Texas	20,851,820	20,851,790	30	24,330,612	24,915,388	-584,776
Atascosa County	38,628	38,628	0	46,704	45,504	1,200
Bandera County	17,645	17,645	0	21,691	26,373	-4,682
Bexar County	1,392,931	1,392,931	0	1,560,695	1,631,935	-71,240
Comal County	78,021	78,021	0	97,985	108,219	-10,234
Guadalupe County	89,023	89,023	0	107,298	114,878	-7,580
Kendall County	23,743	23,743	0	29,937	35,720	-5,783
Medina County	39,304	39,304	0	47,488	46,675	813
Wilson County	32,408	32,408	0	40,684	44,078	-3,394
TOTAL (All Counties)	**1,711,703**	**1,711,703**	**0**	**1,952,482**	**2,053,382**	**-100,900**
TOTAL (Study Area)	**1,494,695**	**1,494,695**	**0**	**1,688,617**	**1,775,874**	**-87,257**

Table 2-6. Long Range Regional Population Forecast (continued)

Location	2020			2030		
	TXSDC	TWDB	Difference	TXSDC	TWDB	Difference
Texas	28,005,788	29,117,537	-1,111,749	31,830,589	33,052,506	-1,221,917
Atascosa County	55,448	52,945	2,503	63,621	59,598	4,023
Bandera County	26,122	37,265	-11,143	30,216	48,577	-18,361
Bexar County	1,702,693	1,857,745	-155,052	1,811,435	2,059,112	-247,677
Comal County	121,438	146,868	25,430	145,494	190,873	-45,379
Guadalupe County	127,934	146,511	-18,577	147,487	180,725	-33,238
Kendall County	37,313	50,283	-12,970	44,420	65,752	-21,332
Medina County	56,541	54,815	1,726	65,158	62,416	2,742
Wilson County	50,641	58,621	-7,980	60,668	74,641	-13,973
TOTAL (All Counties)	**2,178,130**	**2,405,053**	**-226,923**	**2,368,499**	**2,741,694**	**-373,195**
TOTAL (Study Area)	**1,861,444**	**2,054,896**	**193,452**	**2,001,349**	**2,315,737**	**314,388**

Location	2040			Change 2000 - 2040		
	TXSDC	TWDB	Difference	TXSDC	TWDB	Difference
Texas	35,761,201	36,893,267	-1,132,066	72%	77%	-5%
Atascosa County	70,600	64,844	5,756	83%	68%	15%
Bandera County	33,680	54,829	-21,149	91%	211%	-120%
Bexar County	1,882,349	2,222,887	-340,538	35%	60%	-24%
Comal County	167,802	233,964	-66,162	115%	200%	-85%
Guadalupe County	164,216	214,912	-50,696	84%	141%	-57%
Kendall County	50,763	78,690	-27,927	114%	231%	-118%
Medina County	72,778	68,987	3,791	85%	76%	10%
Wilson County	69,833	90,187	-20,354	115%	178%	-63%
TOTAL All Counties	**2,512,021**	**3,029,300**	**-517,279**	**47%**	**77%**	**- 30%**
TOTAL (Study Area)	**2,100,914**	**2,535,541**	**434,627**	**41%**	**70%**	**-29%**

Note: 1) TXSDC = Texas State Data Center; TWDB = Texas Water Development Board; 2) TXSDC numbers from Migration Scenario 0.5.
Source: http://txsdc.utsa.edu/tpepp/2006projections/csv_county.php; http://www.twdb.state.tx.us/wrpi/data/popproj.htm; and Matrix Design Group

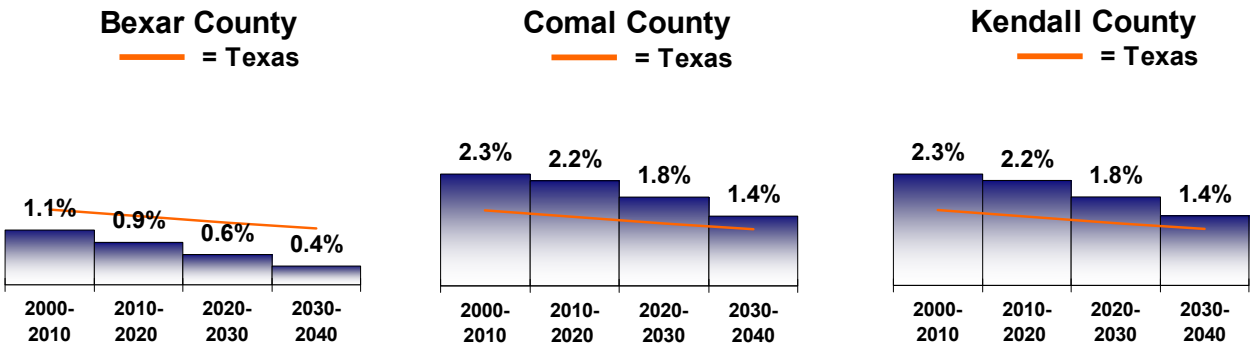


Figure 2-5. Population Change Trends - Counties

Population – Cities

Exhibiting a year 2008 population of more than 1.3 million, the City of San Antonio exceeded the U.S. population growth for the period 2000 through 2008 by almost double. The growth rate is slightly larger than the State of Texas' 15.6 percent increase during this eight year period, and San Antonio's rate was slightly higher than Bexar County's rate of 14.4 percent. Of the five cities within the study area, Shavano Park had the highest year 2000 to 2008 percentage increase of 78.2 percent, and Hill Country Village had the lowest growth rate, with only a 5.4 percent increase. Table 2-7 provides an overview of the population estimates in the areas surrounding San Antonio, Camp Bullis, and Fort Sam Houston.

Table 2-7. Existing City Population Estimates, 2000-2008

Location	2000 Population	2008 Population	Percent Change
City of Fair Oaks Ranch	4,695	6,175	31.5%
City of Hill Country Village	1,028	1,083	5.4%
Town of Hollywood Park	2,983	3,341	12.0%
City of San Antonio	1,150,535	1,336,040	16.1%
City of Shavano Park	1,754	3,126	78.2%
Total Population	**1,160,995**	**1,349,765**	**15.6%**

Source: Texas State Data Center (http://txsdc.utsa.edu/tpepp/txpopest.php)

Table 2-8 shows the forecasted populations for the study area cities while Figure 2-6 illustrates the cities' growth change trends compared to the population change trends of Bexar County, represented by the orange line. Since population forecast data was unavailable from the TXSDC, the following table uses TWDB data.

Table 2-8. Long Range City Population Forecasts, 2000-2040

Location	Population				
	2000[1]	2010	2020	2030	2040
City of Fair Oaks Ranch	4,695	6,181	6,271	6,339	6,408
Percent Change from Previous Date	N/A	31.7%	1.5%	1.1%	1.1%
City of Hill Country Village	1,028	1,028	1,028	1,028	1,028
Percent Change from Previous Date	N/A	0.0%	0.0%	0.0%	0.0%
Town of Hollywood Park	2,983	3,111	3,232	3,340	3,428
Percent Change from Previous Date	N/A	4.3%	3.9%	3.3%	2.6%
City of San Antonio	1,144,646	1,354,381	1,552,538	1,729,245	1,872,964
Percent Change from Previous Date	N/A	18.3%	14.6%	11.4%	8.3%
City of Shavano Park	1,754	1,806	1,855	1,899	1,935
Percent Change from Previous Date	N/A	3.0%	2.7%	2.4%	1.9%
Total Population	**1,155,106**	**1,366,507**	**1,564,924**	**1,741,851**	**1,885,763**
Percent Change from Previous Date	**N/A**	**18.3%**	**14.5%**	**11.3%**	**8.3%**

Note: The TWDB shows the actual 2000 Census population for San Antonio. This is lower than that posted by the TXSDC as the TXSDC uses post-2000 Census data
Source: Texas Water Development Board (http://www.twdb.state.tx.us/wrpi/data/popproj.htm)

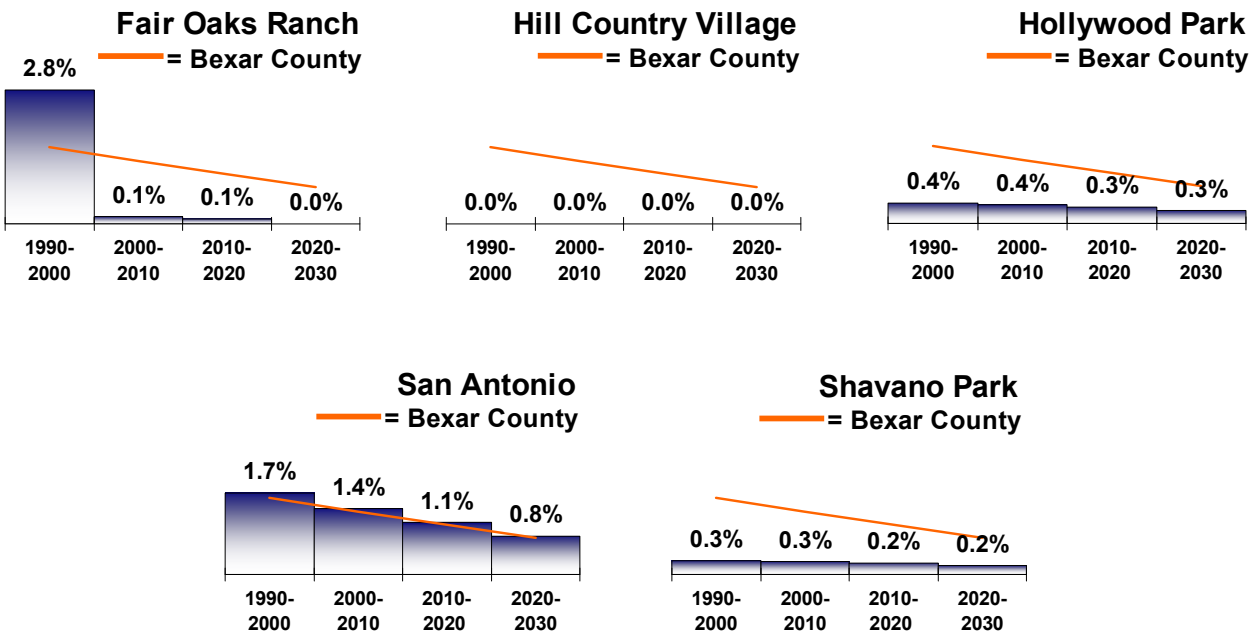


Figure 2-6. Population Change Trends – Cities

Housing Value

Housing Value – Counties

Median housing values increased significantly throughout the Camp Bullis study area between 2000 and 2007 (see Table 2-9 and Figure 2-7). During that time, Bexar County, Comal County, and Kendall County all experienced an increase of over 40 percent. Respectively, this amounted to increases in housing value of roughly $39,000, $48,000, and $66,000. Texas had an increase right in the middle of the counties, with 46.5 percent ($38,400).

Table 2-9. Median Housing Values

Jurisdiction	2000	2007	Percent Change	Value Change
Texas	$82,500	$120,900	46.5%	$38,400
Bexar County	$74,100	$113,200	52.8%	$39,100
Comal County	$117,000	$165,600	41.5%	$48,600
Kendall County	$139,900	$206,524	47.6%	$66,624
Fair Oaks Ranch	$269,800	$425,400	57.7%	$155,600
Hill Country Village	$395,300	$623,200	57.7%	$227,900
Hollywood Park	$150,500	$237,300	57.7%	$86,800
San Antonio	$68,800	$106,200	54.4%	$37,400
Shavano Park	$225,000	$354,700	57.6%	$129,700

Source: http://quickfacts.census.gov and http://www.city-data.com

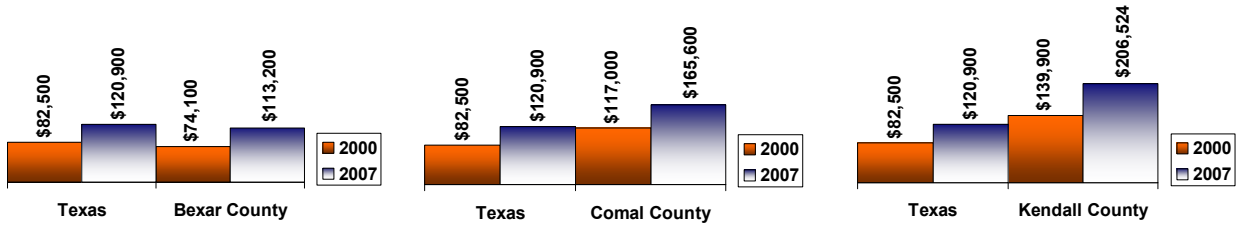


Figure 2-7. State and County Comparative Housing Value Trends

Housing Value – Cities

The cities located in the study area experienced higher increases in housing value than the counties. All of the cities experienced increases of more than 54 percent, with the lowest being San Antonio at 54.4 percent, and the other four cities' increases being roughly equivalent at just under 58 percent. San Antonio had the lowest monetary increase ($37,400); however, due to low housing prices in 2000, the City still had a very large increase over the seven-year period. The highest monetary increase was experienced by Hill Country Village with an astounding $227,900 jump. This value increase was over $70,000 higher than the next highest, which was Fair Oaks Ranch at $155,600. Figure 2-8 illustrates the cities' housing value increases from 2000 to 2007.

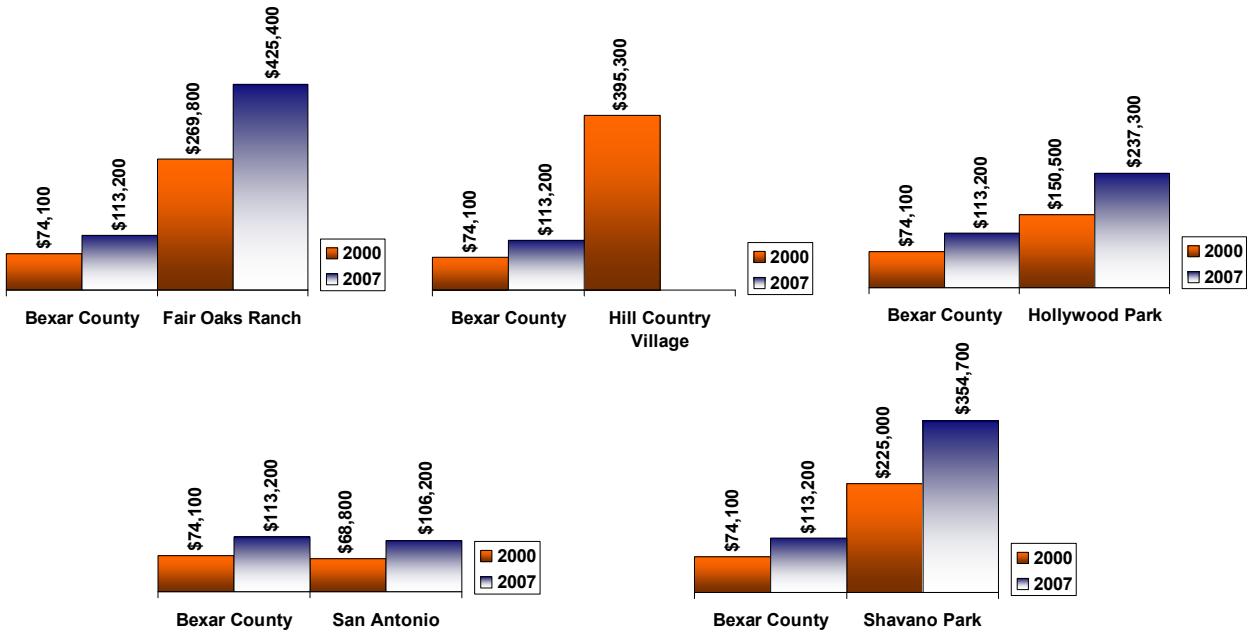
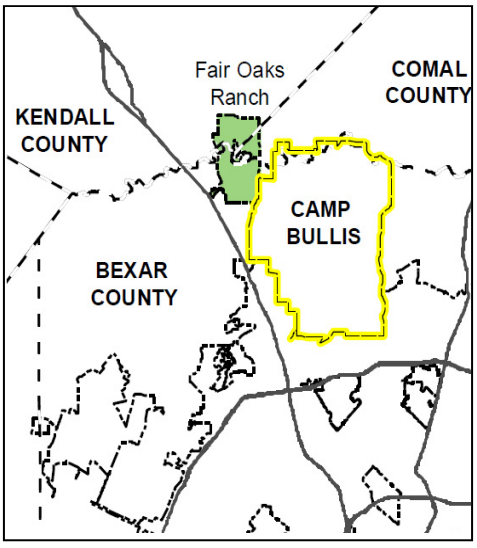


Figure 2-8. County and City Comparative Housing Trends

2.9 *County and City Profiles*

City of Fair Oaks Ranch



Fair Oaks Ranch occupies 16.5 square miles located in northern Bexar/western Comal/eastern Kendall counties. The City is adjacent to the west side of the Camp Bullis Training Area and is approximately 22 miles northwest of San Antonio and 7 miles southeast of the City of Boerne. Major transportation routes are Interstate 10 located southwest of the City and FM 3351, which separates the City from Camp Bullis.

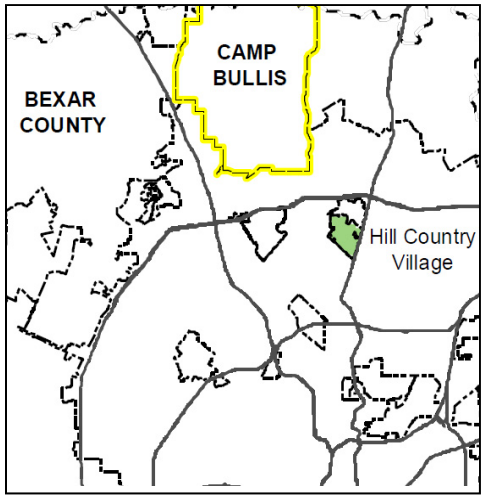
Fair Oaks Ranch is nestled within beautiful Texas Hill Country land, once home to Ralph Fair, Sr., an internationally known oilman and rancher. After his death in 1969, the family members began developing the Ranch into ranchettes of 5 acres or larger tracts located at both the northern and southern ends of the Ranch. Smaller tracts were made available over the years as the development of the Ranch continued.

Due to Texas state laws concerning restrictions on population density and city size, two cities had to be formed first. However, one major impediment to the formation of a new city was the fact that the existing Ranch was located within the extraterritorial jurisdiction (ETJ) of the City of San Antonio. As such, it could not be incorporated without the consent of San Antonio. An agreement was executed whereby the new City of Fair Oaks would be allowed to incorporate if it relinquished all ETJ claims outside the existing boundaries of the Ranch to the City of San Antonio. The cities of Fair Oaks North and Fair Oaks

South were then incorporated. On January 21, 1988, after an election was held, the two cities were combined with the council from the South entity becoming the City Council for the now combined City of Fair Oaks. Subsequently, the name was changed to the City of Fair Oaks Ranch. The City of San Antonio then approved a petition that granted Fair Oaks Ranch 3,258 acres of land as part of a new ETJ in August 2006.

Incorporated in 1988, the City is one of the youngest in Texas. With 1,860 residents in 1990, Fair Oaks Ranch grew to nearly 4,700 residents in 2000 while maintaining its small town character. The City has a new Fair Oaks Ranch elementary school with grades K through 6, which is part of the Boerne Independent School District. The City has its own police force, emergency medical service (EMS), and is served by the Leon Springs Volunteer Fire Department, which operates two fire stations within the City limits.

City of Hill Country Village



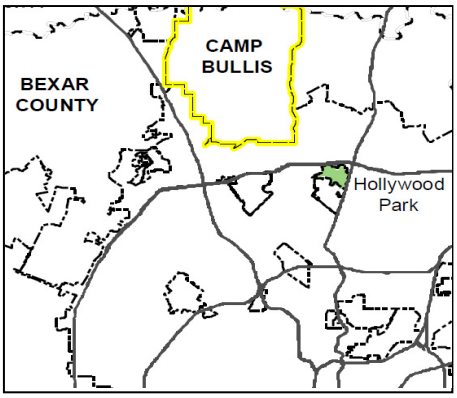
The City of Hill Country Village is a "Type A" general-law municipality founded in 1956. It is located in north-central Bexar County, approximately 12 miles north of Downtown San Antonio and two miles north of the San Antonio International Airport in north-central Bexar County. The 2.1-square mile City is surrounded by the corporate limits of the City of San Antonio and the Town of Hollywood Park. Although situated in an urban environment, its residents enjoy a rural type of living second to none in the area. The City has effectively combined commercial and residential ventures by strategically balancing its commercial district located along its eastern boundary, with the environmentally aware and rustic residential area. Though sometimes thought of as a "bedroom" community, the City is a dynamic example of a professional/residential suburb.

The City of Hill Country Village is an incorporated community located on U.S. Highway 281 about 2 miles north of San Antonio International Airport and 12 miles north of downtown San Antonio in north-central Bexar County. Prior to World War II, the area was a hog farm operated by Clyde Stevens and his stock was fed with garbage from Fort Sam Houston. In 1946, developers Meliff, Todd, and Hill Country Water Works began construction of Village Estates, the first subdivision located north of San Antonio. Tracts were a minimum of 9 acres and offered residents suburban country living. William Roten organized the Hill Country Village Association in 1954. The limitations of selling 9-acre parcels prompted residents to vote to allow for the sale of 2 acre tracts. The incremental encroachment of the San Antonio city limits, and its associated zoning ordinances, prompted the citizens of Hill Country Village to incorporate the community in 1956, establishing a mayor and council form of government. William Roten served as the first mayor.

In 1959, compulsory taxes were enacted to address the City's growing operating costs, but residents valued the area's unique suburban lifestyle which permitted livestock, and the larger tracts promoted privacy. In 1960, the population was 418. That figure increased to 636 in 1970 and 972 in 1980. Through the years, City officials and an active homeowners association continued to debate zoning changes and attempts by developers to increase density. A commercial district is located along the eastern border of

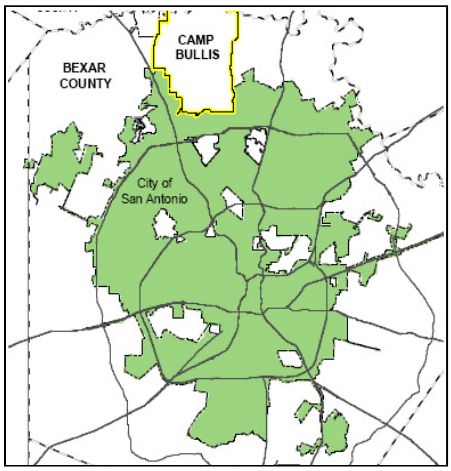
the City. In 2000, the population was 1,028. The City is now built out with the only remaining developable land (approximately 14 acres) located within its Extraterritorial Jurisdiction.

Town of Hollywood Park



Hollywood Park is a 1.47-square mile suburb of San Antonio located near the junction of Loop 1604 and Highway 281. It is 12 miles north of downtown San Antonio in northern Bexar County and approximately 2.5 miles southeast of Camp Bullis. The Town developed in the late 1940's and was incorporated in 1955. Its population in 1960 was 783, but by 1970, it was 2,299. Hollywood Park had 2,841 residents in 1990 and 2,983 in 2000.

City of San Antonio



The City of San Antonio is centrally-locally in Bexar County at the head of the San Antonio River. Several major transportation roadways transect the City. I-10 is oriented east-west, while I-35 and I-37 are oriented north-south. The City is also served by five U.S. highways, numerous state highways, the San Antonio International Airport, two freight railroads (the Union Pacific and Southern Pacific), and two AMTRAK trains.

As of October 2008, the City's incorporated area measured 470 square miles, which equates to roughly 69 percent of Bexar County's total land area at that time. San Antonio's ETJ area measured 680 square miles. The City's 2000 U.S. Census population of 1,144,646 accounted for 82 percent of the County's residents that year. For the year ending July 2007, San Antonio was ranked the seventh largest City in the U.S. (1,328,984) and produced the third highest numerical gain in population (32,680 people) among the nation's cities for that period. Its third place standing surpasses its 2006 national ranking of fourth. The City also had the third highest percentage gain in population (2.5 percent) over that same period.

Daily temperatures in San Antonio reach above 90 degrees (F) more than 80 percent of the time; however, extremely high temperatures are rare. August produces the highest average temperature of 83.7 degrees (F), and October typically produces the most rain (3.86 inches-average). The winter months bring mild weather much of the time, and freezing temperatures occur approximately 20 days per year.

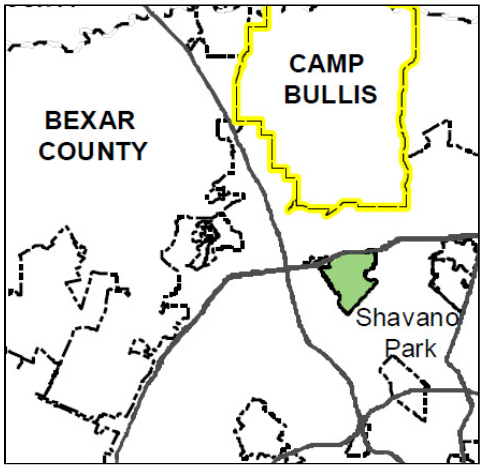
The San Antonio area was explored by Spanish expeditions in 1691 and 1709, which named the San Antonio River and San Pedro Creek. The town grew out of San Antonio de Béxar Presidio, founded in 1718, and the villa of San Fernando de Béxar, chartered by Canary Islanders in 1731. During the Texas Revolution, San Antonio was the site of several battles, including the siege of Bexar (1835) and the battle of the Alamo (1836), which made it one of the most fought-over cities in North America. After the evacuation of Mexican forces, Bexar County was organized by the Republic of Texas in December 1836,

and San Antonio was chartered in January 1837 as its seat. After Texas entered the Union on December 29, 1845, growth became rapid, as the City became a servicing and distribution center for the western movement of the United States. After the Civil War, San Antonio prospered as a cattle, distribution, mercantile, and military center serving the border region and the Southwest. The City was the southern hub and supplier of the cattle trail drives.

San Antonio did not expand beyond its original Spanish charter land until 1940. The land was large enough to allow a numerous incorporated suburbs within the metropolitan area, but the City soon extended beyond these. Like most twentieth-century American cities in the automobile age, its expansion was mainly horizontal, with sprawling neighborhoods but minimal vertical building. Although the first Texas skyscraper and several tall buildings were built in San Antonio in the early twentieth century, vertical construction did not continue, and the City's geographical center of population steadily moved northward.

Although the lack of high-paying manufacturing and finance-industry jobs has kept San Antonio in the bottom tier in terms of average metropolitan income, the City has developed a viable economy from its stable military bases, educational institutions, tourism, and its medical research complex. As of November 2007, the City's largest employer categories included: trade/transportation/utilities (18.1 percent), government (17.1 percent), education and health services (14.1 percent), professional and business services (13.1 percent), and leisure and hospitality (12.1 percent). Tourism is one of the City's most important industries, for San Antonio's many attractions, including sports, draw tens of thousands of visitors every year.

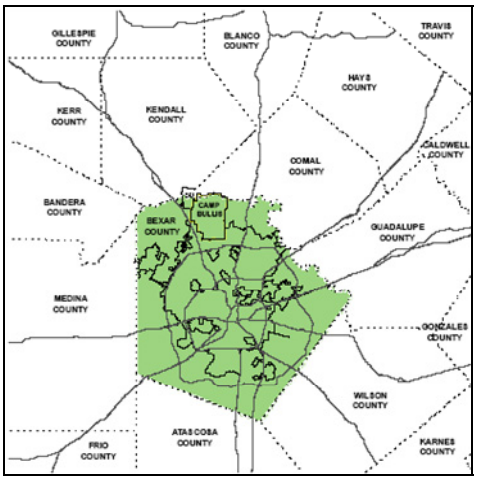
City of Shavano Park



The City of Shavano Park was originally known as Shavano. It is located in northern Bexar County approximately 12 miles north of downtown San Antonio and less than five miles north of I-410 and covers an area of 1.8 square miles. The San Antonio suburb is located along Olmos Creek and FM 1535. Camp Bullis is located approximately three miles north of the City. The City's post office opened in 1881, and three years later Shavano became a small station and switch on the San Antonio and Aransas Pass Railway. In 1890, Shavano included a church, a district school, and had a population of 80. By 1892, its population had grown to 100, where it remained until 1896. After that, the community declined. The post office closed in 1903, after which mail was delivered from San Antonio. The site of the later Township of Shavano Park became a part of the Stowers Ranch, and it was then sold to Wallace Rogers and Sons for residential development in 1947.

The City of Shavano Park was incorporated on June 19, 1956. The City's 2000 U.S. Census population was 1,754, which increased from 1,708 residents in 1990. Today, the City maintains its own water system to the highest ratings of the State Department of Health; its own fire department with a station and trucks; a police department with a fleet of fully-outfitted patrol cars; a modern communication system, integrating the departments and those of nearby communities; a well-equipped department of public works; and a municipal court.

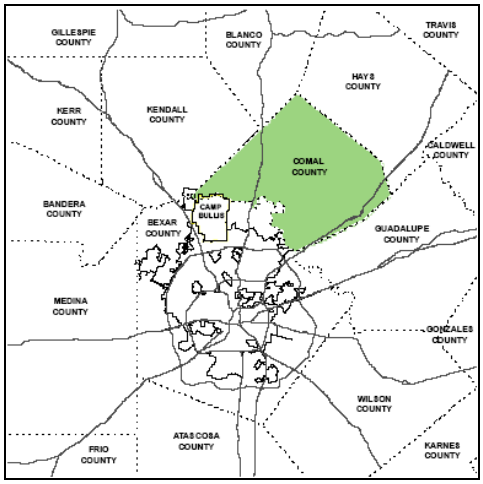
Bexar County



Located in south-central Texas, Bexar County is bounded by Kendall and Comal counties to the north, Guadalupe and Wilson counties to the east, Atascosa County to the south, and Medina and Bandera counties to the west. Bexar County occupies 1,247 square miles of land and has elevations of approximately 1,200 feet above sea level. Its 2000 U.S. Census population was 1,392,931, making it the fourth largest county in Texas. San Antonio is the county seat and is the county's largest city. Major transportation corridors traversing Bexar County include I-10 (connecting Houston and Phoenix, Arizona), I-35 (linking Dallas and Laredo), and I-37 (providing a high-speed route between San Antonio and Corpus Christi and the Gulf of Mexico). The majority of the Camp Bullis Training Area is located in Bexar County, primarily along its northern boundary with Comal County.

Bexar County was named from San Antonio de Bexar, one of the areas of Texas when it gained its independence. It was first known as Villa of San Fernando de Bexas, the first civil government in the Spanish province of Texas. It was officially established in 1731 when settled by 55 people from the Canary Islands who initially located near the existing missions in the City.

Comal County

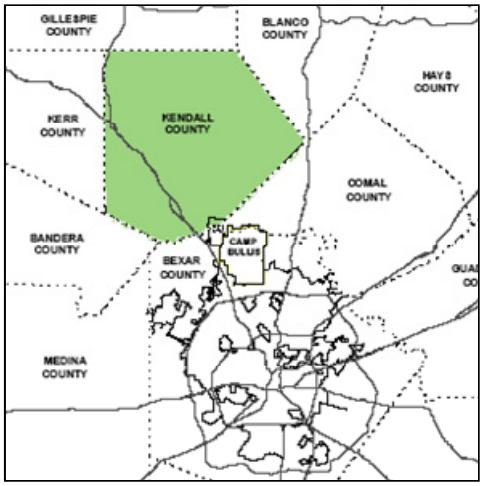


Comal County is located in south-central Texas in the area between the Blackland Prairies and the Balcones Escarpment. The County is bounded on the north by Blanco and Hays counties, Guadalupe County to the east, Bexar County to the southwest, and Kendall County to the west. New Braunfels is Comal County's largest city and the county seat. The City is located 29 miles northeast of San Antonio and 45 miles southwest of Austin. A small amount of the Camp Bullis Training Area is located in Comal County along its southern border with Bexar County. The primary transportation route for Comal County is I-35 linking San Antonio and Dallas within the state.

The County encompasses 562 square miles of land comprised of prairie and hill country terrain. The eastern quarter, below the Balcones Escarpment, is gently rolling grass and crop land ranging in elevation from 600 to 750 feet above sea level. The Blackland Prairie soil of this region is comprised of loam with clay subsoils and is well suited for cultivation. The elevation of the northwestern three-quarters of the County ranges from 750 to approximately 1,500 feet above sea level. Annual precipitation in Comal County averages 33.19 inches, and average temperatures range from a low of 40 degrees Fahrenheit (F) in January to a high of 96 degrees (F) in July. The growing season lasts 265 days.

Permanent settlement of the County began in 1845, when Prince Carl of Solms-Braunfels secured title to 1,265 acres of the Veramendi grant, including the Comal Springs and River, for the Adelsverein. In succeeding years, thousands of Germans and Americans were attracted to the rich farm and ranch land around New Braunfels. Settlement progressed rapidly, and in March 1846, the Texas legislature formed Comal County from the Eighth Precinct of Bexar County and made New Braunfels the county seat. The final boundary determination was made in 1858 with the separation of part of western Comal County to Blanco and Kendall counties.

Kendall County



Located in south-central Texas, Kendall County is 170 miles inland from the Gulf of Mexico, and is bordered by the counties of Gillespie (north), Blanco (northeast), Comal (southeast), Bexar (south), Bandera (southwest), and Kerr (west). Boerne, the county seat, has an estimated 2008 population of 8,600 residents. It is located on Cibolo Creek adjacent to I-10 at the intersection of Highway 87 and State Highway 46, which is approximately 30 miles northwest of San Antonio. Kendall County's primary high-speed transportation route is I-10 connecting San Antonio and El Paso within the state.

Kendall County comprises 662 square miles of rolling to hilly terrain in the Edwards Plateau region, with elevations ranging from 1,000 to 2,000 feet above sea level. Vegetation native to the region consists primarily of tall grasses, live oak, juniper, and mesquite. The climate is subtropical subhumid with an average minimum temperature of 35 degrees (F) in January and an average high of 94 degrees (F) in July. The growing season in Kendall County averages 231 days annually, and the rainfall averages 32 inches.

The Central Texas region, including Kendall County, has supported human habitation for several thousand years. Hunter and gatherer tribes have been shown by archaelogical evidence to have existed as early as 10,000 years ago. The Lipan, Apache, Kiowa, and Comanche became the dominant tribes in the late eighteenth and early nineteenth centuries. They were still present in the 1840s when Germans began exploring the area. German immigrants established Sisterdale in 1847, Tusculum (Boerne) in 1849, Curry's Creek in 1850, and Comfort in 1854. Most of the Kendall County area was part of Bexar County, established by the Republic of Texas in 1836; it later became part of Kerr County, which was separated from Bexar in 1856. Comfort served as the county seat of Kerr County for two years before Kendall County was formed.

2.10 Current Development Overview within Study Area

Existing Land Use

The pattern of existing land use illustrates the current physical use of the land surrounding Camp Bullis. It identifies where existing land use compatibility and incompatibility exists adjacent to, and within proximity of, the installation. The organization of uses within the Camp is also important to understand the relationships that exist, or could exist outside its boundaries. The cantonment area is located in the southwest portion of the installation, which also includes small arms ammunition storage. According to

the Camp Bullis Deputy Garrison Manager, the sole Army ammunition bunker is no longer active; however, the ammunition bunker used by the Air Force is still active. The surrounding land is utilized for training and service uses, but also includes a limited amount of housing and administrative uses. Several facilities are also used for youth recreational activities.

The existing pattern of land use adjacent to and within proximity of Camp Bullis contains a mix of residential, employment and supportive land uses as shown on Figure 2-9. The identification of one, three, and five mile buffer zones have been illustrated on the figure and supporting tables to provide a common foundation of reference for various issues, such as light, which has a pronounced effect on night vision training closer to the installation. It is important to note that the land uses identified on Figure 2-9 are based on Bexar County Appraisal District data, and so may reflect a land use based on tax assessor terms instead of the actual use that exists on the land. For example, some uses, such as the University of Texas at San Antonio and quarry areas south of Camp Bullis are designated as "Agricultural," while other lands are designated as "Tax Exempt" or "No Governor Codes." Tax Exempt lands include areas such as Camp Bullis and Camp Stanley that have special exemptions for taxable lands. Lands designated as No Governor Code are lands where tax information may not be available. Therefore, land use data exhibited on Figure 2-9 and in Tables 2-10 through 2-12 may not be entirely accurate. Furthermore, some lands that are designated as Agricultural in the data could also be considered or identified as vacant land under different methods of land use determination.

The most compatible designations for Camp Bullis include Vacant and Agricultural uses. The most incompatible (ultimately depending on location and proximity to on-installation uses) include Commercial, Single Family, Multi-Family and Mobile Home uses. Existing land use information was compiled from secondary sources and includes information from the City of San Antonio. This information has been provided for adjacent and proximate lands located along the southern, eastern and western boundaries of Camp Bullis. Existing land use information in a quantifiable electronic format does not exist for lands located within and adjacent to the northern portion of Camp Bullis, within the jurisdiction of Comal and Kendall counties.

These existing uses have been quantified by type in Tables 2-10, 2-11, and 2-12, based on a one, three and five mile radius from the Camp Bullis boundary, respectively. Camp Bullis is identified as Exempt due to its status as a military facility under the ownership of the Federal government. Adjacent to the Camp, within one mile, uses are primarily comprised of Agricultural (32.8 percent), Single Family Residential (23.5 percent), Tax Exempt (23.5 percent) or Vacant uses (14.6 percent). Single family uses are primarily located on the western and eastern sides of the Camp. Agricultural uses are predominately located on the northwestern, northeastern and southern boundaries. The majority of the Tax Exempt land is composed of Camp Stanley immediately to the west. Vacant land is interspersed within the Single Family uses. The No Governor Codes area is located along the northern boundary, which indicates that specific land uses are not identified. The land uses located within three miles of the Camp Bullis boundary primarily include Agricultural (32.8 percent) and Single Family Residential (31.9 percent). A significant amount of Commercial use (8.8 percent) is contained within the three mile radius, based on the inclusion of the Interstate 10 corridor and FM 1604. The area included within the five mile radius of the Camp Bullis boundary continues to be dominated by Agricultural (32.5 percent) and Single Family Residential (34.5 percent) uses. Vacant use comprises approximately 15 percent and Commercial use totals approximately 8.7 percent. The data for the following three tables is cumulative, such that Table 2-11 includes the data from Table 2-10 and Table 2-12 includes the data from Table 2-11.

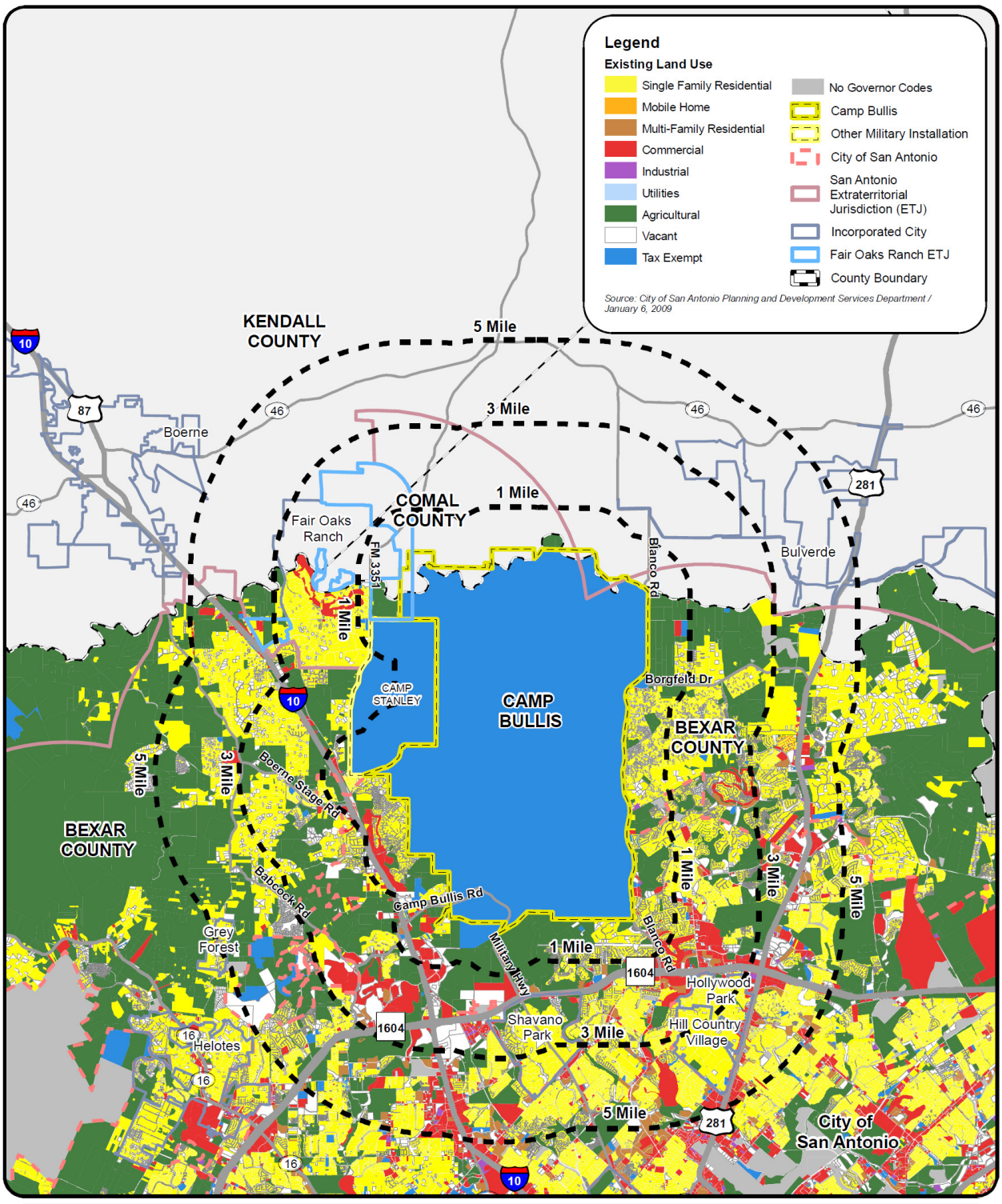


Figure 2-9
Bexar County Existing Land Use

Table 2-10. Existing Land Use (Within 1 Mile of Camp Bullis)

Land Use Classification	Acreage	Percentage of Total
Agricultural	5,184	32.8%
Commercial	872	5.5%
Industrial	25	0.2%
Mobile Home	0	0.0%
Multi-Family Residential	27	0.2%
No Governor Codes	103	0.7%
Single-Family Residential	3,572	22.6%
Tax Exempt	3,718	23.5%
Utilities	6	<0.1%
Vacant	2,316	14.6%
Total	**15,823**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Table 2-11. Existing Land Use (Within 3 Miles of Camp Bullis)

Land Use Classification	Acreage	Percentage of Total
Agricultural	16,291	32.8%
Commercial	4,389	8.8%
Industrial	60	0.1%
Mobile Home	0	0.0%
Multi-Family Residential	393	0.8%
No Governor Codes	477	1.0%
Single-Family Residential	15,870	31.9%
Tax Exempt	4,746	9.5%
Utilities	10	<0.1%
Vacant	7,505	15.1%
Total	**49,741**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Table 2-12. Existing Land Use (Within 5 Miles of Camp Bullis)

Land Use Classification	Acreage	Percentage of Total
Agricultural	28,749	32.5%
Commercial	7,669	8.7%
Industrial	178	0.2%
Mobile Home	0	0.0%
Multi-Family Residential	1,337	1.5%
No Governor Codes	1,077	1.2%
Single-Family Residential	30,565	34.5%
Tax Exempt	5,610	6.3%
Utilities	18	<0.1%
Vacant	13,316	15.0%
Total	**88,519**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Existing Zoning

The pattern of existing zoning is an important component to understand the existing and permissible regulations associated with land development adjacent to, and surrounding, Camp Bullis. Existing zoning information was compiled from data provided by the City of San Antonio for incorporated areas where there are established zoning designations. This information has been provided for adjacent and proximate lands located along the southwestern, southeastern and southern boundaries of Camp Bullis. The unincorporated areas in Bexar, Comal, or Kendall counties, do not have the statutory authority or enabling legislation to zone land within their boundaries. The incorporated cities in the study area either did not have current zoning regulations, or zoning information was not available in an electronic format that could be quantified.

The existing zoning districts established by the City of San Antonio are illustrated on Figure 2-10 and have been quantified in Tables 2-13, 2-14, and 2-15, based on a one, three and five mile radius, respectively, from the Camp Bullis boundary. Of the approximately 22,000 acres within one mile of Camp Bullis, 8,150 acres are designated through zoning by the City of San Antonio (Table 2-13). Table 2-14 shows 22,901 of the approximately 76,000 acres in the three mile area. Table 2-15 includes 41,123 zoned acres out of the roughly 144,000 acres within the five-mile area.

Table 2-13. City of San Antonio Existing Zoning in Acres (Within 1 Mile of Camp Bullis)

Zoning Classification	Acreage*	Percent of Total Acreage
Development Reserve District	49	0.6%
Residential Single-Family District	1,517	18.6%
Neighborhood Preservation District	84	1.0%
Master Planned Community District	557	6.8%
Planned Unit Development District	3,569	43.8%
Manufactured Housing District	18	0.2%
Residential Multi-Family District	329	4.0%
Urban Development District	1	<0.1%
Neighborhood Commercial District	3	<0.1%
Commercial District	517	6.3%
Office District	53	0.7%
Quarry District	877	10.8%
Military Reservation District	576	7.1%
Total	**8,150**	**100%**

Note: Development Reserve District" is a zoning district issues upon annexation and it equates to "Residential Single Family Zoning District."
Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009
** Acreage only includes land that falls within the incorporated city limits of San Antonio. Does not include acres outside of the city limits.*

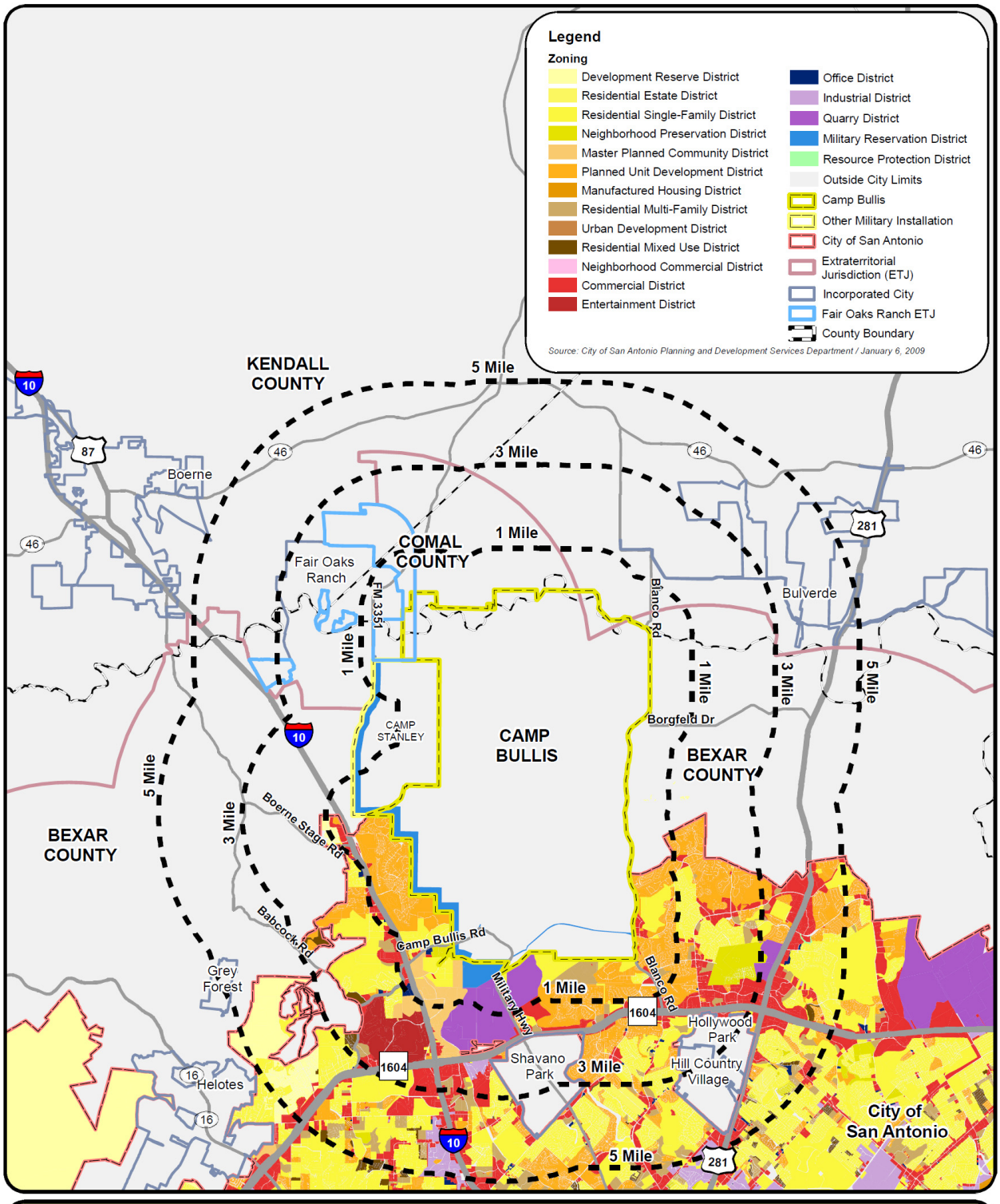


Figure 2-10
City of San Antonio Zoning

Table 2-14. City of San Antonio Existing Zoning in Acres (Within 3 Miles of Camp Bullis)

Zoning Classification	Acreage*	Percent of Total Acreage
Development Reserve District	117	0.5%
Residential Single Family District	5,370	23.4%
Neighborhood Preservation District	674	2.9%
Master Planned Community District	1,024	4.5%
Planned Unit Development District	7,289	31.8%
Manufactured Housing District	18	0.1%
Residential Multi-Family District	821	3.6%
Urban Development District	1	<0.1%
Residential Mixed Use District	205	0.9%
Neighborhood Commercial District	3	<0.1%
Commercial District	3,301	14.4%
Entertainment District	1,218	5.3%
Office District	118	0.5%
Industrial District	105	0.5%
Quarry District	1,814	7.9%
Military Reservation District	823	3.6%
Total	**22,901**	**100.0%**

Note: "Development Reserve District" is a zoning district issues upon annexation and it equates to "Residential Single Family Zoning District."
Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009
**Acreage only includes land that falls within the incorporated city limits of San Antonio. Does not include acres outside of the city limits.*

Table 2-15. City of San Antonio Existing Zoning in Acres (Within 5 Miles of Camp Bullis)

Zoning Classification	Acreage	Percent of Total Acreage
Development Reserve District	1,718	4.2%
Residential Estate District	307	0.7%
Residential Single Family District	13,278	32.3%
Neighborhood Preservation District	818	2.0%
Master Planned Community District	1,024	2.5%
Planned Unit Development District	9,596	23.3%
Manufactured Housing District	41	0.1%
Residential Multi-Family District	2,016	4.9%
Urban Development District	1	<0.1%
Residential Mixed Use District	370	0.9%
Neighborhood Commercial District	3	<0.1%
Commercial District	7,085	17.2%
Entertainment District	1,218	3.0%
Office District	203	0.5%
Business Park District	19	<0.1%
Industrial District	578	1.4%
Quarry District	2,013	4.9%
Military Reservation District	823	2.0%
Resource Protection District	12	<0.1%
Total	**41,123**	**100.0%**

Note: "Development Reserve District" is a zoning district issues upon annexation and it equates to "Residential Single Family Zoning District."
Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009
**Acreage only includes land that falls within the incorporated city limits of San Antonio. Does not include acres outside of the city limits.*

Adjacent to Camp Bullis, within one mile, zoning for City of San Antonio lands is primarily comprised of the Planned Unit Development (PUD) District (43.8 percent), as well as 18.6 percent Single Family Residential. The City of San Antonio zoning pattern located within three miles of the Camp Bullis boundary primarily includes the PUD District (31.8 percent), Single Family Residential District (23.4 percent) and Commercial District (14.4 percent). The area included in the city limits of San Antonio within the five mile radius of the Camp boundary continues to be dominated by Single Family Residential (32.3 percent), PUD District (23.3 percent) and Commercial (17.2 percent) districts. The data for the following three tables is cumulative, such that Table 2-14 includes the data from Table 2-13 and Table 2-15 includes the data from Table 2-14.

Although Tables 2-13, 2-14, and 2-15 illustrate the amount of acreage within one, three, and five miles of Camp Bullis that is zoned by the City of San Antonio, they do not provide an overall analysis of the total amount of acreage included within each buffer distance. Lands incorporated within the City of San Antonio only account for a portion of the total land surrounding Camp Bullis. The tables are intended to quantify the amount of land that is within the regulatory authority of San Antonio, and thus can be zoned to allow the types of uses that are compatible with the activities of Camp Bullis.

Tables 2-16, 2-17, and 2-18 have been created to illustrate the percentage of land that is contained within the city limits of San Antonio, compared to the other jurisdictions around Camp Bullis. The intent is to provide a baseline of the amount of land that is able to currently be regulated through zoning. Within one mile of the Camp Bullis boundary, approximately 39 percent of the land is located within the city limits of San Antonio. Roughly 33 percent of the land within three miles is located in San Antonio, as well as approximately 32 percent of the land within five miles of the installation. It is important to note that the lands displayed in the tables are not mutually exclusive. For example, lands that are located within the ETJ of San Antonio are not included as lands within Unincorporated Bexar County, although they may be considered as part of the unincorporated county for other analysis purposes within this chapter. Also note that the data for the following three tables is cumulative, such that Table 2-17 includes the data from Table 2-16 and Table 2-18 includes the data from Table 2-17.

Table 2-16. Jurisdictional Acreage (Within 1 Mile of Camp Bullis)

Land Use Classification	Acreage	Percentage of Total
Camp Stanley	3,128	13.9%
City of San Antonio	8,779	39.0%
City of San Antonio Extraterritorial Jurisdiction	8,017	35.6%
Other Incorporated Cities	924	4.1%
Unincorporated Bexar County	0	0.0%
Unincorporated Comal County	1,654	7.4%
Unincorporated Kendall County	0	0.0%
Total	**22,502**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Table 2-17. Jurisdictional Acreage (Within 3 Miles of Camp Bullis)

Land Use Classification	Acreage	Percentage of Total
Camp Stanley	3,993	5.2%
City of San Antonio	25,170	33.1%
City of San Antonio Extraterritorial Jurisdiction	28,892	37.9%
Other Incorporated Cities	7,944	10.4%
Unincorporated Bexar County	161	0.2%
Unincorporated Comal County	9,182	12.1%
Unincorporated Kendall County	794	1.0%
Total	**76,136**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Table 2-18. Jurisdictional Acreage (Within 5 Miles of Camp Bullis)

Land Use Classification	Acreage	Percentage of Total
Camp Stanley	3,993	2.8%
City of San Antonio	46,409	32.1%
City of San Antonio Extraterritorial Jurisdiction	48,599	33.6%
Other Incorporated Cities	13,033	9.0%
Unincorporated Bexar County	582	0.4%
Unincorporated Comal County	19,246	13.3%
Unincorporated Kendall County	12,818	8.9%
Total	**144,680**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Vacant and Undeveloped Land

During the inventory and analysis of adjacent and proximate lands, it is important to quantify the opportunities and constraints associated with parcels that are not currently developed or that exhibit minimal improvements. To that end, there are two categories of land that identify their potential to be developed or significantly improved in the future: Undeveloped and Vacant, as defined below:

- 'Undeveloped' designates parcels that exceed 10 acres in size and contain improvements valued at less than $5,000.
- 'Vacant' designates land that has not been developed according to the Bexar County Appraisal District.

Both vacant and undeveloped lands within Bexar Co11unty and in proximity to Camp Bullis have been identified on Figure 2-11. In addition, their proximity to Camp Bullis (within a one-, three- and five-mile radius) has also been quantified as shown in Tables 2-19, 2-20 and 2-21. These three tables also include the underlying zoning that would guide (unless proposed to be rezoned) the ultimate development of these parcels in the future. The purpose for discussing vacant and undeveloped land is to inform stakeholders of the potential for additional lands to be developed around Camp Bullis. The reason for showing the underlying zoning is to convey the types of use that could currently be developed on these vacant and undeveloped lands. . In this manner, the land supply and allowable use assists in determining the potential for incompatibility with military operations.

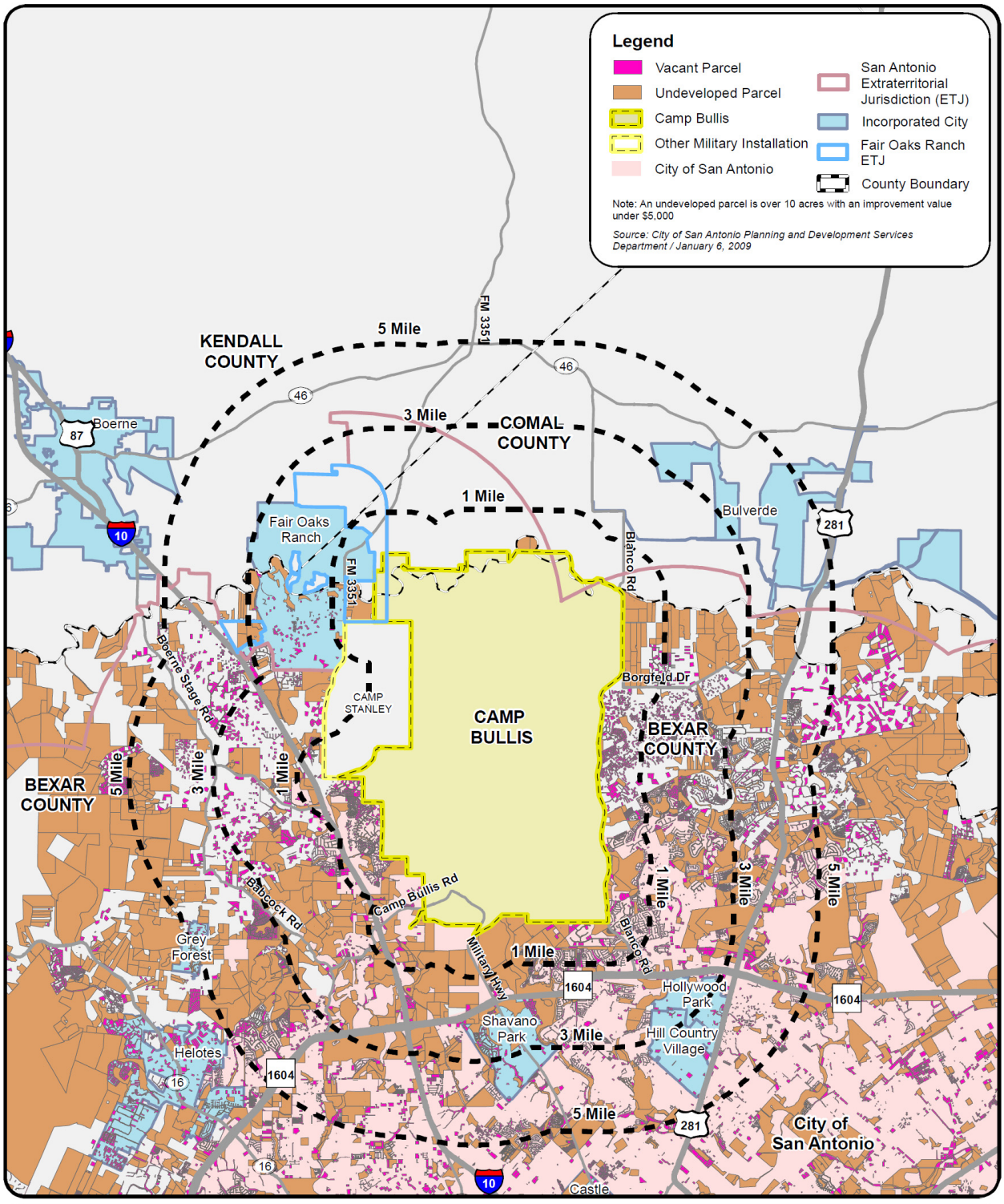


Figure 2-11
Vacant and Undeveloped Parcels

Table 2-19. Vacant and Undeveloped Land Summary – Bexar County (Within 1 Mile of Camp Bullis)

Zoning Classification	Undeveloped Land			Vacant Land		
	Number of Parcels	Total Acreage	Percent of Total Acreage	Number of Parcels	Total Acreage	Percent of Total Acreage
Development Reserve District	0	0	0.0%	16	7	0.3%
Residential Single-Family District	16	921	18.3%	83	217	9.4%
Neighborhood Preservation District	2	38	0.7%	0	0	0.0%
Manufactured Housing District	0	0	0.0%	18	2	0.1%
Master Planned Community District	9	384	7.6%	18	142	6.2%
Planned Unit Development District	19	583	11.6%	1,100	657	28.6%
Residential Multi-Family District	4	270	5.4%	16	16	0.7%
Commercial District	11	181	3.6%	35	102	4.4%
Office District	1	27	0.5%	5	35	1.5%
Quarry District	3	926	18.4%	0	0	0.0%
Outside City Limits	38	1,530	30.4%	1,004	700	30.4%
Right of Way (ROW)	11	166	3.3%	124	423	18.4%
Totals	**114**	**5,026**	**100.0%**	**2,419**	**2,301**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Table 2-20. Vacant and Undeveloped Land Summary – Bexar County (Within 3 Miles of Camp Bullis)

Zoning Classification	Undeveloped Land			Vacant Land		
	Number of Parcels	Total Acreage	Percent of Total Acreage	Number of Parcels	Total Acreage	Percent of Total Acreage
Development Reserve District	0	0	0.0%	46	21	0.3%
Residential Single-Family District	48	2,475	14.0%	270	417	5.5%
Neighborhood Preservation District	6	672	3.8%	70	29	0.4%
Master Planned Community District	16	704	4.0%	42	237	3.1%
Planned Unit Development District	37	1,398	7.9%	1,995	1,269	16.9%
Manufactured Housing District	0	0	0.0%	18	2	<0.1%
Residential Multi-Family District	13	493	2.8%	133	123	1.6%
Residential Mixed Use District	1	13	0.1%	17	25	0.3%
Commercial District	52	1,486	8.4%	215	1,043	13.9%
Entertainment District	12	547	3.1%	16	233	3.1%
Office District	1	27	0.2%	9	53	0.7%
Industrial District	0	0	0.0%	7	20	0.3%
Quarry District	10	1,852	10.5%	3	229	3.0%
Outside City Limits	166	7,557	42.9%	3,531	2,821	37.5%
Right of Way (ROW)	27	411	2.3%	287	1,007	13.4%
Totals	**389**	**17,635**	**100.0%**	**6,659**	**7,529**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

Table 2-21. Vacant and Undeveloped Land Summary – Bexar County (Within 5 Miles of Camp Bullis)

Zoning Classification	Undeveloped Land			Vacant Land		
	Number of Parcels	Total Acreage	Percent of Total Acreage	Number of Parcels	Total Acreage	Percent of Total Acreage
Development Reserve District	10	998	3.3%	270	525	3.9%
Residential Estate District	0	0	0.0%	13	22	0.2%
Residential Single-Family District	98	5,096	16.7%	897	999	7.5%
Neighborhood Preservation District	8	727	2.4%	71	29	0.2%
Master Planned Community District	16	704	2.3%	42	237	1.8%
Planned Unit Development District	46	1,593	5.2%	2,793	1,637	12.3%
Manufactured Housing District	0	0	0.0%	32	4	<0.1%
Residential Multi-Family District	31	938	3.1%	223	351	2.6%
Residential Mixed Use District	2	28	0.1%	27	52	0.4%
Commercial District	102	2,691	8.8%	490	1,940	14.6%
Entertainment District	12	547	1.8%	16	233	1.8%
Office District	1	27	0.1%	36	75	0.6%
Business Park District	2	35	0.1%	1	10	0.1%
Industrial District	4	106	0.3%	34	89	0.7%
Quarry District	12	1,946	6.4%	3	229	1.7%
Outside City Limits	337	14,335	47.0%	5,651	5,283	39.7%
Right of Way (ROW)	49	760	2.5%	448	1,605	12.1%
Totals	**730**	**30,531**	**100.0%**	**11,047**	**13,320**	**100.0%**

Source: City of San Antonio Planning and Development Services Department, January 6, 2009; and Matrix Design Group, 2009

It is important to note that the data in these tables is only provided for lands within Bexar County, as it was not available for areas within Comal or Kendall counties. As such it does not match with the total amount of land contained within the one, three, and five mile extents. The data for the following three tables is cumulative, such that Table 2-20 includes the data from Table 2-19 and Table 2-21 includes the data from Table 2-20.

