

The Report of the
**Governor's
Military Facilities
Task Force**

December 2003

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Governor's Military Facilities Task Force

Executive Order 2003-18

**State of Arizona Governor
Janet Napolitano**

December 2003



FOREWORD

The following final report of the Governor's Military Facilities Task Force answers every element of Executive Order 2003-18, dated May 27, 2003.

This report is the result of seven months of in-depth study, extensive research, and careful consideration of perspectives offered by many individuals and interest groups. The Task Force took special note of and reached out to local officials, installation commanders, land owners, and land developers. While not all recommendations offered to the Task Force were accepted, all received full consideration. The resulting specific recommendations reflect the following four themes:

1. Preserve and grow Arizona's network of military installations to satisfy the long-term needs of the Department of Defense and maximize the benefit to Arizona's economy.
2. Maximize actions at the local level.
3. Establish and sustain solid State and federal support.
4. Recognize and leverage existing statutes, initiatives, and effective efforts.

Although the 27 recommendations are presented in an action-oriented format, they should also be considered as offering solution sets based upon common themes. For example, recommendations numbered 2, 5, 7, 12, 26, and 27 taken together, represent a formidable set of tools to effectively deal with the private rights of landowners within the affected areas surrounding Arizona's military installations. Absent implementation, these recommendations will be useless. Consequently, the Task Force has recommended the development of a Military Affairs Commission to aggressively pursue the full adoption of the Task Force's recommendations.

The implementation strategy is based upon the recognition that Arizona is uniquely positioned to serve most of the long-term needs of the Department of Defense and that the military preserve in Arizona is a stable and substantial foundation of Arizona's economy.

Finally, we would like to acknowledge the substantial efforts and well thought out recommendations offered by the Task Force members: Lisa Atkins, Lori Faeth, Tom Finnegan, Gilbert Jimenez, Monsignor Richard O'Keeffe, Gene Santarelli, and Steve Thu.

As co-chairs for this Task Force, we are proud to present this final report to you on December 5, 2003. We trust that we will realize full acceptance of our recommendations.

Very Respectfully,

R. Thomas Browning, Brig Gen, USAF (Ret.)
Co-chair & Military Advisor to the Governor

Robert Johnston, Lt Gen, USMC (Ret.)
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EXECUTIVE SUMMARY

Arizona's network of military facilities positions the State at the forefront of the current transformation of the U.S. military and represents an essential component of the State economy. The network comprises an integrated array of bases, testing and training facilities, ranges, and airspace which operate within a physical environment that is uniquely suited to their individual and combined mission objectives and to the nation's evolving defense posture. This defense strategy is defined in the Department of Defense *Quadrennial Defense Review Report* released in September 2001. The report details a shift in military planning from a threat-based model (who and where) to a capabilities-based model that focuses on how the enemy might fight. The importance of Arizona's military facilities and operations to the transformation of the U.S. military cannot be understated: their emphasis on joint and combined operations and cutting-edge intelligence-gathering and exploitation lie at the heart of the new defense paradigm and position Arizona to satisfy the needs of the Department of Defense for many years to come. Furthermore, Arizona's military industry generates thousands of jobs, billions of dollars in economic activity, and hundreds of millions of dollars in State and local tax revenue. The stability of employment and tax revenues produced by the Arizona military industry are indispensable to the fiscal health of the State. The long-term retention of Arizona's network of military facilities and the sustainability of their missions are thus vital to the security of the nation and the strength of the State economy.

In recognition of the national and Statewide importance of Arizona's military facilities, the Governor's Military Facilities Task Force was created by Executive Order 2003-18 (Appendix A), signed by Governor Janet Napolitano on May 27, 2003. The Task Force is charged with developing strategies to ensure long-term retention of the State's military facilities so that they may continue to perform their vital national defense functions and maintain their critical role in the State economy. The Task Force's central objectives are to advise the Governor on matters affecting the operational viability of military facilities in Arizona and provide the Governor with information and recommendations that will help ensure the long-term viability of military installations and resources. In support of these objectives, the Task Force conducted public meetings; collected and reviewed information on the military facilities, their missions, and the constraints to carrying out those missions; identified and examined tools to protect and strengthen the military facilities' long-term viability and sustainability; and formed advisory groups consisting of facility commanders and public officials. Drawing on the knowledge and information gathered from these activities, the Task Force prepared the recommendations presented in Chapter 5 of this report.

The recommendations of the Task Force are guided by the following common themes:



- Preserve and grow Arizona's network of military facilities to satisfy the long-term needs of the Department of Defense and maximize their benefit to the State economy
- Maximize actions at the local level to support the retention and long-term sustainability of Arizona's military facilities
- Establish solid State and federal support for the retention and long-term sustainability of Arizona's military facilities
- Recognize and leverage existing statutes, initiatives, and effective efforts to support the retention and long-term sustainability of Arizona's military facilities

The Task Force recognizes that Arizona's military facilities and operations should be treated as an industry that is a foundation of the State economy. The 2002 Maguire study on the *Economic Impact of Arizona's Principal Military Operations* states that total employment impact, total output, and total annual tax revenues for Arizona's military industry equaled 83,506 jobs, \$5.66 billion, and \$233.6 million respectively for Tax Year 2000. The stable nature and high-pay-scale value of military jobs make them a fundamental part of the State economy. Recognizing the military industry as a separate economic cluster in Arizona is critical to the efforts to educate the public about its importance to the fiscal health of Arizona (see recommendation 1).

The Task Force recognizes the necessity of a funding stream to support Arizona's military facilities and operations. Accordingly, the Task Force recommends the development of an ongoing State revenue source to assist military installation preservation and expansion projects where appropriate at the local level and installation level (see recommendations 2 and 12).

The Task Force recommends the establishment of a permanent Military Affairs Commission that would monitor implementation of the Task Force recommendations and make further recommendations on executive, legislative, and federal actions necessary to sustain and grow Arizona's network of military installations, testing and training ranges, and airspace. In addition, the Task Force recommends the establishment of a full-time presence in Washington D.C. to represent the importance and capabilities of each of Arizona's military installations as a unique network of multi-service bases and monitor and report back to the Governor and the Military Affairs Commission on issues impacting these installations (see recommendations 3 and 4).

The Task Force recognizes the need for a coordinated effort among State agencies to promote the retention and long-term sustainability of Arizona's military facilities. Actions aimed at achieving this objective include directing the Arizona State Land Commissioner to consider land use compatibility with Arizona's military installations with planning, management, and disposition of State Trust Lands through existing and future tools. In addition, Arizona's natural resource agencies should monitor and manage issues of environmental concern as they relate to Arizona's military installations and submit annual written reports to the Governor's Military Affairs Commission (see recommendations 5 and 10).



The Task Force recognizes that State legislation for compatibility should address all military facilities, and not just military airports with permanently based fixed-wing aircraft as defined in current legislation. Accordingly, the Task Force recommends that State statutes be revised to include a definition of “military facilities and operations” which would include heliports, auxiliary fields, ranges, testing facilities, and military training routes that are essential to the military mission in Arizona and are critical operating components for military operations conducted by and armed force of the United States. The Task Force further recommends that local jurisdictions and military installations work together, via the public hearing process, to develop compatible land use planning procedures and vicinity box definitions to allow protection for these military facilities and operating areas (see recommendations 13, 14, 15, 16, 22, and 23).

The Task Force recognizes that airspace provides a vital and indispensable resource that links Arizona’s military facilities. The majority of Arizona’s military installations are aviation oriented, and availability of airspace is a crucial component of military aviation training. The Task Force also recognizes that the needs of civil aviation are growing and that reliable aviation is a critical element of Arizona’s transportation system and the vitality of the State economy. It is thus imperative that the State undertake an accurate and comprehensive assessment of its airspace capacity and utilization and develop plans to address the future demands and needs of both the civilian and military aviation community (see recommendation 11).

The Task Force recognizes the necessity of providing for future mission flexibility while also providing a greater degree of certainty for residents and property owners concerning the areas affected by military operations. Revisions to State statutes are recommended to more precisely define land areas affected by military operations and to allow future operational changes and missions to be considered in the definition of high-noise zones (see recommendations 17 and 18).

The Task Force recognizes the need to incorporate military facilities into the Growing Smarter planning review process. The current procedure for determination of compliance with the State’s statutes on compatibility requires post-action reporting. The obvious disadvantage to that procedure is that the Attorney General’s office is not aware of any violation until after it has taken place. This could result in the creation of vested rights when pre-action could have prevented that creation. The Task Force recommends that any planning or zoning decisions within the noise contours or the accident potential zones (APZs) should require a letter of compliance from the State before they may be approved by the local jurisdiction. This proactive function should be placed with the Department of Commerce with the Attorney General’s acting as its legal counsel (see recommendations 19, 20, and 21).

The Task Force recognizes actions have to be taken at the local level to support the long-term retention and sustainability of military facilities and that the State needs to provide tools to accomplish this. Innovative approaches that cities, counties, and towns should consider include working with active military airports to establish maximum mission contours and expanded approach/departure corridors that ensure compatible land use and maintain essential quality of life for local residents; utilizing



the Graduated Development Concept to graduate densities away from the high-noise contours and APZs; encouraging the purchase or transfer of development rights by creating incentives for developers to reduce intensity and density in areas that are significant to base missions while increasing density in other areas; purchasing agricultural lands around military facilities that are most affected by safety and noise considerations and leasing them back to farmers for agricultural use; and creating a consistent mechanism for military base outreach pertaining to environmental and growth issues. These and other approaches identified in this report constitute a strategic toolbox that will help communities balance their needs with the mission requirements of their military neighbors. The Task Force also recognizes the value of partnerships within local jurisdictions to address military preservation issues at the local level and the necessity of expanded county planning and zoning authority to better manage growth and development in areas impacted by military facilities and operations (see recommendations 7, 9, and 24).

The Task Force recognizes the need for an enhanced notification process in which land purchasers know beforehand that the properties they wish to acquire are within the vicinity of a military airport, facility, or operating area. The Task Force recommends that deeds of ownership include disclosure statements pertaining to military overflights (see recommendations 8 and 25).

Finally, the Task Force recognizes the need for federal actions to promote the retention and long-term sustainability of Arizona's military facilities. The Task Force supports a recommendation to the Arizona Congressional delegation that enabling and funding legislation be drafted and enacted within the 108th Congress that would direct the Bureau of Land Management (BLM) move forward in a timely and expeditious manner with the acquisition of nonfederal lands through an exchange process, on a willing seller basis, which would protect and enhance operations at military installations within the State of Arizona. The mechanism developed for exchanges could help the State and federal government deal with land areas impacted by military airports, military facilities and military operating areas in the 49 other states as well as Arizona. The Task Force also supports a request that the Arizona Congressional delegation continue to seek federal appropriations for the purchase and/or lease of development rights or acquisition of property from willing landowners located within the existing 65 Ldn noise contours and APZs of Arizona's military airports, military facilities, and operating areas. Arizona is uniquely positioned to satisfy the majority of the needs of the Department of Defense for many years to come with our unique network of capabilities, training resources, research, development, test, and evaluation activities. It is in the best interests of the Department of Defense to ensure the long-term retention of Arizona's military installations to fulfill its National Defense mission, especially in aviation (see recommendations 26 and 27).

These recommendations are intended to create a framework for a partnership among agencies, organizations, and stakeholders at the local, State, and federal levels, with the common goal of preserving the unique and irreplaceable assets of Arizona's network of military facilities and ensuring their long-term sustainability as keystones in the nation's defense and a cornerstone of the State's economy.



CHAPTER 1: THE TASK FORCE AND ITS MISSION

The Governor's Military Facilities Task Force (the Task Force) was created by Executive Order 2003-18, signed by Governor Janet Napolitano on May 27, 2003. The Task Force is charged with developing strategies to ensure the long-term retention of the State's premier military facilities so that they may continue to perform their vital national defense functions and maintain their critical role in the State economy.

In carrying out this mission, the Task Force has the following responsibilities, as stated in the in Governor's Executive Order:

- Advising the Governor on matters affecting the operational viability of military facilities in Arizona, including:
 - Understanding the mission of each military facility, its contribution to the national defense, and the requirements for performing its mission
 - Identifying obstacles to the mission of each military facility with regard to the criteria used by their respective military service
 - Examining State laws, local ordinances, and other State or local requirements that adversely impact the missions of the military facilities
 - Evaluating locally developed proposals intended to mitigate the impact of military facilities on the surrounding area, as well as proposals intended to mitigate the impact of non-military activities on the missions of the military facilities
 - Studying and reaffirming the economic contributions of military facilities to the State of Arizona
- Providing the Governor with information and recommendations that will help ensure the long-term viability of military installations and resources, including:
 - Identifying tools available and agencies responsible for maintaining the long-term viability of military installations and resources
 - Recommending changes to State laws, local ordinances, and other State or local requirements that adversely impact the continued operation of military facilities within the State
 - Recommending actions to be taken by the State at the federal level in support of military facilities within the State
 - Identifying federal, State, and local monies as appropriate to ensure proper functioning and continued operation of military facilities within the State



In a series of seven public meetings between June and November 2003, the Task Force reviewed data on the State's military facilities and their missions; evaluated obstacles and constraints to carrying out those missions; collected input from interested public officials, organizations, and individuals concerning the sustainability of the military facilities and their missions; examined available tools to protect and strengthen the military facilities' long-term viability and sustainability; and prepared recommendations to further protect and strengthen the military facilities. The Task Force defined two advisory groups to provide input to the process:

- the installation commanders
- the elected officials of constituencies surrounding their installations

This document presents the recommendations of the Task Force in Chapter 5. It also provides background for the recommendations in the following chapters:

- Chapter 2: An overview of the State's military facilities, including summary descriptions of the facilities and their capabilities; their economic contribution to the State; and their relation to the nation's evolving defense posture.
- Chapter 3: A discussion of key elements that are critical to carrying out the facilities' missions and ensuring their long-term viability, along with a discussion of those Statewide elements that allow the network of installations and facilities in the State to serve a much broader role in the national defense.
- Chapter 4: A description of the tools currently available to address the sustainability of the State's military facilities.



