



This study was prepared under contract with Doña Ana County, New Mexico, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of study partners and does not necessarily reflect the views of the Office of Economic Adjustment.

© AECOM Technical Services 2015

Atlanta
1360 Peachtree St. NE
Suite 500
Atlanta, GA 30309
United States
T +1 404 965 9600
F +1 404 965 9605

This document has been prepared by AECOM on behalf of the Southern New Mexico | El Paso, Texas Joint Land Use Study

Project No.	60282914
Client	SNMEP JLUS
AECOM Contact	liz.drake@AECOM.com

ACKNOWLEDGEMENTS

This study was prepared under contract with Doña Ana County, New Mexico, with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of study partners and does not necessarily reflect the views of the Office of Economic Adjustment.

Joint Land Use Study Policy Committee

Co-Chair Commissioner Ben Rawson, Doña Ana County
 Co-Chair Commissioner Susan Flores, Otero County
 Mayor Susie Galea, City of Alamogordo
 Mayor Pro-Tem Greg Smith, City of Las Cruces
 Matthew McElroy, Director, City Development Department, City of El Paso
 Mayor Tom Battin, Village of Ruidoso
 Holm Bursum, IV, Socorro County
 Commissioner Walter Armijo, Sierra County
 Commissioner Sergio Lewis, El Paso County
 Don Britt, Assistant Commissioner for Commercial Resources, New Mexico State Land Office
 Bill Childress, Bureau of Land Management, District Manager, Las Cruces District
 Bill Connor, New Mexico Military Base Planning Commission
 Ed Brabson, New Mexico Military Base Planning Commission
 Travis Moseley, Forest Supervisor, Lincoln National Forest, U.S. Forest Service
 Ex-Officio Member Hanson Scott, Director, Office of Military Base Planning and Support
 Ex-Officio Member Wayne Julius, Fort Bliss
 Ex-Officio Member Paul Mann, Executive Director, White Sands Missile Range
 Ex-Officio Member Col. James Thompson, vice commander of the 49th Wing, Holloman Air Force Base

Joint Land Use Study Technical Committee

Co-Chair Dan Hicks, Chief of Staff, White Sands Missile Range
 Co-Chair Pamela Heltner, County Manager, Otero County
 Daniel Hortert, Community Development Director, Doña Ana County
 Curt Temple, Planning Director, Lincoln County
 Delilah Walsh, County Manager, Socorro County
 Commissioner Frances Luna, Sierra County
 Gilbert Saldana, Senior Engineer, El Paso County
 Marc South, City Planner, City of Alamogordo
 David Weir, Community Development Director, City of Las Cruces
 Carlos Gallinar, Planning Deputy Director, City of El Paso
 Craig J. Johnson, Acting Director, Commercial Resources Division, New Mexico State Land Office
 Eddie Guerrero, New Mexico Bureau of Land Management International Border Advisor
 Brian Knight, Chief, Conservation Branch, Environmental Division, Directorate of Public Works, Fort Bliss
 Daniel Cass, Chief, Portfolio Optimization Element Holloman Air Force Base
 Bill Gutman, Technical Operations Manager, Spaceport America
 Hanson Scott, Director, Office of Military Base Planning and Support
 Sabrina Flores, Natural Resource Planner, Forest Service Lincoln National Forest, Supervisor's Office
 Office of United States Senator Tom Udall (NM)
 Office of U.S. Senator Martin Heinrich (NM)

TABLE of CONTENTS

O1	Introduction	9
	1.1 Study Area	
	1.2 Purpose of Study	
O2	Partners and Process	12
	2.1 Formal Study Partners	
	2.2 JLUS Committees	
	2.3 Community Engagement	
	- Round #1 Public and Community Meetings	
	- Round #2 Public and Community Meetings	
O3	Regional Profile	17
	3.1 Regional Description	
	- Community Land Use and Growth Opportunities	
	3.2 Economic Impacts of Military Installations	
	3.3 Description of Installations	
	- Fort Bliss	
	- White Sands Missile Range	
	- Holloman Air Force Base	
O4	Compatibility Factors	36
	4.1 Air Quality	
	4.2 Airspace Use	
	4.3 Aviation/Testing Safety	
	4.4 Frequency and Spectrum Interference	
	4.5 Light Pollution	
	4.6 Noise – Aviation	
	4.7 Noise – Range	
	4.8 Public Trespass/Access	
	4.9 Transportation	
	4.10 Water	
	4.11 Wildfires	
O5	Recommended Strategies	42
	5.1 Compatibility Menu	
	5.2 Ongoing and Immediate Actions	
	- Form a JLUS Implementation Body	
	- Conduct Add. and Regular Community and Agency Outreach	
	- Establish Clear Points of Contact	
	- Improve Notification Methods	

T A B L E *of* C O N T E N T S

- 5.3 Other Foundational Actions
 - Build Institutional Capacity to Manage Regional Airspace
 - Integrate Compatibility into Local Government Plans
 - Encourage Partner Participation in Local Government Planning
 - Collaborate on Planning for Energy Development Opportunities
 - Map Regional Energy Development Opportunities
 - Promote Interagency Consultation on Land Use
 - Promote Compatibility of State Trust Land
 - Support Conservation Partnerships
 - Increase Land Use Authority in El Paso County
 - Increase Information about Regional Noise Impacts
 - Establish a Notification Process for Vertical Structures
 - Promote an Integrated Regional Water Planning Process
- 5.4 Summary of Menu Category Areas
 - Airspace Safety and Management
 - Communication and Coordination
 - Energy Infrastructure Management
 - Local Government Plans
 - Land Use
 - Noise Management/Avoidance
 - Economic Development
 - Fire Management
 - Frequency and Spectrum Management
 - Land Conservation
 - Military Plans
 - Outdoor Lighting
 - Physical Security
 - Real Estate
 - State-Wide Policy/Legislative Actions
 - Transportation
 - Water Resources

06 Conclusion

56

LIST of ACRONYMS

1AD – 1st Armored Division	ETZ – Extra-Territorial Zoning
AAF – Army Airfield	FAA – Federal Aviation Administration
AAMDC – Army Air & Missile Defense Command	FBTC – Fort Bliss Training Complex
ABQ – Albuquerque International Sunport	FCC – Federal Communications Commission
ACUB – Army Compatible Use Buffer	FLPMA – Federal Land Policy and Management Act
ACEC – Area of Critical Environmental Concern	FORSCOM – Forces Command
AETC – Air Education Training Command	FTU – 2 – Second Formal Training Unit
AFRL – Air Force Resource Laboratory	FTX – Discrete field training site
ARFORGEN – Army Force Generation	GAF – German Air Force
AGL – Above Ground Level	GAF TTC – German Air Force Tactical Training Center
AICUZ – Air Installation Compatible Use Zone	GEODSS – Ground-based Electro-Optical Deep Space Surveillance
APOE – Aerial Port of Embarkation	GLO – Texas General Land Office
APZ – Accident Potential Zone	HAFB – Holloman Air Force Base
AR – Aerial Refueling	HAMET – High Altitude Mountain Environment Training
ARC – Acoustic Research Complex	HBCT – Heavy Brigade
ARL – Army Research Laboratory	HE – High Explosive
ARMS – Alliance for Regional Military Support	HELSTF – High Energy Laser Systems Test Facility
ARTCC – Air Route Traffic Control Center	HPM – High Powered Microwave
ATC – Air Traffic Control	HSTT – High Speed Test Track
ATEC – Army Test and Evaluation Center	IBCT – Infantry Brigade
BASH – Bird Aircraft Strike Hazards	ICRMP – Integrated Cultural Resources Management Plan
BEAR – Basic Expeditionary Airfield Resources	ICEMAP – Installation Complex Encroachment Management Action Plan
BLM – Bureau of Land Management	IFDS – Integrated Frequency Deconfliction System
BMC – Brigade Modernization Command	INRMP – Integrated Natural Resources Management Plan
BRAC – Base Realignment and Closure	IONMP – Installation Operational Noise Management Plan
CAB – Combat Aviation Brigade	JEF – Jornada Experimental Range
CACTF – Combined Arms Collective Training Facility	JLENS – Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
CCM – Center for Countermeasures	JLUS – Joint Land Use Study
CCS – Counter Communication System	JPA – Joint Planning Agreement
CDN – C-weighted Noise	JTX – Joint Training Exercise
CDNL – Day-Night Average Sound Level for C-weighted noise	LUASP – Land Use and Airspace Strategy Plan
CIGTF – Central Inertial and GPS Test Facility	LUPZ – Land Use Planning Zone
CLI – Cultural Landscapes Inventory	MOA – Memorandum of Agreement
CoA – Certificate of Authorization	MPO – Metropolitan Planning Organization
CRC – CONUS Replacement Center	MRTFB – Major Range and Test Facility Base
CRRUA – Camino Real Regional Utility Authority	MRU – Military Radar Unit
CSP – Concentrated Solar Power	MTRs – Military Training Routes
DAGIR – Digital Air-to-Ground Integration Range	NAS – National Airspace System
dB – Decibels	NASA – National Aeronautics and Space Administration
DMPTC – Digital Multi-Purpose Training Complex	NEPA – National Environmental Policy Act
DNL – Day-Night Average Sound Level	NGA – National Geospatial Intelligence Agency
DoD – Department of Defense	NHPA – National Historic Preservation Act
DOI – Department of the Interior	NIA – Network Integration Exercise
DTRA – Defense Threat Reduction Agency	NIE – Network Integration Evaluation
EBID – Elephant Butte Irrigation District	
EIS – Environmental Impact Statement	
EMRE – Electromagnetic Radiation Effects	
EMR – Energy Electromagnetic Radiation	
EPIA – El Paso International Airport	

LIST of ACRONYMS

NMSA – New Mexico Spaceport Authority	VHF – Very High Frequency
NMSLO – New Mexico State Land Office	WRP – Western Regional Partnership
NOTAMs - Notices to Airmen	WSA – Wilderness Study Area
NPS – National Park Service	WSEP – Weapons System Evaluation Program
NRAO – National Radio Astronomy Observatory	WNSA – White Sands National Monument
NRO – National Reconnaissance Office	WSMR – White Sands Missile Range
NRTF – National Radar Cross Section Test Facility	WSPG – White Sands Proving Ground
NTIA – National Telecommunications and Information Administration	WSSH – White Sands Space Harbor
NVD – Night Vision Training Devices	WSTC – White Sands Test Center
OEA – Office of Economic Adjustment	WSTF – White Sands Test Facility
OE/AAA – Obstruction Evaluation/Airport Airspace Analysis	
PA – Programmatic Agreement	
PC – Policy Committee	
PV – Photovoltaic	
RAMS – RATSCAT Advanced Measurements	
RANM – Realtors Association of New Mexico	
RATSCAT – Radar Target Scatter	
REPI – Readiness and Environmental Protection Initiative	
RMP – Resource Management Plan	
RMFA – Resource Management Plan Amendment	
RPA – Remotely Piloted Aircraft	
RPO – Regional Planning Organization	
R&PP – Recreation and Public Purposes Act	
SBCT – Stryker Brigade	
SLVs – Suborbital Launch Vehicles	
SNM-EP – Southern New Mexico/El Paso Texas	
SOSI – System of System Integration	
SPOE – Sea Port of Embarkation	
STA – South Training Areas	
SVAD – Survivability, Vulnerability, and Assessment Directorate	
TAR – Texas Association of Realtors	
TC – Technical Committee	
TDRSS – Tracking and Data Relay Satellite System	
TDS – Total Dissolved Solids	
TG – Test Group	
TRADOC – Training and Doctrine Command	
TREC – Texas Real Estate Commission	
TRIAD - Partnership between HAFB, WSMR, and Fort Bliss	
UAS – Unmanned Aircraft System	
UAS FTC – Unmanned Aircraft System Flight Test Center	
UAV – Unmanned Air Vehicle	
USAADASCH – United States Army Air Defense Artillery School and Center	
USDA – U.S. Department of Agriculture	
USFS – United States Forest Service	
USFWS – United States Fish and Wildlife Service	

LIST of FIGURES

- Figure 1.1 - Base Map
- Figure 2.1 - Regional Land Ownership
- Figure 2.2 - Fort Bliss Training Complex and Surrounding Areas
- Figure 2.3 - Fort Bliss Training Complex Land Uses
- Figure 2.4 - White Sands Missile Range and Surrounding Areas
- Figure 2.5 - Holloman Air Force Base and Surrounding Areas
- Figure 2.6 - Regional Airspace

01 INTRODUCTION



1.1 Study Area

The Southern New Mexico-El Paso Texas Joint Land Use Study (JLUS) area encompasses six counties; two states; and the three military installations of Fort Bliss (FTB), White Sands Missile Range (WSMR), and Holloman Air Force Base (HAFB). As illustrated in *Figure 1.1*, Doña Ana, Sierra, Lincoln, Otero, and Socorro Counties in New Mexico and El Paso County in Texas surround the installations. The land area of interest is approximately 27,000 square miles—one of the largest JLUS areas. Within its geographic span, the region’s natural, cultural, recreational, and renewable energy resources; weather; terrain; growth opportunities; and diversity of military training and testing missions create one of the most distinctive and valuable defense communities in the United States.

More than one million residents currently live in the Southern New Mexico-El Paso Texas (SNMEP) region, with communities ranging in size from the sixth-largest city in Texas and New Mexico’s second-largest city to small resort towns and sparsely populated ranch lands. On the military side, the special use airspace and land assets of the three installations support one of the premier testing and training environments in the U.S. with capabilities that include the research, development, and testing of military systems; fighter pilot and unmanned aerial vehicle (UAV) training; state-of-the-art live-fire ranges; and wheeled and mechanized maneuver training.

The complexity and fluidity of landownership patterns, diversity of economic and resource interests, and the presence of multiple operational and mission needs, reinforce the value of a coordinated planning process that highlights the common interests of the region.

Several physical characteristics of the SNMEP region are critical to the effective performance of missions at FTB, WSMR, and HAFB, including expansive, contiguous areas of special use airspace to support aerospace activity; rugged, uninterrupted land areas to accommodate maneuver training and hazardous test events; a clear electronic spectrum; and a wide range of geologic features, including the Tularosa Basin. The basin covers about 6,500 square miles between the Sacramento Mountains to the east and the San Andres, Organ, and Franklin Mountains to the west. It stretches approximately 150 miles north-south and 60 miles east-west. The ability to deploy and support operational forces, perform realistic aerospace and live-fire training, and conduct weapons system testing in this environment is vital to maintaining the mission effectiveness of the three installations and the overall readiness of military forces.

1.2 Purpose of Study

Although FTB, WSMR, and HAFB are located in the SNMEP region because of its relatively undeveloped surroundings, some adjacent cities and communities within the study area have experienced steady population increases in recent years, particularly in and around the urban centers of El Paso, Texas, and Las Cruces, New Mexico, as well as colonias such as Chaparral, New Mexico. Population increases and related development can expose more people to noise, safety risks or other impacts associated with military activities and affect safety and quality of life in surrounding communities. Similarly, land that has remained in a traditional low intensity use such as ranching may respond to emerging economic opportunities such as wind and solar energy projects by developing infrastructure that could conflict with military operations. The JLUS uses the concept of

compatibility to describe and analyze these civilian-military interactions. When compatible, community development and military training and testing activities can exist near one another without producing significant impacts that affect public health and safety or quality of life, limit growth opportunities, or reduce the safety and effectiveness of military operations.

The JLUS is a collaborative process among city and county governments; the public; state and federal agencies; tribal governments; and military installations within the SNMEP region. The study creates dialogue around complex issues such as land use, economic development, infrastructure, environmental sustainability, and the operational demands and mission changes of both civilian and military entities. The intent of the study is to highlight common interests, such as stable economic growth, more efficient infrastructure, healthier environments, improved quality of life, rural lifestyles, and the protection of Department of Defense (DoD) and civilian investments and missions.

The DoD Office of Economic Adjustment (OEA) awarded a grant to local sponsor Doña Ana County to undertake the JLUS with participating jurisdictions contributing a local match. This document is strictly advisory, offering a menu of tools and processes available to each study partner. All partner entities, including the military installations, cities, counties, and state and federal agencies, have the discretion to adopt those recommendations that they feel are appropriate for their local contexts. The JLUS emphasizes coordination and communication as a way to strengthen the relationship among the study area partners and to build a framework for successful implementation and monitoring of progress toward shared goals.