2.11 Regional Assessment

Transportation

Roadways

The City of San Antonio is a major city in Texas and is a hub for transportation. As a result, it is served by many freeways and highways. The major highways and freeways serving the area include I-10, which extends east through the city center to the northwest; I-35, which extends northeast to southwest; I-37, which travels from the city center southeast out of the City; I-410, which loops around the City, Highway 281, which extends north to south, and Loop 1604, which serves as the outer loop for San Antonio (see Figure 2-12 on the next page).

Due to the size and growth rate of San Antonio and its surrounding suburbs, traffic congestion is a major issue of the highways and freeways that support the City. For instance, during peak and non peak hours, congestion along Highway 281 causes the majority of roadway and intersections to operate at a Level of Service ranging from E / F. Automobile accidents and fatalities have also seen a rise, and in 2005, the Texas Transportation Institute (TTI) estimated the total cost of congestion on the San Antonio economy to be $530 million.

The Alamo Regional Mobility Authority (RMA) is an independent governmental agency created in 2003 to help accelerate critical transportation projects within Bexar County. The Alamo RMA has several projects forecasted that are designed to improve vehicular transportation on Loop 1604 on the north side of San Antonio (see Figure 2-13). One such project is expansion of Highway 281 north of Loop 1604, which will add several travel lanes to help reduce traffic congestion entering and exiting the City. As of January 2009, the 281 North Toll Project is on hold pending the preparation of a new Environmental Impact Statement (EIS). On October 24, 2008, the Federal Highway Administration (FHWA) withdrew the previous "Finding of No Significant Impact (FONSI)". The Alamo RMA is soliciting Requests for Qualifications / Proposals (RFQ/P) from environmental firms and is anticipating a March/April 2009 selection. The current goal is to complete the EIS in 36 months, pending litigation delays.

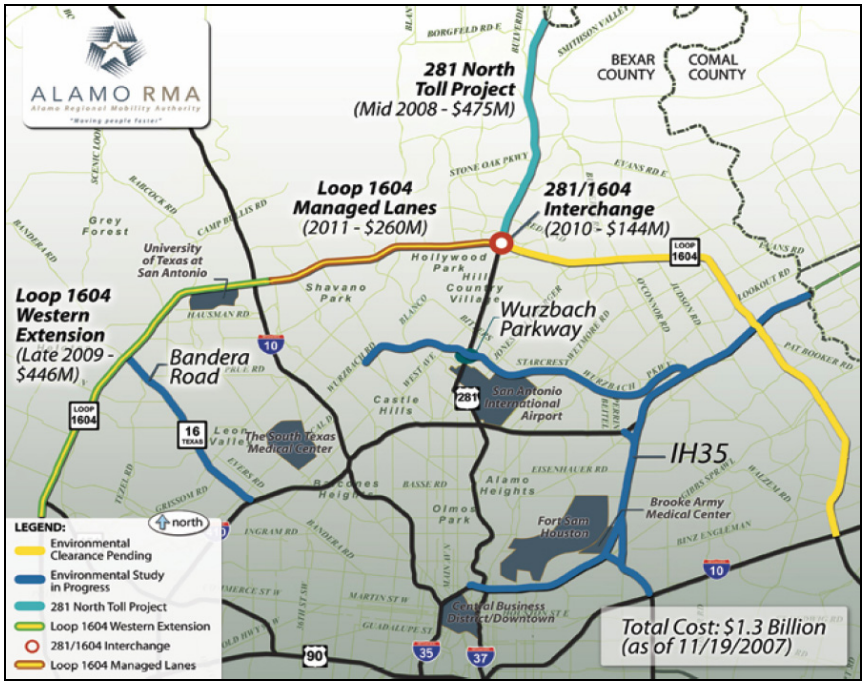


Figure 2-13. Alamo RMA Projects - North San Antonio

Source: Alamo RMA Presentation to Bulverde City Council, 22 July 2008

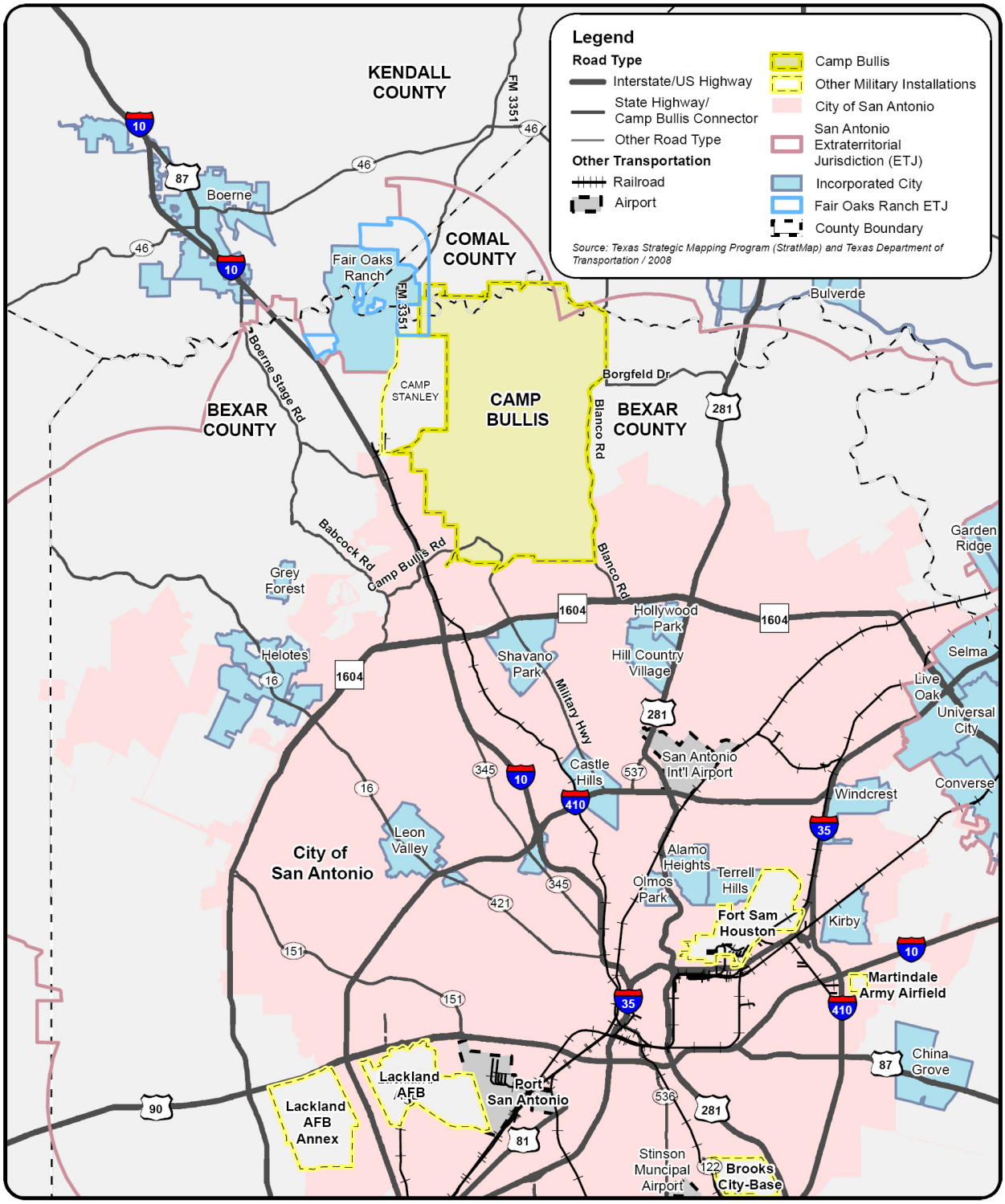


Figure 2-12
Regional Transportation

The boundaries of the expansion will extend from Loop 1604 north to the Bexar / Comal County line. It is set for three phases of construction to minimize its impact to drivers. Once started, the project is expected to be completed within four years; however, the project cannot move forward until the EIS is completed and approved by the Federal Highway Administration. In the interim, safety improvements are being examined to reduce accidents and injuries on Highway 281.

The Wurzbach Parkway project is a joint venture between the Alamo RMA and the Texas Department of Transportation. This project is intended to relieve traffic congestion on San Antonio roadways and portions have already been completed. The Alamo RMA is responsible for the interchange at Highway 281 and Wurzbach Parkway, which is currently in the process of an EIS. Other unfinished portions of the project are also in the process of an EIS.

Another project, along I-35, is in the preliminary stage of the environmental evaluation process. It is currently undergoing a traffic and revenue study, which consists of three phases. The project limits extend approximately 16 miles from the Central Business District to the Bexar / Guadalupe County line.

Transportation of Troops to and from Camp Bullis

Camp Bullis is a training site for personnel stationed at Fort Sam Houston and Lackland AFB. Since these personnel are not stationed at Camp Bullis, they must be transported from their respective bases to the training grounds. The routes that are accessed by trainees are also used by the general public.

Based on estimates provided by Fort Sam Houston personnel, approximately 887 students are transported from Fort Sam Houston to Camp Bullis on a weekly basis, depending on training demands and schedules. Transportation is typically conducted with buses and six-passenger vans requiring approximately 21 vehicles each way per week, depending on the number of troops and the equipment required for training exercises. The preferred route that the buses usually take from Fort Sam Houston to Camp Bullis is Pershing Road to Broadway Boulevard to Hildebrand Road to Highway 281 to Loop 1604 to Military Highway to Camp Bullis. Sometimes an alternate route is used, which proceeds up Walters Street to I-35 to I-10 to Loop 1604 to Military Highway to Camp Bullis. There are normally four to six round trips per week, which depart the "home" bases between the hours of 7:30 to 9:00 in the morning, and return between 3:00 and 6:00 in the afternoon or evening.

Troops also travel from Lackland AFB to Camp Bullis on a regular basis. This primarily occurs in convoy fashion, with approximately 12 convoys departing from Lackland AFB to Camp Bullis and 12 convoys returning in the opposite direction. The types of vehicles that constitute these convoys are buses, flat bed trucks, and 6-passenger trucks, carrying approximately 60 students, as well as instructors and equipment. Collectively, approximately 24 vehicles and over 1,100 personnel are transported weekly in each direction. The route that is used from Lackland AFB to Camp Bullis is Military Highway to Highway 90 to Loop 410 to I-10 to Loop 1604 back to Military Highway. The convoys are scheduled daily from 6:00 a.m. to 6:00 p.m.

A substantial amount of personnel also transport themselves to Camp Bullis using privately operated vehicles. Privately operated vehicle traffic is not tracked or managed by the Department of Logistics at Fort Sam Houston, or by Lackland AFB, and is not included in the numbers listed above.

Air Transportation

The San Antonio International Airport is located approximately five miles to the southeast of Camp Bullis, and is sited in the northern part of San Antonio. It is a public airport with two main runways, which are 8,500 feet and 7,500 feet in length, and one general aviation runway that is 5,500 feet long. End-of-year statistics for 2007 indicated that the airport conducts a daily average of 260 departures and arrivals, both domestic and international. As of 2007, 49 percent of aircraft operations were generated by commercial, 38 percent by local general aviation, 10 percent by air taxi, 2 percent by military, and 2 percent by transient general aviation.

Stinson Municipal Airport is a reliever airport for San Antonio International Airport, and is located six miles south of downtown San Antonio. This airport includes two runways, which are 4,800 and 4,100 feet long. The majority of operations at Stinson are local and transient general aviation flights.

Many of the helicopter operations that take place at Camp Bullis originate from Martindale Army Airfield. This Texas Army National Guard facility, located about two miles southeast of Fort Sam Houston, was built during World War II as a satellite airfield for Randolph Army Airfield. Extensive renovations have taken place in recent years that improved the ramp areas and built multiple new helicopter pads over the northern portion of one of the former runways.

Environmental Resources

The study area is sited in the Balcones Canyonlands Subregion of the Edwards Plateau. The landscape was once characterized by lush grassland, but due to overgrazing and urban development, it has now become predominately brushland with trees consisting of Ashe juniper and oak. These trees provide valuable habitat for various bird species. Some of the geological features include steep sloped hills and canyons and networks of underground cave systems that provide important habitat for ground-dwelling invertebrates.

The lands within Camp Bullis contain over 500 identified plant species. Approximately 16,500 acres, or 59 percent of the land is covered with dense Ashe juniper stands, while roughly 32 percent is composed of oak / grassland savannas. The remaining grounds are either developed areas or open grassland and scattered patches of trees. The topography in Camp Bullis is composed of many hills, valleys, and streambeds. The most prominent hill features in Camp Bullis are King Ridge, with an elevation of 1,515 feet; High Hill, with an elevation of 1,490 feet; and Otis Ridge, at 1,480 feet. The major drainage sources are Salado Creek, which flows from the northwestern boundary in a south-southeasterly route, and Lewis Creek, which flows centrally through the installation and into Salado Creek in the southwest.

Edwards and Trinity Aquifers

Camp Bullis sits on top of roughly 3,880 acres of the Edwards Aquifer recharge zone. This breaks down to approximately 2,430 acres in the south portion of the grounds, and 1,450 acres in the north (see Figure 3-16 in Section 3, Compatibility under the heading "Water Quality/Quantity." The aquifer is divided into three zones; the contributing zone, the recharge zone, and the artesian zone. The contributing zone is about 5,400 square miles and is also referred to as the drainage or catchment zone. This zone "catches" water from rainfall, which then flows from streams into the recharge zone. The 1,250 square mile recharge zone allows large quantities of water to flow into the aquifer through solution features, related to faults and fractures, where Edwards Limestone is at the land surface. Cibolo Creek, which forms the border between Bexar and Comal County, is believed to provide a significant amount of

recharge to the Edwards Aquifer. Once inside the aquifer, the water flows laterally through highly transmissive zones to the artesian zone. In the Edwards Aquifer artesian zone, water is confined between the relatively less permeable Glen Rose Formation below and generally impermeable Del Rio Clay above. Artesian pressure resulting from this confined condition results in water flowing back to the land surface at large springs, primarily in Comal and Hays counties.

The study area lies at the boundary between the Edwards Aquifer contributing and recharge zones. The entire aquifer system spans across 14 counties and occupies over 8,800 square miles. The aquifer is one of the most important sources of water in Texas, providing the supply for over 2 million people annually. The largest user of this water is San Antonio. Edwards Aquifer is also an important natural environment, providing habitat to over 40 known aquatic subterranean species. Not all of these species reside within the study area, however. In the past several decades, due to increased growth and demand for water, the ability of the aquifer to meet the needs of the region has prompted concerns for its continued use, as well as serving the needs of threatened and endangered species.

Another important water feature of the study area is the Trinity Aquifer. Recent models suggest that it provides up to 10 percent of the annual amount of recharge to the Edwards Aquifer. The Trinity Aquifer provides water for Bexar, Comal, Kendall and several other counties, but not to the degree of the Edwards Aquifer. It recharges much slower than the Edwards Aquifer, due in part to the slow movement of water, as well as the contribution of water to the Edwards Aquifer. New urban growth and development also threatens the Trinity Aquifer, and the TWDB has projected steep drops in well levels for the next 50 years.

Threatened and Endangered Species

There are several endangered species located within the Camp Bullis study area. Two of the species are birds, while the other species are all underground invertebrates, known as karst species. The Golden-cheeked Warbler is the most controversial species in the study area and currently has the biggest implication for training operations on Camp Bullis. The other bird is the Black-capped Vireo.

The Golden-cheeked Warbler was placed on the federal endangered species list on May 5, 1990. Warblers are distinguished by their jet black, white, and olive colored bodies and golden-colored cheeks. Reaching a length of only 4.5 inches at adulthood, their habitat consists mainly of canyons and steep slope areas containing mature Ashe juniper, oak, and other hardwood trees. Golden-cheeked Warblers have been known to also occupy flat riparian drainage areas, but population stability and productivity for these areas has not been determined. Trees that make up the habitat are characterized by a canopy closure of over 50 percent and a height of over 15 feet. The density of the trees ranges from 140 to 775 trees per acre. Typically the tree stands contain at least ten percent Ashe juniper as well. Areas containing thinner amounts of trees than those discussed above are not determined to provide Golden-cheeked warbler habitat.

Warblers can be found throughout central Texas in the Edwards Plateau, where they spend the spring and early summer months breeding before returning to Mexico and Central America in July for the winter months. Development within the City of San Antonio's ETJ is subject to the City's Tree Preservation Ordinance during the development process. The U.S. Fish and Wildlife Service (USFWS) and Texas Parks and Wildlife Department (TPWD) believe that the habitat within the study area is reaching a critical point as increasing old growth Ashe juniper and oak areas described above are cut down to make way for new

development. As this occurs, it can potentially cause the Warblers to extend further onto Camp Bullis land where they can find trees and make nests. This condition impacts training operations at the installation. Roughly 10,000 acres of the total 28,000 acres that comprise Camp Bullis are potential habitat. Of this total, approximately 3,000 acres are known to be current habitat for this species.

The Black-capped Vireo was listed as a federally endangered species on October 6, 1987. The Vireo's body is olive and white, while the head is adorned with a black "cap." They spend their nesting period of April to July in Texas, and migrate south to Mexico during the winter. Unlike the Golden-cheeked Warbler, their habitat consists of rangelands with open grassland and scattered clumps of shrubs. Vireos are found throughout the Edwards Plateau of central Texas and the eastern Trans-Pecos region. Nesting typically occurs in shrubs that are low to the ground (between two to four feet) and provide cover to conceal the nests. The territory for a male Vireo is usually between two and four acres, and they return to the same area every year. Habitat loss for these birds has occurred from poor livestock practices, improper wildland fire management, and urban development. This species does not present as much of an issue as the Golden-cheeked Warbler to the study area since they are not as numerous, nor is there as much ideal habitat for them within the boundaries of Camp Bullis.

On December 26, 2000 nine Bexar County karst invertebrates were placed on the federal endangered species list. These species live in various subterranean caves throughout Bexar County. As a result, many have adapted uniquely to their specific cave and only exist within that particular ecosystem. It is very important to preserve these caves so that the species within them are retained. Habitat loss for these organisms occurs when caves or cave entrances are filled in due to development, when rock that makes up the cave is quarried away, or when above-ground systems are altered that are essential to support below-ground environments. The nine karst species that have been identified in Bexar County are:

- *Rhadine exilis* (no common name) – small, essentially eyeless ground beetle known from 45 caves
- *Rhadine infernalis* (no common name) – small, essentially eyeless ground beetle known from 26 caves
- *Batrisodes venyivi* (Helotes mold beetle) – small, eyeless beetle known from two caves
- *Texella cokendolpheri* (Cokendolpher cave harvestman) – small, eyeless daddy-longlegs spider known from one cave
- *Cicurina baronia* (Robber Baron Cave meshweaver) – small, eyeless spider known from one cave
- *Cicurina madla* (Madla Cave meshweaver) – small, eyeless spider known from eight caves
- *Cicurina venii* (Braken Baron Cave meshweaver) – small, eyeless spider known from one cave
- *Cicurina vespera* (Government Canyon Bat Cave meshweaver) – small, eyeless spider known from two caves
- *Neoleptoneta microps* (Government Canyon Bat Cave spider) – small, essentially eyeless spider known from two caves

In 2003, USFWS released a final ruling for critical habitat designation of karst invertebrates in Bexar County. The term critical habitat refers to specific areas that are essential for endangered karst species and may require special management to protect the species. This ruling designated 1,063 acres in 22 units as critical habitat for seven species. This did not include areas in Government Canyon State Natural Area or Camp Bullis due to karst management plans in effect for these areas. Furthermore, in March 2008, the USFWS released the Bexar County Karst Invertebrate Draft Recovery Plan, which aims to protect karst cave features and habitat from outside factors that could potentially result in loss of habitat.

Based on cave surveys by George Veni and Associates, there are 23 caves on Camp Bullis that are known to contain endangered karst species. The recorded species are *Rhadine exilis*, found in 21 caves, *Rhadine infernalis*, found in three caves, and *Circurina madla*, found in one cave. Six other karst species are considered to potentially exist within the borders of Camp Bullis. If these species continue to decline or their habitat continues to deteriorate or is destroyed on or off the installation, regulatory restrictions associated with these listed species could increase and further restrict Camp Bullis' operational flexibility on the installation. The mechanism that would cause this regulatory pressure is the periodic review of recovery goals set forth in the USFWS March 2008 Draft Bexar County Karst Invertebrate Recovery Plan. All three of the karst invertebrates that are known to exist on Camp Bullis exist in other karst faunal zones. If goals in the recovery plan are not met because karst off-post is not conserved, the recovery team and/or USFWS may modify existing restrictions on remaining karst in order to be able to still meet recovery plan goals. This modification could include measures such as increasing the size of karst buffer zones, further restricting activities within or near karst features, and requiring additional mitigation measures for activities affecting karst features. If this condition occurs, it could cause increased restrictions to the types of activities conducted on-site and could even increase acreage restrictions in order to protect the remaining species. For species that are single cave endemic, there will not be an impact to Camp Bullis.

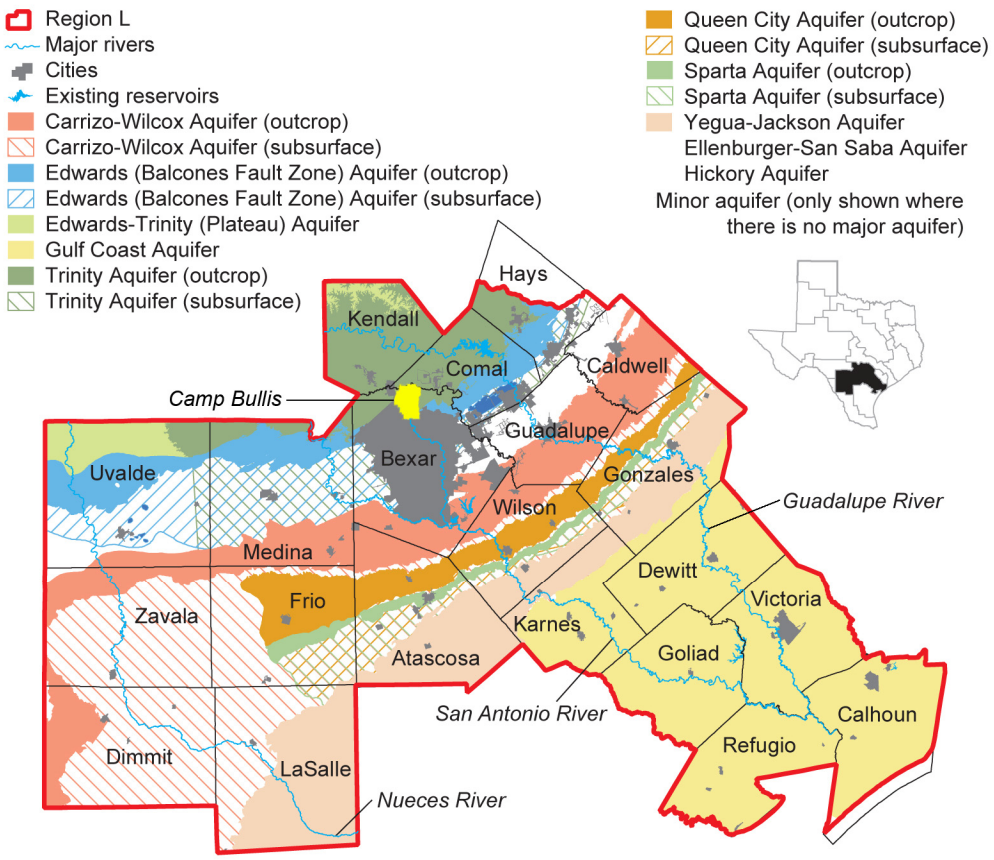
Water Resources

Texas Water Development Board

In 1957, the Texas Water Development Board (TWDB) was created through state legislation and constitutional amendment. Today, the objective of the Board is to provide long range water resources planning and project financing to local jurisdictions. To better understand and assess the demand for water in the State of Texas, the TWDB established 16 planning regions. Each region is required by the TWDB to develop water management strategies through a Regional Water Plan to meet potential water supply shortages.

South Central Texas Regional Water Planning Area

The study area resides in the South Central Texas Regional Water Planning Area, which consists of all or parts of 21 counties, including Bexar, Comal, and Kendall (see Figure 2-14). The planning area stretches from the Gulf Coast to the Hill Country and includes portions of the Rio Grande, Nueces, San Antonio, Guadalupe, Colorado, and Lavaca River Basins, as well as the Colorado-Lavaca, Lavaca-Guadalupe, and San Antonio-Nueces coastal basins, the Guadalupe Estuary, and San Antonio Bay. San Antonio is the largest city within the planning area. Other large cities within the region include Victoria, San Marcos, and New Braunfels.



Source: Texas Water Development Board, 2007 State Water Plan, November 2006

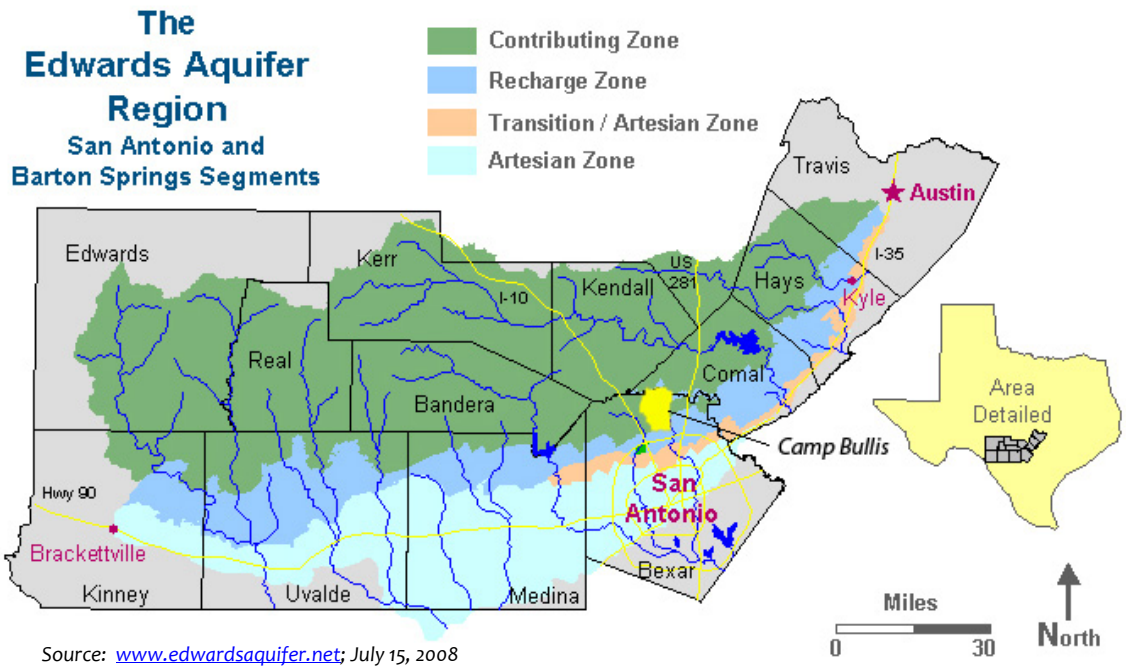
Figure 2-14. South Central Texas Regional Water Board Planning Area

Edwards Aquifer Authority

In 1993, the Texas Legislature passed Senate Bill 1477 to create the Edwards Aquifer Authority. The agency was created to manage the quantity and quality of the San Antonio segment of the Balcones Fault Zone Edwards Aquifer, as well as conserve and protect the water resources and habitat and to regulate pumping for the benefit of protecting threatened and endangered species that are within the scope of their charter. Covering all or parts of eight counties including Uvalde, Medina, Bexar, Comal, Hays, Caldwell, Guadalupe, and Atascosa counties, the agency administers regulations regarding Edwards Aquifer withdrawal permitting and various water quality protection measures. The agency's enabling legislation caps the amount of water that can be withdrawn from the aquifer and stipulates restrictions on aquifer pumping during periods of drought.

The 2007 State Water Plan anticipates that approximately 10 percent of Texas' population will reside in the South Central Texas Region by 2010. A projected 75 percent population increase by 2060 in this region is expected to increase water demands by 29 percent. This equates to an estimated demand of 985,237 acre-feet in 2010 to 1,273,003 acre-feet in 2060. During this timeframe, municipal water usage is expected to increase by 62 percent, from 369,694 acre-feet to 597,619 acre-feet. Agricultural irrigation demand is projected to drop 20 percent, from 379,026 acre-feet to 301,679 acre-feet.

There are five major aquifers that supply groundwater to the South Central Region. They are: the Edwards (Balcones Fault Zone), which is projected to provide almost 50 percent of the supply in 2010; Carrizo-Wilcox, which provides approximately 30 percent; and Trinity- Gulf Coast aquifers; and Edwards-Trinity (Plateau) aquifers, which comprise the remaining 20 percent. The three primary sources for surface water in the region are the Guadalupe, San Antonio, and Nueces Rivers (see Figure 2-15).



Source: www.edwardsaquifer.net; July 15, 2008

Figure 2-15. Edwards Aquifer Region

Trinity Glen-Rose Groundwater Conservation District

The Trinity Glen Rose Groundwater Conservation District (TGRGCD) was created in September 2001 in order to conserve and protect part of the Trinity Aquifer in northern Bexar County. In January 2001, the Texas Natural Resources Conservation Commission designated this area as part of a Priority Groundwater Management Area. This designation is applied to areas that are currently, or in the future, expected to experience critical groundwater problems due to issues such as urban development (as was the case for this area). The TGRGCD is responsible for ensuring that water within the aquifer is properly managed in a balanced manner that allows for growth and also preserves the quality and quantity of water for future generations.

San Antonio Water System (SAWS)

The SAWS is the largest water and sewer provider in the San Antonio area, and serves approximately 1 million people in central Bexar County and surrounding urbanized areas. SAWS receives most of its water, between 90 to 95 percent, from the Edwards Aquifer. New sources of water are being sought to be able to balance supplies with future projected demands, which exceed the anticipated amounts available from the Edwards Aquifer. SAWS approved a contract in 1998 between the Guadalupe River Authority to buy and extract a limited amount of surface water from Canyon Lake in Comal County. Also, in 2002, the Trinity Aquifer was introduced as a new source of water. The Oliver Ranch and Bulverde

Sneckner Ranch projects in northern Bexar County are small scale projects which provide partial relief for the growing water demand through Trinity Aquifer water distribution.

The 2005 SAWS Water Resources Plan Update includes two scenarios that could potentially impact water demand and quantity in the future. Planning Scenario 1 (PS 1) assumes that SAWS will serve a geographic region that is almost equal to, if not slightly greater than, its current service area. This area includes the majority of San Antonio, the cities of Alamo Heights, Elmendorf, Kirby, Leon Valley, and Shavano Park, and also parts of adjacent Bexar County. In Planning Scenario 2 (PS 2), SAWS will serve all jurisdictions listed for PS 1, and will also serve as the wholesale water provider for Atascosa Water Supply Corporation, Bexar Metropolitan Water District, East Central Water Supply Corporation, the cities of Converse, Fair Oaks Ranch, Live Oaks, Selma, Windcrest, and portions of Comal, Kendall, and Medina counties.

When projecting the future demand of SAWS for water distribution, each planning scenario generated a different forecast. PS 1 is projected to create a demand increase of 37 percent between the years between 2006 and 2050. This results in an increase in demand from 172,203 acre-feet in 2006 to 232,604 acre-feet in 2050. For PS 2, the increase in demand is projected to be 48 percent, increasing from 213,328 acre-feet in 2006 to 312,028 acre-feet in 2050. In order to accommodate these increases, the Water Resources Plan contains recommendations, which include the use of recycled water and obtaining water from sources other than the Edwards Aquifer. These sources could include the Lower Glen Rose / Cow Creek portion of the Trinity Aquifer in Northern Bexar County and the Carrizo Aquifer in southern Bexar County.

Cultural Resources

The City of San Antonio, Bexar County, and the surrounding areas have a rich human history dating back over 11,000 years. Native American tribes played an important role in the history of the area. Some of the important late Paleolithic Indian sites located within Bexar County are Pavo Real, St. Mary's Hall, the Richard Beene Site, and the Chandler Site. The Southern Texas Archaeological Association has had a role in the excavation of these sites. Some important sites for Archaic cultures are Panther Springs Creek, Medina River sites, and the Culebra Creek sites.

During the 18th Century, Spanish colonization brought a new influence to the area. Several Spanish missions were built, which were used to convert local Native American populations. The San Antonio de Valero, known today as the Alamo, is probably the most well known historic site in San Antonio. The other four missions in the City are Concepcion, San Jose, San Juan Capistrano, and Espada. The missions, as well as their associated acequias, fields, and other features are located in areas that have been protected to preserve their importance. Other historic landmarks include the Municipal Auditorium and the Irish Flats housing neighborhood. More than 1,600 archaeological sites have been identified and recorded in San Antonio and Bexar County.

The City of San Antonio's Unified Development Code defines a historic district as an urban or rural area that may contain one or more buildings, objects, sites or structures designated as exceptional or significant historic landmarks or clusters. These districts are defined as a historic district by City Council, state, or federal authority. San Antonio contains 22 different locally designated historic districts, ranging in size from three parcels to seven miles. The following is a list of the local historic districts within San Antonio:

- Alamo Plaza
- Arsenal
- Auditorium Circle
- Cattleman Square
- Dignowity Hill
- Fulton Avenue
- Government Hill
- Healy-Murphy
- Hemis Fair
- King William
- La Villita
- Lavaca
- Leon Springs
- Main and Military Plaza
- Mission
- Monte Vista
- Monticello Park
- Old Lone Star Brewery
- School of Aerospace Medicine
- St. Paul Square
- Ursuline Academy
- Woodlawn Lake

According to the Camp Bullis Integrated Cultural Resources Management Plan (ICRMP), dated February 2008, five different cultural resource property types have been identified within the boundaries of Camp Bullis. These five property types are buildings, structures, districts, objects, and sites. There have been 350 archaeological sites, roughly 21 percent of the state-registered sites in Bexar County, identified on the installation, with 24 of these being eligible or potentially eligible for listing in the National Register of Historic Properties (NRHP). These sites include prehistoric camp sites, military bunkers and trenches, and historic farmstead-related sites. There is also one potential Cantonment Historic District, which is considered NRHP-eligible, although it has not been formally listed. The Cantonment Historic District includes 40 buildings and 32 landscape features.

Please see next page.

SECTION 3



Compatibility

Compatibility, in relation to military readiness, can be defined as the balance or compromise between community needs and interests and military needs and interests. The goal of compatibility planning is to promote an environment where both entities can coexist successfully. A number of factors influence whether community and military plans, programs, and activities are compatible or in conflict. For this Joint Land Use Study (JLUS), a list of 24 compatibility factors was used to characterize local issues (see text box at the bottom of this page). In the following discussion, these compatibility factors have been divided into three broad categories: man-made, natural resources, and competition for scarce resources.

Man-Made

1. Land Use
2. Safety Zones
3. Vertical Obstruction
4. Local Housing Availability
5. Infrastructure Extensions
6. Anti-Terrorism / Force Protection
7. Noise
8. Vibration
9. Dust
10. Light and Glare
11. Alternative Energy Development
12. Air Quality
13. Frequency Spectrum Impedance and Interference
14. Public Trespassing
15. Cultural Sites
16. Legislative Initiatives
17. Interagency Coordination

Natural Resources

18. Water Quality / Quantity
19. Threatened and Endangered Species
20. Marine Environments

Competition for Scarce Resources

21. Scarce Natural Resources
22. Land, Air, and Sea Spaces
23. Frequency Spectrum Capacity
24. Ground Transportation Capacity

Note: ● Denotes compatibility factors that are not an issue at Camp Bullis.

Methodology of Evaluation

The JLUS evaluation approach consisted of a comprehensive and inclusive discovery process targeted to the key stakeholder issues which could directly or indirectly affect the JLUS process and its implementation.

The discovery process entailed four major components:

- Researched existing information and reports,
- Conducted interviews and briefings with key stakeholders: Fort Sam Houston, Camp Bullis, City of San Antonio , and Bexar, Comal, and Kendall Counties, private property owners, developers, and others,
- Conducted an extensive field visit to Camp Bullis and the surrounding areas, and
- Conducted public meetings where comments and input were collected.

During the preparation of the Camp Bullis JLUS, the public, the Executive Committee (EC), and the Advisory Committee (AC), assisted the Matrix Team in working through all 24 factors to identify, describe and prioritize the extent of existing and potential future compatibility issues that could impact lands within or near the study area. At the initial workshops and public meetings during the JLUS process, these groups identified the location and type of compatibility issues they thought existed today or could occur in the future. Other issues were also added by the Matrix Team based on their professional evaluation of existing information. When reviewing this information, it is important to note the following:

- This section provides a general technical background on the issues discussed based on the availability of secondary source information. The intent is to provide an adequate context for awareness, education and input by all stakeholder interests. As such, it is not designed or intended to be utilized as an exhaustive technical evaluation of existing or future conditions within the study area.
- Of the 24 standard compatibility factors, 8 factors were determined by the JLUS committees not to be an issue for this area (#4: Local Housing Availability, #6: Anti-terrorism/Force Protection, #9: Dust, #11: Alternative Energy Development, #12 Air Quality, #15: Cultural Sites, #20: Marine Environments, #21: Scarce Natural Resources).
- The factors presented in this section represent a consolidated list of issues as determined by the EC and AC after consideration and discussion of all the issues identified throughout the duration of this process.

The three criteria used to evaluate the identified issues included current impact, issue location, and potential impact. Each criterion was assessed to determine the overall compatibility concern for each of the identified issues.

The criteria utilized for this assessment included the following:

Current Impact. Each issue was rated based on its current impact to sustainability of either the installation or a local jurisdiction. Issues posing the most extensive operational constraints or community concerns were identified as the highest priority.

Location. This criterion measures the proximity of each issue in relation to activities occurring on the installation or within local jurisdictions. Issues occurring on or near the installation or local

communities are often more critical than those occurring remotely or in areas more distant from operational activities. Challenges that were located inside the JLUS study area and were presently occurring were considered significant. Challenges located inside the JLUS study area with the potential to occur, or located outside the JLUS study area and presently occur, were rated important. Challenges located outside the JLUS study area with minimal or no potential of occurring were considered very low priority.

Potential Impact. Although an issue may not present a current threat to the installation or the community, it may possess the ability to become an issue. Should conditions change, adjacent and or/proximate development increase, or other factors become apparent, new conflicts with the existing or future missions and operational activities at Camp Bullis could arise. Issues were rated based on their future potential.

3.1 Loss or Reduction of Operations and Missions

Camp Bullis, like many other military installations surrounded by growing communities, has already experienced the loss and reduction of operations and missions as a result of civilian encroachment. In March 2008, the two Explosive Ordnance Disposal (EOD) units stationed at Fort Sam Houston were reassigned to Fort Hood, approximately 100 miles to the northeast. The units that were relocated included the 797th Ordnance Company and the 79th Ordnance Battalion. Even though both units were stationed at Fort Sam Houston, they conducted all of their training at Camp Bullis. In total, 82 personnel were relocated. The Army's intention was to reorganize the EOD units, which increased the number of EOD units at Fort Hood to four.

The Fort Sam Houston Public Affairs Office and Camp Bullis Installation Manager has received many noise complaints and also one claim that a controlled detonation on Camp Bullis had damaged window seals on an off post residence. The claim was not validated and was denied. The continuing constraints placed on training and the reduction of operational parameters at Camp Bullis were the primary reasons for the EOD units' relocation. The increased restrictions were the direct result of complaints of noise and annoyance from people located off-post. Over the past several years, the training units have had to decrease their allowable ordnance quantity per detonation from 200 pounds to 50 pounds, and eventually to only 25 pounds. These reductions have severely impacted Army personnel training objectives. Extra coordination was also required to perform demolitions on weekends and after hours. The operational restrictions affected the realism and ability to meet training requirements. Fort Hood was identified as an advantageous location based on its ability to augment its existing EOD units. It also presented enhanced flexibility for training and operations due to its rural setting and minimal amount of development located in proximity to the installation.



Explosives ordinance detonations

Not only did Camp Bullis lose a training mission, but it also lost more than 80 key personnel that worked with Military Support to Civil Authorities (MSCA), which generally consists of support during natural disasters, special security events, and man-made incidents, which have evoked a presidential or state

emergency declaration. According to DOD Directive 3025.1, January 1993, the military may provide immediate response such as emergency clearance of debris, rubble, and explosive ordnance from public facilities and other areas to permit rescue or movement of people and restoration of essential services. The Fort Sam Houston EOD units provided MSCA with support for explosives readiness in San Antonio and the south Texas area.

Thus, not only was the military negatively impacted by the relocation of both EOD units, but also civilian communities, which no longer had the capabilities of the two EOD units for MSCA support. Consequently, Camp Bullis must now rely solely on a much smaller and less capable Air Force EOD team stationed at Lackland Air Force Base (AFB), approximately 15 miles to the south, to dispose of ordnance found on-site.

Although not as recent as the EOD relocation, another lost training capability at Camp Bullis was .50 caliber machine gun training. These heavy caliber rounds can be loud and contain tracers that produce lighted trails as they are fired, typically one tracer round for every five rounds. The tracers help the person firing the weapon locate where the rounds are impacting. Complaints were lodged by aircraft pilots flying into San Antonio International Airport who saw the tracer rounds from the air and became concerned. At night, the tracers can be bright and, consequently were perceived as safety issues by the civilian pilots. As a result of these noise and safety complaints, .50 caliber machine gun training was curtailed at Camp Bullis in the early 1990s.

Other existing missions and operations have also been affected at Camp Bullis. Several restrictions have been put in place for weapons firing due to noise and safety issues. For example, the Convoy Live Fire Range (Range 19) on the north side of the impact area supports only small caliber weapons firing rather than .50 caliber firing (vehicle mounted) which would be a component in actual combat operations. This range has adjusted training flexibility due to encroachment, which negatively impacts the training realism necessary to prepare soldiers to operate effectively in current U.S. military combat operations.



Vehicle mounted .50 cal machine gun in Iraq

Another major hindrance to training is the presence of endangered Golden-cheeked Warbler habitat on Camp Bullis. The Combined Arms Collective Training Facility, Rappel Tower in Training Area 17, and Military Operations in Urban Terrain (MOUT) in Training Area 25 may be restricted from expanding in the future due to the presence of Golden-cheeked Warbler habitat. Moreover, the most significant restriction that Warbler habitat causes is the inability to thin trees in training areas. Many areas on Camp Bullis are now so thickly vegetated that they are difficult to use for field training.

The goal of this JLUS document is to provide a tool for local communities, Fort Sam Houston, and Camp Bullis in an effort to work together in the protection of military operational objectives. If Camp Bullis continues to be constrained by encroachment, eventually more operations may be significantly curtailed or halted, and the installation could cease to be a viable facility upon which to conduct military training. It is especially important to address these issues in their infancy to allow for the opportunity of mission enhancement and resulting personnel additions that could accrue to Camp Bullis.

3.2 Man–Made Compatibility Factors

For the Camp Bullis JLUS, 11 of the 17 man-made compatibility factors were identified as producing issues to be addressed among the Camp Bullis and surrounding community stakeholders. Man-made factors are those that are generated by community development which conflict with military activities. These conditions may also be generated by the military that encroach upon nearby communities. In either case, these factors may not only impact military readiness, but also a community's quality of life.

1 Land Use

Definition:
The basis of land use planning relates to the government's role in protecting the public's health, safety, and welfare. Local jurisdictions' general plans and zoning ordinances can be the most effective tools for avoiding or resolving land use compatibility issues. These tools ensure the separation of land uses that differ significantly in character. Land use separation also applies to properties where the use of one property may impact the use of another. For instance, industrial uses are often separated from residential uses to avoid impacts related to noise, odors, lighting, and traffic.

Land use planning for property surrounding military installations is similar to the process used to evaluate other types of land uses. For instance, local jurisdictions typically consider compatibility issues such as noise when locating residential developments near commercial or industrial areas. As the land between the municipality and the military installation is sold and developed, many facets of both entities are affected. It is immaterial whether the proposed development is commercial, industrial, or residential. New residents, tenants, or building owners are typically not fully aware of the implications of locating in close proximity to an active military installation or training area.

Many of the issues related to land use compatibility raised by the public, the Executive Committee (EC), and the Advisory Committee (AC) were associated with existing or proposed development plans located near Camp Bullis. Land uses may be considered incompatible with military installations and their operations based on many factors. Among the most common factors causing incompatibility with military airfield and weapons training installations are the high levels of noise created by aircraft and firing ranges, heights of civilian structures near the installation, as well as off-installation light pollution that negatively impacts the use of night vision devices (NVD) for military air and ground training. The development of land uses incompatible with the installation's military mission threatens that installation's continued existence.

Between June 2008 and February 20, 2009, approximately 40 comment letters have been submitted by Fort Sam Houston representatives on behalf of Camp Bullis raising light, aquifer, karst invertebrate, and Golden-cheeked Warbler concerns associated with proposed developments. The intent of these comment letters was to voice concerns about the potential impacts of development on threatened and endangered species' habitats and to request that surveys be conducted and submitted to the U.S. Fish and Wildlife Service (USFWS) for possible action. The letters did not claim to have actual knowledge of damage to these habitats.

According to Fort Sam Houston, approximately one dozen developers' representatives have replied stating they would comply; however, according to the USFWS, not a single developer has transmitted an endangered species survey in to USFWS regarding these developments. Military representatives have identified several recurring compatibility issues of concern, including:

- developments located within a three-mile Camp Bullis light buffer zone that are expected to produce increased lighting that would negatively impact NVD training;
- the potential displacement of the endangered Golden-cheeked Warbler from its current habitat onto Camp Bullis, may reduce the amount of available installation land for training;
- disruption of endangered karst invertebrate species habitat, which would also increase restrictions on and availability of training lands on Camp Bullis; and
- impacting lands above the Edwards Aquifer Contributing and Recharge Zones.

The concerns raised by Camp Bullis representatives about the impacts of development on the karst invertebrate habitat in the vicinity of the installation are supported by the USFWS karst experts. According to these experts, unlike the Golden-cheeked Warbler, karst fauna regions do not interact with one another. Consequently, the baseline for that karst species decreases when karst invertebrate habitat is modified in such a way so that it is no longer suitable to support the listed karst species. This causes the remaining karst invertebrate populations to become all the more important to protect biologically. If karst invertebrate habitat outside of Camp Bullis is made unsuitable to support the species, the installation's karst habitat would, by default, become more valuable. This would result in the potential increase of restrictions to training activities or available land within the installation's boundaries.

The letters also list specific steps that developers can take to address the noted compatibility concerns. The following is a list of developments for which Fort Sam Houston representatives have sent letters to the City of San Antonio, as of November 30, 2008.

- **Arthur Tract Master Development Plan (MDP),** a 113-acre development located less than two miles west of Camp Bullis, concerned with increased lighting issues affecting NVG training.
- **Balcones Crossing**, a 43.1 acre development approximately three miles west of the northern portion of Camp Bullis, concerned with Golden-cheeked Warbler endangered species displacement.
- **Boerne Stage II MDP-Planned Unit Development (PUD),** a 270-acre development about two miles west of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, , and increased lighting that could affect NVG training.
- **Brenthurst at the Dominion**, a 35-acre development about one-half mile west of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Classen Tract**, a 185-acre tract immediately adjacent to the eastern edge of Camp Bullis, concerned with noise created from aircraft and weapons firing operations, safety issues associated with aircraft flight training, displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, increased traffic volumes on Blanco Road, and increased lighting that could affect NVG training.

- **Cresta Bella MDP**, a 367-acre tract about one and one-half miles west of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, increased lighting that could affect NVG training, and increased traffic volumes on I-10 and Camp Bullis Road.
- **Diamond T Ranch**, a 27-acre development approximately three miles east of Camp Bullis, concerned with destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Dominion Panhandle PUD**, a 43-acre development about one-half mile west of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Dym Tract or Highland Estates**, a 184-acre MDP about two miles east of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Hidden Canyon**, a 128-acre MDP approximately one and one-half miles east of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Kinder Northeast Unit-2 PUD**, a 14-acre development about three miles east of Camp Bullis, concerned with increased lighting that could affect NVG training.
- **Lost Creek III**, a 128-acre MDP approximately one mile east of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers and increased lighting that could affect NVG training.
- **Main Event (also known as Snecker Industrial Park)**, a 14.3-acre development approximately two and one-half miles south of Camp Bullis, concerned with the destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Moretti Subdivision**, a 32-acre MDP over three miles east of Camp Bullis, concerned with displacement of endangered Golden-cheeked Warblers, and destruction of endangered karst species habitat.
- **Rialto Village**, an 18-acre development approximately one mile west of Camp Bullis, concerned with increased lighting that could affect NVG training.
- **Silverado Hills Units 2 and 4**, a 12-acre development about a mile east of Camp Bullis, concerned with increased lighting that could affect NVG training.
- **Sonoma Verde MDP Amendment Unit 5 and 8**, a 180-acre development about four miles west of Camp Bullis, concerned with the displacement of endangered Golden-cheeked Warblers, and destruction of endangered karst species habitat.
- **Sonterra 281 Plaza**, a 21-acre development about three miles east of Camp Bullis, concerned with the destruction of endangered karst species habitat, and increased lighting that could affect NVG training.
- **Steubing Ranch**, a 651-acre MDP less than three miles east of Camp Bullis, concerned with the displacement of endangered Golden-cheeked Warblers, destruction of endangered karst species habitat, and disruption to the Edwards Aquifer Recharge Zone, and increased lighting that could affect NVG training.
- **Summerglen Unit 5A-4a**, a 9.7-acre development approximately three miles east of Camp Bullis, concerned with destruction of endangered karst species habitat.

- **Tuscany Heights School**, a 23-acre development about three miles east of Camp Bullis, concerned with the displacement of endangered Golden-cheeked Warblers, and destruction of endangered karst species habitat.
- **Willis Ranch Unit 1**, a 25.2-acre development approximately three miles east of Camp Bullis, concerned with the displacement of endangered Golden-cheeked Warblers.

The letters summarized above can be reviewed in their entirety in Appendix C.



New home being built near Camp Bullis

Approximately 40 percent of Camp Bullis is surrounded by the incorporated area of the City of San Antonio, and the unincorporated areas of Bexar County accounts for another 35 percent of parcels adjacent to the installation's fence line. Approximately 21.5 percent of the installation border is comprised of unincorporated Comal County lands, while the remaining 3.5 percent is bordered by the City of Fair Oaks Ranch. The Extraterritorial Jurisdiction (ETJ) of San Antonio almost completely surrounds Camp Bullis. In terms of existing areas with some land use controls, the jurisdictions with their related ETJ encompass over 90% of the lands surrounding Camp Bullis. However, it is difficult to regulate land use within county land or the ETJ, as the City has limited regulatory authority. This poses a significant issue, particularly when attempting to prevent incompatible land uses from locating in areas that would encroach on the military mission. Compatibility issues can include buildings located under aircraft flight paths or buildings sited too close to weapon firing ranges. A significant amount of the land on the western and northern sides of Camp Bullis remains undeveloped, and, under current legislation as of March 1, 2009, placing restrictions on those lands could be considered a taking and potentially subject to legal challenge.

Fort Sam Houston has developed a list of six priority areas (areas of concern), based in part on recommendations from the Army Compatible Use Buffer (ACUB) program that, if developed, could be incompatible with Camp Bullis operations. Most of these areas were identified in the ACUB program, however, these boundary parcels will probably be out of reach of ACUB funding due to their high cost per acre. The justifications for the selection were included in the ACUB as important lands adjacent to Camp Bullis at risk for potentially incompatible development. Figure 3-1 shows the areas of concern in relation to Camp Bullis. Areas 1 through 3 identify approximate boundaries, and as such, would require additional study to precisely define those areas on a map.

- Area 1 is approximately 520 acres at the Steins Ranch and Bible Fellowship tract, located on the southern border of Camp Bullis, close to the firing ranges. Development of houses on this land would likely result in the military receiving constant noise complaints associated with the use of Camp Bullis' small arms ranges.
- Areas 2 and 3 consist of roughly 550 acres adjacent to the installation's northern and northeastern boundaries, respectively. Currently the land is used for farming or is native forest. If development were to occur in these areas, a portion would be located under the Combat Assault Landing Strip (CALS) approach and departure routes; consequently, this would pose noise and safety issues.

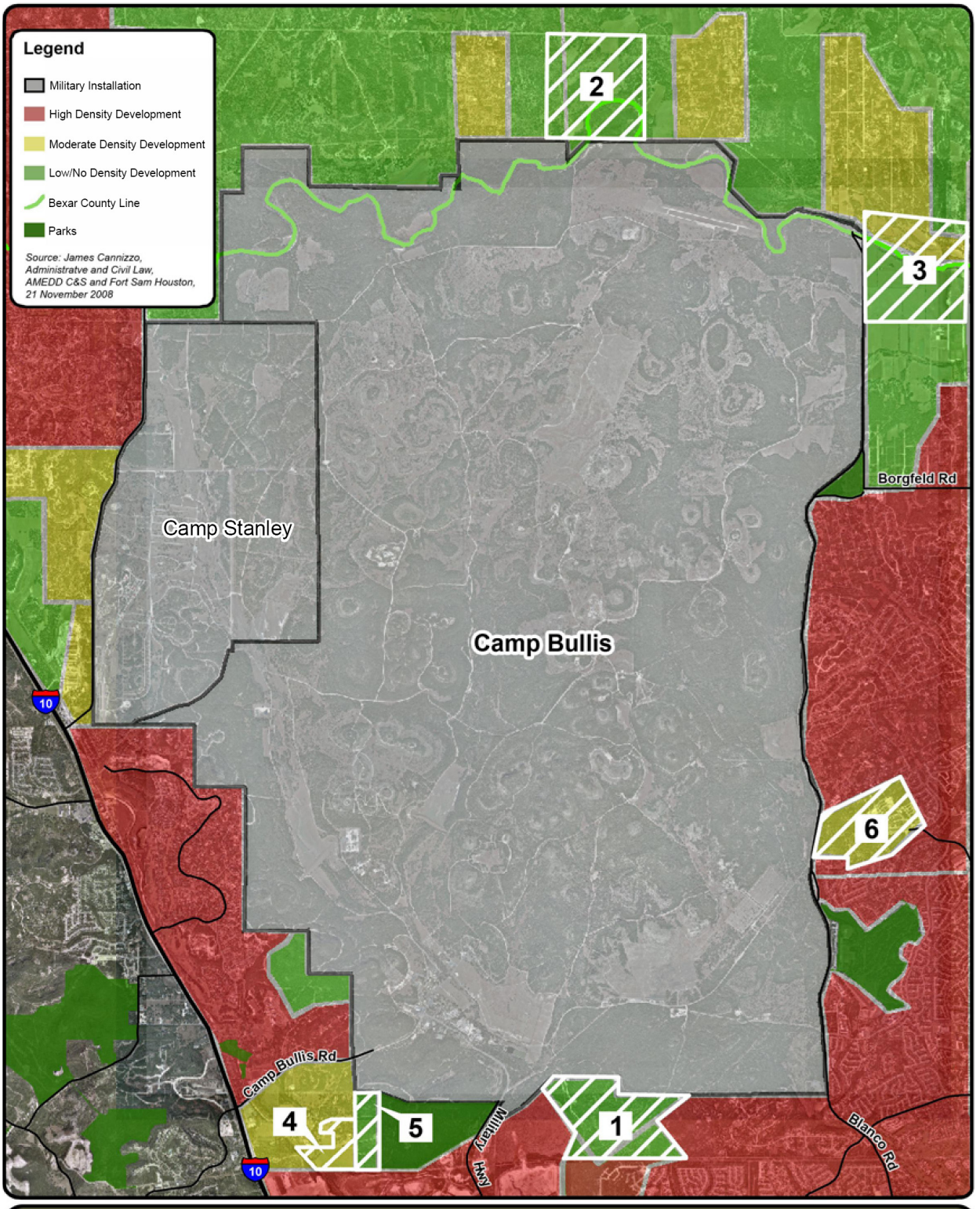


Figure 3-1
Camp Bullis Areas of Concern

- Areas 4 and 5 are the 106-acre Rim and 105-acre McDonough tracts, located adjacent to Maneuver Area 8B in Camp Bullis' southwest corner. This is a location where a large amount of field training occurs, including night training. The primary issue to be addressed is incompatible lighting and light pollution negatively affecting night operations.
- The final area (Area 6) is the approximately 185-acre Classen tract, roughly 2,000 feet east of Camp Bullis firing ranges and adjacent to the installation boundaries. Noise from the firing ranges would generate noise complaints if this area were to have incompatible development placed on it.

In addition to the areas of concern identified by Army representatives, attention must be given to areas where the potential exists for residential and other incompatible development in proximity to Camp Bullis. Figure 3-2 illustrates the areas within the City of San Antonio with residential potential. These areas are based on current zoning, and other areas near Camp Bullis could become potential residential development if rezoning were to be approved.

Although it is a secondary issue of concern for these tracts, some potential Golden-cheeked Warbler habitat has been identified on parts of these tracts. A large majority of area 1 and portions of some of the other areas provide potential Golden-cheeked Warbler habitat, and if developed, could reduce the amount of available habitat available outside of Camp Bullis. The reduction of habitat outside of the installation that might have acted as a buffer could cause birds to relocate to Camp Bullis instead, which could further reduce the amount of available training land on the installation.



Houses in close proximity to the Camp Bullis installation fence line

Staff at Fort Sam Houston have identified specific examples of the minimum types of land use that are considered incompatible for lands around Camp Bullis. Additionally, Fort Sam Houston and Camp Bullis representatives indicate that no construction should be allowed within 150 feet of Camp Bullis' fence line. This distance is based on operational needs at Camp Bullis. For all lands located within one-half mile of Camp Bullis, compatible land uses would include agriculture, light industry, wilderness type parks, and very low density housing, consisting of one house per five acres. No schools, hotels, or stadiums should be allowed within this area. These restrictions should extend to a distance of one and a half miles from the following areas: lands adjacent to the ranges and training areas along the southern boundary of Camp Bullis, from the main gate to the southeast corner, lands adjacent to the CALS from the middle of the northern border, following the northeastern and eastern borders to Borgfeld Road. Adherence to these designated land uses would greatly reduce operational impacts to Camp Bullis associated with noise, safety, and security encroachment. However, they are not meant to identify all potential compatibility issues surrounding the installation, just lands adjacent to Camp Bullis. These proposed land uses would not be considered a taking since federal Endangered Species Act (ESA) requirements are not subject to the 25 percent Texas Real Property Rights Preservation Act 25 percent threshold. To ensure there is no taking, an individual analysis should be conducted on a case by case basis to validate that there is not a taking.

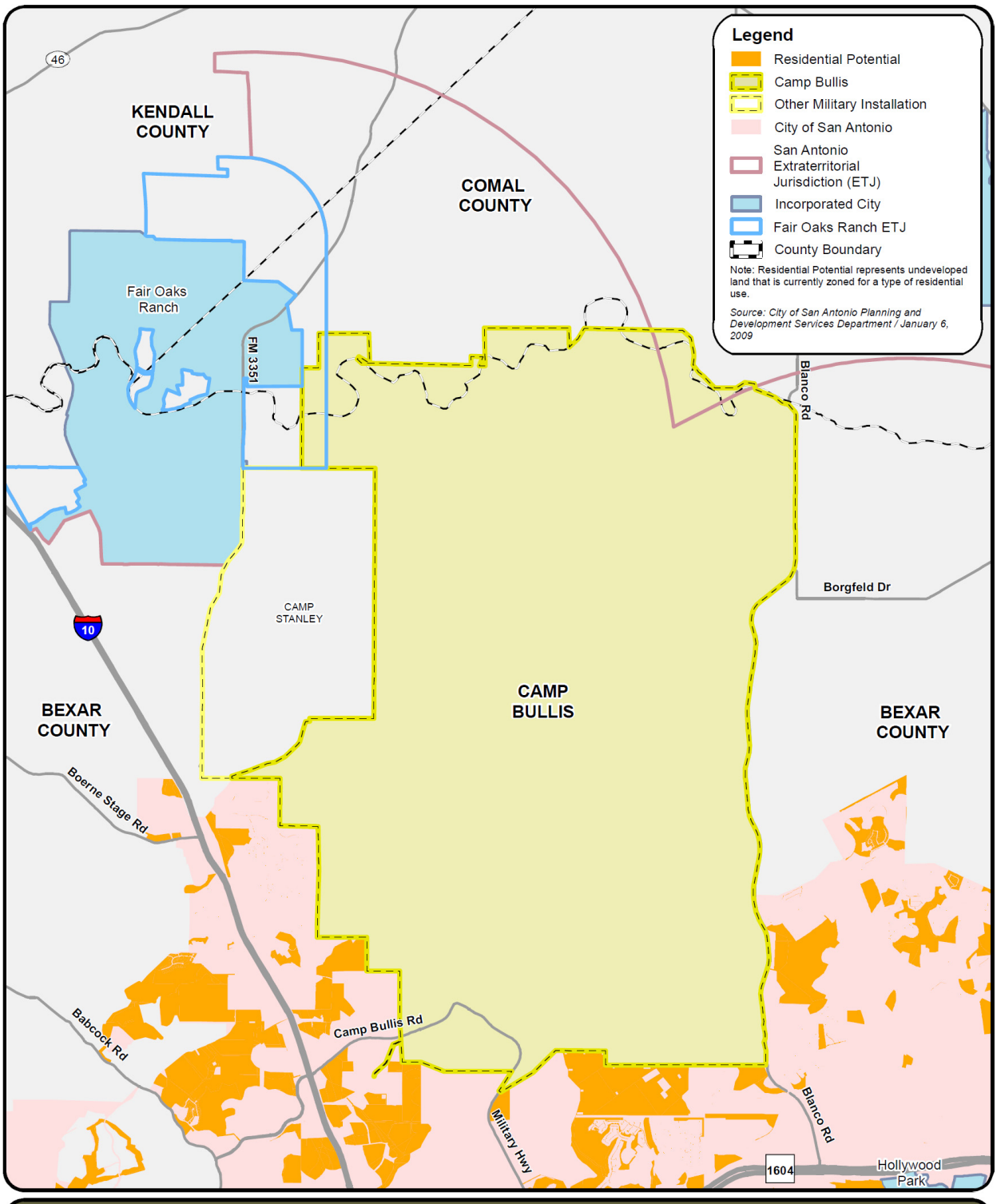


Figure 3-2
Compatibility Issues - Residential Potential

The limited ability for the three counties to regulate land use within their jurisdictions is a concern. Much of the land surrounding the installation, particularly to the north and east, is located within Bexar and Comal counties. Section 241.014 of the Texas State Local Government Code allows jurisdictions "to whose benefit an airport is used in the interest of the public or in which an airport owned or operated by a defense agency of the federal government or state is located" to create a Joint Airport Zoning Board (JAZB). As an entity, the board has the power to adopt, administer, and enforce compatible land use regulations within a statutorily defined area. As per statute, the area of authority can extend no farther than a rectangle bounded by lines located no farther than one and one-half statute miles from the centerline of an instrument or primary runway and lines located no farther than five statute miles from each end of the paved surface of an instrument or primary runway. Figure 3-3 presents the area of authority for the proposed JAZB as allowed under Texas State Statute.

2 Safety Zones

Definition:
Safety zones are areas in which development should be more restrictive in terms of use and reducing concentrations of people due to the higher risks to public safety. Issues to consider include aircraft accident potential zones, weapons firing range safety zones, and explosive safety zones.