CHAPTER 2: ARIZONA'S MILITARY FACILITIES

Arizona's military facilities are located on over a dozen separate sites that range in size from less than 100 acres to over two million acres. These sites, as shown on Figure 2-1, include:

- Marine Corps Air Station (MCAS) Yuma
- U. S. Army Yuma Proving Ground
- Fort Huachuca (including Libby Army Airfield)
- Davis-Monthan Air Force Base
- Luke Air Force Base (including Luke Auxiliary Field #1)
- Barry M. Goldwater Range (including Gila Bend Air Force Auxiliary Field)
- Arizona Air National Guard, Phoenix Sky Harbor International Airport
- Arizona Air National Guard, Tucson International Airport
- Silverbell Army Heliport
- Florence Military Reservation (Arizona Army National Guard)
- Camp Navajo (Arizona Army National Guard)
- Papago Park Military Reservation (Arizona Army National Guard)
- Air Force Research Laboratory, Mesa Research Site (Williams Gateway)
- United States Naval Observatory, Flagstaff Station

In addition to these sites, there are extensive areas of airspace in the State that are used in conjunction with the State's military facilities. This airspace includes Military Operating Areas (MOAs) that are dedicated to military use, and over 5,000 miles of designated Military Training Routes (MTRs) that crisscross the State and are used for high-speed, low-level training. These sites and areas of airspace constitute a network of interrelated facilities that are essential to the nation's defense.

This chapter presents an overview of the baseline conditions of the State's military facilities, including summary descriptions of the facilities and their capabilities; their economic contribution to the State; and their relation to the nation's evolving defense posture. This overview provides a perspective for subsequent chapters, which identify key mission elements, challenges, and opportunities for preserving and expanding the missions, and available tools to address the challenges and take advantage of the opportunities.

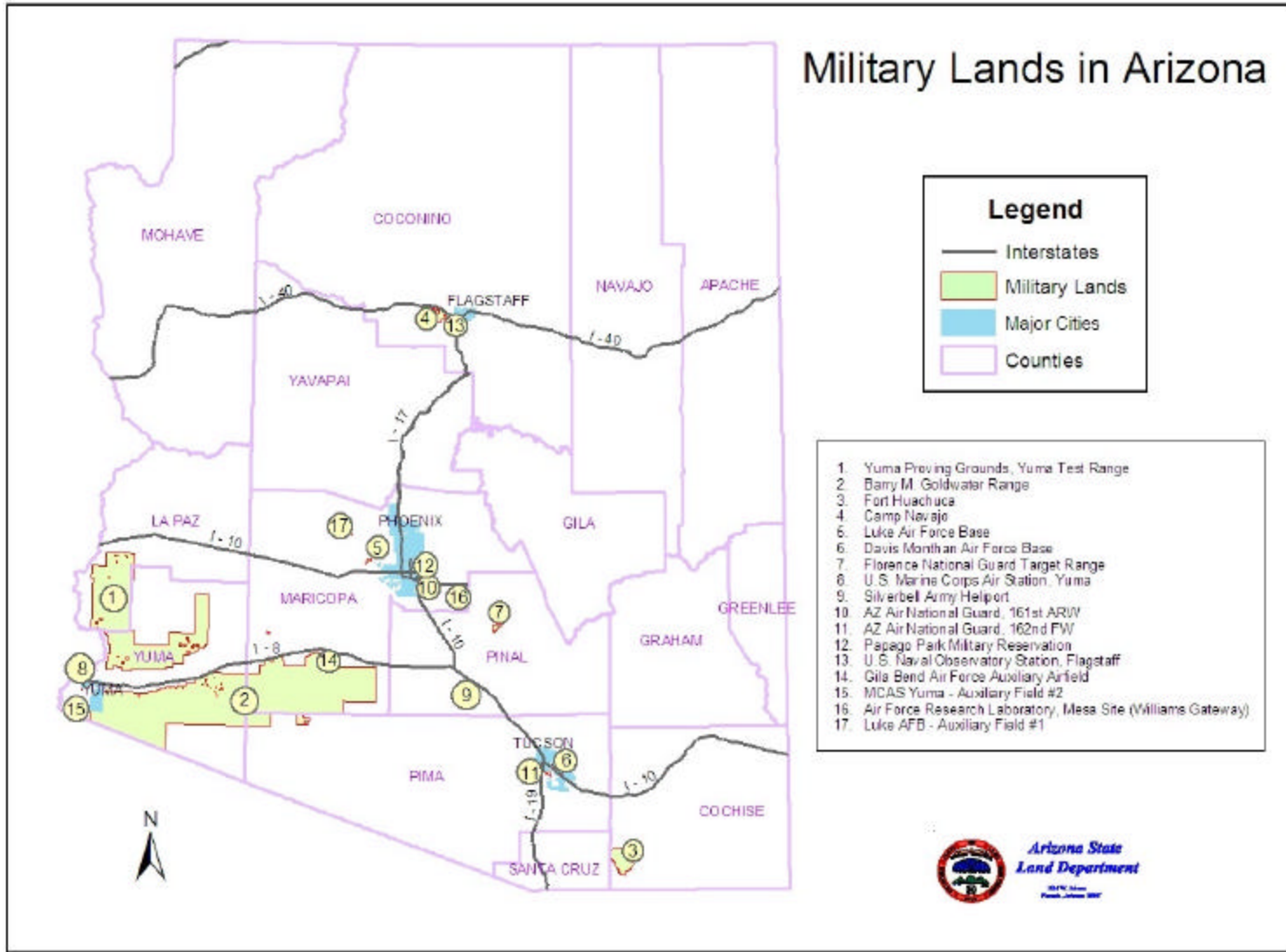


FIGURE 2-1



2.1 ARIZONA'S MILITARY FACILITIES

2.1.1 Marine Corps Air Station Yuma

Marine Corps Air Station (MCAS) Yuma is one of the United States Marine Corps' (USMC) premier aviation training bases. With access to 2.8 million acres of bombing and aviation training ranges and superb flying weather, MCAS Yuma supports 80 percent of the Corps' air-to-ground aviation training. Each year, the air station hosts numerous units and aircraft from U.S. and North Atlantic Treaty Organization (NATO) forces.

Located adjacent to the City of Yuma, MCAS Yuma covers 4,600 acres and has 4,663 active-duty military personnel and 1,067 civilian personnel. The mission of MCAS Yuma is to support aerial weapons training for the Atlantic and Pacific Fleet Marine Forces and Navy. The base is only three miles from the western border of the Barry M. Goldwater Range (BMGR), and units training at the base also have access to the Yuma Training Range Complex, including the Chocolate Mountain Aerial Gunnery Range in California, and five Military Operating Areas.

The base's clear weather conditions are ideal for year-round training, with Visual Flight Rules (VFR) applying over 99 percent of the time. MCAS Yuma is the busiest air station in the Marine Corps and the third busiest in the Naval service. In addition to Marine Corps aviation training, the base conducts joint training with other services, as well as training for allied units (including Dutch, Belgian, German, and British units). MCAS Yuma also serves as the scheduling authority for the Yuma Training Range Complex, which includes over 10,000 square miles of restricted special-use airspace designated for military training.

Units based at MCAS Yuma include Marine Aircraft Group 13 (MAG 13), which consists of four squadrons of AV-8B "Harrier" aircraft; Marine Aviation Weapons and Tactics Squadron 1 (MAWTS-1), which coordinates and supervises academic and flight courses for all Marine Corps Tactical units; and VMFT-401, which is a Marine Corps Reserve unit, is the only aggressor-training squadron in the Corps, employing current threat tactics against operational pilots to improve their air-to-air combat readiness. Marine Aviation Logistics Squadron 13 provides MAG 13 with intermediate-level maintenance and supply support. Semiannually, MAWTS-1 conducts the Weapons and Tactics Instructor (WTI), a post-graduate course for highly experienced officers from the Marine Corps, Navy, Air Force, and Army.

Other units assigned to MCAS Yuma are the Marine Air Control Squadron (ACS) 1, which provides control for anti-aircraft warfare; Marine Wing Support Squadron-371, which provides aviation ground support; and Combat Service Support Detachment-16, which provides combat support to aircraft and ground units. The Corona Division, Naval Surface Warfare Center supports the Western Tactical Air Combat Training System/Electronic Warfare System (TACTS/EWS) located in the western portion of the BMGR.



MCAS Yuma is a joint military/civilian-use airfield. The Yuma County Airport Authority (YCAA) is responsible for a commercial operation at MCAS Yuma that serves general aviation and scheduled commercial airlines. Under the operating agreement between MCAS Yuma and YCAA, civilian aircraft use the base's runways and taxiways but have their own terminal and maintenance facilities.

2.1.2 U. S. Army Yuma Proving Ground

Occupying over 800,000 acres north of the City of Yuma, U.S. Army Yuma Proving Ground is a unique facility with over 50 years experience testing weapon systems of all types and sizes in a joint environment. The proving ground conducts tests on medium and long range artillery; aircraft target acquisition equipment and armament; armored and wheeled vehicles; a variety of munitions; and personnel and supply parachute systems. Testing programs are conducted for all United States military services, as well as allied countries and private industry. Yuma Proving Ground operates as joint testing environment for the Army and Marine Corps, and the Yuma Proving Ground has a command structure in which the Commander is from the Army, while the Deputy Commander is from the Marine Corps.

Yuma Proving Ground has 26 active -duty military personnel, 643 civilian Department of Defense employees, and 820 contractor personnel. It is a designated Department of Defense Major Range and Test Facility Base (MRTFB), and it provides unique testing capabilities in multiple mission areas:

- Prototype combat vehicle and field artillery testing
- Testing of all types of military hardware, from tents to tanks
- Testing of new and improved types of conventional munitions
- Testing of developmental Army aircraft and aircraft weapon systems
- Joint testing with the Air Force and Navy of position location systems
- Joint Army and Air Force testing of personnel and cargo airdrop systems
- Vibration-free, interference-free tests of smart weapon systems at the Smart Weapons Test Complex

Yuma Proving Ground is the Army's center for desert natural environment testing and is responsible for managing testing at three locations: Yuma Test Center at Yuma Proving Ground; the Cold Regions Test Center, Alaska; and the Tropic Regions Test Center, which is headquartered at Yuma Proving Ground and operates in Hawaii and other tropic areas. The Yuma Test Center is a multi-purpose test facility able to test nearly every weapon system in the ground combat arsenal. More than 1,300 miles in size, the test center is one of the few places where military munitions and hardware can be tested in an area almost completely removed from urban encroachment and noise concerns, and without electromagnetic interference. As a test and evaluation facility it can bring together a wide range of ground combat systems at a location with



the size and isolation to allow realistic, unconstrained use and interoperability of systems.

Yuma Proving Ground provides the entire infrastructure for fully and realistically testing all weapon systems in the ground combat arena, and has facilities for a wide variety of testing requirements – artillery, aviation, armor, tactical vehicle, and air delivery – providing a combined arms synergy for military testers that is efficient and cost effective.

- The KOFA Artillery Complex is an integrated facility for open air testing for tanks, artillery, mortars, mines, and small missiles. The size and diversity of the range complex provide the capability to conduct many tests simultaneously without compromising safety. The KOFA overland artillery range extends 55 miles, making it the longest such range in the nation. Tests are conducted from three separate drop zones and a water-impact zone for dynamic testing from aircraft.
- For aviation, including testing of the Army's combat helicopters and their mission equipment packages, the Cibola Range incorporates 840 square miles of controlled unrestricted airspace over highly challenging terrain and allows helicopters a 360 degree field of fire.
- A state-of-the-art cargo preparation complex offers the most infrastructure within the Department of Defense, specifically geared toward the support of air delivery missions, and the Proving Ground's facilities can serve all airdrop testing requirements from personal parachutes to heavy-drop equipment.
- More than 200 miles of improved road courses provide grueling testing of tracked and wheeled military vehicles, focused on testing in desert terrain and environment, as well as evaluating primary weapon systems performance, including the sighting and target acquisition programs, primarily at Yuma Proving Ground's Red Bluff Direct Fire Range.
- The proving ground's Mine, Countermine, and Demolitions complex is the only facility of its kind in the U. S. and is the western world's most advanced mine test facility. Operating under carefully controlled conditions by mine experts, the complex offers fully instrumented, remote controlled cells in which mines may be detonated to test fusing and self-destruct mechanisms. The adjacent minefield adjacent to the site allows mines and countermine equipment to be monitored by remote video cameras during testing.
- The Aircraft Armament Range is a fully instrumented air-to-ground aircraft armament test range with electronic and optical instrumentation, including six precision aircraft tracking systems, tracking radar's, and video scoring.
- Yuma Test Center's instrumentation is state-of-the-art, with a fiber-optic backbone, and able to acquire, reduce, and transmit a nearly unlimited amount of test data. High-speed telemetry systems placed on such diverse combat systems as projectiles and helicopters, when coupled with the Center's real time system, allow for complete control and monitoring of ongoing testing.