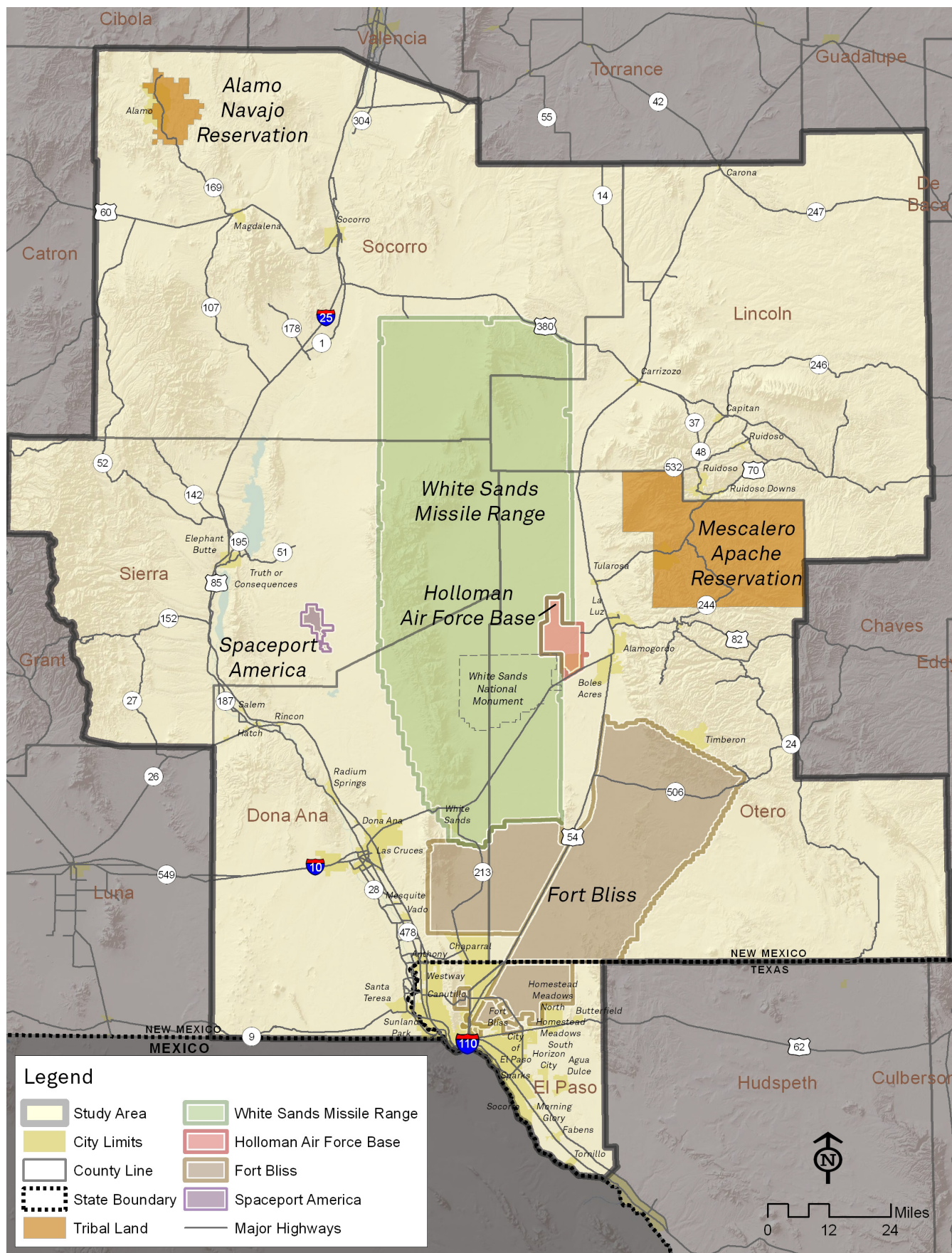
The overall goals of the JLUS are to:

- Provide opportunities for input by stakeholders including landowners; federal; state; county and municipal government agencies; educational institutions; tribal governments; and other interested parties in all stages of the planning process;
- Protect the public health and safety of the civilian and military communities;
- Jointly analyze the factors that can restrict range and training missions as a result of incompatible land use development adjacent to FTB, WSMR, and HAFB;
- Cooperatively develop a set of recommendations for use by federal, state, and local governments; community groups; developers; and the military to preserve, protect and enhance DoD and civilian missions;
- Identify uses that are compatible and feasible for land in the vicinity of military installations, airports,

and ranges, including the noise and accident potential zones;

- Develop an implementation plan to address compatibility challenges by development and its resulting impact on military missions and sustainability by establishing compatibility criteria and strong policies that can be implemented by federal, state, and local governments;
- Support local communities in sustaining safe, compatible growth;
- Develop and/or identify cooperative land and airspace use planning, strategies, and techniques that fairly allocate impacts of the program with respect to federal, state, and local governments; private landowners; and the military community;
- Improve regional cooperation as it relates to military community compatibility and encourage cooperative land use planning between military installations and the surrounding communities and counties; and
- Establish an enduring forum for cooperation, communication, and implementation.

FIGURE 1.1 - BASE MAP



02 PARTNERS AND PROCESS



2.1 Formal Study Partners

As part of the SNMEP JLUS process, the study partners entered into a Memorandum of Agreement (MOA) establishing a Regional Planning Organization (RPO) to direct the effort. To reflect the complexity of the study area, a diverse range of partners throughout the region formally joined the study process:

- Doña Ana County
- El Paso County
- Lincoln County
- Otero County
- Sierra County
- Socorro County
- The City of Alamogordo
- The City of El Paso
- The City of Las Cruces
- Fort Bliss
- Holloman Air Force Base
- White Sands Missile Range
- New Mexico State Land Office
- New Mexico Office of Military Base Planning and Support
- Military Base Planning Commission
- New Mexico Spaceport Authority
- Bureau of Land Management

The RPO provided representation to the JLUS Policy and Technical Committees. The JLUS also seeks to engage residents, landowners, state and local governments, and others beyond the list of formal MOA participants. In addition to the above signatories to the MOA, the United States Forest Service (USFS) is a member of both committees.

The Policy Committee added the USFS through a formal motion.

2.2 JLUS Committees

As part of the MOA, the study partners formed a Policy Committee and Technical Committee to guide the planning effort, assist in developing technical content, and build support for the implementation of recommendations.

Policy Committee

The Policy Committee (PC) consisted of local elected officials from cities and counties participating in the MOA, as well as senior Air Force and Army leadership and representatives from federal and state entities. Consistent with the community focus of the JLUS process, military representatives acted in an advisory capacity and served as non-voting ex officio members of this committee. The PC oversaw the JLUS process, reviewed draft and final written reports, and evaluated policy recommendations. Policy Committee sessions were open to the public.

Technical Committee

This working group consisted of area planners, city and county officials, technical and professional staff, and military planners. Members were responsible for assisting in data collection, identifying, and studying technical issues, and developing recommendations for evaluation by the PC. Technical Committee (TC) meetings coincided with key milestones in the study process, including existing conditions findings and compatibility assessment results, draft strategy

assessment, and recommendations development (See Table 1.1).

Project Management Team

The Project Management Team (PMT) directly supervised JLUS planning activities and provided support and guidance for ongoing meeting and public outreach events, data collection and review, and the delivery of study products.

Planning Team

The planning team consists of consultant team members, who assisted the committees in facilitating the JLUS process, conducting analysis and outreach, and developing plan content.

2.3 Community Engagement

The JLUS is very much a broad and community-driven process that encourages all stakeholders to define their own issues of interest and to collaborate on potential compatibility solutions. The Public Relations and Public Participation Plan is the overarching framework that establishes goals for the engagement process and outlines public input activities (See the *Public Relations and Public Participation Plan in the Existing Conditions Report Appendix*). Major outreach mechanisms include large format meetings, targeted listening sessions that focus on specific geographic areas or stakeholder interests, and a project website: www.SNMEPJointLandUse.com.

Table 1.1 Policy and Technical Committee Meetings

Committee	Study Milestone	Date
Policy and Technical Committee 1	Kick-Off	December 17, 2012
Technical Committee 2	Review of Preliminary Compatibility Challenges, Stakeholder Themes, and Public Involvement Plan	March 20, 2013
Policy Committee 2	Review of Key Compatibility Findings and Input on Public Involvement Plan	May 1, 2013
Technical Committee 3	Review of Existing Conditions and Initial Compatibility Assessment Report	August 5, 2013
Technical Committee 4	Review of Existing Conditions and Initial Compatibility Assessment Report	October 23, 2013
Policy Committee 3	Review of Existing Conditions Findings	December 11, 2013
Technical Committee 5	Draft Strategy Workshop	February 27 and 28, 2014
Technical Committee 6	Draft Strategy Workshop	April 2, 2014
Technical Committee 7	Strategy Prioritization Workshop	May 7, 2014
Technical Committee 8	Draft Plan Review	June 11, 2014
Policy Committee 4	Review of Priority Strategies	June 11, 2014
Technical Committee 9	Revised Draft Plan Review	July 30, 2014
Technical Committee 10	Revised Draft Plan Review	September 4, 2014
Policy Committee 5	Final JLUS Report Review	November 18, 2014

Round #1 Public and Community Meetings

The planning team held six public meetings for the JLUS from June 3 through June 13, 2013 (See *Table 1.2*). As part of the initial phase of community outreach, these meetings assisted in describing existing conditions in the region (see *Existing Conditions Technical Appendix for full summary of meeting input*). 130 people, including members of the PC and TC and representatives of study partner entities attended the June sessions. The general purpose of the meetings was to introduce the JLUS process; give an overview of study partners, including the local governments and FTB, HAFB, and WSMR; present preliminary compatibility themes; and invite feedback to confirm and refine the initial list of potential study issues.

The planning team also conducted three community events in September 2013 at Weed and Chaparral, New Mexico, and at Ranchers Day on WSMR. Community events are more targeted outreach activities that focus on specific geographic areas or stakeholder groups with distinct interests. Approximately 100 people participated in the September events. Attendees at the Weed and Chaparral meetings offered input to prioritize compatibility issues as described below, while residents attending Ranchers Day completed a questionnaire. Committee members also met with the Mescalero Apache Tribe to review initial compatibility strategies and identify any compatibility issues.

Attendees participated in an exercise to prioritize 17 initial compatibility factors, highlighting those items that they thought were most critical to address in the study. Compatibility factors are specific types of issues or impacts, such as noise or airspace obstructions that can cause potentially negative interactions between military and civilian uses. The 17 initial factors were:

- Airspace
- Aviation Noise
- Call-up Areas
- Coordination/Communication
- Cultural/Natural/Recreation Resources
- Energy/Renewable Energy
- GPS Jamming and Frequency Spectrum Interference
- Light Pollution
- Mining
- Multiple Use Areas
- Quality of Life/Accommodating Military-Related Growth
- Range Noise

- Road Closures
- Towers
- Trespass/Access
- Water
- Wildfires (related to military exercises)

The planning team displayed the 17 initial themes on a board at the meeting venue. Participants received four “dot” stickers to place next to a factor that they had either experienced and/or thought was important for the JLUS to address. Respondents could place four stickers next to one factor or allocate them among multiple items.



Public Meeting participants

Across all meetings, water received the highest number of priority stickers followed by energy/renewable energy development, aviation noise, and quality of life/accommodating military related growth. Input also varied geographically, with respondents in Otero County/City of Alamogordo emphasizing the accommodation of military-related growth; and energy/renewable energy emerging as the most prominent

factor in Socorro County. Participants in Weed expressed concern about sonic booms from aircraft activity, while Chaparral residents cited issues related to the use of local roadways by wheeled military vehicle convoys. Sonic booms were the result of the former F-22 mission, which has departed HAFB, but concern remains in the community about aircraft noise.

To identify common elements among the feedback received, the planning team analyzed and grouped related individual comments under the series of broader themes:

- Recognition of the strong economic linkages between the military installations and the surrounding communities;
- Recognition of the complexity of the SunZia transmission corridor planning process and the potential impacts for the study area;

- Concern for private property rights;
- Concern for the environmental and physical resources of the study area, particularly related to water resources, and a desire for a regional, integrated carrying capacity analysis; and
- Opportunities for increased coordination around specific facilities, particularly airports and roadways.

The planning team and committees drew from comments received to refine the Existing Conditions and Compatibility Analysis and inform study recommendations.

2.3.2 Round #2 Public and Community Meetings

The planning team also conducted a series of general public and targeted community meetings during the Draft Report phase to gather input on draft compatibility strategies (See Table 1.3). 167 attendees participated in these sessions.

Table 1.2 Round #1 Public Meetings

Meeting	Date	Participants
Lincoln County	June 3, 2013	14
El Paso County	June 5, 2013	11
Doña Ana County	June 6, 2013	21
Socorro County	June 11, 2013	33
Otero County	June 12, 2013	33
Sierra County	June 13, 2013	18
Weed NM	September 23, 2013	60
Chaparral NM	September 24, 2013	15
WSMR Ranchers Day	September 27, 2013	25

Table 1.3 Round #2 Public Meetings

Meeting	Date	Participants
Doña Ana County	October 6, 2014	17
Otero County	October 7, 2014	26
Socorro County	October 8, 2014	31
El Paso County	October 14, 2014	32
Lincoln County	October 15, 2014	8
Sierra County	October 16, 2014	10
Weed, NM	October 21, 2014	33
Chaparral, NM	October 23, 2014	10

In response to a specific request for additional representation, Otero County formed the Otero County JLUS Advisory Group, consisting of stakeholders from smaller communities across the county. The intent of this group is to focus on issues of particular concern to rural areas and to establish an advisory body to guide county decision-making on JLUS implementation. The planning team met with the Advisory Group on April 3 and May 6, 2014. Critical issues raised by members, as well as attendees at the public meeting in Weed on October 21, 2014 were:

- The effects of noise (and specifically sonic booms) on residents, livestock, and recreation users; residents of the mountain areas believe they experience severe, harmful effects to their health and safety when exposed to sonic booms and low flying aircraft;
- Seasonal population fluctuations due to tourism, which result in a positive economic impact but higher numbers of people exposed to noise impacts; noise may harm economic development in rural communities, particularly for those activities, such as recreation that rely on solitude;
- Concern over restrictions on private property rights and local economic development initiatives, including any potential limitations on renewable energy/telecommunications infrastructure;
- GPS jamming in the community;
- Protection of night-sky conditions for regional observatories;
- Privacy concerns related to UAVs; and
- Positive economic benefits of the military missions on local businesses.

Otero County will be responsible for periodically convening the Advisory Group following JLUS completion and soliciting input on implementation activities. Other counties participating in the study have the option of forming citizen advisory bodies.



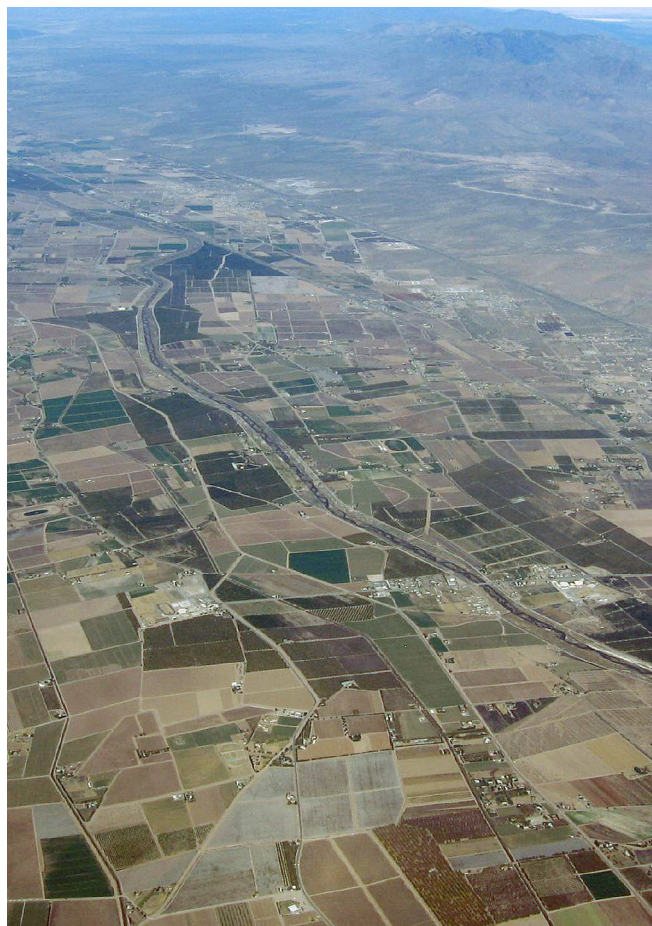
03. REGIONAL PROFILE



3.1 Regional Description

Community Land Use and Growth Opportunities

Land ownership patterns throughout the JLUS region are a complex mix of private, state, federal, and tribal lands (See *Figure 2.1*). Along with local and tribal governments, the Bureau of Land Management (BLM), DoD, U.S. Bureau of Reclamation (USBR), U.S. Department of Agriculture (USDA), USFWS, National Park Service (NPS), U.S. Forest Service (USFS), New Mexico State Land Office (NMSLO), and the New Mexico Department of Game and Fish (NMDGF) manage lands. In May 2014, President Obama designated roughly 500,000 acres in Doña Ana and Luna Counties as the Organ Mountains-Desert Peaks National Monument to protect significant prehistoric, historic, geologic, and biologic resources for future generations. The BLM will continue to manage the federal land included in the monument, but has no authority over state or private land within the boundaries. The BLM will undertake a National Environmental Policy Act (NEPA) analysis for a management plan to determine the land use and resource management activities that are appropriate for the monument. The region also includes the Spaceport, the first purpose-built facility in the world designed to accommodate commercial space flight. (See *Existing Conditions Report* for a detailed description of the study area)



Mesilla Valley

Much of the study area falls into the broad category of open space, which is typically a very compatible use with military operations. Open space in this context, however, may include ranching or residential uses, which have the potential of more intensive development in the future, along with the large, undeveloped stretches prevalent in remote parts of the study area. Given the rugged terrain and large inventory of state and federal lands, growth closely parallels the major interstate and highway corridors of the region and residential, commercial, industrial, and institutional uses naturally cluster in incorporated areas.

One of the challenges of land use planning in the SNMEP region is that any current classification of land ownership or existing use does not fully represent the development potential or the range of actual activities associated with a particular piece of land. While some tenure designations, such as the NPS, USFS, and state parks firmly establish protection for lands and indicate long-term stability in status, other designations, including BLM and NMSLO lands, may be subject to transfer or lease to other public or private entities for different management or development purposes.

Population projections indicate that growth is likely to continue throughout the region in the decades ahead, particularly within El Paso and Doña Ana Counties. According to projections, the region will approach 1.5 million residents by 2040, an increase of over 30 percent from the 2010 population base. The primary growth area of interest in the JLUS study area begins east of the City of Las Cruces, both north and south of U.S. 70 in Doña Ana County, and then sweeps south along the I-10 corridor into El Paso and east toward Chaparral. Growth in other parts of the region is more scattered and forms a less distinct pattern of future compatibility risk.

Local growth opportunities include increased residential and commercial activity; the provision of infrastructure and public services to support continued development and enhance quality of life; and specific economic development initiatives intended to diversify the local economy, create jobs, and increase tax revenue.