Military installations often engage in activities or contain facilities that, due to public safety concerns, require special consideration by local jurisdictions when evaluating compatibility. The activities evaluated relative to this compatibility factor include aircraft hazard areas, weapons firing ranges, the Camp Bullis impact area, maneuver training areas, the potential for unexploded ordnance, and the storage of explosives. The close proximity of the CALS to the installation boundaries raises the awareness for compatibility relative to designated safety zones.

It is important to regulate land use near military airfields in order to minimize damage from potential aircraft accidents and to reduce air navigation hazards. To help mitigate potential issues, the Department of Defense (DOD) has delineated Clear Zones (CZ) and Accident Potential Zones (APZ) in the vicinity of airfield runways. The APZ is usually divided into APZ I and APZ II. For shorter runways, instead of designating APZ I and APZ II, only a single APZ Landing Zone (APZ-LZ) is identified. Each zone was developed based on the statistical review of aircraft accidents. Studies show that most mishaps occur on or near the runway, predominately along its extended centerline.



UH-60 Blackhawk crash

Located in the northeast portion of Camp Bullis, the CALS is the only working airfield for fixed-wing aircraft on the installation. It is approximately 3,500 feet long. Following construction in 1982, an environmental impact statement was conducted to address the concern expressed by local developers relative to the extent of the operations that would take place using the airstrip. The CALS was certified for use in 1986.

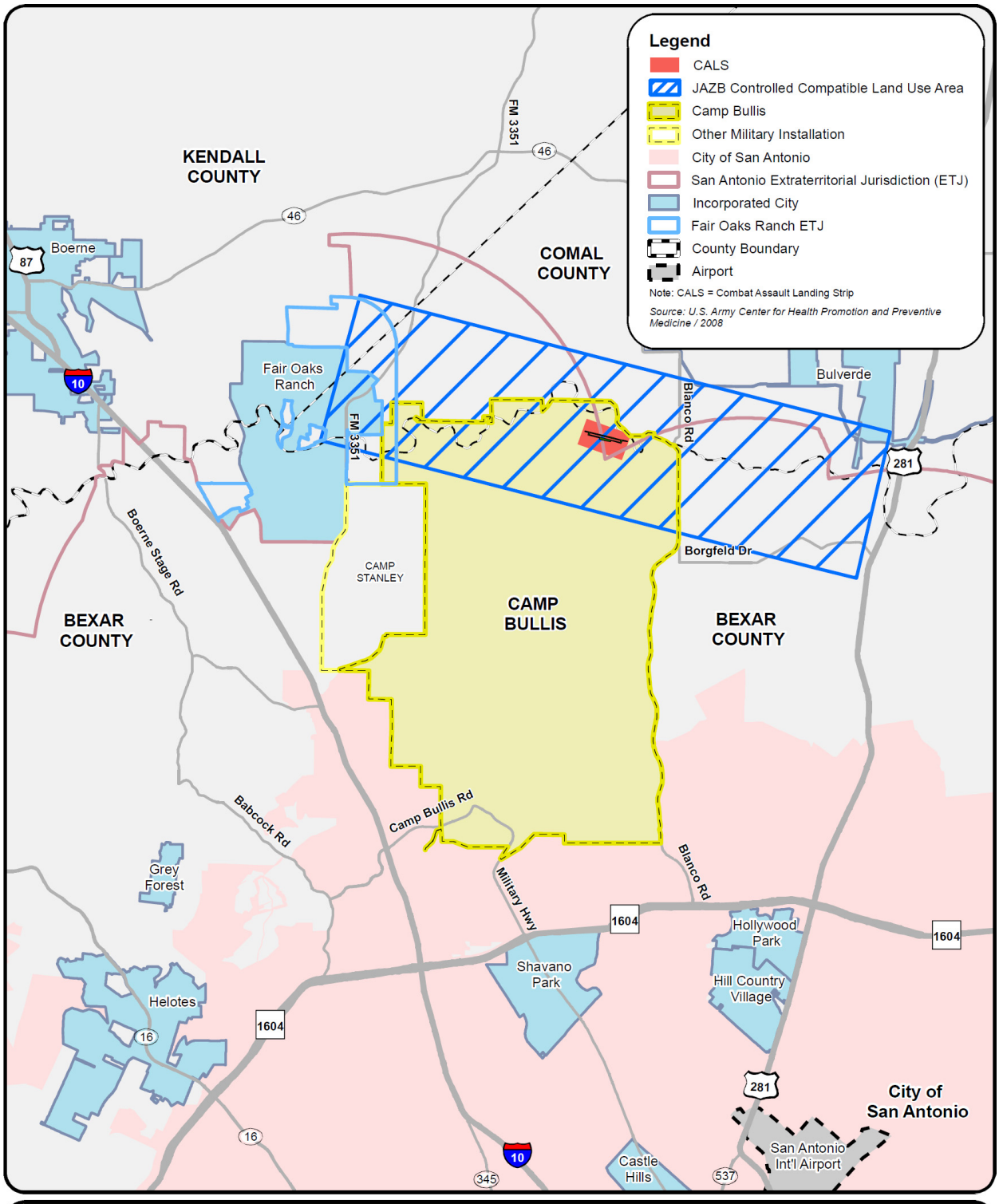


Figure 3-3
Potential JAZB Controlled Compatible Land Use Area

The CALS is currently used by Air Force C-130 aircraft; however, the airstrip has the capability to support C-17 aircraft. Both of these aircraft are designed to operate on rough, unimproved runways and are used at Camp Bullis in conjunction with parachute and assault landing training. The CALS is significantly shorter than a Class A or B (paved) runway, and as a result, the CZ and APZ-LZ associated with it are also smaller than those of larger paved runways. The CALS CZ is 500 feet long and does not extend past the installation's boundary. The APZ-LZ is 2,500 feet long and also does not extend past the boundaries of Camp Bullis. Figure 3-4 shows the extent of the current CZ and APZ-LZ, as well as the CZs and APZs that would be associated with the expansion of the CALS to a Class A or B runway.

Currently, compatibility issues have been minimal within these areas as they consist of forest and farmland. However, as development pressures increase, these areas could be converted to urban or suburban uses without adequate land use planning controls in place to protect vital operational areas. Among other problems that would arise from the development of land around the departure and landing areas, including the area where Dietz Elkhorn Road meets Blanco Road on the eastern installation boundary, is the issue of safety hazards from potential aircraft accidents. This can have further implications if the current CALS is upgraded to a Class A runway.

Class A runways are designed for lighter aircraft and are less than 8,000 feet long. The length and width of the CZ, APZ I, and APZ II of a Class A runway is quantified in Table 3-1. An upgrade of the CALS to a Class A runway would cause APZ I to extend about halfway past the boundary of Camp Bullis to the east, and APZ II would be located entirely off of the boundary to the east. Figure 3-4 illustrates the existing CALS CZ and APZ-LZ, while Figure 3-5 illustrates the runway, CZ, and APZs if CALS were upgraded to a Class A runway. Although there is possibility to upgrade the CALS to a Class A runway in the future, there is currently no projected timeframe for this to occur nor any plan to do so. The decision to upgrade would need to be preceded by an environmental study, community input, and probably by acquisition of easements in the parts of the new APZs that extend off-post.

Table 3-1. Class A Runway CZ and APZ Dimensions

Zone	Length	Width
Clear Zone	3,000 feet	1,000 feet
Accident Potential Zone I	2,500 feet	1,000 feet
Accident Potential Zone II	2,500 feet	1,000 feet

Source: United Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design, November 17, 2008

The DOD established the Air Installation Compatible Use Zone (AICUZ) study program in 1972. An AICUZ is similar to a JLUS, except that it only addresses compatibility issues associated with aircraft operations. The primary purpose of this program is to promote compatible land use between military airfields and surrounding communities to address safety and noise issues associated with aircraft operations. Although Camp Bullis does not have an AICUZ (since it is an Army installation) some of the strategies associated with an AICUZ can be used. One of the major topics that this study addresses is the type of land use that is allowed within a CZ or APZ. AICUZ studies usually include a very detailed list of the types of development allowed within the CZ and APZ, and Appendix B of this JLUS provides an overview of the major categories that are allowed and / or incompatible.

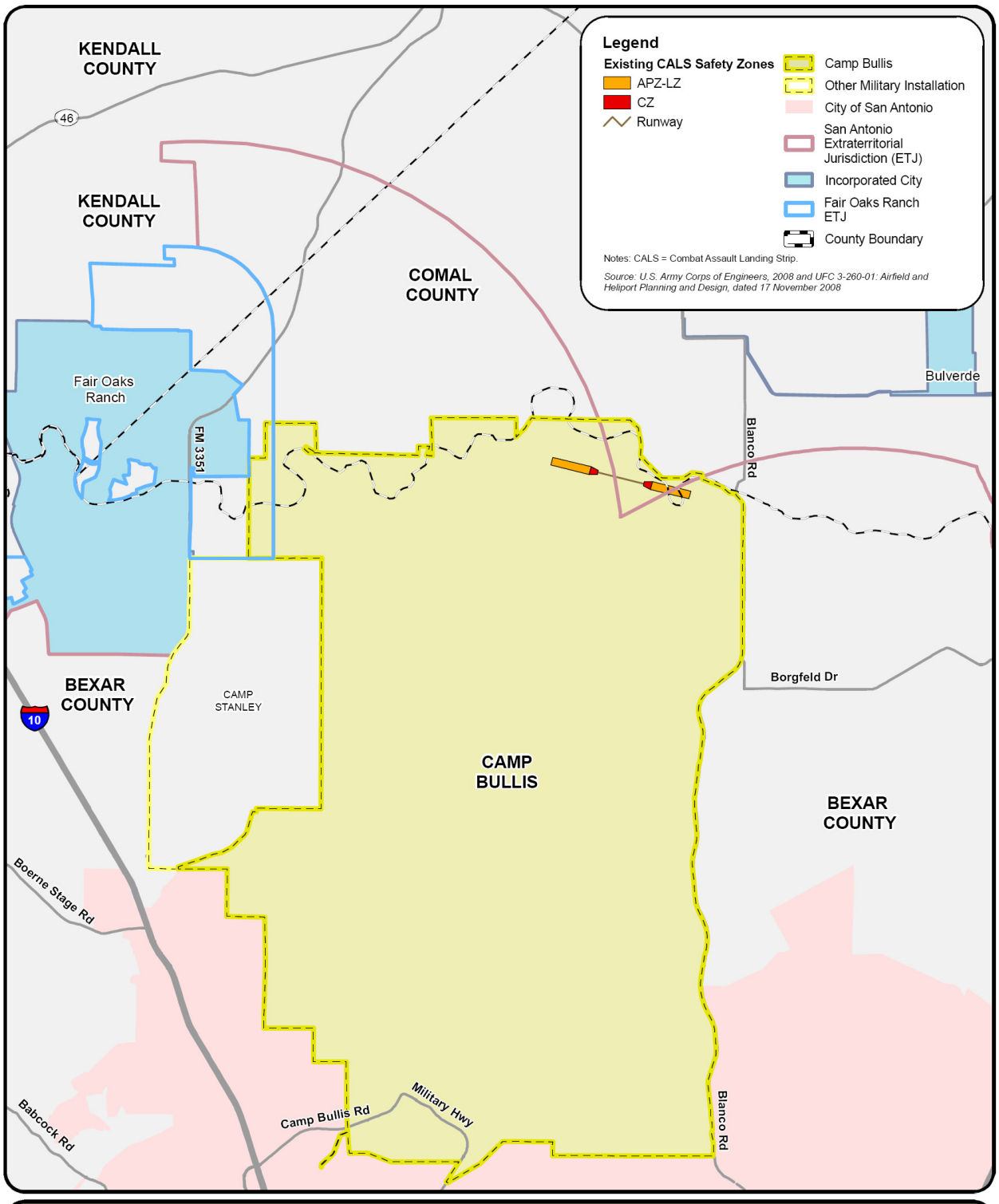


Figure 3-4
Existing CALS Safety Zones

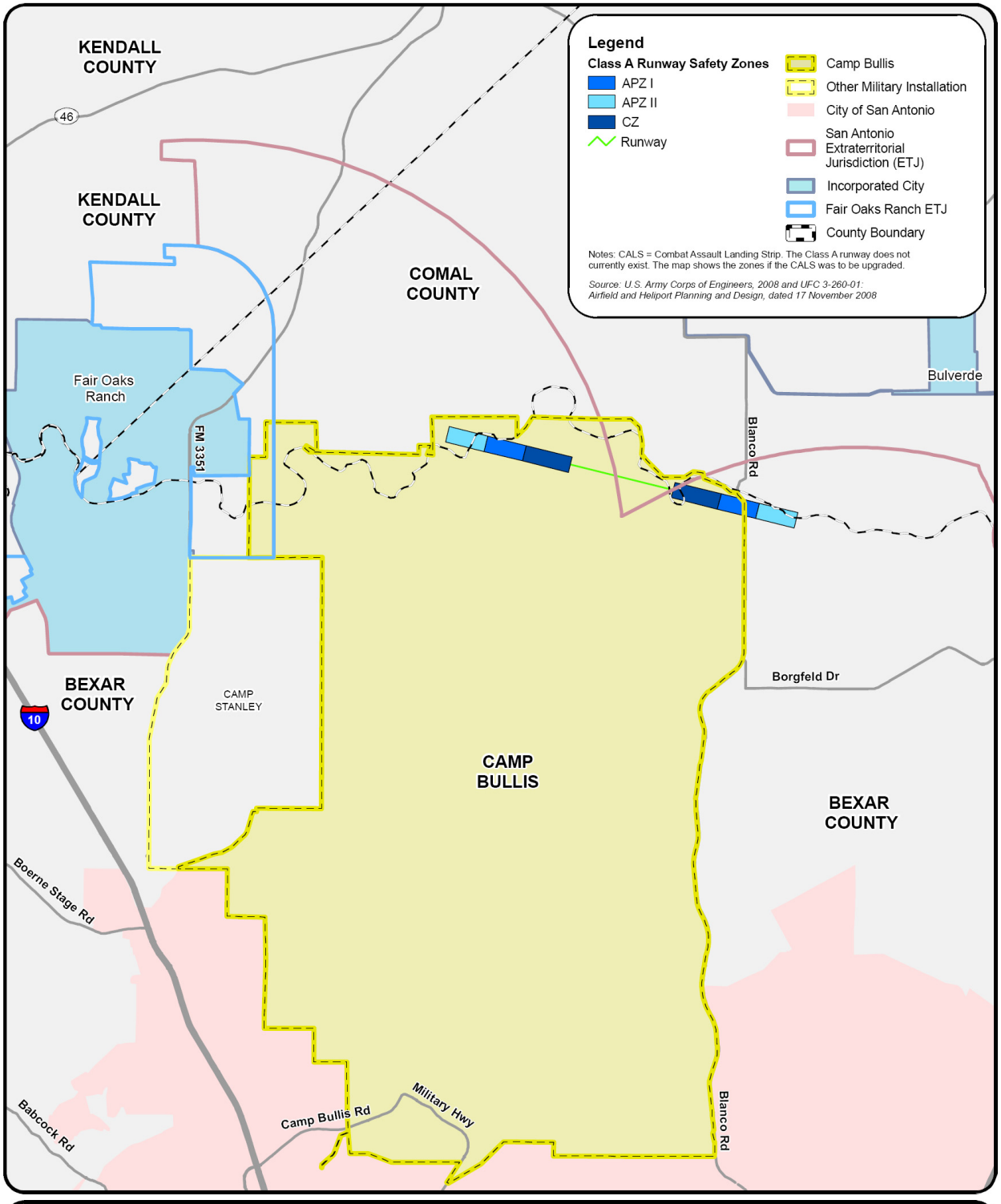


Figure 3-5
Potential Upgraded Class A Runway Safety Zones

The other issues associated with human safety within Camp Bullis are not as pronounced as aircraft-related concerns; however it is important to identify these issues. Firing ranges can be a safety concern, but careful steps are taken to ensure that rounds from live fire training are contained within the confines of the Camp Bullis impact area. The loss of .50 caliber training at Camp Bullis in the early 1990's was in part due to perceived safety issues by local residents and commercial pilots. Camp Bullis has been an active installation for decades, and so the possibility of finding unexploded ammunition or ordnance on-site exists, as well. The loss of EOD units in 2007 and 2008 further reduced the availability of personnel trained to remove such hazards. Safety at Camp Bullis is a very serious issue, and steps must be taken to ensure that concerns are addressed expeditiously for operations to continue in the future.

3 Vertical Obstructions

Definition:
Vertical obstructions are created by buildings, structures, or other features that may encroach into the navigable airspace used by military operations (aircraft approach, transitional, inner horizontal, outer horizontal, and conical areas, as well as military training routes), presenting a safety hazard to both the public and military personnel, potentially impacting military readiness.

Vertical obstructions can compromise the value of low-level flight training by limiting the areas where such training can occur. These obstructions can include a range of items from man-made, such as telephone poles and radio antennae, to natural, such as tall trees and landforms.

In relation to flight operations from an airport (military or civilian), vertical obstructions are addressed through compliance with Federal Regulation Title 14 Part 77, which establishes standards and notification requirements for objects affecting navigable airspace. Commonly referred to as Part 77 compliance, this regulation provides details to evaluate the potential for a vertical obstruction based on the elevation of the airfield, the height and resulting elevation of the new structure or facility, and the location of the structure or facility in relation to the airfield in question.

To determine when structures or facilities should be evaluated regarding vertical obstruction, Part 77 states the following requirements for notifying the FAA:

§77.13 - Any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:

- *Any construction or alteration exceeding 200 feet above ground level*
- *Any construction or alteration:*

  - within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet.

  - within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.

  - within 5,000 feet of a public use heliport which exceeds a 25:1 surface

- *Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the standards identified above.*
- *When requested by the FAA*
- *Any construction or alteration located on a public use airport or heliport regardless of height or location*

Further, Part 77 identifies the height at which an object may be considered an obstruction at a designated distance. An excerpt from Section 77.23 follows:

§77.23- Standards for determining obstructions.

- *(a) An existing object, including a mobile object, is, and a future object would be, an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:*

  (1) A height of 500 feet above ground level at the site of the object.

  (2) A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within three nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.

For additional information on Part 77, please see Appendix E.

As the area around Camp Bullis develops and urban growth moves onto the land surrounding the installation, new project proposals will need to be reviewed thoroughly to limit encroachment and to ensure compliance with Part 77. It is important to note that Part 77 compliance is not limited to buildings. Currently, there are no identified issues for vertical obstruction impacts to operations at Camp Bullis; however, as development is proposed in the study area, there is a potential for future issues to arise from structures that do not comply with Part 77 regulations. Figure 3-6 illustrates FAA Part 77 vertical obstruction compliance around the current CALS at Camp Bullis.

5 Infrastructure Extensions

Definition:
This factor identifies the extension or provision of infrastructure (roads, sewer, water, etc.) service to support land uses.

Infrastructure serves an important role in land use compatibility. On the positive side, infrastructure can enhance the operations of the installation by providing needed services, such as sanitary sewer treatment capacity and transportation systems. Infrastructure can also be an encroachment issue if enhanced or expanded infrastructure encourages growth into areas near the installation that would not be compatible with current or future missions.

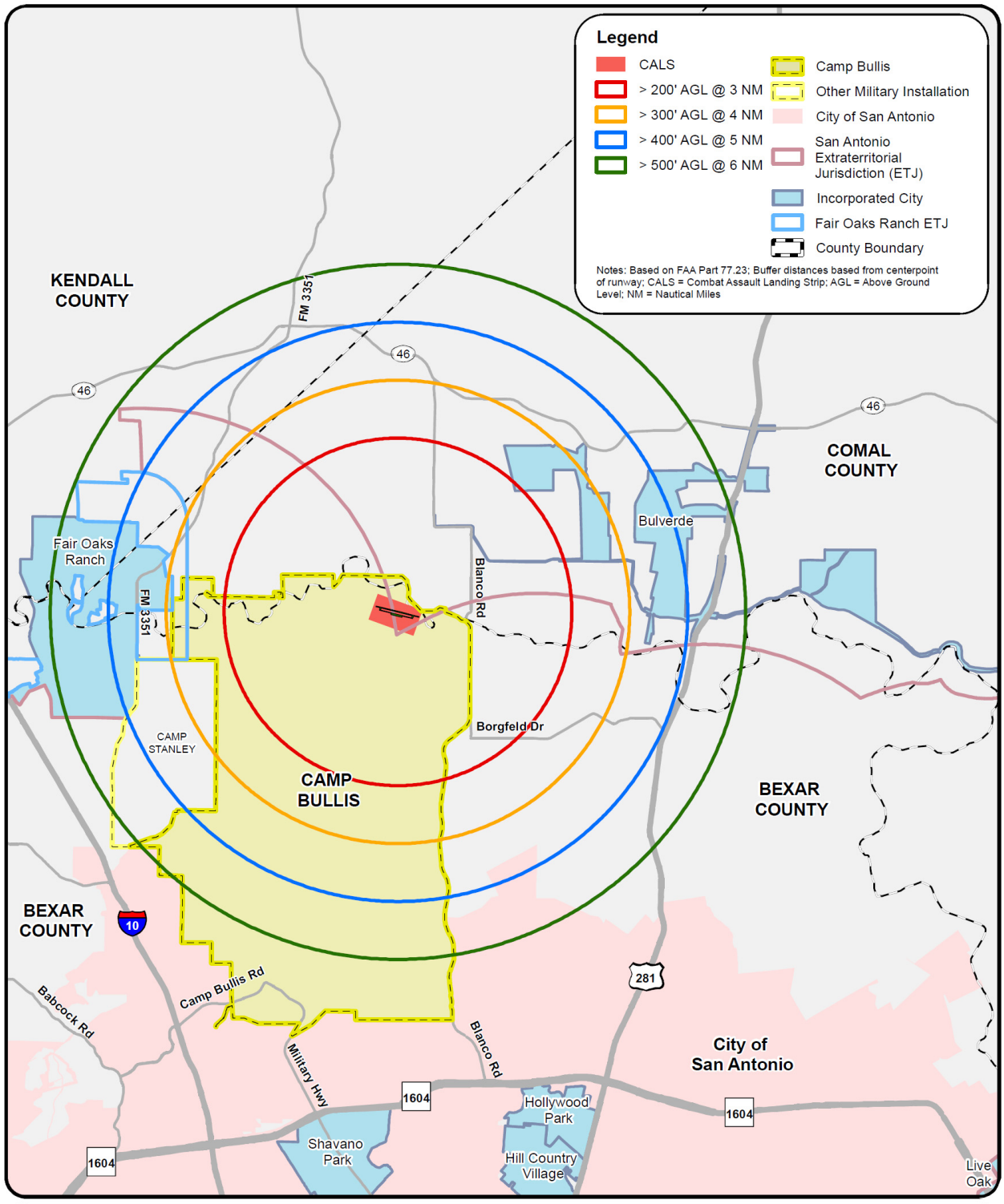


Figure 3-6
FAA Part 77 Vertical Obstruction Compliance

The extension or expansion of infrastructure to a military installation, or to areas near an installation, raises the issue of growth inducement. If infrastructure is extended toward Camp Bullis, growth may be directed to these areas, causing a potential conflict with sustaining military readiness. Through careful planning, the extension of infrastructure can serve as a mechanism to guide development into appropriate areas.

Comal County requires new subdivisions to have minimum lot sizes of one acre when public water is provided. Comal County requires new subdivisions to have minimum lot sizes of 5.01 acres when individual wells are needed. Kendall County requires a minimum lot size of one acre for subdivisions with access to either a public water system using groundwater or water transported from outside of Kendall County, and individual on-site sewage facilities. Furthermore, Kendall County requires a minimum three-acre lot where there is no community water or sewer available. Lots are exempt from the minimum size when public water is available and a community wastewater treatment system is in place. However, with the availability of additional water supply transported through a new east-west pipeline within the study area, the minimum lot size for these counties could be reduced in areas where it is currently restricted, which could then have an increased impact on military operations.

Historically, growth and development tends to follow major roads. The case is the same for areas around Camp Bullis. Development along the Interstate Highway 10 (I-10) and United States Highway (Highway) 281 corridors have greatly increased in the past several decades. There are several road improvements taking place within the JLUS study area that have the potential to impact transportation between Camp Bullis and Fort Sam Houston and Lackland AFB. San Antonio capital improvements project data was acquired and reviewed to identify any future projects that could potentially impact Camp Bullis. It was determined that there were no major projects underway or planned by the City that would impact operations at Camp Bullis, or the travel to and from the installation. However, the Alamo Regional Mobility Authority (RMA) and the Texas Department of Transportation (TxDOT) did include some projects that could potentially affect Camp Bullis.

The following is a list of projects underway by the Alamo RMA, which includes parts of San Antonio and Bexar County. The Alamo RMA has been provided the authority, by the Texas Transportation Commission, to evaluate and potentially increase roadway capacity through development of tolled and non-tolled lane projects within its system area.

The expansion of Highway 281 is currently on hold until an Environmental Impact Study (EIS) is conducted and approved; however, if completed, the project will add several new travel lanes to the highway. The limits for this project extend from Loop 1604 to the Bexar / Comal County line. This improvement could be a catalyst for additional development along its route, which could increase existing light pollution levels further impacting Camp Bullis night training operations. However, this project is located within five miles of Camp Bullis and so new developments would be subject to the San Antonio Dark Sky Ordinance to help reduce light impacts. The



Highway 281 endstate concept

current average daily traffic (ADT) count for Highway 281 is 32,000 to 92,590. The projected average daily traffic count for the year 2035 is 65,000 to 218,700. Expansion of Loop 1604 includes segments of the road from State Highway 151 to I-10 East and is associated with Highway 281 improvements. The existing ADT count for Loop 1604 is 23,310 to 106,180, while the projection for 2035 is 45,100 to 255,200 adt. Additional traffic along this corridor could increase travel time between Camp Bullis and Fort Sam Houston and Lackland AFB as it is one of the major roads used for transportation of troops between the installations.

The TxDOT is also performing several road improvements in the study area that could impact Camp Bullis. A 2.3-mile stretch of I-10 East, from south of Camp Bullis Road to south of Dominion Drive will result in a new overpass in the vicinity of Camp Bullis Road, as well as turnarounds on the north and south ends of the intersection. The $34.3 million project is expected to be completed by August 2010 and was 36 percent complete in October 2008. Another project in close proximity to Camp Bullis is the construction of an I-10 overpass over Dominion Drive, which will result in a single turnaround on its south end. The overpass is below hilltop grade at Dominion and should assist in relieving traffic congestion at I-10 and Boerne Stage Road. In total, the project extends 2.4 miles from Boerne Stage Road to Camp Bullis Road. The $20 million project is expected to be completed by February 2009. Both of these projects are close to Camp Bullis boundaries, including areas where night training takes place. Increased nighttime traffic may result in increased headlight activity, which could increase light pollution and negatively impact the use of NVDs by military pilots and ground personnel training on the installation.

TxDOT has a number of other major projects within the study area, particularly along the I-410 corridor, some of which will have positive impacts on the Camp Bullis mission. These projects will expand the number of existing lanes and are expected to improve traffic flow along the corridor. Military convoys from Lackland AFB use I-410 as part of the route to Camp Bullis, so increased capacity on the roadways is expected to reduce travel time. Figure 3-7 shows where the identified road improvement projects are taking place.

Other significant increases in traffic volumes are expected to occur in portions of the study area that could affect travel between Fort Sam Houston and Camp Bullis. A project is underway for I-35, from the Central Business District in downtown San Antonio northeast to the Bexar / Comal County line. Current average daily traffic counts for this highway range from 105,000 to 169,000, and the projected average daily traffic counts in 2025 are expected to range from 155,000 to 309,000. The TxDOT projected that the number of vehicles per day traveling along Military Highway, between Loop 1604 and the main gate at Camp Bullis, would increase from 3,500 in 2005 to 25,000 in 2020. The number of vehicles per day traveling between I-10 and Camp Bullis Road and the installation's alternate gate is expected to increase 267 percent, from 2,660 in 2005 to 10,000 in 2020.

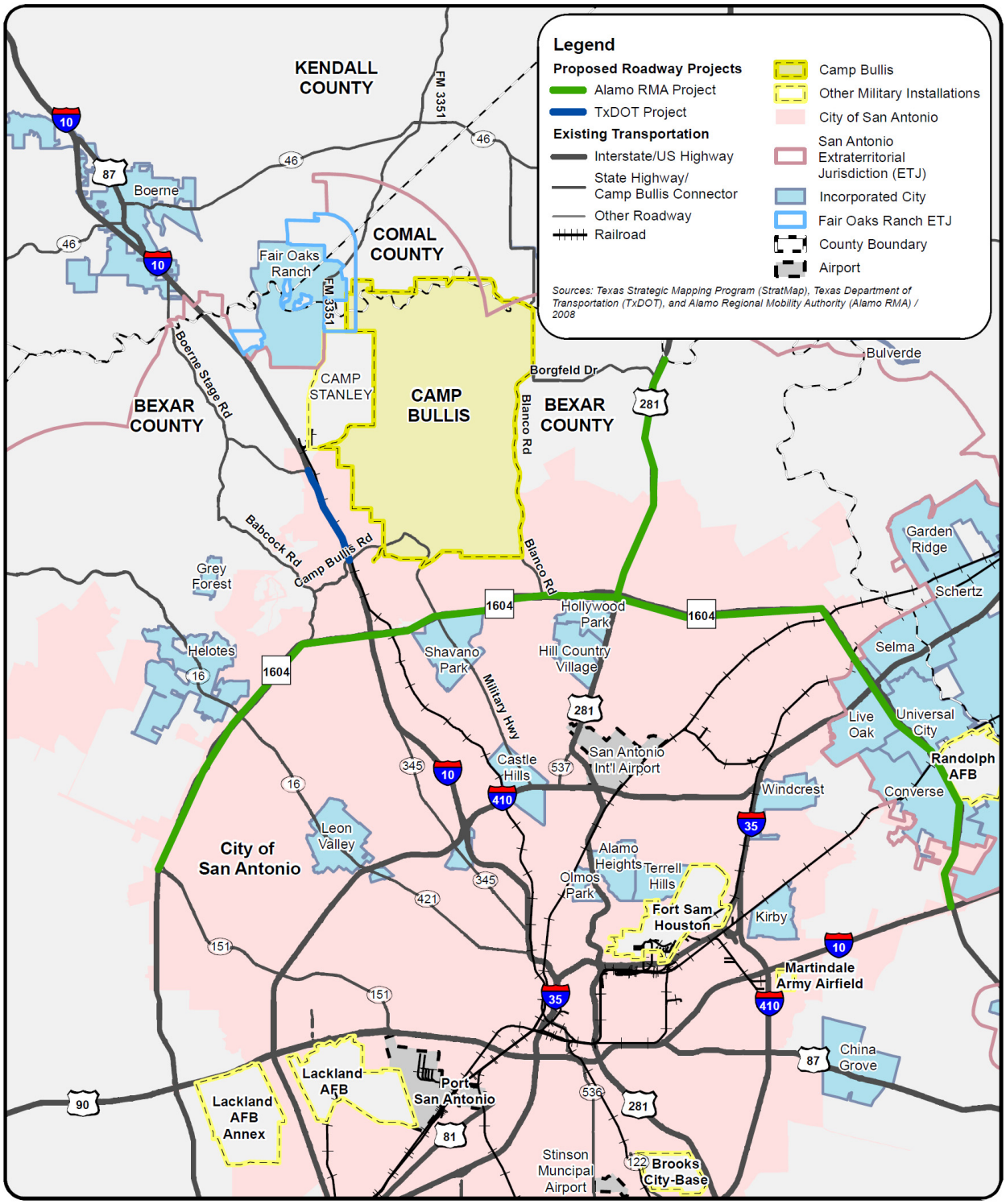


Figure 3-7
Potential Mission Impacts to Camp Bullis - Roadways

7 Noise

Definition:
Noise is based on the premise of sound, which is mechanical energy transmitted by pressure waves in a compressible medium such as air. More simply stated, sound is what we hear. As sound reaches unwanted volume, this is referred to as noise.

Camp Bullis is an Army training site where fixed-wing aircraft and helicopter operations, as well as live-fire ranges are the primary noise generators within the surrounding area.

Understanding Noise. Due to the technical nature of this resource topic and its importance to the JLUS process, this section provides a discussion of the characteristics of sound and the modeling process used to evaluate noise impacts. The following key terms are used to describe noise.

- **Ambient Noise.** The total noise associated with an existing environment, which usually comprises sounds from many sources, both near and far.
- **Attenuation.** Reduction in the level of sound resulting from absorption by the surrounding topography, the atmosphere, distance from the source, barriers, construction techniques and materials, and other factors.
- **A-Weighted Decibel (dBA).** The dBA is the most commonly weighted sound filter used to measure perceived loudness versus actual sound intensity. The human ear responds differently to frequencies. For example, the human hearing system perceives mid-frequency sounds as louder than low and high frequency sounds. To accommodate this condition when measuring sound levels, filters need to be installed into sound meters. The results are a more accurate measurement of sound for the human hearing system.
- **Day-Night Average Sound Level (DNL).** DNL represents an average sound exposure over a 24-hour period. During the nighttime period (10:00 p.m. to 7:00 a.m.), averages are artificially increased by 10 dB. This weighting reflects the added intrusiveness and the greater disturbance potential of nighttime noise events attributable to the fact that community background noise typically decreases by 10 dB at night.
- **Noise Contours.** Connecting points of equal noise exposure. Typically expressed in five dBA increments (i.e., 60, 65, 70, 75, etc.).
- **Sensitive Receptors.** Sensitive receptors are defined as locations and uses typically more sensitive to noise, including residential areas, hospitals, convalescent homes and facilities, schools, and other similar land uses.

Characteristics of Sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary by over one trillion times within the range of human hearing, a logarithmic loudness scale (i.e., dB scale) is used to present sound intensity levels in a convenient format.

Since the human ear is not equally sensitive to all frequencies within the entire spectrum, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting" written as dBA. The human ear can detect changes in sound levels of approximately three dBA under normal conditions. Changes of one to three dBA are typically noticeable under controlled conditions, while changes of less than one dBA are only discernable under controlled, extremely quiet conditions. A change of five dBA is typically noticeable to the general public in an outdoor environment. Figure 3-8 summarizes typical A-weighted sound levels for a range of indoor and outdoor activities.

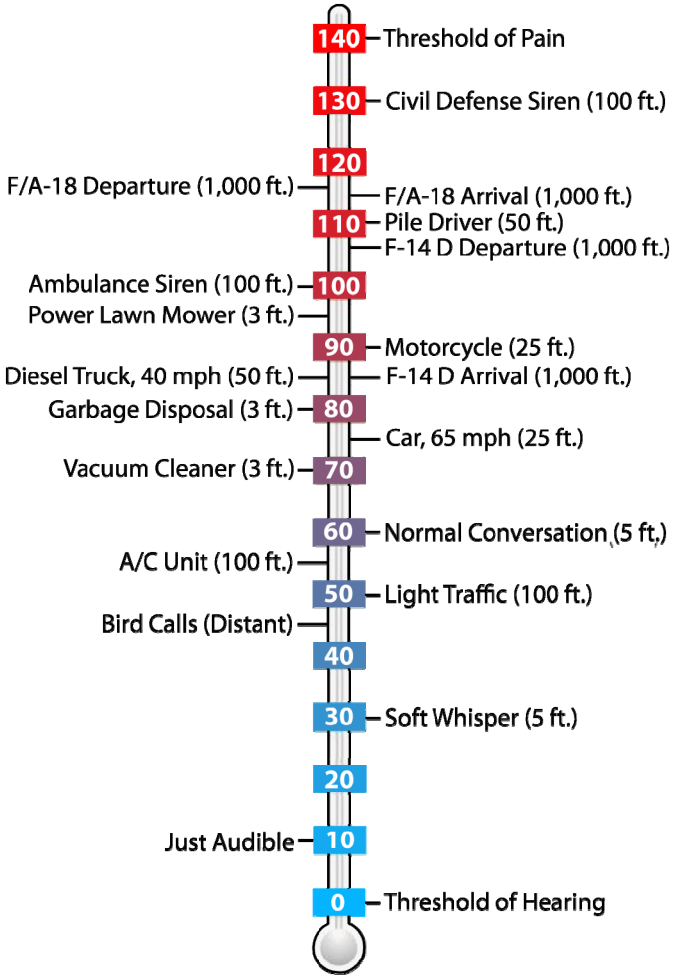


Figure 3-8. Sound Levels Comparison

Environmental noise fluctuates over time. While some noise fluctuations are minor, others can be substantial. These fluctuations include regular and random patterns, how fast the noise fluctuates, and the amount of variation. When describing noise impacts, it is common to review the average noise generated within an average day.

Aircraft Noise. For noise sources attributable to Camp Bullis, aircraft noise is the primary concern relative to compatibility planning. Many studies and reports have been developed regarding noise levels of aircraft operations at Camp Bullis, both for fixed-wing and rotary-wing aircraft. The analysis of airborne noise varies on the type of aircraft modeled, flight operations, training activities, flight frequency, and airspace. The most recent study concerning aircraft noise at Camp Bullis and Fort Sam Houston was published in January 2006 by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM). The study entitled *The Operational Noise Contours for Camp Bullis and Fort Sam Houston* provides noise contours as required by the National Environmental Policy Act (NEPA). The noise contours from the USACHPPM study are shown on Figures 3-9 through 3-12. The report states that annoyance levels typically begin when sound levels reach 70 dBA (see Table 3-2). Although this report is a useful tool, it does not completely capture how noise affects nearby communities because the equipment used to monitor noise was only used inside Camp Bullis, and not in the communities.

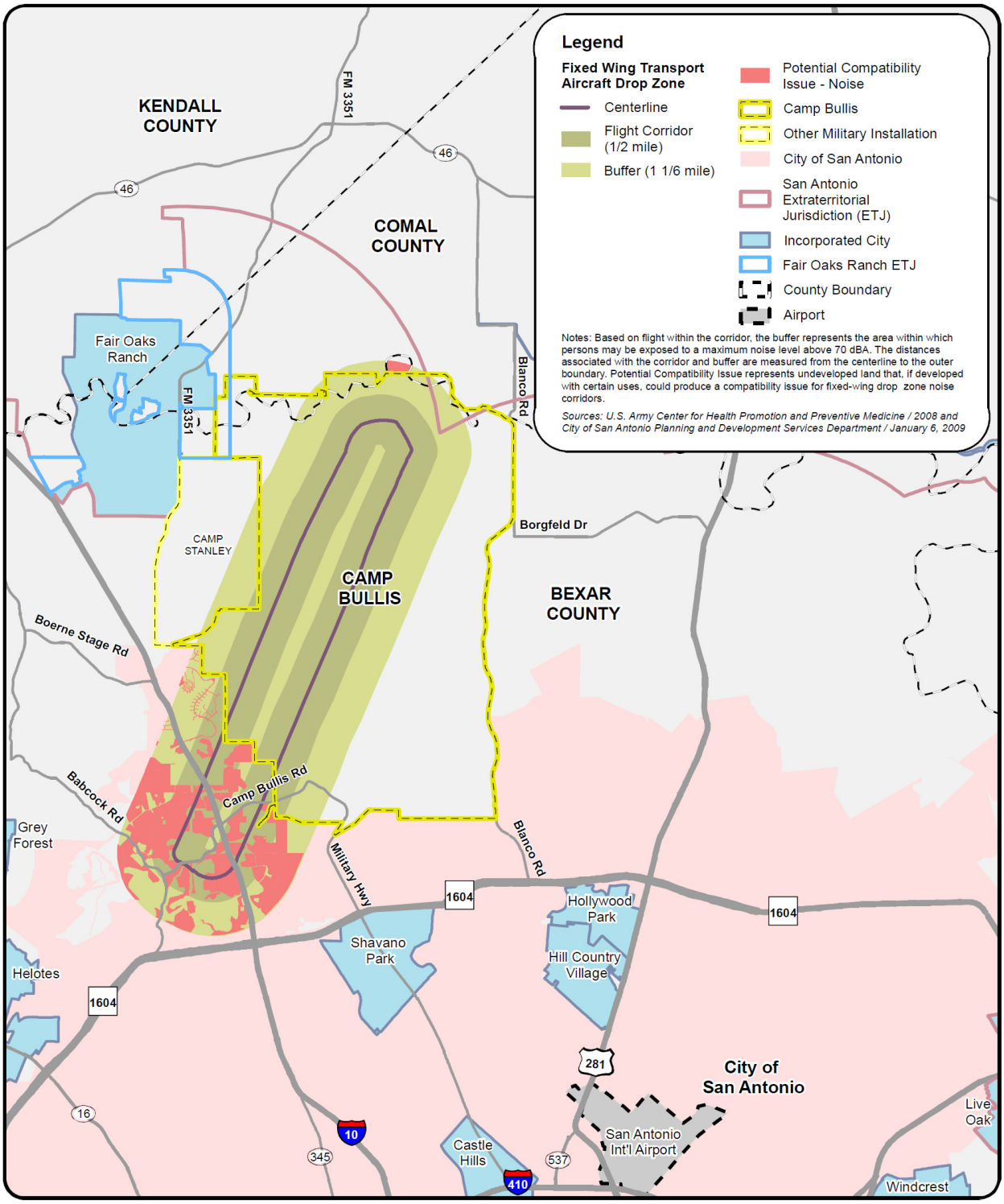


Figure 3-9
Compatibility Issues - Fixed-Wing Drop Zone Noise Corridor

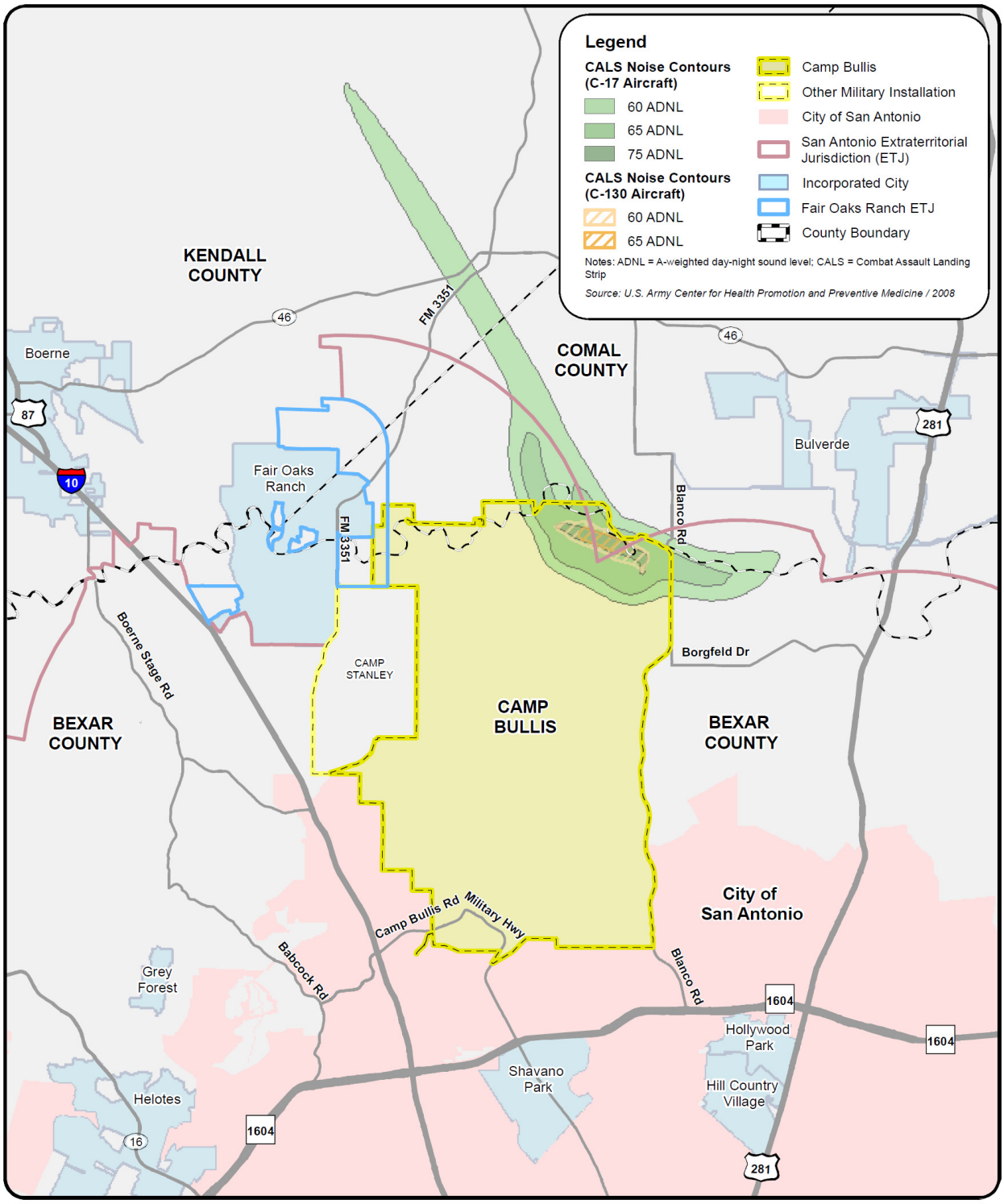


Figure 3-10
CALS Noise Contours

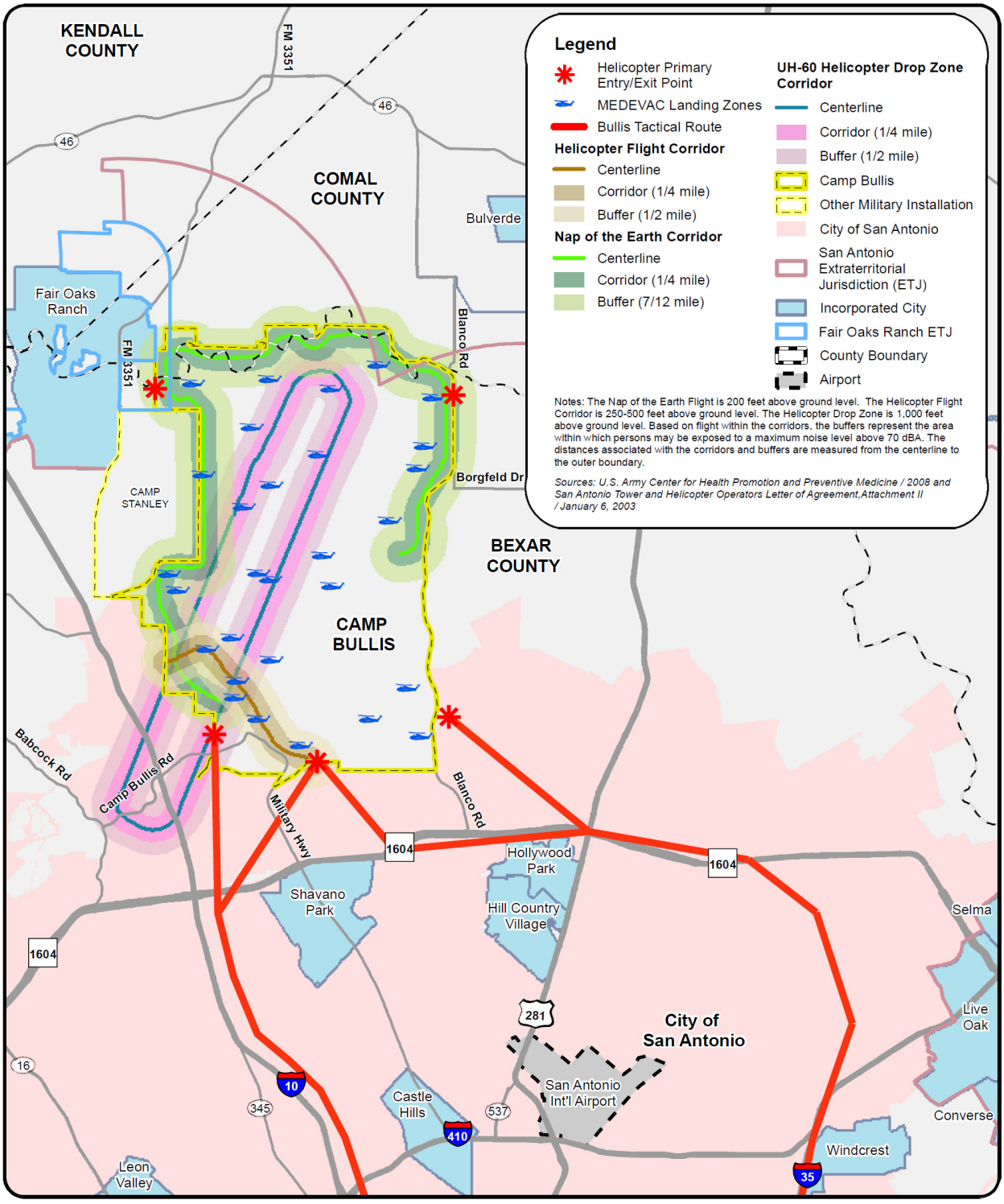


Figure 3-11
Helicopter Noise Corridors

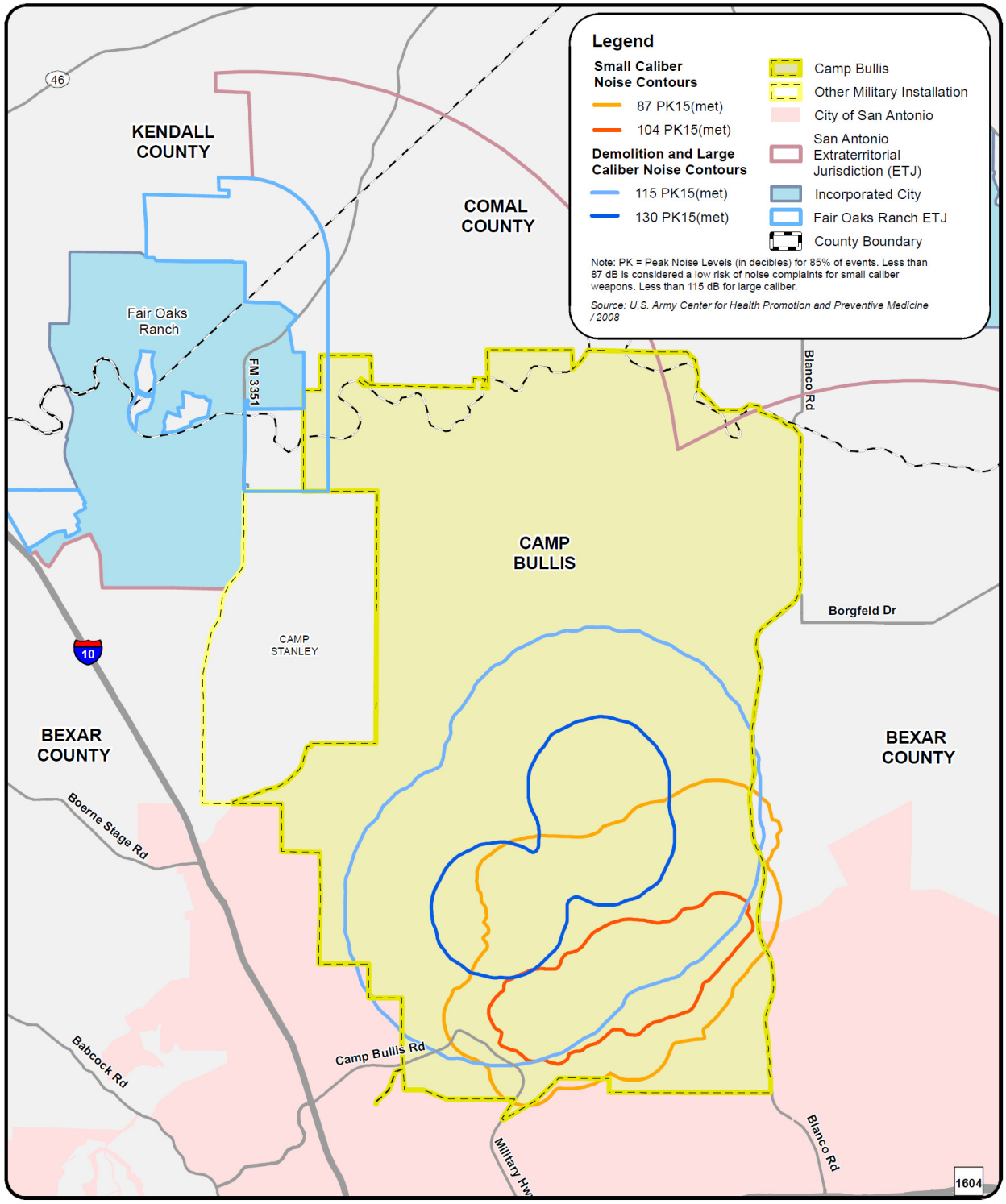


Figure 3-12
Firing Range Noise Zones



C-130s produce noise when operating from the CALS

Aircraft noise at Camp Bullis is currently generated by C-130 Hercules aircraft and could potentially include C-17 Globemaster III cargo aircraft using the CALS at the northeastern end of the installation in Training Area 12 (Maneuver Area 6). Aircraft noise is also created by helicopter traffic using the various landing sites, helipads, and flight routes in Camp Bullis. Approximately 20 fixed-wing missions per year and three to six rotary-wing missions per week are currently flown at Camp Bullis. Noise is also generated by fixed-wing aircraft and helicopters along the drop zone noise corridors, which extend from the southwest border of the installation in a northeasterly direction. Flight corridors for these drop zones extend beyond the southwest boundary of Camp Bullis. Figure 3-9 shows the fixed wing drop zone flight corridor and the City of San Antonio land (identified as Potential Compatibility Issue-Noise) that is currently vacant, but could pose potential compatibility issues based on its future development and the proximity of aircraft generated noise.

Table 3-2. Percentage of Population Highly Annoyed by Aircraft Noise

Maximum dBA	Percentage of People Highly Annoyed
70	5
75	13
80	20
85	28
90	35

Source: Department of the Army U.S. Army Center for Health Promotion and Preventive Medicine, Operational Noise Contours for Camp Bullis and Fort Sam Houston, TX, January 2006

According to the USACHPPM noise report, the CALS is used approximately 12 days per year. Noise contours were mapped for the landing strip showing the current and future operations. For the C-130, no contours greater than 65 DNL were mapped by USACHPPM. Existing operational noise contours (C-130 aircraft) of 60 DNL extend less than 200 feet beyond the northeastern boundary, and the 65 DNL contour is fully contained within the Camp Bullis boundary. Based on the location and extent of the C-130 65 DNL contour, contours reflecting louder noise levels would be contained within the physical extent of the landing strip. Despite this condition, some complaints have been made with regard to aircraft either entering or exiting CALS airspace. The issue arises when viewing the future operations map. While the C-17 (jet engines) was designed and constructed more recently than the C-130 (turbo propeller engines), and may eventually replace it, the C-17 also generates a larger noise contour pattern. As shown on Figure 3-10, the C-17's 60 DNL contour extends more than eight miles beyond the northern boundary and less than two miles beyond the eastern boundary. The 65 DNL zone extends beyond the northern boundary almost one and one-half miles and the eastern boundary less than a mile.

The 75 DNL zone remains within the boundary of Camp Bullis. If the development of farmland and forest land around the CALS occurs, the incidence of noise complaints are expected to increase, potentially causing the reduction of operations at the CALS.

The USACHPPM noise report also outlined buffer zones for aircraft flight corridors. The buffer areas were dependant on the type of aircraft, as well as the altitude flown. To account for possible annoyance, the area of possible noise impact was expanded based on the actual aircraft location within the corridor. For example, if a flight corridor is one mile in width for a helicopter at 500' above ground level (AGL), to account for variation in aircraft location, the overall area of noise impact would be an additional one-third mile on each side of the corridor. This gives an adequate buffer to reduce possible annoyance. The buffer for the most commonly used helicopters on Camp Bullis, the UH-60 Blackhawk, is one-fourth of a mile for all altitudes between 200 and 1,000 feet AGL, while the buffer for fixed-wing aircraft along the drop zone (which is 1,000 feet AGL) is two-thirds of a mile (see Figures 3-9 and 3-11).

Figure 3-11 shows the noise corridors for helicopter operations at Camp Bullis. For purposes of noise analysis, helicopter operations are divided into three different flight corridors. Nap of the Earth (NOE) flight is a low level flight used to evade detection by visual sources, radar, and enemy gunfire. This training is typically conducted at altitudes of approximately 200 feet AGL and is performed from the middle of the eastern Camp Bullis boundary, along the northern perimeter to the southwestern corner of the installation near the cantonment area. Most of the land along the northern border is currently undeveloped and receives minimal noise encroachment. New developments along the eastern border, such as development of the Classen tract, could receive high levels of noise from low level helicopter training. The Helicopter Flight Corridor on Figure 3-11 includes flights between 250 and 500 feet AGL, which are conducted in the southwestern portion of Camp Bullis. The Helicopter Drop Zone operates at altitudes of approximately 1,000 feet AGL and extends from a northeast to southwest direction. The zone terminates approximately three miles beyond the southwestern boundary of Camp Bullis.

The majority of helicopter support for training at Camp Bullis originates from Martindale Army Airfield and the Texas Army National Guard, southeast of Fort Sam Houston. Helicopters from Martindale Army Airfield fly into Camp Bullis up to six times a week for day and night training missions. This usually includes one to three UH-60 helicopters per mission. There are two different routes, shown on Figure 3-11, that are used to travel between Camp Bullis and Martindale. To minimize noise issues, these two routes follow San Antonio's major highways system and attempt to avoid overflight of residential areas. As a consideration to local communities, Texas Army National Guard helicopters fly above 500 feet AGL. They also do not fly above 1,900 feet mean sea level (MSL) to avoid San Antonio International Airport commercial traffic. These are general routes and are subject to deviation based on factors such as weather, wind, and operational requirements. Noise issues arising from these flight paths are minimal at the current time.

Active duty helicopters also train at and support operations at Camp Bullis. These aircraft can arrive from a variety of installations other than Martindale. No established tactical routes currently exist for these flights. Pilots entering the airspace from installations other than Fort Sam Houston or Martindale Army Airfield must share it with other civilian aircraft and fly to Camp Bullis under the direction of the civilian control towers used by civilian aircraft. When these helicopters get close to Camp Bullis, they radio to, and coordinate with, Camp Bullis range control to enter and maneuver within the military airspace. Flights

from outside facilities have the potential to raise noise concerns since they do not fly over established routes designed to minimize noise impacts to residential communities.


One of the many Camp Bullis firing ranges

The other key sources of noise are the Camp Bullis firing ranges. There are 20 live-fire ranges on the installation that support training on small and large caliber weapons, grenades, and demolitions. The impact area for small and large caliber weapons is located in the southern portion of Camp Bullis and covers approximately 6,000 acres. The USACHPPM Operational Noise Contours Report indicates that existing small caliber noise contours that may pose compatibility land use issues extend beyond the eastern boundary less than 1,640 feet and to the south less than 490 feet. Figure 3-12 delineates the noise zones that are associated with the Camp Bullis firing ranges. Many housing developments have already been constructed around the perimeter of the military facility, which have generated the submittal of noise complaints by local residents.

One of the priority areas of concern for noise is the adjacent Steins Ranch and Bible Study Fellowship tracts, comprising approximately 520 acres just south of Camp Bullis. If housing development occurred in this area, its residents would be exposed to increased levels of noise associated with weapons firing training, again potentially generating significant noise complaints. Another potential problem area is the 185-acre Classen tract located to the southeast of the installation. The City of San Antonio purchased approximately 90 acres of this tract for a conservation easement in perpetuity, which equates to no development on that land. The Classen tract of land is located approximately 2,000 feet away from several of Camp Bullis' firing ranges. A portion of the site is proposed for a school to serve the surrounding proposed residential development should it be annexed by the City of San Antonio any time in the future. The applicant withdrew the request for annexation; however, a school could still be built on this land. If this tract remains unincorporated, the portion not owned by the City of San Antonio has a 15 percent impervious cover limit, making it more difficult to develop.

Camp Bullis released a report detailing the quantity and type of ammunition fired at its 20 firing ranges in 2007. A large amount of the weapons firing took place at the firing range in close proximity of the Classen tract. In 2007, over 8.5 million rounds were fired, and 10 million rounds were estimated to be fired in 2008. Given the large number of rounds fired on these ranges and the close proximity to the Classen tract, a school or high density residential development would appear incompatible due to the significant noise complaints that would likely arise. The anticipated future increases in range usage and rounds fired associated with BRAC and other personnel increases will heighten this noise compatibility issue.

8 Vibration

Definition:
Vibration is an oscillation or motion that alternates in opposite directions and may occur as a result of an impact, explosion, noise, mechanical operation, or other change in the environment. In the study area, vibration may be caused by military and civilian activities.

Vibrations from military operations can impact local communities. These impacts can be substantial or minor nuisances resulting from operations of aircraft, firing ranges, and explosions associated with ordnance disposal. For this JLUS, vibration is associated with noise from the weapons, grenade, and demolitions ranges on Camp Bullis. Currently, there are no major issues associated with vibration from operations at Camp Bullis upon the local communities. The reduction of allowable explosives quantity used during demolitions training resulted in the relocation of the only two EOD units from Fort Sam Houston to Fort Hood, but it also eliminated the major vibration sources on lands adjacent to Camp Bullis.

The areas of concern for potential future issues focus on the CALS in the northern portion of the Camp Bullis, helicopter training routes along the installation's perimeter, and current explosives training areas. Aircraft operations have and will continue to cause minor amounts of vibration, and new development in vicinity of the CALS could experience vibration, based on their proximity and type of aircraft using the landing strip.

10 Light and Glare

Definition:
Lighting is the provision of man-made illumination (e.g., street lights, airfield lighting, building lights) to provide safety and security in desired locations. Glare (direct or reflected light) is produced when the intensity, direction and/or duration of the lighting is directed or spills over to unintended areas or objects in a manner that is harsh and disrupts normal vision.

Light sources from commercial, industrial, and residential uses at night can cause glare and excess illumination, which can negatively impact the use of military night vision devices during ground and air operations. Camp Stanley is a weapons and munitions supply, maintenance, test, and storage activity located immediately adjacent to Camp Bullis' west boundary. The installation balances its need for high security with Dark Sky considerations and Camp Bullis' nighttime training needs. The north pasture of Camp Stanley, its largest land area, has no facilities or lights to negatively impact training on Camp Bullis. Additionally, most of Camp Stanley's exterior lights are found within its interior cantonment area located in the installation's southwest quadrant. Lastly, there are numerous topographic features (i.e., hills) between Camp Stanley's light sources and the Camp Bullis training areas. This further mitigates possible light pollution onto Camp Bullis. Camp Stanley is aware of the Dark Sky issue and will be working to incorporate dark sky lighting on future projects where it is consistent with their high security needs.

On Camp Bullis, new lighting associated with permanent construction is designed to be shielded in order to reduce nuisance lighting. Uses were this may not be possible include lighting for security needs and field lighting used in training areas (which uses equipment and lighting typical of battlefield situations).

Over the years, military combat tactics have evolved and require new methods of training to properly prepare personnel for their intended missions. To gain the advantage over enemies, a substantial number of combat operations are conducted under the cover of darkness. When training with night vision equipment, military personnel can conduct their training in near-daylight conditions.

As previously discussed, San Antonio is experiencing a high rate of urban growth and development. Increased development also increases lighting intensity, through the development of roadways, public places, commercial and employment sites, and residential neighborhoods, as well as their supportive signage. Until recently, lighting serving new development in the vicinity of Camp Bullis has not been regulated; however, as these issues have been identified, local jurisdictions, including Bexar and Comal counties and the cities of San Antonio and Fair Oaks Ranch, have prepared and adopted ordinances to promote dark skies around San Antonio's military bases.