Yuma Proving Ground conducts testing for other services, as well as for international customers (including the U.K., Germany, and Japan), and performs joint testing — most recently with the Marine Corps for the XM777 lightweight 155-mm howitzer. Yuma Proving Ground is the lead test facility for the howitzer, which will be the only towed howitzer for the USMC. The Light Armored Vehicle Test Directorate is a Marine Corps detachment that is attached to Yuma Proving Ground to conduct tests on light armored vehicles.

In addition to its testing capabilities, Yuma Proving Ground provides unique capabilities for joint training exercises in a realistic desert environment, and joint training activities have expanded from four units trained in 1989 to over 50 units in 2003. The Military Free Fall School at Yuma Proving Ground has 70 instructors who annually train over 1000 students from all of the services.

Laguna Army Airfield, which is used for both testing and training operations, has two runways, a 6,000 foot east-west runway, and a 6,050-foot-long north-south runway, and can accommodate all currently operating military cargo aircraft, including the C-5, C-117, and C-130. The airfield will support airfield seizure scenarios and a variety of Pick-up/Landing Zone (PZ/LZ) operations including equipment sling-loading. In addition, Yuma Proving Ground has control over 170,000 additional acres of adjacent restricted airspace for military operations.

The Forward Operations Base, (FOB) Yuma is a cantonment facility that is used extensively by Special Forces Groups as a base of operations and is ideal for large unit train-ups in preparation for National Training Center (NTC) rotations. The installation has several locations where water-based operations may be conducted. These locations can support nearly any size or type of operation.

2.1.3 Fort Huachuca (including Libby Army Airfield)

Occupying 73,272 acres in Cochise County and within the City of Sierra Vista, Fort Huachuca is the largest and primary Army Installation in Arizona, supporting Army Reserve and Arizona Army National Guard, as well as a number of other military activities throughout the State and is home to 6,724 active-duty military personnel, an average of 1,000 students at any given time, and 5,581 civilian employees.

Fort Huachuca is the home of the U.S. Army Intelligence Center which is the originator of the Army's military intelligence structure, the source of all its trained manpower, and the developer and tester of its systems and equipment. The Center is the focal point of the Army's effort to meet its present and future intelligence collection and processing requirements. The U.S. Army Intelligence Center's mission is to lead, train, equip, and support the Army's Military Intelligence professionals. Within the Center, the 111th Military Intelligence Brigade conducts technical/tactical training and operates the Leader Training Center. Also part of the Center is the Noncommissioned Officer (NCO) Academy, which operates the Noncommissioned Officer Education Course and the Futures Development Integration Center, whose mission is to develop the Army's Military Intelligence vision and be the Army's integrator for intelligence.



In addition to the U.S. Army Intelligence Center, there is a synergy between unique high-tech Department of Defense organizations that reside on Fort Huachuca, including:

- The United States Army Network Enterprise Technology Command/9th Army Signal Command (NETCOM/9th ASC);
- The U.S. Army Information Systems Engineering Command (ISEC);
- The Joint Interoperability Test Command (JITC);
- The Electronic Proving Ground (EPG) The Intelligence and Electronic Warfare Testing Directorate (IEWTD) of the Operational Test Command (OTC);
- The Department of Defense Unmanned Aerial Vehicle (UAV) Test Center;
- The U.S. Army Communications-Electronics Command Communications Security Logistics Activity (USACCSLA); and
- The Defense Coordination Office-Huachuca.

These units are located at Fort Huachuca to take advantage of its remote location, vast area, and electromagnetic interference-free environment for testing ground and airborne electronics. The units also use Libby Army Airfield at the Fort as part of training and testing missions related to airborne electronics.

- The United States Army Network Enterprise Technology Command/9th Army Signal Command (NETCOM/9th ASC) is the Army's single authority for information management. It provides information services vital to the defense of the United States worldwide, and from its headquarters at Fort Huachuca directs the activities of some 12,000 soldiers and civilians at 104 locations in more than a dozen nations around the world. NETCOM/9th ASC is the major Army command responsible for worldwide information services and Command & Control, Communications, Computers, and Intelligence (C4I), delivering seamless enterprise-level Command, Control, Communications, Computers and Information Technology common-user services and warfighting forces in support of the Army, its service component commanders and combatant commanders. NETCOM/9th ASC:
 - Operates, manages and defends the Army's portion of the Global Information Grid
 - Shapes, sustains and maintains the Army's communications systems
 - Exercises technical control to centralize, standardize and consolidate Army network management
 - Monitors, detects, defends against and responds to network attacks

Powerful NETCOM/9th ASC information networks pipe an ever-increasing amount of voice and data messages throughout the world keeping information flowing and allowing soldiers and their leaders to make the split second



decisions required on the modern battlefield. Because it is an integrated network operated by one organization and managed from one place by the same organization, it is virtually seamless and very responsive to the needs of the users. NETCOM/9th ASC soldiers and organizations deploy when and where needed to aid warfighters in the successful completion of their missions by providing the required communications seamlessly in the least time possible.

Within NETCOM/9th ASC, the 11th Signal Brigade, headquartered at Fort Huachuca, is the Army's force projection signal brigade. Its mission is providing contingency command, control, and communications and it has the capability to install, operate, and maintain a tactical communications network supporting either joint or Army organizations, establish command center communications nodes, area signal centers, and small extension nodes. It provides installation, construction, and test teams on a worldwide basis during peacetime, war, and operations other than war, and in response to emergency requirements to restore or expand information systems facilities. In addition, the brigade provides on-site training in the operation and maintenance of new or modified non-tactical information systems and limited commercial off-the-shelf communications equipment and systems at worldwide locations.

- The U.S. Army Information Systems Engineering Command (ISEC), also headquartered at Fort Huachuca has the primary mission of system engineering and integration of information systems for the U.S. Army including design, engineering, installing, quality assurance testing, and developing software for the diverse communications and automation systems throughout the Army. The ISEC, as headquarters of a worldwide command, has field commands, engineering offices, and software development centers located around the continental United States. ISEC engineers and directs the installation of specialized electronic systems throughout the world. These range from the exotic, such as satellite earth terminal installations (for all military services), to the commonplace, such as television and radio broadcasting stations. ISEC plans and executes the test programs associated with all hardware and software systems scheduled for deployment in the Information Mission Area (IMA), including supercomputers, facsimile, satellite voice and data transmissions and Standard Army Management Information Systems. They perform periodic technical evaluations of systems that are operated and maintained by elements of the Command.
- In addition to ISEC Headquarters, Fort Huachuca is the home to Software Development Center-Huachuca and the U.S. Army 504th Signal Battalion. The Software Development Center-Huachuca (SDC-H), one of several software development centers within the ISEC, is the principal Army developer of automated telecommunications software and special communications support systems, and supports approximately 800 Army, Air Force, and Navy telecommunications sites around the world. The 504th Signal Battalion installs communications-electronics and automation systems worldwide. This global mission encompasses a variety of communications media, which include line-of-sight microwave, satellite earth stations, fiber-optic cable systems, and



telephone exchange equipment. The battalion also installs a variety of data and automation systems and equipment.

- The Joint Interoperability Test Command (JITC) is a field command of the Defensive Information Systems Agency (DISA). JITC functions as the Department of Defense /DISA operational and technical tester for interoperability, which is the ability for the equipment used by the various services to communicate with each other, as well as other assigned testing tasks. JITC was designated a member of the Department of Defense's Major range and Test Facility Base to provide information systems test and evaluation services to all Department of Defense, other federal agencies, State and local governments, and private industry. The primary mission of JITC is to support the warfighters in their efforts to push/pull information to and from the battlefield in the goal of C4I interoperability. JITC works in-theater to provide operation support for C4I interoperability deficiencies as well as 24-hour, on-demand support to the warfighters for urgent field problems, and is responsible for end-to-end interoperability certification of joint C4I systems. This certification program provides assurance to the war fighters that JITC-certified systems will operate as intended. In addition, JITC provides independent operational evaluation/assessment of C4I systems managed and acquired by DISA. The JITC facilities at Fort Huachuca are located along Brainard Road near Libby Army Airfield. The two main buildings are interconnected with several smaller test nodes via underground cable and form an integrated C4I test complex. In addition to being able to provide on-site testing, JITC can provide testing through a distributed network – an extensive network of military, commercial, and allied test facilities. JITC is made up of military personnel from all four services as well as civilians, and the unique mix of government personnel, supported by contractors, allows JITC the flexibility to meet growing interoperability demands.
- The Electronic Proving Ground (EPG) is the Army's C4I Developmental Tester, and is a test center of the U.S. Army Developmental Test Command, which in turn is part of the U.S. Army Test and Evaluation Command. The mission of EPG is to plan, conduct, and analyze the results of Technical Tests for C4I systems, Signal Intelligence, and Electronic Combat (EC)/Electronic Warfare (EW) equipment. In addition to conducting developmental tests, EPG supports the Army operational test community in the conduct of operational tests, user tests, and experiments, and also supports customers in the joint and training communities. EPG provides quality services to developers through the acquisition development cycle. Early in the acquisition development cycle, EPG, through the use of modeling and simulation can address questions concerning frequency assignment, potential electromagnetic compatibility, and the effects of electronic warfare while the equipment is in the early design stage. Later in the development cycle, extensive measurement capabilities are available to satisfy the developer's data collection needs. EPG conducts bench tests, lab tests, field tests, and tests of large-scale, geographically distributed systems employing a mix of live and simulated instrumentation and assets.



- The Electromagnetic Environmental Test Facility makes extensive use of modeling and simulation for determining electromagnetic effects on test items. It includes the Virtual Battlefield Environment facility, a hardware-in-the-loop simulator that provides scenario-driven communications and radar environments.
- The Instrumented Test Range provides time-space-position information and target signals for open-air testing. An extensive network of precision tracking instrumentation and surveillance radars measure data on airborne and ground-based vehicles. The Instrumented Test Range can collect both airborne and ground telemetry from systems as far west as the Yuma Proving Grounds.
- The Antenna Test Facility provides large scale testing of antennas mounted on platforms, and can determine radiation patterns in the high-frequency to microwave frequencies.
- The Environmental Test Facility can perform a full range of static and dynamic environmental testing on components and systems, particularly electromagnetic compatibility and interference testing, the need for which is becoming more prevalent with the increased number of electronic systems on the battlefield.
- The Electromagnetic Interference/Electromagnetic Compatibility/TEMPEST Test Facility offers testing both at its Fort Huachuca chambers and in the field with portable test equipment.
- The Aviation Detachment has fixed and rotary wing aircraft and pilots to test avionics and airborne electronic warfare equipment, operating from Libby Army Airfield. The detachment's aircraft can also be used as Unmanned Aerial Vehicle surrogates for payload testing and can perform airborne jamming missions.

EPG's area of operation includes more than 9,000 square miles of public and private lands in and around the Fort Huachuca military reservation. Operations are routinely possible on 70,000 acres at Ft. Huachuca, 23,000 acres on Wilcox Dry Lake, more than 100,000 acres at Gila Bend, and with prior coordination, on approximately 62 million acres of federal and State owned land.

- The Intelligence and Electronic Warfare Testing Directorate (IEWTD) of the Operational Test Command (OTC) is responsible for operational testing of new and unique intelligence and electronic warfare equipment and systems being developed and procured for the Army, offering services from user test concept through execution and the test report on tactical intelligence, reconnaissance and electronic attack systems. The testing at Fort Huachuca takes advantage of the excellent environment for field testing radio frequency-based systems, including manned and unmanned aerial reconnaissance vehicles. The electromagnetic environment, with minimal public restrictions on the frequency spectrum, permits almost unrestricted frequency utilization and jamming. As



the operational tester of new and unique intelligence and electronic warfare equipment and systems being developed or procured for use by the Army, IEWTD plays an important part in the material acquisition and fielding process for the Army and Joint Services. In addition, the IEWTD is involved in operationally testing new organizational and doctrinal concepts developed at the Army Intelligence Center at Fort Huachuca. Although most testing conducted by the IEWTD is performed at Fort Huachuca to take advantage of existing range facilities, ideal climatic conditions and the available electromagnetic environment, IEWTD is also frequently called upon to conduct or participate in tests throughout the United States and overseas.