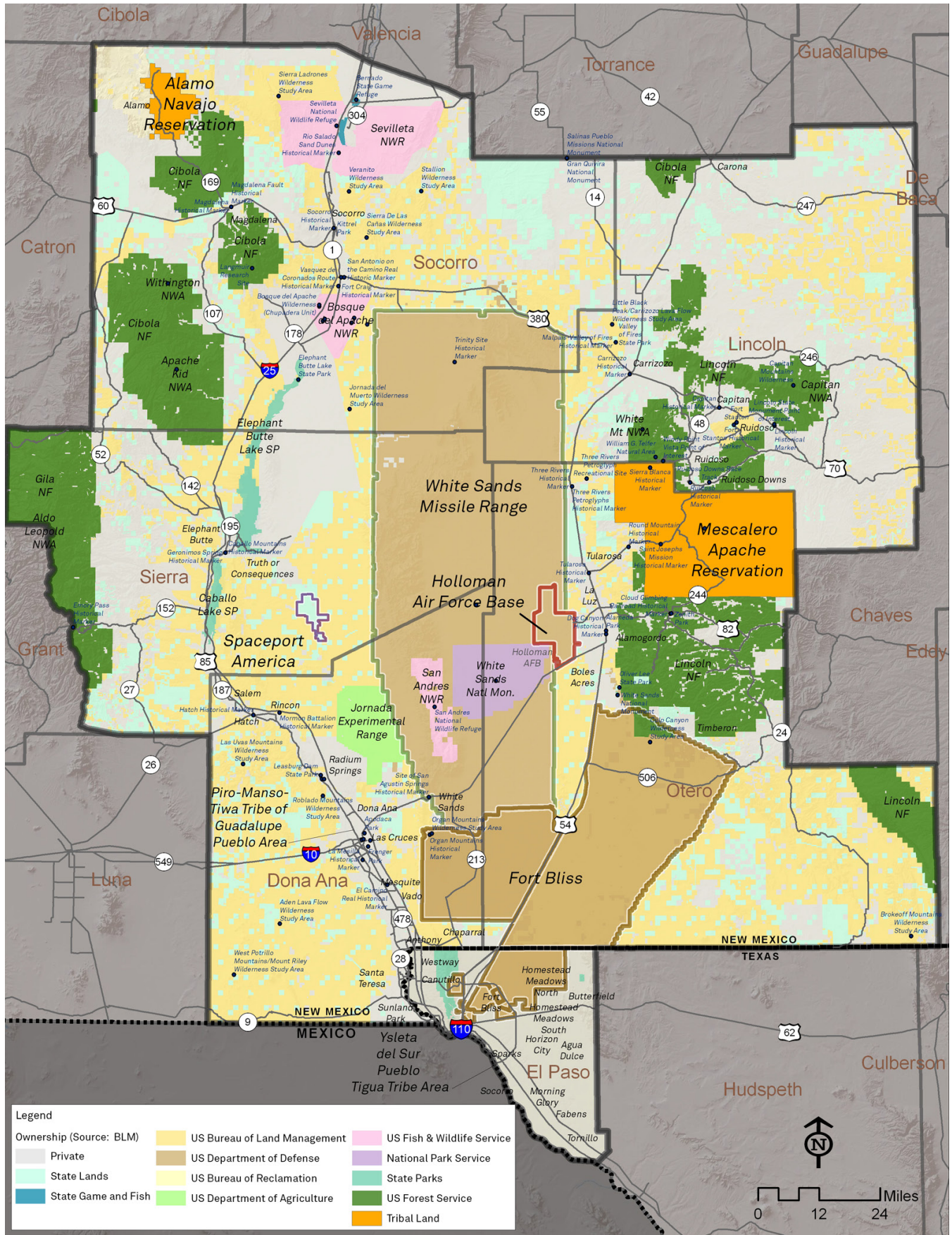
Among the economic development initiatives in the region:

- Tourism-based activities such as: hunting, skiing, horse racing, historic areas, bird-watching, camping, hiking, hot spring- and lake-based recreation;
- Spaceport America, which could become an anchor for commercial, industrial, residential, and recreational development in the region;
- Renewable energy development, including wind and solar energy production and distribution;
- Promotion of filming (motion pictures, music videos, still photography);
- Agriculture and ranching;
- STEM-based (science, technology, engineering and math) research partnerships that include the local communities; military installations and other federal agencies; universities, such as New Mexico State University, New Mexico Tech, and The University of Texas at El Paso; New Mexico public school districts; and the private sector; and
- Recruitment of new companies along with the growth of local businesses.

Federal agencies, including the Department of the Interior (DOI) and the Department of Agriculture (USFS) manage the majority of land in the region. The percentage of federal land in each county varies from a high of 83 percent in Otero County to a low of just over 19 percent in El Paso County (Otero - 83.7 percent; Doña Ana - 76.9 percent; Socorro - 60.6 percent; Sierra - 53.8 percent; Lincoln - 42.7 percent; El Paso - 19.3 percent)

Much like local governments, the federal agencies in the region manage lands for the public benefit. Their mandates result in overlapping uses ranging from energy production, forestry, cattle grazing, and extractive uses (mining) to landscape and wildlife management, recreation, and nature viewing. The NMSLO operates under a constitutional mandate to optimize revenue for its trust beneficiaries, including public schools, universities, hospitals, and other public institutions through the highest and best use of state trust land.

FIGURE 2.1 - REGIONAL LAND OWNERSHIP



Lincoln National Forest, White Sands

3.2 Economic Impacts of Military Installations

This section summarizes the full economic impact report, which characterizes the region's economic performance and estimates the impacts of FTB, WSMR, and HAFB on local jobs, incomes, and industry output. In total, economic impacts from employment and spending at the region's three military installations represent 17.9 percent of all regional employment, or one in every five to six jobs. Wages and salaries account for 24.9 percent of all earned income in the six-county region, or one in every four dollars in the region's total payrolls. In terms of industry output, military employment and spending account for 18.9 percent of the regional total, or one in every five to six dollars of all industry sector activity. The JLUS region hosts no known institutions or employers that could readily replace the beneficial economic impacts if any one of the three military installations were to close or experience a significant cutback. Because of the size of these impacts, local land use planning that sustains each installation's mission and preserves the capacity of each installation to adopt new missions serves a significant economic role.

Socioeconomic conditions

The Census Bureau places the six-county JLUS population at 1,157,691 with the urban centers of El Paso and Las Cruces anchoring much of the regional total. Average annual growth has been 1.61 percent for the past two decades, exceeding the U.S. average of 1.09 percent for the same years. The effects of the military on regional populations are evident in the City of Alamogordo, which experienced a marked decline in population from 2000 to 2010 at the same time HAFB experienced a downturn in military personnel during an exchange of aircraft (See *Table 3.1*).

*1 Anthony, NM, was incorporated July 2010.

*2 Elephant Butte was incorporated July 1998.

*3 No estimates were provided for 2010 and 2012.

Table 3.1 Population Trends in Southern New Mexico-El Paso Region, 1990-2012

Community	1990	2000	2010	Population Estimates (as of July 1)		Estimated Change (1990-2012)	% Avg. Annual Growth	
				2010	2012		1990-2010	2010-2012
New Mexico	1,515,069	1,819,046	2,059,179	2,064,767	2,085,538	570,469	1.55	0.50
Texas	16,986,510	20,851,820	25,145,561	25,242,683	26,059,203	9,072,693	1.98	1.60
Doña Ana County	135,510	174,682	209,233	210,325	214,445	78,935	2.20	0.97
Anthony *1				9,537	9,542			0.03
Hatch	1,318	1,673	1,648	1,630	1,639	321	1.12	0.28
Las Cruces	62,648	74,267	97,618	98,230	101,047	38,399	2.24	1.42
Mesilla	1,976	2,180	2,196	1,899	1,913	-63	0.53	0.37
Sunland Park	8,357	13,309	14,106	14,298	14,776	6,419	2.65	1.66
Balance of County	61,211	83,253	93,665	84,731	85,528	24,317	2.15	0.47
Lincoln County	12,219	19,411	20,497	20,473	20,309	8,090	2.62	-0.40
Capitan	840	1,443	1,489	1,486	1,470	630	2.90	-0.54
Carrizozo	1,075	1,036	996	994	984	-91	-0.38	-0.50
Corona	215	165	172	172	170	-45	-1.11	-0.58
Ruidoso (village)	4,636	7,698	8,029	8,028	8,005	3,369	2.78	-0.14
Ruidoso Downs	917	1,824	2,815	2,787	2,739	1,822	5.77	-0.86
Balance of County	4,536	7,245	6,996	7,006	6,941	2,405	2.19	-0.46
Otero County	51,928	62,298	63,797	64,319	66,041	14,113	1.03	1.33
Alamogordo	27,986	35,582	30,403	30,655	31,500	3,514	0.42	1.37
Cloudcroft	612	749	674	679	697	85	0.48	1.32
Tularosa	2,753	2,864	2,842	2,866	2,943	190	0.16	1.33
Balance of County	20,577	23,103	29,878	30,119	30,901	10,324	1.88	1.29
Sierra County	9,912	13,270	11,988	12,018	11,895	1,983	0.96	-0.51
Elephant Butte*2		1,390	1,431	1,434	1,424	1,424		-0.35
Truth or Conseq	6,224	7,289	6,475	6,491	6,411	187	0.20	-0.62
Williamsburg	463	527	449	451	447	-16	-0.15	-0.44
Balance of County	3,225	4,064	3,633	3,646	3,613	388	0.60	-0.45
Socorro County	14,764	18,078	17,866	17,846	17,603	2,839	0.96	-0.68
Magdalena	844	913	938	938	926	82	0.53	-0.64
Socorro	8,207	8,877	9,051	9,042	8,906	699	0.49	-0.75
Balance of County	5,713	8,288	7,877	7,866	7,771	2,058	1.62	-0.61
NM JLUS Region	224,333	287,739	323,381	324,981	330,293	105,960	1.85	0.81
El Paso County	591,610	679,622	800,647	803,506	827,398	235,788	1.52	1.48
Anthony	3,326	3,850	5,011	5,027	5,157	1,831	2.07	1.28
Clint	1,033	980	926	927	924	-109	-0.55	-0.16
El Paso	515,652	563,662	649,152	651,562	672,538	156,886	1.16	1.60
Horizon City	2,308	5,233	16,730	16,917	18,769	16,461	10.41	5.33
San Elizario*3	4,205	11,046	13,603			-4,205	6.05	
Socorro	23,043	27,152	32,013	32,106	32,693	9,650	1.66	0.91
Vinton	597	1,892	1,971	1,977	1,995	1,398	6.15	0.45
Balance of County	41,446	65,807	88,621	94,990	95,322	53,876	3.87	0.17
Texas JLUS Region	591,610	679,622	800,647	803,506	827,398	235,788	1.52	1.48
JLUS REGION TOTALS	815,943	967,361	1,124,028	1,128,487	1,157,691	341,748	1.61	1.29

Table 3.2 Population Trends in Otero County and Alamogordo, 1990-2010

	1990	2000	2010	% Change	
				1990-2000	2000-2010
Otero County	51,928	62,298	63,797	19.97	2.41
Alamogordo (city)	27,986	35,582	30,403	27.14	-14.56

Source: 1990-2010 Population Counts by Decennial Census, U.S. Census Bureau. Found at www.census.gov

Table 3.3 shows population estimates for the unincorporated community of Chaparral, NM, which straddles the New Mexico Counties of Doña Ana and Otero. By most accounts, the community's rapid 8.3 percent average annual growth rate reflects a historic under-counting of residents in this mostly Spanish-speaking community.

Table 3.3 Population Trends for Unincorporated Community of Chaparral, 1990-2010

Community	1990	2000	2010	Population Estimates (as of July 1)		Estimated Change (1990-2012)	% Avg. Annual Growth	
				2010	2012		1990-2010	2010-2012
Chaparral, NM	2,962	6,117	14,631	No data provided	No data provided	11,669	8.3	--

Source: 1990-2010 Population Counts by Decennial Census, U.S. Census Bureau. Found at www.census.gov

From 1990 to 2010, the number of households in the JLUS region increased 47.9 percent, while the average number of persons per household fell from 3.20 to 2.98. In age range, the JLUS population reflects a nationwide trend toward an aging population. The region also demonstrates parallel growth in the number of individuals under the age of 25. A comparison of the median age (see Table 3.4) for the U.S. and JLUS region for years 1990, 2000, and 2010 confirms this observation.

Employment in the JLUS region remains heavily reliant on government. Public sector employment by local,

state, and federal governments accounts for one in every four direct jobs. Within the private sector, retail trade contributes significantly to employment, particularly in El Paso County where 35,768 jobs (12.9 percent of total county employment) are in this sector. Recent changes that allow Mexican shoppers greater entry into the border region of New Mexico hold promise that this sector will continue to grow. As is the case throughout the region, public spending on healthcare and social assistance contributes significantly to the employment base.

Table 3.4 Median Age for the U.S. and Southern New Mexico-El Paso Region, 1990-2010

	1990	2000	2010
U.S.	32.9	35.3	37.2
JLUS Region	25.2	27.3	32.3

Source: 1990-2010 Population Counts by Decennial Census, U.S. Census Bureau. Found at www.census.gov

Economic performance

For the past 10 years, the JLUS region has outpaced the U.S. and New Mexico in average annual growth in employment. Nevertheless, per capita income, a traditional measure of economic well-being, has yet to reach the averages for New Mexico or Texas and lags the nation significantly. A notable feature of the regional data is the low level of educational achievement. Individuals 25 years and older without a high school education constitute 26.3 percent of the population.

This compares to 16.9 percent for New Mexico, 18.9 percent for Texas, and 14.1 percent for the nation. Low levels of education achievement are associated across the U.S. with lower than average per capita income and serve generally as a negative economic indicator. The performance data suggest that education and training are key factors in improving economic performance throughout the region.

Table 3.5 Median Age for the U.S. and Southern New Mexico-El Paso Region, 1990-2010

Measure	U.S.	New Mexico	Texas	JLUS Region
Employment Growth (Annualized rate, 2003-2012)	0.88	0.78	2.23	1.06
Personal Income Growth in Real Wages (Adjusted for Inflation, Annualized rate, 2003-2013)	0.1	0.5 (Las Cruces)	0.1 (El Paso)	n/a
Per Capita Income (Percent of U.S. Average, 2012)	100	81.6	97.5	69.8
Education Rate (% of population 25 and over who have less than a high school diploma)*	14.1	16.9	18.9	26.3

Source: Employment and income data derived from Regional Economic Accounts, Bureau of Economic Analysis, U.S. Department of Commerce. Found at www.bea.gov

Data on population and education obtain from the Census Bureau, U.S. Department of Commerce. Found at www.census.gov.

Impact analysis

Impact analysis involves the use of multipliers to estimate the direct, indirect, and induced impacts of a change in spending on the regional economy. The basic premise underlying the multiplier approach is that one individual's spending is another person's income. Not all of the initial injection of funds stays in the local economy. Some money will be saved, some will be paid in taxes, and some will be spent on goods and services outside of the local area. The size of a community's multiplier is a function of the local economy's propensity to import from outside the area, the propensity of individuals to save, and the amount of taxes paid. For this analysis, hundreds of multipliers are calculated specific to the military and to operations conducting research, development, and testing.

Findings in *Tables 3.6 through 3.8* show estimated impacts of employment and spending at each of the region's three military installations. Fort Bliss, easily the largest of the three installations in employment and spending, accounts for the greatest share of the military's impact on the region. WSMR and HAFB rank second and third, respectively. *Table 3.9* summarizes the overall impacts of military employment and spending on the six-county region.

Table 3.6 Impacts of Military Employment and Spending at Fort Bliss on the Six-County JLUS Region, 2013

	Military & Civilian Appropriated	Contractor, Construction & Local Procurement	Totals	% Regional Total
Employment (job number)				
Direct	34,180	13,670	47,850	
Indirect	0	4,270	4,270	
Induced	17,470	4,290	21,760	
Total	51,650	22,230	73,880	13.7
Labor Income (thousands of \$)				
Direct	3,201,056	620,754	3,821,810	
Indirect	0	153,807	153,807	
Induced	640,997	155,333	796,330	
Total	3,842,052	929,895	4,771,947	19.4
Output (thousands of \$)				
Direct	5,389,136	1,885,795	7,274,931	
Indirect	0	440,974	440,974	
Induced	2,053,888	498,678	2,552,566	
Total	7,443,024	2,825,447	10,268,471	14.3

Source: Impacts modeled in IMPLAN v. 3.1.1001. Author's calculations.

Note: Numbers may not add up due to rounding.

Table 3.7 Impacts of Military Employment and Spending at Holloman AFB on the Six-County JLUS Region, 2013

	Military & Civilian Appropriated	Contractor, Construction & Local Procurement	Totals	% Regional
Employment (job number)				
Direct	5,440	1,170	6,610	
Indirect	0	230	230	
Induced	1,710	310	2,020	
Total	7,150	1,720	8,870	1.7
Labor Income (thousands of \$)				
Direct	476,927	59,078	536,005	
Indirect	0	8,254	8,254	
Induced	55,039	10,617	65,655	
Total	531,966	77,949	609,915	2.5
Output (thousands of \$)				
Direct	1,220,892	140,098	1,360,990	
Indirect	0	26,364	26,364	
Induced	187,725	34,660	222,385	
Total	1,408,617	201,121	1,609,738	2.2

Source: Impacts modeled in IMPLAN v. 3.1.1001. Author's calculations.

Note: Numbers may not add up due to rounding.