Currently, no official light study has been completed that shows the exact impact of lights on Camp Bullis; therefore, different methods of quantifying light pollution have been used. Figure 3-13 illustrates the amount of light pollution generated by San Antonio in relation to Camp Bullis. The data shown on Figure 3-11 is based on 1997 information produced by the DOD's Defense Meteorological Satellite Program (DMSP) and its fleet of low, earth-orbiting satellites. This data was used by by C.V. Elvidge (NOAA National Geophysical Data Center, Boulder, Colorado), P. Cinzano (Light Pollution Science and Technology Institute, Italy), and F. Falchi (Department of Astronomy, University of Padova, Italy) to create The World Atlas of Artificial Night Sky Brightness. The light shown in the figure is raw data collected by the DMSP satellites. There is a difference between the images in the Atlas and night-time satellite image of the Earth. Satellite night-time images of the Earth show the light emitted upward, toward the satellite. The Atlas' maps show the effects on the night sky due to the propagation of the upward light flux in the atmosphere and its scattering by molecules and particles. Differences are easily recognizable (i.e., in lakes, seas, or desert lands near populated areas, where there are no sources). These features are black in satellite images, but the sky brightness in the Atlas' maps is not zero due to light pollution propagation.

One method of calculating the amount of light pollution produced by a jurisdiction is Walker's Law. According to this basic light pollution formula, the proximity to a city has a relatively greater effect on the amount of light pollution the sky will suffer. Getting twice as close to a city makes its sky glow appear about six times brighter. Sky glow from cities typically diminishes in the later hours of the night, when more businesses close and some lights are turned off. It follows that, as development continues to progress outward from a city, the amount of light pollution can increase. Increased light pollution can cause an increase in the amount of sky glow and ultimately create compatibility issues in areas that were not impacted at one time. See Figure 3-13.

Current and planned urban development is closing in on Camp Bullis and threatens the viability of its training mission. According to the U.S. Army Corps of Engineers, Engineer Research and Development Center, lights from cities 10 or more miles away on cloudy nights can generate ambient light levels too high for night training; however, suggested buffers are typically no more than a couple of miles.

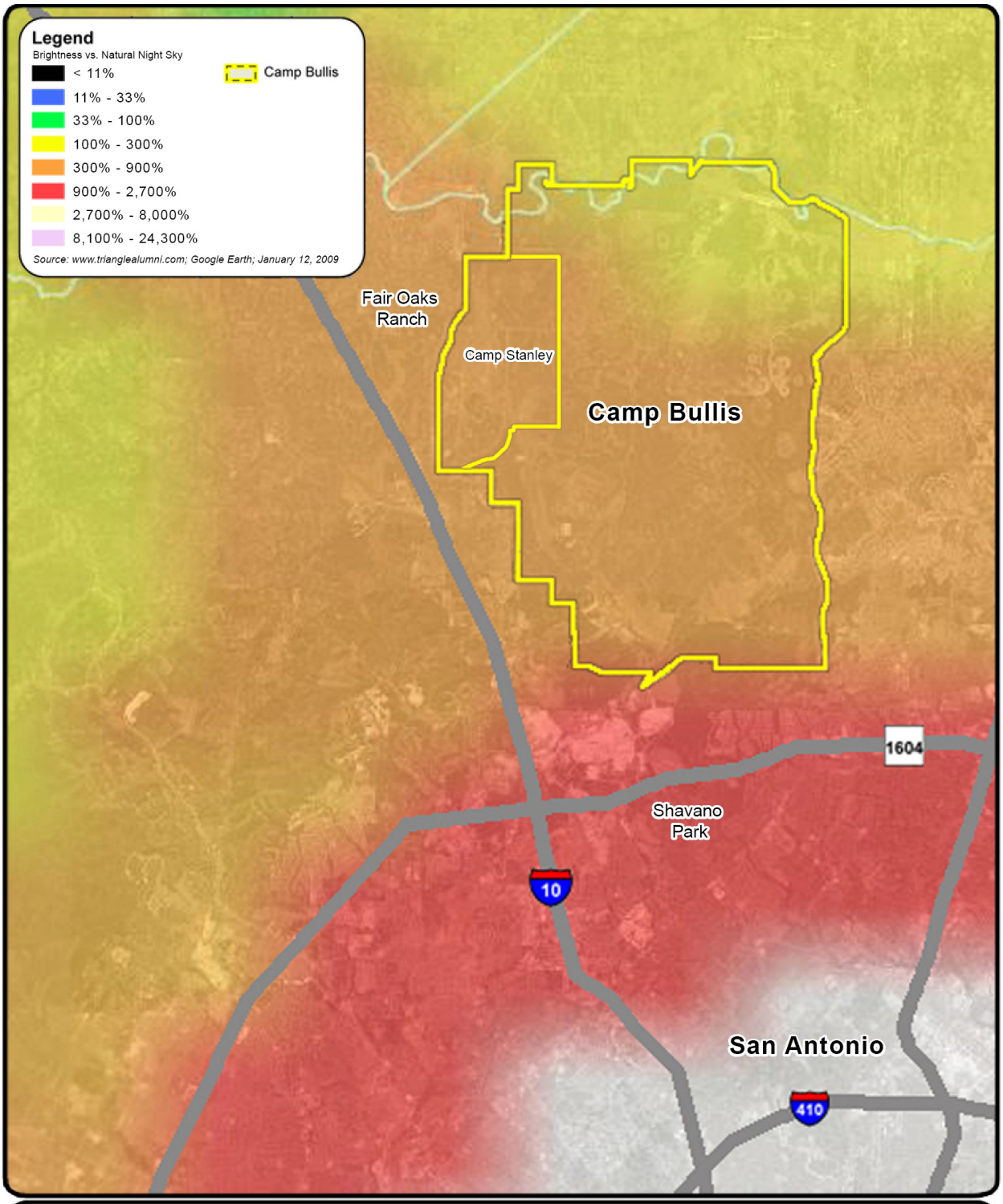


Figure 3-13
Light Pollution

The impacts of the use of outdoor lighting on the dark skies over Camp Bullis are primarily determined by two principal factors – the amount of developed land (density) and the distance of the developed land from the installation. The relationship between density and distance is best demonstrated using an estimate of urban sky glow called Walkers Law. The relationship captured through the use of this formula was developed based on measurements of sky glow for a number of cities in California. The following formula is used to estimate sky glow at an observing site looking at a zenith angle of 45 degrees toward an urban source:

$$I=C \times P \times R^{(n)}$$

Where:

I = Percent increase of the night sky brightness above the natural background, at 45°down from directly overhead (facing the city, directly overhead is roughly ¼ of this value),

P = Population of the city,

R = Distance, in kilometers, from the observing site to the center of the city,

"C" = 0.01 for "r" values between 10 and 50 km, and

"n" = 2.5 for "r" values between 10 and 50 km

According to the National Oceanic and Atmospheric Administration (NOAA), the assumed radius of a city is a function of its population, ranging from 2.5 km to 24 km. Walker's law applies if the installation is outside the city radius. If located inside the city radius, the sky glow increases in a linear manner toward the center by another factor of 2.5.

For this study, Table 3-3 shows the distances that were used from Camp Bullis to the center of San Antonio.

Table 3-3. Distances from Camp Bullis to the Center of San Antonio

Location	Kilometers	Miles	Location	Kilometers	Miles
Northwest	32.32	20.08	Northeast	29.99	18.63
Southwest	18.39	11.43	Southeast	17.16	10.66

Source: Matrix Design Group, 20 November 2008
Note: See Figure 3-14 for locations

The southeastern Camp Bullis boundary is located approximately 17 kilometers from the center of San Antonio (see Figure 3-14). Using Walker's Law and the Texas State Data Center's (TXSDC) 2008 population estimate of 1,336,040, the sky background produced by the City at the southeast corner (which is the closest to the City) is approximately 1,095 percent above the natural background midway between the horizon and the zenith in the direction of the City. However, the sky glow increases to 2,738 percent when applying the NOAA factor of 2.5 for Camp Bullis's location within the City. At the point furthest from the City's center (northwest installation boundary), this percentage drops to just over 562 percent.

For Camp Bullis, the actual amount of light pollution experienced by the installation is greater than calculated by Walker's Law because of the significant number of additional light sources located in nearby communities. What must be considered is the impact even a small, dense development could have on night vision devices and night vision training if developed within close proximity to the installation.

Walker's Law has some shortcomings when applying its use to Camp Bullis. It is more suited for smaller, remote towns and cities that have distinct separations between the light sources and the location being impacted. As described earlier, no official light study has been completed that shows the exact impact of lights on Camp Bullis, and so Walker's Law is the only method available for providing data related to the impact of lights on operations.

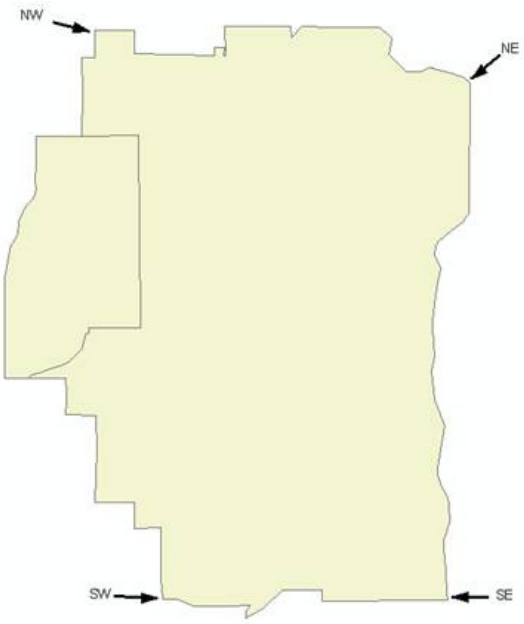


Figure 3-14. Measurement Points from Camp Bullis to Center of San Antonio

Walker's Law was used to calculate estimated light pollution generated by the other communities within the Camp Bullis JLUS study area: Hollywood Park, Shavano Park, Fair Oaks Ranch, and Hill Country Village. Similar to the San Antonio calculations, populations were taken from the TXSDC 2008 population estimate. The results for the closest and furthest points of Camp Bullis are presented in Table 3-4.

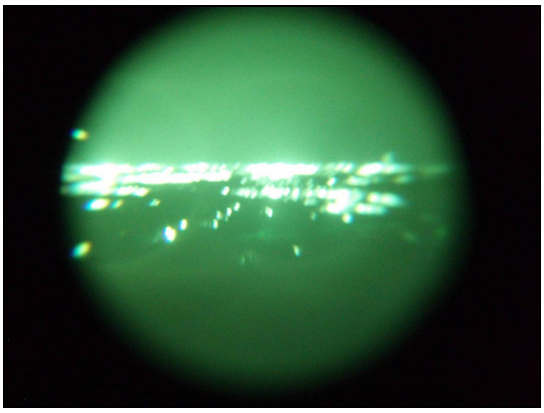
Table 3-4. Walker's Law for Other JLUS Cities

	Camp Bullis Boundary Location	Distance to Boundary (km)	Brightness Increase (Walker's Law)	Brightness Increase (with NOAA factor)
Fair Oaks Ranch	Northwest	3.39	291.8%	729.6%
	Southeast	17.49	4.8%	12.1%
Hill Country Village	Southeast	5.62	14.5%	36.2%
	Northwest	22.18	0.5%	1.2%
Hollywood Park	Southeast	4.56	75.2%	188.1%
	Northwest	20.97	1.7%	4.1%
Shavano Park	Southwest	5.71	40.1%	100.3%
	Northwest	19.31	1.9%	4.8%

Source: Calculations by Matrix Design Group, 2008

Lastly, consider the following examples:

- **Scenario 1:** A 100-acre development located two kilometers from the installation with a density of six units per acre (assuming 2.5 persons per household) would impact the sky background by over 260 percent (nearly 663 percent with NOAA factor).
- **Scenario 2:** A 100-acre development located 20 kilometers from the installation with a density of six units per acre (assuming 2.5 persons per household) would impact the sky background by approximately less than 1 percent (just over 2 percent with NOAA factor).



Extensive lighting in urban areas reduces the value of night vision training

If the density was decreased to one unit per acre the resulting scenarios would result in the following increased sky glow:

- **Scenario 1:** approximately 44 percent (almost 111 percent with NOAA factor)
- **Scenario 2:** approximately less than 1 percent (still less than 1 percent with NOAA factor)

In general, the following trends are demonstrated:

- The more dense the urban development, the greater the potential for light intrusion.
- The closer development is to the installation, the greater the potential for light intrusion.

The primary encroachment issue affecting training at Camp Bullis relative to lighting is its impact on NVG training. Urban lighting to the south of Camp Bullis, including the City of San Antonio, has reached a critical point. To the south of Camp Bullis, a visible glow emanates from the City into the sky. This illumination coupled with the light generated by adjacent development around Camp Bullis's perimeter, particularly along the I-10 and Highway 281 corridors, spills into the installation and severely impacts NVG visibility. Cloud cover can increase the impact of light pollution as the light is amplified as it is reflected by the clouds.

The current lighting problem has resulted from many issues, including lights remaining on after hours at commercial facilities when they are not needed, the increased amount of large-scale development around Camp Bullis and not specifying or retrofitting glare shields to direct light at the appropriate intensity where and when it is needed.

This is the principle issue with many unregulated light sources – they are not shielded, and thus spread the light into the sky instead of directing it to the desired location. Not only does the illumination encroach upon other areas, such as Camp Bullis, but its use is wasteful. Energy conservation and associated cost reduction could occur if proper control measures were instituted. In the past, intense unshielded fixtures were standard and accepted, but as technologies and awareness have improved, so has the availability of energy conserving lighting fixtures, shielding devices, and controller mechanisms.



Examples of poor streetlight fixtures

Lower wattage light bulbs can be used in downward-pointed lighting fixtures, since the light is not spreading in all directions. Thus, lower wattages may be used to illuminate the same area because the light is not being wasted. This will result in lower energy costs. The International Dark Sky Association (IDA) is an organization dedicated to the education and promotion of dark skies and dark sky preservation. The IDA has worked with communities around the world to develop methods for reducing light pollution. IDA-approved light fixtures are typically more expensive than less efficient fixtures during initial purchase, which is one reason people chose not to install them; however, the savings in energy costs could be recuperated as quickly as within one year of installation.

Downward directed, fully shielded, and low glare lighting, using efficient modern lighting sources and amounts appropriate to the needs for utility, safety, security and commerce, improves visibility and decreases energy waste and carbon dioxide emissions, and therefore reduces costs of operation for outdoor lighting systems. New installations using such efficient lighting systems accrue benefits and savings immediately. These benefits, accruing year-to-year, rapidly recoup costs associated with replacements to presently in-place lighting systems; all users benefit from the improved lighting efficiency needed to reduce light pollution.

Under dark sky conditions, NVGs can allow military personnel to view objects up to a distance of 300 meters (984 feet): however, lighting located outside of an installation can decrease the NVG effectiveness to a distance of 50 meters (164 feet). This off-installation lighting also produces a halo effect around objects, which further reduces visibility and resolution for air and ground personnel. The amount of ambient light experienced on the ground is a function of:

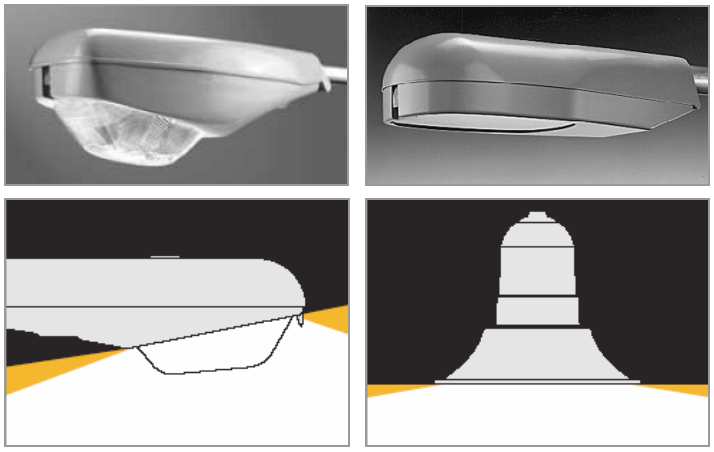
- intensity of nearby light sources (up to 20 miles away)
- distance from the sources
- spectra of the light sources (blue light decays faster in the atmosphere)
- density of the cloud deck
- height of the cloud
- relative humidity

Another similar issue associated with lighting is specific to occurrences near the perimeter of Camp Bullis. Blanco Road (east of Camp Bullis) and other roadways are located adjacent to the boundary of Camp Bullis. Under certain circumstances, the headlights from civilian traffic can shine into the eyes of a military vehicle driver wearing NVGs. This can result in a temporary blinded condition, increasing the potential for loss of vehicle control and risk to training objectives and personnel safety. This condition also has the potential to occur with aircraft pilots as well, enhancing the potential for aircraft crashes or serious incidents.

According to the City of San Antonio Unified Development Code Section 35-506, all subdivisions within the City are required to be served with streetlights. While subdivisions within the ETJ are excluded, streetlights may be provided, but their cost must be borne by the developer. CPS Energy installs all streetlights in San Antonio. According to CPS Energy, the most common streetlights installed within the company's service territory are cobra head fixtures. Numerous versions of the cobra head fixture exist with earlier models featuring large glass prisms that enclosed the light bulb. These are poorly designed fixtures that do not shield light, allowing light to shine into the night sky.

In anticipation of the City of San Antonio ordinance amending Chapter 35 of the City Code creating Military Lighting Overlay Districts (MLOD), CPS Energy amended Specification 377-34 for High Pressure Sodium Vapor (HPS) cobra head luminaires to specify full-cutoff light distribution in accordance with Illuminating Engineering Society of North America (IESNA).

In addition to the noted standards changes, CPS Energy has also committed to upgrading existing non-compliant luminaires within the Camp Bullis MLOD if and when any maintenance of these luminaires is needed. This commitment extends beyond the requirements of the City's ordinance, which requires replacement only when greater than 50 percent of the non-compliant luminaires' components need replacement. CPS Energy has installed cutoff HPS flat glass cobra head luminaires since the year 2000. Since then, some of CPS' manufacturers supplied a full cutoff version of the luminaires. Consequently, many of the existing cobra head luminaires already meet the full cutoff requirement.



Cutoff and full cutoff cobra head streetlight fixtures with associated light distribution patterns

CPS Energy indicates that decorative streetlights are available for installation in residential or major thoroughfares (whiteways) with wattages that can vary from 175 watt, 250 watt, or 400 watt. These decorative streetlights are classified as cutoff fixtures, are Dark Sky friendly, and meet the City's MLOD requirement. Ensuring the use of cutoff cobra head fixtures with Mercury Vapor luminaires to shielded or full cutoff fixtures and special bulb/lamps would yield lower amounts of light pollution within the study area.

Another source of incompatible lighting is generated from a pilot program implemented by the City of San Antonio that allowed 15 digital billboards to be erected within the City. The City Council passed an ordinance on December 6, 2007 allowing the off-premises billboards, and all billboards will remain at the end of the first year of the pilot



An example of good streetlight and how it looks at night

program. Results will be analyzed at that time to determine whether additional billboards will be allowed to be erected. A study prepared by the Virginia Tech Transportation Institute identified digital billboards to be ten times brighter than the area surrounding the billboard, and three times brighter than traditional billboards.

Improvements in technology, as well as new regulations, have made way for digital billboards that are more compliant to lighting regulations. Dr. Ian Lewin, a former chairman of the Illuminating Engineering Society of North America, was commissioned by the outdoor advertising industry and provided research establishing standards for digital billboards. According to Dr. Lewin's 2008 study, digital billboards should have lighting levels that are no more than 0.3 foot candles above surrounding ambient lighting levels. This would be in compliance with the San Antonio Dark Sky Ordinance. Another advancement in technology that provides more compliant billboard lighting is the AdVue billboard luminary. According to reports, it reduces the energy required to light a 14 foot by 28 foot billboard by 50 percent. This system uses left and right luminaries and can replace the typical four require luminaries. They are mounted on the side of a billboard and utilize 400 watt vertical pulse-start lamps.

It is unrealistic to believe that complete elimination of glare can be achieved in the study area. Consequently, the intent is to utilize best practices to consider retrofit and new specifications to reduce glare to the extent feasible. The continued enhancement of operational skills by U.S. troops will allow them to perform and operate effectively at night, which is a significant advantage in combat situations. The inability to provide proper training conditions in the use of night vision devices will severely compromise their mission effectiveness.

13 Frequency Spectrum Impedance and Interference

Definition:
Frequency spectrum impedance and interference refers to the interruption of electronic signals by a structure (impedance) or the inability to distribute / receive a particular frequency because of similar frequency competition (interference).

In the performance of typical operations, the military relies on a range of frequencies for communications and support systems. Similarly, public and private uses rely on a range of frequencies to support daily life. The potential for increased background radio frequency interference/electromagnetic interference (RFI/EFI) is developing as a mission impact to the high-tech combat forces.

Frequency interference can result from a number of factors, including:

- New transmissions using a frequency that is near an existing frequency
- Reducing the distance between two antennae transmitting similar frequencies
- Increasing the power of a similar transmission signal
- Using poorly adjusted transmission devices that transmit outside their assigned frequency
- Production of an electromagnetic signal that interferes with a signal transmission
- Explosion of electronic sources and uses from portable systems to whole communities utilizing Wi-Fi broadband systems and industrial sources that produce an electronic noise by-product.

14 Public Trespassing

Definition:
Trespassing is the intrusion, either purposeful or unintentional, within the boundaries of Camp Bullis in a physical or non-physical manner.

Public trespassing can be a concern for both public safety and security purposes. The extent of training, aircraft and vehicular traffic, and live-fire exercises that take place on Camp Bullis increases the potential for harm by any unauthorized persons entering the installation.

The perimeter of Camp Bullis is enclosed by a six-foot, chain link fence topped with barbed wire to prevent intentional or unintentional trespassing. The Army created a map showing areas where past vehicular accidents have caused breaches in the fence line from February 2007 to September 2008 (see Figure 3-15). In this timeframe, there were nine vehicular accidents that resulted in breaks in the installation fence through which unauthorized people could gain access. This does not mean that public trespassing occurred each time the fence was breached; however, breaches in the perimeter fence pose a security risk and allow for the possibility of trespassing, whether by accident or on purpose.

16 Legislative Initiatives

Definition:
Legislative initiatives include those existing and proposed federal, state, or local laws and regulations that may have a direct or indirect effect on a military installation to achieve its current or future mission.

Federal, state, and local legislative initiatives are important regulatory tools to guide the actions of both local jurisdictions and the military installation. Most recently, this legislation is not mutually exclusive, and as such, it fosters both parties to work together in partnership to improve operational and community sustainability objectives.

The most pressing legislative issue to be addressed focuses on a portion of the land around Camp Bullis, which lacks zoning or land use regulation authority. Current State legislation prevents counties from regulating land uses in unincorporated areas. This is a critical issue around Camp Bullis because the surrounding lands do not have zoning standards that apply to them. Although the City of San Antonio has an ETJ, land use regulation through zoning within this area is prohibited.

For Bexar, Kendall and Comal counties to be able to exercise authority over land use, they must submit legislation at a state level, not a local level. Elevating local legislation to the state level has created a hindrance in preventing these and any other counties affected within the State of Texas from the placement of appropriate restrictions in order to promote land use compatibility. Previously adopted legislation exists allowing counties that include a military installation or airfield within their jurisdiction to implement a limited amount of land use regulation authority within specific areas around such installation. For example, Texas Local Government Code, Chapter 241 allows for the creation of a JAZB, wherein jurisdictions may be granted the authority to adopt, administer, and in some cases, enforce land use to ensure compatibility and public safety.

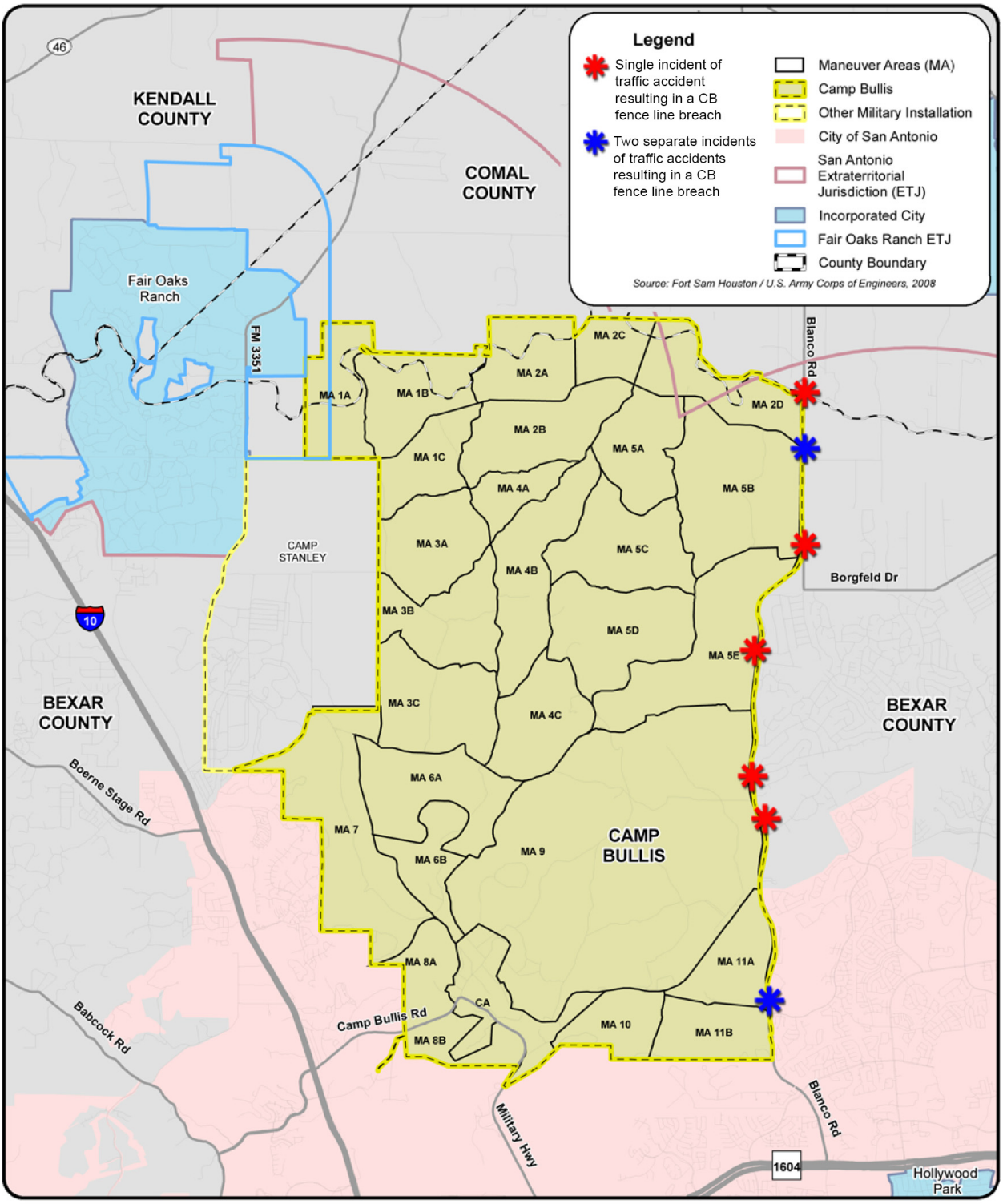


Figure 3-15
Blanco Road Fence Line Breaches (Feb. 2007 to Sept. 2008)

Property rights are very important in Texas, which is why counties do not have land use regulation authority. The lack of regulatory authority by counties in the past has been a major gap that has fostered incompatible uses. New legislation would need to be passed to provide this needed tool to enhance future compatibility adjacent to military installations around the State.

17 Interagency Coordination

Definition:
Interagency coordination relates to the level of interaction on land use compatibility issues between military installations, jurisdictions, land and resource management agencies, and conservation authorities.

The development of proactive partnerships between the DOD, Army, other governmental agencies, and local jurisdictions is required to ensure continued sustainability of Camp Bullis for all entities. The lack of frequent communication in the past between Camp Bullis and the surrounding communities is an issue that has resulted in incompatible urban expansion around the installation. Current local land use and development plans that exist for surrounding jurisdictions, such as comprehensive plans and zoning codes, do not specifically address development issues related to Camp Bullis.

In order to create and implement a successful JLUS, it is important that neighboring jurisdictions, as well as other local and state agencies work together with the military to discuss issues that could negatively impact one another. Keeping an open line of communication between various entities to provide input or feedback on the types of activities that are taking place can be a powerful tool to achieve compatibility. The deficiencies of this interaction from the past can be reconciled to promote better coordination between all entities involved in the JLUS study area. The recommendations for how to achieve this are presented and discussed further in Section 5 of this JLUS.

3.3 Natural Resource Compatibility Factors

In addition to man-made compatibility factors, natural compatibility factors are also potential sources of conflict with military readiness activities. Two of the three natural resource compatibility factors were confirmed during the JLUS process which currently poses compatibility issues for Camp Bullis.

18 Water Quality / Quantity

Definition:
Water quality / quantity relates to the long term provision of a healthy resource and a sustainable supply to accommodate both the installation and surrounding communities as the area develops.

The long term availability of water at sufficient quality and quantity within the study area is vital to sustaining the local surrounding jurisdictions and Camp Bullis. The City of San Antonio and the surrounding areas obtain potable water from two major purveyors; the San Antonio Water System (SAWS) and the Bexar Metropolitan Water District (BexarMet). Each purveyor is responsible for providing water service within their respective service area. The SAWS obtains water from the Edwards Aquifer, Twin Oaks Aquifer Storage and Recovery, recycled water, Trinity Aquifer, and the Western Canyon

Project. The Bexar Metropolitan Water District utilizes water from Canyon Lake, Lake Dunlap, Edwards Aquifer, Trinity Aquifer, and several other water sources. The majority of the water (90 to 95 percent) is derived from the Edwards Aquifer-a renewable resource.

As the community around Camp Bullis continues to grow and expand, it places added demands on the Edwards and Trinity Aquifers. Many measures have been taken to help preserve selected lands within the two aquifer boundaries such that they can continue to produce a continuous water supply to accommodate the growth of the communities and potential mission expansion of Camp Bullis. Propositions 3 and 1 were passed by voters of San Antonio in 2000 and 2005, respectively, to help protect the aquifers by purchasing land in important recharge areas (see Section 4). The 2007 State Water Plan has also identified several strategies to preserve water for the future. However, as stated in Compatibility Factor 1, Land Use, the lack of zoning authority in the counties cannot cease development in certain areas that are critical to the aquifers.

One of the major issues associated with the Edwards Aquifer stems from the "law of the biggest pump," which is the notion that water is free to be pumped and should not be regulated. In the past, aggressive pumping of water from the aquifer and dry climatic conditions resulted in lower groundwater levels and quantity shortages in the study area. In June 2008, the Edwards Aquifer Authority declared that the Edwards Aquifer was in a Stage I Critical Period. This was determined based on the analysis of diminished well water elevations, causing pumpers in the San Antonio region of the Edwards Aquifer to reduce their well water extraction by 20 percent. Conditions improved in July 2008 due to rainfall and conservation and, consequently, the Critical Period was recalled. This is one example where conservation efforts were enacted that assisted in ensuring the longevity of the aquifer. The Aquifer Guardians in Urban Areas (AGUA) and Greater Edwards Aquifer Alliance (GEAA) have filed numerous lawsuits against various large-scale projects in areas that could negatively impact aquifer zones. Some of these suits include the housing developer INTCO-Dominion and expansion of Highway 281. The INTCO-Dominion suit, which was also based largely on alleged Golden-cheeked Warbler violations, was settled when the plaintiffs deferred to the USFWS, which issued a preliminary enforcement letter and opened a law enforcement investigation. The Highway 281 suit was dropped after developers agreed to prepare and submit an environmental impact statement.

The Edwards Aquifer is divided into three zones: the Contributing Zone, the Recharge Zone, and the Artesian Zone. The Contributing Zone includes areas where water from rainfall, which averages about 30 inches per year, runs off through streams and land surfaces that eventually pass into the Recharge Zone. The Recharge Zone includes large fractured and faulted limestone outcrops that allow water to enter into the aquifer. This is the zone that actually puts water into the aquifer. The Artesian Zone includes another smaller zone, called the Transition Zone. The Transition Zone is a regulatory zone only and is an area where surface contaminants have been documented to migrate through overlying geologic units formations to impact water quality in the Artesian Zone. In the Transition Zone, artesian conditions may also be transient depending on aquifer water levels. There are also areas in the Transition Zone, where topography slopes towards the Recharge Zone, that are considered Contributing Zone. The Artesian Zone is south of the Recharge Zone and is an area where Edwards Aquifer groundwater is under artesian pressure. This often results in artesian wells and springs such as the San Marcos, Comal, San Antonio, and San Pedro springs. The latter two springs do not flow during dryer than normal climatic conditions. Changing pressure and water levels in these springs are indicators of rising and falling water levels in the aquifer. A delineation of the various zones within the study area is shown on Figure 3-16.

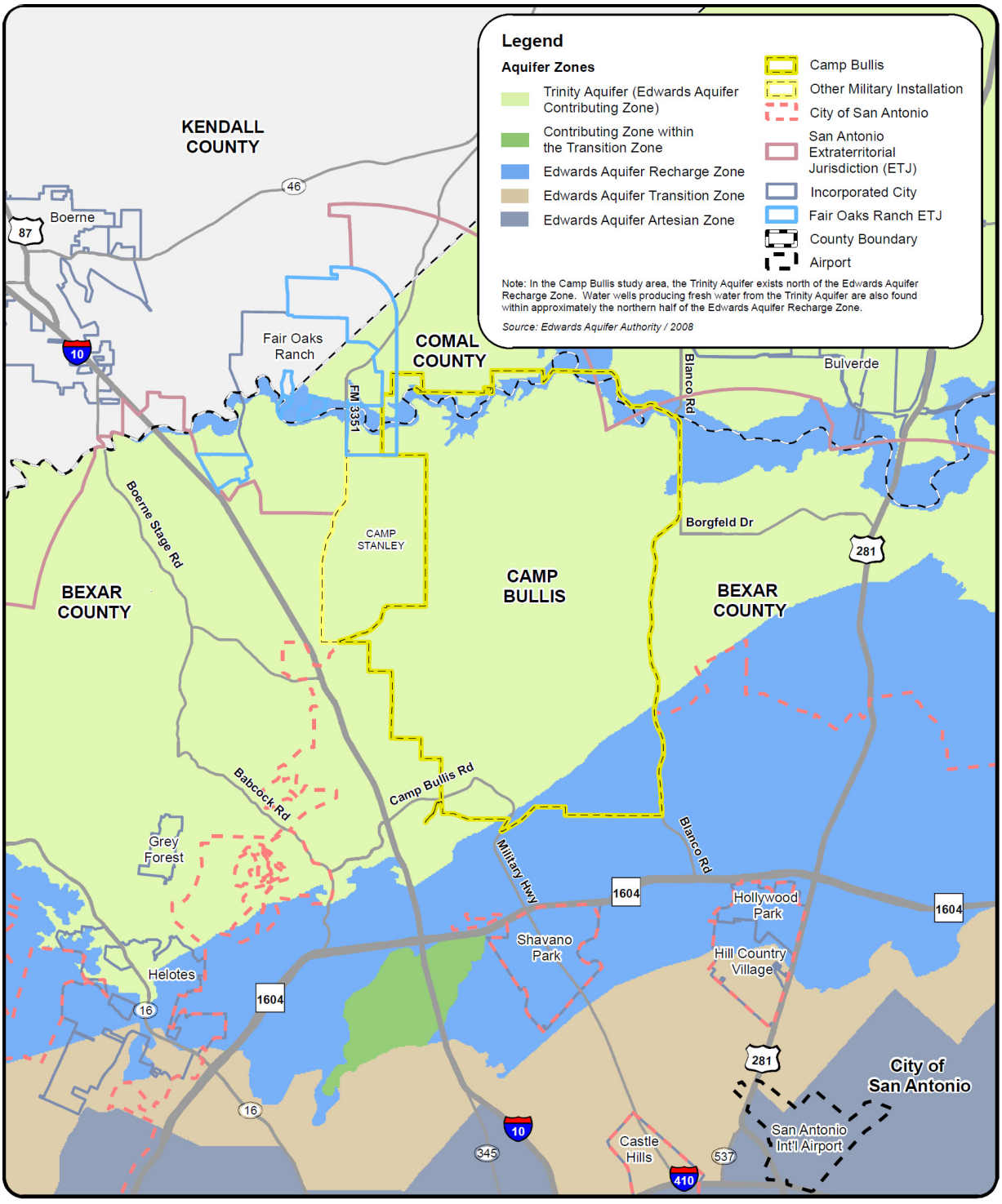


Figure 3-16
Edwards and Trinity Aquifer Zones

Camp Bullis is located above portions of the Edwards Aquifer Recharge Zone. This zone is located along the northern boundary of the installation, and on the southeast corner near the Impact Area. The remainder of the installation is located over the Trinity Aquifer, which is also considered as Edwards Aquifer Contributing Zone. As a result, Camp Bullis is also responsible for land stewardship above, to prevent damage to water resources below. In addition, Camp Bullis also operates three Trinity Aquifer production wells. One of these wells temporarily lost production during a drought in 2006 that caused receding water levels. In 2007, BexarMet installed eight new wells on the southern border of Camp Bullis, which are capable of pumping up to 35 times the withdrawal volume of the installation.

A limited amount of water contamination to both the Trinity and Edwards Aquifer waters has been attributable to the activities on Camp Bullis. No EPA drinking water maximum contaminant levels have ever been detected off-post. The sources of the contamination include buried munitions, ordnance and chemicals that were deposited long ago when modern day practices were not used. Camp Bullis maintains a system of groundwater monitoring wells and has control measures on the few sources of contamination. Regulatory oversight is provided by the Texas Commission on Environmental Quality.

Continued management and protection of the portions of the two aquifers below Camp Bullis could also be threatened by future encroachment, but would ultimately depend on the type, density/intensity and location of development. There have been documented sewage spills onto Camp Bullis, as a result of developments directly adjacent to the perimeter. Camp Bullis has worked with surrounding landowners and regulatory agencies address each of these events, but broad corrective action has not occurred. According to the July 2008 Camp Bullis Training Site ACUB Proposal, Camp Bullis is at risk of offsite pollution impacting the installation's water supply system when sewage leaks from lift stations adjacent to the fence line.

Another issue that affects the study area is the lack of a coordinated approach to preserve the Trinity Aquifer. There have been several measures taken to protect the Edwards Aquifer, such as the acquisition of land to be conserved in perpetuity through Proposition 3 and Proposition 1. Camp Bullis draws its water supplies from the Trinity Aquifer through three wells in two different areas. Wells 3 and 15 are located in the Cantonment Area in the southwestern portion of Camp Bullis, and serve the majority of Camp Bullis. There is another well in the Deployable Medical Systems Equipment for Training (DEMSET) area. Future demands over the next several years for water consumption are projected to be three times higher than current usage with the introduction of new personnel and missions, based on BRAC decisions. As a result, Camp Bullis is expected to exceed its capacity for available water drawn from Trinity wells. It should be noted that there is no legal requirement for the Army to register its wells or report pumping; however, Fort Sam Houston has recently begun providing the Trinity Groundwater Conservation District (GCD) with Camp Bullis pumping data as a matter of voluntary compliance.

Several reports and studies, such as the May 2008 Final Camp Bullis Water System Assessment, have been conducted that offer similar recommendations to balance water supply and demand. These reports recommend that Camp Bullis connect to local SAWS water supplies to meet its future anticipated demand for water. The cost estimates for this connection to SAWS range between three to four million dollars. The Camp should continue to closely monitor its water system and future mission impacts as well as to design the identified connection to make it 'shovel ready' for bid. In this manner the Camp can ensure that it will not suffer from inadequate water supplies to sustain future missions.

19 Threatened & Endangered Species

Definition:
A threatened species is one that may become extinct if measures are not taken to protect it. An endangered species is one that has a very small population and is at greater risk of becoming extinct. Many species that become extinct never make it to the endangered species list. The presence of threatened and endangered species may require special development considerations, potentially halting installation development, impacting the performance of military missions.

There are several known federally listed species within the study area. TPWD and the USFWS believe that as suitable habitat for these species on the land around Camp Bullis has been developed, these species may have been displaced and may have relocated to suitable habitat located within the installation. As unoccupied habitat on the installation becomes occupied, additional monitoring and compliance with federal or state regulations will likely result, potentially leading to operational or land use restrictions in the future. It is not only land that is adjacent to Camp Bullis that can have this effect. As other habitat lands further away, and even outside of the study area, are urbanized, the loss of habitat could potentially cause threatened or endangered species to relocate to available potential habitat at Camp Bullis.

The USFWS has issued Biological Opinions (BOs) under Section 7 of the federal Endangered Species Act for Camp Bullis beginning in the early 1990s that have placed restrictions on training opportunities. These restrictions only allowed the thinning of two acres per year of Golden-cheeked Warbler habitat on the installation. As a result, a significant amount of the potential habitat has become so thick with trees that it is unusable for training. The Golden-cheeked Warbler is a bird that is federally listed as endangered. Per its Biological Opinion and standard USFWS species protocols on surveying/estimating, each year Fort Sam Houston develops an official report with the results of the monitoring of the Golden-cheeked Warbler and Black-capped Vireo on Camp Bullis. This report is sent to the USFWS. Based on data in Camp Bullis' 2008 Field Season Report and 2005 Biological Opinion from USFWS, there has been a substantial increase in the Golden-cheeked Warblers residing on Camp Bullis since surveys began to be conducted in 1991. Over the past five years, there has been a 45 percent increase in estimated total Golden-cheeked Warblers residing on Camp Bullis. These percentages are based on rolling three-year averages, which have consistently gone up each year. Biologically, the most reliable number to gauge population trends on is density of singing males per hectare. Densities on Camp Bullis have nearly doubled since 1991. Based on the biological data, TPWD, USFWS and Camp Bullis biologists believe the trend at Camp Bullis has been for significant increases in Golden-cheeked Warbler populations at Camp Bullis.


Golden-cheeked Warbler

Although there is agreement among all participants that there has been an increase in the number of GCW on Camp Bullis, there are differing opinions on what amount of increase was brought about by nearby development since no scientific study has been conducted to establish definitive cause and effect. Some of the stakeholders in the builder/developer/real estate community question the methodologies

used in the Camp Bullis Warbler surveys and disagree with the conclusions regarding the total number and percentage of population increase.

Years of local population growth and associated development actions have transformed Camp Bullis into an "island of refuge" and especially for the migratory endangered species Golden-cheeked Warbler, further increasing training restrictions. According to the 2008 Camp Bullis Training Site ACUB Proposal, large-scale clear-cutting of wooded areas near Camp Bullis such as the clear-cut of 600 acres between the years 2000 and 2004 for a large housing development at Bulverde Village may have displaced some protected species onto Camp Bullis. Any artificial increase of endangered species density and overall population directly impacts the installation's ability to train and severely restricts the types of permitted training. Additionally, the Golden-cheeked Warbler's migratory stay (March-August) occurs during a significant portion of the Army Reserve scheduled training period.

Approximately 10,000 acres of Camp Bullis exhibits limited field training capacity, including: a 6,000-acre impact area, which is bordered by the installation's numerous small arms firing ranges; a 3,000-acre area on the northern section along Cibolo Creek, which consists of extremely rugged terrain; and a 1,000-acre area of developed land consisting of the cantonment area, two MOUT training sites, a reserve center, and other miscellaneous developed areas. Thus, the 10,000 acres of potential Golden-cheeked Warbler habitat constitutes over half of the installation's most valuable field training land. Figure 3-17 shows the areas of Camp Bullis that are potential Golden-cheeked Warbler habitat, as well as the areas for potential compatibility issues to occur. Another endangered bird that lives within the study area is the Black-capped Vireo. These birds pose a significantly reduced amount of concern for operations at Camp Bullis. Fort Sam Houston's 2008 Field Season Report determined that Camp Bullis had an estimated Golden-cheeked Warbler population of 854 and no Black-capped Vireos, illustrating the lower level species priority of the Vireos. The estimated Golden-cheeked Warbler population decreased by 232 between 2007 and 2008. This reduction is attributed to higher temperatures and the presence of cloud cover during the survey. The cloud cover factor contributes to decreases in avian activity, and while the temperature may have been slightly additive, the main factor was the increase in cloud cover.


Black-capped Vireo

The USFWS has proposed a mitigation initiative whereby a new BO will be issued under Section 7 of the ESA allowing unoccupied acreage on Camp Bullis to be released of restrictions in exchange for securing conservation easements on corresponding potential habitat outside of Camp Bullis (within Draft Recovery Unit 5, which encompasses Bexar and surrounding counties). The City of San Antonio is offering to place conservation restrictions to set aside 3,000 acres of land approximately ten miles to the west of Camp Bullis for Golden-cheeked Warbler preservation. It is expected that about half of this acreage will qualify for Golden-cheeked Warbler mitigation credit. This land will expand the current Government Canyon Natural Area, managed by TPWD.

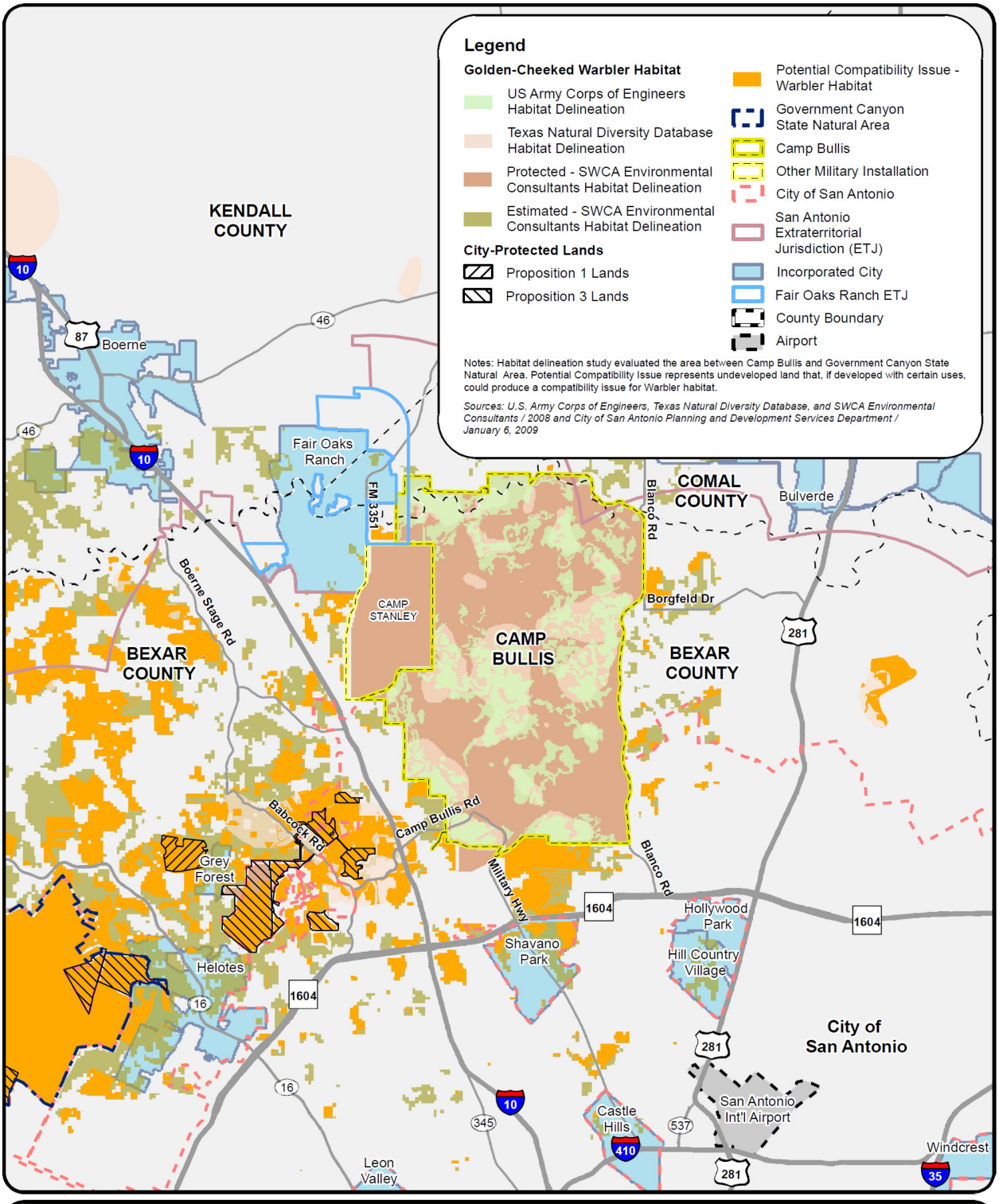


Figure 3-17
Compatibility Issues - Golden-Cheeked Warbler Habitat

The Camp Bullis biologist has been meeting with San Antonio, Bexar County, USFWS, and TPWD staff to issue a new BO in the summer of 2009 supporting this mitigation exchange effort. The BO will be programmatic that can adaptively accommodate future exchange properties, such as any acquired by ACUB. This Section 7 mitigation mechanism can help relieve pressures on Camp Bullis, however much more land is needed to add to this initial mitigation effort.

Once the USFWS reviews the proposal, and subject to issuance of a new BO, restrictions would be lifted on corresponding amounts of acreage on Camp Bullis. Camp Bullis officials relate that, with a few small exceptions, they would only seek mitigation over unoccupied habitat. A small amount of occupied habitat consisting of small isolated blocks that are not near large blocks of occupied habitat may be included in this mitigation. This would be a tiny percentage of the proposed mitigation and a higher mitigation ratio would be factored in for this occupied habitat. Once the restrictions were lifted, the areas would not be clear cut. They would merely be thinned of Ashe juniper (cedar) using mechanized "cedar eaters." This would open up the areas for land navigation and other field training. It would also be beneficial for the aquifer because Ashe juniper (cedar) uses a substantial amount of water compared to most vegetation. Because only unoccupied habitat would be thinned, no Warblers would be displaced from this effort. Any further mitigation will likely take time and substantial funding. One other limitation of mitigation under Section 7 is that karst habitat mitigation is more difficult.

The prime areas that provide Golden-cheeked Warbler habitat in the study area, and thus should have protection measures in place from their destruction, are wooded areas with mature Ashe juniper (at least 15 feet in height) and a natural mix of hardwoods such as oak and elm, typically in rough terrain and relatively moist areas along steep canyons and slopes and adjacent uplands. Furthermore, the areas usually contain a canopy cover of between 50 to 100 percent with a canopy height of over 20 feet. Although these parameters represent the ideal habitat for Golden-cheeked Warblers, there are also several other types of habitat that is considered lesser quality potential habitat with lower canopy cover levels (35 to 100 percent), various types of terrain, and different mixes of trees. These areas are typically located adjacent to the prime habitat in order for Golden-cheeked Warblers to utilize them. By setting aside other lands outside of Camp Bullis for preserved Golden-cheeked Warbler habitat, the installation could thin certain areas for training without any recourse. This thinning will make these areas unattractive to bird populations and thereby exclude future habitation. Once cleared, these areas will not be potential Warbler habitat for many decades, and routine maintenance and cutting will prevent regrowth of mature tree stands.



Rhadine infernalis, a Karst Invertebrate

Nine species of karst invertebrates also inhabit the area. The various types of karst invertebrates that live in caves in many of the areas surrounding Camp Bullis were federally listed as endangered in 2000. Approximately 2,400 acres of Camp Bullis has been identified as karst habitat. There are currently three identified karst species on the installation that are found in 24 caves. They are *Rhadine exillis* and *Rhadine infernalis*, both of which are cave beetles; and the *Cicurina madla*, a blind cave spider. Karst species have become geologically separated from each other and have evolved into genetically unique species depending on which cave they inhabit.

The USFWS has designated five karst zones, relating to habitation of the species. These zones are outlined in the Bexar County Karst Invertebrates Draft Recovery Plan, and are all located in the northern portion of Bexar County, with some extension into Medina County. The zones are listed in descending order from the most important to the continued sustainment and existence of karst species. Figure 3-18 identifies these zones as defined in the following:

- Karst Zone 1 – Areas known to contain listed invertebrate karst species.
- Karst Zone 2 – Areas having a high probability of containing suitable habitat for listed invertebrate karst species.
- Karst Zone 3 – Areas that probably do not contain listed invertebrate karst species.
- Karst Zone 4 – Areas which require further research but are generally equivalent to Zone 3, although they may include sections which could be classified as Zone 2 or Zone 5 as more information becomes available.
- Karst Zone 5 – Areas which do not contain listed invertebrate karst species.

In 1994, six Karst Faunal Regions were established in Bexar County. These faunal regions are based on the discontinuity of karst habitats that may reduce or limit interaction between the different species. This is a result of division of cave systems in which karst species live. One of the major factors in karst separation is urban development damaging cave systems. Once a certain area is developed and the caves are destroyed or sealed, that specific sect of karst species will become extinct. As the land around Camp Bullis continues to develop, the installation could potentially provide the only habitat for remaining karst species, and would then be potentially subject to severe operational restrictions in order to protect them. Figure 3-19 shows the existing Karst Faunal Regions within the study area.

On April 8, 2003, the USFWS released a final rule for critical habitat designation (50 CFR Part 77) for seven karst invertebrates in Bexar County. Critical habitat is a term defined under the Endangered Species Act that refers to a specific area that is essential for the conservation of a threatened or endangered species, and which may require special management or regulation to protect it. This final rule significantly reduced the amount of land designated as critical habitat that was proposed in the draft form. The draft went through a comment period, in which the amount of land designated as critical habitat was reduced from 9,516 acres in 25 units to 1,063 acres in 22 units. The final ruling did not include lands originally proposed for the Government Canyon State Natural Area or Camp Bullis.

Four of the nine federally-listed Bexar County Karst invertebrate species are single cave endemics (thus far found in only one cave in Bexar County). The four single cave endemics are the *Cicurina vespera*, *Cicurina venii*, *Cicurina baronia*, and *Texella cokendolpheri*. It is less likely that an adverse effect on one of these single cave endemics would impact Camp Bullis with additional regulatory pressure. However, there is the potential that one or more of these species actually exists in more than one cave system and that further surveys on Camp Bullis could discover one of these species in a Camp Bullis cave/karst. In fact, the Camp Bullis Endangered Species Management Plan acknowledges that these species possibly exist in Camp Bullis cave/karst features.

On January 14, 2009, the Center for Biological Diversity, along with the Aquifer Guardians in Urban Areas (AGUA) filed a suit against the federal government to designate more land as critical habitat. The basis for the case against the USFWS is the significant decrease in critical habitat designated under the April 2003 final ruling. The potential implications that could result from this lawsuit may have a negative impact on

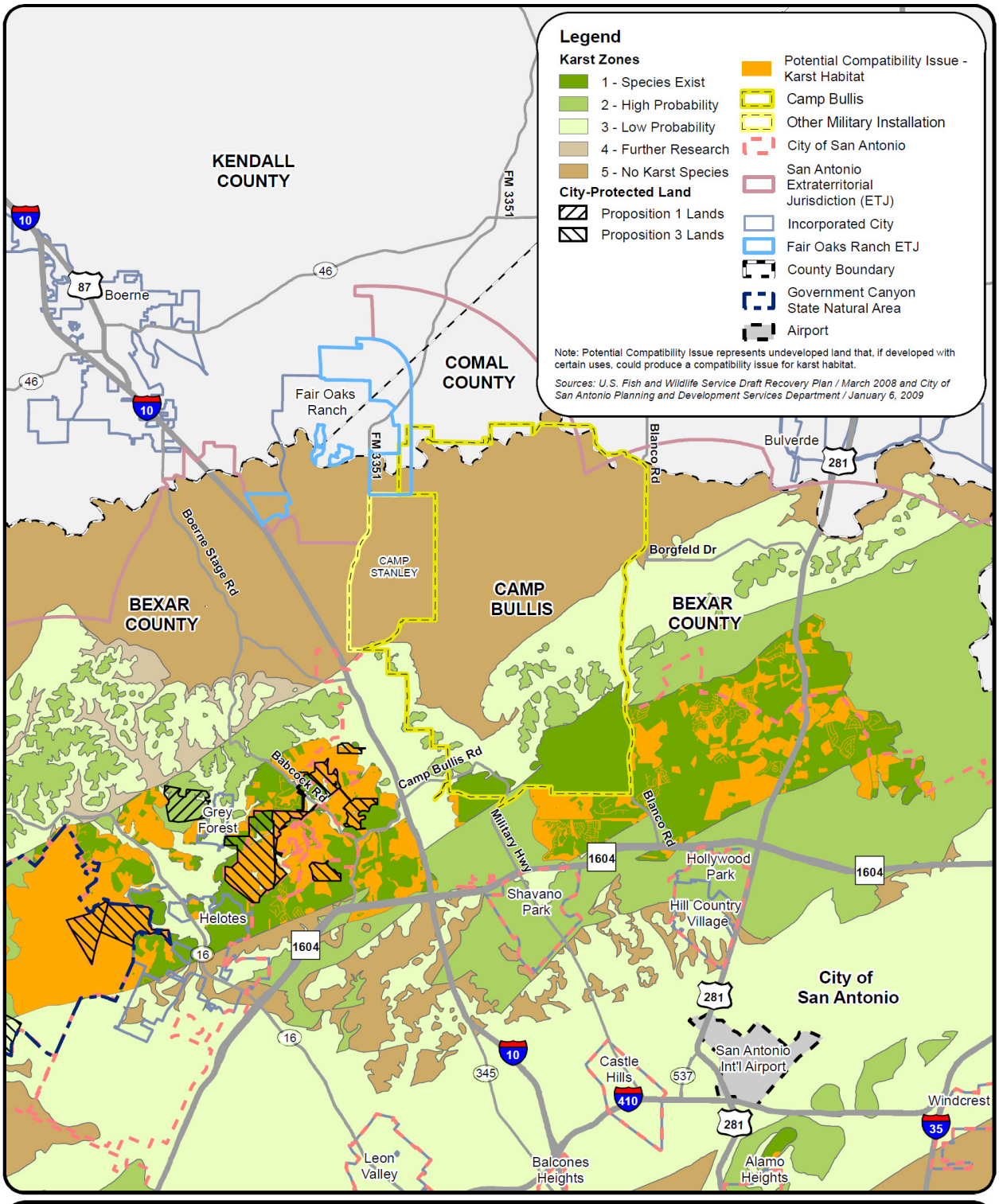


Figure 3-18
Compatibility Issues - Karst Zones

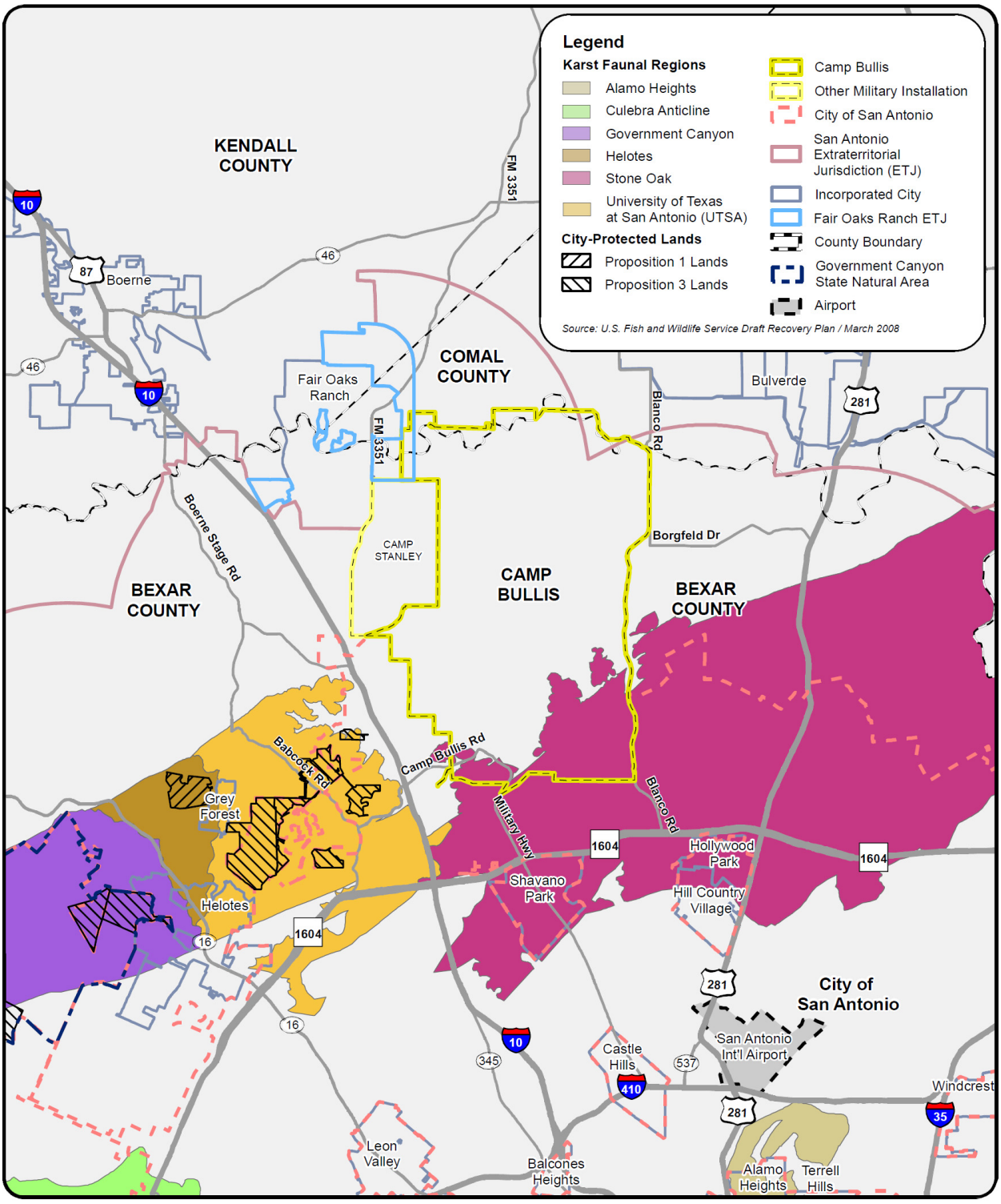


Figure 3-19
Karst Faunal Regions

Camp Bullis. Depending on the lawsuit's outcome, additional critical habitat may be increased throughout Bexar County, including lands within the Camp Bullis boundary. This would impact training areas and the amount of available land for mission operations.

Very few site-specific Habitat Conservation Plans (HCP) have been completed by private parties even though thousands of acres of heavily wooded land throughout the region have already been cleared. An HCP is the private party equivalent of the Biological Opinion that federal agencies obtain in order to receive an incidental take permit from the USFWS. Without an incidental take permit, a person conducting an activity that takes land from endangered species could be subject to criminal prosecution. There has been a reliance on the development community to voluntarily comply with Federal Laws and statutes. This has a potential for large-scale noncompliance with the Endangered Species Act (ESA) and the National Environmental Policy Act (NEPA). Taking the time to prepare a site-specific Environmental Assessment (EA) can be costly and delay a project for many years. Some developments, such as PGA Village and La Cantera have completed both site-specific HCPs and EAs. La Cantera for example, waited eight years and was the subject of litigation before proceeding with development.

3.4 Competition for Scarce Resources

Competition for scarce resources can cause compatibility issues due to the fact that the demand between local and federal government agencies, other agencies, private development concerns, and the military exceeds the supply of the desired attribute. The following is a description of the key resources that could be in high demand. Three of the four competition factors on the overall list of 24 compatibility factors were confirmed as applying to Camp Bullis.

22 Land, Air, and Sea Spaces

Definition:
The provision of land, air, and sea spaces with regard to other civilian airports in the proximity of Camp Bullis and its surrounding military installations.

Camp Bullis manages or uses various land and air spaces to accomplish its training and operational missions. These resources must be available and of sufficient size, cohesiveness, and quality to accommodate effective training for existing and future missions.

Airspace in the Camp Bullis region is a high-demand resource. Increases in demand for flights from local airports or the San Antonio International Airport may impact existing and future aircraft operations at Camp Bullis (i.e., approach and departure tracks, closed pattern flight tracks, etc.). Current facilities at the San Antonio International Airport include two runways and two terminals. The 2,600-acre airport is serviced by over 15 airlines. Growth at this facility could have negative impacts on Camp Bullis and its mission. While not a critical issue at this time, if new missions were brought to Camp Bullis specifically involving the use of more aircraft, this issue may become a high priority.

23 Frequency Spectrum Capacity

Definition:
Frequency spectrum capacity is critical for maintaining existing and future missions at military installations. This also needs to be addressed from the standpoint of consumer electronics.