- The Department of Defense Unmanned Aerial Vehicle (UAV) Test Center is the U.S. Army's test and training center for sophisticated UAV systems that are on the cutting edge of aerial surveillance technology. The 304th Military Intelligence (MI) Battalion operates the UAV Test Center and trains soldiers and marines in UAV operations and maintenance. Equipped with the Pioneer and Hunter UAVs, the battalion provides significant support to UAV doctrine development and system testing. The 304th MI Battalion also operates Libby Army Air Field where its instructors train all special electronic mission aircraft (SEMA) crews in intelligence and electronic warfare (IEW) operations. Instructor pilots train student pilots in the unique flight and survivability characteristics of SEMA aircraft. The UAVs are flown from Libby as well as from two UAV runways located approximately four miles west of Libby. These vehicles share the traffic pattern and airspace with military and civilian aircraft.
- Libby Army Airfield is unique to the Army because it is used jointly by military and civilian activities. In addition to UAV operations, Libby Army Airfield is used by the Arizona Air National Guard for F-16 training and for training of A-10 pilots from Davis-Monthan Air Force Base. It is also a joint-use airfield, with the runways, taxiways, navigational aids, and air-traffic control shared by military and civilian operations. Civilian operations are concentrated on the northern side of the airfield, accessible from the City of Sierra Vista, while military operations are concentrated on the southern side. The 12,000-foot runway will accommodate any military or civilian aircraft, and Fort Huachuca also has control of over 700 square miles of restricted airspace from the surface to 30,000 feet.
- The U.S. Army Communications-Electronics Command Communications Security Logistics Activity (USACCSLA) is the Army Wholesale Inventory Manager of Communications Security (COMSEC) Material and is responsible for the acquisition, distribution, and logistics support to all field users of COMSEC equipment, cryptographic key and other software. USACCSLA is unique in its dual methods of operation. The Army's Standard Logistics System is only used for unclassified COMSEC material, while classified communications security equipment managed as part of the National COMSEC Material Control System. USACCSLA operates a National Inventory Control Point and National Maintenance Point and is the central Automated Data Processing software system design activity for the Army COMSEC Commodity Logistical, Accounting and Information Management system. Virtually all active Army units, as well as



the Arizona Army National Guard and U.S. Army Reserve are USACCSLA customers.

- The Defense Coordination Office-Huachuca, a subordinate element of the Defense Information Systems Agency, is the principal organization responsible for provisioning Army long-haul telecommunications requirements worldwide. The office has responsibility for approximately 16,000 long-haul leased telecommunications circuits, including dedicated point-to-point, special purpose, Defense Systems Network, and Defense Information Systems Network. Maintaining and servicing these accounts requires extensive knowledge of the latest state-of-the-art telecommunications services and equipment, e.g., modems, multiplexors, transmission systems, transport systems, computer systems, etc.

2.1.4 Davis-Monthan Air Force Base

Davis-Monthan Air Force Base is a key Air Combat Command (ACC) installation occupying 10,600 acres in the City of Tucson, approximately 10 miles southeast of downtown. Davis-Monthan Air Force Base is home to 6,500 active-duty military personnel, an average of 100 students at any given time, and 1,200 civilian employees. The Air Force 355th Wing is the Davis-Monthan Air Force Base host unit and provides medical, logistical, and operational support to all Davis-Monthan Air Force Base units. The mission of the 355th Wing is to train A-10 and OA-10 pilots and provide A-10 and OA-10 close support and forward air control to ground forces worldwide. All A-10 and OA-10 pilots as well as all EC-130H pilots are trained at Davis-Monthan Air Force Base.

Utilizing EC-130H aircraft, the 55th Electronic Combat Group (ECG) provides command, control, and communications countermeasures in support of tactical forces. The unit's combat mission is to support tactical air and ground and naval operations by confusing the enemy's defenses and disrupting its command and control capabilities. Members of the 55th ECG conduct EC-130H aircrew initial qualification and difference training for 20 crew specialties and support operational and force development testing and evaluation for new aircraft systems. The 55th ECG operates EC-130H aircraft, a specially configured version of the Air Force's proven G-130 transport. To execute its unique operations, the aircraft were modified with electronic countermeasures systems, specialized jamming equipment, and aerial refueling capability, as well as upgraded engines and avionics.

As the ACC executive agent for the Intermediate Range Nuclear Forces and Strategic Arms Reduction Treaty compliance, the 355th Wing has a national and international role in the arms reduction arena. With six flying squadrons, and one geographically separated unit, the 355th Wing is one of the largest wings in the Air Force.

Other units located at Davis-Monthan Air Force Base include:

- The 12th Air Force, headquartered at Davis-Monthan Air Force Base, is charged with commanding, administering, and supervising tactical air forces west of the



Mississippi River and in the Southern Command. As one of the ACC numbered air forces, the 12th Air Force operates combat-ready forces and equipment for air superiority, interdiction, and close air support. The 12th Air Force directs seven combat wings, five direct-reporting units in the Midwestern and Western U.S., and numerous Air Force Reserve and Air National Guard units. The fighter and bomber wings possess 430 aircraft and more than 33,000 active-duty military and civilian people. The 12th Air Force is the air component of the U.S. Southern Command, which is a joint-service command with Army, Navy, Air Force, and Marine Corps components. The 12th Air Force also has Task Force Battle Management responsibility for the U.S. Strategic Command, which is a unified command under the Department of Defense and is the overall command and control center for U.S. strategic forces.

Another responsibility of 12th Air Force is to maintain a worldwide deployable Air Operations Center (AOC), which provides a conflict's Joint Forces Air Component commander the ability to design and execute an air campaign. Members of the AOC (500-1,500 people, depending on the size of the conflict) build and execute daily Air Tasking Orders and Airspace Control Orders, coordinate all logistics and service support to deployed air forces, establish and maintain essential communications links with air forces, and provide continuous intelligence and threat assessment to commanders.

- The Aerospace Maintenance and Regeneration Center (AMARC) is a unique facility for the storage of excess Department of Defense and Coast Guard aircraft and has more than 5,000 aircraft stored on 2,600 acres at Davis-Monthan Air Force Base. An Air Force Materiel Command (AFMC) unit, AMARC annually in-processes about 400 aircraft for storage and out-processes about the same number for return to active service, either as remotely controlled drones or for sale to friendly foreign governments. Almost 70 different types of aircraft are currently stored at AMARC (including 4,500 viable aircraft), ranging from U.S. Army and Navy helicopters to the Air Force's Vietnam War-era F-4s with a total acquisition value of almost \$27 billion. With approximately 600 employees, AMARC maintains the specialized skills and knowledge necessary to work on 70 different types of aircraft. The Center stores more than 267,000 line items of production tooling for aircraft manufacturing, which saves taxpayers millions of dollars in commercial facility storage costs. AMARC is the elimination site for heavy bombers under the terms of the Strategic Arms Reduction Treaty.
- The 305th Rescue Squadron (RQS), an Air Force Reserve unit, flies HH-60G "Pavehawk" helicopters that can transport up to 14 passengers or 8,000 pounds of cargo. The mission of the 305th RQS is to provide a day and night combat rescue capability of downed aircrew in hostile territory. Enemy threats are countered through the use of advanced tactics including terrain masking, night vision devices, in-flight refueling, and pinpoint navigation. The 305 RQS trains personnel to perform day and night combat rescue missions; search for, locate and recover United States Air Force and other Department of Defense personnel involved with United States defense activities; provide search and rescue support of civilians as directed by the Air Force Rescue Coordination Center;



and provide humanitarian and disaster relief operations at the request of foreign governments and the International Civil Aviation Organization.

- Detachment 1 of the 120th Fighter Interceptor Group, a Montana Air National Guard unit, flies the F-16, and each week two F-16s rotate to Davis-Monthan Air Force Base from their home base in Great Falls, Montana. These aircraft can scramble in less than five minutes to identify, intercept, and, if necessary, destroy any airborne threat to U.S. security.
- “Operation Snowbird” is a National Guard Bureau program established in 1975 as a winter deployment site for northern tier ANG flying bases. The program is located at Davis-Monthan Air Force Base and supported through the 162nd Fighter Wing, Arizona Air National Guard, which is located nearby at Tucson International Airport. Sixteen squadrons deploy for two weeks of training between October and May each year. Each deployment package consists of 10 to 12 aircraft, 20 to 24 pilots, and 110 to 116 support personnel. Twenty-five people from the 162nd Fighter Wing are assigned as permanent party to assist the units with aircraft support, aerospace ground equipment, vehicles, facilities, billeting, administration, range scheduling and operations requirements. The operation provides overflow aircraft support to Davis-Monthan as well as to the Navy, Marine Corps, and Arizona Army National Guard, at other times of the year as well and therefore is effectively a year-round activity.
- The most recent addition to Davis-Monthan Air Force Base is the Combat Search and Rescue Squadron (CSAR), which operates under the Air Force Special Operation Command (AFSOC). CSAR rapidly deploys combat rescue forces to theater combatant commands. The unit employs HH-60G aircraft and pararescue forces in hostile threat environments during day, night, and marginal weather. When not performing operations in war, CSAR conducts disaster relief, counter-drug operations, and noncombatant or medical evacuation. The squadron provides close air support to assigned pararescue/ground forces.
- Other federal agencies using the base include the Federal Aviation Administration, the U.S. Customs Service Air Service Branch, the U.S. Corps of Engineers, the Federal Law Enforcement Training Center, and a detachment of the Naval Air Systems Command.

The 13,000-foot runway at Davis-Monthan Air Force Base has adequate length and width to accommodate any current or planned aircraft in the Department of Defense inventory. There is more than sufficient ramp space to accommodate the current levels of permanent and temporary aircraft as well as provide growth potential for additional assigned aircraft.

2.1.5 Luke Air Force Base (including Luke Auxiliary Field #1)

Located in the western portion of the metropolitan Phoenix area, within the City of Glendale, Luke Air Force Base occupies approximately 4,200 acres and has 5,500 active-duty military personnel, 1,000 reserve personnel, and 2,200 civilian employees.



Luke Air Force Base is the largest fighter pilot training base in the world and is the main provider of fighter pilots to the ACC. The most diversified training center in the Air Education and Training Command (AETC), Luke Air Force Base provides technical, field, medical, and flight training. All F-16 training for the USAF is consolidated at Luke Air Force Base and all active F-16 pilots were trained at the base. In addition, the base trains pilots from Singapore and Taiwan. Luke Air Force Base conducts more than 10,000 flight operations monthly and trains more than 1,000 pilots annually.

More than 800 mission-ready crew chiefs are trained annually at Luke AFB to launch and maintain F-16s at bases around the world. Approximately 38,000 sorties are flown per year in the F-16, with pilots logging about 50,000 hours.

The 56th Fighter Wing is the Luke Air Force Base host unit and provides medical, logistical, and operational support to all Luke Air Force Base units. With 190 assigned aircraft, the 56th Fighter Wing is the largest fighter wing in the world, and has eight fighter squadrons training all U.S. Air Force F-16 pilots in a variety of courses. The 56th Fighter Wing is responsible for scheduling, managing, and ensuring environmental compliance at the 2.7-million-acre BMGR located 50 miles south of Luke Air Force Base.

Other units located at Luke include:

- The 607th ACS trains surveillance technicians and weapons directors to meet Combat Air Force requirements, supports training and contingency deployments, and provides radar control operations for the 56th Fighter Wing and for the 355th Fighter Wing at Davis-Monthan Air Force Base.
- Detachment 12 of the 372nd Training Squadron provides aircraft maintenance training for the 56th Fighter Wing, the Air National Guard, the USAF Reserve, and Allied Forces.
- Luke Air Force Base is also home to the 944th Fighter Wing, whose dual mission is to train F-16 pilots and provide combat-ready pilots for the Expeditionary Air Force. The 944th Fighter Wing has been a Reserve associate unit to Luke Air Force Base's 56th Fighter Wing since 2000, and has 18 aircraft assigned, and a total of 184 officers and 1,051 enlisted personnel. Reserve instructor pilots train active-duty student pilots for their multi-role mission. The Reserve instructor pilot associate program is a joint Air Force Reserve Command and AETC initiative and is designed to reduce the Air Force's active-duty pilot retention problem, and allows the Air Force to retain experienced fighter pilots who leave active duty but who still want to be a part of the Air Force Reserve. The pilots maintain their combat proficiency primarily during the Unit Training Assemblies on the weekend. They also have an opportunity to deploy with the squadron once or twice a year and train with other combat air force units, and combat training sorties are also occasionally available during the week. The student flying syllabus provides a number of sorties that can be directly related to combat training, and are used to ensure each of our pilots has received the appropriate training to qualify for a "combat mission ready" status.



Other facilities critical to the training mission at Luke Air Force Base are:

- Auxiliary Field #1, which is located about 15 miles northwest of Luke Air Force Base and occupies 400 acres of Department of Defense-owned land and approximately 705 acres of land leased from the State of Arizona. About 12,000 operations per year are conducted at Auxiliary Field #1 for instrument approach training in which pilots use the instrument landing systems at Auxiliary Field #1 to simulate approaches under poor weather conditions. One non-active runway at Auxiliary Field #1 is used for instrument approach runway alignment for Tactical Air Navigation (TACAN) approaches which are non-precision with course guidance, but not glide path guidance; Instrument Landing System (ILS) approaches which are precision approaches with both course and glide path guidance; and Precision Approach Radar (PAR), which also is a precision instrument approach system. Auxiliary Field #1 is one of only a few locations in the U.S. for training with Precision Approach Radar, which is commonly used in overseas locations.
- Luke Air Force Base pilots also use the Low Altitude Navigation and Targeting, Infra-Red, Night (LANTIRN) pattern, currently located two miles south of Auxiliary Field #1, for a confidence check of the Terrain Following Radar (TFR) that F-16s carry prior to carrying out training sorties. The LANTIRN pattern, which must be located close to Luke Air Force Base, is scheduled to be relocated no later than December 2004 due to residential encroachment. The 56th Fighter Wing also conducts practice approaches and landings at the Gila Bend Auxiliary Field.
- The 56th Fighter Wing has scheduling and operational control of Special Use Airspace for the Gladden/Bagdad MOA/Air Traffic Control Assigned Airspace (ATCAA), located 39 miles northwest of Luke Air Force Base; Sells MOA, located west of Tucson and contiguous to BMGR; and Sunny MOA, located northeast of Flagstaff. Special Use Airspace scheduling and operation control also exists for eight low-level Military Training Routes, which start to the east, south, and north of Luke Air Force Base and all terminate at the Barry M. Goldwater Range.
- Luke Air Force Base also uses the Outlaw/Jackal MOA/ATCAA, located approximately 30 miles east of Phoenix, for air-to-air and night training missions. The Outlaw/Jackal MOA/ATCAA is used jointly by Luke Air Force Base and the Arizona Air National Guard and is scheduled by the Air National Guard from Tucson International Airport.