F-22 Raptor prepares to take off

Table 3.8 Impacts of Military Employment and Spending at White Sands Missile Range on the Six-County JLUS Region, 2013

	Military & Civilian Appropriated	Contractor, Construction & Local Procurement	Totals	% Regional
Employment (job number)				
Direct	2,920	5,940	8,860	
Indirect	0	1,500	1,500	
Induced	1,310	1,850	3,150	
Total	4,230	9,290	13,510	2.5
Labor Income (thousands of \$)				
Direct	284,486	305,420	589,906	
Indirect	0	53,061	53,061	
Induced	46,394	66,122	112,516	
Total	330,880	424,603	755,483	3.1
Output (thousands of \$)				
Direct	537,489	671,038	1,208,527	
Indirect	0	153,837	153,837	
Induced	144,922	210,003	354,925	
Total	682,411	1,034,878	1,717,289	2.4

Source: Impacts modeled in IMPLAN v. 3.1.1001. Author's calculations.

Note: Numbers may not add up due to rounding.

3.3 Description of Installations

The missions of FTB, WSMR, and HAFB are distinct and separate, yet they provide an unequalled contiguous footprint of DoD-controlled surface area (composed of over 3.3 million acres), and over 8.8 million acres underlying associated restricted airspace over DoD and non-military land. Each of the installations manages its own land and air assets, but also leverages each other's resources for particular missions.

Fort Bliss

Fort Bliss, home to the 1st Armor Division (1AD), has the primary mission to train, mobilize, and deploy members of joint and combined combat teams. Fort Bliss is a "force projection platform" for rapidly deploying troops to worldwide combat zones by rail (to ship) or aircraft.

The Army uses a training model that enables troops to train as they fight, with opportunities for multiple diverse

brigades to train together. The composition of the 1AD reflects this philosophy with a Stryker vehicle brigade combat team, multiple heavy armored vehicle brigade combat teams, a combat aviation brigade, sustainment brigade, fires brigade, and brigade modernization command (BMC). The Army also seeks to create realistic training situations, using specifically constructed training ranges (including mock villages) and the natural desert and mountainous terrain, which is similar to many combat zones.

The Fort Bliss Training Complex (FBTC) has over 1.1 million acres of training lands and associated restricted airspace (See Figure 2.2). The FBTC is composed of three major areas: the South Training Areas (STA) in El Paso County, Texas, and the Doña Ana Training Areas (a.k.a. Northern Training Areas), and McGregor Range in New Mexico. The training land consists of 33 training areas

Table 3.9 Summary Impacts of Military Employment and Spending on Six-County JLUS Region, 2013

	Military & Civilian Appropriated	Contractor, Construction & Local Procurement	Totals	% Regional
Employment (job number)				
Direct	42,540	20,780	63,320	
Indirect	0	6,010	6,010	
Induced	20,480	6,440	26,440	
Total	63,020	33,230	96,250	17.9
Labor Income (000s \$)				
Direct	3,962,468	985,252	4,947,720	
Indirect	0	215,123	215,123	
Induced	742,430	232,072	974,502	
Total	4,704,898	1,432,447	6,137,345	24.9
Industry Output (000s \$)				
Direct	7,147,517	2,696,931	9,844,448	
Indirect	0	621,174	621,174	
Induced	2,386,535	743,341	3,129,876	
Total	9,534,052	4,061,446	13,595,498	18.9

Source: Impacts modeled in IMPLAN v. 3.1.1001. Author's calculations.

Note: Numbers may not add up due to rounding.

that support a unique mix of heavy and light maneuver, making use of varied environments ranging from flat, arid land to mountainous terrain. A portion of McGregor Range is publicly accessible and supports co-use with the BLM for cattle ranching, recreation, and other dispersed passive uses (See Figure 2.3).

Biggs Army Airfield (AAF), adjacent to the cantonment areas and El Paso International Airport (EPIA), is the largest airfield in the Army and is home to the 1AD Combat Aviation Brigade (CAB), which operates 114 helicopters, 9 Grey Eagle UAVs, and about 100 small (hand-launched) UAVs.

Fort Bliss will continue its current mission in the future and anticipates the following operations:

- The training tempo for the current training mission will increase as troops return from combat zones and do not quickly redeploy. This situation is referred to as a "full nest."
- This increased tempo may increase the level of military activity in the northern part of McGregor Range.
- The trend for more use of UAVs will continue, using both restricted airspace and the national airspace system (NAS) with appropriate approvals from the Federal Aviation Administration (FAA).
- The FAA, which controls the airspace around EPIA and Biggs AAF, will not allow military UAVs to operate at Biggs AAF because of proximity to commercial arrival and departure tracks. FTB is moving forward with a concept for a new UAV airfield in southern Doña Ana Training Areas (known as the Grey Eagle



Abrams Tank training on Fort Bliss

- project) within restricted airspace R-5107 A/K.
- Fort Bliss may support visiting units returning to FBTC to perform specific skills for the air defense mission because of its unique capabilities to support longer-range weaponry.
- In the future with more troops at home, it is likely that more soldiers will use the Orogrande, McGregor, and Doña Ana Training Areas camps and the live-fire and qualification ranges associated with each of those camps (particularly visiting units).
- Biggs AAF will see some increase in operations when the Air Force F-16s use this location as an auxiliary airfield for pattern work (projected for 2014). This will not expand noise exposure zones appreciably, but will add to the overall mix of aircraft in the environs of EPIA.
- The Air Force has announced plans to move its newly configured Security Forces Regional Training Center to FTB.

A primary compatibility concern from the FTB mission revolves around noise from weapons firing in specific

locations on the installation training areas. As shown in *Figure 2.2*, the highest noise impacts fall within installation boundaries. However, noise contours that depict potential noise impacts on surrounding areas extend to the south and west, affecting the communities of Chaparral and Anthony. Noise also travels off the installation toward the community of Orogrande and the Hueco Tanks State Park area (*See the Existing Conditions Report for a more detailed description of noise impacts*).



Bradley Security, Fort Bliss

FIGURE 2.2 - FORT BLISS TRAINING COMPLEX AND SURROUNDING AREAS

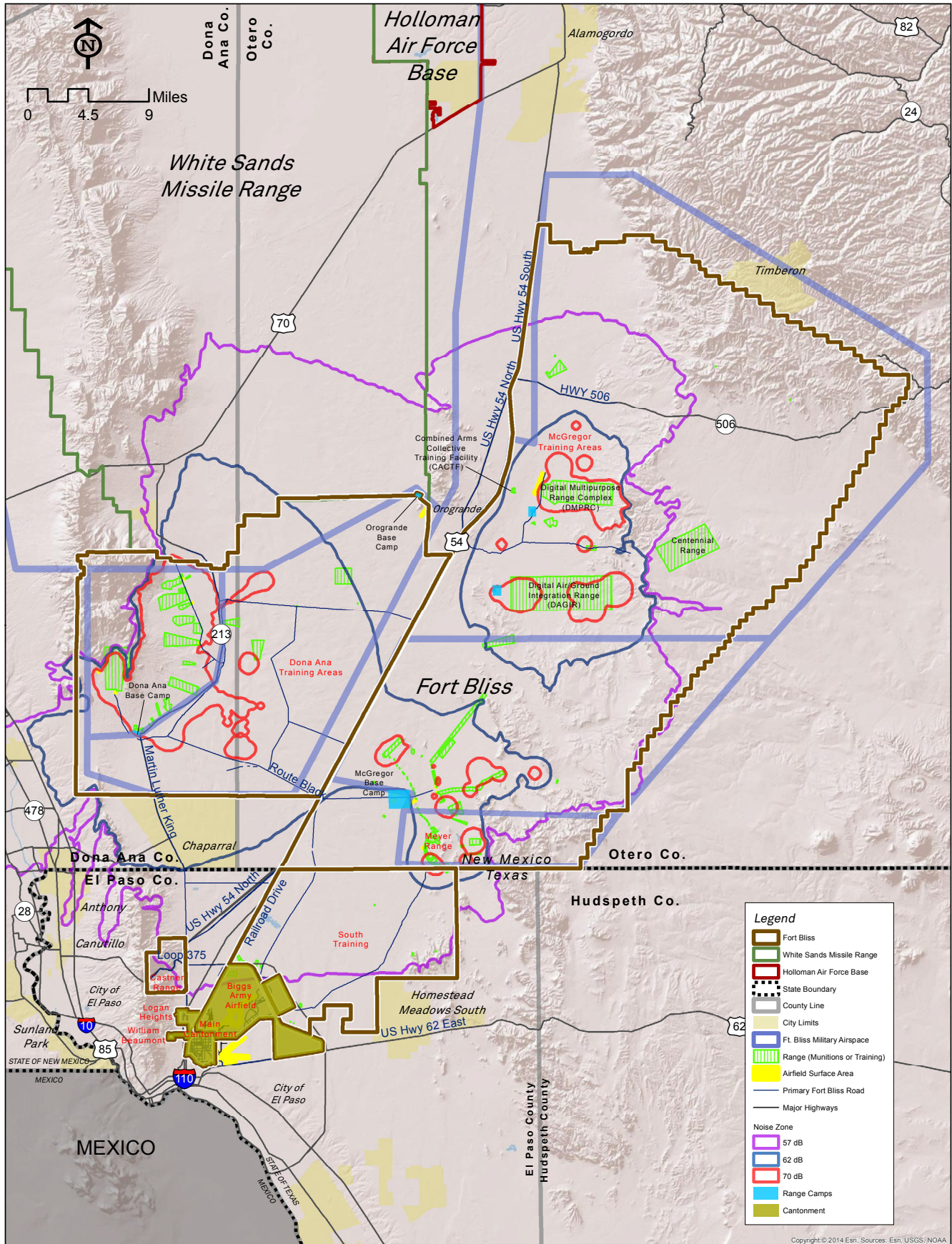
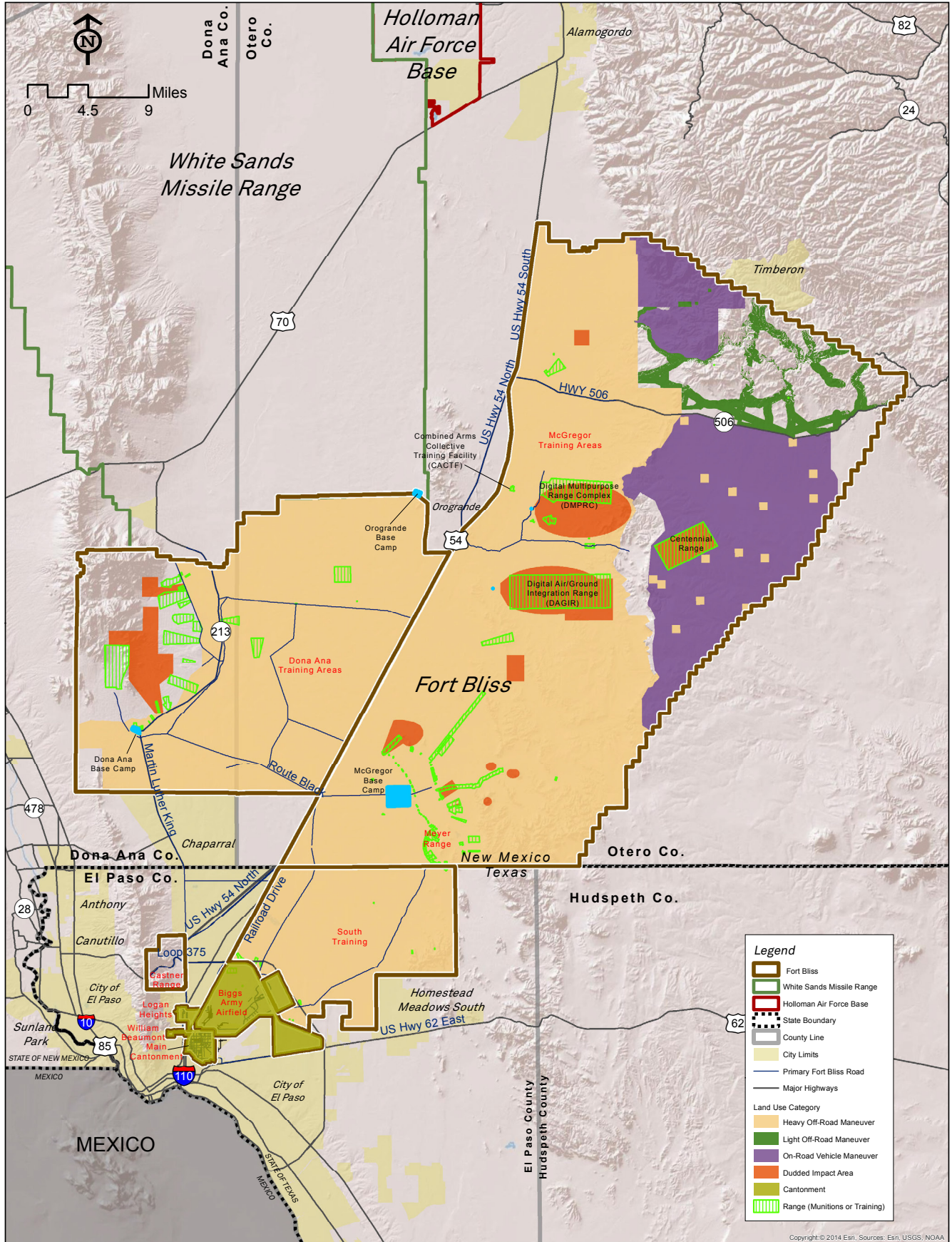


FIGURE 2.3 - FORT BLISS TRAINING COMPLEX LAND USES



White Sands Missile Range

White Sands Missile Range supports developmental and operational testing for the Army, Air Force, Navy, Department of Homeland Security, allied foreign governments, universities, and commercial and private entities. As the largest terrestrial test range in the U.S., WSMR provides unique infrastructure and test facilities, including a nuclear survivability test reactor, radar test facilities, a high energy laser systems test facility, and a state-of-the-art range control center. WSMR's mission is to provide testing and development of weapons and equipment (both hardware and software) for military use in combat zones and for national security considerations. WSMR has historically supported test programs requiring large land areas with controlled access and restricted airspace due to hazards associated with the test objects. In addition to its test mission, WSMR has taken on a new role in Army Transformation; it will now house and host limited training activities and field exercises for uniformed personnel (Network Integration Exercise and Bold Quest).

WSMR, consisting of almost 2.2 million acres of land (including White Sands National Monument, San Andres National Wildlife Refuge, and Department of Agriculture Jornada Experimental Range) has associated restricted airspace overlying 5 million acres (See *Figure 2.4*). WSMR can further expand its surface area to include land within the Northern Extension Area (NEA) and Western call-up areas for use as surface danger zones. Contracts with individual landowners in the call-up areas allow for a certain number of annual evacuations with accompanying per diem.

The main cantonment area contains facilities used for specific controlled test programs and research. The range has an infrastructure network for monitoring, tracking, communicating, and relaying data in support of test programs. The Navy, Air Force, and Army all run key test programs at WSMR. Many of these tenants operate from their own facilities on WSMR; some function completely within enclosed environments and some utilize restricted airspace and land for hazardous operations, instrumentation, and tracking assets.

Historically, WSMR's primary mission supported weapon systems programs. Ground-based launch sites are concentrated in the south end of WSMR with others at mid-range and the northern end of WSMR. These locations give flexibility to conduct anything from short, medium, to long-range launches of both test missiles and targets. Occasional use of the NEA and a missile flight corridor from Fort Wingate in western New Mexico provides extended range.

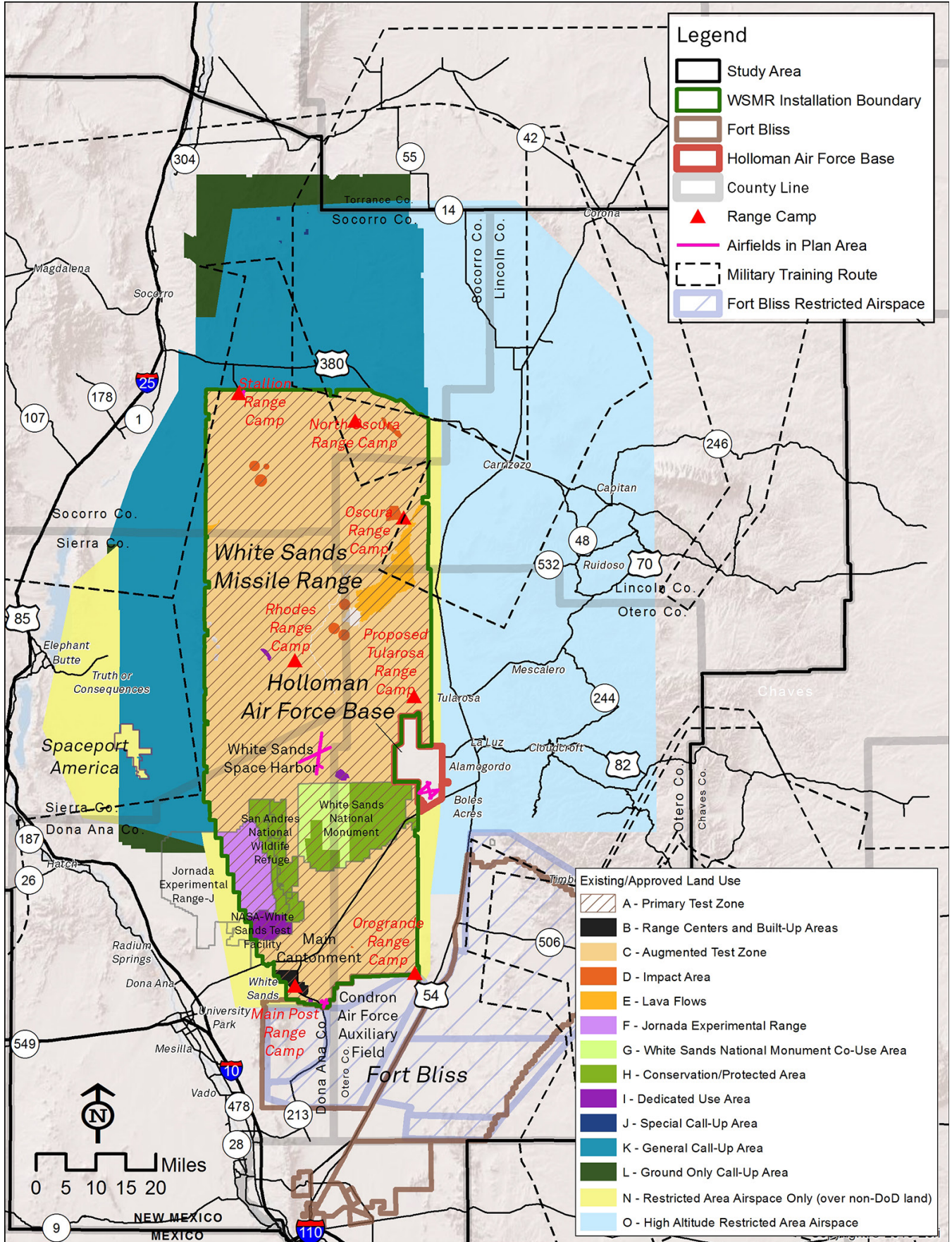
WSMR also provides services and facilities that are available to multiple users on a fee basis, including coordinated range control and a spectrum of test support capabilities for all aspects of test planning, support logistics, and data capture and analysis. Additionally, the Air Force manages and uses two bombing ranges, Red Rio and Oscura, on WSMR. The Air Force also uses the YONDER Impact Area in the San Andres Mountains for air-to-air training.