In performance of typical operations, the military relies on a range of frequencies for communications and support systems. Similarly, public and private uses rely on a range of frequencies to support daily life. Although specific frequencies are generally reserved for designated uses, as the demand for this limited resource increases (such as the rapid rise in cellular phone technology over the last decade) so does the issue of frequency spectrum impedance, interference, and competition.

As more of the radio frequency (RF) spectrum is made available to private entities and public agencies, the competition for frequency spectrum capacity increases, more coordination with the Federal Communications Commission (FCC) and other users will be necessary.

24 Ground Transportation Capacity

Definition:
Ground transportation capacity relates to the ability of existing freeways, highway, arterials and other local roads to provide adequate mobility and access among military installations and their surrounding communities.

As urban development expands into rural areas, roads once used primarily to provide access to agricultural lands or transport a limited number of vehicles per day begin to function more as urban major arterial roadways. These once rural roads are often the main transportation corridors for access to military installations. In addition, these facilities also induce growth as rural areas become more accessible.

Since Camp Bullis is a training site for Lackland AFB and Fort Sam Houston, it is necessary to transport troops and equipment from each of the bases to the training area. This must be accomplished on publicly accessible roads; therefore, the convoys traveling to and from Camp Bullis are constrained by the same traffic congestion that impacts all other travelers using those roadways. Specific regulations outlined in the "Army Regulation 55-80, Transportation and Travel, *DOD Transportation Engineering Program*, November, 2003" have recommended that routes between these installations occur using the network of Interstates and U.S. highways. Both of these installations are located within the City of San Antonio, which is already facing road congestion along selected corridors, especially during morning and evening peak hours.

Compatibility Factor #5, Infrastructure Extensions, discussed various road improvements that are taking place in the study area that could potentially enhance transportation mobility to and from Camp Bullis. Development and improvement projects on I-35, Loop 1604, and I-410 include the major routes that are used by military transport vehicles.

Fort Sam Houston is located in the central portion and Lackland AFB is located in the southwestern portion of San Antonio. Based on their physical separation, different routes are used by military personnel to travel between them and Camp Bullis. According to the recently completed Camp Bullis Transportation Plan, with routes shown on Figure 3-20, the primary roads of travel for Fort Sam Houston are Pershing Road, Broadway Boulevard, Hildebrand Road, Highway 281, Loop 1604, Military Highway, I-35, and I-10. The roadways of travel for Lackland AFB are Military Highway, Highway 90, I-410, I-10, and Loop 1604. Increased traffic using these routes, especially during the morning and evening peak commuting times will increase travel time during these two critical periods. The potential also exists for accidents, which constrict traffic flows, potentially reducing the amount of training time available. As San Antonio continues to grow and new personnel are stationed at Camp Bullis, Fort Sam Houston and Lackland AFB through BRAC, the resulting demand for road capacity will also increase.

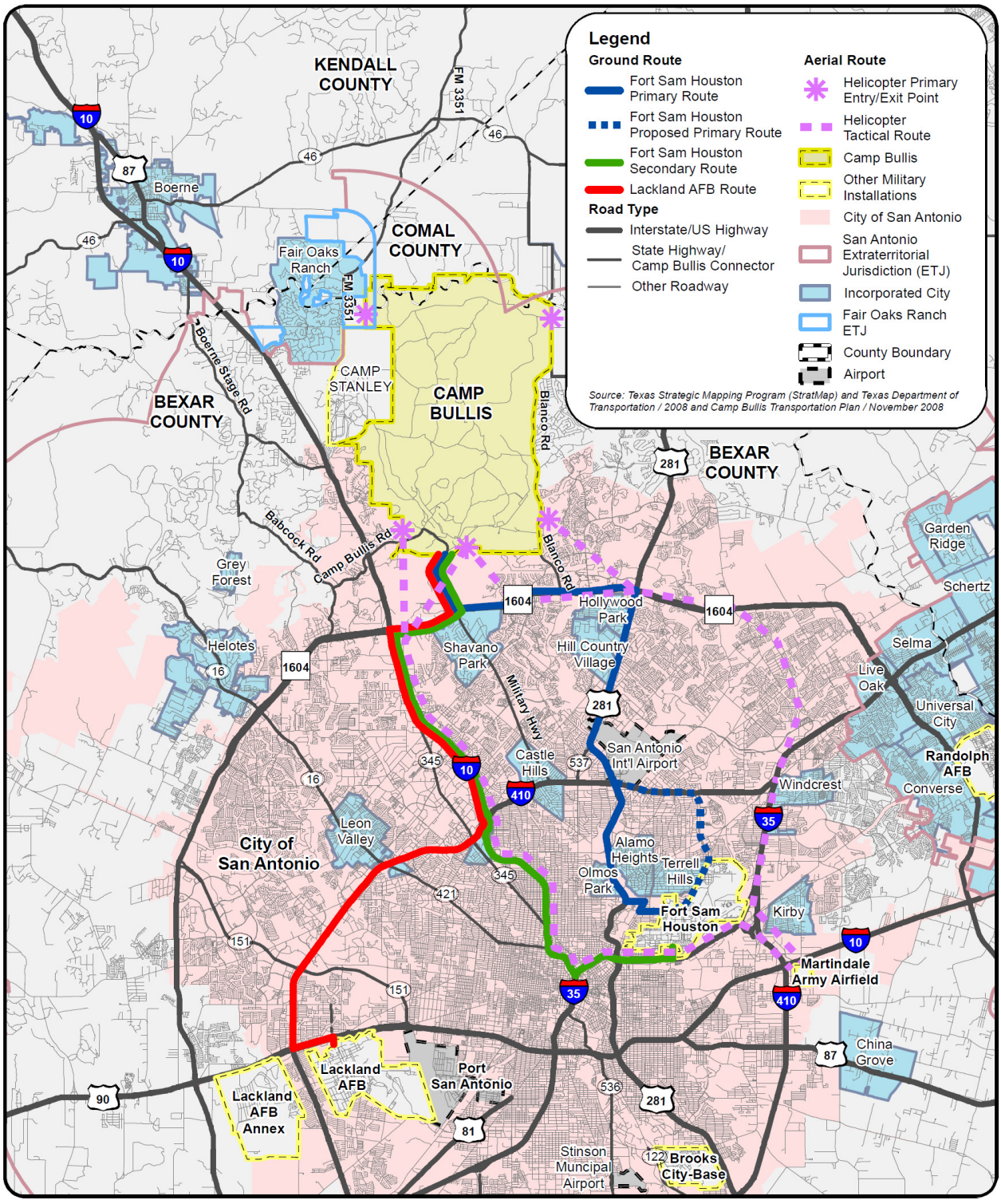


Figure 3-20
Camp Bullis Transportation Plan

Please see the next page

Section 4



Existing Plans & Programs

This section provides an overview of plans and programs that are currently used or applied in evaluating and addressing compatibility issues in the Camp Bullis JLUS study area. There are three types of planning tools that are evaluated; permanent, semi-permanent, and conditional. Permanent planning tools include acquisition programs, either fee simple purchase of property or the purchase of development rights. Semi-permanent tools include regulations such as zoning or adopted legislation. Examples of conditional tools would include memorandums of understanding (MOU), intergovernmental agreements (IGA), and other policy documents such as comprehensive plans that can be modified.

The local jurisdictional planning tools include existing and proposed plans and programs that have been prepared and adopted by the study area jurisdictions. This discussion includes an evaluation of the type of planning tools utilized by the study area jurisdictions. A review and evaluation of state and federal plans and programs is also included. In terms of implementation, an overview of the programs undertaken for Camp Bullis include the Army Compatible Use Buffer program, the Operational Noise Contours Report, the Integrated Natural Resources Management Plan, the Integrated Cultural Resources Management Plan, the Environmental Noise Management Plan, and the Camp Bullis Air Operations Standard Operating Procedure.

4.1 Local Jurisdiction Planning Tools

The planning tools used by the study area jurisdictions include an analysis to organize the tools as permanent, semi-permanent, or conditional. It is important to note that unlike counties in other states, Texas counties exert minimal regulatory authority. For example, counties do not have the power to regulate zoning on land in the county, or the use or appearance of property. Counties are not legally bound by statute to develop comprehensive plans, similar to a municipality. Similar to cities, however, Section 232 of the Texas Local Government Code provides counties with the authority to regulate the subdivision of land. Under this authority, the focus of a county's ability to regulate the subdivision of land is limited to roads, streets, drainage, and rights-of-way. Approximately 26.6% (113.601 acres) of the study area (427,372 acres) is excluded from municipal authority, meaning not part of a city, an extraterritorial jurisdiction, or a military installation.

Subdivision regulation is accomplished through the review and approval of plats. In addition to their incorporated areas, cities in Texas have the authority to regulate new subdivisions in unincorporated areas within their extraterritorial jurisdiction (ETJ). Counties in Texas not only exhibit subdivision

regulation authority within unincorporated areas and may share authority in a city's ETJ. Subdivision regulations do not apply to:

- the use of any building or property for business, industrial, residential or other purposes;
- the bulk, height, or number of buildings constructed on a particular tract of land;
- the size of a building that can be constructed, including restrictions on the floor area ratio; or
- the number of residential units that can be built per acre of land.

Although these limitations exist, subdivision regulations can still be effectively used for compatibility planning purposes. For example, in areas without existing wastewater infrastructure, subdivision regulations might prohibit or limit the development of land, require open space set asides, or minimize the impact on a sensitive environmental area. Table 4-1 provides an overview of existing local jurisdiction planning tools in the study area. The table outlines its use in a particular jurisdiction and if deficiencies exist relative to addressing compatibility issues. The specific deficiencies are outlined in a subsequent sub section.

Table 4-1. City Planning Tools

Jurisdiction	Planning Tools										
	Comprehensive Plan	Unified Development Code	Zoning Code - Height Restrictions	Zoning Code - Dark Sky	Zoning Code - Sound Attenuation	Airport Hazard Zoning Regulations	Subdivision Regulations	Master Development Plan	Building Code	Annexation	Acquisition
City of San Antonio	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
City of Shavano Park	N	N	Y	N	N	N	Y	N	Y	U	U
City of Fair Oaks Ranch	Y	N	N	Y	N	N	Y	N	Y	U	U
Town of Hollywood Park	N	N	Y	N	N	N	Y	N	Y	U	U
City of Hill Country Village	Y	N	Y	N	N	U	Y	N	Y	U	U
City of Boerne	Y	U	Y	Y	N	N	Y	Y	U	Y	U
City of Bulverde	Y	U	Y	Y	N	N	Y	Y	Y	U	U

Legend: = Deficient as a compatibility tool
= Not deficient as a compatibility tool

Y= Yes, the jurisdiction utilizes this tool
N= No, the jurisdiction does not utilize this tool
U= Unknown whether the jurisdiction uses this tool

Sources: City of San Antonio, City of Shavano Park, City of Fair Oaks Ranch, Town of Hollywood Park, City of Hill Country Village, City of Boerne, City of Bulverde and evaluations by Matrix Design Group, 2009

City of San Antonio

As the largest incorporated area within the JLUS study area, the City of San Antonio has utilized the widest variety of planning tools to ensure orderly and safe development throughout the City and its extraterritorial jurisdiction (ETJ). The following is a review of the existing planning tools utilized by the City of San Antonio along with a brief analysis identifying their efficiency in addressing land use and military compatibility. This information also includes deficiencies within programs where potential improvements can be made to address encroachment issues. The following planning tools evaluated are listed below:

- San Antonio Comprehensive Plan
- San Antonio Unified Development Code (UDC)
- San Antonio Zoning Code – Dark Sky Provisions
- San Antonio Zoning Code – Sound Attenuation
- San Antonio Airport Hazard Zoning Regulations
- San Antonio Master Development Plan
- San Antonio Building Code
- San Antonio Annexation
- San Antonio Acquisition
- San Antonio Transfer of Development Rights

Comprehensive Plan

The State of Texas does not mandate that municipalities prepare and adopt master or comprehensive general plans to guide their long term growth. However, the City of San Antonio adopted a set of comprehensive plan policies on May 29, 1997 along with the City's first UDC (May 3, 2001) to assist in implementation of the policies. The City has not adopted a city-wide land use plan, but has prepared area plans for neighborhoods, sectors and corridors. Many of these plans include proposed land uses and zoning districts. Comprehensive plan policies include the following: addressing Growth Management, Economic Development, Community Services, Neighborhoods, Natural Resources and Urban Design. Area plans and specific plans include land use plans for the San Antonio International Airport Area and the Stinson Airport Vicinity. Many neighborhood plans and several sector plans have also been adopted; however there are no current land use plans applicable to the area surrounding Camp Bullis. The comprehensive plan policies are a conditional planning tool.

A review of the comprehensive plan has identified the following deficiencies:

1. Although the City provides specific plans for the areas around public airports, land use plans for the areas adjacent to Camp Bullis are not identified.

2. Mission sustainment policies are not included in the comprehensive plan.

Unified Development Code

Chapter 35 of the City of San Antonio Municipal Code is a combined code that includes all ordinances related to land development: zoning, subdivision regulations, assurance of consistency with master plan policies and adopted plans. The UDC addresses use patterns, procedures, zoning, uses, density, design, building structure, alignment, transportation access, streets & traffic impact, parking, subdivision regulations, development standards, transfer development rights, storm water management, utilities, parks & open space, natural resource protection, lighting, outdoor storage, historic preservation and vested rights. The UDC is a regulatory umbrella that brings these ordinances together for the major purpose of implementing the City's adopted master plan. The Unified Development Code includes all of the related codes within Chapter 35. Zoning and Subdivision Regulations are a part of the UDC. However, the entire municipal code is considered a semi-permanent planning tool; it is a regulation, thus can be changed at any time. Most of the implementation tools that regulate land use compatibility around Camp Bullis are described within the UDC, however it does not include the adopted building codes.

A review of the Municipal Code identified the following deficiencies:

1. Streetlight standards are included in the Military Overlay Zoning District, which is only applicable within the City limits.

2. Streetlight illumination standards do not address the potential for light pollution. The Unified Development Code for the City of San Antonio does not require sound attenuation for structures within Military Influence Areas. Because sound attenuation would be a requirement in the zoning ordinance, this requirement could only be made for projects located within the City limits. Thus, sound attenuation could not be applied to areas in the San Antonio ETJ. This can be addressed by adding amendments to the adopted International Residential Code, which is a part of the International Building Code.

3. Streetlights are required for new subdivisions platted within the City limits, not in the ETJ. In the Military Lighting Overlay District, street light standards do address dark sky issues, however, the Citizen's Guide to Street Lights and City streetlight requirements have not been updated to discuss dark sky lighting.

Zoning Ordinance

Considered one of the key tools in the implementation of a master plan, the zoning ordinance is the primary mechanism whereby local governments can influence the direction, type, use, density, and location of development. The primary purpose of zoning is to protect the public health, safety and welfare as well as protect against physical danger. This includes physical safety for properties in proximity to military ranges or within aviation routes and corridors. Additionally, zoning can address glare, lighting, noise, dust, vibration.

Zoning ordinances enumerate uses permitted by right or by special exception within each category of land use. Most ordinances also allow for the ability to grant special exceptions, provided certain conditions are met. These exceptions are often referred to as conditional use permits (CUP) or special use permits (SUP). In addition to land uses, the zoning ordinances also set the standard for permitted densities, location of structures, building heights, setbacks, acreage requirements, and other development parameters.

Currently in Texas, municipal zoning does not extend beyond the City limits; however, subdivision regulations can be enforced by the City within its area of extraterritorial jurisdiction (ETJ) which can extend a distance of five miles from the City limits. Zoning authority in Texas is derived from Chapter 211 of the Texas Local Government Code.

The City of San Antonio zoning ordinance is applicable only within its corporate limits, and can be used to:

- Prevent encroachment of incompatible uses near military installations.
- Limit the type of use that can be developed on property within the area surrounding Camp Bullis.
- Limit building height around airports.
- Establish criteria for land uses and construction within noise and safety zones generated by a military runway.

- Zoning Overlay Districts address special siting, use and compatibility issues which require use and development regulations that exceed the underlying (base) zoning districts. If a regulation in an overlay district requires lower densities, extended setbacks, or imposes stricter standards than those required by the base zoning district, the more restrictive standard applies. Property within an overlay district receives the names of both the base district and the overlay district. For example if a property zoned MF-25 lies within a Military Airport Overlay District, the property would be zoned "MF-25 (MAOZ)." This is effectively a new zoning district with the requirements of both the MF-25 and the Military Airport Overlay Zone (MAOZ) and places it under the procedures and restrictions for zoning and rezoning actions.

On December 11, 2008, the City of San Antonio amended Chapter 35 of the City Code by adding Section 35-339.04 "Military Lighting Overlay Districts" to Article II, Division 4 "Overlay Districts" and adding Section 35-498 "Violations of Military Lighting Overlay Districts Regulations" to Article IV, Division 11 "Enforcement, Violations and Penalties." The purpose is to establish regulations for outdoor lighting impacting military operations within five miles of the perimeter of Camp Bullis/Camp Stanley, Randolph AFB and Lackland AFB. The intent of these amendments is to reduce glare and the potential distraction by off-installation activities upon the night time training exercises occurring on-installation. Balancing the needs of the military, the City of San Antonio, and property owners regarding responsible development, including appropriate outdoor lighting within this area is the ultimate goal.

In addition to designation of the area within five miles of the perimeter of these military installations, the ordinance also states: ". . . that if a Joint Land Use Study determines that lighting regulations are required in a smaller area than those required in a designated district, the City may initiate a rezoning to remove properties from a military lighting overlay district. If a Joint Land Use Study determines that different regulations are required or recommended, the City may modify the district regulations accordingly." This ordinance regulates outdoor lighting within the incorporated areas of the City of San Antonio and within five (5) miles of the Camp Bullis/Camp Stanley perimeter. Its purpose is to protect military night training activities from the encroachment of new development.

The COSA ordinance establishes district standards including definitions, residential lighting, commercial lighting, gasoline filling stations, parking lot and parking structures, outdoor signs, street lighting, LEED Standards, tower and structures (FCC or FAA regulations), other prohibited lighting, unmanned automated teller machines, exemptions, maintenance and repair of legal non-conforming luminaries, administration, variances and special exceptions. Violation regulations include definitions, enforcement and penalties.

Zoning is considered a semi-permanent planning tool because it provides the regulatory foundation to guide development, but can be amended at any time. While the zoning code typically controls the type, density, and intensity of land use, it also has the ability to serve as a tool to prevent future encroachment onto the installation or adjacent operational areas. The zoning code can be used as the regulatory foundation to ensure mission sustainability; particularly in relation to dark sky provisions, height restrictions, and sound attenuation.

A review of the existing zoning code identified the following deficiencies.

1. Only pertains to incorporated areas.

2. Zoning districts are not based on an adopted land use plan that includes the entire City and 4TJ, however, some areas of the City exhibit plans for certain areas.

3. The City continues to refer to a detailed list of permitted uses within each zoning district rather than using performance standards.

4. The City of San Antonio zoning ordinance does not address vertical obstructions in the military influence area.

City of San Antonio Airport Hazard Zoning Regulations, Ordinance 55085

The City of San Antonio Airport Hazard Zoning Regulation provides the legal authority to classify and establish measures to avoid the placement of vertical obstructions within critical takeoff, landing and approach areas near an airport that may cause safety issues or flight operation impairment. The ordinance establishes airport hazard areas, within which certain types of land uses and development are not allowed due to the impact they could have on aircraft operations (i.e., landing and taking off). The ordinance defines appropriate types of uses, or objects that are considered hazards, and it dictates their separation from a runway or airport to maintain operational efficiency. This ordinance specifically applies to San Antonio International Airport and Stinson Municipal Airport, as well as Randolph AFB and Kelly AFB. The Airport Hazard Zoning regulations are a semi-permanent planning tool.

The existing regulations have been reviewed and the following deficiencies have been identified:

1. The Combat Assault Landing Strip (CALS) on Camp Bullis is not included in the ordinance.

Subdivision Regulations 35-430

The subdivision regulations are found in Article 4, Procedures of the City of San Antonio Unified Development Code. Elsewhere in the UDC, Development Standards are located in Article V and the related Use Patterns guidelines are in Article 2. Vested Rights and Non-Conforming Uses comprise Article VII. Subdivision regulations apply to the approval of plats within the corporate limits and within the 5-mile extraterritorial jurisdiction (ETJ). Cities in Texas do not have the authority to restrict land uses *within the ETJ*. Similar to zoning regulations, subdivision regulations may assist in controlling density adjacent to the installation.

A review of the existing deficiencies is presented below:

1. Subdivision regulations cannot be used to control land use, lot size or density.

2. Subdivision regulations in San Antonio do not offer incentives for desired development near military installations.

Master Development Plan (MDP) 35-412

The City of San Antonio requires the submittal and review of a Master Development Plan for phased developments. This tool provides the City with early notice of proposed development within its corporate

limits, as well as the ETJ. The MDP process requires additional review during implementation in order to assure compliance with subdivision regulations and consistency with master plan policies and adopted plans. The UDC includes use patterns, procedures, zoning, uses, density, design, building structure, alignment, transportation access, streets & traffic impact, parking, subdivision regulations, development standards, transfer development rights, storm water management, utilities, parks & open space, natural resource protection, lighting, signs, outdoor storage, historic preservation and vested rights. The MDP process is considered a semi-permanent planning tool.

A review of the existing process identified the following deficiencies:

1. The MDP process does not require developers to demonstrate awareness or compliance with Section 10 of the Endangered Species Act (ESA).

2. The MDP process does not require residential notifications to future property owners purchasing land in the vicinity of Camp Bullis that may be impacted by noise and vibration.

3. MDP's do not require Planning Commission review or public hearing, and can be changed without notice.

Building Code (Chapter 6 of the Municipal Code)

The City of San Antonio has adopted the Universal Building Code (UBC) to regulate building construction, materials, alteration and occupancy to ensure health, safety and welfare. The building code regulates building construction such that it is compatible with military installations, including sound attenuation for residences within applicable noise zones. Building codes, similar to other regulatory tools, are considered semi-permanent. The City of San Antonio's building code serves an important role in compatibility planning.

The review of the existing building code identified the following deficiencies:

1. Although sound attenuation standards can be outlined in building codes, sound attenuation is not a current requirement for residential uses or public gathering places that are located in areas affected by noise. This can be addressed by adding amendments to the adopted International Residential Code, which is a part of the International Building Code.

Annexation

Annexation is not a tool that can be applied with immediate results. Unless petitioned by property owners, a municipality must prepare a three-year annexation plan and follow strict guidelines in order to extend its jurisdiction into unincorporated territory. With few exceptions, such as voluntary annexation or areas with less than 100 lots upon which one or two units are on each lot, a municipality must prepare the annexation plan and guidelines. Annexation is considered a semi-permanent planning tool; land can revert to its unincorporated status as annexation does not change the actual ownership of any parcel of land. Annexation will be an important tool in addressing compatibility issues simply because if land is annexed, zoning regulations can be applied.

The City of San Antonio's annexation program has been an effective tool in addressing compatibility concerns near Camp Bullis, however the following deficiencies are noted:

1. Without legislative amendment to the existing plan and guideline provisions annexation will remain a long term tool.

2. Political jurisdictions outside Bexar County are wary of any annexation attempts by the City of San Antonio and some have identified extensive ETJs to prevent such encroachment by the City.

3. Although zoning authority can be extended to annexed areas, state law requires the continuation of use rights by the municipality for existing uses and for planned uses that were approved by any governmental permit prior to the annexation proceedings. Thus, without legislative changes, annexation will have a limited effect.

Acquisition

When acquisition is used as a land use planning and implementation tool, property rights and/or development rights could be acquired through donation, easement or the outright purchase of property for public purposes.

Acquisition can eliminate compatibility issues that might occur through real estate transactions and the land development process. These tools are very effective because they remove the potential of incompatible land uses from critical areas and therefore achieve compatibility goals. With these tools, land use compatibility issues can be addressed by:

- Creating an undeveloped land barrier between active military installations and incompatible land uses.
- Shifting future growth away from critical military lands.
- Protecting public safety by diverting incompatible land uses to other locations.
- Protecting the natural environment.
- Maintaining and protecting existing agriculture resources.
- Conserving open space.

Acquisition may occur in several different methods: voluntary, conservation or agricultural/ cattle ranching easement and fee simple acquisition (conservation partnership), described below:

Voluntary Acquisition (donation of property or development rights). Federal legislation allows and supports a voluntary acquisition program under section 104(a) of the Aviation Safety and Noise Abatement Act of 1979. This legislation allows an airport operator (including military airports) to submit a noise compatibility program to the FAA which establishes the methods for the reduction of incompatible uses. Some properties located within Military Influence Areas (MIA) should be eligible to participate.

Conservation or Agricultural/Cattle Ranching Easement. This type of easement is primarily donated or purchased. There are incentives to encourage donation by property owners of easements, including a federal income tax deduction. Easement acquisition is a more cost-effective method than outright purchase and allows the property owner to retain some of the property rights.

Fee Simple Acquisition (Conservation Partnering). This is actual purchase of the property and is the most costly method of achieving compatibility goals of protecting sensitive or critical areas. The National Defense Reauthorization Act of 2003 granted authority to the DOD to "partner" with local governments and conservation organizations to assist in the acquisition of land. Grant funding requires that the DOD identify willing sellers with property that, if acquired, would achieve the objectives of: 1) Limiting development or use of the property that would be incompatible with the mission of the installation; and 2) Preserving habitat on the property that is compatible with environmental requirements and/or may eliminate or relieve current or anticipated environmental restrictions that would or might otherwise restrict, impede, or otherwise interfere, whether directly or indirectly, with current or anticipated military training, testing or operations on the military installation. In addition, funding could be provided through the US Department of Agriculture' Farms and Ranch Lands Protection Program (FRLPP) and the Texas Military Revolving Loan Fund Program.

The City of San Antonio has held successful bond elections to acquire property for the Edwards Aquifer Protection Program. This program has purchased development rights as well as fee simple acquisitions in Bexar and Medina Counties. Acquisition is a permanent planning tool, because the use of property for either an environmental or compatibility purpose can be ensured indefinitely.

Acquisition tools pertaining to mission sustainability for Camp Bullis are deficient due to the following:

1. A defined acquisition strategy does not exist to date, even though the City's Edwards Aquifer Protection Program (Prop 1 and 3) has served to both protect the Edwards Aquifer and mitigate endangered species habitat adjacent and proximate to Camp Bullis.

2. A defined regional habitat conservation plan has not been prepared, so the identification of priority parcels for endangered species habitat protection does not exist.

City of San Antonio Transfer of Development Rights Ordinance (TDR)

The City of San Antonio developed a TDR program as a vehicle to enable the private market to allocate economic benefits to landowners in restricted areas. The San Antonio ordinance establishes procedures for transferring densities from sending to receiving parcels. At the request of the landowners in the sending areas and the receiving areas, the City may increase densities in the receiving areas and reduce densities in the sending areas. Sending areas must either be critical areas, agricultural areas, or designated right-of-way; receiving areas must be designated traditional neighborhood development districts, transit-oriented development districts, or infill development zones. The TDR process can be an effective tool in preserving critical resource areas, as well as a mechanism to protect the development potential of critical areas without full transfer of ownership. TDR ordinances can be an extremely affective way to preserve areas which would be difficult to develop, are not suitable for residential development, or where the property owner has no desire to develop the land for residential purposes.

The existing ordinance has been reviewed and the following deficiencies have been identified:

1. Sending areas for the purpose of military mission sustainment have not been identified in the ordinance.

2. No provision exists for interjurisdictional transfers, for instance sending areas in rural Bexar County can not transfer rights to urban areas in the City of San Antonio.

3. The only receiving districts in San Antonio's current UDC are in the D (Downtown District) and IDZ (Infill Development Zone District) which have no density limits, therefore there is no incentive to purchase and/or transfer development rights to these urban areas.

City of Shavano Park

Located three miles south of Camp Bullis, the City of Shavano Park was incorporated in 1956. Due to the City's proximity to Camp Bullis, residents could be impacted by noise and vibration produced through installation activities and training, while missions from Camp Bullis could potentially be affected by light produced by adjacent and proximate uses within the City.

Comprehensive Plan

The City of Shavano Park has not developed a comprehensive plan.

Zoning Ordinance

The City of Shavano Park Zoning Ordinance 100-03-99 divides the land within the City into nine districts and provides development provisions within those districts. Lot size requirements, lot area, parking and height regulations are provided for each district. The Municipal Utility (MU) district has the highest allowable building height of 50 feet. The Shavano Park zoning ordinance does not require sound attenuation, however due to the distance from Camp Bullis, noise impacts in Shavano Park should be minimal to non-existent. The Shavano Park Zoning Ordinance does not include a stand alone district provision or sub districts for airport or military zoning.

Subdivision Ordinance

The City of Shavano Park regulates the subdivision of land within the corporate limits and extraterritorial jurisdiction. The subdivision ordinance is similar to other jurisdictions within the study area; however in 1999 the City removed the provision that the subdivision of land had to conform to the City's comprehensive plan. Platting, permitting, and inspections standards remain similar to other areas.

Building Code

Shavano Park has adopted Building Codes by Ordinance No. 100-03-07. Building codes regulate building construction, materials, alteration and occupancy to ensure health, safety and welfare within the community. The building code regulates construction practices to maintain compatibility with military installations, including necessary sound attenuation for residences within applicable noise zones. Shavano Park has adopted the following:

- The International Building Code, 2003 Edition;
- The International Plumbing Code, 2003 Edition;
- The International Mechanical Code, 2003 Edition;
- The National Electric Code, 2005 Edition;
- The International Energy Code, 2003 Edition;
- The International Fire Code, 2000 Edition;
- The International Residential Code 2003 Edition;
- The International Property Maintenance Code, 2003 Edition;
- The International Existing Buildings Code, 2003 Edition; and
- Changes and amendments issued subsequently are made a part of the Shavano Park ordinance.

A review of the planning tools for the City of Shavano Park has identified the following deficiencies:

1. Dark Sky provisions have not been included in the zoning or building codes to protect mission operations. However, the City is currently developing a dark sky ordinance.

2. The City does not require notice to surrounding property owners pertaining to their proximity to military operations.

City of Fair Oaks Ranch

Located in northern Bexar County, the City of Fair Oaks Ranch borders Camp Bullis to the northwest. Sharing a boundary with the installation, residents of the City may experience noise and vibration from the military operations occurring within Camp Bullis. Conversely, Camp Bullis operations may be affected by light emitted from the City as well as incompatible land uses along their common border.

Comprehensive Plan

The City of Fair Oaks Ranch Comprehensive Plan was adopted on April 19, 2007. Residents of Fair Oaks Ranch are accustomed to a quiet lifestyle and a community comprised predominately of residential units, with minimal commercial uses. The main objectives of the comprehensive plan are to efficiently manage growth in an orderly and rational manner, ensure that the existing quality of life of residents is maintained, and to reasonably manage land uses and conflicts among different uses. According to the comprehensive plan, residential land uses primarily include detached single family lots with densities based on the availability of water and sewer utility service as detailed in Table 4-2.

Table 4-2. City of Fair Oaks Ranch Residential Densities

Land Use	Minimum Lot Size
Residential, no city water or sewer available	5 acres
Residential, either water or sewer available, but not both	1.03 acres (45,000 sq. ft. min.)
Residential, water and sewer service available	0.19 acres (8,400 sq. ft. min)

Source: City of Fair Oaks Ranch Comprehensive Plan; 2009

Although Fair Oaks Ranch is immediately adjacent to Camp Bullis, the military installation is not identified in the comprehensive plan.

Zoning Ordinance

The City of Fair Oaks Ranch does not maintain zoning or subdivision regulations. However the City adopted a lighting ordinance on January 15th, 2009. This ordinance was adopted specifically to protect the night training missions at Camp Bullis, and is applicable to those areas of Fair Oaks Ranch that are located within 3 miles of Camp Bullis. The ordinance outlines acceptable and unacceptable fixtures and included provisions for both commercial and residential lighting. The provisions of the ordinance are designed to minimize glare and light trespass; requiring full cut off and shielded lighting fixtures.

Building Code

Chapter 3 of the Fair Oaks Ranch Code of Ordinances pertains to building regulations. Provisions for permitting, submission requirements, fees, and inspections are provided.

Review of the existing planning tools for the City of Fair Oaks Ranch has identified the following deficiencies:

1. Sound attenuation standards are not included in the building/zoning regulations to mitigate noise from military operations.

2. The City does not require notice to surrounding property owners pertaining to the proximity of military operations.

Town of Hollywood Park

The Town of Hollywood Park, a suburb of the City of San Antonio, is located approximately 2.5 miles southeast of Camp Bullis. Although relatively small in size and potential impact, regulatory actions pertaining to land use, light emissions, and sound attenuation could have a perpetual effect on mission sustainability as well as quality of life for town residents.

Comprehensive Plan

Although the subdivision regulations, Chapter 62 of the City Code, require that subdivisions conform to the comprehensive plan, the Town of Hollywood Park does not maintain a current comprehensive plan. However, this is understandable due to the near 100 percent buildout status of the Town's corporate limits. It does not have an ETJ.

Zoning Ordinance

The Hollywood Park Zoning Code is Chapter 78 of the City Code and does not include a provision for airport zoning. However, the maximum height limit for any building is 4 stories or 70 feet. The Zoning Code includes three zoning districts: Single Family Residential (large lots); General Business and Garden Home Residential (smaller lots). The Town has not adopted a lighting ordinance.

Subdivision Regulations

Chapter 62 of the Code of the Town of Hollywood Park sets forth standards for the subdivision of land. Provisions for the subdivision platting process, inspections, variances, and parks and public areas are included in Chapter 62, as well as design criteria for streets, alleys, sewers and drainage structures.

Building Code

Chapter 14 of the Code of the Town of Hollywood Park sets forth building regulations, including construction standards, for construction within the Town limits. Sound attenuation and lighting are not addressed.

A review of the planning tools for the Town of Hollywood Park has identified the following deficiencies:

1. Hollywood Park has not adopted a lighting ordinance to protect the operations at Camp Bullis, a significant amount of which occur at night.

2. The City does not require notice to surrounding property owners pertaining to their proximity of military operations.

City of Hill Country Village

Located adjacent to the south of the Town of Hollywood Park, the City of Hill Country Village is a small jurisdiction of only 2.1 square miles. Similar to Hollywood Park, regulatory actions pertaining to land use, light emissions, and sound attenuation could have a perpetual effect on mission sustainability as well as quality of life for Town residents.

Comprehensive Plan

Approved in July 1992, the City of Hill Country Village Comprehensive Plan focuses on preserving the residential character of the City within the context of the larger metropolitan area of San Antonio. The provision of quality residential living is its top priority, and the objectives of the comprehensive plan establish clear boundaries between residential and commercial uses as well as providing buffer areas between them so they do not impact each other. At the time the Plan was adopted, there were numerous development issues expected along the travel corridors of U.S. 281 and Bitters Road. These areas were addressed to ensure compatible and proper land use would occur along them. The Hill Country Village Comprehensive Plan does not refer to Camp Bullis or contain any policies related to compatibility with military installations/operations.

Zoning Ordinance

The City of Hill County Village adopted its zoning Map, effective February 27, 2007. It provides primarily for low density residential development within its City limits with Business zoning located along both sides of U.S. 281 and Limited Business zoning located on both sides of Bitters Road. The zoning map also indicates a limited amount of extraterritorial jurisdiction surrounding the City.

Subdivision Regulations

The City of Hill Country Village has adopted subdivision regulations to provide for the orderly, safe and healthful development of the undeveloped lands within the City and its ETJ. Similar to the other small jurisdictions in the study area, the subdivision regulations pertain to the platting, permitting, construction specifications, and design criteria for sewers and other public infrastructure.

Building Code

Chapter 14 of the Code of Ordinances for the City of Hill Country Village pertains to buildings and building regulations. With a few exceptions, the City adopted the International Building Code. The City's building code does not address sound attenuation or lighting in a manner which would mitigate the negative impacts on residents from military missions.

A review of the City of Hill Country Village's planning tools has identified the following deficiencies:

1. Notification to property owners of military activities in the area is not required through the subdivision process.

2. The Comprehensive Plan does not outline policies pertaining to mission sustainability at Camp Bullis.

3. Dark Sky provisions are not addressed to protect the missions at Camp Bullis.

City of Boerne

Located northwest of Camp Bullis in Kendall County is the small City of Boerne. Incorporated in 1909, the Boerne is located approximately 30 miles from San Antonio. The City of Boerne has experience a significant amount of growth in recent years, with the population more than doubling between 1990 and 2005.

Comprehensive Plan

The City of Boerne maintains a master plan which was updated in September of 2006. Although the comprehensive plan does not directly address compatibility with Camp Bullis, the future land use and development plan concept map indicates low density residential (1 to 5 units per acre) in the southern and eastern portions of the city, nearest to Camp Bullis.

Zoning Ordinance

Article 3, Section 2 of the City of Boerne zoning ordinance addresses outdoor lighting. Dark Sky conducive provisions are included in the outdoor lighting section including:

- Fully shielded outdoor lighting;
- Timing on recreational facility lighting;
- Time limitations on lighting used for outdoor sales;
- Full cut off and fully shielded lighting fixtures;
- Requirements for high pressure sodium lighting fixtures;
- Motion detection sensors;
- Limitations on lighting building facades and landscape lighting to avoid excess lighting and light trespass;
- Prevention of glare;
- Provisions for the lighting of signage including the prohibition of bottom mounted luminaries; and
- Limitations on the permissible lumens for residential outdoor lighting.

Subdivision Regulations

The City of Boerne maintains a subdivision ordinance which addresses the following topics:

- Platting procedures;
- Planning and community design standards including transportation and street designs, open space, and public facilities provisions;
- Master Planned Subdivisions including planned unit development subdivisions and rural cluster subdivisions; and
- Street Specifications and Construction Standards.

Building Code

Chapter 5 of the City of Boerne Code of Ordinances covers the topic of Buildings and Building Regulations including general provisions, construction standards, the mechanical, gas, pluming electrical, life safety, and housing codes.

Deficiencies:

1. The Master Plan does not address the general role of the military in the community or specifically any policies pertaining to Camp Bullis.

2. Sound attenuation standards are not included in either the zoning or building ordinances.

City of Bulverde

The City of Bulverde is located northeast of Camp Bullis, approximately twenty-two miles north of downtown San Antonio in Comal County. Having been incorporated in 1999, Bulverde is one of the newest cities in Texas with a population of 3,756 in 2000 and a projected 2010 population of 8,098.

Comprehensive Plan

The City of Bulverde adopted its first comprehensive plan in 2004 with a horizon date of 2025. The comprehensive plan includes a broad range of topical elements including sections on land use and growth, community services, infrastructure, transportation, historical preservation, economic development, community development, and a plan implementation strategy.

Zoning Ordinance

In addition to a standard zoning ordinance outlining specific uses and development provisions in set zones, the City of Bulverde regulates lighting under a Dark Sky Ordinance. The Dark Sky Ordinance was created to preserve the night sky that many people value in the hill country setting. The ordinance requires down-lit lighting, prohibiting light trespass onto neighboring properties. Additional requirements include full cut-off fixtures and maximum heights for light poles.

Subdivision Regulations

Chapter 10 of the City of Bulverde Code of Ordinances includes subdivision regulations. Specific regulations of importance to compatibility planning include requirements for TCEQ and the Edward Aquifer Authority to review preliminary plats for construction over the Edwards Aquifer Recharge Zone or the Edwards Aquifer Contributing Zone. Master development plans are also permitted; specific submittal requirements are outlined in the subdivision regulations.

Building Code

Chapter 3 of the City of Bulverde Code of Ordinances outlines the city's building regulations. The building regulations included provisions for both residential and commercial building including specific codes for mechanical, electrical, plumbing, and fire prevention. Street and sidewalk standards as well as sign standards are included in the building regulations.

Deficiencies:

1. The Comprehensive Plan does not address the general role of the military in the community or specific policies pertaining to Camp Bullis.

2. Sound attenuation standards are not included in either the zoning or building ordinances.

Bexar County

Table 4-3 outlines the utilization of planning tools for counties within the study area. As stated earlier in this section, regulatory tools are limited for counties in the state of Texas. Due to current legislation, Kendall County cannot enact a Dark Sky Order pertaining to Camp Bullis because the County and the installation are not directly adjacent to one another.

Table 4-3. County Planning Tools

Jurisdiction	Planning Tools	
	Development Standards	Dark Sky Order
Bexar County	Y	Y
Comal County	Y	Y
Kendall County	Y	N

Legend: = Deficient as a compatibility tool
= Not deficient as a compatibility tool
Y= Yes, the jurisdiction utilizes this tool
N= No, the jurisdiction does not utilize this tool
U= Unknown whether the jurisdiction uses this tool

Sources: Bexar County, Comal County, Kendal County and evaluations by Matrix Design Group, 2009

Development Standards

Bexar County has adopted development standards for subdividing property into two or more parcels. Minimum standards are set for the provision of potable water, wastewater disposal, and building setbacks are provided. The main purpose of the development standards is to ensure adequate access to water and to establish construction standards. Compatibility issues such as notification to property owners purchasing within proximity to a military installation, or sound attenuation standards are not addressed.

Dark Sky Order

Many swiftly growing communities across the U.S. have seen a rise in the adoption of dark sky orders. One of the most noticeable effects of urban community growth is the addition of new sources of lighting at night. The average person does not typically identify excessive lighting as an issue. However, for special interest groups such as astronomers or military personnel training with night vision devices, an increase in the amount of nighttime illumination associated with expanding development patterns can generate a large, and potentially dangerous, impact. In recent years, this has become an increasing concern in the area around Camp Bullis. The following lighting order is not necessarily designed to reduce the current amount of nighttime light, but to ensure that the impact does not increase as the surrounding communities continue to grow.

The Bexar County Lighting Order, approved on July 22, 2008, allows the County to regulate outdoor lighting within its unincorporated areas that are within three miles of the Camp Bullis boundaries. The Order does not regulate pre-existing lighting fixtures. Its intent is to prohibit certain types of lighting fixtures that produce excessive glare or allow "light spillover" to areas beyond their property limits. The Order also provides standards for what type of lighting and what amount of luminosity is authorized to be used to provide adequate safety and security within commercial and residential sites. A list of exemptions is included in the document, which allows for certain lighting uses such as temporary lighting, or to assist police when necessary.

A review of Bexar County's planning tools has identified the following deficiencies:

1. Within one mile of Camp Bullis, areas within Bexar County are situated at a higher elevation than the installation. Lighting from these areas can spill over into the training areas where night vision devices are used. The Dark Sky Order does not address the siting of structures to minimize light pollution onto Camp Bullis.

2. State legislation will need to be amended to allow Bexar County the ability to regulate land uses and densities to protect Camp Bullis from further encroachment.

Comal County

Development Standards

Comal County's minimum lot size is 1 acre for new subdivisions when public water is provided, and 5.01 acres when individual wells are required. Lot size limitations are expected to change as additional water supply and sewage collection and treatment become available. Similar to Bexar County, development standards do not address sound attenuation or require real estate sales disclosure pertaining to proximate military activities.

Dark Sky Order



Comal County approved its Lighting Order on September 4, 2008. Similar to Bexar County's, this order pertains to all properties in its unincorporated area within three miles of Camp Bullis. The major difference between the Comal order and the Bexar order is that Bexar's is more detailed in terms of the types of lighting that are acceptable. The Comal County Order only states that all new outdoor products be certified by the International Dark-Sky Association (IDA). The Comal order also requests voluntary compliance to update the approved IDA fixtures when maintaining, repairing, or modifying existing lighting. Lastly, the Comal Order identifies a cutoff time of 11:00 p.m. for nonconforming uses located proximate to outdoor recreational facilities as well as outdoor display lighting that is not being used for activities in progress. Signage also plays a critical role in the Comal County Dark Sky Order, raising public awareness to the significance of dark sky in military operations on Camp Bullis.

A review of Comal County's planning tools has identified the following deficiencies:

1. Within one mile of Camp Bullis, areas within Comal County are situated at a higher elevation than the installation. Lighting from these areas can spill over into the training areas where night vision devices are used. The Dark Sky Order does not address the siting of structures to minimize light pollution onto Camp Bullis.

Kendall County

Development Standards

Kendall County residential densities are based on access to water and wastewater treatment facilities as shown in Table 4-4. As is the case with the other two counties in the study area, development standards do not address sound attenuation or require real estate sales disclosure pertaining to military activities.

Table 4-4. Kendall County Residential Densities

Land Use	Minimum Lot Size	Dwelling Units/Acre
Individual water well and on-site sewage facility (OSSF)	3.0 acres	6.0
Public water (PW) system (ground water) and OSSF	1.0 acre	4.0
PW (ground water) and wastewater treatment system	N/A	4.0
PW (out of county water) and OSSF	1.0 acre	3.0
PW (out of county water) and wastewater treatment system	N/A	3.0

Source: Kendall County Development Standards, 2009

Dark Sky Order

Kendall County attempted to create its own lighting order for Camp Bullis. At the time the order was proposed, state legislation would not allow the order to go into affect because the legislation stated that the affected military installation must be at least partially located within the jurisdiction. Since the Camp Bullis and Kendall County boundaries are not adjacent, the County was unable to prepare and adopt a lighting order. In the 2009 legislative session, this legislation was amended in a manner allowing Kendall County to approve a lighting order for Camp Bullis.

A review of Comal County's planning tools has identified the following deficiencies:

1. Recognizing the change in state legislation, Kendall County should reintroduce a lighting order to mitigate the effects of light pollution on Camp Bullis.

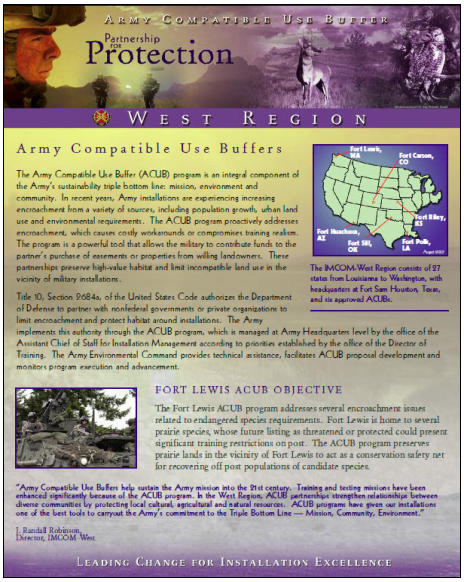
2. State legislation will need to be amended to allow Kendall County to regulate land uses and densities to protect Camp Bullis from further encroachment.

4.2 Camp Bullis Plans

Army Compatible Use Buffer (ACUB)

The ACUB program is a tool designed to sustain natural habitats and protect an installation's operational mission, including capability and capacity for soldier training and testing. It is an integral component of the Army's sustainability bottom line: mission, environment, and community. The program helps to achieve conservation objectives through partnerships with public and private organizations and willing landowners. Title 10, Section 2684a of the United States (U.S.) Code allows the Department of Defense (DOD) to enter into agreements to establish buffer areas around training and testing areas. This is further discussed later in Section 4.6, Federal Initiatives. These partnerships are implemented through the ACUB program, which is managed jointly at the Army's Headquarters level by the Offices of the Assistant Chief

of Staff for Installation Management and the Director of Training. Camp Bullis and the State of Texas, along with 26 other states are included within the ACUB West Region.



ACUB West Region includes Camp Bullis

The ACUB program allows an installation to work with partners to encumber land to protect habitat and training without actually acquiring any new land under Army ownership. Through an ACUB, the Army identifies potential partners that could achieve the mutual objectives of land conservation and critical open area protection. The program allows the Army to contribute funds to the partner's purchase of easements or properties from willing landowners. These partnerships preserve high-value habitat and limit incompatible land use in the vicinity of an Army installation.

The final Camp Bullis ACUB Proposal, dated July 28, 2008, addresses critical compatibility issues around the installation that result from increasing urbanization. The major issue that is recognized in the proposal is a compliance mandate associated with the Endangered Species Act (ESA), mainly focused on the Golden-cheeked Warbler (bird), and to a much lesser degree, Black-capped Vireos (birds) and karst invertebrates (insects). Other important issues that are briefly addressed are incompatible development that files noise complaints, inflicts light impacts on military training and creates water quality or quantity problems. The major recommendations from the proposal were the designation and purchase of conservation easements on three priority areas that would reduce the impact of Golden-cheeked Warbler populations on Camp Bullis, and thus reduce federally mandated restrictions to training as shown on Figure 4-1. Priority Area 1 consists of property near Government Canyon, while Priority Area 2 is in Medina or Comal County. Neither of these areas is adjacent to Camp Bullis. Due to cost considerations, the ACUB proposal focused primarily on land not located adjacent to Camp Bullis. The Army's nationwide program has limited funding, and lands adjacent to Camp Bullis were deemed to exceed the maximum cost per acre for ACUB acquisition. Priority Area 3 includes the northern boundary of Camp Bullis. Conservation of this area would not only protect endangered species, but would also protect significant recharge features of the Edwards Aquifer. A review of the Camp Bullis ACUB has identified the following deficiencies:

1. The properties adjacent to Camp Bullis were deemed cost prohibitive. Therefore, the Camp Bullis ACUB focused on land that is not adjacent to the installation.

Integrated Natural Resources Management Plan (INRMP)

The policy of the DOD is to fully comply with applicable federal, state, and county laws, ordinances, regulations, and guidelines, specifically designed to protect and preserve the environment. The Sikes Act Improvement Amendments of 1997 requires that the DOD manage their natural resources while providing a sustained method for the multiple uses of those resources. The Act also requires INRMP. To guide natural resource management efforts on-installation, Camp Bullis maintains an INRMP. The Camp Bullis INRMP, dated October 1, 2007, addresses threatened and endangered species, habitat conservation, water resources conservation, and data inventory.

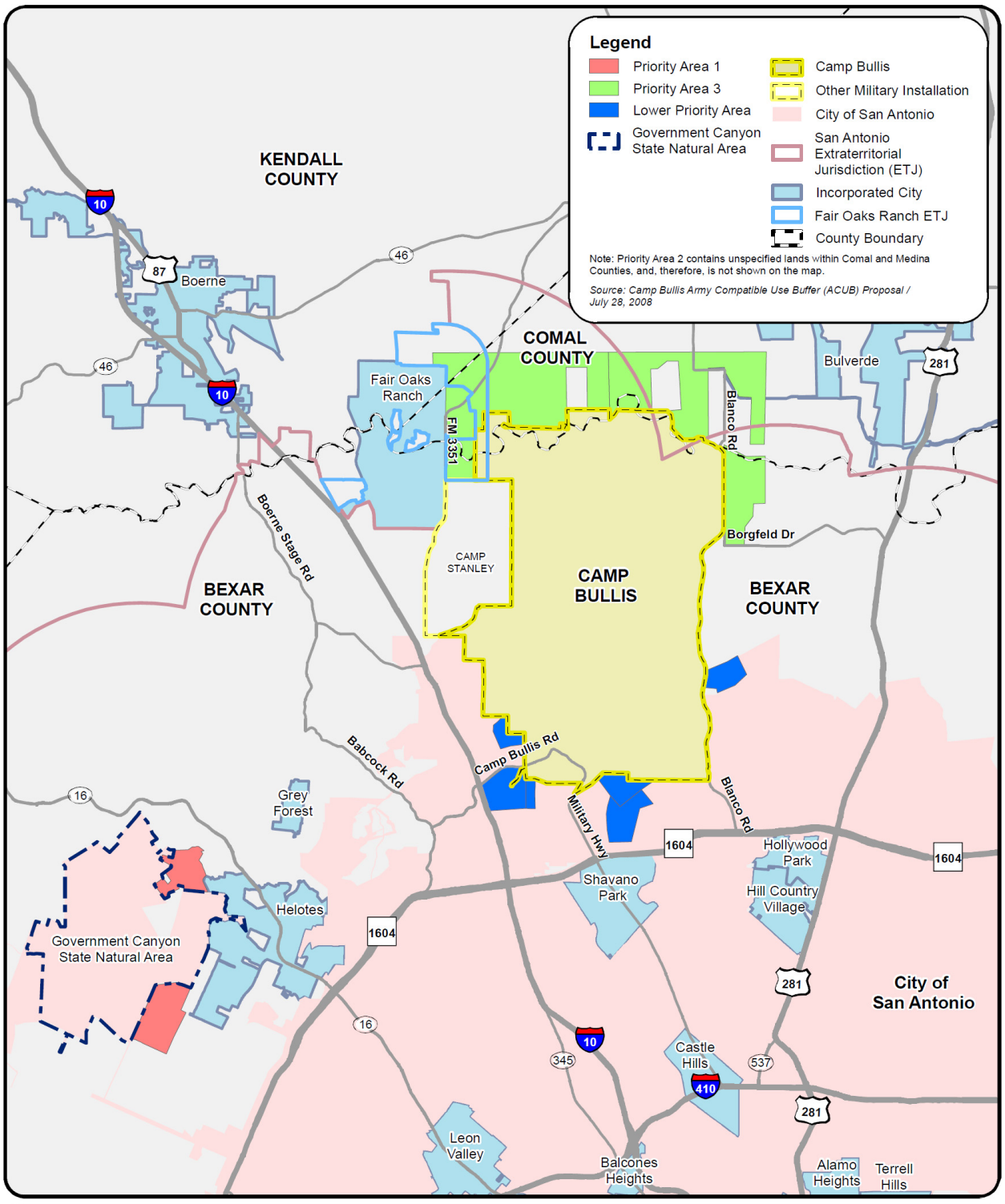


Figure 4-1
ACUB Priority Areas

The primary purpose of the Camp Bullis INRMP is to ensure that natural resource conservation measures and military activities on installation are integrated and consistent with federal stewardship requirements. As a result, the INRMP serves as the Installation Commander's comprehensive plan for deliberately managing natural resources to attain and sustain stewardship requirements while optimizing primary activities within the installation and, where compatible, conducting secondary activities.

A review of the INRMP for Camp Bullis has identified the following deficiencies:

1. The INRMP for Camp Bullis was only developed from an internal federal lands perspective, and does not address this issue in a regional context.

Operational Noise Management Program (ONMP)

The Army's ONMP incorporates and replaces the Installation Compatible Use Zone Program (ICUZ) previously used by the Army. The ONMP is intended to promote compatible land use planning through the use of Land Use Planning Zones (LUPZs) based on noise levels. The primary purposes of the ONMP program are to: protect the health and welfare of people from environmental noise generated by Army activities both on and off installations, and reduce the impacts of Army generated noise on communities to the extent feasible without curtailing necessary Army activities. Literature on the program identifies the roles and responsibilities of Army planners, including monitoring noise levels, to ensure they are minimal, and assessing noise impacts on the surrounding communities, to ensure compatibility between an Army installation and its neighboring areas.

As part of the ONMP, Camp Bullis completed the Operational Noise Consultation 52-ON-04CA-06, Operational Noise Contours for Camp Bullis and Fort Sam Houston. The report was developed by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) and completed in January 2006. This document was created to provide Camp Bullis and Fort Sam Houston with noise contours for the appropriate National Environmental Policy (NEPA) documentation for realignment under Base Realignment and Closure (BRAC) actions.

As identified in this JLUS report in Section 3.2, Compatibility Factor # 7, Noise, the issue of noise related to military operations and training at Camp Bullis can impact nearby properties. This report identifies several noise contours for training operations that take place at Camp Bullis and provides decibel levels based on distance from the source. The noise contours have been prepared for large caliber firing ranges, small caliber firing ranges, demolition, and aviation noise contours.

The aviation contours relate to the Camp Bullis Combat Assault Landing Strip (CALS), Camp Bullis and Fort Sam Houston helicopter flight corridors, and the Brooks Army Medical Center (BAMC) helipad at Fort Sam Houston. A review of the Operational Noise Contours Report for Camp Bullis has identified the following deficiencies:

1. The report only addressed current operational noise.

2. The report included a limited characterization of impact noise from weapon training beyond the PK 15(met) = 115 dB limit.

Environmental Noise Management Plan

The Camp Bullis Environmental Noise Management Plan (ENMP) was initiated by the 1995 JLUS. Approved in April 1999, the ENMP is designed to provide strategies for managing noise at Camp Bullis and to ensure that levels are compatible with surrounding communities. Studies have shown that noise levels have decreased at Camp Bullis since the Korean War; however, San Antonio and other communities have expanded, as exhibited by the existing land use pattern, with houses now located adjacent to the installation. Therefore, those communities are more susceptible to the noise levels created by, and related to, military training.

The ENMP was developed in a cooperative manner between Camp Bullis and the City of San Antonio. It includes techniques such as education, complaint management, noise abatement, and habitat protection. Through the application of long range planning and implementation, as well as interaction with local communities, the ENMP addresses noise issues in a proactive manner. A review of the ENMP for Camp Bullis has identified the following deficiencies:

1. No correctional or mitigation actions are presented in the Camp Bullis ENMP.

Camp Bullis Air Operations Standard Operating Procedure (SOP)

The Camp Bullis Air Operation SOP was created by the Department of the Army to govern the policies and procedures of the various aircraft that use Camp Bullis. The July 2000 SOP applies not only to Army aircraft, but also to other agencies that may have flight training operations, such as the Air National Guard. In this document, air activity exercises are divided into three categories: Major Exercise, Random Exercise, and Limited Helicopter Exercise. Major Exercises are considered exercises that are planned to occur over several days consisting of various airborne, assault, and ground support units employing a variety of cargo and troop carrier type aircraft, utilizing high performance aircraft, or involving 15 or more helicopters. Random Exercises involve special mission aircraft whose altitude will exceed 2,500 feet mean sea level (MSL), one or more aircraft utilizing the CALS, and/or one or more drop zones for personnel/equipment drops, is of short duration (less than one day) and involves a limited number of aircraft. Limited Helicopter Exercises involve 14 or less helicopters, flight altitude does not exceed 2,500 feet MSL and lights on during hours of darkness. Furthermore, the document recommends that contact be established between Camp Bullis and the San Antonio Air Traffic Control Tower to coordinate exercises and ensure compatible flight operations. Depending on the type of exercise, it must be scheduled with the San Antonio Air Traffic Control Tower several days in advance. Safety and communication procedures are addressed to ensure public safety and compatibility with surrounding communities.

A review of the Camp Bullis Air Operations SOP has identified the following deficiencies:

1. The Air Operations SOP only addresses flying and safety. Land use and noise are not addressed.

Military Ambient Light Encroachment Design Standards

In April of 2001, the Army adopted the Sustainable Project Rating Tool (SPiRiT) for all MILCON projects as a mechanism to provide a complete framework for assessing building performance and meeting sustainability goals. The SPiRiT program was based on the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System, a product of the U.S. Green Building Council (USGBC). Like

the LEED® program, SPiRiT rated buildings were organized according to five environmental categories: sustainable sites, efficient water usage, energy and atmosphere, materials and resources, and indoor environmental quality. SPiRiT addressed innovation and design, facility delivery process, and current and future missions.

Since the inception of SPiRiT, the Army has transitioned to using the LEED Silver level standards. New projects on Camp Bullis are registered as LEED Silver buildings. The Army maintains documentation should LEED certification be sought, however it only registers the building with the USGBC. The certification process is cost prohibitive. Important to Camp Bullis is the fact that the LEED® program factors light pollution reduction into their rating systems with the intent to eliminate light trespass from the building site, improve night sky access, and reduce development impact on nocturnal environments. Both interior and exterior lighting must ensure that zero direct-beam illumination occurs off of the building site. Light pollution reduction is now considered a major element in the planning, design, and construction of buildings on military installations. For projects on both Camp Bullis and Fort Sam Houston, the Army strives to minimize the lighting footprint by at least 75% of that which would be emitted using standard building practices. In some cases, they have been able to reduce the lighting footprint by up to 95%. The Army has additionally focused on water conservation and energy efficiency for new projects on Camp Bullis and Fort Sam Houston.

A review of this program has identified the following deficiencies:

1. Although the US Army has been a local leader in the use of green building standards, green building efforts are not well publicized throughout the entire region. Expanded publicity of the Army's efforts could result in increased buy-in on the concepts of green building beyond the installation, as well as more coordinated efforts to address light pollution reduction at a regional level.

2. Currently up to three percent of total project costs are allocated for green building measures. Raising this percentage to four to five percent could increase the incorporation of green building standards including additional light pollution reduction measures.

4.3 Regional Planning Tools

Proposition 3

In an effort to protect lands that are vitally important to the continued existence of the Edwards Aquifer, two landmark propositions have been approved by the voters of San Antonio. Proposition 3 was approved by voters in 2000 and added a 1/8-of-a-cent increase to local sales tax in order to collect $45 million to be used to purchase sensitive lands over the Edwards Aquifer. Due to legislative restrictions, protection efforts were confined to Bexar County. Through the use of funds generated through Proposition 3, 15 properties were purchased, totaling almost 6,500 acres of land. The properties, ranging from 50 to over 1,160 acres, were primarily ranches and estates, which maintained many valuable undeveloped features.

Proposition 1

Another 1/8-of-a-cent increase to local sales tax was approved by City voters through Proposition 1 in 2005. This proposition was to collect $90 million instead of the previous $45 million. Changes in state

legislation allowed for this money to acquire sensitive lands beyond the limits of Bexar County. Prior to purchase, lands were extensively surveyed for importance and environmental significance in an effort to leverage voter-approved monies. As of May 1, 2009, 20 properties have been purchased through Proposition 1 funds, totaling more than 73,500 acres. Combined with lands acquired through Proposition 3, over 80,000 acres have been purchased to protect sensitive assets for the Edwards Aquifer.

8,000 acres of the Proposition 3 and 1 lands are under direct City ownership, while the rest of the lands are in conservation easements. A biological survey of this land was conducted by the Texas Parks and Wildlife Department (TPWD) for the City-owned lands. Depending on the outcome of talks between Camp Bullis, the City of San Antonio, the U.S. Fish and Wildlife Service (USFWS) and other consultants, up to 3,000 acres of City-owned land may be transferred as Golden-cheeked Warbler habitat to mitigate habitat lands located on Camp Bullis itself.

Airport Master Plan

The update process for the San Antonio International Airport Master Plan began in 1993, following a recommendation contained within the San Antonio International Airport, Airport Capacity Enhancement Plan. The Airport Capacity Enhancement Plan was written by a Capacity Design Team, which was formed by the Federal Aviation Administration (FAA), in order to enhance its existing facility and airspace capacity. A Limited Terminal Area Airspace Study was conducted concurrent with the Master Plan Study, which evaluated the operational impacts of the Master Plan recommendations based on future demand levels and the relationship between San Antonio International Airport, Stinson Field, Kelly Air Force Base (AFB) and Randolph AFB. The 1995 DOD BRAC resulted in the closure of Kelly AFB. This changed the course of the Master Plan update and fostered the preparation of redevelopment plans at the former base. Although the Air Force retains ownership, the facility is able to be used by the airport for various aviation-related industrial and business development.

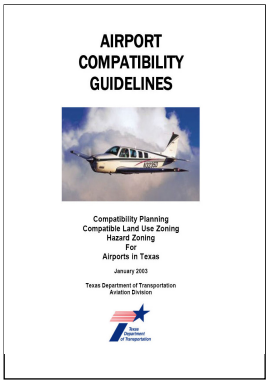
During the process of the update, five scenarios were developed for different types of airport growth and demands. The five scenarios were baseline scenario, conservative growth scenario, international growth scenario, accelerated growth scenario, and hubbing scenario. Each one focused on a different direction for growth, and presented methods to accommodate increased needs and compatibly exist with the surrounding community. The recommended development plan utilizes the baseline demand scenario, which expected minimal development over the 20-year period of the plan to the year 2015. The Master Plan Study also included environmental considerations, including noise, air quality, and impacts to wetlands. No significant changes are expected using the baseline scenario, however new studies must be conducted for all future development projects to ensure future impacts are minimal.

4.4 State Planning Tools

Airport Compatibility Guidelines

The Airport Compatibility Guidelines: Compatibility Planning, Compatible Land Use Zoning, Hazard Zoning for Airports in Texas, was published by the Texas Department of Transportation Aviation Division in January of 2003. Essentially, the guidelines are a complement to the State of Texas Local Government Code Chapter 241, Municipal and County Zoning Authority Around Airports. The guidelines are intended to aid decision-makers plan for compatibility as housing and other types of development are proposed within proximity to airports. The primary tools discussed in the guidelines are Airport Compatible Land Use Zoning Ordinances and Hazard Zoning Ordinances.