The primary runway at Luke Air Force Base is 10,000 feet long and the parallel runway is 9,900 feet long. The runways, taxiways, and ramp areas are adequate for the base's current mission.



2.1.6 Barry M. Goldwater Range (including Gila Bend Air Force Auxiliary Field)

Barry M. Goldwater Range (BMGR) occupies approximately 2.7-million-acres in Yuma, Pima, and Maricopa Counties and is adjacent to the Sells MOA to the east. BMGR and the Sells MOA are located approximately three miles east of MCAS Yuma, 50 miles southwest of Luke Air Force Base, and 30 miles west of Davis-Monthan Air Force Base. BMGR is operated jointly by the Air Force and Marine Corps, with MCAS Yuma responsible for the western part of BMGR (Range area R2301W) and Luke Air Force Base responsible for the eastern part (Range areas R2301E, R2304, and R2305). BMGR supports the military in Arizona with air-to-air, air-to-ground, and live drop areas, and it is the only low-altitude night-vision training area in Arizona.

Roughly the size of Connecticut, the range's vast acreage allows for simultaneous training activities on nine air-to-ground and two air-to-air ranges. The eastern part of BMGR includes four manned ranges, three tactical ranges, and two air-to-air ranges. Types of training include:

- Basic F-16 and A-10 flight and employment (instrument, air-to-air, air-to-ground, night-vision goggles)
- Large force employment exercises that prepares students for realistic operational missions
- Basic and advanced night systems courses (night-vision goggles, command and control, precision guided bombing)
- Instructor pilot proficiency and advanced upgrade training

The western part of BMGR includes two air-to-ground target complexes, the West Coast Tactical Air Combat Training System (TACTS) Range, an auxiliary airfield, a parachute drop, a cargo recovery zone, and an Air Defense Complex.

Above BMGR are 57,000 cubic miles of airspace where pilots practice air-to-air maneuvers and engage simulated battlefield targets on the ground. More than 50 aircraft can simultaneously operate on the range while performing independent training missions. The range is within the unrefueled flight radius of twelve military installations and the U.S. Pacific Fleet aircraft carriers. Pilots fly over 68,000 sorties in the range annually. However, only about six percent of the range is used for roads, targets, and support areas; the remaining 94 percent is relatively undisturbed, and most of the land is a safety buffer for low-flying fighter aircraft.

In addition to units from MCAS Yuma, Davis-Monthan Air Force Base, and Luke Air Force Base, the 162nd Fighter Wing of the Arizona Air National Guard and units of the Arizona Army National Guard and "Snowbirds" (a National Guard Bureau program located at Davis-Monthan Air Force Base and supported through the 162nd Fighter Wing) use the facilities at BMGR. Joint training exercises are also conducted at BMGR, and units from the Marine Corps, Navy, and Army outside Arizona use the range facilities as well.



The key value of the Goldwater Range is that it is authorized for live-fire training, which is essential to the abilities of aircrews to survive and win in combat. The lethal effectiveness of the modern battlefield is so great that there is no longer a margin for second thoughts or a second chance. Aircrews must have mastered their own weapons systems and tactics prior to the fight to have any chance of winning. Accordingly, an aircrew's first experience with realistic live fire must be in training rather than combat.

Live-fire training can be conducted on the Goldwater Range only because the military has the authority to control entry by both surface and airspace users. This authority is critical to protect the safety of both the public and military personnel and to prevent scheduled training operations from being interrupted by non-participating surface users or aircraft.

Approximately 822,000 acres of BMGR were set aside as part of the Cabeza Prieta National Wildlife Refuge. Military activities in the Cabeza Prieta portion of BMGR are limited to four remotely located radio transmitters and flight-training operations in the overlying airspace.

Gila Bend Air Force Auxiliary Field (AFAF) is an integral part of operations at BMGR and is jointly managed with BMGR. Adjacent to the northern boundary of BMGR, Gila Bend AFAF occupies 1,886 acres adjacent to the northern boundary of BMGR and is three miles south of the Town of Gila Bend. Its primary mission is to support BMGR, used by all branches of the military for air-to-air and air-to-ground training.

Military aircraft, including F-16s from Luke Air Force Base and the 162nd Fighter Wing from Tucson, A-10s from Davis-Monthan Air Force Base, and rotary-wing aircraft from the Arizona Army National Guard at Silverbell Army Heliport routinely use Gila Bend AFAF for practicing traffic pattern and emergency simulated engine flameout procedures. The airfield is equipped with a simulated laser target (SLT) transmitter used by A-10 aircrews to practice identifying a laser-illuminated target. Other training conducted at Gila Bend Auxiliary Airfield includes night-vision device-assisted landings and Marine weapons tactics instructor exercises, including non-combatant evacuation operations.

Helicopter aircrews from the Western Army National Guard Aviation Training Site (WAATS) at Silverbell Army Heliport use Gila Bend Auxiliary Airfield as a forward operating area to support live-fire training within the north, south, and east tactical ranges at BMGR. WAATS activities at the Airfield include aircrew changes and helicopter refueling and rearming.

The airfield is also used for emergency recoveries of military aircraft that experience malfunctions on BMGR and diversion of aircraft due to factors such as bad weather at their home base, unsafe ordnance, or low fuel. Aircraft with malfunctions or damage are repaired at the airfield by maintenance crews that travel from their home base. Between 1997 and 2002, the airfield had an annual average of 80 emergency recoveries and 220 diversions.



The airfield has an 8,500-foot runway and a six-pad heliport. Existing operation levels for all aircraft using the facilities at Gila Bend Auxiliary Airfield total 22,920 annual operations. The Airfield is operated under contract by civilian personnel; 145 full-time equivalent contractor personnel and eight Air Force civilian personnel are based at the Airfield. In addition, 10 to 12 military personnel from other locations, along with other Air Force civilian personnel, are typically at the Airfield and Range at any given time.

Gila Bend Auxiliary Airfield is also a hub for services for BMGR, including vehicle maintenance, target construction, and communications. Gila Bend Auxiliary Airfield hosts the BMGR Security Police office and provides billeting for visiting personnel working temporarily at BMGR.

2.1.7 Arizona Air National Guard, Phoenix Sky Harbor International Airport

The 161st Air Refueling Wing (AFW) of the Arizona Air National Guard is based at Phoenix Sky Harbor International Airport. The Arizona Air National Guard occupies 62 acres leased from the Airport. About 40 years remain on the lease. Phoenix Sky Harbor International Airport is the newest Air National Guard base in the U.S. The facilities were constructed in 2002 as an integral part of Sky Harbor's expansion program for construction of a third runway. Construction of the new facilities was paid for by airport user fees.

The 161st Air Refueling Wing's mission is worldwide air refueling. Approximately 2,000 hours were flown in 2002 (65 percent of these hours were logged outside of the U.S.). The Wing has 900 personnel (600 part-time and 300 full-time) and flies 10 KC-135E aircraft, the oldest model in the current U. S. Air Force inventory. The 161st Air Refueling Wing has more aircraft and refueling areas within a short distance from its base than any other refueling unit. The Wing has access to eight air refueling areas within a 15-minute flight time of Sky Harbor. The air refueling areas are designated under the National Airspace System, and from these areas the Wing can serve over 400 receiver aircraft (200 from Luke Air Force Base, 90 from the 162nd Fighter Wing based at Tucson International Airport, 75 from Davis-Monthan Air Force Base, and 15 from Snowbird operations out of Davis-Monthan Air Force Base). Within 25 minutes of Sky Harbor are another four designated refueling areas and another 77 receiver aircraft based at MCAS Yuma. On the northern refueling track, the 161st AFW also serves aircraft from Nellis Air Force Base.

2.1.8 Arizona Air National Guard, Tucson International Airport

The 162nd Fighter Wing of the Arizona Air National Guard is based at Tucson International Airport on a 92-acre site. The runway, security, and fire-control operations are shared by the 162nd Fighter Wing and Tucson International.

The 162nd Fighter Wing has 72 F-16 aircraft and 923 full-time personnel, 708 part-time assigned personnel, 57 civilian contractor personnel, and 60 State employees. Its primary mission is International Military Training (IMT) for F-16 pilots from countries that purchase F-16s from the U.S. The training is a component of the Department of



Defense foreign military sales program. The IMT program includes air-to-air and air-to-ground tactical operations, as well as air-to-ground bombing.

In addition to its operations at Tucson International Airport, the 162nd Fighter Wing conducts training at individual client nations. Mobile Training Teams have conducted classes in numerous countries, including Turkey, the Netherlands, and Thailand. The Wing also trains International maintenance technicians on F-16 systems.

Although the 162nd Fighter Wing's primary mission is the IMT program, it is also tasked with maintaining peace and security in the State of Arizona and supports units from northern states throughout the winter months during "Operation Snowbird," which is handled primarily from facilities at Davis-Monthan Air Force Base.

2.1.9 Silverbell Army Heliport

Silverbell Army Heliport (AHP) is located on 161-acre site in Marana, approximately 25 miles northwest of Tucson. Silverbell AHP is the home of the Western Arizona Army Training Site (WAATS), which is operated by the Arizona Army National Guard. The WAATS has 180 full-time personnel, and other units stationed at Silverbell AHP have a total of 269 full-time personnel. Seventy-five helicopters are stationed at Silverbell AHP.

The WAATS mission is to conduct flight training, enlisted training, specialty training, and to provide regional simulation support. In the 2002 training year, the WAATS trained a total of 558 aviators, non-commissioned officers, and soldiers. Flight training is conducted for the OH 58A/C "Kiowa" and AH-64A "Apache" aircraft. The WAATS received the AH-64A training mission in 2002, and in October 2004 it will assume responsibility for all AH-64A training for the Army. OH-58 flight training consists of nine scout/observation courses. AH-64A flight training consists of the Aircraft Qualification Course, already implemented, along with Instructor Pilot (IP) and Maintenance Pilot (MP) courses and the Aeroscout Course. The enlisted and non-commissioned officer training consists of courses for Aviation Maintenance and Flight Operations. Specialty training courses meet unique requirements by offering training specifically designed to enhance or improve an area of unit operations not taught at other Army training facilities. Specialty courses conducted at the WAATS include the Combat Lifesaver Course and several Readiness Enhancement Training courses. Flight-simulation capabilities at the WAATS include a Combat Mission Simulator and a Flight Weapons Simulator, both of which provide Instructor Operator courses and Aircrew Trainer courses.

The WAATS has access to a local tactical training area of 3,600 square miles, allowing for low-level tactical flight. This training area is primarily public land with low population densities, extensive landing rights, and excellent variation of terrain relief. The weather allows for Visual Flight Rules training, without using instrument landing systems, 360 days of the year.

The existing 161-acre Silverbell Army Heliport site is intensively utilized or will be fully utilized under current development plans. The Arizona Army National Guard is



negotiating to acquire an additional 440 acres of State Lands to the east of the site, and the State is committed to approving the acquisition.

Silverbell Army Heliport operations also utilize outlying training areas. Picacho Stagefield, located to the west of Picacho Peak, has four helicopter landing lanes (each 1,500 feet long), an air traffic control tower, and on-site crash/rescue facilities. Picacho Stagefield is the primary location for trauma and emergency procedure training. In the Phoenix area, operations are conducted at the Rittenhouse Stagefield east of Queen Creek (which was a former Auxiliary Airfield for Williams Air Force Base); the Deer Valley, Sycamore Creek, Granite Mountain, and Saguaro Lake training sites, which are located in the north and northeastern portion of the Phoenix area; and the heliport at Papago Park Military Reservation, located between Phoenix and Scottsdale.

2.1.10 Florence Military Reservation (Arizona Army National Guard)

Florence Military Reservation (FMR) is located along Arizona Route 79, approximately six miles north of the Town of Florence and 60 miles southeast of metropolitan Phoenix. FMR occupies over 26,000 acres of low Sonoran Desert land, including 19,000 acres leased from the State Lands Trust and 6,000 acres owned by the federal government. FMR has several ranges, including a combat pistol course, a Squad Automation Weapons range, a light anti-tank range, an 800-meter machine-gun range, and a 1,500-meter 40-mm machine-gun range. Simulator buildings for artillery firing, live-fire areas, and impact areas for artillery rounds are also present at FMR, along with a large maintenance facility and a vehicle storage area.