WSMR will continue its current mission, while recognizing that the future will bring changes that respond to research and development needs that are unknown. In general, the following trends will drive the future mission at WSMR:

- More operational testing, training, live-fire, and maneuver;
- Increased UAV activity by HAFB;
- Transition of F-22 to F-16 training by HAFB, with accompanying changes in airspace needs and increased use of the bombing ranges on WSMR;
- More diverse simultaneous operations using air, ground and radio frequency band width;
- Expansion of electromagnetic testing capabilities;
- Weapons System Evaluation Program (WSEP), which will dramatically increase the use of the range for live fire purposes;
- Development of a dynamic airspace management capability combining FTB, HAFB, and WSMR management in a centralized system;
- Deployment of meteorological sensor tower arrays on WSMR and the adjacent JER for evaluation of meteorological research models; such arrays will be wirelessly linked, will cover significant land areas, but will have low tower density and tower height;
- Support of Spaceport America;
- EIS-approved capability to support training of heavy armored vehicle units; and
- Increase in testing of systems across greater distances, within high clutter and controlled clutter frequency environments.

The primary compatibility issues between WSMR and surrounding areas include radio frequency and spectrum issues; changes in land use and development or new infrastructure in call-up areas or near sensitive military instrumentation sites; the noise and safety issues affecting surrounding development and wildlife; and the ability of regional airspace to accommodate the needs of both civilian and military users.

FIGURE 2.4 | WHITE SANDS MISSILE RANGE AND SURROUNDING AREAS



Holloman Air Force Base

Holloman Air Force Base, comprising about 60,000 acres of DoD owned and withdrawn land, has supported the Air Combat Command (formerly Tactical Air Command) for several decades. Currently, HAFB is home to the 96th Test Group (TG), 49th Wing. In the past three decades, HAFB has hosted the F-4, F-15, T-38, F-117, and F-22 aircraft in association with the 49th Wing and various airframes related to the test mission (QF-4, AT-38, etc...). In 2008, the F-117 aircraft were retired and the Wing converted to the F-22 Raptor. The F-22 Raptor trained mostly at higher altitudes and at supersonic speeds. In 2009, HAFB began training pilots and sensor operators for the MQ-1 Predator and MQ-9 Reaper UAVs.

Most of the facilities on HAFB are in the south part of the installation. A three-runway airfield has extensive ramp space for various units. Farther north, most of the land on HAFB is undeveloped with isolated facilities serving specific functions (See *Figure 2.5*). HAFB has had a long relationship with WSMR, using both facilities on the range and the extensive restricted airspace. Aviation units operate beyond the immediate environs of the base in this regional special use airspace, including Military Training Routes (MTRs), Military Operations Areas (MOAs), restricted airspace, and aerial refueling tracks (ARs). *Figure 2.6* shows airspace used by HAFB units. The F-22 mission utilized WSMR's R-5107 complex, particularly the blocks of higher altitude airspace, approved for supersonic operations. The pilot training mission transitioned from F-22 to F-16 aircraft in 2014. The anticipated F-16 mission will use MTRs daily.

The German Air Force (GAF) has based and trained aircrews in the Tornado aircraft since the late 1990s. The GAF training uses HAFB's MTRs, MOAs, and air-to-ground bombing ranges and can train as low as 100 feet Above Ground Level (AGL) in MTRs. The 49th Wing and GAF are the primary users of MTRs and MOAs in the region and Oscura and Red Rio Bombing Ranges on WSMR and Centennial Bombing Range on FTB.

The 96th Test Group (TG) provides test and evaluation support to several resident units and Army and Navy test programs, many using facilities and performing tests on neighboring WSMR. The 846th Test Squadron maintains HAFB's High Speed Test Track (HSTT) that is used for research on ejection seats, rockets, parachutes, and bomb penetration. The 586th Flight Test Squadron supports advanced avionics and weapons flight tests.

Current test and training is expected to continue at HAFB in the future. Foreseeable changes include:

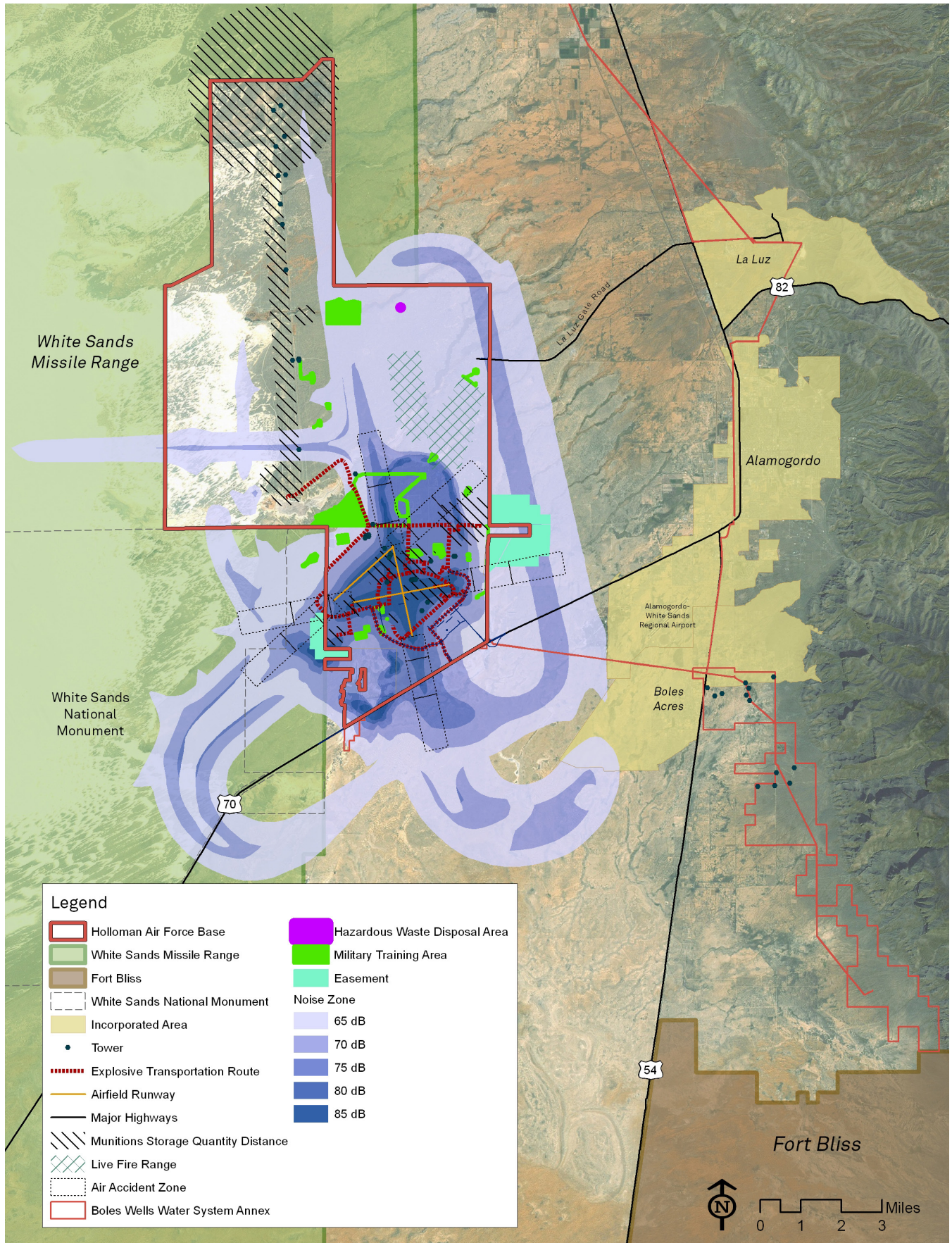
- The new F-16 mission will focus on basic pilot training under the Air Education Training Command (AETC). Given the air-to-ground combat role, F-16 aircrews will spend more of their flying hours at lower altitudes in regional MTRs with less use of high altitude restricted airspace and at bombing ranges on WSMR and McGregor Range on FTB. The F-16 mission will increase the training levels at HAFB to about 60 operations per day. The departure of the F-22 aircraft has reduced the frequency of sonic booms; however, the F-16 trains low and fast in MTRs, shifting the location of aircraft noise and the type of impact.
- Expansion of the UAV mission, with beddown of another formal training unit for the MQ-1 Predator and MQ-9 Reaper. UAV missions use approved airspace; usually restricted airspace or a MOA through a Certificate of Authorization (CoA) issued by FAA.

The primary compatibility issue for HAFB is noise associated with aircraft operations in the local area of Alamogordo and regional special use airspace. For the former F-22A training mission, some residents in the Sacramento Mountains and eastern Las Cruces communities reported disturbance from sonic booms. However, even subsonic noise from low-level, high-speed aircraft operations in MTRs and MOAs can startle people and animals on the ground.

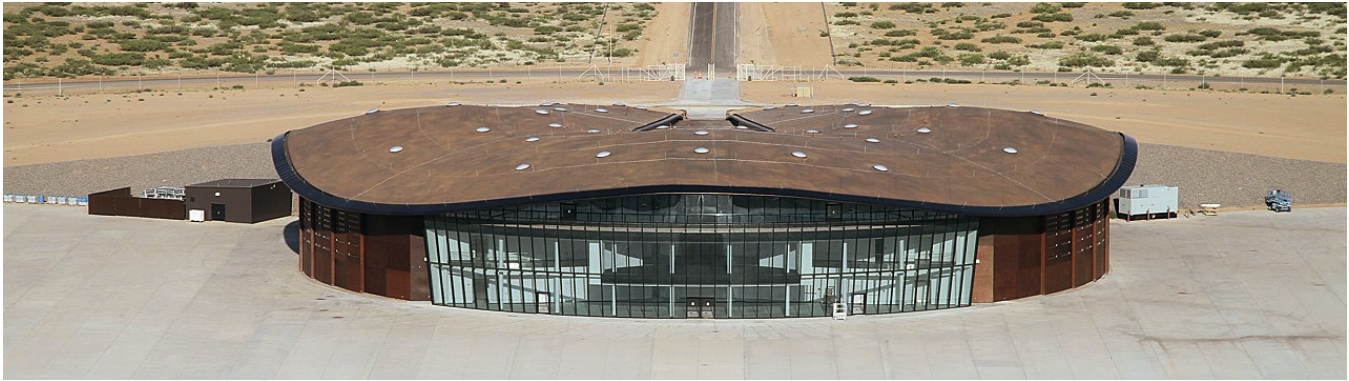


Holloman Air Force Base

FIGURE 2.5 - HOLLOMAN AIR FORCE BASE AND SURROUNDING AREAS



04 COMPATIBILITY FACTORS



The central purpose of the JLUS is to minimize or, when feasible, eliminate compatibility issues between the military and surrounding civilian land uses. Compatibility challenges occur when:

- Communities experience higher than normal levels of impacts from military activities, such as noise or safety risks, which can then affect quality of life or uses of land; or
- Certain types of development limit the ability of the military to perform its missions or cause changes in training or testing operations that reduce mission effectiveness.

This section highlights areas of the SNMEP region in which current and foreseeable military operations and surrounding community activities may overlap and create compatibility challenges. These factors form the basis of the strategies found in the compatibility menu described in Section 5. The factors are in alphabetical order.

4.1 Air Quality

Military convoys traveling on local dirt roadways and maneuver training activities on the ranges can produce fugitive dust. Compatibility issues arise when the dust affects the surrounding communities by diminishing air quality and reducing visibility. Smoke from controlled burns can also affect air quality. For example, maneuvers on the Doña Ana Training Areas can create dust that affects portions of the U.S. 54 corridor. Conversely, dust

or smoke generated from burning on publicly managed and private lands can obscure visibility for military testing operations that require clear skies.

4.2 Airspace Use

Competition exists between HAFB and WSMR (and to a lesser extent, FTB) to schedule restricted airspace. A partnership between HAFB, WSMR, and FTB, called the TRIAD, is examining options for maximizing airspace capacity for the three installations and, indirectly, for commercial and general aviation traffic.

Primary concerns regarding airspace revolve around access to and through special use airspace. Restricted airspace above and adjacent to the three military installations forms a large, contiguous block (comprised of R-5103, R-5107, and R-5111) that commercial traffic must circumnavigate, increasing travel time and cost. To alleviate issues, special corridors for commercial aircraft exist (e.g., following U.S. 54 underneath restricted airspace and in two high altitude corridors through R-5107).

Currently, management of restricted airspace for the three installations is part of a military radar unit (MRU). The MRU deactivates and releases control of WSMR's restricted airspace back to the FAA's Albuquerque Air Route Traffic Control Center (ARTCC), on weekends and weekdays between midnight and 6 AM when not subject to military use. There are times when military users do not schedule specific blocks of restricted

airspace; however, procedures only allow civilian traffic to transit restricted airspace when it is not active and under control of the ARTCC. Due to lead times involved in releasing airspace back to the FAA, it is impractical for the Albuquerque ARTCC to accept airspace for a period shorter than two hours. Consequently, it is not feasible to utilize ad hoc or short blocks of time under the current management system.

Another concern is that increased military use for test, training, and commercial space operations will diminish availability for any civilian transit. One concept under consideration would replace the MRU with a certified air traffic control (ATC) facility. In this capacity, the ATC could allow short-notice transit through restricted airspace by non-military operators. Additionally, the mix of military and civilian traffic outside of special use airspace is likely to intensify.

Use of UAVs is increasing in both the military and commercial realms. HAFB routinely flies UAVs in and out of its airfield, using WSMR restricted airspace. Fort Bliss flies UAVs mostly over the Doña Ana Training Areas. The Army recently defined an Alert Area to the east of the FTB cantonment areas in El Paso. This designation does not trigger formal rule-making with the FAA, but the area is charted, alerting pilots of the high level of military traffic that may be encountered. Fort Bliss is considering this status for other areas with elevated helicopter use.

Along with general airspace issues, several users create specific demands on regional airspace. The BLM

periodically uses airspace to perform its landscape restoration and fire suppression responsibilities. The restoration projects, which include the aerial spraying of herbicides, often require a very specific window of operation due to seasonal or weather-related conditions. The use of airspace by higher-priority military operations can reduce the availability of airspace for BLM activities.

4.3 Aviation/Testing Safety

Safety challenges to aviation and testing include the development of physical infrastructure in areas that accommodate hazardous testing activities conducted by WSMR and low-level flight operations associated with HAFB. The safety envelopes for WSMR encompass a 4,459,850-acre area that falls to the north and west of the main range within Doña Ana, Otero, Lincoln, Sierra, Socorro, and Torrance Counties. This land underlies portions of WSMR restricted airspace and includes the call-up areas. WSMR has contracts with certain landowners in the call-up areas to evacuate when a test may cause unsafe conditions, giving flexibility to maintain the availability of these extension areas for critical WSMR mission capabilities.

One of the emerging compatibility issues is the region's potential for solar and wind energy production and the accompanying transmission lines. Compatibility issues relate to the higher risk of potential damage to transmission lines should a launched missile malfunction and require remote detonation within the fallout zone. The fallout zone is an estimated area where debris



Castner Range, Fort Bliss

could land based on factors such as the height and the location of the missile at the point of detonation.

The transmission and renewable energy structures also pose a risk to aircraft due to physical intrusion into low-level flight corridors. The FAA evaluates the obstruction hazard of any proposed structure that is more than 200 feet AGL. While this process safeguards against potential hazards in excess of 200 feet, structures that fall below that threshold are not subject to FAA review and thus may not be charted or properly lit. Lincoln County has permitting, but some counties in the JLUS study area lack a permitting or notification process that could assist in identifying structure locations. The proliferation of structures with unmarked locations can pose a collision risk, particularly in low-level military training routes with a minimum floor of 100 feet AGL.

Aviation-related hazards also exist in proximity to military airfields. The DoD establishes Clear Zones (CZs) and Accident Potential Zones (APZs) around military airfields based on analysis of military aircraft accident history and a determination of where an accident is likely to take place and the physical extent of the impact area resulting from any single accident.

4.4 Frequency and Spectrum Interference

Issues of frequency spectrum use and deconfliction are a growing regional concern. The last few decades have seen a dramatic rise in commercial and private wireless communication and commercial broadcasting. Similarly, there is a need for more testing as the modern battlefield depends on linked electronic devices and systems that communicate wirelessly over varying distances.