The first two chapters explain the necessity for compatible land use planning by presenting data and background information on land use conflicts and assessing the current land use patterns in Texas. Chapter Three discusses how a municipality can determine if an Airport Compatible Land Use Ordinance or a Hazard Zoning Ordinance is best suited for the municipality. It also outlines preparation, such as the prerequisites, needed for implementation of an Airport Compatible Land Use Zoning Ordinance and Hazard Zoning Ordinance. Chapter Four details procedural steps in developing and adopting an Airport Compatible Land Use Zoning Ordinance and/or a Hazard Zoning Ordinance.



Groundwater Conservation Districts

To understand the purpose and responsibilities of a Groundwater Conservation District (GCD) it is important to understand Texas water law. There are two classifications of water in the State of Texas, groundwater and surface water. Each has a set of corresponding laws that govern their use.

Surface water can be categorized as either natural surface water or diffused surface water. Natural surface water is essentially water located in watercourses and is the property of the State. Therefore the State holds the right to allocate the water through "water right" permits that are the responsibility of the Texas Commission on Environmental Quality (TCEQ). Diffused surface water is primarily rain runoff. This type of water typically flows from a higher elevation or is rain, to the lower elevation across state and municipality boundaries. Diffused surface water is considered to be the property of the landowner until it enters a natural watercourse, at which time it becomes the property of the State.

Groundwater is defined as water that is located below the surface of the earth, or percolating water. Texas groundwater law outside of GCDs is based on the common law rule of capture that allows a landowner to install a well and withdraw groundwater in unlimited amounts as long as it is applied to a beneficial use without regard to liability to adjacent landowners for well interference. Once water is captured, the landowner can use, sell or lease the water as they choose. Texas State Courts have continually upheld this interpretation. However, the common law rule of capture does not apply within the boundaries of the Edwards Aquifer Authority (EAA) which regulates the San Antonio Segment of the Edwards Aquifer pursuant to the Edwards Aquifer Authority Act.

The only restriction that can be imposed on pumpage is that imposed by the rules of a GCD. In areas without a GCD, there is no authority. As such, no one really knows how much groundwater is being pumped and in times of drought, no one has the authority to restrict the use of groundwater.

Groundwater Conservation Districts are the State's preferred method of groundwater management. There is no other authority for issues of groundwater management. There are 254 counties in Texas. There are presently 93 Districts confirmed. Not all of the counties have GCDs. Whereas the EAA, which is considered a GCD, has jurisdiction in eastern Comal, there is no GCD in the western half of Comal County. The Cow Creek GCD, with authority in all but a small portion of Kendall County, was formed as a temporary District in 1999 and confirmed as a permanent District by election in 2002.

Both Kendall and Comal County are within the boundaries of the Hill Country Priority Groundwater Management Area (PGMA). The TCEQ can designate a PGMA when an area is experiencing, or expected to experience within the next 25 years, critical groundwater problems, which include shortages of surface

and/or groundwater, contamination, and groundwater withdrawal leading to land subsistence. This PGMA was established in 1990. Part of the purpose of PGMA evaluation is consideration for the need to create a GCD.

Once TCEQ has designated an area as a PGMA, it will make specific recommendations for how to create a GCD. Citizens within the PGMA are then allowed two years by state law to establish a GCD. If no local action is taken during this time period, TCEQ is required to establish a GCD based on the original recommendations. In either case, the new GCD would be governed by a locally elected board of directors. To date Comal County has yet to see a GCD established. This presents a significant deficiency regarding the management of a shared groundwater resource. The Trinity Glen Rose Groundwater Conservation District (TGRGCD) was created in September 2001 in order to conserve and protect part of the Trinity Aquifer in northern Bexar County. In January 2001, the Texas Natural Resources Conservation Commission designated this area as a Priority Groundwater Management Area. This designation is provided for areas that are currently, or are expected to experience critical groundwater problems due to issues such as urban development. The TGRGCD is responsible for ensuring that water within the aquifer is properly managed in a balanced manner that allows for growth and also preserves the quality and quantity of water for future generations.

In 1993, the EAA was created through Texas legislation, which replaced the previous Edwards Underground Water District. The purpose and responsibilities of the EAA are to preserve, protect and efficiently manage the Edwards Aquifer commensurate with growing urban communities. The EAA comprises land in eight counties, including Bexar and Comal.

Real Estate Disclosures

Real estate disclosures are used in Texas to notify potential homebuyers of conditions affecting the property that they should be aware prior to its purchase. Section 5.008 of the Texas Property Code requires real estate disclosures to be provided to the purchaser on or before the effective date of the contract binding the purchaser to purchase the property To protect the consumer, a buyer may cancel the contract within a specified time frame if the disclosure notice is received after the contract to purchase form has been provided. . In Texas, two different seller disclosure notices are commonly used: Texas Association of Realtors (TAR)® form 1406 and the Texas Real Estate Commission (TREC) form OP-H. The TAR Form 1506, General Notice to a Buyer, is another typically used form. Both forms disclose the condition of the property and any problems of which the seller is aware and use language similar to the sample language provided in the Texas Property Code. Real estate disclosures are additionally identified in section 7 of the TREC Unimproved Property Contract form 9-7. TREC additionally provides form 28-1; an addendum allowing the buyer to obtain an environmental assessment report, a threatened and endangered species report, and/or a report and assessment of wetlands. If any of these reports identify conditions which adversely affect the use of the property, the buyer may terminate the contract within a mutually agreed upon timeframe.

Sellers are required to disclose certain characteristics pertaining to the location of the property such as location on the Gulf Intercoastal Waterway, location within 1,000 feet of the mean high tide, location in an area protected by the Open Beaches Act or Dune Protection Act, or location in a 100-year floodplain. Additionally, disclosure is required if property is located in an area where landfill, settling, soil movement, or a fault line may be present. Real estate disclosures can be used to notify buyers that property is in a military influence area and possible effects of that location such as lighting requirements, height

limitations, required sound attenuation for new structures, and impacts to the property such as noise. However, real estate disclosures in Texas are currently not required to disclose proximity to military installations.

4.5 Legislation and Other Regulations

The Texas State Legislature meets in regular session every two years convening on the 2nd Tuesday in January of odd numbered years. Biennial sessions are limited to 140 days. The 81st Legislative Session began on January 13, 2009 and was in session 140 days, concluding on June 1, 2009. The 20th day following final adjournment was the last day for the governor to sign or veto bills passed during the regular session. Bills without specific effective dates become law on the 91st day following final adjournment. Below is a discussion of legislation which has been adopted as law from prior legislative sessions.

Texas Military Preparedness Commission

In 2003, Senate Bill (SB) No. 652 established the Texas Military Preparedness Commission, which reports to the Governor's office. Among the duties of the Commission are to work with state agencies in preparing annual reports to the Governor and Legislature regarding the military installations and their adjacent communities and the associated defense related business within the state. Also as a result of this legislation, the Texas Military Value Revolving Loan Account was created, which can issue up to $250 million in general obligation (GO) bonds to assist communities with significant defense related attributes that enhance the value of their military installations and promote compatible land use. Under the law, a community near a defense installation may request financial assistance to prepare a comprehensive defense installation and community strategic impact plan which sets forth the communities' long-range goals and development proposals. One objective of the plan is to control the negative effects of future growth on military installations and their training exercise activities.

This strategic impact plan must include a list of detailed information on existing and future land use around the military installation. The plan must identify the proposed distribution, location, and extent of land uses such as housing, business, industry, agriculture, recreation, public building and grounds, and other categories of existing and proposed land use regulations – including zoning, annexation, and planning recommendations that may impact the military base. Other elements that are required in the plan include:

- Transportation: location and extent of existing and proposed freeways, streets, roads, and other modes of transportation.
- Population growth: past and anticipated population trends.
- Conservation: methods for conservation, development, and use of natural resources.
- Open space: inventory of current open space, analysis of the military base's forecasted needs for open-space areas to conduct its military training activities, and suggested strategies to transition from currently developed land to open-space, if needed.
- Restricted airspace: creation of buffer zones, if needed, between the military installation and the existing land use pattern.
- Military training routes: identification of existing routes and proposed plans for additional/revised routes.

Once the community has prepared a strategic impact plan, the law "encourages" it to develop, in coordination with the military installation, a planning manual based on the proposals set forth in the plan.

The manual should adopt guidelines for community planning and development. It is recommended that the community consult with the military base from time to time to confirm that the manual is continuing to effectively address the current concerns of the installation.

Texas Local Government Code Chapter 241, Municipal and County Zoning Authority around Airports

Chapter 241 of the Texas State Local Government Code provides a municipality or county with the authority to regulate land use within a designated airport hazard area. This is implemented through the creation of a Joint Airport Zoning Board that is appointed by a primary jurisdiction in partnership with another agency or jurisdiction to work jointly. The code provides the Board with the authority to adopt, administer, and, when necessary, enforce appropriate land use to ensure public safety and compatibility.

Although the board is primarily intended to develop and adopt an Airport Compatible Land Use Zoning Ordinance or Hazard Zoning Ordinance, it is possible for the Board to remain active after its adoption. In order for this to occur, the municipality must name the Board as the administrative body for this function. This formal action would then grant the Board the authority to review and approve building permits and maintain zoning authority over the designated area. (Chapter 241 can be viewed in its entirety in Appendix F) Currently, there is no Joint Airport Zoning Board for Camp Bullis, the City of San Antonio, Bexar County, or any of the involved jurisdictions.

Texas Local Government Code Chapter 42, Extraterritorial Jurisdictions of Municipalities

Chapter 42 of the Texas State Local Government Code, Extraterritorial Jurisdictions (ETJ) of Municipalities, designates each municipality with a certain amount of surrounding land to accommodate future growth (even though the municipality has no zoning authority because the designated area does not actually belong to the city). Section 242 of the code allows the city the right to regulate subdivision development within the ETJ. The designated ETJ boundary is based on the population of the municipality, yet has the ability to expand in accordance with population increases and with additional annexation of land area. For the City of San Antonio, the ETJ is defined as the area within five miles of the current City limits.

The majority of Camp Bullis is located within the San Antonio ETJ. The southern boundary, as well as most of the western, and part of the eastern boundaries abut the City limits of San Antonio. All of the lands surrounding Camp Bullis, except for a small portion in the northeastern corner, are included within the San Antonio ETJ. Thus, these areas are more susceptible to future development pressures, based on their proximity to the City of San Antonio.

Texas Local Government Code Chapter 240, Subchapter B, Outdoor Lighting

Subchapter B of the Texas Local Government Code Chapter 240, addresses the authority of counties to regulate the use of outdoor lighting. Subdivision requirements for this law permit the commissioners' court to adopt specifications in the subdivision to minimize negative effects of outdoor lighting. Upon receipt of a written request from the director of an astronomical observatory or the commanding officer of a United States military installation, base, or camp, the county may regulate the construction and use of outdoor lighting in any unincorporated area within the county. The intent is to protect against excessive glare, light trespass, skyglow, environmental concerns, or any other negative effect on public safety or the ability of another person to use or enjoy his or her private property. However, the commissioners' court may not regulate outdoor lighting that was installed or used prior to the effective

date of the order and supports the operation of: an electrical utility, power generation, or transmission and distribution utility company; a gas utility; surface coal mining and reclamation operations; a telecommunications provider; a correctional facility; a single family residence located outside the boundaries of a platted subdivision; or structures, activities or lands maintained for agricultural use. Bexar County and Comal County have used this authority to create lighting orders, which are discussed in Section 4.2 above. *(See Appendix F to view Chapter 240 in its entirety)*

House Bill No. 1852

House Bill (HB) No. 1852 was passed to preserve the dark sky environment for military operations. The Bill grants each adjacent county within the authority to regulate the use of lighting to mitigate interference with training activities, operations, or research within five miles of a military installation. Under this legislation, the county is provided with the authority to dictate the type of lighting allowed to control glare, setting shielding requirements and time of usage. *(House Bill 1852 can be viewed in its entirety in Appendix F)*

Texas Private Real Property Rights Preservation Act (PRPRPA)

The PRPRPA was adopted by the Texas State legislature as an acknowledgement of the importance of protecting private real property interests and to ensure that certain governmental entities consider the actions on private real property rights. The PRPRPA redefines whether or not an action of the government can be considered a taking. A taking, as defined by the Act, occurs when a governmental action is a producing cause of a 25% or more reduction in the value of private real property affected by the governmental action. Governmental actions identified by the Act include:

- The adoption or issuance of an ordinance, rule, regulatory requirement, resolution, policy, guideline, or similar measure;
- An action that imposes a physical invasion or requires a dedication or exaction of private real property;
- An action by a municipality that has an effect on the extraterritorial jurisdiction of a municipality, and that enacts or enforces an ordinance, rule, regulation, or plan that des not impose identical requirements or restrictions on the entire extraterritorial jurisdiction of the municipality; and
- Enforcement of a governmental action, whether the enforcement of the governmental action is accomplished through the use of permitting, citations, orders, judicial or quasi-judicial proceedings, or other similar mechanisms.

A Takings Impact Assessment (TIA) is required when a governmental action is undertaken that may constitute a taking. If a governmental entity fails to undertake a TIA, the governmental action may be invalidated. The Act defines the required elements of a TIA, as well as criteria for evaluating a TIA. Most significantly, the TIA requires the governmental agency to list and evaluate potential alternatives that could accomplish the specific purpose of the action in question, and compare and evaluate the alternatives to prove that the proposed action is the best suitable option to achieve the purpose of the proposed action. A TIA may be required when implementing the strategies identified in Section 5 of this study. (See Appendix F to view the PRPRPA in its entirety)

The Texas PRPRPA does not apply to municipal ordinances unless they are for only a portion of the ETJ. So, the PRPRPA would not apply if San Antonio were to issue an ordinance for the incorporated area or for an ordinance that covers both the incorporated and ETJ; or an ordinance that covers all of the ETJ. PRPRPA would only apply if the ordinance regulated a portion of the ETJ.

The takings clauses of the US and Texas Constitution set forth that private property shall not be taken for a public use, without just compensation. When government condemns a tract of land so that it is seized for a public use ("eminent domain"), it is clear that compensation must be paid. However, the courts have historically not issued a clear test to determine when a regulation that merely imposes restrictions on an owner's use of the land ("regulatory takings or inverse condemnation") becomes a taking. There is "no set formula" and instead courts "look to the particular circumstances of the case." Courts have identified several relevant factors to consider, such as the economic impact of the regulation, the degree to which the regulation interferes with investor-backed expectations, and the character of the government action. Some of the leading US Supreme Court cases have gone as far as stating that as long as the landowners retains some minimal economic use in his land, no compensable taking occurred. See, **Penn Central v. New York City**, 438 U.S. 104 (1978) **Dolan v. City of Tigurd,** U.S. 374 (1994), **Lucas v. South Carolina Coastal Commission,** 505 U.S. 1003 (1992)**.** In any case, any governmental entity contemplating issuing ordinance, orders or legislation to implement JLUS recommendations should consult their own legal counsel for takings analysis. Even if there is no compensable taking, the governmental entity should weigh private property rights and balance that against the benefits that the contemplated restrictions offer.

4.6 Federal Initiatives

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires Federal agencies to file an environmental assessment (EA) and sometimes an environmental impact statement (EIS) for major Federal actions that create an environmental impact. NEPA is applicable to all Federal agencies, including the military.

NEPA mandates that the military analyze the impact of its actions and operations on the environment, including its surrounding civilian communities. Inherent in this analysis is an exploration of methods to reduce any adverse environmental impact. The EIS is a public process that welcomes participation by the community.

For local planning officials, an EIS or EA is a valuable planning document in determining the extent of impacts of changing military actions or operations on their municipal policies, plans, and programs, if any, and on the surrounding community. Public hearings are required for all EIS documents released by the military under NEPA. An EA requires publishing the draft EA and Finding of No Significant Impact (FONSI) and also allowing public comment for a period of 30 days. An EA can end in a FONSI, if no significant impacts are determined, or transition to an EIS if further study is required. An EIS may end in a FONSI, or a Record of Decision (ROD) that concludes there will be a significant impact. The information obtained by the EIS/EA is valuable in planning coordination and policy formulation at the local government level.

U.S. Fish and Wildlife Service Permit Requirements

The USFWS has issued guidelines/requirements for "Scientific Permit Requirements for Conducting Presence/Absence for Endangered Karst Invertebrates in Central Texas" under Section 10(a)(1)(A). The objective is to identify survey methods that will produce sound scientific information for decisions and actions to conserve these endangered species. The Scientific Permit is needed to prevent a prohibited "taking" of endangered species when entering a void or cave inhabited by endangered karst invertebrates. The USFWS has also developed guidelines and requirements for the survey of land that is habitat to Golden-cheeked Warblers and Black-capped Vireos. These two species of birds prefer each

prefer a different type of habitat. These surveys are to be completed when a new activity is proposed on habitat land with the objective of prohibiting a taking of the species.

Recovery Credit System (RCS)

The RCS program was created by the USFWS. An RCS is an optional tool available to Federal agencies to promote and enhance the recovery of listed species on non-Federal lands. Using RCSs, Federal agencies are able to more clearly show how benefits accrued on non-Federal lands offset unavoidable effects of Federal actions elsewhere. However, in an RCS, the combined effects of both adverse and beneficial actions must achieve a net benefit to the recovery of the species.

A recovery credit is a unit of measure established by an RCS that quantifies the contribution that an agency's action makes toward the recovery of a listed species. Credits are based on, and linked with, the implementation of specific conservation measures identified in a species' approved recovery plan. If there is no final approved recovery plan, an RCS may employ an equivalent service-approved document that describes specific measures that will contribute to the downlisting or delisting of endangered or threatened species.

The RCS program is a new program, which has thus far only been implemented at Fort Hood in central Texas. At Fort Hood, the RCS is comprised of leases for a term ranging from 5 to 25 years. Landowners are provided confidentiality and, therefore, no public comment is allowed on the merits of RCS credits for particular tracts. Also, the leases may be organized in terms of repayment schedules and a penalty clause. In a rapidly growing region, such as the area around Camp Bullis, temporary leases may not be suitable if the intent is to execute conservation requirements. Traditional conservation easements (which are not revocable and run in perpetuity) may be a more preferable approach.

Department of Defense Conservation Partnering Initiative

In 2003, Congress amended Title 10 U.S.C. §2684a and §2692a (P.L. 107-314), the National Defense Authorization Act, to add authority to the DOD to partner with other federal agencies, states, local governments, and conservation based Non-Governmental Organizations (NGO's) to set aside lands near military bases for conservation purposes and to prevent incompatible development from encroaching on, and interfering with, military missions. This law provides an additional tool to support smart growth, conservation, and environmental stewardship on and off military installations. Title 10 is incorporated into the ACUB, discussed in Section 4.2.

Department of Defense Readiness and Environmental Protection Initiative (REPI)

To implement the authority provided by the Department of Defense Conservation Partnering Initiative, the DOD established the REPI. This initiative enables DOD to work with state and local governments, non-governmental organizations, and willing landowners to limit encroachment and incompatible land use.

REPI funds are used to support a variety of DOD partnerships that promote compatible land use. By relieving encroachment pressures, the military is able to test and train in a more effective and efficient manner. By preserving the land surrounding military installations, habitats for plant and animal species are conserved and protected.

Federal Aviation Act

The Federal Aviation Act requires the Secretary of Transportation to make long-range plans to formulate policy for the orderly development and use of "navigable air space" to serve the needs of civilian aeronautics and national defense except for the specific needs of military agencies. Military planning strives to work alongside local, state, and federal aviation law and policies but sometimes must supersede these and other levels of government due to national security interests.

The '500-foot (ft) rule' is discussed in the Federal Aviation Act. It states that flights 500 feet or more above ground level (AGL) do not represent a compensable taking because flights 500 feet AGL enjoy a right of free passage without liability to the owners below. This is important to Camp Bullis and the surrounding communities when considering land acquisition and development rights.

Another important outcome of the Federal Aviation Act is known as FAA Part 77. The main focus of FAA Part 77 is to establish standards used to determine obstructions within navigable airspace, typically within a certain distance from an airport or airfield. It defines an obstruction to air navigation as an object that is of "greater height than any of the following heights or surfaces:

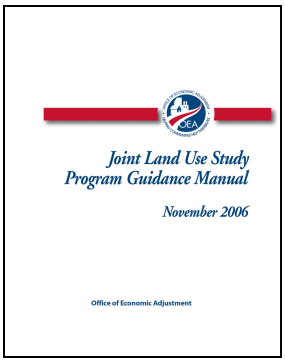
- A height of 500 feet AGL at the site of the object.
- A height that is 200 feet AGL or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 500 feet.
- A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required clearance.
- A height within an en route obstacle clearance area, including turn and termination areas, of a Federal airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.
- The surface of a takeoff and landing area of an airport or any imaginary surface established under 77.25, 77.28, or 77.29. However, no part of the take-off or landing area itself will be considered an obstruction. (For additional information on FAA Part 77, please see Appendix E.)

4.7 Other Resources

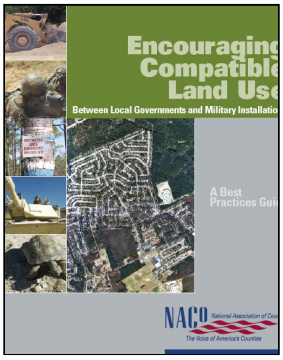
In an effort to prevent land use compatibility issues between the military and the local community, the DOD Office of Economic Adjustment (OEA) and other public interest groups, such as the National Association of Counties (NACO), have taken steps to inform the public on encroachment issues and methods that can be used to address or completely avoid compatibility issues. A total of five resources have been published by the DEA and NACO to inform the public on these issues.

Documents

The Practical Guide to Compatible Civilian Development near Military Installations (July 2007), OEA. This guide offers general information on community development and civilian encroachment issues. The guide can be found at: http://www.oea.gov/.



Joint Land Use Study Program Guidance Manual (November 2006). This manual provides guidance on the JLUS program, process, and efforts to support compatible development. This manual can be obtained on the OEA internet site at the following address: http://www.oea.gov/.



Encouraging Compatible Land Use between Local Governments and Military Installations: A Best Practices Guide (April 2007), NACO. This guidebook presents case studies of best practices between the military and communities through communication, regulatory approaches, and Joint Land Use Studies. The guide can be accessed on the NACO internet site at the following address: *http://www.naco.org*.

Videos

The Base Next Door: Community Planning and the Joint Land Use Study Program, OEA. This informative video discusses the issue of encroachment on military installations as urban development occurs in their vicinity.

Managing Growth, Communities Respond, OEA. This video highlights the lessons learned from three successful communities managing growth near military installations.

Please see the next page

Section Five

Implementation Plan



This section prescribes a specific course of action that has been developed cooperatively with representatives from local jurisdictions, Camp Bullis, Fort Sam Houston, state and federal agencies, local organizations, and other interested entities. As a result of this collaborative planning process, the recommendations presented in this section represent the JLUS Implementation Plan; a realistic and coordinated approach to compatibility planning in the areas near Camp Bullis.

5.1 Introduction

The Implementation Plan recommends JLUS strategies that are intended to guide appropriate development to maintain the operational capabilities of Camp Bullis. In conjunction, they also facilitate economic development of the region to capture targeted job sectors while remaining compatible with the Camp Bullis critical mission. Several factors were taken into consideration when developing the Implementation Plan. These factors include:

- Review and analysis of existing and potential Camp Bullis encroachment and compatibility issues;
- Review and analysis of existing regulatory and non-regulatory compatible land use strategies;
- Input from Executive and Advisory Committee Members and the public at-large; and
- Consultant's professional experience and judgment.

Implementation Plan Guidelines

The key to a successful plan is balancing the different needs of all involved stakeholders. In working towards a balanced plan, several guidelines became the basis upon which the strategies were developed. These guidelines included:

- In concert with the State of Texas's Private Property Rights laws, the Implementation Plan was developed with the understanding that the recommended strategies must not result in a taking of property value. In some cases, the recommended strategies can only be implemented with new enabling legislation.
- In order to minimize regulation, where appropriate, strategies were recommended only for specific geographic areas to resolve the compatibility/encroachment issue.
- Similar to other planning processes that include numerous stakeholders, the challenge to create a solution or strategy that meets the needs of all parties is challenging. In lieu of eliminating strategies that do not have 100 percent buy-in by all stakeholders, it was determined that the solution/strategy may result in the creation of multiple strategies that address the same issue but would be tailored to individual agencies.

Organization of this Section

The remainder of this section is organized in the four following sub-sections:

- **Section 5.2 –Compatibility Strategy Types**
  - Provides a list, and the definition of the type of compatibility strategies used in the Implementation Plan.
- **Section 5.3 – Implementation Plan**
  - Presents the recommended Camp Bullis JLUS Implementation Plan by type of strategy, the geographic location where the strategy will be utilized, the timeline/priority to implement the strategy, and the primary party who is responsible for implementing the strategy as well as their agency partners responsible in assisting to implement the strategy.
- **Section 5.4 – City of San Antonio Sponsored Initiatives to Support Camp Bullis Mission Sustainment**
  - Describes City JLUS strategies initiated during the development of the JLUS to support the current and future Camp Bullis mission
- **Section 5.5 – Potential Funding Sources**
  - Provides a list of possible funding sources to assist in implementing the JLUS implementation strategies.

5.2 Compatibility Strategy Types

There are 12 types of JLUS compatibility strategies in the Camp Bullis JLUS Implementation Plan. The following sub-section provides a brief definition and assessment for each JLUS compatibility strategy type to ensure a common understanding exists among the various implementors of how these types of strategies work.

Acquisitions

Property rights are comprised of a bundle of privileges that are attached to each parcel of land, and include the right to possess, use, develop, lease, or sell the land. As a compatibility planning tool, all or some of these property rights can be acquired through donation, easement, or purchase for public purposes. The types of acquisition could include the following:

- **Fee Simple Acquisition**. This option involves the purchase of property and is typically the most costly method to protect open space, as well as sensitive, or critical areas. The cost to purchase property and/or the need to have a willing seller may make this acquisition tool difficult to implement.
- **Fee Simple/Leaseback**. An example of a leaseback is when a government agency purchases the full title to a property and then leases it back to the previous owner. The land's natural resource and open space values are protected through lease controls that restrict land uses.
- **Conservation Easement**. A conservation easement is a way to protect a buffer, natural resource, open space area, or agricultural value of land by retaining it in its current state. The owner maintains ownership of the property and the right to sell or deed the property to another. The owner also retains the right to use the property for economic gain or recreation as long as the use is allowed by the conditions of the easement. Conservation easements can be acquired through several mechanisms, including donation or purchase. If they are donated, the donor could qualify for a federal income tax deduction, making this option more desirable

to the property owner. Conservation easements are typically a more cost effective method to acquire land compared with outright purchase.

- **Lease**. In cases where the landowner does not want to, or cannot make a permanent commitment, the execution of a lease may be a way to control land uses for a short time. Leases can be obtained by government agencies or jurisdictions, non-profit organizations, land trusts, or private entities.
- **Management Agreement**. A management agreement is a specified plan under which the landowner or the land trust (or a combination thereof) will manage the land. Management agreements identify a specific amount of time making them a short-term approach to protecting land.
- **Eminent Domain**. A local government can use the power of eminent domain to acquire private property for public use, in exchange for payment of fair market value, through the process of condemnation.

The purpose of acquisition tools is to eliminate land use incompatibilities through market transactions and the local development process. Acquisition tools are particularly effective because they advance the complementary goals of shifting inappropriate uses away from military installations and preserving community assets such as agriculture, open space, rural character, or sensitive natural habitats.

Examples where property acquisition strategies have been used to address compatibility issues include:

- Creating a buffer between active military installations and incompatible land uses;
- Shifting future growth away from critical military lands;
- Protecting public safety by limiting incompatible land uses;
- Protecting the natural environment; and
- Conserving open space.

Capital Improvements Plan

A Capital Improvements Plan (CIP) is a detailed fiscal and planning document used to identify, direct, and prioritize a jurisdiction's or agency's (federal, state or local) investment in capital facilities, including infrastructure. A CIP expresses a typical six year timeframe of facility plans and programs of the jurisdiction or agency and provides details on expenditures that can be incorporated into the jurisdiction's or agency's annual budgeting process.

Jurisdictions can influence where and when growth will take place through capital investment decisions, such as the placement of roadways or other infrastructure systems. In addition to facility planning and design, the timing of the facilities is also a critical component to promote compatibility. It has been proven in communities throughout the United States that in areas where infrastructure is extended, growth will follow. Building on lessons learned, and in order to discourage non-compatible land uses, it is important that infrastructure is not extended within the Camp Bullis area without developing a compatible land use plan for the land, and an infrastructure plan that supports the land use plan for this area. The premature extension of infrastructure can encourage growth in an area. Conversely, the lack of funding for regional transportation projects can cause roadway capacity constraints in the short term.

Communication/Coordination

In any planning effort, plans can only move toward successful implementation if frequent ongoing communication is maintained among the local jurisdictions, Camp Bullis, Fort Sam Houston, state and federal agencies, landowners, and the public. Enhanced communication and coordination is an integral component to successful compatibility planning in support of Camp Bullis's existing and potentially enhanced future mission(s).

Deed Restrictions

Deed restrictions, or covenants, are written agreements that restrict or limit some of the rights associated with property ownership. These restrictions are recorded with the deed for the property and are attached to the property when it is sold to a new owner (i.e., remain in effect). Deed restrictions are private agreements or contracts executed between a motivated buyer and a willing seller. Deed restrictions can encompass a wide range of restrictions, yet are typically tailored to meet specific needs. They can also be used to eliminate or mitigate impacts associated with local development on military installations. This is accomplished through the incorporation of restrictions or limitations on development types or certain land uses. Examples include specifying a maximum height for trees and structures, restricting the use of motorized vehicles, and limiting lighting.

Habitat Conservation Tools

The federal Endangered Species Act (ESA) allows for the development of Natural Community Conservation Plans (NCCPs) and Habitat Conservation Plans (HCPs). An NCCP identifies and provides for the regional or areawide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.

Incidental take permits help landowners legally proceed with activities that might otherwise result in illegal impacts to a listed species. A HCP is a document that supports an incidental take permit application pursuant to section 10(a)(1)(B) of the ESA. HCPs are an evolving tool. Initially designed to address individual projects, HCPs are currently more likely to be broad-based plans covering a large area. The geographically broader HCP is used as the basis for an incidental take permit for any project within the boundaries of the HCP. Regardless of size, a HCP should include measures that, when implemented, minimize and mitigate impacts to the designated species to the maximum extent possible, and identify the means by which these efforts will be funded.

The primary objective of the NCCP and HCP programs is to conserve natural communities at the ecosystem level while accommodating compatible land use. The programs seek to anticipate and prevent the controversies and gridlock that can be caused by species' listings. Instead, they focus on the long-term stability of wildlife and plant communities. The programs also include key stakeholders in the development process for the plan.

In relation to compatibility planning, this strategy type can be used to:

- Provide mechanisms to ensure species protection while allowing compatible development in areas around Camp Bullis.

Legislation

State legislation can have a significant impact on compatibility planning by allowing, restricting or limiting the tools available to local jurisdictions to control land use planning activities. Legislative strategies are designed to encourage changes in state law to accomplish a desired end state. Under Texas law, local jurisdictions are provided with certain powers over which they can regulate land uses and activities. If additional local control is desirable, state enabling legislation would be required to create or amend existing regulatory authority.

On the local level, new or expanded regulation would be accomplished through the development, consideration, and passage of new ordinances or procedures. These changes would need to be consistent with the provisions of state law.

Memorandum of Understanding (MOU)

A Memorandum of Understanding (MOU) is a contract between two or more government entities. The governing bodies of the participating public agencies must take appropriate legal actions, often adoption of an ordinance or resolution, before such agreements become effective. These agreements are also known as Joint Powers Agreements or Inter-local Agreements.

The purpose of an MOU is to establish a formal framework for coordination and cooperation. These agreements may also assign roles and responsibilities for all of the agreement's signatories. MOUs generally promote:

- Coordination and collaboration by sharing information on specific community development proposals, such as rezonings and subdivision plats.
- Joint communication among participating jurisdictions, agencies and the military ensuring that residents, developers, businesses, and local decision makers have adequate information about military operations, possible impacts on surrounding lands, procedures to submit comments, and any additional local measures to promote land use compatibility around installations.
- Formal agreement on cooperative land use planning activities, such as implementation of the recommendation with this Camp Bullis JLUS.

Plans and Programs

A comprehensive plan is a long-range plan that outlines goals and policies to guide the physical development of a municipality. Comprehensive plans are designed to serve as the jurisdiction's blueprint for future decisions concerning physical development, including land use, infrastructure, public services, and resource conservation. Most comprehensive plans consist of written text discussing the community's goals, objectives, policies, and programs for the distribution of land use as well as one or more diagrams or maps illustrating the general location of existing and future land uses, roadways, city administered facilities and parks and open space. The primary goals of the comprehensive plan are to:

- Identify the community's land use, circulation, environmental, economic, and social goals and policies as they relate to future development in the community.
- Provide a basis for local government decision making, including decisions on development approvals.

- Provide citizens with opportunities to participate in the planning and decision making processes in their communities.
- Inform citizens, developers, decision makers, and other cities and counties of the policies that guide development within a particular community.

Real Estate Disclosure

Prior to the transfer of real property to a new owner, real estate disclosure requires sellers and their agents to disclose certain specified facts related to the condition of the property. These facts could include noise or other proximity impacts associated with property near a military installation or operations area. The purpose of real estate disclosure is to protect the seller, buyer, and sales agent from potential litigation resulting from specified existing and/or anticipated conditions (i.e., hazard areas, existing easements). Disclosures are perhaps the most practical and cost effective land use compatibility tools for the reason that the buyers are informed of the possible affects (noise, light, etc.) for lands proximate to a military installation prior to considering purchase.

Zoning/Building Codes

The primary purpose of zoning is to protect the public health, safety and welfare. Zoning is a regulatory tool that enables the division of a jurisdiction into districts (zones) within which permissible uses are prescribed and allowable building height, bulk, layout, and other requirements are defined, as identified in the following examples:

Protection against:

- Physical danger, particularly safety considerations for properties in proximity to military ranges or within military flight areas.
- Nuisances associated with military operations, such as noise, vibration, air emissions, etc.
- Heavy traffic flows or truck routes in residential areas.
- Psychological nuisances, such as perceived and actual dangers associated with military operations.
- Light and glare, air emissions, and loss of privacy.
- Loss of open space and agricultural preservation.
- Zoning ordinances requiring rigid separation of uses or inflexible provisions can make creative solutions to land use compatibility, such as cluster development, difficult or impossible.
- When designating military compatible use districts, the ordinance should recognize that the local community has no regulatory control over development or activities on federal property, and that the military only has regulatory authority on federal Department of Defense (DOD) lands, and not on lands within a city or county.

Subdivision Regulations

Land cannot be divided without local government approval except for when land is divided into parts greater than five acres, where each part has access, and no public improvement is being dedicated. The local comprehensive plan, zoning, subdivision, and other ordinances govern the design of a subdivision, the size of its lots, and the types of required improvements; such as street construction, sewer lines, water lines and drainage facilities. Applications for subdivisions must be submitted to the local government for consideration. Subdivision regulations set forth the minimum requirements deemed

necessary to protect the health, safety, and welfare of the public. More specifically, these regulations are designed to accomplish the following initiatives.

- Assure that effective protection is provided for the natural resources of the community, especially groundwater and surface water.
- Encourage well-planned subdivisions through the establishment of adequate design standards.
- Facilitate adequate provisions for transportation and other public facilities.
- Secure the rights of the public with respect to public lands and waters.
- Improve land records by the establishment of standards for surveys and plats.
- Safeguard the interests of the public, the homeowner, the subdivider, and units of local government.
- Prevent, where possible, excessive governmental operating and maintenance costs.

Construction Standards

Construction standards and building codes are ordinances and regulations controlling the design, construction process, materials, alteration, and occupancy of any structure to ensure human safety and welfare. They include both technical and functional standards and generally address the following in terms of compatibility issues.

- **Structural Safety**. Buildings should be designed for environmental factors in the area and man-made issues, such as vibration.
- **Sound Attenuation.** Sound attenuation refers to special construction techniques and materials designed to reduce the amount of noise that penetrates the windows, doors, and walls of a building.

For sound attenuation, the following key issues should be addressed:

- The first choice in noise attenuation is avoidance. When possible, noise-sensitive uses should not be located within proximity of military installations or noise sources.
- Some land uses are more sensitive to noise, including residential development, schools, hospitals, etc.
- When evaluating noise impacts on sensitive receptors, recommendations should include acceptable levels for outdoor spaces as well as indoor space.
- Noise is a cumulative condition. Programs such as the DOD Air Installation Compatible Use Zone (AICUZ) program incorporate noise levels associated with typical flight operations and aircraft, but do not incorporate noise from other sound generators. Therefore, a home slightly outside the 65 dBA contour may exhibit a cumulative noise exposure of over 65 dBA when roadway noise and other local noise sources are added.
- While noise is typically measured and mitigated, based on a daily average noise level, some circumstances may require an evaluation of peak noise levels.
- Retrofitting of existing structures can be expensive and cost-prohibitive in certain instances.

5.3 Implementation Plan

As a result of this collaborative planning process, the JLUS recommendations for Camp Bullis are outlined in the following Implementation Plan. This Plan is the result of a realistic and coordinated approach to compatibility planning for the areas located around Camp Bullis.

How to Read the Implementation Plan

The Implementation Plan provides a detailed road map of the JLUS recommended strategies. These strategies are grouped by the primary Camp Bullis encroachment/compatibility issue being addressed by the strategy. The Camp Bullis Implementation Plan recommends strategies for the top seven encroachment/compatibility issues. The seven encroachment/compatibility issue categories include:

- **Land Use**
- **Light and Glare**
- **Noise**
- **Vertical Obstructions**
- **Safety**
- **Threatened and Endangered (T&E)Species**
- **Water**

To help organize the presentation of the Implementation Plan, strategies are grouped under the type of compatibility strategy heading that best represents each strategy. A broad definition of each type of compatibility strategy is presented in Section 5.2 above.

The Implementation Plan is presented in a matrix format comprised of seven components. The seven plan components include:

- **Type of Strategy**
  - Identifies the type of compatibility strategy
- **Strategy Reference**
  - Provides each strategy an alpha-numeric identifier used when referencing a particular strategy
- **Strategy**
  - Contains a description of the strategy
- **Military Influence Overlay District (MIOD) and/or Military Influence Area (MIA)**
  - Identifies the geographic area to which the strategy applies (MIOD and/or an MIA)
- **Responsible Party**
  - Lists the party primarily responsible for implementing the strategy and the parties responsible for partnering to enhance its successful achievement
- **Priority/Timing**
  - Identifies when the strategy is proposed to be completed. The strategies are identified to be completed within one or more of the four time periods identified below. They include:
    - Short Term (2009)
    - Mid-Term (2010 – 2012)
    - Long Term (2012 +)
    - On-Going

- **Strategy Cost**
  - Provides a very general, Rough Order of Magnitude (ROM) cost by the responsible party to implement the strategy. (*Note: costs associated with implementing the strategies by the responsible party, and the costs associated to the property owners are not part of this JLUS's scope of work.*) These costs are organized into four cost ranges, which include:
    - $ < $250,000
    - $$ = $250,000 to $750,000
    - $$$ = $750,000 to $1,500,000
    - $$$$ > $1,500,000

Camp Bullis Military Influence Overlay District (MIOD)

A Military Influence Overlay District is proposed as the zoning tool used for implementing the policies and regulations associated with each Camp Bullis Military Influence Area (MIA). The MIOD is comprised of several MIAs and, where appropriate, some MIAs will have subareas within them titled zones. The boundary of the MIOD is derived from the boundary of the largest MIA, thus acting as an umbrella for the remaining MIAs. Camp Bullis' largest MIA boundary is the Light MIA Zone 2. The Camp Bullis MIOD is defined as a five statute mile area from the Camp Bullis installation boundary (see Figure 5-1). For ease of implementation, the formal boundary of the MIOD will ultimately follow the roadway network or property lines located closest to the MIOD general five-mile boundary. The official MIOD boundary will be developed during the implementation stage of the JLUS.

Camp Bullis Military Influence Areas (MIA)

An MIA is a formally designated geographic planning area where military operations may impact local communities, and conversely, where local activities may affect the military's ability to carry out its mission. An MIA is designated to accomplish the following purposes:

- Promote an orderly transition between community and military land uses so that land uses remain compatible.
- Protect public health, safety, and welfare.
- Maintain operational capabilities of military installations and areas.
- Promote the awareness of the size and scope of military training areas to protect areas separate from the actual military installation (i.e., critical air space) used for training purposes.
- Establish compatibility requirements within the designated area, such as requirements for sound attenuation, real estate disclosure, and avigation easements.

An MIA delineates a geographical area where compatible land use policies and regulations are recommended to support the JLUS goal and objectives. As discussed in the MIOD paragraph above, in some cases, an MIA geographic area may have more than one subarea. These subareas are identified as zones. For ease of implementation, the official boundary of the MIAs will follow the roadway network or property lines located closest to the MIA general boundary.

Four MIAs, which are defined by the four primary Camp Bullis encroachment compatibility issue categories, are recommended for the Camp Bullis JLUS Implementation Plan, and are shown on Figure 5-2.

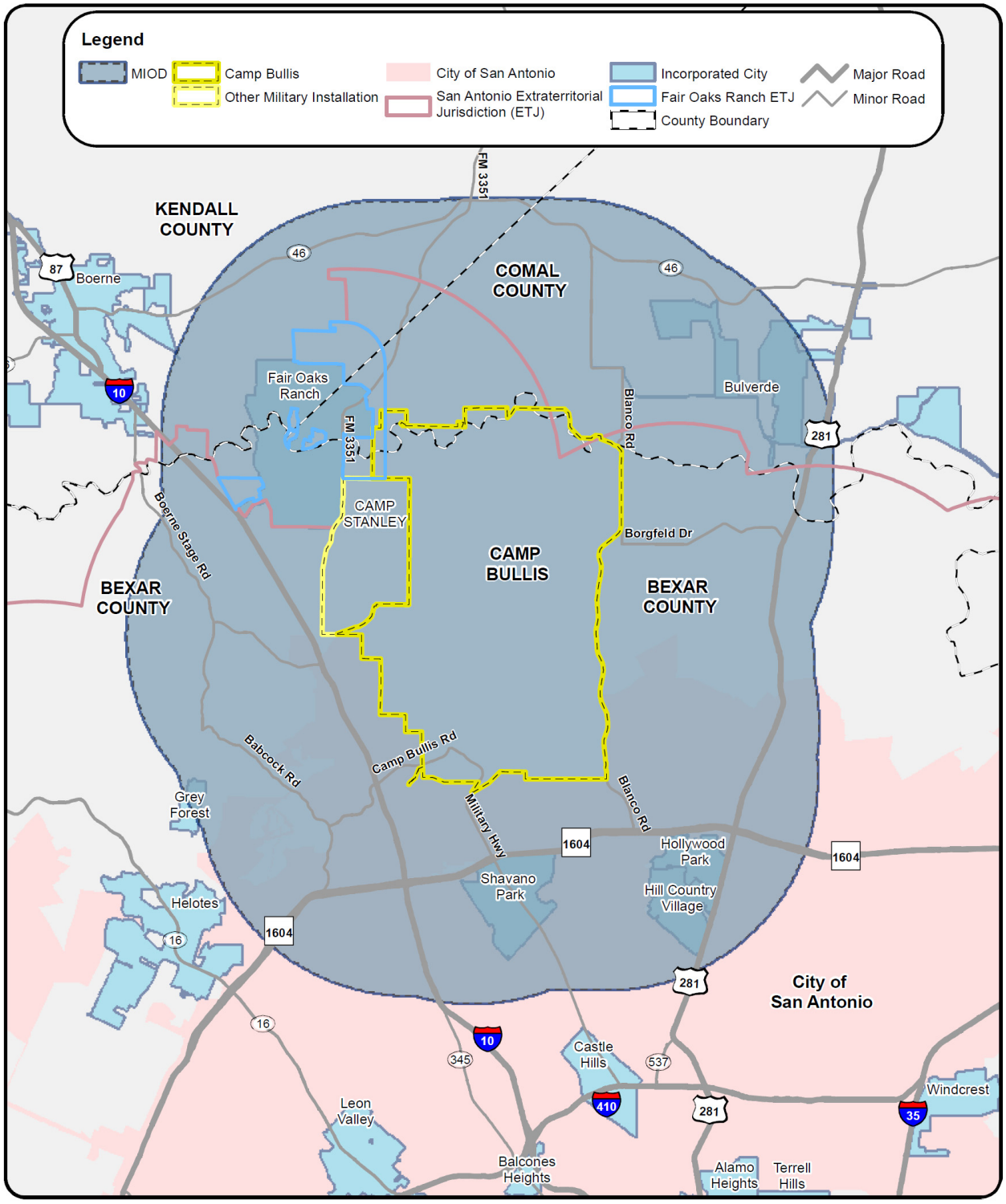


Figure 5-1
Military Influence Overlay District (MIOD)

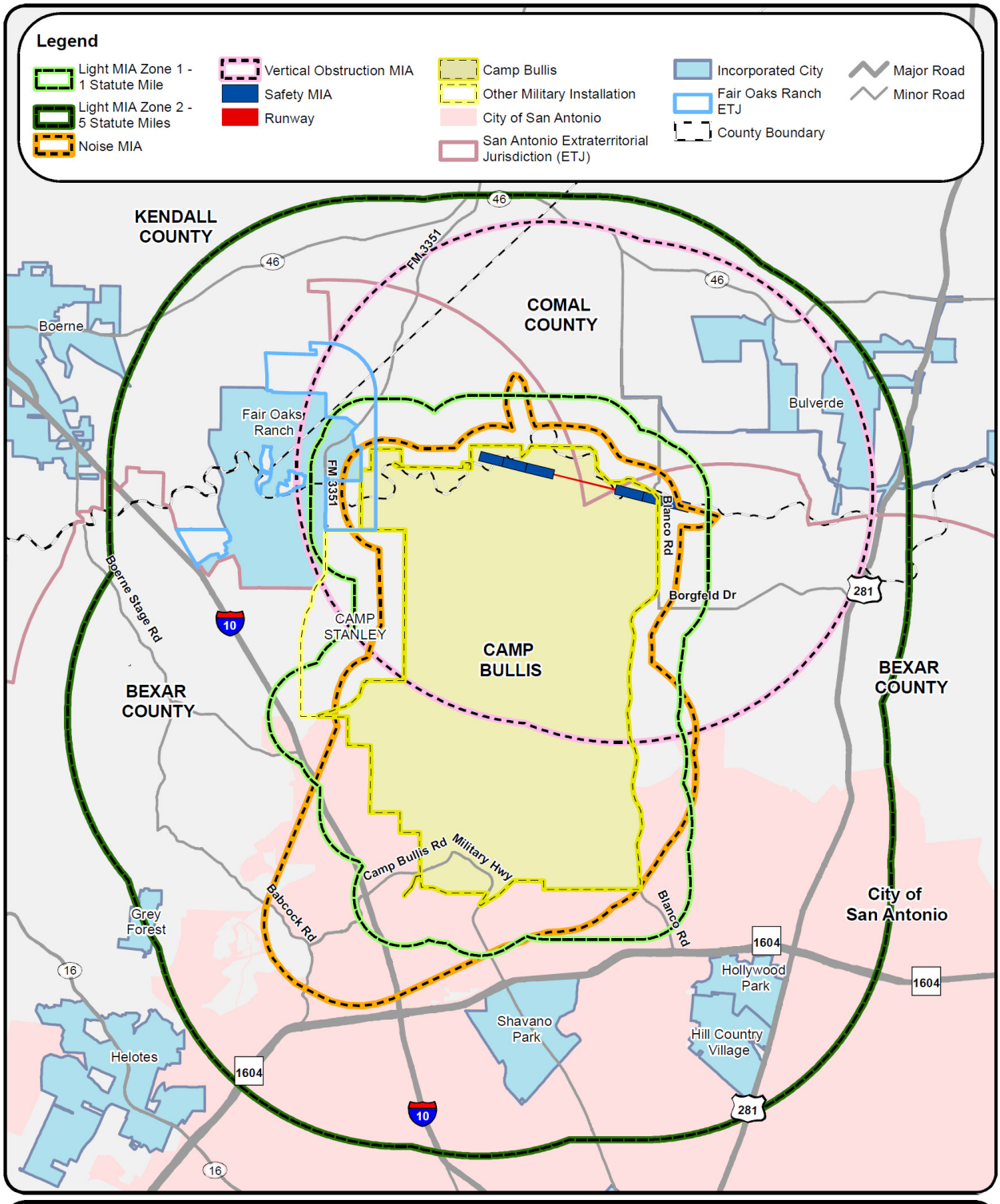


Figure 5-2
Military Influence Areas (MIA)

The organizational structure of the recommended Camp Bullis MIOD and the four MIAs, (including Zones with an MIA, where appropriate) is presented below. Each of the four MIAs is listed below and described on the following pages.

- **Light MIA**
  - Light MIA Zone 1
  - Light MIA Zone 2
- **Noise MIA**
- **Vertical Obstructions MIA**
- **Safety MIA**

Light MIA

The Light MIA addresses the compatibility factor identified as light pollution generated from the surrounding community, affecting night training missions and operations at Camp Bullis. As described in Section 3 of this JLUS, there are two types of light pollution that can impact military operations: Point Source Lighting, which directly impacts Night Vision Device (NVD) use and training, and Ambient Lighting or Background Lighting, where the cumulative effect of light pollution diminishes the capability of NVDs and NVD training. Light compatibility is defined as the distance from which light pollution is generated. The more distance between the light source and the military installation, the greater the reduction of light pollution impacts. Conversely, when this distance is reduced, light pollution increases.

One and Five-Mile Buffers for Light

The use of NVDs is prevalent throughout Camp Bullis, thus regulations pertaining to outdoor lighting are proposed for adoption to protect the night training missions conducted at Camp Bullis. Night vision devices are mainly used in training areas near the perimeter of the installation's boundary for both ground and air training operations. Several of the surrounding jurisdictions, including Bexar and Comal Counties, the City of San Antonio, the City of Fair Oaks Ranch, and the City of Shavano Park, have recently passed dark sky lighting ordinances or orders in reference to Camp Bullis. Although these jurisdictions have codified a dark sky ordinance or order, the Camp Bullis JLUS recommends that they be updated to include the proposed strategy details outlined in the dark sky JLUS implementation strategy. The Light MIA includes two zones, a Light MIA Zone 1 (one-mile buffer) and a Light MIA Zone 2 (five-mile buffer).

Light MIA Zone 1 (One–Mile Buffer)

The regulations recommended for the Light MIA Zone 1 (one-mile buffer) around Camp Bullis include areas that emit point source light at elevations in excess of 1,200 feet mean sea level (see Figure 5-3). Light sources within the one mile buffer to Camp Bullis pose a particular threat due to light trespass across the boundary of Camp Bullis onto training areas.

Communities located within the one-mile radius of Camp Bullis include portions of Bexar County directly adjacent to the installation to the northeast, portions of Comal County directly north of Camp Bullis, the City of Fair Oaks Ranch adjacent to the northwest boundary of Camp Bullis, and portions of the City of San Antonio adjacent to the southwestern and southeastern boundaries of Camp Bullis.

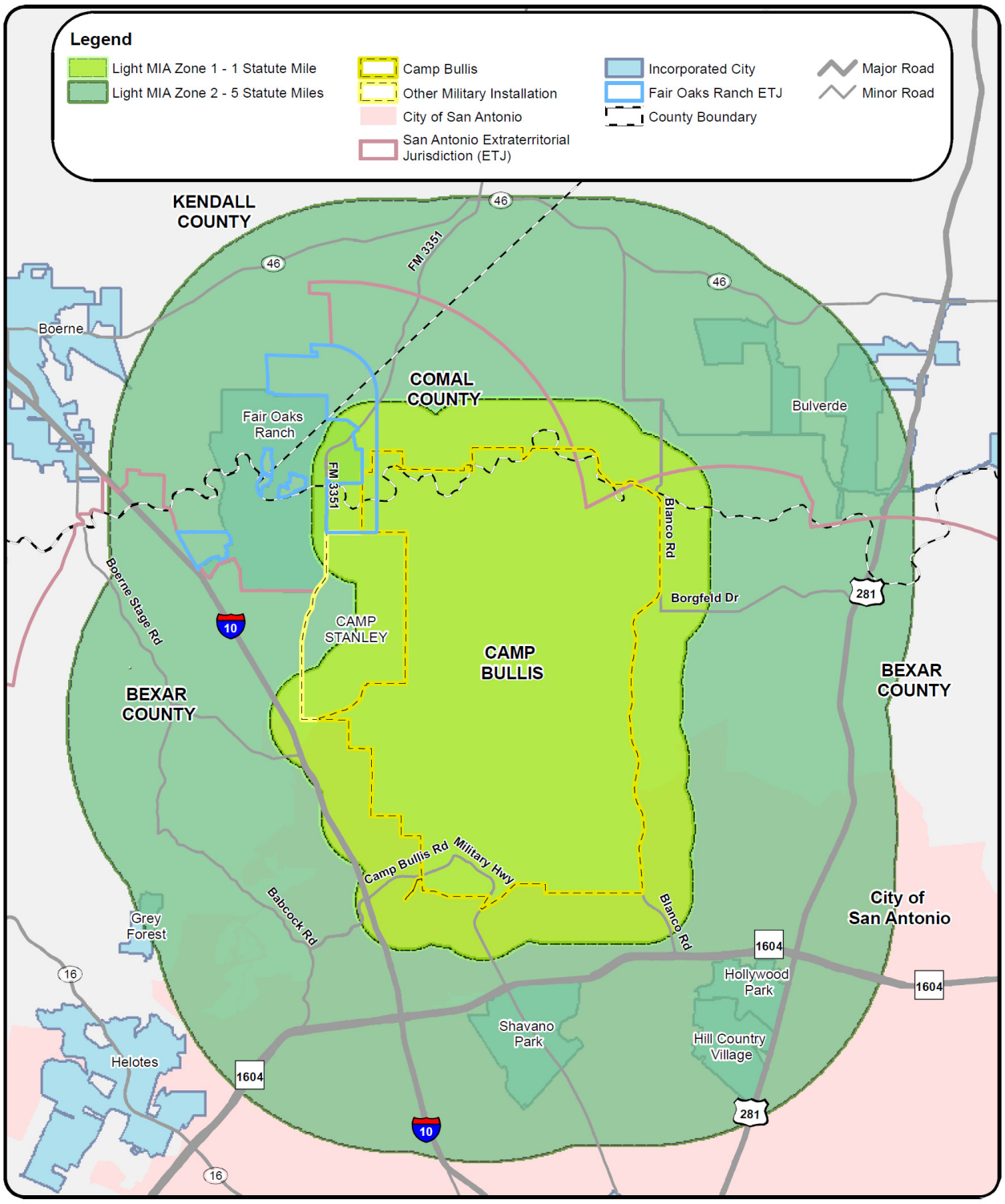


Figure 5-3
Light Military Influence Area (MIA)

Light MIA Zone 2 (Five–Mile Buffer)

The Light MIA Zone 2 encompasses a five-mile area around the border of Camp Bullis. The five-mile boundary around Camp Bullis is supported by current state legislation that allows jurisdictions that share a common boundary with a military installation to enact a dark sky ordinance. The cities of Boerne, Bulverde, Fair Oaks Ranch, San Antonio, and Shavano Park, as well as the counties of Comal and Bexar have all adopted dark sky ordinances to protect the missions at Camp Bullis. Although the City of Boerne is not located within the Light MIA or the MIOD, it was included in previous sections of this JLUS to provide a regional reference. However, for purposes of over-regulating, it was not included as a jurisdiction to implement new strategies resulting from the Light MIA. Kendall County does not have an ordinance because the current legislation specifies that the jurisdictions must be directly adjacent to the military installation. The JLUS recommends that legislation be amended to include all counties within the five-mile area around Camp Bullis so that Kendall County is included.

Noise MIA

Noise is typically a concern to the public surrounding most military installations. To specifically assess the impacts of noise requires the evaluations and correlations of noise study data that models the noise environment related to the operational characteristics of Camp Bullis. The MIA for noise compatibility is classified by three types of noise impacting the community from military operations. These include noise from fixed wing aircraft, noise from rotary wing aircraft, and impact noise from large and small caliber weapons firing.

Noise MIA (Fixed Wing Aircraft Noise, Rotary Wing Aircraft Noise, and Impact Noise)

The Noise MIA encompasses all noise level thresholds associated with Camp Bullis training, and is shown on Figure 5-4. This includes noise generated by fixed wing aircraft operations, rotary wing aircraft operations, and impact noise from weapons firing and explosives.

Fixed Wing Aircraft Noise

The areas experiencing noise levels associated with the CALS currently do not extend past the boundaries of Camp Bullis (see Figure 5-5). The MIA was established to include the areas that would experience 65 ADNL if the CALS were to be upgraded to a Class A runway in the future, which would extend into portions of Bexar County to the east, and Comal County to the north. Aircraft using the drop zone will fly approximately 1,000 feet AGL in elevation over Camp Bullis, as well as southwest of the drop zone into portions of the City of San Antonio and Bexar County. The noise corridor for this flight is 2,640 feet (1/2 mile), with an additional 6,160 foot (one and 1/6 mile) buffer. A small portion of the drop zone noise contour extends north of Camp Bullis into unincorporated areas of Comal County.

On Camp Bullis, part of the MIA was created to address fixed wing aircraft noise. Currently, C-130 noise contours associated with the Combat Assault Landing Strip (CALS) only extend less than 200 feet past the boundaries of Camp Bullis to the northeast of the runway. However, in the future, potential addition of C-17 aircraft operations instead of C-130's using the runway would increase the amount of noise generated due to the type of engine the planes use. Noise compatibility issues for C-17's would mainly affect the jurisdictions on the northern side of Camp Bullis, including Bexar County to the east of Camp Bullis and Comal County to the north. Additional noise associated with fixed wing aircraft occurs in conjunction with the transport aircraft drop zone. This drop zone transects Camp Bullis from the southwest to the northeast, extending well beyond the installation's southwest boundary.

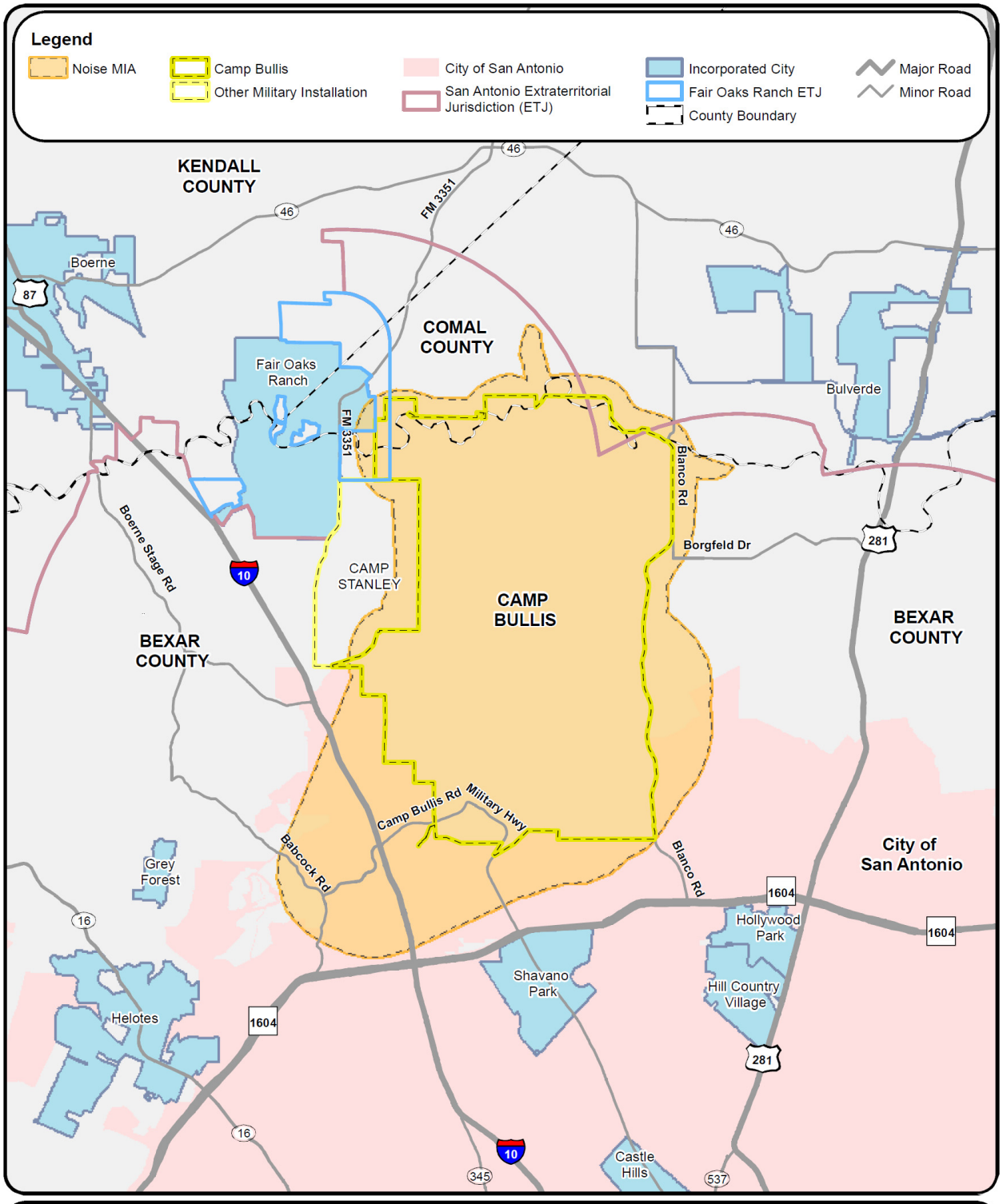


Figure 5-4
Noise Military Influence Area (MIA)

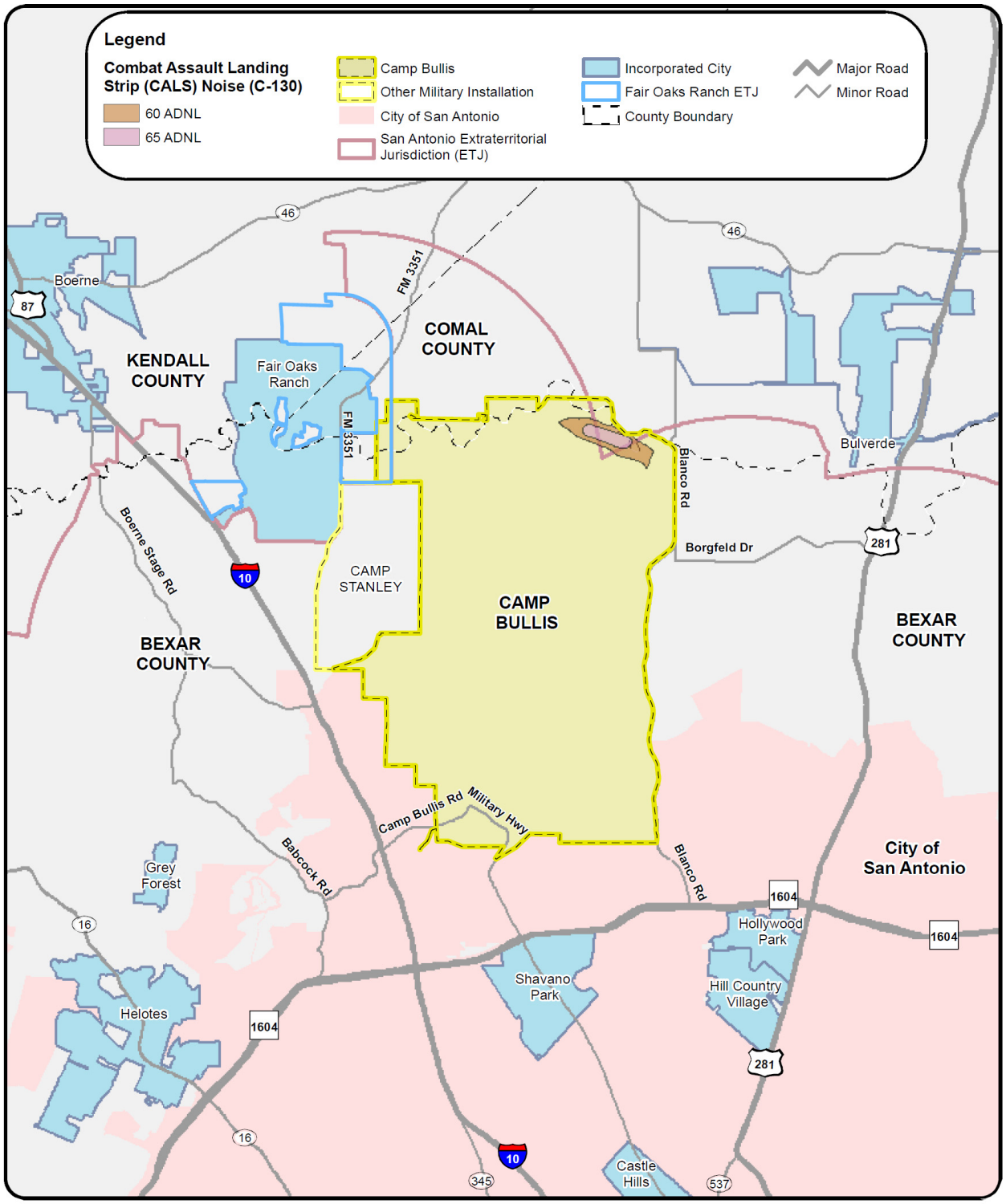


Figure 5-5
Noise Military Influence Area (MIA) - Existing C-130 Ops Only

Rotary Wing Aircraft Noise

The MIA for rotary wing noise associated with the use of the UH-60 helicopter is similar to the fixed wing aircraft drop zone; however, its contour only extends to the southwest of Camp Bullis, and rotary wing flight has a smaller noise corridor of 1,320 feet (1/4 mile) with an additional buffer of 2,640 feet (1/2 mile). The altitude for this type of flight is typically around 1,000 feet AGL. Noise contours associated with nap of the earth helicopter flight follow along the eastern, northern, and western boundaries of Camp Bullis, with the lowest level flight approximately 200 feet AGL) occurring on Camp Bullis. The noise corridor for this flight is 1,320 feet (1/4 mile), with an additional 3,080 foot (7/12 mile) buffer. An additional helicopter flight corridor is located along the southwest border of Camp Bullis, with small portions (<1/2 mile) of the corridor extending into the City of San Antonio.