No other comparable tract of land is available so close to the Phoenix metropolitan area and over 75 percent of the Arizona Army National Guard are stationed, trained, or deployed at FMR. The Reservation hosted over 52,000 soldier-training days in 2002.

2.1.11 Camp Navajo (Arizona Army National Guard)

Camp Navajo is located on over 28,000 acres near Flagstaff. It was constructed in 1942 as Navajo Ordnance Depot. Camp Navajo was transferred to the Arizona Army National Guard following the closing of the Active Army ordnance storage mission. It has been operated by the Arizona Army National Guard since 1993, under an indefinite license through the Army Corps of Engineers.

The main mission of Camp Navajo is to serve as a training site for the Arizona Army National Guard, but the base also maintains an industrial storage with a customer base that includes the U.S. Army, Air Force, Navy, and Coast Guard, as well as private corporations and public agencies such as the U.S. General Services Administration and Northern Arizona University. Approximately 11,000 acres are in the storage area, and 17,000 acres are in training and buffer areas. The Camp also has a railroad with 38 miles of track and two locomotives that serve the storage area. Revenue from the industrial storage supports the National Guard training operations. Training site



facilities, constructed in the mid-1990s, include barracks, classrooms, and a dining facility.

2.1.12 Papago Park Military Reservation (Arizona Army National Guard)

Papago Park Military Reservation (PPMR) consists of 419 acres of land located at 52nd Street and McDowell Road between Phoenix and Scottsdale. The site was reserved for use by the Arizona National Guard by the U.S. Congress in 1930. PPMR is the headquarters and operational focal point of the Arizona Army National Guard and the Arizona Air National Guard. The Reservation is home to the Arizona Military Institute, which features classrooms supplied with state-of-the-art video- and computer-projected instruction equipment, a distance-learning center with video conferencing capabilities, and dormitories to house personnel attending classes. Over 15,000 soldiers used the PPMR training facilities in 2002

Also located at PPMR are an Army Aviation heliport, a 3,000-foot-long runway, an Air Force Battle Management training center, a rifle range, a land navigation course, a rappel site, four large armories, and several maintenance facilities.

PPMR is home to the 107th ACS, a command and control training squadron for the Combat Air Forces. The 107th ACS conducts formal AETC courses and a battle management course. In October 2000, the 107th ACS was officially designated as the USAF Weapons Director School for the training all active duty and Air National Guard ground-based weapons directors. The 107th ACS has 140 assigned personnel, of which 81 are full-time personnel (28 active -duty and 53 Air National Guard).

2.1.13 Air Force Research Laboratory, Mesa Research Site

Warfighter Training Research Division (AFRL/HEA), Human Effectiveness Directorate in Mesa, Arizona, and Wright-Patterson Air Force Base, Ohio, is part of the U.S. Air Force Research Laboratory within the AFMC. AFRL/HEA is the USAF's premier organization for research and development (R&D) in warfighter training techniques and technologies. The division's mission is to "develop, demonstrate, evaluate, and transition training technologies and methods to train warfighters to win." The mission is accomplished through an open, collaborative environment in which government, academia, and industry team with users and customers to develop and exploit new technologies, applications, and environments that will support the warfighter. The collaboration is designed to improve development, validation, and transition of needed training products to users, customers, and solution providers supporting the premise of "training the way we intend to fight" and recognizing that "training is the peacetime manifestation of war." The AFRL/HEA supports Navy, Army and Marine Corps as well as USAF.

The integrated nature of war, high-tech threats, and military operations other than war are creating a burgeoning training challenge for the USAF and joint forces. Coupled with the need to process extraordinary amounts of data and information, from sensor to Joint Forces Air Component Commander to shooter and back again, warfighters require seamless operational systems and peacetime integrated operations



environments that will provide realistic mission training opportunities that currently do not exist. The need for realistic training is complicated by concerns of aging aircraft, training environment encroachment, expanding operations tempo, and cost. Classic individual procedural-based training must be supplemented by full-mission training to adequately prepare warfighters for the challenges of the 21st century. Consequently, the USAF has embarked on revolutionizing training initiatives that advocate affordable, realistic training environments to reduce the dependence on the aircraft as the primary training media. Modeling and simulation are expected to provide on-demand, realistic training opportunities through an integrated operations environment composed of live, virtual, and constructive training capabilities.

As new training systems are fielded, warfighters will be provided with expanded training capabilities, which will allow them to effectively and confidently reallocate training to the most effective venue. Since these systems will better replicate combat and operations other than war, they can be used to support future planning processes permitting the leadership to make better decisions regarding doctrine, strategy, and modernization.

As powerful as these new modeling and simulation tools will be, they can only be effectively used if all aspects of quality training are integrated with system development. AFRL/HEA's robust training R&D program is aimed at producing a research foundation upon which sound training system development principles can be based. Modeling and simulation are a major part of AFRL/HEA's "tool kit," but it is AFRL/HEA's skilled scientists, engineers, computer scientists, and pilots who merge operational training systems information with R&D efforts.

Approximately 200 government, academia, and industry personnel team with users and customers, on site and at remote locations, support AFRL/HEA's mission and form a diverse, multidisciplinary team of specialists. This unique combination of research and development expertise enables the division to efficiently convert training needs into improved training methodologies and products. The division works closely with other Air Force, Navy, and Army laboratories, as well as with academia and industry. AFRL/HEA has three Focus Technology Areas:

- Warfighter Training Effectiveness Behavioral Research in air, space, and information dominance
- Distributed Mission Training Technology Engineering Development
- Night Vision Device Aircrew Training Research and Development

Distributed Mission Training (DMT) is the Air Force's emerging program for simulation-based readiness training. Networks of simulators representing Major Defense System (MDS) platforms are planned for installation at operational bases throughout the Air Force, with the first DMT-capable systems delivered to Eglin, Langley, and Tinker Air Force Base. The AFRL/HEA in Mesa, Arizona is researching technologies and training applications in a DMT testbed composed of four F-16 Block 30 simulators and an Airborne Warning and Control System (AWACS) console.



Aircrew training research has been an ongoing focus at Mesa for more than 10 years. Engineers and scientists at AFRL/HEA created local area simulation networks and linked to expanding wide area DMT networks. These DMT systems support real-time warfighter training for a variety of MDS simulators melding live, virtual, and constructive entities in a synthetic battlespace. Other resources, such as computer generated forces, communications nets, and mission replay systems enhance training effectiveness and enable real-world mission planning and rehearsal capabilities for warfighters. To derive maximum benefit from DMT systems, AFRL/HEA training specialists developed DMT syllabi to build upon and enhance mission readiness skills of F-16 pilots and weapons controllers, regardless of experience levels.

2.1.14 United States Naval Observatory, Flagstaff Station

Established in 1955 a few miles west of Flagstaff, Arizona, the Flagstaff Station is the U.S. Naval Observatory's dark-sky site for optical and near-infrared astronomy. The Station has four telescopes, including the 1.55-m Kaj Strand Astrometric Reflector which is the largest optical telescope operated by the U.S. Navy. It was designed to produce extremely accurate astrometric measurements in small fields, and has been used to measure parallaxes and therefore distance for faint stars. Over 1,000 of the world's most accurate stellar distances were measured with this telescope since 1964, and in recent years this telescope has also served as a test-bed for the development of state-of-the-art near-infrared detectors.

The Station operates the Navy Prototype Optical Interferometer (NPOI), which is a cooperative project with the Naval Research Laboratory and Lowell Observatory, in addition to the U.S. Naval Observatory. Located on Anderson Mesa southeast of Flagstaff, the interferometer makes use of separate telescopes that are widely spaced rather than a single large mirror as is used in conventional telescopes. Measuring accurate star positions is one of the historical mandates of the Navy and was a strong motivation to finance the development of the NPOI. Accurate star positions are useful in traditional forms of navigation (those used before Global Positioning Systems). When the interferometer is fully functioning as a precision astrometric instrument it will be able to measure star positions from the ground with an extremely high level of accuracy not possible with even the largest telescopes. These measurements will provide an important demonstration for space-based interferometers that may increase that accuracy manyfold.

In addition, the NPOI will improve the capability for direct observation of surface features on stars other than our Sun. For example, to see the surface of alpha Centauri in visible light would require a telescope with a mirror diameter of 14 meters, and to resolve spots on the surface would require a telescope at least 100 times larger than that. Such a large telescope is well beyond our present day technology, if we try to construct one using a single mirror. With the multiple mirrors of the NPOI (as many as six mirrors arrayed on each of three arms) the increased resolution provides the capability to point the interferometer very accurately to the position of a star.

The Station is a key participant in the Sloan Digital Sky Survey, which is the most ambitious astronomical survey project ever undertaken. The survey will map in detail



one-quarter of the entire sky, determining the positions and absolute brightnesses of more than 100 million celestial objects. It will also measure the distances to more than a million galaxies and quasars. With the survey, astronomers will be able to see the large-scale patterns of galactic sheets and voids in the universe. Scientists have varying ideas about the evolution of the universe, and different patterns of large-scale structure point to different theories of how the universe evolved. The Sloan Digital Sky Survey will tell us which theories are right – or whether we have to come up with entirely new ideas.

Another unique program at the Station is the Precision Measuring Machine, or PMM, which is a large, fast, highly precise photographic plate measuring engine. The goal of the PMM program is to produce very high-quality catalogues of stars, based on digitization of the major photographic surveys. In this process twin CCD (charge coupled device) cameras are set up to “fly” a constant distance above the photographic plates, stopping every few seconds to take digital “snapshots” of a small area of the photographs. The images taken by the CCD cameras are measured and analyzed while the plates are still being digitized, so positions and magnitudes of all the stars have been computed by the time a plate has been scanned, usually in less than an hour for each plate.

2.1.15 Military Operating Areas (MOAs) and Restricted Airspace

In addition to facilities on the ground, airspace is a vital resource for the missions of Arizona's military facilities. The airspace available to these facilities has the capacity to support all missions and aviation needs of all of the services. This airspace environment is not duplicated elsewhere in the U.S. and optimizes the training operations at BMGR as well as the other ranges that are part of the Yuma Training Range Complex.

The Special Use Airspace (SUA) Program designates airspace for military use in the interest of national defense and security. In 1958, Congress mandated that the U.S. Department of Transportation designate airspace for military use, and during the 1960s and into the 1970s military flight operations were allowed to be widely conducted in the Arizona airspace. In the 1970s, efforts were made to segregate military air traffic from civilian air traffic. These efforts resulted in the designation of various types of SUA, including:

- Restricted Airspace, within which the flight of civil aircraft is subject to restrictions due to military operations considered hazardous to other aircraft, including weapons firings and airdrop operations;
- MOA, in which airspace below a certain altitude is established to segregate civilian flight activities from military activities, which may involve multi-aircraft formations, high-speeds just short of supersonic, and steep climb and descent rates. Air Refueling Routes, providing for in-flight refueling of aircraft may overlay an MOA;



- Air Traffic Controlled Assigned Airspace, which is airspace attached to the MOA airspace, within which operations above the MOA altitude are controlled by the Federal Aviation Administration (FAA) to support the military mission; and
- Military Training Routes, which are airspace corridors used by military aircraft for low-level navigation and tactical training.

The vertical limits of SUA are measured by designated altitude floors and ceilings within which limitations are imposed upon aircraft operations that are not a part of the military operations.

Restricted airspace in Arizona is associated with BMGR, the Yuma Range Training Complex, Yuma Proving Ground, and Ft. Huachuca. In this restricted airspace non-military aircraft operation is not forbidden but is subject to various restrictions, and during periods of active military operations, civilian aircraft are not permitted to enter the airspace.

Civilian air traffic using Instrument Flight Rules (IFR) is routed around active MOAs or is vertically separated from military air traffic. Civilian air traffic using VFR may enter the MOA at any time without a specific clearance but at a risk.

Above the flight ceiling of an MOA, ATCAA provides additional airspace for military operations. Unlike the MOA, the ATCAA is not controlled by the military but by FAA and is subject to FAA requirements for civilian aircraft.



The principal MOA/ATCAAs in Arizona are:

- Gladden/Bagdad MOA/ATCAA, located approximately 50 miles northwest of Phoenix. This area supports air-to-air, basic flight maneuvers, air combat tactics, and formation training for the 56th and 944th Fighter Wings at Luke Air Force Base. One of the three Air Refueling Routes (AR-603 overlies this MOA/ATCAA).
- Outlaw/Jackal MOA/ATCAA, located approximately 60 miles northeast of Tucson and 30 miles east of Phoenix. This area supports air-to air and night training missions for Luke Air Force Base and the 162nd Fighter Wing based at Tucson International Airport.
- Sunny MOA/ATCAA, located approximately 70 miles northeast of Phoenix. This area is used as a holding area for exercises with large forces and supports Luke Air Force Base and Nellis Air Force Base (in Nevada). The primary Air Refueling Route (AR-658) also overlies the Sunny MOA/ATCAA.
- Sells MOA/ATCAA, located approximately 40 miles south of Phoenix and 20 miles west of Tucson, adjacent to the eastern boundary of BMGR. This area supports intensive training for Luke Air Force Base, Davis-Monthan Air Force Base, the 162nd Fighter Wing, and MCAS Yuma. One of the Air Refueling Routes (AR-647/647A overlies this MOA/ATCAA).