Radio spectrum is a finite resource with only certain usable portions. Both federal and non-federal agencies



and the commercial sector compete for this finite spectrum. Due to competition, government and non-government sectors share the spectrum. The Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) manage spectrum allocation. NTIA manages allocations among the DoD users and, to maximize use, it may allocate a frequency to several uses/users, which can result in conflicts. WSMR has a regional DoD Frequency Manager who carefully tracks and deconflicts spectrum use for regional military users through the Integrated Frequency Deconfliction System (IFDS).

Specific regional frequency issues include:

- The lack of management and coordination with frequency use in Mexico.
- Some frequencies have capacity; but others, especially in the Very High Frequency (VHF) range, are saturated.
- In general, military uses stay out of the public/commercial spectrum domain; however, some commercial users are moving into the spectrum bands used by the military driven by consumer demand. The trend to “sell off” government bandwidth depletes availability for military needs in the region.
- GPS jamming tests on HAFB and WSMR can affect commercial and private GPS and communication devices. The primary concerns for the effects of this testing are on non-participating flight operations in the vicinity and local emergency response capabilities.
- Although the military does have a common integrated platform for managing its spectrum use, the region lacks a single platform for viewing, assigning, and deconflicting military, other federal, commercial, and private spectrum uses.
- Some renewable energy infrastructure can also interfere with communication systems, including radar, navigation aids, and infrared instruments.

4.5 Light Pollution

Light pollution is the effect of stray or excessive light from artificial lighting sources, such as building exteriors, advertising, streetlights, or outdoor facilities or venues. Pollution occurs when light travels beyond its intended target of illumination into otherwise darkened areas. The adverse impacts of light pollution include glare from overly bright sources or night sky brightness in which upward-bound light creates a background glow.

Light pollution can interfere with the use of night-vision training devices (NVDs) during military training operations. Night vision goggles, other types of NVD worn by personnel, or NVD systems integral to aircraft and vehicles capture and amplify any illumination in the surrounding landscape, displaying an extreme sensitivity to a broad spectrum of light sources. Exposure to stray light can cause the vision screen to white-out, temporarily robbing the wearer of vision. In addition to training, other facilities such as the Ground- Based Electro-Optical Deep Space Surveillance (GEODSS) facility at the northern end of WSMR are also highly sensitive to stray light exposure.

Light pollution can also affect the region's observatories. The geographically remote Apache Point Observatory in Sunspot, New Mexico, has noted compatibility issues related to ramp lights at HAFB. The sky brightness from base lighting reduces the star magnitudes by nearly 1 magnitude (factor of 2.5) versus other parts of the sky, limiting the depth of space into which the observatory can see and the types of objects on which data can be collected. Though less of an issue, the growth of El Paso combined with FTB contributes to an expanding sky glow visible at the observatory.

4.6 Noise – Aviation

Historically, training missions at HAFB have generated aviation noise and caused compatibility issues within the surrounding region. Noise and startle effects from low-level high-speed aircraft operations, primarily along MTRs, can affect local activities, including ranching, children's camps and recreational uses. The startle effect on livestock can result in property damage or injury to the animals. A large bibliography of studies on the impacts of aircraft noise on livestock has found varied effects.

Supersonic operations (by military aircraft using airspace

approved for these operations) with the F-22 aircraft caused sonic booms in the region. Most of the affected areas involved residential locations, particularly in the Sacramento Mountain communities, national parks, refuges, and wilderness areas. Other communities throughout the Tularosa Basin and surrounding mountain valleys, including Alamogordo, all of Lincoln County including historic areas, and neighborhoods east of the City of Las Cruces heard intermittent sonic booms. The departure of the F-22 aircraft has reduced the frequency of sonic booms; however, the F-16 trains low and fast in MTRs, shifting the location of aircraft noise and the type of impact.

Army helicopter operations are also a source of noise, but with less specific locations since they currently operate in restricted areas over military land and in FAA-controlled airspace over non-military land. Areas exposed to helicopter noise are around the Alamogordo Airport, Orogrande and the Keyhole, the Sacramento foothills in northern McGregor Range, and south and east of the FTB South Training Areas in areas of El Paso County. Occasional helicopter activities have taken place in the Lincoln National Forest as well and could occur again in the future. As shown in the noise contours extending beyond the base boundary, some areas close to the HAFB airfield also experience higher average noise levels as aircraft arrive and depart.





The SNMEP area has an aviation noise profile that is distinct from many other defense communities. While proximity to an airfield is generally the best indicator of noise exposure, aviation-related impacts in the region spread more widely due to the prevalence of MTRs. Noise in the region, therefore, is not necessarily associated with specific, easily defined locations. The military has established local noise avoidance procedures for known sensitive areas. While avoidance provides some noise reduction for underlying locations, exposure can continue to create ongoing compatibility challenges for residential areas.

4.7 Noise – Range

Most noise associated with FTB comes from large-caliber weapons training on a variety of weapons systems, including mortars, artillery (e.g., 105- and 155-mm Howitzer), and M1 tanks firing on gunnery and qualification ranges. These sources generate sounds with high levels of acoustic energy similar to a clap of thunder, gunshot, or explosion. Residents in nearby communities can both feel and hear this type of sound.

The Army uses both peak noise and day-night average sound levels to assess potential noise impacts on surrounding areas from impulsive sound. Army guidance establishes three zones based on various decibel levels for both peak and average noise. The zones estimate the likelihood that people exposed to the noise source will be disturbed. In addition to the three noise zones, the Army uses the Land Use Planning Zone (LUPZ) as a planning tool to promote compatibility in surrounding communities. During periods of sustained training and operations, residential areas in the LUPZ may experience annoyance.

Fort Bliss has three major live-fire range complexes that generate impulsive noise: Doña Ana, McGregor, and Meyer. While the highest peak noise levels are on the installation, noise affects the communities of Chaparral and Anthony, New Mexico, which are areas of active, continued growth. Additionally, some noise extends beyond the boundary to the south and west into El Paso. Tank and helicopter live-fire and qualification ranges on the McGregor Range Complex produce noise near the community of Orogrande, New Mexico. Noise from the Meyer demolition range travels toward the Hueco Tanks State Park.

4.8 Public Trespass/Access

Public trespass on military land is a concern, especially in areas where military activities could place the trespasser at risk of physical harm (e.g., such as in active firing and bombing ranges or areas previously used for the delivery of ordnance). In addition, unauthorized access can pose security concerns considering the high value of some assets on the three installations and the performance of classified military activities in outdoor environments.

One area of concern is McGregor Range, which consists of withdrawn lands jointly managed by the BLM and the U.S. Army. The co-use areas of McGregor Range are available to the public when authorized by the Army through a Recreational Access Permit and subject to training schedules (which take priority). Controlling access to McGregor Range is difficult due to its size and lack of fencing. Recent mission changes have brought increased training, such as infantry training and Stryker wheeled vehicle operations into the co-use areas of McGregor Range. Coupled with a rise in population in the surrounding Sacramento Mountains, more hunters

and other recreational users are using McGregor Range. Other areas of concern due to recreational activity include the western boundary of Doña Ana Training Areas and Aguirre Springs in the Organ Mountains, where a campground and trails overlook the Tularosa Basin into WSMR. Trespass occurs in the Fillmore Canyon area as hikers in the BLM recreation areas travel onto FTB. The NMSLO also holds game/fish easements in the WSMR call-up areas.

While trespass on the main installation area of HAFB is not an issue, approximately 90 percent of the perimeter around HAFB and WSMR is three-strand barbed wire. Issues have occurred in the past with civilians cutting the wire to hunt oryx and cattle have broken through perimeter fences to graze.

In a number of instances, military activities, mainly vehicle-related exercises, have resulted in undue and unexpected impacts to resources on public lands. Impacts to cultural resources occurred when military vehicles drove off existing roads and trails. Due to these events and related impacts, the Las Cruces District BLM requested that organized military training activities remain on withdrawn lands. Under the Federal Lands Policy and Management Act (FLPMA), the BLM cannot authorize organized military training activities on public land.

4.9 Transportation

Transportation-related impacts from the military mission include periodic road closures due to testing and training activities, military vehicle use of local roadways, and localized traffic impacts resulting from ingress and egress at installation gates. WSMR uses local radio, social media, and a public telephone line with a recorded daily message to communicate about upcoming roadblocks on U.S. 70 and U.S. 380. Some training activities on FTB result in the brief closure of NM Highway 506, a primary access road for the town of Timberon. Fort Bliss safety procedures prioritize emergency response and road access over any scheduled military training and closures are less frequent.

Local highways also support mission-related traffic, such as convoys traveling from cantonment areas up into the training areas. Wheeled military vehicles can produce additional wear and tear on roads, contributing to increased infrastructure maintenance costs for communities. Such convoys can also generate fugitive

dust on adjacent areas. Residents have cited safety concerns when military vehicles travel along community roads, such as Lisa Drive in Chaparral.

4.10 Water

Multiple, overlapping factors affect the region's water supply, including the current exceptional drought, climate change, water quality issues, damage or overuse of specific water sources, and increased demands from military and civilian growth in parts of the study area. Specific areas of concern include:

- The Mesilla Aquifer level has continued to drop due to the drought, population growth in Las Cruces and Doña Ana County, and growth of water intensive crops.
- Low recharge and high pumping rates in the Hueco Bolson Aquifer have caused significant water-level declines and decreased groundwater availability in the El Paso area. The City of El Paso, El Paso Water Utilities, and FTB have been aggressive in implementing water conservation measures, as well as reuse and desalination strategies to alleviate groundwater demands.
- Damage to Bonito Lake from the 2012 Little Bear Fire has interrupted surface water supplies to communities, including Carrizozo, Alamogordo, and to a lesser degree HAFB.

4.11 Wildfires

Based on fire history at FTB, the primary risk of wildfire from the military comes from weapons firing and ordnance use. In 2011, a training exercise at FTB caused a fire on the eastern side of the Organ Mountains that burned about 7,000 remote acres. The majority of military-caused fires have been in the Surface Danger Zones for missile firings on McGregor Range.

The risk of wildfire caused by military activity is not anticipated to change significantly. Live-fire ranges are concentrated in discrete areas that are continuously manned and have the infrastructure and fire suppression capability to respond rapidly to fire outbreak. Currently, FTB is preparing a Wildland Fire Management Plan working in close coordination with the BLM. The BLM is assisting FTB in preparation of the plan, as well as constructing firebreaks and conducting controlled burns to reduce fuel loads. In 2014, WSMR also began a project to update and revise its Wildland Fire Management Plan.

05 RECOMMENDED STRATEGIES



5.1 Compatibility Menu

As noted earlier, the JLUS is strictly an advisory document that contains a menu of tools and processes available to each study partner. All partner entities, including the military installations, cities, counties, and state and federal agencies, have the discretion to adopt those recommendations that are appropriate for their local contexts. The menu, therefore, is not “one-size-fits-all.” One of the unique aspects of the SNMEP study area is its diversity—in terms of its rural, suburban, and urban landscapes; the varying levels of land use and development regulation currently used by its local governments; and the differing patterns of military impacts experienced by communities across the region.

To recognize this diversity, the JLUS compatibility menu (See *Technical Appendix for the full table*) offers a wide range of strategies that can be adapted to reflect the resources, needs, and interests of the region’s many communities. As always, the applicable local processes for adopting ordinances or codes will govern any implementation of regulatory policies by city and county governments.

Similarly, no single strategy in the JLUS will eliminate all of the current or anticipated issues identified. Instead, the tools work in concert to address as many compatibility factors as possible. The compatibility menu contains approximately 180 separate action steps, some of which build on each other to establish longer-term tools or processes that promote partnerships and enhance communication and collaboration.

In developing the menu, the JLUS TC, in collaboration with the planning team, identified a set of compatibility factors based on analysis of existing and foreseeable conditions and public input. These factors represent a general clustering of related issues, challenges, or needs that could affect public health and safety, quality of life, community growth opportunities or the safety and effectiveness of military operations in the region. These factors build on the initial set of study issues that the TC and members of the public evaluated and prioritized in the initial outreach phase as described in the previous section. The menu lists the top six categories as determined by the TC in alphabetical order. The remainder of the menu categories are also in alphabetical order. High priority public priorities, such as water resources that fall outside of the core purpose of the JLUS are not listed among the top menu categories, but are featured as part of the foundational actions described in the following sections.

Top six compatibility menu categories:

- Airspace Safety and Management
- Communication and Coordination
- Energy Infrastructure Management
- Local Government Plans
- Land Use
- Noise Management/Avoidance

Other compatibility menu categories:

- Economic Development
- Fire Management
- Frequency and Spectrum Management
- Land Conservation
- Military Plans
- Outdoor Lighting
- Physical Security
- Real Estate
- State-Wide Policy/Legislative Actions
- Transportation
- Water Resources

The JLUS compatibility menu contains a set of goals, strategies, specific actions, examples, and other implementation details for each of these categories.

Given the number of strategies and study partners and the complexity of compatibility issues in the SNMEP area, implementation requires a phased approach that first emphasizes foundational, near-term actions. To assist in organizing the region's implementation efforts, Sections 5.2 and 5.3 highlight key, early action steps. The list of foundational actions includes 16 items, ranging from simple and immediate steps to more complex but critical organizational measures. The full compatibility menu remains as a comprehensive tool kit that all partners can revisit and adapt as appropriate to meet changing conditions, needs, and goals (See *Technical Appendix*).

These foundational actions meet one or more of the following criteria. The prioritized action step:

- Can be put into place quickly and requires relatively few organizational resources ("low-hanging fruit");
- Establishes a broader and longer-term coordination and communication process among stakeholders;
- Addresses a known or anticipated compatibility factor;
- Reflects a priority concern identified during public input; and/or
- Is likely to have an early, positive impact on compatibility in the region overall.

Consistent with public input, for example, the top actions include tools related to noise management, water resources, and energy infrastructure management. Narrowing the full menu to a set of foundational items does not diminish the importance or potential value of other tools identified by the JLUS. Some items that did

not rise to the short list of key steps may still be a priority action for some study partners. The highlighted actions, however, prioritize the region's initial implementation efforts and set a basic organizational structure for continued collaboration and communication among all stakeholders.

5.2 Ongoing and Immediate Actions

The installations, federal and state agencies, and local communities have existing processes in place, ranging from NEPA consultation to periodic outreach events and informal discussions that promote coordination about mission-related activities, impacts, and potential compatibility issues. These four immediate actions further highlight the role of FTB, HAFB, and WSMR in collaborating with communities and other agencies to build on ongoing efforts. The actions are not in order of priority.

Form a JLUS Implementation Body

While some existing organizations advocate for coordination between the military and communities, no overarching entity with representation from all stakeholders currently exists. The complexity and diversity of missions in the region require careful, ongoing collaboration across the DoD, federal and state agencies, local governments, and private interests. Multi-jurisdictional and multi-sector partnerships are essential to achieve long-term compatibility in SNMEP.

The purpose of this strategy is to create an umbrella organization that promotes continued dialogue and engagement on compatibility and strengthens existing relationships among regional stakeholders. Under this strategy, the study partners would charter, empower, and fund a JLUS implementation body to support regional planning and coordination efforts and track progress on compatibility actions (See CC-8.1).

The entity should consist of the formal JLUS partners, representing the six counties, the Cities of Alamogordo, El Paso, and Las Cruces, the three installations, federal and state agencies, and the Spaceport Authority. To build further support, however, the entity should broaden beyond the reach of the existing committees to include private sector developers and landowners, educational institutions, non-profit groups, water planning or irrigation districts, major utility providers and energy developers, and other stakeholders who can contribute technical expertise to the implementation process on an

as-needed basis. Where possible, the JLUS body should also leverage the resources of existing compatibility partnerships, such as the multi-state Western Regional Partnership. Members should include senior planners, administrators, and agency managers who can bring some decision-making authority but can also directly advance recommended implementation steps.

Initial steps in organizing the entity include establishing:

- The overall management structure, staffing, and responsibilities;
- A legal framework that can range from a state charter or enabling legislation to an MOA among local parties;
- Funding mechanisms, such as member dues, state appropriations, or federal grants; and
- Outreach efforts to engage elected officials and the public on a consistent basis and build support for successful implementation.

Structural models can vary from ad hoc groups of

local interests that agree to cooperate to stand-alone organizations with dedicated staff and specific legislative authority. In one of the most basic organizational approaches, one of the local governments takes the lead to coordinate across other jurisdictions and agencies and establishes an advisory group of local, state, federal, DoD, and private sector stakeholders. The advisory group then guides the local government's in-house staff in performing regional coordination and JLUS implementation functions. An MOA would typically establish the organization's roles, responsibilities, and resource sharing needs. The Technical Appendix includes examples of collaborative partnerships in defense communities across the U.S.

Implementation entities can perform many compatibility-related functions, including:

- Update all partners on upcoming activities, planning and study initiatives, project proposals, and mission changes that could affect compatibility in the region;



Apache Point Observatory, New Mexico

- Track progress on the application of compatibility tools identified in the JLUS menu and exploring best practices for implementation;
- Conduct regular outreach to the broader community on compatibility issues, including briefings and taking the lead in developing informational materials and updates, such as newsletters or annual reports;
- Serve as a visible and primary point of contact for information and inquiries about compatibility issues and military-related activities in the region;
- Advocate at the state level for the resources, legislative authority, and tools to promote compatibility and sustain quality of life and mission excellence;
- Promote data sharing among partners through tools such as a web-based platform or data repository; and
- Review and advise on individual development and land use proposals that could affect compatibility, such as major subdivisions, energy projects, or land transfers.

Conduct Additional and Regular Community and Agency Outreach

JLUS stakeholders, including residents and agency representatives cited an interest in improved communication about DoD and non-DoD missions. Currently, communities lack familiarity with military operations and activities and have limited awareness of the positive impacts of the military on the region, as well as services and events offered by the installations. Similarly, residents and DoD stakeholders may not fully understand other federal or state missions, such as the management activities of the NPS, USFS, and BLM or the NMSLO's mandate to lease trust land for "highest and best use" to benefit the state's public schools, universities, and hospitals.