For the most part, noise associated with rotary wing aircraft will occur along the perimeter of Camp Bullis affecting the City of San Antonio and Bexar and Comal counties. Except for noise associated with the helicopter drop zone, rotary wing noise is limited to an area extending less than one-half (1/2) mile beyond the boundaries of Camp Bullis.

Flight operations generally adhere to the centerline of the flight corridor but are sometimes subject to deviation. For this reason, two buffer areas have been delineated around the flight corridors. The noise level for flight operations in these corridors depends on the height of the aircraft, type of aircraft, and distance from the aircraft.

Impact Noise

The majority of the 115 PK15(met) level noise is contained on the installation with the exception of small areas located directly adjacent to the southeast (in the City of San Antonio) and a small area of Bexar County (directly adjacent to Camp Bullis) to the east. The highest level of noise emitted from small caliber weapons (104 PK15[met]) is completely contained within the borders of Camp Bullis; however, noise emitted at the 87 PK15(met) level extends beyond the eastern border of Camp Bullis into Bexar County. The land contained within the Noise MIA include all lands within one mile of the 87 PK15(met) small caliber noise contour.

Impact noise at Camp Bullis is generated by the firing of weapons, both small and large caliber, as well as small amounts of explosives detonation. There are 20 live-fire ranges located in the southeastern portion of Camp Bullis on 6,000 acres. This area is near enough to the boundary of the installation that sound travels to the neighboring communities and can cause a nuisance if buildings are not properly insulated against sound. Current noise studies indicate that existing noise contours for small caliber weapons firing at Camp Bullis extends past the boundary of the installation lass than 1,640 feet to the east and less than 490 feet to the south.

Vertical Obstructions MIA

Vertical obstructions / height issues are a major concern to military flight operations and training. Safety of flight issues associated with the height of structures can range, as an example, from cell towers, power lines, and building heights. The flight operations approach and departure areas are typically regulated by more stringent height restrictions. For Camp Bullis, safety of flight is a concern for both fixed wing aircraft and rotary aircraft operating throughout the installation area. All aircraft must transit over areas and communities to access and depart Camp Bullis. There are no sub MIA zones within the Vertical Obstructions MIA.

The boundary of the MIA for vertical obstructions is a five statute mile buffer measured from the current CALS at Camp Bullis. The MIA boundary is based on the FAA Part 77 height regulations (see Figure 5-6).

Safety MIA

Safety associated with flight operations is a major concern to both the military and the communities surrounding Camp Bullis. There are no sub zones within the Safety MIA.

The Safety MIA boundary includes the Clear Zones (CZ) and Accident Potential Zones (APZ) for a Class "A" Runway. Currently the APZ and CZ for the CALS are completely contained within the boundary of Camp Bullis. However, in the event that the CALS were upgraded to a Class "A" runway, the APZs would extend beyond the borders of Camp Bullis into Bexar and Comal County to the east of the runway. Figure 5-7 shows the safety zones for a Class A runway at Camp Bullis as this is a worst case scenario in terms of runway expansion. Figure 5-8 illustrates the current CALS safety zones that do not extend past the Camp Bullis boundaries.

MIOD

For reference, Figure 5-9 shows the overall MIOD as well as each of the various MIA zones discussed above.

Threatened and Endangered Species

There are no MIAs established for threatened and endangered (T&E) species. However there are strategies that address them in the Implementation Plan. Addressing T&E concerns is a regional effort that not only affects Camp Bullis, but also other surrounding landowners. Under the ESA the protection of T&E species is mandated wherever they occur, including on federal properties. The military has become a major participant in preserving critical habitat for T&E species due to the ownership of large, contiguous land holdings managed by the DOD to support national defense. As habitat is removed through the course of ongoing development, the pressure on Camp Bullis increases to a point where the protection of T&E species impacts critical DOD missions and training. The surrounding areas that contain habitat have a direct relationship on the contiguous and proximate habitat located within the boundaries of Camp Bullis. Three specific environmental impacts affect Camp Bullis, including the habitat recovery area for the Golden-cheeked Warbler, Karst Faunal Regions, and Karst Aquifer Recharge Zones.

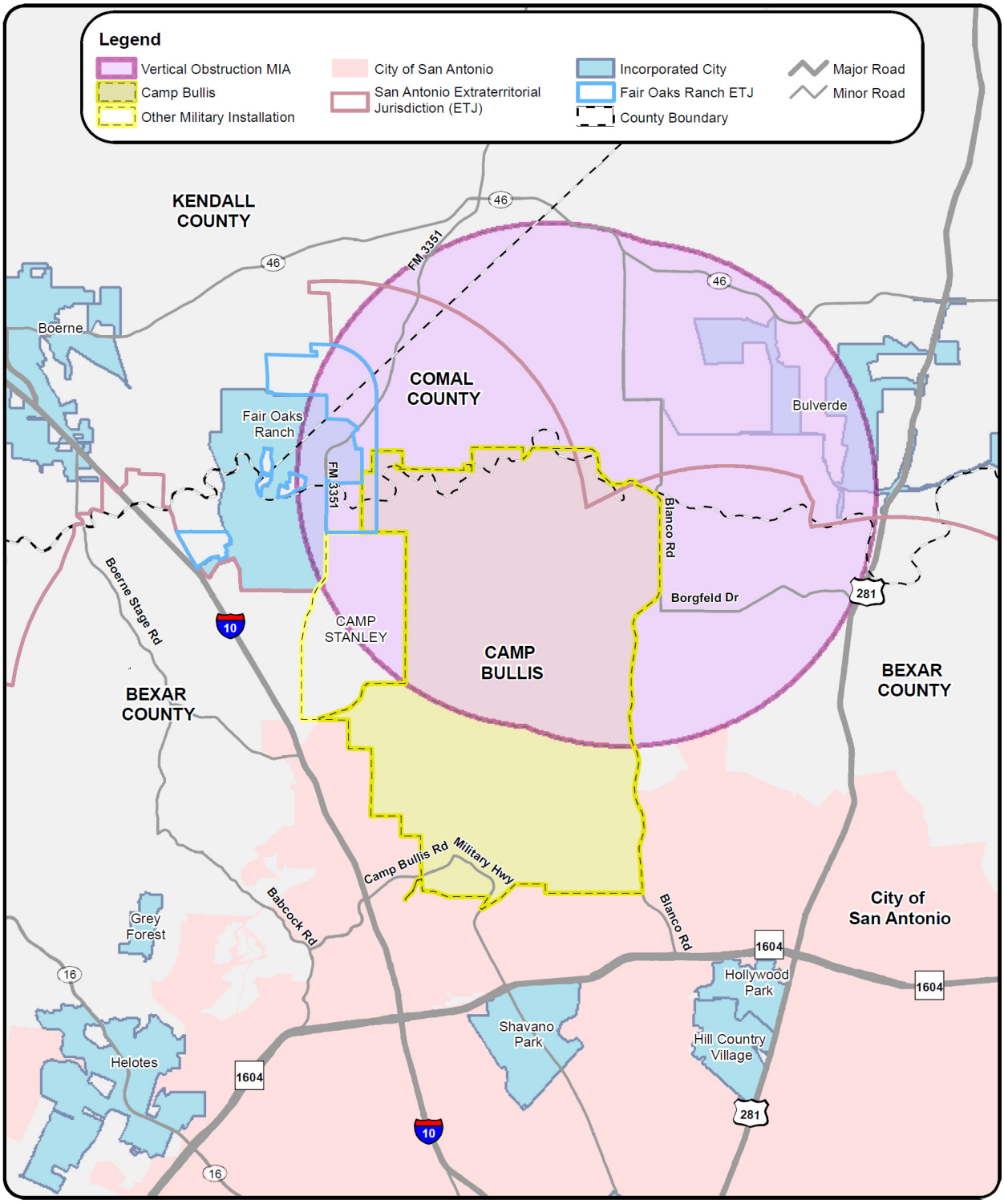


Figure 5-6
Vertical Obstruction Military Influence Area (MIA)

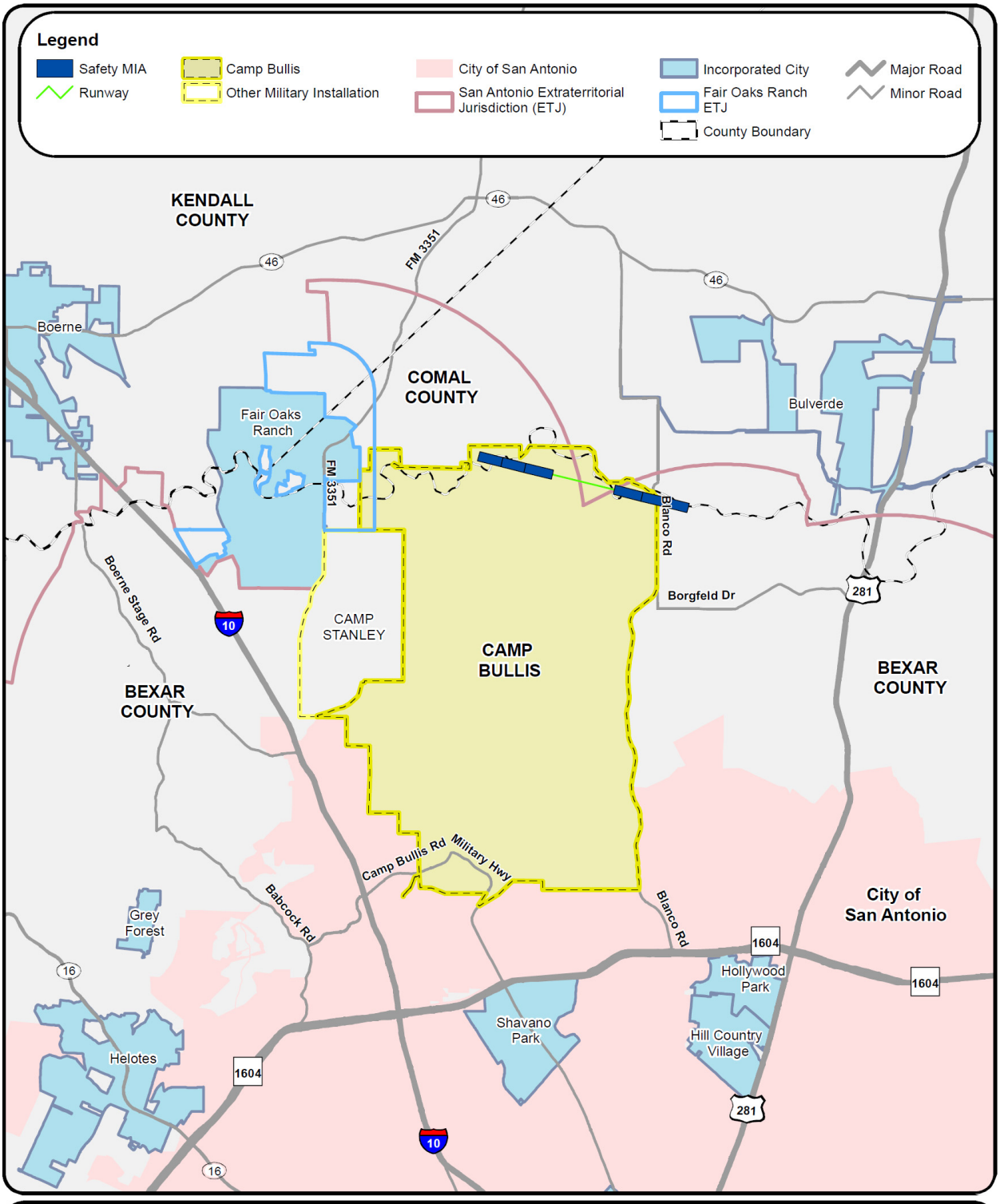


Figure 5-7
Safety Military Influence Area (MIA)

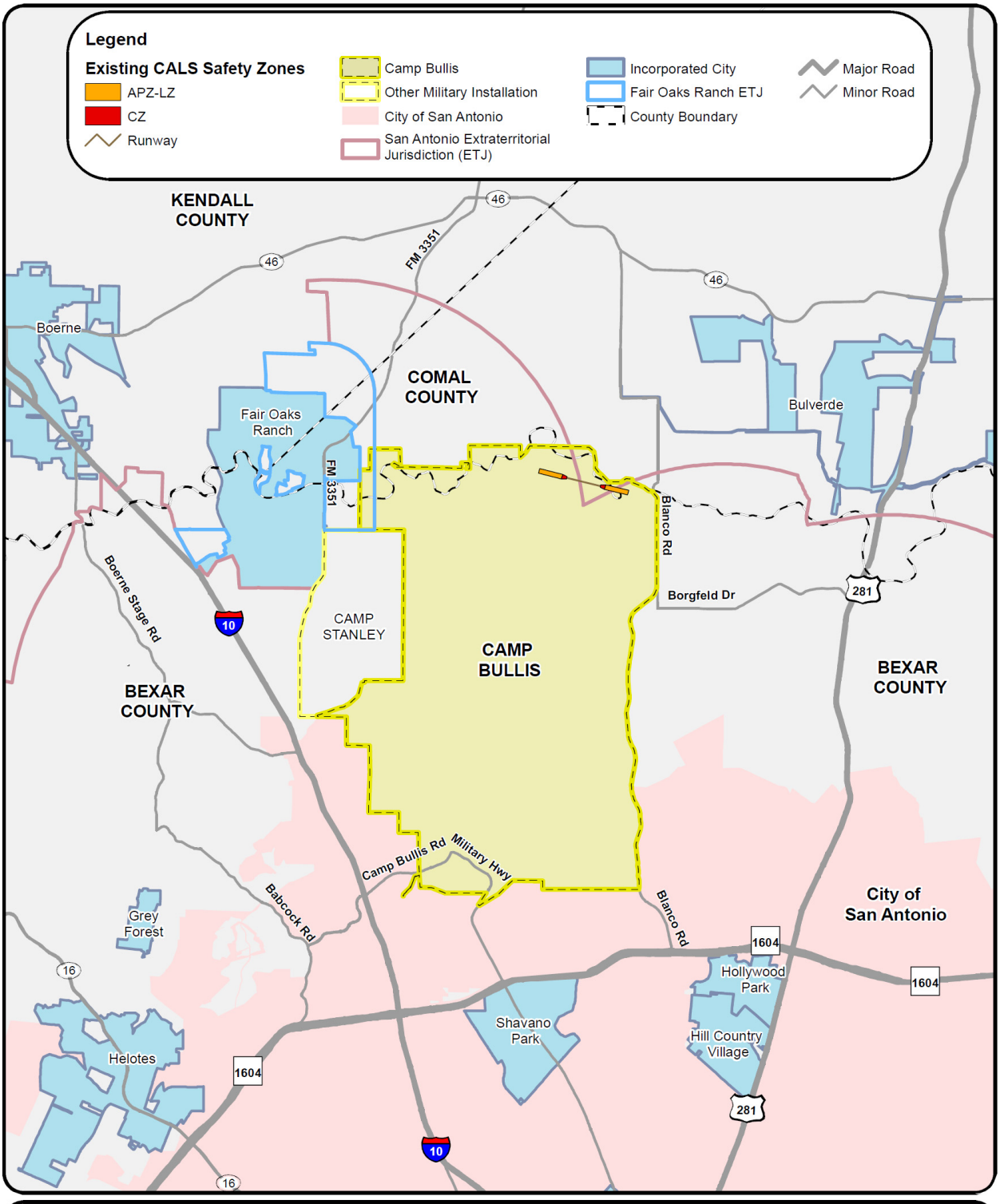


Figure 5-8
Safety Military Influence Area (MIA) - Existing CALS Only

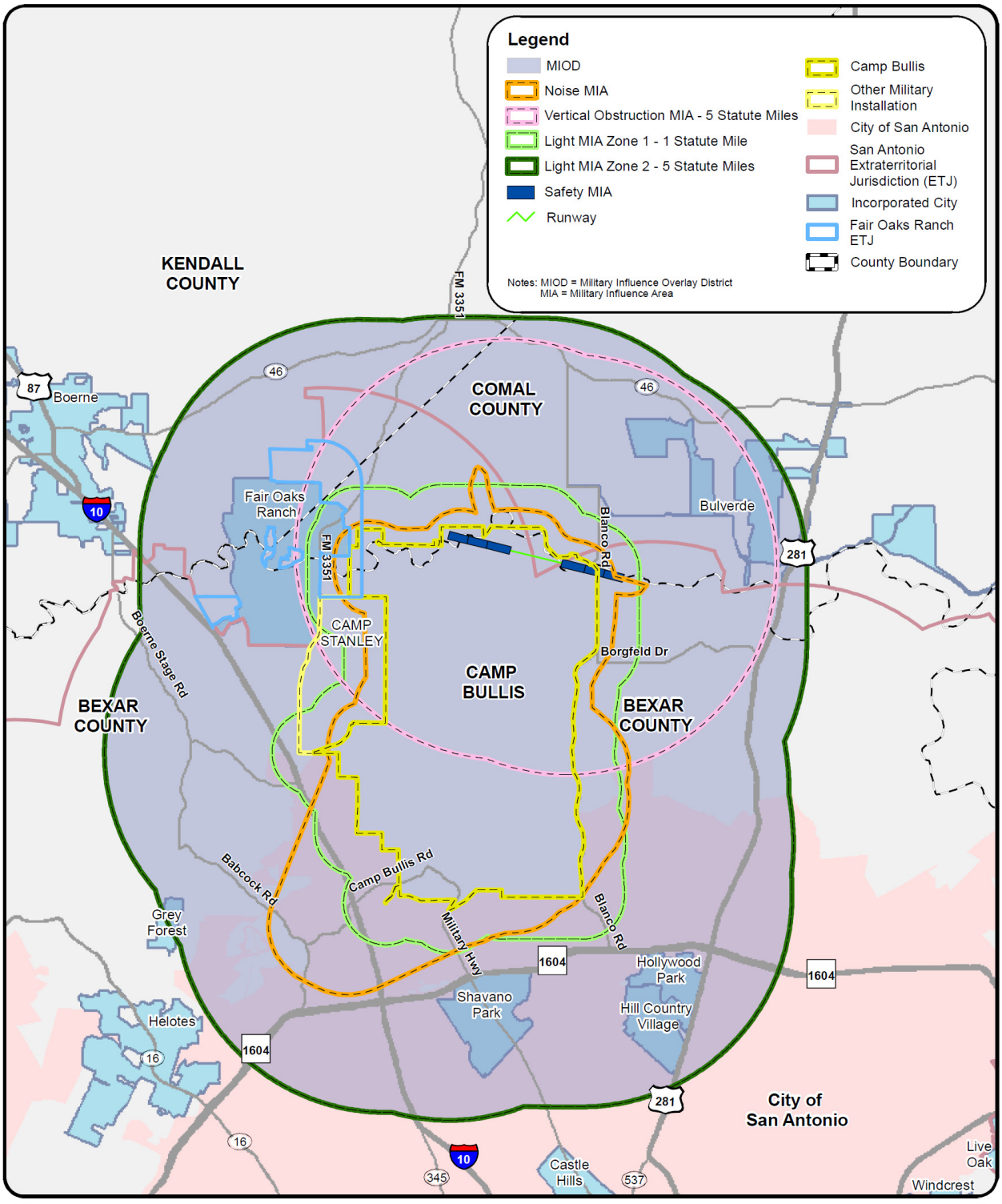


Figure 5-9
MIOD and MIA Boundaries

Golden-Cheeked Warbler Recovery Unit

There is no specific MIA for the Golden-cheeked Warbler; however the area defined as the Golden-cheeked Warbler Habitat Recovery Unit 5 is an area of concern for protecting Warblers in relation to Camp Bullis. These recovery areas have been identified by the U.S. Fish and Wildlife Service as habitat that can be reestablished for the endangered bird.

The Golden-cheeked Warbler Habitat Recovery Unit 5 includes all of Bexar and Comal counties, as well as portions of Bandera, Blanco, Hays, Kendall, Kerr, and Medina counties. All of the JLUS study area jurisdictions contain Golden-cheeked Warbler habitat, with the largest areas in the region including Camp Bullis, Bexar County, and the City of San Antonio to the west of the installation and extending into the areas surrounding the Government Canyon State Natural Area. Small pockets of Golden-cheeked Warbler habitat are located in Bexar County, east of Camp Bullis; and in Comal and Kendall Counties, north and east of Camp Bullis; but these areas are smaller than the habitat areas located within, and to the west of, Camp Bullis.

Karst Faunal Regions

There is also no MIA established for karst invertebrates, however it is important to discuss them as they are included in the strategies section. Karst Faunal Regions are important habitat for endangered karst invertebrates. Areas delineated as Karst Faunal Regions are located in Bexar County and in the cities of San Antonio, Hollywood Park, Hill Country Village, and Shavano Park to the southeast and southwest of Camp Bullis. Regions are delineated based on the types of karst invertebrates that inhabit the region.

A total of six Karst Faunal Regions are located in the study area. The largest region is the Stone Oak region extending west from eastern Bexar County through the southern third of Camp Bullis, Shavano Park, and the City of San Antonio. The southern portion of the study area has the largest variety of Karst Faunal Regions, including habitat areas for all six identified regions. Five of the six faunal regions are located in Bexar County, west of Camp Bullis. No Karst Faunal Regions are located in Comal and Kendall counties or in the City of Fair Oaks Ranch.

Karst Zones

There are five karst zones that were established and are located within the study area for this JLUS. The five karst zones identify the possibility that karst invertebrates live within a specific area. The karst zones rank from 1 to 5, with zone 1 being an area where karst species are known to exist. Zone 2 has a high probability to support karst life, while zone 3 has a low probability. Zone 4 requires further research to identify the probability of karst life systems, and zone 5 indicates that no karst species are found in the area.

The northern portion of Camp Bullis (about two-thirds) is located within zone 5, while the remaining portions of the installation are composed of zones 1, 2, and 3. The zone 1 areas are found to the south and southeast. The area surrounding the northern half of Camp Bullis is primarily located in zone 5, while the southern boundaries are mixed between zones 1, 2, and 3. The majority of zone 1 areas are located to the southeast and southwest of Camp Bullis. More information on Karst Faunal Regions and karst zones, including maps depicting the various areas, can be found in Section 3, Compatibility, under Compatibility Factor 19 Threatened and Endangered Species.

Camp Bullis JLUS Implementation Plan

Table 5-1 presents a summary of the implementation strategies of the Camp Bullis JLUS Implementation Plan. The strategies are organized by encroachment issue as described previously. Following the Implementation Plan, the detailed Camp Bullis JLUS Implementation Action Plan (Tables 5-2 through 5-8) provides specifics for each strategy, its timeline, and ROM cost.

Table 5-2 Land Use Compatibility Strategies.....pg 5-29

Table 5-3 Light and Glare Strategies.....pg. 5-45

Table 5-4 Noise Strategies..... pg. 5-49

Table 5-5 Vertical Obstruction Strategies..... pg. 5-51

Table 5-6 Safety Strategies.....pg. 5-54

Table 5-7 Threatened and Endangered Species Strategies..... pg. 5-56

Table 5-8 Water Strategies..... pg. 5-59

Table 5-1. Camp Bullis Implementation Plan

Strategy Type	Strategy Reference	Strategy
LAND USE COMPATIBILITY STRATEGIES		
Acquisition	ACQ-1	JLUS Land Acquisition Programs
	ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness
	ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee
	ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI
	ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program
	ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program
	ACQ-1f	Partnerships with Non-Governmental Organizations to Facilitate Acquisition
	ACQ-1g	Explore Options to Include T&E Language in Local Propositions
	ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program
	ACQ-1i	Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits
Capital Improvement Plans	CIP-1	Update Appropriate CIP and Master Infrastructure Plans
	CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness
Communications / Coordination	CC-1	Camp Bullis Awareness Program
	CC-1a	Develop a Camp Bullis Awareness Program

Table 5-1. Camp Bullis Implementation Plan (continued)

Legislation	LEG-1	Legislation Addressing Military Encroachment and Protection of Military Missions
	LEG-1a	Military Installation Protection Act Omnibus Bill
	LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection
Memorandum of Understanding	MOU-1	Develop a Formal Development Notification / Consultation Process
	MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis
	MOU-2	Establish a JLUS Implementation Board
	MOU-2a	Develop an MOU Between all the Jurisdictions / Agencies, that Have Land Use Management Authority, to Establish a JLUS Implementation Board
Plans and Programs	PP-1	Develop a Comprehensive Land Use Plan
	PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area
	PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that Lies within an Incorporated City's ETJ
	PP-1c	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that Lies Outside a City's ETJ
	PP-2	Camp Bullis Transportation Plan
	PP-2a	Develop a Camp Bullis Transportation Plan
Real Estate Disclosures	RE-1	Require Real Estate Disclosures within the Military Influence Overlay District
	RE-1a	Amend the Texas Association of Realtors (TAR) Form 1506
	RE-1b	Require that the Texas Association of Realtors Form 1406 include Language that Discloses if a Property is Within the MIOD
	RE-1c	Require Mandatory Real Estate Disclosures that Would Take Place by the Title Company During the Transfer or Sales Transaction
Zoning / Building Codes	ZON-1	Develop a Military Influence Overlay District Zoning Ordinance
	ZON-1a	Develop a Military Influence Overlay District Zoning Ordinance to Include all MIA Zones for the Controlled Compatible Land Use Area
	ZON-1b	Develop a Military Influence Overlay District Zoning Ordinance to Include all MIA Zones for the MIOD
	ZON-2	Establish Joint Zoning Boards
	ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board
	ZON-2b	Establish a Camp Bullis Joint Zoning Board (JZB) for the Area Within the MIOD but Located Outside of the City of San Antonio's ETJ
	ZON-2c	Appoint a Camp Bullis Representative as an Ex-Officio Member on the JAZB, JZB, and Planning Commissions
	ZON-3	Compatible Land Use Zoning Ordinance / Order
	ZON-3a	Incorporate AICUZ Compatibility Guidelines
	ZON-3b	Incorporate BASH Compatibility Guidelines
	ZON-4	Subdivision Regulations to Require Appropriate Real Estate Disclosure
	ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure
Other	OTH-1	Require a Note be Recorded as Part of the Title of Real Property
	OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval

Table 5-1. Camp Bullis Implementation Plan (continued)

LIGHT & GLARE STRATEGIES		
Legislation	LEG-1	Dark Sky Legislation
	LEG-1a	Amend HB 1852
Plans and Programs	PP-1	Lighting Retrofit Program
	PP-1a	Develop a Lighting Retrofit Program for Businesses
	PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency
	PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners
Plans and Programs	PP-2	Lighting Studies at Camp Bullis
	PP-2a	Conduct a Camp Bullis Shielding / Screening Lighting Study to Control Light Impacts
	PP-2b	Identify Critical Areas On Camp Bullis With Light Impacts From Outside the Installation
Zoning / Building Codes	ZON-1	Exterior Lighting
	ZON-1a	Outdoor Lighting Standards
	ZON-2	Dark Sky Ordinance / Order
	ZON-2a	Develop a Dark Sky Ordinance / Order
	ZON-2b	Amend a Dark Sky Ordinance / Order
NOISE STRATEGIES		
Plans and Programs	PP-1	Sound Attenuation Retrofit Program
	PP-1a	Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses
	PP-1b	Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses
Zoning / Building Codes	ZON-1	Sound Attenuation Building Standards
	ZON-1a	Develop Sound Attenuation Building Standards
	ZON-1b	Develop Sound Attenuation for Noise Sensitive Land Uses

Table 5-1. Camp Bullis Implementation Plan (continued)

VERTICAL OBSTRUCTION STRATEGIES		
Communication / Coordination	CC-1	Provide Critical Vertical Flight Limit Information
	CC-1a	Provide Critical Flight and Height Information
Comprehensive Plans	CP-1	Coordinate Federal and State Management Plans
	CP-1a	Coordinate Federal and State Management Plans with Camp Bullis
	CP-2	Use Airport Planning Guidance
	CP-2a	Develop Compatible Land Use for Height Issues
Plans and Programs	PP-1	Low Level Flight Route Study
	PP-1a	Review Low Level Military Flight Routes for Incompatible Uses
Zoning / Building Codes	ZON 1	Develop a Height Restrictions Zoning Ordinance / Order
	ZON-1a	State Adopt Part 77 and Any Amendments as State Law to Ensure FAA Part 77 Compliance by Developing a Height Restrictions Zoning Ordinance / Order
	ZON-1b	Conduct Review of Existing Cellular Phone Tower Locations
	ZON-1c	Amend Chapter 241 to Include Approach and Departure Routes for Helicopter Landing Zones, Both Improved and Unimproved
Other	OTH-1	Use Existing Energy Corridors
	OTH-1a	Ensure New Energy Corridors are Properly Located
SAFETY STRATEGIES		
Capital Improvement Plans	CIP-1	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) For Possible Future Upgrade to Class A Runway
	CIP-1a	Consider Increasing Protections Around CALS to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway
BASH	BH-1	Bird Aircraft Strike Hazard (BASH)
	BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials
	BH-1b	Control Bird and Wildlife Attractions near Camp Bullis
Zoning / Building Codes	ZON-1	Compatible Land Use Zoning Ordinance / Order
	ZON-1a	Incorporate AICUZ Land Use Compatibility Guidelines, Part 2 into the Zoning Ordinance (MIOD)

Table 5-1. Camp Bullis Implementation Plan (continued)

THREATENED & ENDANGERED SPECIES STRATEGIES		
Acquisition	ACQ-1	Pursue TPWD Texas Parks and Recreation Account (TPRA) Outdoor Recreation Grant
	ACQ-1a	Pursue the TPWD TPRA Grant Program
Communications / Coordination	CC-1	Coordinate Agency Management Plans with Camp Bullis
	CC-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis
Comprehensive Plans	CP-1	Develop Golden-Cheeked Warbler Mitigation Credits for Camp Bullis
	CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis
Habitat Plans	HAB-1	Coordinate Federal and State Management Plans with Camp Bullis
	HAB-1a	Provide Review of Agency Plans to Address Military Concerns
	HAB-1b	Develop a Regional Habitat Conservation Plan (RHCP)
Memorandum of Understanding	MOU-1	Formalize Agency Review Processes Through MOUs
	MOU-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis
	MOU-2	Review Process for Endangered Species Assessments
	MOU-2a	Develop an MOU, or Some Other Method to Ensure Comments are Received From All Affected Agencies, to Formalize an Endangered Species Review Process
	MOU-3	Notification Process
	MOU-3a	Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS
Plans and Programs	PP-1	Develop a Camp Bullis Vegetation Management Plan
	PP-1a	Develop a Camp Bullis Vegetation Management Plan
WATER STRATEGIES		
Capital Improvement Program	CIP-1	Connect Camp Bullis to the SAWS
	CIP-1a	Secure a Sustainable Water Source for Camp Bullis
Plans and Programs	PP-1	General Plans - Address Water Issues
	PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Primary: Primary party responsible for implementation of strategy
Partners: Parties responsible for assisting primary party implement the strategy

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Acquisition	ACQ-1	JLUS Land Acquisition Programs											
	ACQ-1a	**Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness** Work with Camp Bullis to identify the list of properties that acquisition should include associated with public health and safety such as air operations safety, noise and light for both the citizens and the military personnel ■ The six Areas of Concern identified by Camp Bullis ACUB should be included in the list of properties ■ Identify which Areas of Concern parcels provide Golden Cheek Warbler habitat value for use in US F&W mitigation credit to Camp Bullis ■ The JLUS Implementation Board may want to establish an Acquisition Subcommittee to facilitate and coordinate all acquisition programs ■ Is not restricted only to the lands within the MIOD	■					**Primary** Camp Bullis / Ft Sam Houston **Partners** Bexar Comal Kendall San Antonio Conservation Advisory Board JLUS Implementation Board TPWD USFWS	■				$
	ACQ-1b	**Establish a Camp Bullis Acquisition Subcommittee** An acquisition subcommittee should facilitate the Camp Bullis acquisition programs ■ The subcommittee should be appointed by and report to the JLUS Implementation Board ■ Members of the subcommittee should include Camp Bullis and representatives from agencies associated with grants that can fund Camp Bullis acquisition projects / programs ■ Members of the subcommittee should include Ex-Officio members engaged in the real estate industry	■					**Primary** JLUS Implementation Board **Partners** Bexar Comal Kendall San Antonio Camp Bullis / Ft Sam Houston Conservation Advisory Board TPWD USFWS	■				$
	ACQ-1c	**Pursue Conservation Partnering Opportunities Utilizing REPI** Utilize the DoD Readiness and Environmental Protection Initiative (REPI) to acquire critical lands identified by Camp Bullis Acquisition Subcommittee that, if developed, may impact the military mission (possible acquisition methods include: fee simple, conservation easement, land deed transfer) ■ Identify opportunities where funding from REPI can be coupled with other funding opportunities like ACUB, San Antonio Proposition dollars, land trusts, etc.	■					**Primary** Camp Bullis / Ft Sam Houston **Partners** San Antonio Conservation Advisory Board Green Spaces Alliance JLUS Implementation Board TPWD USFWS	■			■	$$$$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Acquisition (con'd)	ACQ-1	JLUS Land Acquisition Programs											
	ACQ-1d	**Pursue Conservation Partnering Opportunities Utilizing ACUB Program** Utilizing the Camp Bullis ACUB Program to acquire critical lands identified by the military that, if developed, may impact the military mission (possible acquisition methods include: fee simple, conservation easement, land deed transfer) ■ Identify opportunities where funding from ACUB can be coupled with other funding opportunities like REPI, San Antonio Proposition dollars, land trusts, etc	■					**Primary** Camp Bullis / Ft Sam Houston **Partners** San Antonio Conservation Advisory Board Green Spaces Alliance JLUS Implementation Board TPWD USFWS	■			■	$$$$
	ACQ-1e	**Evaluate the Establishment of a Purchase of Development Rights Program** An alternative to the purchase of land is the purchase of development rights that would be negotiated with the owner of the property. Participation in the purchase of development rights would be voluntary on the part of the owner. ■ This type of acquisition may be effective in appropriate situations and areas, particularly where the issue of compatibility involves density of development or an incompatible land use that may be permitted on that particular parcel of property. When development rights are purchased, a landowner is paid fair market value for the rights that are purchased. ■ The value of the purchased rights is roughly equal to the value of the land without any special restriction less the value of the land with the land use restrictions ■ The use of this strategy would be dependent on securing funding for the purchase through one of the other acquisition strategies ■ The development rights which are purchased must be recorded in the deed	■					**Primary** Bexar Comal Kendall San Antonio **Partners** JLUS Implementation Board		■		■	$$$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party (**Primary**: Primary party responsible for implementation of strategy; **Partners:** Parties responsible for assisting primary party implement the strategy)	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Acquisition (con'd)	ACQ-1	JLUS Land Acquisition Programs											
	ACQ-1f	**Partnerships with Non-Governmental Organizations to Facilitate Acquisition** The acquisition of development rights or conservation easements to governmental or non-governmental entities such as the Trust for Public Land (TPL) or the Green Spaces Alliance, may acquire and / or hold development rights for land adjacent to a military installation or facility, dedicating it to uses compatible with military missions or to transferring those lands to public ownership for conservation or open space uses ■ The Acquisition Subcommittee could foster the partnering relationships with NGOs that assist in acquiring lands for conservation, etc ■ TPL also has a program to assist communities in pursuing a preservation ballot initiative, providing services that include political analysis and campaign strategy ■ The use of this strategy could be part of one of the other acquisition strategies (REPI, ACUB)	■					**Primary** Camp Bullis \ Ft Sam Houston JLUS Implementation Board **Partners** Green Spaces Alliance Other NGOs	■			■	$$$$
	ACQ-1g	**Explore Options to Include T&E Language in Local Propositions** Explore the option to incorporate language in future local propositions that protect the Edwards Aquifer and / or provide parks and open space to also incorporate language that also includes lands that are acquired under these propositions, that have Golden-cheeked Warbler Habitat, may also be used as US Fish and Wildlife Golden-cheeked Warbler mitigation credits for Camp Bullis.	■					**Primary** Bexar Comal Kendall Boerne Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park **Partners** USFWS				■	$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Acquisition (con'd)	ACQ-1	JLUS Land Acquisition Programs											
	ACQ-1h	**Establish a Habitat Conservation Plan Tax Benefit Funding Program** Establish a program that allocates a portion of the property tax revenue from property within the MIOD to fund the acquisition of properties that either have a habitat conservation value or a preservation of military readiness value (*similar concept as the Travis County Tax Increment Reinvestment Zone (TIRZ*)) ■ The portion of property tax revenue allocated would be a fraction of the delta between the value of the developed property subtracted from the value of the undeveloped property ■ The amount of the fraction of the delta would be funneled back to the Habitat Conservation Plan ■ Is not only restricted to the lands within the MIOD ■ Prior to implementation of this strategy, the Regional HCP requirements for mitigation and adoption of US F&WS should be accomplished. ■ Evaluate the application and legal requirements associated with establishing TIF/TIR programs	■					**Primary** Bexar Comal Kendall San Antonio Conservation Advisory Board **Partners** Camp Bullis / Ft Sam Houston USFWS		■		■	$$
	ACQ-1i	**Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits** Work with US FWS and TPWD to identify lands which were purchased by San Antonio Proposition 1 and 3 funds that can also be used for Golden-Cheeked Warbler Mitigation Credits	■					**Primary** San Antonio Conservation Advisory Board **Partners** TPWD USFWS	■				$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Capital Improvement Programs	CIP-1	Update Appropriate CIP and Master Infrastructure Plans											
	CIP-1a	**Review For and Address CIP Projects that Conflict with Preservation of Military Readiness** Review and address capital improvement projects and master infrastructure plan projects that may impact the missions at Camp Bullis ■ CIP reviews should be conducted on an annual basis or when an agency is updating their plans	■					**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park SAWS TxDOT School Districts **Partners** Camp Bullis / Ft Sam Houston JLUS Implementation Board				■	$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Communications / Coordination	CC-1	Camp Bullis Awareness Program											
	CC-1a	**Develop a Camp Bullis Awareness Program** Develop a community outreach program that raises the awareness about the importance of protecting Camp Bullis from encroachment and of JLUS compatible land use strategies that as citizens can implement. Examples of such programs include: ■ An annual Camp Bullis Appreciation Day where the base would host an all day base appreciation open house with information booths, military equipment on display, and hourly educational tours of Camp Bullis ■ Educational brochures on different types of programs available to assist in preserving the military readiness Camp Bullis' mission (i.e. voluntary acquisition programs, dark sky lighting regulations, lighting retrofit program) could be distributed ■ Signage Program where street signs are posted at gateways into the different communities within the MIOD that identifies that the community supports Camp Bullis (example: "Entering a Camp Bullis Community, Supporting the Men and Woman who Support Us") ■ Present educational information to neighborhood groups / organizations about Camp Bullis and what the Camp Bullis MIA means to them	■					**Primary** Camp Bullis JAZB Camp Bullis JZB JLUS Implementation Board Greater San Antonio Chamber **Partners** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis / Ft Sam Houston TPWD USFWS	■			■	$$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party (**Primary**: Primary party responsible for implementation of strategy; **Partners:** Parties responsible for assisting primary party implement the strategy)	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Legislation	LEG-1	Legislation Addressing Military Encroachment and Protection of Military Missions											
	LEG-1a	**Military Installation Protection Act Omnibus Bill** A Military Installation Protection Act Omnibus Bill would provide unincorporated and incorporated jurisdictions within an MIOD, identified through a JLUS process, land use and zoning regulatory authority ■ Bill proposed by Senator Van de Putte was filed in March 2009 ■ Grant authority to create a multi-jurisdictional board (Joint Zoning Board) that would be responsible for the regulatory authority within the MIOD ■ Authorize and appropriate state funding for a joint land use plan for the MIOD; ■ Grant tax increment financing (TIF) or tax investment funding (TIF) authority to counties; ■ Require real estate disclosures at time of advertisement and purchase / conveyance of property, disclosing that the property is within a Military Influence Overlay District; ■ Require school districts to consult w/military installations for future school locations within an MIOD	■					**Primary** State Legislators Military Transformation Task Force San Antonio Office of Military Affairs **Partners** Bexar Comal Kendall Camp Bullis / Ft Sam Houston JLUS Implementation Board	■				$
	LEG-1b	**Grant Counties Regulatory Authority for Military Installation Protection** Develope new legislation to provide regulatory authority to counties, which could include: ■ Regulate the platting or clearing of a tract of land larger than two acres ■ Require developers to provide notice to and opportunity for comment by commanders of affected military installations ■ Require developers to provide notice to prospective buyers of the land relating to potential noise and dust problems that could result from locating in close proximity to an active military installation ■ Require developers to submit thier survey to USFWS. Developers are required to provide a certified letter stating that they have submitted a survey conducted by a certified surveyor to USFWS; and ■ Require developers to submit the results of the survey to the Parks and Wildlife Department, the United States Fish and Wildlife Service, and any military installation in the vicinity of the land	■					**Primary** State Legislators Military Transformation Task Force San Antonio Office of Military Affairs **Partners** Bexar Comal Kendall Camp Bullis / Ft Sam Houston JLUS Implementation Board	■				$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party **Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Memorandum of Understanding	MOU-1	Develop a Formal Development Notification / Consultation Process											
	MOU-1a	**Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis** To prevent incompatible development from being planned or constructed in areas within the MIOD, an MOU should be established between Camp Bullis and the jurisdictions / agencies. This MOU would establish a formal agreement in which the jurisidction / agency would provide Camp Bullis an opportunity to comment. Consider incorporating the following into the MOU: ■ Camp Bullis review during the early notification (pre-applications) meetings prior to the submittal of a development application ■ Identification of the different development application process which would be part of the MOU ■ Identification of the Points of Contact for all parties involved for smooth coordination ■ Provide notice of development application upon receipt and allow the military to provide comment without delaying the process ■ A standard timeline for responses, keeping in mind mandated review time periods as specified by State law and local procedures ■ The JLUS Implementation Board can assist communities in establishing the MOU (provide MOU templates, facilitate MOU) ***Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative***	■					**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB SAWS TxDOT Utility Providers School Districts **Partners** Camp Bullis / Ft Sam Houston JLUS Implementation Board	■				$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
MOU (cont'd)	MOU-2	Establish a JLUS Implementation Board											
	MOU-2a	**Develop an MOU Between all the Jurisdictions / Agencies, that Have Land Use Management Authority, to Establish a JLUS Implementation Board.** The JLUS Implementation Board: ■ Would be responsible for overseeing and facilitating the implementation of the recommended strategies identified in the JLUS Implementation Plan. ■ Should be formed prior to the completion of the Camp Bullis JLUS project ■ May appoint subcommittees to be charged with the responsibility of leading the implementation of specific strategies ■ May meet, at a minimum, on a quarterly basis, or as otherwise agreed to by the Board ■ The Military Transformation Task Force and the San Antonio Office of Military Affairs should be the agency that initiates the establishment of the Board and should be ex-officio members of the Board	■					**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis / Ft Sam Houston Camp Bullis JAZB Camp Bullis JZB SAWS TxDOT School Districts Utility Providers **Partners** Military Transformation Task Force San Antonio Office of Military Affairs	■				$$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Plans and Programs	PP-1	Develop a Comprehensive Land Use Plan											
	PP-1a	**Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area** Develop a land use plan depicting compatible uses for the area within the Controlled Compatible Land Use Area that will guide development application approvals ■ Incorporate AICUZ Compatibility Guidelines, Part 1 Land use designations and density restrictions in local general plans should be designed to maintain compatibility with airfield operations for both the fixed wing and rotary wing aircraft flight corridor noise MIAs ■ The land use plan should be updated on a regular basis and / or when a new mission is introduced at Camp Bullis	■					**Primary** Bexar San Antonio Camp Bullis JAZB Comal Kendall Bulverde Fair Oaks Ranch **Partners** Camp Bullis / Ft Sam Houston SAWS TxDOT TPWD USFWS Utility Providers School Districts	■				$$
	PP-1b	**Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ** ■ Incorporate AICUZ Compatibility Guidelines Part 1 into comprehensive land use plan ■ Land use designations and density restrictions in local comprehensive land use plans should be designed to maintain compatibility with airfield operations for the fixed wing aircraft flight corridor noise MIAs ■ The comprehensive land use plan should be updated on a regular basis and / or when a new mission is introduced at Camp Bullis	■					**Primary** Fair Oaks Ranch Bulverde San Antonio **Partners** Bexar Comal Kendall Camp Bullis / Ft Sam Houston SAWS TxDOT TPWD USFWS Utility Providers School Districts	■				$$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Primary: Primary party responsible for implementation of strategy
Partners: Parties responsible for assisting primary party implement the strategy

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Plans and Programs (cont'd)	PP-1	Develop a Comprehensive Land Use Plan											
	PP-1c	**Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that Lies Outside of a City's ETJ** ■ Incorporate AICUZ Compatibility Guidelines, Part 1 ■ Land use designations and density restrictions in local general plans should be designed to maintain compatibility with airfield operations for both the fixed wing and rotary wing aircraft flight corridor noise MIAs ■ The land use plan should be updated on a regular basis and / or when a new mission is introduced at Camp Bullis *Note: Dependent on new State Legislation*	■					**Primary** Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston SAWS TxDOT TPWD USFWS Utility Providers School Districts	■				$$
	PP-2	Camp Bullis Transportation Plan											
	PP-2a	**Develop a Camp Bullis Transportation Plan** The Plan should identify dedicated military student transport on both primary and alternative routes between Fort Sam Houston and Lackland AFB and Camp Bullis that provides the military short commute times and low fuel costs ■ The development application or permit should only be approved if there is no major transportation issue that adversly impacts the current level of service to the designated routes. ■ The plan should be updated on a regular basis and / or when a new mission is introduced at Camp Bullis *Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative*	■					**Primary** San Antonio **Partners** Camp Bullis / Ft Sam Houston TxDOT	■				$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Real Estate Disclosures	RE-1	Require Real Estate Disclosures within the Military Influence Overlay District											
	RE-1a	**Amend the Texas Association of Realtors (TAR) Form 1506** This amendment would serve as a real estate disclosure that discloses if a parcel of property is in an area that may be exposed to noise generated by a military installation ■ Work with the Texas Association of Realtors and local real estate representatives the San Antonio Board of Realtors to develop and implement adequate language for inclusion in disclosure notices ■ Form 1506 is not a mandatory disclosure form and is dependent on the discretion of each individual realtor ■ Work with San Antonio Board of Realtors and local real estate representatives to ensure compliance with notification requirement ■ Local jurisdictions and Camp Bullis should work cooperatively to make available the information required for real estate disclosure	■					**Primary** San Antonio Board of Realtors Texas Association of Realtors **Partners** Camp Bullis / Ft Sam Houston JLUS Implementation Board	■				$
	RE-1b	**Require that the Texas Association of Realtors Form 1406 include Language that Discloses if a Property is Within the MIOD** Amend the TAR Form 1406 to add language identifying an area to mark if a property is located in an MIOD. Require property owners to notify the buyer at time of advertisement of and at the time of sale / conveyance the property if located within a MIOD. ■ Work with the Texas Association of Realtors and San Antonio Board of Realtors to develop and implement adequate language for inclusion in disclosure notices ■ Work with Texas Association of Realtors and San Antonio Board of Realtors to ensure compliance with notification requirements ■ Local jurisdictions and Camp Bullis should work cooperatively to make available the information required for real estate disclosure *Note: Dependent on new State Legislation*	■					**Primary** San Antonio Board of Realtors Texas Association of Realtors **Partners** Camp Bullis / Ft Sam Houston JLUS Implementation Board	■				$
	RE-1c	**Require Mandatory Real Estate Disclosures that Would Take Place by the Title Company During the Transfer or Sales Transaction** Require title companies to inform buyers that they are within an MIOD upon purchase	■					**Primary** JLUS Implementation Board **Partners** San Antonio Board of Realtors Texas Association of Realtors	■				$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party (**Primary**: Primary party responsible for implementation of strategy; **Partners:** Parties responsible for assisting primary party implement the strategy)	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Zoning / Building Codes	ZON-1	Develop a Military Influence Overlay District Zoning Ordinance											
	ZON-1a	**Develop a Military Influence Overlay District Zoning Ordinance to Include all MIA Zones for the Controlled Compatible Land Use Area** Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones and associated regulations for the Controlled Compatible Land Use Area that incorporates compatible land use guidance and regulations including: sound attenuation, BASH land use regulations, AICUZ regulations, and other compatible use guidance. ■ The boundary of this overlay district would be the Controlled Compatible Land Use Area per Texas Local Government Code 241 ■ For ease of implementation, the boundary should be developed using streets and property lines. Be sure the entire area identified under Texas LGC 241 is inclusive of this boundary ■ If Bexar County and San Antonio agree to establish their own Joint Airport Zoning Board (JAZB) for the unincorporated lands within the San Antonio ETJ, it is recommended that the County allow all zoning authority within the JAZB Controlled Area to be transferred to the City of San Antonio through an MOU that: a. States the City's existing planning and zoning development application and approval processes that are already in place and have resources dedicated to these types of functions should be the mechanism to implement this approach ■ If Bexar County and San Antonio agree to establish their own Joint Airport Zoning Board (JAZB) for the unincorporated lands within the San Antonio ETJ, the City will be required to establish an overlay district zoning ordinance for the Controlled Area.	■					**Primary** Camp Bullis JAZB **Partners** Camp Bullis / Ft Sam Houston	■				$
	ZON-1b	**Develop a Military Influence Overlay District Zoning Ordinance to Include all MIA Zones for the MIOD** Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones and associated regulations for the MIOD that incorporates compatible land use guidance and regulations including: sound attenuation, BASH land use regulations, AICUZ regulations, and other compatible use guidance. ■ Develop an overlay zoning district that provides regulating compatible land use to only the specific geographic area of concern addressing public safety and welfare ■ For ease of implementation, the boundary should be developed using streets and property lines. Be sure the entire area identified under Texas Local Government Code 241 is inclusive of this boundary ■ If Bexar County and San Antonio opt out of being members of the Camp Bullis Joint Zoning Board (JZB) for lands within San Antonio and it's ETJ, then they will be required to implement an overlay district zoning ordinance separately ***Note: Dependent on new State Legislation***	■					**Primary** Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-2. Land Use Compatibility Strategies

Camp Bullis Implementation Plan
Land Use Compatibility Strategies

Primary: Primary party responsible for implementation of strategy
Partners: Parties responsible for assisting primary party implement the strategy

Type of Strategy	Strategy Reference	Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Zoning / Building Codes (cont'd)	ZON-2	Establish Joint Zoning Boards											
	ZON-2a	**Establish a Camp Bullis Joint Airport Zoning Board** Establish a JAZB per Texas Local Government Code, Chapter 241 for the CALS to include the unincorporated counties outside of the San Antonio ETJ as an interim measure	■					**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch **Partners** Camp Bullis / Ft Sam Houston SAWS TxDOT TPWD USFWS Utility Providers School Districts	■				$
	ZON-2b	**Establish a Camp Bullis Joint Zoning Board (JZB) for the Area Within the MIOD but Located Outside of the City of San Antonio's ETJ** ■ All the jurisdictions within the MIOD can participate in one JZB or they may opt to be part of a JZB specific to a portion of the Controlled Compatible Land Use area that includes land within a certain geographic area (example: Bexar County and San Antonio may opt to establish a JZB for the lands within the San Antonio ETJ *Note: Dependent on new State Legislation*	■					**Primary** Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$
	ZON-2c	**Appoint a Camp Bullis Representative as an Ex-Officio Member on the JAZB, JZB, and Planning Commissions** Appoint a member from Camp Bullis to serve as an ex-officio member on the JAZB, JZB, and planning commissions. ■ The JZB action is dependent on new State Legislation	■					**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Zoning / Building Codes (cont'd)	ZON-3	Compatible Land Use Zoning Ordinance / Order											
	ZON-3a	**Incorporate AICUZ Compatibility Guidelines** Add compatibility guidelines in AICUZ for JAZB and JZB.	■					**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$
	ZON-3b	**Incorporate BASH Compatibility Guidelines** Incorporate zoning ordinances and subdivision regulations to support the use of the Air Force Land Use Compatibility Guidelines for areas within the outer edge of the 2005 AICUZ noise contour for the Future Potential Mission 65 CNEL scenario.	■					**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$
	ZON-4	Subdivision Regulations to Require Appropriate Real Estate Disclosure											
	ZON-4a	**Amend the Subdivision Regulations to Require a Real Estate Disclosure** Require a real estate disclosure, stating the property is located within a MIOD, be recorded as a Plat Note ■ Real estate disclosures on a plat note would require a UDC amendment *Note: Dependent on new State Legislation*	■					**Primary** Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB SAWS Utility Providers **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-2. Land Use Compatibility Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Land Use Compatibility Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Other	OTH-1	Require a Note be Recorded as Part of the Title of Real Property											
	OTH-1a	**Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval** Require that a note be recorded on a title to real property located within the MIOD as part of any discretionary development permit or approval. The note shall state that the real property is located within a Military Influence Overlay District that acknowledges that the property is located within close proximity to a military installation that performs day and night time training operations, both air operations and ground. The military operations may produce noise, vibration, and other encroachment issues. ■ Determine if incorporated jurisdictions are able to require the note be recorded without the passage of new legislation. *Note: Dependent on new State Legislation*	■					**Primary** Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB SAWS Utility Providers **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-3. Light and Glare Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Light and Glare Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Legislation	LEG-1	Dark Sky Legislation											
	LEG-1a	**Amend HB 1852** language to include all counties within 5 miles of a military installation which replaces the language that states only the counties that are adjacent to military installations *Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative*		■				**Primary** State Legislators **Partners** Bexar Comal Kendall	■				$
Plans and Programs	PP-1	Lighting Retrofit Program											
	PP-1a	**Develop a Lighting Retrofit Program for Businesses** Local jurisdictions will develop a lighting retrofit program for businesses. This program will include: ■ Distribution of materials to businesses informing them of the issue and programs available to assist them ■ A self-help guide to assist businesses in the evaluation of their facilities and sites for compliance with dark sky directives ■ A funding program to assist with retrofit projects, which may include grants, matching funds, and low interest loans ■ Modify local permitting procedures to include a requirement for retrofitting as part of a major renovation project ■ Work with local utilities to provide funding resources as part of their energy conservation programs ■ Develop an incentive package for businesses to retrofit their lighting fixtures to meet regulations ■ Jurisdictions would be responsible for providing the utility providers the dark sky lighting standards for their community		■				**Primary** CPS Energy Utility Providers **Partners** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park		■			$$$

Table 5-3. Light and Glare Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Light and Glare Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Plans and Programs (cont'd)	PP-1	Lighting Retrofit Program											
	PP-1b	**Develop a Lighting Retrofit Phasing Plan for an Agency** ■ Develop a capital improvements phasing plan to retrofit existing lighting fixtures including street lights, public facility lighting, recreational lighting, and other public light fixtures		■				**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis / Ft Sam Houston TxDOT **Partners** CPS Energy Utility Providers		■			$$$
	PP-1c	**Develop a Voluntary Lighting Retrofit Program for Homeowners** Local jurisdictions and utility providers will develop a lighting retrofit program for residential units. This program will include: ■ Distribution of educational materials to homeowners and owners of rental property informing them of the issue, the benefits of Dark Sky (IDA approved) light fixtures, and programs available to assist them in retrofitting their lighting systems to include alternative lighting types for outdoor illumination and the placement and use of these fixtures ■ Develop an incentive package for homeowners to retrofit their lighting fixtures to meet regulations ■ A self-help guide to assist residents in the evaluation of their homes / units for compliance with dark sky directives ■ Modify local permitting procedures to include a requirement for retrofitting as part of a major renovation project ■ Work with local retailers, utilities, community groups, jurisdictions to provide incentives and funding as part of their sustainability programs to offset homeowner costs		■				**Primary** CPS Energy Utility Providers **Partners** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park		■			$$

Table 5-3. Light and Glare Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Light and Glare Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Plans and Programs (cont'd)	PP-2	Lighting Studies at Camp Bullis											
	PP-2a	**Conduct a Camp Bullis Shielding / Screening Lighting Study to Control Light Impacts** Conduct a lighting study on Camp Bullis (to include Camp Stanley) that will identify existing lighting generated within the installation that requires retrofitting to reduce light pollution generated from land uses within the installation boundary		■				**Primary** Camp Bullis / Ft Sam Houston	■				$
	PP-2b	**Identify Critical Areas On Camp Bullis With Light Impacts From Outside the Installation** Camp Bullis will conduct a study to identify on installation training areas that currently encounter or may encounter light pollution from outside the installation boundary, specifically to reduce spillover light from adjacent residential and other types of land uses onto installation areas used for night training. ■ Determine if these areas could be mitigated on installation property by constructing a berm or buffer that would shield the training areas from off installation light pollution		■				**Primary** Camp Bullis / Ft Sam Houston	■				$
Zoning / Building Codes	ZON-1	Exterior Lighting											
	ZON-1a	**Outdoor Lighting Standards** Local jurisdictions, in coordination with Camp Bullis, will develop lighting standards for exterior lighting as a component of their subdivision regulations (including street lighting fixtures). These lighting standards should be designed to reduce light impacts on night training at Camp Bullis these standards may include lighting: ■ types ■ locations ■ intensities ■ fixture types ■ shielding and similar controls ***Note: All new military construction on Camp Bullis is required to adhere to the dark sky lighting standards per the US Army Policy and US Army Corps of Engineers Design Standards***		■				**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB **Partner** Camp Bullis / Ft Sam Houston	■				$

Table 5-3. Light and Glare Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Light and Glare Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Zoning / Building Codes (cont'd)	ZON-2	Dark Sky Ordinance / Order											
	ZON-2a	**Develop a Dark Sky Ordinance / Order** Adopt a dark sky ordinance to support the night training conducted at Camp Bullis. The ordinance should provide dark sky lighting standards and siting regulations for three MIA areas. ■ The MIA boundaries include the following: MIA 1 (1-mile area around Camp Bullis that requires specific siting and shielding standards and requirements and specirfic downward lighting standards) MIA 2 (5-mile area around Camp Bullis that requires specific downward lighting standards) ■ Utilize the San Antonio Dark Sky Ordinance as a guide for recommended lighting regulations for MIA 1 and MIA 2 ■ Kendall County is the only jurisdiction within the MIOD that is dependent on new State Legislation in order to adopt a dark sky order ■ Communities that already have a Dark Sky Ordinance / Order are not associated with this strategy ***Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative*** ***Note: Dependent on new State Legislation***		■				**Primary** Kendall Bulverde Hill Country Village Hollywood Park **Partner** Camp Bullis / Ft Sam Houston	■				$
	ZON-2b	**Amend a Dark Sky Ordinance / Order** Amend a dark sky ordinance to support the night training conducted at Camp Bullis. The ordinance should provide dark sky lighting standards and siting regulations for two MIA areas. ■ The MIA boundaries include the following: MIA 1 (1-mile area around Camp Bullis that requires specific siting and shielding standards and requirements and specific downward lighting standards) MIA 2 (5-mile area around Camp Bullis that requires specific downward lighting standards) ***Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative***		■				**Primary** Bexar Comal Fair Oaks Ranch San Antonio Shavano Park **Partner** Camp Bullis / F. Sam Houston	■				$

Table 5-4. Noise Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Noise Strategies — Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy — Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Plans and Programs	PP-1	Sound Attenuation Retrofit Program											
	PP-1a	**Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses** Require existing noise sensitive uses within Noise MIA to retrofit their facilities to meet the sound attenuation standards for the specific MIA per HUD noise standards. *Note: Dependent on new State Legislation*			■			**Primary** Bexar Comal Fair Oaks Ranch San Antonio		■			$$$
	PP-1b	**Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses** Develop a program that provides guidance on sound attenuation standards for retrofitting existing residential and commercial facilities. The program can include grant opportunities available to assist property owners in retrofitting structures in noise sensitive areas.			■			**Primary** Bexar Comal Fair Oaks Ranch San Antonio		■			$$$

Table 5-4. Noise Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Noise Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Zoning / Building	ZON-1	Sound Attenuation Building Standards											
	ZON-1a	**Develop Sound Attenuation Building Standards** Amend IRC to require sound attenuation building standards for residential. Develop sound attenuation guidelines for specfic areas and recommendations for modifications to the IRC. The sound attenuation standards should achieve a Sound Transmission Class (STC) ratings for sound attenuation to higher levels based on potential noise exposure. New construction should be designed to achieve an interior noise level of 45 dB Ldn for residential units, schools, public assemblies, medical facilities, or other noise sensitive uses. **Note:** A typical STC of 50 is a common building standard and blocks approximately 50 dB from transmitting through a partition. ■ An STC is a single-number rating of a material's or an assembly's barrier effect on noise. In general, a higher STC rating blocks more noise from transmitting through a wal ■ STC is highly dependant on the construction of the partition and can be increased by: (a) Adding mass (b) Increasing or adding air space (c) Adding absorptive material within the partition ■ Changes in STC ratings of a wall or partition typically follow these rules of thumb: (a) +/- 1 Almost imperceptible (b) +/- 3 Just perceptible (c) +/- 5 Clearly noticeable (d) +/- 10 Twice (or half) as loud			■			**Primary** Bexar Comal Fair Oaks Ranch San Antonio	■				$
	ZON-1b	**Develop Sound Attenuation for Noise Sensitive Land Uses** JLUS Implementation Board to continue to work on the mechanics and procedures in developing and applying sound attenuation standards for noise sensitive land uses.			■			**Primary** JLUS Implementation Board	■				$