Other MOAs are the Dome MOA, located just south of MCAS Yuma; the Ruby and Fuzzy MOAs, located adjacent to the Sells MOA east of BMGR; the Tombstone MOA, located just east of Fort Huachuca; and the Turtle and Quail MOAs, located on the California-Arizona border west of the Gladden/Bagdad MOA/ATCAA.

There are over 20 Military Training Routes crisscrossing Arizona, totaling approximately 5,000 miles in length. These routes are used by the military to practice high-speed, low-altitude maneuvers (generally below the 10,000-foot altitude and at airspeeds greater than 400 miles per hour). Eight of the routes provide essential access to BMGR. Civilian air traffic is not prohibited from flying along or across the routes, but the route designation alerts aircraft to the presence of military operations.

2.2 ECONOMIC IMPACT OF ARIZONA'S MILITARY FACILITIES

Discussions and analyses of Arizona's economy have historically overlooked the impacts of Arizona's military facilities. Findings from the *Economic Impact of Arizona's Principal Military Operations* (May 2002),¹ which are summarized in the following sections, conclude that the economic and fiscal impacts of Arizona's military industry are significant and represent a key component of the State's economy. The study was based on conservative assumptions about the effects of the military industry on the

¹The Maguire Company in collaboration with ESI Corporation conducted a study of the presence and economic contribution of military operations in Arizona. This study, entitled *Economic Impact of Arizona's Principle Military Operations* (May 2002), was commissioned by several Arizona cities to document the economic impacts and importance of Arizona's principle military operations.



State's economy (as described in the following sections), and therefore the actual impact on the economy would likely be greater than the study's estimates. The study finds that maintaining these operations should be a priority for the State and local governments.

2.2.1 Characteristics of Arizona's Military Industry

Arizona's military industry generates thousands of jobs, not just in direct military employment, but also jobs in industries that supply the military, and in industries that serve the military and civilian employees. The military industry generates billions of dollars in economic activity and hundreds of millions of dollars in State and local tax revenue. The study's Executive Summary states that the jobs created and supported by Arizona's military industry are a valuable part of the State's economy because these jobs are largely unaffected by routine economic cycles and are not subject to substantial fluctuations, and the tax revenues generated in Arizona by employees at military operations remain relatively constant. The stability of employment and tax revenues produced by the military industry adds to its value as a vital part of the State economy.

2.2.2 Employment

The authors of the study began their economic analysis by collecting, reviewing, and standardizing personnel statistics for each of the State's principal military operations. These statistics were divided into five personnel categories: Active-Duty Permanent Party, Reserves, Rotational, Students, and Civilians. The combined categories amounted to nearly 46,000 individuals (Table 2-1).

Table 2-1: Basic Personnel Statistics¹

| Active-Duty Permanent Party | Reserves | Rotational | Students (Military) | Civilians | Total |
|-----------------------------|----------|------------|---------------------|-----------|--------|
| 21,390 | 5,430 | 1,162 | 4,436 | 13,544 | 45,961 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

¹Fiscal year 2000.

A substantial number of military retirees living in Arizona receive regular payments from retirement benefits. For the purpose of estimating economic impact, the study included one-quarter of the military retirees living within approximately a one-hour travel radius of the military facilities providing services to military retirees (Table 2-2). These "Linked Retirees" are individuals who have strong economic ties to a military installation and its services and who would not likely live in Arizona if the facility was not there or if the facility closed. In addition to the full-time resident military retirees, out-of-state military retirees travel to Arizona for available medical, legal, and commissary services at the State's military installations. Due to the limited available data regarding the influx of out-of-state military retirees, these retirees were not



included in the analysis. Consequently, there is a high probability that the total economic impacts of military retirees are understated in the data presented below.

Table 2-2: Military Retiree Statistics

| | Military Retirees Within 50 Miles¹ | Linked Retirees (25 percent) |
|------------------------|--|-------------------------------------|
| Statewide Total | 39,963 | 9,991 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

¹Source: Department of Defense, Office of the Actuary.

2.2.3 Comparison of Statewide Employment

Employment statistics compiled from several sources provided the study with a framework to evaluate the magnitude of the military industry in Arizona. Table 2-3 provides a comparison of the number of jobs created by Arizona's military industry both directly as well as "in total" (i.e., including indirect and induced impacts) to Arizona's largest private employers. The military industry directly provides 41,647 jobs and supports 83,506 jobs Statewide. The jobs directly provided by the military industry exceed the number of jobs provided by the top three private employers in the State — Honeywell, Wal-Mart, and Banner Health Systems, which together employ just fewer than 40,000.

Table 2-3: Arizona's Major Industries/Employers (2002)

| Industry | Employment (Jobs) |
|---|--------------------------|
| Military Industry – Total ¹ | 83,506 |
| Hospitality and Tourism ² | 62,960 |
| Heavy Construction ² | 48,132 |
| Military Industry – Direct ³ | 41,647 |
| State of Arizona ⁴ | 40,000 |
| Information Technology ² | 29,292 |
| Linked Military Retirees | 9,991 |



Arizona's Largest Private Employers

| | |
|-----------------------------------|--------|
| Honeywell ⁵ | 15,000 |
| Wal-Mart ⁵ | 12,600 |
| Banner Health System ⁵ | 11,905 |
| Motorola, Inc. ⁵ | 10,650 |
| Raytheon ⁵ | 10,400 |
| Intel Corporation ⁵ | 10,000 |
| Kroger Company (Fry's) | 9,580 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

¹Includes direct, indirect, and induced employment.

²Cluster mapping project, Institute for Strategy and Competitiveness, Harvard Business School.

³Includes only direct employment, based on full time equivalents.

⁴Approximate, excludes universities.

⁵Arizona Republic, January 27, 2002 (employer survey).

The effects of economic cycles on the State's major private employers are illustrated by the decline in employment between 2000 and 2003 as a result of the national recession. Employment for the State's top three private employers declined by almost one-third between 2000 and 2003, while employment in the State's top ten private employers declined by 14 percent in the same time period. In contrast to employment for the State's largest private employers, overall military employment remained constant during the 2000 to 2003 time period, and in certain locations may have increased.

2.2.4 Payroll and Spending

Payroll and retirement benefit payments directly contribute to the level of economic activity in a region and a state. These payments represent gross spendable income for the recipient household. Payroll and retirement benefit payments were included in the analysis for the employees of the principal military operations and the linked retirees (Table 2-4). In total, the principal military operations added nearly \$1.6 billion in annual payroll and retirement benefits to the Arizona economy in Tax Year 2000.

Table 2-4: Payroll and Retirement Benefits¹ (\$ Millions)

| Active-Duty Permanent Party | Reserves | Rotational | Students (Military) | Civilians | Linked Retirees | Arizona Total |
|-----------------------------------|----------|------------|------------------------|-----------|--------------------|------------------|
| \$705.9 | \$36.9 | \$7.4 | \$146.2 | \$499.8 | \$193.0 | \$1,589.2 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

¹Income adjusted downward by 20 percent for savings and taxes; student income at 14 percent.



Varied types of spending in support of military operations in Arizona are an important source of stimulus to the State's economy and result in additional beneficial economic activities. Arizona's military facilities spend nearly \$1.6 billion annually (Table 2-5), with over \$5 million each in costs, contract, and other direct spending (maintenance and operations). Spending for supplies led all types of major spending by military operations.

Table 2-5: Spending in Support of Military Operations

| Type | Dollars in Millions |
|---|---------------------|
| Contracts and Direct Spending: Maintenance and Operations | \$538.9 |
| Construction and Buildings Maintenance and Repair | \$100.9 |
| Spending for Supplies | \$517.1 |
| Utilities | \$35.0 |
| Education Payments | \$13.4 |
| Health Services | \$100.3 |
| Commissary and Exchange Sales | \$281.2 |
| Total | \$1,586.8 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

2.2.5 Economic Impacts of the Military Industry

The military industry in Arizona provides 41,647 direct jobs and produce \$2.4 billion in direct economic output, 18,191 indirect jobs and \$1.3 billion in indirect economic output, and 23,668 induced jobs and \$1.9 billion in induced economic output (Tables 2-6 and 2-7).²

Table 2-6: Military Industry Employment (Number of Jobs)

| Direct | Indirect | Induced | Total ¹ |
|--------|----------|---------|--------------------|
| 41,647 | 18,191 | 23,668 | 83,506 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

²*Direct economic impacts* are those attributable to the initial economic activity; for example, an operation with 10 full time employees creates ten direct jobs. *Indirect economic impacts* are those economic activities undertaken by vendors and suppliers within the supply chain of the direct activity as a result of the initial economic activity. *Induced economic impacts* result from the spending of wages paid to employees in local industries involved in direct and indirect activities.



¹Equates to \$2.4 billion in direct economic output.

In total, Arizona's military industry and the business it supports has created 83,506 jobs and roughly \$5.7 billion in economic output in 2000.

Table 2-7: Summary of Statewide Economic Impacts

| | Employment | Output |
|---------------------------------|---------------|--------------------|
| Direct Impacts | 41,647 | \$2,411,475 |
| Indirect Impacts | 18,191 | \$1,326,190 |
| Induced Impacts | 23,668 | \$1,926,193 |
| Total Non-Direct Impacts | 41,859 | \$3,252,383 |
| Total Impact | 83,506 | \$5,663,858 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

2.2.6 Statewide Fiscal Contribution of Military Operations

The study includes an estimation of tax revenue generated by employees at the State's principal military operations, linked military retirees, and the individual business in Arizona supported by military operations. Specifically, State and local taxes, State and local property taxes, and State income taxes were evaluated (Table 2-8). Contributions of the military industry in Arizona to State and local governments amount to over \$233 million annually in Tax Year 2000. Of that, over \$121 million of that revenue benefits the State government and over \$112 million benefits local governments.

Table 2-8: Government Revenues Generated (\$ Millions)

| | Annual Local | Annual State | Annual Total |
|--------------|------------------|------------------|------------------|
| Sales Tax | \$43.125 | \$50.871 | \$93.996 |
| Property Tax | \$61.948 | \$0.248 | \$62.197 |
| Income Tax | \$7.194 | \$70.260 | \$77.453 |
| Total | \$112.267 | \$121.379 | \$233.646 |

Source: *Economic Impact of Arizona's Principal Military Operations*, May 2002.

Due to increases in military payroll from defense appropriations for the past three years and the economic effects of construction on Arizona's military installations over that same period, the current economic impacts of Arizona's military industry would be greater than those described in the *Economic Impact of Arizona's Principle Military Operations*, which is based on data for Tax Year 2000.



2.3 ARIZONA'S MILITARY FACILITIES AND THE NATION'S EVOLVING DEFENSE POSTURE

Arizona's military facilities operate in support of the overall framework of a national defense strategy that is carried out by the U.S. Armed Forces. The defense strategy serves broad national security objectives and evolves in response to changing global trends and concerns in the security environment. The *Quadrennial Defense Review Report*, produced by the Department of Defense, is a strategic planning document that outlines the national defense strategy and provides a framework for the U.S. military's global posture. The strategy guides the development of U.S. Forces and capabilities and their deployment for the 21st century, and as described later in this section, Arizona's network of military facilities has unique capabilities to meet the needs of the overall U.S. defense strategy.

The current *Quadrennial Defense Review Report*,³ released at the end of September 2001, has a central objective of shifting the basis of defense planning from "threat-based" planning to a "capabilities-based" model. The capabilities-based model focuses primarily on how an enemy might fight rather than specifically who we might fight or where conflict might occur. Thus, defense planning is based on identifying those capabilities that the U.S. Armed Forces will need to deter or defeat a range of potential adversaries across a broad spectrum of environments and capabilities, rather than planning for conflict in a specific geographic area or with a specific adversary. It means keeping the advantages of the nation's existing military capabilities in key areas while adapting them to new circumstances and experimenting with and developing new capabilities to gain new advantages.

The capabilities needed to achieve the national security objectives include:

- The ability to protect critical bases of operations, including the U.S. homeland
- Projecting and sustaining U.S. forces in distant environments where it may be difficult to gain access
- Assuring the secure operation of U.S. information systems and providing continual surveillance, tracking, and rapid engagement of adversaries
- Leveraging information technology and new concepts to provide for more effective joint operations

Developing this broad portfolio of capabilities will require exploiting technological innovation, pursuing new operational concepts, undertaking organizational adaptation, adapting to new training paradigms, and encouraging experimentation in all areas.

The process of transforming the U.S. Military to achieve the new capabilities rests on four pillars as defined by the *Quadrennial Defense Review Report*:

³*Quadrennial Defense Review Report*, Department of Defense, September 30, 2001.



- Strengthening joint operations
- Experimenting with new approaches to warfare
- Exploiting U.S. intelligence advantages
- Developing transformational capabilities through increased and wide-ranging science and technology, selective increases in procurement, and innovations in Department of Defense processes

Joint and combined operations are a key element in meeting future warfare challenges. Developing the capacity to respond rapidly to events that occur with little or no warning requires integrating combat organizations into combined operations where the units are highly networked with joint command and control. The joint forces must be lighter, more maneuverable, and more readily deployed and employed in an integrated fashion.

To achieve this operational capability, the training process must be transformed, and training facilities must be provided to support joint field exercises with a high degree of realism, as well as to allow experimentation in new approaches and warfighting options.