The purpose of this strategy is to raise overall awareness about the region's DoD and non-DoD entities and reinforce common opportunities to support compatibility, while achieving multiple state and federal agency mandates, including conservation, recreation, resource management, economic development, renewable energy production, and revenue generation. Under this strategy, the installations would conduct additional and regular meetings with community and business groups (e.g., chambers of commerce and community associations) and schedule regular briefings with state and federal agencies, particularly in advance of new missions and operations that could have an effect on

surrounding communities or agency mandates (See CC-1.2). Outreach can vary from participation in organized, standing meetings (such as a County Commission meeting) to attendance at informal community gatherings or special events. Briefings should consist of updates of mission activities and operations, dialogue about ongoing community concerns, and coordination on major DoD and civilian planning and development initiatives. Briefings with the region's communities should take place yearly or more frequently based upon a specific initiative or proposal that could affect overall compatibility. The military should also continue to participate in ongoing agency planning efforts, such as the BLM's Tri-County Plan.

Establish Clear Points of Contact

The presence of multiple DoD entities conducting training and testing in the region can add a layer of complexity to the communication process among installations and surrounding communities. The purpose of this strategy is to establish clear and consistent channels for communication across all stakeholder groups and to promote transparency and follow through on community concerns about impacts or other compatibility concerns. As part of this strategy, FTB, HAFB and WSMR would designate clear points of contact for community-related issues, such as noise complaints, and coordinate with local government Public Affairs Officers on the release of notices and announcements about mission-related activities (See CC-1.7). This action also relates to the strategy of creating an internally coordinated noise complaint management process across DoD services in the region (See NMA-3.6).

Improve Notification Methods

In some cases, a lack of knowledge about scheduled training and testing activities and resulting impacts such as noise can contribute to higher levels of nuisance and disruption in surrounding communities. Often, when members of the public know ahead of time about military activity, the noise it creates is less annoying, and members of the community can plan their activities around the event. Some communication methods are in place. However, the size and diversity of the region can create a challenge for delivering easily accessible information about military operations.

The purpose of this strategy is to broaden the range of community interests and stakeholders that receive advanced notice of mission-related events and activities. Under this strategy, FTB, HAFB and WSMR would compile

comprehensive notification lists and use enhanced techniques to reach a wider range of affected parties about noise or other possible training and testing impacts (See CC-1.6). Proposed methods include traditional outreach such as fliers, newspaper ads, and opt-in



newsletters for interested residents; announcements through utilities, such as the Otero County Electric Cooperative, Inc.; or the use of social media and text messaging to push out information. Given the impacts experienced by some of the smaller communities in the region, outreach efforts should emphasize the use of newspaper and radio outlets that cover rural areas, such as the Mountain Times in the Southern Sacramento Mountains. The installations should also explore the most effective means to communicate with surrounding communities about impacts. For example, identifying days with no scheduled noise-producing training or testing activities (as opposed to days with expected noise) enables residents to plan accordingly for outdoor activities such as ranching or recreation. The menu also

includes a recommendation to increase outreach to areas surrounding Spaceport America operations and develop an enhanced and coordinated notification process with nearby residents affected by launch noises.

5.3 Other Foundational Actions

The following foundational actions are strategies that establish critical tools or processes to promote collaboration and coordination among stakeholders throughout the region. The actions are not in order of priority.

Build Institutional Capacity to Manage Regional Airspace

Military testing and training, emerging commercial space operations, increasing commercial aviation needs, the rise in private use of unregulated airspace, increasing non-hazardous helicopter activity in unrestricted airspace, and the greater use of UAVs in both the military and commercial sectors can all create scheduling and safety challenges for regional airspace.

The purpose of this strategy is to ensure that an enduring and effective organizational infrastructure and capacity is in place to coordinate these critical airspace issues, maximize current airspace, and address any future special airspace needs for the SNMEP JLUS region. Given mission interdependency across the installations, WSMR, HAFB, and FTB currently coordinate airspace, range usage, and frequency spectrum for multiple users through a regional partnership called the TRIAD. Under this action, the installations would institutionalize the TRIAD military airspace coordination group to create a unified vision and action plan for regional airspace management (See ASM-1.1). The group would include representation from all regional airspace users and managers, such as the military installations, New Mexico State University's Physical Science Lab, the FAA, Drug Enforcement Agency, Border Patrol, fire/emergency responders, Spaceport America, and the commercial and general aviation sectors.

Though TRIAD already exists, the intent of the action is to broaden dialogue to address emerging issues such as UAVs and frequency/spectrum management and to engage additional stakeholders, including local entities and other military users of the regional airspace complex, such as Cannon and Kirtland Air Force Bases. A member of TRIAD should also be able to participate directly on the JLUS Implementation Body to ensure coordination on critical implementation issues related to airspace.

Integrate Compatibility into Local Government Plans

Some local government comprehensive planning studies in the region, particularly older documents, lack specific language on compatibility with the military installations. Comprehensive Plans are especially critical as a policy tool for local governments because they can provide the legal basis for specific policies, promote compatible development patterns around military installations, designate suitable areas for intensive growth, and establish consultation procedures. For those jurisdictions exercising land use authority, the Comprehensive Plan also sets a firm and clear basis for the implementation of any specific regulatory tools, such as a Military Influence Area.

Land use strategies that increase compatibility with the installations, such as guiding growth to already developed areas, supports complementary development outcomes at the local level, including more efficient public infrastructure delivery, open space preservation and the protection of sensitive environmental resources, and the creation of organized centers of housing and retail. The purpose of this strategy is to create an overall, strategic policy framework that supports quality, economically beneficial community growth, while maintaining compatibility with the military missions. Under this strategy, the region's cities and counties would incorporate compatibility in updates of local Comprehensive Plans and other policy documents, including references to compatibility with installations, military operations, maps, and recommendations identified in the JLUS (See LGP-1.1).

At a minimum, plan updates should emphasize general compatibility with the installations and can expand as necessary to reflect additional policies based on the specific compatibility tools selected by the jurisdiction (See the *Technical Appendix for recommended policy language*).

Recommended minimum elements to be included in all Comprehensive Plans are:

- Reference to the JLUS document and process;
- General Compatibility Goal and Policies (See *Technical Appendix*);
- Communication/Coordination Goal and Policies (See *Technical Appendix*);
- Map of the applicable installation and surrounding area (See *Figures 2.2 through 2.6*)

Encourage Partner Participation in Local Government Planning

In a related action, the cities and counties of the region would encourage military and other JLUS partners, such as state and federal agencies to participate in local planning and development advisory bodies and major plan updates and amendments, including Comprehensive Plans; neighborhood or sector plans; regulatory land use codes; and transportation, infrastructure, and natural resource plans (See LGP-1.2).

Military and other state and federal agency stakeholders, for example, could advise as Steering Committee members for community planning initiatives, such as Comprehensive Plans. Local governments could also invite military representatives to sit as non-voting members of city and county advisory bodies, including the Planning and Zoning Commission, Planning Commission, Land Use Commission, Development Review Committee, or City Plan Commission active within the region. Invited representatives would receive meeting materials in advance and have the opportunity as appropriate, to comment in a strictly advisory capacity on the potential interaction between proposed projects and initiatives and DoD or other state and federal agency missions.

Collaborate on Planning for Energy Development Opportunities

New Mexico possesses some of the best wind and solar resources in the country, and renewable energy projects offer significant promise for local economic development and the ability to meet DoD and national energy policy, reduce reliance on conventional energy sources, and increase energy independence.

Compatibility issues, however, can exist between energy infrastructure and military operations. Energy projects can cause glare, vertical obstruction, and interruption to communication signals, such as "shadowing" effects from spinning turbine blades that limit radar's ability to detect aircraft, or damage to infrastructure caused by debris from mid-air missile test targeting. There is no consistent, regional process to assess and refine energy proposals to address these compatibility issues. The DoD Siting Clearinghouse seeks to establish a "one-stop-shop" to evaluate the compatibility of proposed wind, solar, transmission, and other projects for their effects on military activities. Despite the existence of the DoD Siting Clearinghouse, no clear design (scale, type, height, markings) and siting guidelines yet exist to assist in developing projects that are compatible with military operations. This gap in national guidance further reinforces the value of a strong local process for collaboration on energy issues.

The purpose of this strategy is to develop a process to support energy development that benefits the communities, region, state, and nation, while maintaining compatibility with military missions and recognizing private property rights and state and federal agency mandates to generate revenue through energy-related projects. As part of this strategy, regional partners would promote a proactive and collaborative planning process among military, state, and federal agencies and other stakeholders to review and plan new energy proposals and support the compatible siting of new energy infrastructure that maximizes opportunities and mission compatibility (See *EIM-1*).

In many cases, the siting or design of energy infrastructure can be established or modified accordingly in planning stages to reduce compatibility conflicts without diminishing the viability of the project. To ensure adequate, timely consultation, this action stresses active engagement with renewable energy developers; major property owners such as the NMSLO; industry associations/cooperatives and authorities, such as the New Mexico Renewable Energy Transmission Authority (RETA), along with outreach to the energy development community regarding military compatibility issues. It is also critical that the DoD, including the local installation commanders, participate as a partner early in the siting process for large-scale energy projects. The Technical Appendix contains an example of an informational guide on wind energy developed by the State of Virginia's Department of Environmental Quality Renewable Energy Local Government Outreach Stakeholder Group.

Map Regional Energy Development Opportunities

The purpose of this related strategy is to promote improved pre-planning of energy projects by identifying areas of opportunity for military-compatible energy development within the region. Under this action, partners, including the installations, federal and state agencies, local governments, and energy industry associations/cooperatives and authorities would collaborate to produce a red/yellow/green map of wind and solar energy development in the region (See *EIM-1.5*). Red denotes areas where mitigation is not likely to reduce or eliminate conflicts between energy infrastructure and military operations. Yellow highlights areas where energy development may be conditionally compatible with the application of specific design or siting practices for proposed infrastructure or notification of the military. Green illustrates areas with no anticipated compatibility challenges.

Mapping should overlay Geographic Information System (GIS) data layers that reflect the following conditions in the region:

- A hierarchy of potential (high, medium, low) for wind and solar energy production;
- Rights-of-way for renewable energy based on BLM, USFS, and industry plans;
- Landownership, including state trust lands;
- Areas of environmental sensitivity, including Native American religious and cultural sites, parks, wildlife refuges, Wilderness Areas, Areas of Critical Environmental Concern, National Monuments, and Protected Activity Centers;
- Designated avoidance or exclusion areas identified through planning efforts, such as the BLM's Resource Management Plans; and
- Areas of sensitivity to testing and training impacts, including MTRs, debris fallout zones, Surface Danger Zones, and airspaces near military airfields.

Where possible, this mapping effort should leverage existing partnerships and tools. The Natural Resources Defense Council, for example, created the Renewable Energy and Defense Database or READ-Database along with the DoD that enables developers to identify sites less likely to interfere with military activities and environmentally sensitive areas. The mapping tool captures essential DoD activities, including military base, testing and training range locations; low-altitude high-speed military flight training routes and special use airspace; and an extensive inventory of weather and air surveillance radars all in the U.S. The Energy Committee of the Western Regional Partnership also gathers resources to promote coordinated planning on energy issues, including an Energy Contact database and associated GIS data layer to assist in identifying key state and federal personnel for the siting of energy infrastructure.

Promote Interagency Consultation on Land Use

The purpose of this strategy is to promote changes in land uses that support mutually beneficial outcomes for communities, state, and federal agencies; trust beneficiaries; property owners; lessees; and the installations. As part of the NEPA process, federal agencies already consult with each other as cooperating partners on the impacts of proposed projects and initiatives on federal lands. The intent of this strategy is to create broader, routine opportunities for agency consultation outside of formal NEPA channels. Under



this action, federal and state agencies would continue to consider impacts to the military before disposing of or selling land, and the military would continue to consider the impacts of expanded missions and operations on local economic development opportunities and state and federal agency missions.

Land uses in areas surrounding the installations may evolve toward development opportunities for a “higher and better use,” such as wind and solar energy projects, and these emerging uses may become more intensive or produce vertical infrastructure that creates compatibility issues with military training and testing operations. Given limited DoD resources and increasingly higher land values, consultation in the planning and siting of major economic development projects becomes critical.

The Technical Appendix contains an example of an MOU between the NMSLO and Kirtland Air Force Base that lays out procedures for recognizing existing plans, continuing the use of state trust lands to support DoD mission, consultation, and organizational points of

contact. As described in the next strategy, the NMSLO also has a variety of instruments at its disposal to promote compatibility on state trust land.

Promote Compatibility of State Trust Land

The NMSLO has land holdings and leases throughout the JLUS study area, including approximately 1.6 million surface acres and 2.46 million subsurface acres within Doña Ana, Otero, Lincoln, Socorro, and Sierra Counties. The NMSLO operates under a constitutional mandate to optimize revenue for its trust beneficiaries, including public schools, universities, hospitals, and other public institutions through the highest and best use of state trust land. As part of the Community Partnership Program, the NMSLO collaborates with local governments to make trust lands available for business and industrial parks, recreational facilities, open space, and housing. Though NMSLO is not subject to local zoning and land development codes, the agency works cooperatively with local governments to plan and zone trust land for purposes consistent with community and citizen goals.

The purpose of this strategy is to promote greater compatibility as the DoD and the NMSLO fulfill their respective missions and maximize opportunities to generate revenue for the state's trust beneficiaries, while promoting military compatibility (See CC-6.3). Under this strategy, the NMSLO, local governments and installations would collaboratively explore various instruments and agreements to facilitate compatible development outcomes on state trust land, including:

- Land exchanges;
- Long-term leases of trust land;
- Land Use Restriction or Condition (LURCs);
- MOUs; and
- Joint Planning Agreements (JPAs)

A JPA, for example, provides a strategic framework to promote coordinated, long-term planning between the NMSLO and local entities. A LURC, for example, can provide compensation to the NMSLO in return for the NMSLO's acceptance of various land use restrictions that would otherwise impede the ability to generate revenue for trust beneficiaries. The Technical Appendix contains an example of a LURC in which the NMSLO agreed to certain land use restrictions in an area of importance to FTB in exchange for fair compensation.

Support Conservation Partnerships

Currently, undeveloped land in areas affected by military operations is subject to future transitions to more intensive uses that could increase the risk of incompatibility. With accelerating development of wind and solar resources, some land that previously supported grazing now has a "higher and better use" for energy development and associated economic growth. The challenge is to acknowledge the rights of private property-owners and state and federal agencies to develop land for these purposes, while supporting military missions.

The purpose of this strategy is to form partnerships among federal, state, regional, and local entities and willing landowners to promote open space, ranching, and rural land conservation in areas of mutual benefit to landowners, communities, state and federal agencies, and installations. Under this strategy, local governments would collaborate with land conservation entities, such as land trusts to connect interested landowners with available programs, including easements (e.g., conservation, agricultural), tax incentives, beginning farmer and rancher grant and loans, local food systems,

and habitat management. These partnerships seek to strengthen the economic viability and sustainability of productive lands in the region, while preserving open space (See LC-1.1). The programs do not have to support the explicit goal of preserving military missions, but instead provide financial or technical assistance for land stewardship and conservation practices that complement lower intensity and thus more compatible uses of land.

The DoD also has conservation tools specifically designed to create natural buffers around military operations. The Readiness and Environmental Protection Initiative (REPI) provides the military the ability to enter into agreements with eligible entities, such as local governments and non-governmental organizations, to purchase property or secure easements on property from willing landowners near a military installation or military airspace. The agreements enable conservation or not-for-profit organizations to acquire, on a cost-shared basis, development interests in the properties of voluntary sellers. The property owner may sell the property at fair market value or continue to hold the title for the land with monetary compensation and tax credits or deductions to maintain the property in a limited use that preserves habitat and/or avoids interference with nearby military operations.

The Army implements REPI projects through its Army Compatible Use Buffer (ACUB) program. Fort Bliss has successfully used ACUB to enter into a 75-year agreement with the NMSLO to create a buffer zone of approximately 5,200 acres on lands south of Doña Ana Training Areas near the community of Chaparral. The agreement restricts the development of noise sensitive uses (i.e. residential, educational, and medical care) in



the buffer zone. Fort Bliss is pursuing similar conservation efforts for land south and east of the installation's South Training Area.

The U.S. Department of Agriculture, DoI and DoD have also recently announced a new federal, local, and private collaboration to preserve agricultural lands, assist with military readiness, and restore and protect wildlife habitat. Through the Sentinel Landscapes partnership, the agencies will work together in overlapping priority areas near military installations to help farmers and ranchers make improvements to the land that benefit their operation, enhance wildlife habitat, and enable DoD's training missions to continue.

A critical step in this strategy is to analyze and identify land that has an overlap of military impact (e.g., noise or safety risks) and higher natural/working lands/cultural value and thus may be a candidate for easements purchases from willing landowners or other forms of conservation assistance.

Increase Land Use Authority in El Paso County

Some of the land vulnerable to development and at future risk of incompatibility falls within unincorporated El Paso County. State law in Texas does not allow counties to regulate land use through zoning, though municipalities can adopt and implement more robust land use and development controls. As a result, El Paso County lacks the capacity to shape land use patterns and development outcomes in areas near FTB.

This action would pursue legislation in the Texas State legislature to enable El Paso County to exercise land use authority in specified buffers around FTB, such as those areas exposed to noise or safety issues from range or airfield operations (See *SPL-5.1*). The intent of the legislation is to establish specific authority to protect public health, safety, and welfare. Regulatory measures could include requiring sound attenuation for new noise sensitive construction, such as housing or land use restriction on certain land uses that could trigger safety conflicts with nearby training. The county can pursue this strategy in conjunction with use of state-enabled authority to establish a Joint Airport Zone Board around Biggs AAF to coordinate compatibility concerns with airfield uses and development proposals on surrounding land.