Table 5-5. Vertical Obstruction Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Vertical Obstruction Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Communications / Coordination	CC-1	Provide Critical Vertical Flight Limit Information											
	CC-1a	**Provide Critical Flight and Height Information** Ensure information on elevation limits (floors and ceilings) of Special Use Airspace (SUA) are easily available to jurisdictions and management agencies for their use in planning and developing guidance				■		**Primary** Camp Bullis / Ft Sam Houston **Partners** Camp Bullis JAZB Camp Bullis JZB SAWS TxDOT Utility Providers		■			$
Comprehensive Plans	CP-1	Coordinate Federal and State Management Plans											
	CP-1a	**Coordinate Federal and State Management Plans with Camp Bullis** Federal and state agencies to review management plans to determine compatibility with military operations and coordinate critical information				■		**Primary** TxDOT TPWD USFWS **Partners** Camp Bullis / Ft Sam Houston	■				$
	CP-2	Use Airport Planning Guidance											
	CP-2a	**Develop Compatible Land Use for Height Issues** Design land use designations to maintain compatibility with airfield operations using the airfield planning guidance ■ If a JAZB or a JZB is not established, then coordination with local jurisdiction planning departments should still occur				■		**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-5. Vertical Obstruction Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Vertical Obstruction Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Plans and Programs	PP-1	Low Level Flight Route Study											
	PP-1a	**Review Low Level Military Flight Routes for Incompatible Uses** Military to work with TxDOT and utility providers to ensure that utility lines in low level flight routes/corridors are adequately marked and that new power lines are not proposed to be located under a low level Military Training Routes (MTR) routes				■		**Primary** Camp Bullis / Ft Sam Houston **Partners** Camp Bullis JAZB Camp Bullis JZB SAWS / CPS Energy TxDOT Utility Providers	■				$
Zoning / Building Codes	ZON 1	Develop a Height Restrictions Zoning Ordinance / Order											
	ZON-1a	**State Adopt Part 77 and Any Amendments as State Law to Ensure FAA Part 77 Compliance by Developing a Height Restrictions Zoning Ordinance / Order** Review existing Wireless Telecommunications Facilities regulations and other pertinent components of the zoning ordinance to include height limitations for structures. Ensure alternate means to comply with Part 77. ■ Incorporate Part 77 regulations and requirements for an OE into the development application / permit review and approval process ■ If a JAZB or a JZB is not established, then coordination should occur between Camp Bullis and all jurisdictions				■		**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-5. Vertical Obstruction Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Vertical Obstruction Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Zoning / Building Codes (con'd)	ZON 1	Develop a Height Restrictions Zoning Ordinance / Order											
	ZON-1b	**Conduct Review of Existing Cellular Phone Tower Locations** Identify and target locations where cell phone coverage gaps exist and determine appropriate locations within these areas for the development of cellular phone towers ■ Encourage the collocation of cellular towers within the Camp Bullis study area ■ If a JAZB or a JZB is not established, then coordination should occur between Camp Bullis and all jurisdictions				■		**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$
	ZON-1c	**Amend Chapter 241 to Include Approach and Departure Routes for Helicopter Landing Zones, Both Improved and Unimproved** Identify departure routes used by helicopters and include height restrictions for these areas.				■		**Primary** JLUS Implementation Board **Partners** Camp Bullis / Ft Sam Houston		■			$
Other	OTH-1	Use Existing Energy Corridors											
	OTH-1a	**Ensure New Energy Corridors are Properly Located** Work with public utility companies and utility providers to maximize the use of existing corridors prior to development of new corridors and require Camp Bullis consultation prior to the establishment of new corridors				■		**Primary** CPS Energy Utility Providers **Partners** Camp Bullis / Ft Sam Houston	■			■	$

Table 5-6. Safety Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Safety Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Capital Improvement Plans	CIP-1	**Consider Increasing Protections Around Combat Assault Landing Strip (CALS) For Possible Future Upgrade to Class A Runway**											
	CIP-1a	**Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway** ■ Consider the CALS as a Class A runway while developing land use regulations and standards for today in order to prevent encroachment issues that would prevent the possible upgrade of the runway in the future					■	**Primary** Camp Bullis / Ft Sam Houston **Partners** Bexar Comal Kendall Camp Bullis JAZB Camp Bullis JZB TxDOT			■		$$$$
BASH	BH-1	**Bird Aircraft Strike Hazard (BASH)**											
	BH-1a	**Develop a BASH Plan and Distribute BASH Educational Materials** Provide educational information to local jurisdictions and agencies in the region relative to reducing the potential for bird and wildlife attractions that may impede safe air operations	■					**Primary** Camp Bullis / Ft Sam Houston **Partners** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB SAWS Utility Providers	■			■	$

Table 5-6. Safety Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Safety Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
BASH (cont'd)	BH-1	Bird Aircraft Strike Hazard (BASH)											
	BH-1b	**Control Bird and Wildlife Attractions near Camp Bullis** Work directly with local jurisdictions and other appropriate agencies on regulating land uses that attract non-protected, large migratory birds that pose a safety hazard to aviation operations in the immediate vicinity of Camp Bullis, as well as within flight operations corridors and accident potential zones for both rotary and fixed wing aircraft. ■ Discourage land uses that are bird and wildlife attractions within Comprehensive Land Use Plans ■ Incorporate BASH regulations in the zoning ordinance/ order for the MIOD	■					**Primary** Bexar Comal Kendall Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB SAWS Utility Providers **Partners** Camp Bullis / Ft Sam Houston	■			■	$
Zoning / Building Codes	ZON-1	Compatible Land Use Zoning Ordinance / Order											
	ZON-1a	**Incorporate AICUZ Land Use Compatibility Guidelines, Part 2 into the Zoning Ordinance (MIOD)** Amend or adopt AICUZ land use compatibility zoning and subdivision regulations to provide guidance on the type of land uses that should not permitted within the Safety MIAs. The guidelines should also be used to guide the type of compatible land uses for rotary wing corridor areas. ■ The AF AICUZ Land Use Compatibility Guidelines are located in the Appendix					■	**Primary** Camp Bullis JAZB Camp Bullis JZB **Partners** Camp Bullis / Ft Sam Houston	■				$

Table 5-7. Threatened and Endangered Species Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Threatened and Endangered Species Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Acquisition	**ACQ-1**	**Pursue TPWD Texas Parks and Recreation Account (TPRA) Outdoor Recreation Grant**											
	ACQ-1a	**Pursue the TPWD TPRA Grant Program** Potential use of the TPRA program for outdoor recreation grants that also protect critical wildlife habitat and can provide park lands in key buffer areas, as well as provide USFWS Golden Cheeked Warbler mitigation credits. The program has a limit of $1 million dollars per year.						**Primary** Bexar Comal Kendall San Antonio **Partners** Camp Bullis / Ft Sam Houston Conservation Advisory Board TPWD		■			**$$$**
Communications / Coordination	**CC-1**	**Coordinate Agency Management Plans with Camp Bullis**											
	CC-1a	**Coordinate Federal and State Agency Management Plans with Camp Bullis** Develop a Memorandum of Understanding (MOU) with Federal and State agencies for new internal procedures to review and ensure Federal and State agency management plans address compatibility issues associated with military operations						**Primary** Camp Bullis / Ft Sam Houston TPWD USFWS	■				**$**
Comprehensive Plans	**CP-1**	**Develop Golden-Cheeked Warbler Mitigation Credits for Camp Bullis**											
	CP-1a	**Develop an Approach to Provide Mitigation Credits to Camp Bullis** Identify appropriate property acquired via the City of San Antonio's Propositions 1 and 3 that has Golden-cheeked Warbler habitat so these lands can be potentially used as US Fish and Wildlife mitigation credits for Camp Bullis Golden-cheeked Warbler habitat mitigation						**Primary** San Antonio Conservation Advisory Board **Partners** TPWD USFWS Camp Bullis / Ft Sam Houston		■			**$$$$**

Table 5-7. Threatened and Endangered Species Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Threatened and Endangered Species Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Habitat Plans	**HAB-1**	**Coordinate Federal and State Management Plans with Camp Bullis**											
	HAB-1a	**Provide Review of Agency Plans to Address Military Concerns** Federal and State agencies need to review their agency management plans to ensure they address compatibility issues associated with military operations and installations						**Primary** SAWS / CPS Energy TxDOT TPWD USFWS Utility Providers **Partners** Camp Bullis / Ft Sam Houston	■				$
	HAB-1b	**Develop a Regional Habitat Conservation Plan (RHCP)** Develop a regional habitation conservation plan for Bexar County, San Antonio, and the surrounding region to assist in a regional coordinated effort to preserve threatened and endangered species and their habitat. Submit an application with the USFWS for a RHCP grant to fund the development of the plan. ■ The grant application was submitted by Bexar County in partnership with San Antonio during the JLUS process ***Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative***						**Primary** Bexar San Antonio **Partners** Camp Bullis / Ft Sam Houston	■				$$$$
Memorandum of Understanding	**MOU-1**	**Formalize Agency Review Processes Through MOUs**											
	MOU-1a	**Coordinate Federal and State Agency Management Plans with Camp Bullis** Develop an MOU with Federal and State agencies for new internal procedures, to review and ensure that Federal and State agency management plans address compatibility issues associated with military operations						**Primary** Camp Bullis / Ft Sam Houston TPWD USFWS	■				$

Table 5-7. Threatened and Endangered Species Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Threatened and Endangered Species Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Memorandum of Understanding	MOU-2	Review Process for Endangered Species Assessments											
	MOU-2a	**Develop an MOU, or Some Other Method to Ensure Comments are Received From All Affected Agencies, to Formalize an Endangered Species Review Process** Develop an MOU between the USFWS and San Antonio formalizing the development applicants for adherance to USFWS requirements process with a certification by USFWS ***Note: A City of San Antonio Camp Bullis Mission Sustainment Initiative***						**Primary** San Antonio USFWS	■				$
	MOU-3	Notification Process											
	MOU-3a	**Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS** Formalize a notification process whereby a jurisdiction would notify the USFWS that a development application was submitted for approval and is located within an area that may be Golden-cheeked Warbler habitat, per the Golden-cheeked Warbler habitat maps provided by USFWS						**Primary** Bexar Comal Kendall **Partners** USFWS	■				$
Plans and Programs	PP-1	Develop a Camp Bullis Vegetation Management Plan											
	PP-1a	**Develop a Camp Bullis Vegetation Management Plan** Develop a Vegetation Management Plan to prevent cedar overgrowth within the designated training areas						**Primary** Camp Bullis / Ft Sam Houston	■			■	$$

Table 5-8. Water Strategies

Type of Strategy	Strategy Reference	Camp Bullis Implementation Plan Water Strategies Strategy	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	**Primary**: Primary party responsible for implementation of strategy **Partners:** Parties responsible for assisting primary party implement the strategy Responsible Party	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012 +)	On-going	Strategy Cost
Capital Improvement Program	CIP-1	**Connect Camp Bullis to the SAWS**											
	CIP-1a	**Secure a Sustainable Water Source for Camp Bullis** To ensure a stable and continued source of water for Camp Bullis to meet current demands and future needs, the FSH/Camp Bullis leadership needs to prioritize the investment needed to connect into the SAWS system as recommended in the Camp Bullis Water System Condition Assessment report that was completed for the US Army in May 2008. ■ SAWS agrees that Camp Bullis should be tied into the SAWS System ■ SAWS feels that this can happen in the mid-range timeframe of 2010 - 2012 period, assuming that all documentation needed between SAWS and the Army can be completed in a timely fashion ■ SAWS agrees with the CIP category ROM cost of $1.5M for implementation cost						**Primary** Camp Bullis / Ft Sam Houston **Partners** San Antonio SAWS		■			$$$$
Plans and Programs	PP-1	**General Plans - Address Water Issues**											
	PP-1a	**Ensure Review of Agency Plans to Address Military Water Concerns** Ensure jurisdictions' and agencies' General Plan Updates and Specific Plans consider impacts to water availability and quality via policy or other development regulations						**Primary** Bexar (Trinity Glen Rose GCD) Comal Kendall (Cow Creek GCD) Bulverde Fair Oaks Ranch Hill Country Village Hollywood Park San Antonio Shavano Park Camp Bullis JAZB Camp Bullis JZB SAWS Utility Providers **Partners** Camp Bullis / Fort Sam Houston	■				$

5.4 City of San Antonio Sponsored Initiatives to Support Camp Bullis Mission Sustainment

During the planning process to prepare the Camp Bullis JLUS, the City of San Antonio has clearly understood its pivotal implementation role to ensure a successful outcome. As such, the City has taken a proactive approach and initiated several JLUS strategies while the JLUS was being completed. The City forged a unique partnership with Camp Bullis / Fort Sam Houston to sustain and enhance its existing and future mission(s). On August 7, 2008, the San Antonio City Council approved a formal strategy to address, support, and to protect Camp Bullis. This strategy is built upon the achievement of seven key sustainment initiatives. This initiative strategy, "**City of San Antonio Camp Bullis Mission Sustainment Initiative**," is described as follows:

1. Camp Bullis Notification Process: Recognizing the need for enhanced communication between the City of San Antonio and Fort Sam Houston/Camp Bullis, the City Council supported the creation of a notification plan for all new development applications located within five (5) miles of the Camp Bullis and Camp Stanley installations. Tracts less than ten (10) acres and property south of North Loop 1604 will not require notification unless the property adjoins Camp Bullis or Camp Stanley.

Development applications include requests to rezone property, Preliminary Development Meetings, Zoning Variances or Special Exceptions, Subdivision Plats, Master Development Plans, Planned Unit Developments, Local Government Code, Chapter 245 Determinations, Annexations, Municipal and Extraterritorial Jurisdiction boundary (ETJ) Adjustments, Requests to Incorporate within the ETJ, and Agreements for Services In Lieu of Annexation.

The notification process establishes several key steps. Once the City's Planning and Development Services Department (PDSD) Staff receives a development application and deems the application complete, staff will then notify in writing the City Manager's Office, the Mayor's Office, and the City Council District that the project is located within. For development projects located within the City's ETJ, staff will notify the closest affected City Council District Office. By the close of business the next working day, City staff will notify the City's Office of Military Affairs, and the military email account set up specifically to receive these notifications. From the date of notification, Camp Bullis and Camp Stanley have five (5) working days to respond for minor plats and ten (10) working days for all other applications. The response will be directed to the City's Planning and Development Services Department with copies forwarded to the City Manager's Office, the Mayor's Office, and the affected City Council District.

Similar notification procedures are currently being followed by CPS Energy, Bexar Metropolitan Water District, and San Antonio Water System. The response prepared by the military will be transmitted to City staff, which will then forward the letter to the owner/agent of the application, and include U.S. Fish and Wildlife, the Office of Military Affairs, Camp Bullis/Camp Stanley staff, the affected City Council District, and the PDSD email inbox. PDSD staff will ensure that the response from the applicant is communicated to U.S. Fish and Wildlife, the Office of Military Affairs, Camp Bullis/Camp Stanley staff, and the affected City Council District.

The PDSD staff will recommend that the applicant coordinate the project with the agencies of Camp Bullis, Bexar County, U.S. Fish and Wildlife Service and will not place holds on the plats and plans associated with the U.S. Fish and Wildlife Services recommendation.

However, should the project be located within the Military Lighting Overlay Zoning District area (MLOD-1 was passed by City Ordinance on April 2, 2009 by Ord. 2009-04-02-0258) or the dark sky lighting measures implemented by Bexar County as of court order on July 22, 2008, the applicants' project will be required to comply with these provisions, which will be implemented through the development process.

A Memorandum of Understanding (MOU) has been executed between the City of San Antonio and Fort Sam Houston solidifying this process and the notification process has been implemented. (To review the MOU in its entirety, see Appendix L. Camp Bullis Sustainment Initiative).

2. Military Lighting Overlay District (Dark Sky Ordinance): Night training can be a vital component to the missions of the various military bases, camps, and installations in and around the City of San Antonio. This is, however, a critical element of training at Camp Bullis. As such, the City Council adopted changes to the City's existing lighting ordinance by creating a Military Lighting Overlay District. The purpose of the Military Lighting Overlay District is to reduce glare and potential distractions to night time training exercises, while balancing the needs of the military, the City of San Antonio, and property owners regarding responsible development including outdoor lighting. The Military Lighting Overlay District must be located within five miles of the perimeter of Camp Bullis.

Additionally, if a Joint Land Use Study determines that different lighting regulations are required or recommended, the City may modify the dark sky ordinance regulations accordingly. Typical regulations applied in military lighting districts pertain to screening and shielding of light, brightness of lighting fixtures, the hours of which lighting can be used on non-residential properties, and the type of light fixtures specified for non-residential uses and street lighting. Variance procedures are outlined in the ordinance along with fines and penalties should a property not comply with its provisions. This ordinance only addresses new construction. (See Appendix L. Camp Bullis Sustainment Initiative to review the ordinance in its entirety)

3. Regional Habitat Conservation Plan (RHCP): The City of San Antonio coordinated with Bexar County to submit a grant to the U.S. Fish and Wildlife Service for funding to undertake a Regional Habitat Conservation Plan (RHCP). RHCPs prepared under the premise of Section 10 of the ESA would benefit Camp Bullis in several ways. The plan will provide a process through which occupied habitat is legally removed while reducing loss of T&E habitat. Additionally, the plan has the potential of creating large tracts of land to attract species; providing a viable alternative to increased nesting activity at Camp Bullis. It appears that compliance with the ESA may be lacking in the San Antonio area, as thousands of acres of potential habitat have been cleared for new developments in the I-10 and Highway 281 corridors around Camp Bullis. The Black-capped Vireo also nests at Camp Bullis, however only in small numbers. As habitat is cleared, the installation becomes an island of refuge for endangered species.

A RHCP will minimize the net loss of species habitat as well as facilitate an increase in overall habitat in the area. A RHCP can also provide a streamlined approach for development applicants to comply with the ESA and obtain an incidental take permit. Rather than conducting individual environmental assessments or habitat conservation plans, development applicants could utilize the mechanism of the RHCP and pay a fee to the steward of the RHCP, allowing for the purchase and management of species habitat. In this manner, large biologically significant preserves could then be created. The RHCP would allow habitat clearing to continue in areas adjacent to Camp Bullis. Clearing without mitigation or habitat conservation planning could occur, however developers would have no protection against ESA enforcement. Allowing for the continuation of current development practices will perpetuate the net loss of habitat, increasing

the overall habitat pressure on Camp Bullis. A RHCP would reduce the net loss, provide a streamlined way for development applicants to comply, and could provide the ability to manage biologically significant habitat areas in alternate locations that would attract and sustain endangered species. (See Appendix L. Camp Bullis Mission Sustainment Initiatives for information pertaining to the RHCP grant application.)

4. Camp Bullis Transportation Plan: As part of the 2005 Base Realignment and Closure (BRAC) process, Fort Sam Houston's mission is expanding, adding approximately 11,000 jobs and over $2.1 billion in new construction. Citing the importance of protecting the mission of Camp Bullis, the City of San Antonio developed a transportation plan identifying vehicular transportation routes that will allow Fort Sam Houston, Camp Bullis and Lackland AFB to continue to transport military students between these installations in an expeditious manner. Due to DOD and Texas Department of Transportation (TxDOT) regulations, recommended transportation routes between Camp Bullis and Fort Sam Houston/Lackland Air Force Base have to be located on the Interstate and US highway network. The plan was developed based on existing and future projections to determine the amount, frequency and time of travel for military buses, trucks, and passenger vans that can be anticipated to transport personnel and equipment between the installations. The plan determined that the traffic impact associated with military student transport between installations was very minimal, based on current land uses and the existing transportation network. Plan recommendations identified alternate routes and improved information coordination between stakeholders, rather than the creation or expansion of new transportation facilities. (See Appendix L, Camp Bullis Mission Sustainment Initiatives for complete information on the Transportation Plan.)

5. Community Outreach: The City of San Antonio has developed a community outreach program to raise awareness of protecting Camp Bullis from encroachment. Citizens, business owners, special interest groups, professionals and development interests have been invited to a series of public meetings to discuss the importance of protecting the Camp Bullis missions from encroachment as well as possible strategies to minimize the presence of incompatible land uses within proximity of Camp Bullis.

6. Endangered Species Act (ESA) Ordinance: The City of San Antonio is exploring the option of requiring development applicants to certify their compliance with the ESA for developments proposed within five miles of Camp Bullis through the adoption of an ordinance. The purpose of this ordinance is to prevent illegal and non ESA-permitted development near Camp Bullis. It has been demonstrated on military installations across the country that non-compliance promulgated through land clearance has led to military installations becoming a refuge for threatened and endangered species. This is believed to be the case on Camp Bullis as threatened and endangered species populations have been increasing over time; thus limiting the use of specific areas on the installation that have been identified as habitat for these species. As additional areas of the installation are identified as habitat, the ability to expand missions on Camp Bullis is threatened, if not eliminated altogether. A draft ordinance has been completed and a task force comprised of development stakeholders and military representatives has met and will review its components. Although the ordinance may be the resulting outcome, other options may be explored for handling ESA requirements.

7. Legislative Priorities: One of the City of San Antonio's Mission Sustainment Initiatives has been to increase the City's involvement in incorporating various compatible land use strategies that protect the mission of Camp Bullis in the State of Texas' 2009 legislative agenda. One recent legislative bill proposed to be heard would significantly enhance compatibility efforts. It is the Military Installation Protection Act;

as summarized below. To view the proposed legislation in its entirety, see Appendix G, 2009 State Legislation.

Military Installation Protection Act (The Omnibus Bill): The Military Installation Protection Act will be an omnibus bill created specifically to address encroachment and incompatible land use issues that could potentially harm a military installation's ability to carry out its mission. This Bill is currently being developed and will strive to achieve the following preliminary components:

- Grant land use and zoning authority to counties with a military installation that have conducted a Joint Land Use Study containing recommendations that ensure compatible land use development;
- Grant the authority to counties to create a multi-jurisdictional oversight committee to implement comprehensive planning, land use and zoning control, and communication procedures;
- Require real estate disclosures to identify the presence of nearby military installations, the nature of their operations, and any land use controls adopted by the pertinent governing body to be recorded on the deed and with all plats;
- Require water districts and domestic water providers to provide a real estate disclosure to be filed with the property deed prior to the issuance of a water permit or connection;
- Require school districts to consult with the military installation representatives, prior to planning or purchasing property for future schools, to determine any existing or potential future direct and/or indirect military impacts, if located within an MIA.

If passed, the Military Installation Protection Act would minimize the potential for the encroachment of incompatible land uses on Camp Bullis. It would allow the unincorporated area around CALS and other critical areas threatened by encroachment to develop basic land use controls such as density, height, and use restrictions on lands contained within the boundaries of Military Influence Areas.

5.5 *Potential Funding Sources*

Several funding sources (federal, state, local, and non-governmental sources) are available to communities surrounding Camp Bullis, the military and other agencies to assist in the implementation of the Camp Bullis JLUS strategies. The following is a list of the primary potential funding sources:

Federal Funding Sources:

The **Office of Economic Adjustment**'s (OEA) handbook for communities working through base closure and mission growth impacts includes information describing 50 federal financial and technical assistance programs. These programs are available to state and local governments, businesses and workers. Programs listed include funding offered through the OEA, the Small Business Administration (SBA) and the departments of Agriculture, Commerce, Education, Health and Human Services, Housing and Urban Development, Labor and Transportation. The handbook is available online at: www.oea.gov

The **Environmental Protection Agency** (EPA) offers several different types of funding including funds for environmental protection, clean water, drinking and wastewater infrastructure funding, and watershed protection. Examples of specific grants which may be used to fund the implementation of this JLUS include the challenge grant program which is designed to contribute to the goal of providing 50% funding for projects that will enhance water management, and Clean Water State Revolving Funds which among

other things, funds habitat restoration. More information pertaining to programs offered through the EPA, as well as a comprehensive funding search engine for EPA grant and loan programs, can be found online at the following website: http://www.epa.gov/water/funding.html

The **US Department of the Interior - Bureau of Reclamation** (BOR) has funded projects pertaining to the protection of water resources, habitat restoration, and the preparation of drought contingency plans. More information about the BOR can be found online at: http://www.usbr.gov/

The **US Fish and Wildlife Service** (USFWS) provides grant funding to state agencies, local governments, and private individuals. USFWS provides financial assistance to states to support the development of Habitat Conservation Plans, providing for the conservation of imperiled species while allowing economic activities to proceed. Once projects are outlined in a Habitat Conservation Plan, they are eligible for USFWS funding, which includes acquisition funding. USFWS provides funds to local governments for wetland conservation, to restore natural resources and to establish or expand wildlife habitat. Additional information on these programs and other programs offered through the USFWS can be found online at: http://www.fws.gov/

The **US Department of Commerce Economic Development Administration** offers grant funding for planning and technical assistance. The funds are used for programs that promote comprehensive economic development efforts to enhance regional economic competitiveness. More information can be found at the follow website:

http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs2008/single_5fapplication_5fedap_5fffo_5ffinal_2epdf/v1/single_5fapplication_5fedap_5fffo_5ffinal.pdf

The **US Department of Agriculture Natural Resources Conservation Service** partners with conservation districts, local communities, state and federal agencies, and other organized entities to provide support for conservation initiatives. The service offers conservation innovation grants, environmental quality incentives programs, wetlands reserve programs, and wildlife habitat incentives. Information on programs through the USDA – NRCS can be found online at: http://www.nrcs.usda.gov/

The **US Department of Transportation** operates the Defense Access Road Program. This program provides a mechanism for the military to pay their fair share of the cost of public highway improvements necessary to mitigate an unusual impact of a defense activity such as an increase of personnel at a military installation, relocation of an access gate, or the deployment of an oversized or overweight military vehicle or transporter unit. In addition the DOD has set aside specific funding from installations that increase their existing or accommodate new missions to meet their local and regional transportation needs. Information on both programs can be found online at:

http://flh.fhwa.dot.gov/defense.htm and http://www.gao.gov/products/GAO-08-602R

The Federal Emergency Management Agency (FEMA) offers hazard mitigation funding on a limited basis under the Stafford Act to promote measures that reduce the loss to life and property, protect the federal investment in public infrastructure and ultimately, help build disaster resistant communities. Projects funded through this act include drainage structures, sanitary and storm sewer systems improvements, water treatment plant improvements, potable water projects, electric distribution, and the prevention of flood damage to buildings. More information pertaining to the hazard mitigation funds can be found

online at: http://www.fema.gov/government/grant/pa/9526_1.shtm The full text language of the Stafford Act can be found online at: http://www.fema.gov/pdf/about/stafford_act.pdf

State of Texas Funding Sources

The **Texas Military Preparedness Commission** (TMPC) operates as part of the Governor of Texas's office. The mission of the TMPC is to preserve and expand Texas's military installations and their missions. The TMPC administers the Texas Military Value Revolving Loan Fund and the Defense Economic Adjustment Assistance Grant Program, both of which were designed to assist communities in accomplishing economic development projects that enhance the military value of their installations. The minimum loan is $1 million, and grant funding ranges from $50,000 to $2 million. Loan funds must be expended completely with five years unless a waiver is issued. These funds can exert a significant positive impact on the economic viability of an installation and its neighboring jurisdictions. Past funding recipients include capital improvements projects such as rail and highway expansion. These types of funds could be used for capital improvement projects or acquisition project which promote access to Camp Bullis or could be used to expand or enhance missions at Camp Bullis. More information on the TMPC and the loan fund is located online at the following website:

http://governor.state.tx.us/military/loans/

The **Texas Parks and Wildlife Department** (TPWD) offers several grant programs including funding for wildlife restoration, conservation management and endangered species habitat preservation. TPWD has developed a Landowner Incentive Program that provides financial and technical assistance to landowners to help conserve rare species. For the purposes of this fund, rare species include species that are listed at the state or federal level as threatened of endangered and also federal candidate species that are not currently on the federal list. This funding source focuses primarily on federal candidate and state listed species. These funds can be used for habitat enhancement or protection, but have also been granted for projects that accomplish conservation goals at a reasonable cost. Below are web links to both TPWD programs.

http://www.tpwd.state.tx.us/huntwild/wild/research/funds/

http://www.tpwd.state.tx.us/landwater/land/private/lip/

Additionally, TPWD has funding for land acquisition and conservation planning assistance. Details on this program can be found at:

http://www.tpwd.state.tx.us/business/grants/wildlife/section_6/nontraditional/

The **Texas State Soil and Water Conservation Board** (TSSWCB) offers funding for established soil and water conservation districts. The Board additionally provides technical assistance and support for the preparation of water quality management plans, as well as provides assistance in coordinating programs administered by multiple conservation districts. TSSWCB could be a partner to either the cities or the counties in the study area for regional water conservation collaboration and a resource for water quality planning. Information about their programs can be found online at:

http://www.tsswcb.state.tx.us/en/programs/swcdassistance

The **Texas Water Development Board** (TWDB) offers grants for water research and planning on one of the TWDB's published research topics. Research topics are identified through the request for proposals process and are designed to address practical problems rather than to expand the frontiers of knowledge. Additionally, TWDB offers regional facility planning grants for planning projects that include one or more jurisdictions, and specifies the creation of water conservation plans. Grants for regional faculty planning are generally limited to 50% of the total project cost, however the board may supply up to 75% of the total cost to political subdivisions which have unemployment rates exceeded the state average by 50%. Examples of projects funded in the past include regional wastewater facilities studies and master drainage studies Both the TSSWCB and the TWDB could be potential funding resources and well as technical collaborators with both the military and the local government entities in addressing water needs and water compatibility issues. More information on funding through TWDB can be found online at:

http://www.twdb.state.tx.us/wrpi/rwp/research.htm

The **State of Texas Office of Rural Community Affairs** offers planning and capacity building funds to small jurisdictions throughout the state of Texas. Eligible jurisdictions include cities under 50,000 in population and counties that have a non-metropolitan population less than 200,000 and not eligible for direct CDBG funding from HUD. Thus, all of the study area jurisdictions would be eligible with the exception of Bexar County and the City of San Antonio which are eligible for direct CDBG funding from HUD and exceed the population requirement. This is a competitive grant program for local public facility and housing planning. Eligible activities include local planning, assessing local needs, building or improving local capacity or developing strategies to address local needs. An emphasis is placed on public works and housing programs. More information on this program can be found online at:

http://www.orca.state.tx.us/index.php/Community+Development/Grant+Fact+Sheets/Planning+%26+Capacity+Building+%28PCB%29+Fund

The **Texas Enterprise Fund** (TEF) provides the state's leaders with a "deal closing fund" that has the flexibility and financial resources to help strengthen the state's economy. The fund can be used for a variety of economic development projects including infrastructure and community development, job training programs and business incentives. Before funds can be awarded, the governor, lieutenant governor and speaker must unanimously agree to support the use of the TEF for each specific project. Infrastructure projects identified in the proposed Camp Bullis transportation plan, the proposed lighting study, and other capital improvements and planning strategies may be eligible for funds through this program. More information about the enterprise fund can be found online at:

http://governor.state.tx.us/index.php/priorities/economy/investing_for_growth/texas_enterprise_fund

Local City/County Funding Sources:

The **Community Development Block Grant** (CDBG) program is a flexible program that provides communities with resources to address a wide range of unique community development needs. The program provides annual grants, on a formula basis, to entitled cities and counties to develop viable communities. The US Department of Housing and Urban Development (HUD) awards grants to entitlement community grantees to carry out a wide range of community development activities directed

toward revitalizing neighborhoods, economic development, and providing improved community facilities and services.

Entitlement communities develop their own programs and funding priorities. Principle cities of metropolitan statistical areas, other metropolitan cities with populations of at least 50,000, and urban counties with populations of at least 200,000 are entitled to receive annual grants. The State of Texas is responsible for allocating CDBG funds to smaller jurisdictions. Funds can be used for acquisition of real property, relocation and demolition, structural rehabilitation, public facilities construction and improvements, and energy conservation and renewable energy resources. Because of the connection which can be drawn between military compatibility and economic development, as well as compatibility and public facilities construction and improvements, CDBG funding could be used to enhance mission sustainment. More information about the CDBG program can be found online at:

http://www.hud.gov/offices/cpd/communitydevelopment/programs/

The State of Texas has empowered cities and counties to use monies collected as fees to fund capital improvements. Fees to be collected from new construction and projects must be identified on the municipality's capital improvements plan before it can be spent. This program may provide funding for projects identified in the proposed Camp Bullis Transportation Plan, proposed lighting retrofitting program, and for finding a sustainable water source for Camp Bullis. State regulations pertaining to the usage of impact fees can be found online at the following website:

http://tlo2.tlc.state.tx.us/statutes/docs/LG/content/htm/lg.012.00.000395.00.htm

In addition to impact fee money, jurisdictions have the ability to access their general fund or enterprise funds to finance capital improvements, modification and improvements of existing facilities, leverage grant funding , and acquire property.

Non – Profit Funding Sources:

The **Nature Conservancy (TNC)** acquires wetlands and ecologically sensitive areas. TNC is a landowner that purchases properties with membership funds. Primarily, TNC serves as a broker for state and federal agencies to acquire land and then sell it back to governments. Other arrangements include easement purchases and management agreements with private landowners. For more information about programs offered through TNC, visit the following website: www.nature.org/

The **American Water Works Association Research Foundation** offers funding for projects that can demonstrate that results will be delivered. Historically funded projects include water distribution projects, water filtration projects, and water sustainability projects. Funds from this source may be used to secure a sustainable water source for Camp Bullis. More information on possible funding through the foundation can be found online at: http://www.awwarf.org/research/plansAwardsFunding/

Additional Funding Options:

While **Community Development Block Grants (CDBG)** are the typical funding source for lighting improvements, several cities, including El Paso, have partnered with their local utility providers to fund the replacement of street lighting fixtures that reduce intensity. This could not only provide energy

savings to the jurisdiction, but also reduce light pollution in the community as a whole benefiting activities on the installation. A news article outlining the program in El Paso can be found online at:

http://beta.manyone.net/DarkSkyChronicles/news/view/135088/

Additionally, the **Office** administers the Texas LoanSTAR program. This program utilizes a revolving loan mechanism to fund energy efficiency programs. LoanSTAR has funded 191 projects totaling over $240 million which has saved Texas taxpayers over $12 million since 1988. Water conservation retrofits are included in the program. Funding dark sky friendly lighting retrofit projects as well as water conservation projects which secure a sustainable water source for Camp Bullis might be eligible for funds under this program. Additional information on the LoanSTAR program can be found online at: http://www.seco.cpa.state.tx.us/ls.htm

5.6 *Primary / Partner Strategy Responsibility*

The following subsection has restructured all of the strategies previously presented into summary tables organized by jurisdiction, agency or organization, based on their level (i.e., primary / partner) of responsibility for implementation. These tables provide ease for each stakeholder entity to review their role in the achievement of their respective strategies, assisting in the implementation of the Camp Bullis JLUS. The strategies for each entity are organized in two tables: those strategies where their primary responsibility has been identified, as well as those strategies where they may be one (of several) partner(s) in strategy completion. Each "primary" and "partner" table includes the following information:

- Strategy Reference – utilizes the same numbering as Tables 5-1 through 5-8.
- Strategy – provides a description.
- Geographic Location – area where the strategy is located.
- Timeframe – Short Term (2009), Mid-Term (2010-2012), Long Term (2012+) and Ongoing.
- Strategy Cost – the estimated rough order of magnitude strategy cost, based on the following:
    - $-Less than $250,000
    - $$-$250,000 to $750,000
    - $$$-$750,000 to $1,500,000
    - $$$$-Greater than $1,500,000

The details of each strategy were previously identified in Tables 5-2 through 5-8. The column listed as "Other" includes a wide range of agencies or organizations, including the Military Transformation Task Force, San Antonio Office of Military Affairs, School Districts, State Legislators, San Antonio Board of Realtors, and Texas Association of Realtors. To review the specific agency or organization considered to implement a particular strategy, please see Tables 5-2 through 5-8.

Consistent with the previous tables presented in this section, abbreviations for each strategy type are used along with a numerical identifier (i.e., ACQ-1). For reference, the abbreviations are listed as follows:

- Acquisition ACQ
- Bird Aircraft Hazard Strike BASH
- Communication / Coordination CC
- Capital Improvement Plans CIP
- Comprehensive Plans CP
- Habitat Plans HAB
- Legislation LEG
- Memorandum of Understanding MOU
- Plans and Programs PP
- Real Estate Disclosure RE
- Zoning / Building Codes ZON
- Other OTH

Table 5-9 provides an index of the jurisdictions, agencies, and organizations which are designated as primary parties and partners in achieving each of the strategies. The corresponding table number and page number for each entity is also listed for ease of reference.

Table 5-9. Index of Strategies by Jurisdictions, Agencies, and Organizations

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Table 5-10. Bexar County Strategies as a Primary Party

Strategy Reference	Bexar County Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program	■						■		■	$$$
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program	■						■		■	$$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2b	Amend a Dark Sky Ordinance / Order		■				■				$
Noise Strategies											
PP-1a	Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses			■				■			$$$
PP-1b	Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses			■				■			$$$
ZON-1a	Develop Sound Attenuation Building Standards			■			■				$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$

Table 5-10. Bexar County Strategies as a Primary Party (continued)

Strategy Reference	Bexar County Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Threatened and Endangered Species Strategies											
ACQ-1a	Pursue the TPWD TPRA Grant Program							■			$$$
HAB-1b	Develop a Regional Habitat Conservation Plan (RHCP)						■				$$$$
MOU-3a	Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS						■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-11. Bexar County Strategies as a Partner

Strategy Reference	Bexar County Partner Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
LEG-1a	Military Installation Protection Act Omnibus Bill	■					■				$
LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection	■					■				$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
Light and Glare Strategies											
LEG-1a	Amend HB 1852 Language to Include all Counties within 5 miles of a Military Installation which Replaces the Language that States Only the Counties that are Adjacent to Military Installations		■				■				$
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Safety Strategies											
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway					■			■		$$$$
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-12. Comal County Strategies as a Primary Party

Strategy Reference	Strategy	Comal County Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program		■						■		■	$$$
ACQ-1g	Explore Options to include T&E language in Local Propositions		■								■	$
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program		■						■		■	$$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness		■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis		■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board		■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area		■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board		■					■				$
Light and Glare Strategies												
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency			■					■			$$$
ZON-1a	Outdoor Lighting Standards			■				■				$
ZON-2b	Amend a Dark Sky Ordinance / Order			■				■				$
Noise Strategies												
PP-1a	Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses				■				■			$$$
PP-1b	Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses				■				■			$$$
ZON-1a	Develop Sound Attenuation Building Standards				■			■				$
Safety Strategies												
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis		■					■			■	$

Table 5-12. Comal County Strategies as a Primary Party (continued)

Strategy Reference	Strategy	Geographic Location					Timeframe				Strategy Cost
	Comal County Primary Party	MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Threatened and Endangered Species Strategies											
ACQ-1a	Pursue the TPWD TPRA Grant Program							■			$$$
MOU-3a	Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS						■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-13. Comal County Strategies as a Partner

Strategy Reference	Strategy	Comal County Partner	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies												
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■	■					■				$
CC-1a	Develop a Camp Bullis Awareness Program	■	■					■			■	$$
LEG-1a	Military Installation Protection Act Omnibus Bill	■	■					■				$
LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection	■	■					■				$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■	■					■				$$
Light and Glare Strategies												
LEG-1a	Amend HB 1852 Language to Include all Counties within 5 miles of a Military Installation which Replaces the Language that States Only the Counties that are Adjacent to Military Installations			■				■				$
PP-1a	Develop a Lighting Retrofit Program for Businesses			■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners			■					■			$$
Safety Strategies												
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway						■			■		$$$$
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■	■					■			■	$

Table 5-14. Kendall County Strategies as a Primary Party

Strategy Reference	Kendall County Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program	■						■		■	$$$
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program	■						■		■	$$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to establish a JLUS Implementation Board	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2a	Develop a Dark Sky Ordinance / Order		■				■				$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
Threatened and Endangered Species Strategies											
ACQ-1a	Pursue the TPWD TPRA Grant Program							■			$$$
MOU-3a	Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS						■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-15. Kendall County Strategies as a Partner

Strategy Reference	Kendall County Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
LEG-1a	Military Installation Protection Act Omnibus Bill	■					■				$
LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection	■					■				$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
Light and Glare Strategies											
LEG-1a	Amend HB 1852 Language to include all Counties within 5 miles of a Military Installation which Replaces the Language that States only the Counties that are Adjacent to Military Installations		■				■				$
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Safety Strategies											
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway					■			■		$$$$
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-16. Bulverde Strategies as a Primary Party

Strategy Reference	Bulverde Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the jurisdictions / agencies, that have land use management authority, to establish a JLUS Implementation Board	■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2a	Develop a Dark Sky Ordinance / Order		■				■				$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-17. Bulverde Strategies as a Partner

Strategy Reference	Strategy	Bulverde Partner	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies												
CC-1a	Develop a Camp Bullis Awareness Program	■	■					■			■	$$
Light and Glare Strategies												
PP-1a	Develop a Lighting Retrofit Program for Businesses			■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners			■					■			$$
Safety Strategies												
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■	■					■			■	$

Table 5-18. Fair Oaks Ranch Strategies as a Primary Party

Strategy Reference	Strategy	Fair Oaks Ranch Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
ACQ-1g	Explore Options to include T&E language in Local Propositions		■								■	$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness		■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis		■					■				$
MOU-2a	Develop an MOU between all the jurisdictions / agencies, that have land use management authority, to establish a JLUS Implementation Board		■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area		■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ		■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board		■					■				$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure		■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval		■					■				$
Light and Glare Strategies												
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency			■					■			$$$
ZON-1a	Outdoor Lighting Standards			■				■				$
ZON-2b	Amend a Dark Sky Ordinance / Order			■				■				$
Noise Strategies												
PP-1a	Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses				■				■			$$$
PP-1b	Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses				■				■			$$$
ZON-1a	Develop Sound Attenuation Building Standards				■			■				$
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis		■						■		■	
Water Strategies												
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns							■				$

Table 5-19. Fair Oaks Ranch Strategies as a Partner

Strategy Reference	Strategy	Fair Oaks Ranch Partner	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies												
CC-1a	Develop a Camp Bullis Awareness Program		■					■			■	$$
Light and Glare Strategies												
PP-1a	Develop a Lighting Retrofit Program for Businesses			■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners			■					■			$$
Safety Strategies												
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials		■					■			■	$

Table 5-20. Hill Country Village Strategies as a Primary Party

Strategy Reference	Hill County Village Primary Party Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				$$$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2a	Develop a Dark Sky Ordinance / Order		■				■				$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-21. Hill Country Village Strategies as a Partner

Strategy Reference	Hill Country Village Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
Light and Glare Strategies											
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Safety Strategies											
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-22. Hollywood Park Strategies as a Primary Party

Strategy Reference	Hollywood Park Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2a	Develop a Dark Sky Ordinance / Order		■				■				$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-23. Hollywood Park Strategies as a Partner

Strategy Reference	Strategy	Hollywood Park Partner	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
CC-1a	Develop a Camp Bullis Awareness Program		■					■			■	$$
Light and Glare Strategies												
PP-1a	Develop a Lighting Retrofit Program for Businesses			■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners			■					■			$$
Safety Strategies												
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials		■					■			■	$

Table 5-24. San Antonio Strategies as a Primary Party

Strategy Reference	San Antonio Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program	■						■		■	$$$
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program	■						■		■	$$
ACQ-1i	Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits	■					■				$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the jurisdictions / agencies, that have land use management authority, to establish a JLUS Implementation Board	■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-2a	Develop a Camp Bullis Transportation Plan	■					■				$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2b	Amend a Dark Sky Ordinance / Order		■				■				$
Noise Strategies											
PP-1a	Develop a Voluntary Sound Attenuation Retrofit Program for Noise Sensitive Uses			■				■			$$$
PP-1b	Develop a Voluntary Sound Attenuation Retrofit Program for Residential and Commercial Uses			■				■			$$$

Table 5-24. San Antonio Strategies as a Primary Party

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
San Antonio Primary Party											
ZON-1a	Develop Sound Attenuation Building Standards			■			■				$
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
Threatened and Endangered Species Strategies											
ACQ-1a	Pursue the TPWD TPRA Grant Program							■			$$$
CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis							■			$$$$
HAB-1b	Develop a Regional Habitat Conservation Plan (RHCP)						■				$$$$
MOU-2a	Develop an MOU, or Some Other Method to Ensure Comments are Received From All Affected Agencies, to Formalize an Endangered Species Review Process						■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-25. San Antonio Strategies as a Partner

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
San Antonio Partner											
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Light and Glare Strategies											
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Safety Strategies											
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$
Water Strategies											
CIP-1a	Secure a Sustainable Water Source for Camp Bullis							■			$$$$

Table 5-26. Shavano Park Strategies as a Primary Party

Strategy Reference	Strategy	Shavano Park Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
ACQ-1g	Explore Options to include T&E language in Local Propositions		■								■	$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness		■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis		■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board		■					■				$$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure		■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval		■					■				$
Light and Glare Strategies												
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency			■					■			$$$
ZON-1a	Outdoor Lighting Standards			■				■				$
ZON-2b	Amend a Dark Sky Ordinance / Order			■				■				$
Safety Strategies												
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis		■					■			■	$
Water Strategies												
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns							■				$

Table 5-27. Shavano Park Strategies as a Partner

Strategy Reference	Shavano Park Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
Light and Glare Strategies											
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Safety Strategies											
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-28. Camp Bullis / Fort Sam Houston Strategies as a Primary Party

Strategy Reference	Camp Bullis / FSH Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
ACQ-1f	Partnerships with Non-Governmental Organizations to Facilitate Acquisition	■					■			■	$$$$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
PP-2a	Conduct a Camp Bullis Shielding / Screening Lighting Study to Control Light Impacts		■				■				$
PP-2b	Identify Critical Areas On Camp Bullis With Light Impacts From Outside the Installation		■				■				$
Vertical Obstruction Strategies											
CC-1a	Provide Critical Flight and Height Information				■			■			$
PP-1a	Review Low Level Military Flight Routes for Incompatible Uses				■		■				$
Safety Strategies											
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway					■			■		$$$$
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-28. Camp Bullis / Fort Sam Houston Strategies as a Primary Party (continued)

Strategy Reference	Camp Bullis / FSH Primary Party Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Threatened and Endangered Species Strategies											
CC-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis						■				$
MOU-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis						■				$
PP-1a	Develop a Camp Bullis Vegetation Management Plan						■			■	$$
Water Strategies											
CIP-1a	Secure a Sustainable Water Source for Camp Bullis							■			$$$$

Table 5-29. Camp Bullis / Fort Sam Houston Strategies as a Partner

Strategy Reference	Strategy	Camp Bullis / FSH Partner	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies												
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee		■					■				$
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program		■						■		■	$$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness		■								■	$
CC-1a	Develop a Camp Bullis Awareness Program		■					■			■	$$
LEG-1a	Military Installation Protection Act Omnibus Bill		■					■				$
LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection		■					■				$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis		■					■				$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area		■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ		■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the unincorporated area of the MIOD that lies outside of the City of San Antonio and it's ETJ		■					■				$$
PP-2a	Develop a Camp Bullis Transportation Plan		■					■				$
RE-1a	Amend the Texas Association of Realtors (TAR) Form 1506		■					■				$
RE-1b	Require that the Texas Association of Realtors Form 1406 include Language that Discloses if a Property is Within the MIOD		■					■				$
ZON-1a	Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones for the Controlled Compatible Land Use Area		■					■				$
ZON-1b	Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones for the MIOD		■					■				$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board		■					■				$
ZON-2b	Establish a Camp Bullis Joint Zoning Board (JZB) for the area within the MIOD but located outside of the City of San Antonio ETJ		■					■				$

Table 5-29. Camp Bullis / Fort Sam Houston Strategies as a Partner (continued)

Strategy Reference	Camp Bullis / FSH Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
ZON-2c	Appoint a Camp Bullis representative as an Ex-Officio member on the JAZB, JZB, and Planning Commissions	■					■				$
ZON-3a	Incorporate AICUZ Compatibility Guidelines	■					■				$
ZON-3b	Incorporate BASH Compatibility Guidelines	■					■				$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				$
Light and Glare Strategies											
ZON-1a	Outdoor Lighting Standards		■				■				$
ZON-2a	Develop a Dark Sky Ordinance / Order		■				■				$
ZON-2b	Amend a Dark Sky Ordinance / Order		■				■				$
Vertical Obstruction Strategies											
CP-1a	Coordinate Federal and State Management Plans with Camp Bullis				■		■				$
CP-2a	Develop Compatible Land Use for Height Issues				■		■				$
ZON-1a	State Adopt Part 77 and Any Amendments as State Law to Ensure FAA Part 77 Compliance by Developing a Height Restrictions Zoning Ordinance / Order				■		■				$
ZON-1b	Conduct Review of Existing Cellular Phone Tower Locations				■		■				$
ZON-1c	Amend Chapter 241 to Include Approach and Departure Routes for Helicopter Landing Zones, Both Improved and Unimproved				■			■			$
OTH-1a	Ensure New Energy Corridors are Properly Located				■		■			■	$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
ZON-1a	Incorporate AICUZ Land Use Compatibility Guidelines, Part 2 into the Zoning Ordinance (MIOD)					■	■				$

Table 5-29. Camp Bullis / Fort Sam Houston Strategies as a Partner (continued)

Strategy Reference	Strategy	Camp Bullis / FSH Partner	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Threatened and Endangered Species Strategies												
ACQ-1a	Pursue the TPWD TPRA Grant Program								■			$$$
CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis								■			$$$$
HAB-1a	Provide Review of Agency Plans to Address Military Concerns							■				$
HAB-1b	Develop a Regional Habitat Conservation Plan (RHCP)							■				$$$$
Water Strategies												
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns							■				$

Table 5-30. Camp Bullis JAZB Strategies as a Primary Party

Strategy Reference	Strategy	Camp Bullis JAZB Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
CC-1a	Develop a Camp Bullis Awareness Program		■					■			■	$$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis		■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board		■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area		■					■				$$
ZON-1a	Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones for the Controlled Compatible Land Use Area		■					■				$
ZON-2c	Appoint a Camp Bullis representative as an Ex-Officio member on the JAZB, JZB, and Planning Commissions		■					■				$
ZON-3a	Incorporate AICUZ Compatibility Guidelines		■					■				$
ZON-3b	Incorporate BASH Compatibility Guidelines		■					■				$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure		■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval		■					■				$
Light and Glare Strategies												
ZON-1a	Outdoor Lighting Standards			■				■				$
Vertical Obstruction Strategies												
CP-2a	Develop Compatible Land Use for Height Issues					■		■				$
ZON-1a	State Adopt Part 77 and Any Amendments as State Law to Ensure FAA Part 77 Compliance by Developing a Height Restrictions Zoning Ordinance / Order					■		■				$
ZON-1b	Conduct Review of Existing Cellular Phone Tower Locations					■		■				$

Table 5-30. Camp Bullis JAZB Strategies as a Primary Party (continued)

Strategy Reference	Strategy	Camp Bullis JAZB Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Safety Strategies												
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis		■					■			■	$
ZON-1a	Incorporate AICUZ Land Use Compatibility Guidelines, Part 2 into the Zoning Ordinance (MIOD)						■	■				$
Water Strategies												
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns							■				$

Table 5-31. Camp Bullis JAZB Strategies as a Partner

Strategy Reference	Camp Bullis JAZB Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Vertical Obstruction Strategies											
CC-1a	Provide Critical Flight and Height Information				■			■			$
PP-1a	Review Low Level Military Flight Routes for Incompatible Uses				■		■				$
Safety Strategies											
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway					■			■		$$$$
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-32. Camp Bullis JZB Strategies as a Primary Party

Strategy Reference	Strategy	Camp Bullis JZB Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
CC-1a	Develop a Camp Bullis Awareness Program		■					■			■	$$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis		■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board		■					■				$$
PP-1c	Develop a Comprehensive Land use Map for the unincorporated area of the MIOD that lies outside of a city's ETJ		■					■				$$
ZON-1b	Develop a Military Influence Overlay District Zoning Ordinance to include all MIA Zones for the MIOD		■					■				$
ZON-2b	Establish a Camp Bullis Joint Zoning Board (JZB) for the area within the MIOD but located outside of the City of San Antonio ETJ		■					■				$
ZON-2c	Appoint a Camp Bullis representative as an Ex-Officio member on the JAZB, JZB, and Planning Commissions		■					■				$
ZON-3a	Incorporate AICUZ Compatibility Guidelines		■					■				$
ZON-3b	Incorporate BASH Compatibility Guidelines		■					■				$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure		■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval		■					■				$
Light and Glare Strategies												
ZON-1a	Outdoor Lighting Standards			■				■				$

Table 5-32. Camp Bullis JZB Strategies as a Primary Party (continued)

Strategy Reference	Camp Bullis JZB Primary Party Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Vertical Obstruction Strategies											
CP-2a	Develop Compatible Land Use for Height Issues				■		■				$
ZON-1a	State Adopt Part 77 and Any Amendments as State Law to Ensure FAA Part 77 Compliance by Developing a Height Restrictions Zoning Ordinance / Order				■		■				$
ZON-1b	Conduct Review of Existing Cellular Phone Tower Locations				■		■				$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
ZON-1a	Incorporate AICUZ Land Use Compatibility Guidelines, Part 2 into the Zoning Ordinance (MIOD)					■	■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-33. Camp Bullis JZB Strategies as a Partner

Strategy Reference	Camp Bullis JZB Partner Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Vertical Obstruction Strategies											
CC-1a	Provide Critical Flight and Height Information				■			■			$
PP-1a	Review Low Level Military Flight Routes for Incompatible Uses				■		■				$
Safety Strategies											
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway					■			■		$$$$
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$

Table 5-34. Conservation Advisory Board Strategies as a Primary Party

Strategy Reference	Strategy	Conservation Advisory Board Primary Party	Geographic Location					Timeframe				Strategy Cost
			MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies												
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program		■						■		■	$$
ACQ-1i	Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits		■					■				$
Threatened and Endangered Species Strategies												
CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis								■			$$$$

Table 5-35. Conservation Advisory Board Strategies as a Partner

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Conservation Advisory Board Partner											
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
Threatened and Endangered Species Strategies											
ACQ-1a	Pursue the TPWD TPRA Grant Program							■			$$$

Table 5-36. Green Spaces Alliance Strategies as a Partner

Strategy Reference	Green Spaces Alliance Partner Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
ACQ-1f	Partnerships with Non-Governmental Organizations to Facilitate Acquisition	■					■			■	$$$$

Table 5-37. JLUS Implementation Board Strategies as a Primary Party

Strategy Reference	JLUS Implementation Board Primary Party Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
ACQ-1f	Partnerships with Non-Governmental Organizations to Facilitate Acquisition	■					■			■	$$$$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
RE-1c	Require Mandatory Real Estate Disclosures that Would Take Place by the Title Company During the Transfer or Sales Transaction	■					■				$
Noise Strategies											
ZON-1b	Develop Sound Attenuation for Noise Sensitive Land Uses			■			■				$
Vertical Obstruction Strategies											
ZON-1c	Amend Chapter 241 to Include Approach and Departure Routes for Helicopter Landing Zones, Both Improved and Unimproved				■			■			$

Table 5-38. JLUS Implementation Board Strategies as a Partner

Strategy Reference	JLUS Implementation Board Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
ACQ-1e	Evaluate the Establishment of a Purchase of Development Rights Program	■						■		■	$$$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
LEG-1a	Military Installation Protection Act Omnibus Bill	■					■				$
LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection	■					■				$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
RE-1a	Amend the Texas Association of Realtors (TAR) Form 1506	■					■				$
RE-1b	Require that the Texas Association of Realtors Form 1406 include Language that Discloses if a Property is Within the MIOD	■					■				$

Table 5-39. SAWS / CPS Energy Strategies as a Primary Party

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
SAWS / CPS Energy Primary Party											
Land Use Compatibility Strategies											
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				
Light and Glare Strategies											
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Vertical Obstruction Strategies											
OTH-1a	Ensure New Energy Corridors are Properly Located				■		■			■	$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis					■	■			■	$
Threatened and Endangered Species Strategies											
HAB-1a	Provide Review of Agency Plans to Address Military Concerns						■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-40. SAWS / CPS Energy Strategies as a Partner

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
SAWS / CPS Energy Partner											
Land Use Compatibility Strategies											
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies outside of the City of San Antonio and it's ETJ	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
Vertical Obstruction Strategies											
CC-1a	Provide Critical Flight and Height Information				■			■			$
PP-1a	Review Low Level Military Flight Routes for Incompatible Uses				■		■				$
Safety Strategies											
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials	■					■			■	$
Water Strategies											
CIP-1a	Secure a Sustainable Water Source for Camp Bullis							■			$$$$

Table 5-41. TxDOT Strategies as a Primary Party

Strategy Reference	TxDOT Primary Party Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the jurisdictions / agencies, that have land use management authority, to establish a JLUS Implementation Board	■					■				$$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
Vertical Obstruction Strategies											
CP-1a	Coordinate Federal and State Management Plans with Camp Bullis				■		■				$
Threatened and Endangered Species Strategies											
HAB-1a	Provide Review of Agency Plans to Address Military Concerns						■				$

Table 5-42. TxDOT Strategies as a Partner

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the unincorporated area of the MIOD that lies outside of the City of San Antonio and it's ETJ	■					■				$$
PP-2a	Develop a Camp Bullis Transportation Plan	■					■				$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Vertical Obstruction Strategies											
CC-1a	Provide Critical Flight and Height Information				■			■			$
PP-1a	Review Low Level Military Flight Routes for Incompatible Uses				■		■				$
Safety Strategies											
CIP-1a	Consider Increasing Protections Around Combat Assault Landing Strip (CALS) to Protect the Flexibility of a Possible Future Upgrade to a Class A Runway					■			■		$$$$

Table 5-43. TPWD Strategies as a Primary Party

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
TPWD Primary Party											
Vertical Obstruction Strategies											
CP-1a	Coordinate Federal and State Management Plans with Camp Bullis				■		■				$
Threatened and Endangered Species Strategies											
CC-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis						■				$
HAB-1a	Provide Review of Agency Plans to Address Military Concerns						■				$
MOU-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis						■				$

Table 5-44. TPWD Strategies as a Partner

Strategy Reference	TPWD Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
ACQ-1i	Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits	■					■				$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the unincorporated area of the MIOD that lies outside of the City of San Antonio and it's ETJ	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Threatened and Endangered Species Strategies											
ACQ-1a	Pursue the TPWD TPRA Grant Program							■			$$$
CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis							■			$$$$

Table 5-45. USFWS Strategies as a Primary Party

Strategy Reference	Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
USFWS Primary Party											
Vertical Obstruction Strategies											
CP-1a	Coordinate Federal and State Management Plans with Camp Bullis				■		■				$
Threatened and Endangered Species Strategies											
CC-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis						■				$
HAB-1a	Provide Review of Agency Plans to Address Military Concerns						■				$
MOU-1a	Coordinate Federal and State Agency Management Plans with Camp Bullis						■				$
MOU-2a	Develop an MOU, or Some Other Method to Ensure Comments are Received From All Affected Agencies, to Formalize an Endangered Species Review Process						■				$

Table 5-46. USFWS Strategies as a Partner

Strategy Reference	USFWS Partner Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
ACQ-1a	Identify Critical Areas / Priority Properties for Acquisition that Support Preservation of Military Readiness	■					■				$
ACQ-1b	Establish a Camp Bullis Acquisition Subcommittee	■					■				$
ACQ-1c	Pursue Conservation Partnering Opportunities Utilizing REPI	■					■			■	$$$$
ACQ-1d	Pursue Conservation Partnering Opportunities Utilizing ACUB Program	■					■			■	$$$$
ACQ-1g	Explore Options to include T&E language in Local Propositions	■								■	$
ACQ-1h	Establish a Habitat Conservation Plan Tax Benefit Funding Program	■						■		■	$$
ACQ-1i	Leverage Lands Purchased by San Antonio Proposition 1 & 3 Funds for Golden-Cheeked Warbler Mitigation Credits	■					■				$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies outside of the City of San Antonio and it's ETJ	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Threatened and Endangered Species Strategies											
CP-1a	Develop an Approach to Provide Mitigation Credits to Camp Bullis							■			$$$$
MOU-3a	Develop an Official Development Notification Process MOU between a Jurisdiction and the USFWS						■				$

Table 5-47. Utility Providers Strategies as a Primary Party

Strategy Reference	Utility Providers Primary Party Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU between all the Jurisdictions / Agencies, that have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
ZON-4a	Amend the Subdivision Regulations to Require a Real Estate Disclosure	■					■				$
OTH-1a	Require a Note be Recorded on a Title to Real Property as Part of any Discretionary Development Permit or Approval	■					■				$
Light and Glare Strategies											
PP-1a	Develop a Lighting Retrofit Program for Businesses		■					■			$$$
PP-1c	Develop a Voluntary Lighting Retrofit Program for Homeowners		■					■			$$
Vertical Obstruction Strategies											
OTH-1a	Ensure New Energy Corridors are Properly Located				■		■			■	$
Safety Strategies											
BH-1b	Control Bird and Wildlife Attractions near Camp Bullis	■					■			■	$
Threatened and Endangered Species Strategies											
HAB-1a	Provide Review of Agency Plans to Address Military Concerns						■				$
Water Strategies											
PP-1a	Ensure Review of Agency Plans to Address Military Water Concerns						■				$

Table 5-48. Utility Providers Strategies as a Partner

Strategy Reference	Utility Providers Partner Strategy	Geographic Location					Timeframe				Strategy Cost
		MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	
Land Use Compatibility Strategies											
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies outside of the City of San Antonio and it's ETJ	■					■				$$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$
Light and Glare Strategies											
PP-1b	Develop a Lighting Retrofit Phasing Plan for an Agency		■					■			$$$
Vertical Obstruction Strategies											
CC-1a	Provide Critical Flight and Height Information				■			■			$
PP-1a	Review Low Level Military Flight Routes for Incompatible Uses				■		■				$
Safety Strategies											
BH-1a	Develop a BASH Plan and Distribute BASH Educational Materials					■	■			■	$

Table 5-49. Other Groups / Agencies Strategies as a Primary Party

Strategy Reference	Other Groups / Agencies Primary Party Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1g	Explore Options to Include T&E Language in Local Propositions	■								■	$
CIP-1a	Review For and Address CIP Projects that Conflict with Preservation of Military Readiness	■								■	$
CC-1a	Develop a Camp Bullis Awareness Program	■					■			■	$$
LEG-1a	Military Installation Protection Act Omnibus Bill	■					■				$
LEG-1b	Grant Counties Regulatory Authority for Military Installation Protection	■					■				$
MOU-1a	Develop an MOU for a Formal Development Notification Process between the Jurisdictions / Agencies and Camp Bullis	■					■				$
MOU-2a	Develop an MOU Between all the Jurisdictions / Agencies, that Have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
RE-1a	Amend the Texas Association of Realtors (TAR) Form 1506	■					■				$
RE-1b	Require that the Texas Association of Realtors Form 1406 include Language that Discloses if a Property is Within the MIOD	■					■				$
Light and Glare Strategies											
LEG-1a	Amend HB 1852		■				■				$

Table 5-50. Other Groups / Agencies Strategies as a Partner

Strategy Reference	Other Groups / Agencies Partner Strategy	Geographic Location: MIOD	Light MIA	Noise MIA	Vertical Obstruction MIA	Safety MIA	Timeframe: Short Term (2009)	Mid-Term (2010 - 2012)	Long Term (2012+)	On-going	Strategy Cost
Land Use Compatibility Strategies											
ACQ-1f	Partnerships with Non-Governmental Organizations to Facilitate Acquisition	■					■			■	$$$$
MOU-2a	Develop an MOU Between all the Jurisdictions / Agencies, that Have Land Use Management Authority, to Establish a JLUS Implementation Board	■					■				$$
PP-1a	Develop a Comprehensive Land Use Map for the JAZB's Controlled Compatible Land Use Area	■					■				$$
PP-1b	Develop a Comprehensive Land Use Map for the Unincorporated Area of the MIOD that lies within an incorporated city's ETJ	■					■				$$
PP-1c	Develop a Comprehensive Land Use Map for the unincorporated area of the MIOD that lies outside of a city's ETJ	■					■				$$
RE-1c	Require Mandatory Real Estate Disclosures that Would Take Place by the Title Company During the Transfer or Sales Transaction	■					■				$
ZON-2a	Establish a Camp Bullis Joint Airport Zoning Board	■					■				$

Please see the next page.