Increase Information about Regional Noise Impacts

The region experiences noise and vibration from various

military operations, including supersonic aircraft, low-level high-speed aircraft, impulsive noise from ordnance explosions, and aircraft arrival and departure at airfields. The purpose of this strategy is to reduce the nuisance associated with noise exposure by communicating more effectively with the surrounding communities.

Under this strategy, local governments and the installations would collaborate to strengthen communication and community outreach procedures regarding noise events, including enhancing notification techniques for residents in affected areas or making information on potential noise impacts available to the public (See *NMA-3*). As described earlier under immediate actions, notification can entail the use of simple outreach methods such as fliers, newspaper ads, and opt-in newsletters for interested residents or the use of texting and social media.

More proactive notification techniques could include developing and distributing a brochure or map that depicts the region and notes its proximity to military operations or real estate disclosure. Real estate disclosure requires the release of information on possible impacts (e.g., noise/vibration, air safety zones) as part of real estate transactions for properties close to military installations. Typically, disclosure can be mandatory under state law or voluntarily adopted through the participation of the real estate community. The intent of this communication strategy is to ensure that prospective buyers or renters understand the relationship between proximity to testing and training activities and to promote fully informed decisions about property investments.

As noted earlier, one of the distinctive characteristics of the SNMEP region is that aviation training disperses noise across wide areas, and noise impacts do not necessarily correspond with a clearly defined footprint. As a result, the communities of the region should select and tailor noise notification strategies that best fit their local context. Specific disclosure, for example, may be appropriate for areas with known and predictable exposure, such as noise contours associated with range operations or noise contours in the immediate vicinity of the airfields, but not in counties where the noise is more widespread. In rural communities that do not have access to a daily paper, reliable radio, or internet, the local governments and installations should collaborate with residents to determine the best way to communicate information.

The Technical Appendix contains an example of a notification map from the City of Surprise/Luke Air Force Base in Arizona and sample disclosure language.

Establish a Notification Process for Vertical Structures

Vertical structures, such as energy and telecommunications infrastructure, pose a risk to aircraft due to physical intrusion into low-level flight corridors. Towers less than 200 feet AGL are not subject to FAA review and most counties in the region lack a process to track structure locations. This gap increases the risk of physical interference with aircraft.

The purpose of this strategy is to establish a clear and voluntary process of coordination to minimize the aviation risks associated with vertical structures. As part of this action, cities, counties, state, and federal agencies would create an early process to notify the installations of the location of all existing and proposed structures between 75 and 200 feet AGL in MTRs or other areas vulnerable to aviation hazard (See LU-5.1). This strategy does not require the permitting or regulation of structures, but instead emphasizes basic coordination on

the location of vertical infrastructure to maintain aircraft and civilian safety. The goal of this strategy is not to limit the installation of structures in local communities, but to encourage early communication about associated safety risks.

Promote an Integrated Regional Water Planning Process

Complex and overlapping factors affect the region's water supply, including but not limited to, the current exceptional drought, climate change, water quality issues, damage or overuse of specific water sources, and increased demands from military and civilian growth in specific parts of the study area.

Many entities manage and plan for water resources within the JLUS region, including four planning districts in the State of New Mexico and the Far West Texas Planning Area, including El Paso County. In New Mexico, water rights are based on a water development plan that identifies supply and conservation measures to meet reasonably projected additional water needs over a 40-year period. Similarly, the State of Texas, as overseen by the Texas Water Development Board, mandates



regional water planning. The purpose of this strategy is to promote a fully integrated regional water planning process that addresses the long-term needs of major water users, including the military, and form partnerships across local, regional, state, and DoD sectors to address the challenges of water quality and supply. Under this action, local governments would integrate the military into the regular regional water planning process to ensure that demand projections reflect foreseeable mission needs and that conservation and supply and diversification strategies incorporate ongoing military water planning initiatives (See *WR-1*).

The installations implement aggressive water conservation measures as part of a DoD-wide mandate to reduce water consumption. Local governments should collaborate with FTB, HAFB, and WSMR to educate the public about current water planning efforts and leverage best practices for water conservation, including strategies such as water reuse, the installation of efficient water fixtures, developing desalination facilities, and the maintenance of water and wastewater infrastructure assets.

5.4 Summary of Menu Category Areas

This section summarizes all JLUS menu categories, including those categories not discussed in the previous section, and describes examples of additional tools or processes that were not included in the list of foundational actions.

Airspace Safety and Management

Strategies in this category focus on maximizing current airspace and addressing the region's future special airspace needs. Examples of additional actions include increasing awareness of the multiple uses of regional airspace and strengthening collaboration among private, public, and military airspace users; improving air traffic control capabilities; and coordinating on time-sensitive and critical management activities that require airspace access by other federal or state entities.

Communication and Coordination

These tools seek to increase the overall awareness of DoD and non-DoD missions and activities in the region, establish clear and consistent channels for communication, and promote inter-jurisdictional and inter-agency cooperation on critical planning issues. Other strategies in this category include:

- Create online information sources that are convenient for the public to use;
- Establish an internal process for JLUS stakeholders, including DoD, local, state, and federal entities to pre-plan and review major new proposals;
- Conduct briefings of military units or procedures to reduce noise impacts on surrounding communities; and
- Enhance notification procedures for public land users and property owners in call-up areas.

Energy Infrastructure Management

Energy management strategies are designed to support energy development opportunities in a way that benefits the communities, region, state, and nation, while maintaining compatibility with military missions. Other strategies featured in this category are developing performance-based guidelines to assist in designing and siting projects that are compatible with military operations and developing/updating a regional data clearinghouse with information on energy projects.

Local Government Plans

The purpose of local government plans is to create an overall, strategic policy framework to support quality and economically beneficial local development outcomes, while maintaining compatibility with military missions. An additional strategy in this category is to conduct detailed land use and compatibility planning for rapidly growing areas that experience operational impacts such as noise.

Land Use

The goal of these strategies is to promote changes in land uses that balance attractive, efficient, and economically productive local development with the protection of public safety and military missions. Additional land use tools in this category include promoting infill development in already built out areas to guide denser growth away from land with higher exposure to the impacts of military operations and the incorporation of land use compatibility and communication requirements into existing local zoning codes and ordinances. The menu specifically recommends additional development regulations for those local jurisdictions with adopted land use regulatory authority (currently this includes Doña Ana County, City of Las Cruces, City of Alamogordo, and City of El Paso only) and for property within clearly defined zones of impact, such as noise contours, land use planning zones, or airport accident potential zones.

For jurisdictions currently without zoning, the menu identifies the adoption of land use regulatory authority as a long-term option that local jurisdictions can explore with input from the community.

Noise Management/Avoidance

Noise-related strategies seek to limit off-installation noise impacts when feasible and to reduce the nuisance associated with continued noise exposure in the surrounding community. Other strategies from this category include:

- Encourage sound attenuation building standards and/or related energy efficiency practices as a means to achieve indoor sound reduction in noise-sensitive uses, such as housing;
- Coordinate with state and federal resource management agencies on training activities during noise-sensitive times and locations;
- Analyze current data on noise complaints to create more accurate footprints for noise exposure;
- Advocate for additional Air Force modeling methodologies and compatibility guidance and strategies, such as the expanded use of the Department of Defense's voluntary Readiness and Environmental Protection Integration to identify and address dispersed noise issues associated with low-level aviation operations in rural areas;
- When feasible, continue to manage off-installation aviation noise impacts through operational adjustments; and
- Develop an informational repository of current, reliable, and valid information to include international research and independent, peer reviewed studies to assist in assessing health impacts.

Economic Development

The purpose of the economic development strategies is to increase local participation in military-related economic opportunities; improve access to adequate, quality public services and amenities for both local residents and military personnel; and strengthen and diversify local economies. Specific actions in this category include forming and strengthening existing civilian/military partnerships to identify and develop additional economic development opportunities in communities, increasing local contractor awareness of upcoming installation proposal opportunities, and strengthening coordination on the delivery of community services needed to accommodate mission change.

Fire Management

Fire management strategies are intended to build on ongoing partnerships to implement coordinated fire prevention, management, and suppression activities in the region. An example includes continuing joint efforts between the DoD, BLM, USFS, USFWS, and the NMSLO to implement management activities, such as establishing black lines, developing fire management plans, and encouraging better integration of fire management plans in the region.

Frequency and Spectrum Management

Frequency and spectrum management tools focus on creating an integrated regional frequency/spectrum management system that de-conflicts military and private commercial users and service providers through coordination and state-of-the-art technology. Strategies emphasize increased coordination through a Frequency/Spectrum Management Working Group consisting of the Area Frequency Coordinator Regional DoD Frequency Coordinator and internal and external stakeholders, including emergency response organizations, and the use of educational materials, outreach, and technical assistance to local governments and planners to improve the overall understanding of frequency spectrum issues and potential solutions.

Land Conservation

The emphasis of land conservation strategies is to form partnerships among federal, state, regional, and local entities and willing landowners to promote open space, ranching, and rural land conservation in areas of mutual benefit to residents, communities, and installations. Tools explore existing conservation and stewardship programs for productive lands, local and regional open space and recreation planning, and the use of DoD open space/buffer programs, such as REPI/ACUB. As always, the menu stresses that landowner participation in easement purchase or land sales programs is strictly voluntary.

Military Plans

The purpose of this category is to ensure that military plans and studies are current and shared with appropriate community stakeholders to aid in improved planning and management for mutual compatibility. Examples of studies include the Army Installation Compatible Use Zone (ICUZ), the Air Installation Compatible Use Zone (AICUZ), and HAFB's Installation Complex Encroachment Management Action Plan (ICEMAP).

Outdoor Lighting

Outdoor lighting strategies seek to protect the dark sky environment as a training, testing research, and tourism asset for the region. Tools include adoption of city or county dark-sky ordinances that require the use of fully shielded, cut-off outdoor lighting applications for major new developments (e.g., commercial, industrial uses, airports and airfields, outdoor sports stadiums) and the use of dark-sky lighting for on-installations areas, including ramp lights.

Physical Security

Physical security strategies revolve around protecting high-value infrastructure and public safety against acts of terrorism and vandalism, and maintaining national security. Specific actions include:

- Securing selective areas along installation boundaries, training areas, and critical infrastructure;
- Providing installation security planning information and guidance for local emergency preparedness plans, such as all-hazard emergency plans;
- Adding signage to warn of the dangers and consequences of trespass;
- Communicating with local law enforcement agencies about emergency response, GPS jamming, and related issues; and
- Coordinating on livestock trespassing issues to encourage compliance with grazing unit/allotment boundaries.

Real Estate

Real estate refers to a specific set of tools that formally recognize the impacts of military operations on surrounding property. As described earlier, the main strategy in this category is real estate disclosure. In its most robust form, disclosure occurs through a written release describing potential impacts from military operations prior to the transfer of property in the affected area. Though not all jurisdictions may opt to require a written release of impacts, all communities should increase communication with the real estate community about potential exposure from military operations on surrounding areas.

State-Wide Policy/Legislative Actions

These policy and legislative actions propose using the state's authority to facilitate several of the communication, planning, coordination, and data sharing mechanisms

described earlier in the report. Examples include state legislation to:

- Promote joint consultation procedures for developments or land use changes in specific areas around military installations;
- Promote real estate disclosure for initial and subsequent transactions in noise-exposed areas, such as noise contours or accident potential zones;
- Provide model comprehensive plan policies and language regarding military compatibility for use in local Comprehensive Plans;
- Promote inclusion of cost-benefit analysis of military impacts in state-wide planning processes; and
- Coordinate new energy development and recognize the importance of military missions and the economic development potential to the state and local economies from the development of wind and solar energy and energy infrastructure.

Transportation

The purpose of this strategy is to address impacts from military operations on roadway infrastructure in the region. Examples include strengthening notification of road closures for periodic military training and testing activities and evaluating and designating military vehicle routes to minimize traffic and safety issues in local communities.

Water Resources

The purpose of this category is to promote a fully integrated regional water planning process that addresses the long-term needs of major water users. Other strategies featured in this category include participating in a regional water resources management study to address the challenges of water quality and supply and exploring joint DoD and civilian initiatives and projects to diversify and extend the water supply.

06 CONCLUSION



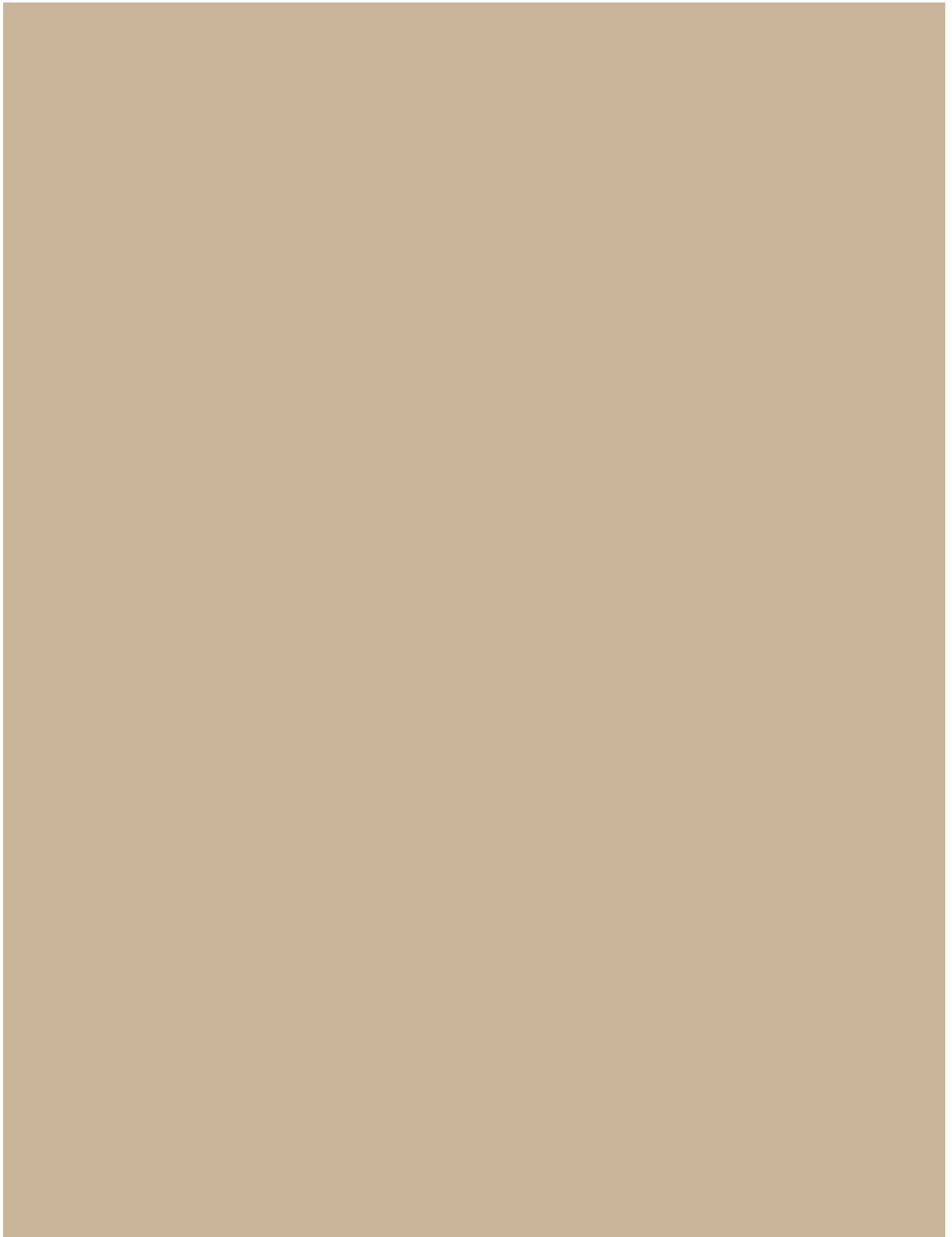
The SNMEP area is large, complex, and dynamic. Along with one of the premier testing and training military environments in the U.S., the region features opportunities for energy production, forestry, cattle grazing, extractive uses, wildlife management, recreation, tourism, research, and local economic development. The diversity of local, state, and federal mandates; mission needs; and community interests reinforces the value of a coordinated planning process to promote economic competitiveness and protect quality of life.

Given the complexity of the region, no single stakeholder can take all of the steps necessary to balance community growth and resource management with military mission compatibility. All study partners play a critical role in enhancing communication. This JLUS process embodies a partnership among residents, communities, agencies, and the military. This report includes a list of foundational actions to continue the spirit of collaboration.

Similarly, no single strategy in the JLUS will eliminate all of the current or anticipated compatibility issues. Instead, the tools identified work in concert to address as many compatibility factors as possible. The JLUS compatibility menu (See *Technical Appendix for the full table*) offers a wide range of strategies to reflect the resources, needs, and interests of the region's many communities. As always, the applicable local processes for adopting ordinances or codes will govern any implementation of regulatory policies by city and county governments.

As the JLUS transitions from planning to implementation, all stakeholders are encouraged to revisit the compatibility menu and adapt tools as appropriate to meet changing conditions and sustain progress toward the shared goal of a stronger, healthier, prosperous region.





www.aecom.com

CORPORATE OFFICES

Los Angeles (Worldwide Headquarters)

555 South Flower Street
Suite 3700
Los Angeles, CA 90071-2300
United States
T +1 213 593 8000
F +1 213 593 8730

Atlanta

1360 Peachtree St. NE
Suite 500
Atlanta, GA 30309
United States
T +1 404 965 9600
F +1 404 965 9605

info@aecom.com

AECOM