As a vehicle for developing a joint and interoperability training capability, the Department of Defense has established the Joint National Training Capability (JNTC) to provide an integrated training environment. Under the JNTC concept, units and individuals get joint operations training at the strategic, operational, and tactical levels through a global network that includes live training (real people and systems), virtual training (real people and simulated systems) and constructive training (simulated people and systems). It is envisioned that the JNTC will utilize multiple facilities that are interoperable and can be combined to meet specific requirements for joint training and exercises.

The initial joint training exercise under the JNTC is scheduled to take place in January 2004 and will involve several units and sites on the West Coast, including MCAS Yuma, followed by a similar joint exercise on the East Coast later in 2004. Following evaluation of the results of these initial exercises, the full implementation of the JNTC is to begin in October 2004 and reach full operational capability in 2009.

Another initiative for joint training is the Joint Air-Ground Center of Excellence (JAGCE), which is designed to provide a rigorous, live collective training experience for aviation and attack forces with the same degree of realism and standards as provided for ground maneuver units at the services' Combat Training Centers. The exercise would involve units from Luke Air Force Base, Davis-Monthan Air Force Base, and MCAS Yuma, along with the WAATS and other Army units, in a training environment that includes Yuma Proving Ground, BMGR, and Gila Bend Auxiliary Airfield, as well as ranges in the Chocolate Mountains in California. The JAGCE is intended to demonstrate the role that the WAATS could play as a center to support the emerging JNTC initiative in conjunction with other West Coast facilities, including Yuma Proving Ground, BMGR, and Luke Air Force Base.



Along with the transformation of training, the future success of U.S. military forces is dependent on information superiority, which depends on timely, relevant, and comprehensive intelligence. Demands on intelligence capabilities will continue to grow and will require exploitation of the U.S. advantage in intelligence through multiple intelligence collection assets, global surveillance, and enhanced exploitation and dissemination of intelligence throughout the military forces structure. To accomplish this, the Department of Defense will pursue the development and exploitation of technologies that can significantly increase the U.S. advantage in intelligence collection, analysis, and security, including:

- New technology for and accelerated procurement of intelligence collection platforms, such as UAVs
- New technology for miniature, mobile, and autonomous remote sensors
- Advanced technology to provide real-time processes, decryption, and transcription of communications
- New methods for tracking adversaries and providing secure authentication for network or facility access
- Use of commercial imagery for remote sensing of the earth

Along with these new technologies and methods, the Intelligence, Surveillance, and Reconnaissance (ISR) process must become more collaborative with joint and combined approaches that integrate and disseminate information using multi-media and multi-source systems that are networked to provide information from the tactical to the national level.

Finally, a strong research and development effort in parallel with increased priority to maintaining a robust test and evaluation program is imperative to achieve the increased portfolio of capabilities for the future U.S. forces. The Department of Defense must maintain a strong Science and Technology program to support evolving military needs and assures technological superiority. This effort will include the development of new information systems that must be linked with technological advances in other areas, including stealth platforms, unmanned vehicles, and smart submunitions. The Department of Defense will continue to rely on the private sector for much of the leadership in developing new technologies, blending government and private research where appropriate.

While such new technology can offer the potential for revolutionizing U.S. military capabilities, the products and their employment under combat conditions must be thoroughly tested before their deployment to the field. This need for testing, particularly for testing capabilities conducted over long distances requires that highly instrumented ranges be maintained, with investment to reverse the erosion of the Department of Defense's training range infrastructure and ensure that ranges are sustainable, capable and available.



In summary, the U.S. military forces of the future will be faster, lighter, and smarter, having been trained to operate as joint and combined forces, with new capabilities tested under realistic conditions, and coordinating their operations through interoperable communication systems that can rapidly transmit timely, relevant information obtained through an integrated ISR capability keyed to joint and combined operations.

The network of military installations in Arizona is at the forefront of the transformation of U.S. military capabilities, with an emphasis on joint training, development of new and enhanced communications and intelligence capabilities, and an unparalleled training and range infrastructure. These assets are unique in their combined ability to meet future training needs of the Department of Defense, and this presents significant opportunities to enhance the long-term viability of Arizona's military facilities.

The transformation of U.S. military capabilities has already begun with the joint and combined operations in Afghanistan and Iraq. The operations confirmed the enduring value of many of our present capabilities and signaled the need to refine joint and combined interoperability, tactics, and procedures. Our experience in both operating areas will serve to shape our exploitation of technology to make us faster, lighter, and smarter. Future operations conducted in our national security interests may be quite different from Afghanistan and Iraq, and our ability to adapt and select the right combination of joint and combined capabilities will guarantee successful outcomes. Joint and combined training will be central to our military transformation, and Arizona will be at the forefront of the Department of Defense effort to protect and expand the very best training facilities, ranges, and airspace. Arizona will support leading edge research and development of new equipment, weapons, and operating systems. The unique test facilities at the Yuma Proving Ground and Fort Huachuca will play a significant role in that effort.

The present relevance of Arizona-based military capabilities is underscored by recent action in operations in Afghanistan and Iraq. In support of Operation Iraqi Freedom, all four AV-8B Harrier Squadrons from Marine Corps Air Station, Yuma self-deployed to provide close air support to the Marine Component Commander. The entire staff of MAWTS-1 deployed to provide warfighting expertise to component and subordinate unit staffs.

During the period leading up to the operations in Afghanistan and Iraq, the test and training facilities at Yuma Proving Ground were used extensively by deploying units. With a climate and terrain similar to Middle Eastern countries, Special Forces teams from all services conducted land navigation, tactical training, and parachute training. The Marine AV-8B Harriers used the austere terrain to train in forward refueling and rearming in preparation for operations in Iraq. In anticipation of river crossings on the Tigris and Euphrates rivers, the Marines of the 1st Marine Division at Camp Pendleton and 29 Palms conducted Operation Desert Scimitar with 2000 marines moving across the southwestern deserts and crossing the Colorado River using 450 foot bridges with as many as 23 sections. Bridging the fast flowing Colorado River guaranteed highly successful operations in crossing the Tigris and Euphrates during Operation Iraqi



Freedom. The desert terrain and environment of Yuma Proving Ground is unforgiving, testing men, material, and equipment to the fullest. In the evolving transformation of the U.S. Military, Yuma Proving Ground's Range Digital Transmission System with fiber-optic loops on the major range areas, a working and expanding wireless communication system providing real-time instrumentation and communication will provide unparalleled opportunities for the RDT&E and joint operations communities.

Improved and seamless command, control, communications, computers, and information management from foxhole to combatant commander will be key to exploiting existing military capabilities and developing new capabilities that will bring new advantages to our warfighters. Exploiting intelligence and expanding the capabilities of our UAV platforms will similarly be key elements of our transformation. Fort Huachuca and its tenant commands will surely be major players in the transformation process.

The Network Enterprise Technology Command/9th Army Signal Command at Fort Huachuca, which commands the 5th Signal Command in Europe and six individual Strategic and Tactical Signal Brigades has been a major player in support of operations in Kosovo, Afghanistan, Iraq, and many of the Gulf states. The 11th Signal Brigade, also stationed at Fort Huachuca, provides an example of global commitment with 75 percent of its soldiers deployed over the last 12 months. NETCOM supports EUCOM, NORTHCOM, JFCOM, PACOM, SOUTHCOM, and CENTCOM. The joint service, coalition, and inter-agency training of the 305th Military Intelligence Battalion will play an important role in the transformation as we consider an increasingly wide spectrum of military operations.

Those operations will demand exploitation of UAVs, and Fort Huachuca must be at the center of future development and testing. With 4,000 cubic kilometers of airspace from surface to 30,000 feet and a supporting airfield and air strips, there is no better proving ground for new and enhanced UAV capabilities, especially when connected to Yuma Proving Ground for testing of UAV delivered weapons systems.

The recent deployment of elements of 12th Air Force from Davis-Monthan Air Force Base underscores the current relevance of its mission to establish an Air Operations Center (AOC) in support of combatant commanders. The deployment of forces in support of operations in Afghanistan and the subsequent deployment of an AOC to lead the air war efforts in Iraq made possible the success of our ground forces from Al-Faw to Baghdad, Tikrit, and Mosul. Companion EC-130-H aircraft from the 355th Wing were key to that success by supporting combat information warfare and prisoner of war rescue operations. CSAR units from the 355th Wing played an important role in providing for the protection of our U.S. and coalition pilots. Of course, the A-10 pilots who performed so well in Afghanistan and Iraq were all trained at Davis-Monthan Air Force Base. They are pilots who have trained with the Israelis, the British, the Germans, and with our Marines and soldiers.

Every F-16 combat mission flown in Afghanistan and Iraq was flown by a pilot trained at Luke Air Force Base in Arizona's airspace and ranges. With F-16s representing 50 percent of the U.S. Air Force fixed-wing aircraft through 2020, how and where we train



F-16 pilots will be key to their success in attack, close air support, and peace enforcement missions in the next decade and beyond. If new tactics and procedures and new weapons systems are to improve how we fight, Luke Air Force Base and Arizona will be the test bed. When combined with the extensive coalition member training conducted by the 162nd Fighter Wing at Tucson International Airport, the impact of the F-16 community on joint and coalition military operations is and will be considerable.

The Arizona National Guard presence in Arizona contributes enormously to ongoing combat operations in Afghanistan and Iraq. There is no more actively engaged unit than the 161st Air Refueling Wing at Sky Harbor International Airport. Their 10 KC-135 aircraft make it possible for fighter, attack, and transportation aircraft to do their job both locally and globally, and given the global reach of present air operations, without “tanker gas” our reach will fall short.

The 162nd Fighter Wing’s contribution to joint and coalition training and operations is unmatched among Air National Guard units. The Wing has trained pilots and flight and maintenance personnel from 19 countries. It trains jointly with all services from Davis-Monthan Air Force Base, MCAS Yuma, Fort Huachuca, and Luke Air Force Base. The 162nd Fighter Wing pilots have deployed in support of Operation Southern Watch in Iraq and Operation Enduring Freedom in Afghanistan. Since 9 -11, the Wing has assumed Homeland Defense missions. If a coalition partner has F-16s, it has trained with or has been trained by this Fighter Wing. It is one of a kind.

The Arizona Army National Guard has been all over the world, from Kosovo to Kazakhstan, to State and local offices as first responders to Weapons of Mass Destruction, and to Homeland Security and the Joint Counter Narcotics Task Force (JCNTF). Of great importance to joint and combined training is the WAATS. The WAATS is currently involved in foreign military sales of Combat Mission Simulators to Saudi Arabia and Jordan and participates in tactics training in Egypt, Saudi Arabia, United Arab Emirates, Bahrain, and Jordan. WAATS is a training site for AH-64D “Apache Longbow” helicopters and is likely to be part of the Joint Air-Ground Center for Excellence with as many as six Army AH-64D Helicopter Battalions rotating annually for training at Arizona’s unmatched ranges and MOAs.

Of immediate and great importance is an Army Forces Command (FORSCOM) joint exercise that will be conducted in early 2004, with WAATS at Silverbell Heliport as the center to support future Army and joint air-ground attack training, which will connect units at Davis-Monthan, Luke Air Force Base, MCAS Yuma, Yuma Proving Ground, Fort Huachuca, Fort Hood, 29 Palms, and the National Training Center. These units will use ranges and air space at Chocolate Mountains, California, Goldwater Range, and the many MOAs in Arizona. The exercise will be live, virtual, and constructive training via a combination of FM communications and T-1 lines. FORSCOM as the exercise sponsor will spend approximately \$15 million for Proof of Principle (POP). The Concept Plan is already firm and is being executed.

In coordination with the active-duty Army, Marine, and Air Force units, the National Guard constructs barriers and infrastructure along the U.S.-Mexican border and



fulfills a variety of critical support functions to local, State, and federal enforcement agencies in the fight against illegal narcotics.

Currently, there are more than 400 Arizona Army National Guard soldiers mobilized and on active-duty providing security for Luke Air Force Base, Davis-Monthan Air Force Base, Fort Huachuca, the 161st Air Refueling Wing at Sky Harbor International Airport, and the 162nd Fighter Wing at Tucson International Airport.

In short, Arizona's military facilities and operations and its unparalleled ranges, air space, and climatic conditions position the State at the forefront of the transformation of the U.S. military.



CHAPTER 3: KEY ELEMENTS FOR LONG-TERM MISSION SUSTAINABILITY

Arizona's military installations face a number of challenges in sustaining their operations and carrying out their missions, now and into the future.

- Competition for airspace between military and non-military operations and the resulting potential airspace conflicts;
- The increased tempo of development throughout much of the State, and particularly in the vicinity of major military installations, with the resulting potential for conflicts due to incompatible land use and development around the installations;
- Responding to changing environmental regulations with the resulting potential for restricting training activities and other operations needed to carry out the installations' missions; and
- Governmental budgetary constraints and competing priorities at the federal, State, and local levels, which have limited the ability to pursue actions that would require significant commitment of public funds.

These challenges have been recognized by those concerned about the sustainability and preservation of the State's military installations, and in the past several years, this recognition has led to actions at the State and local levels, as well as by the State's military installations, to address the challenges in innovative ways. Among the achievements in furthering the sustainability and preservation of the State's military facilities are:

- State legislation that is considered a model for ensuring compatible planning and zoning around military airports;
- An increasing awareness of the importance of Arizona's military facilities on the part of the general public and community leaders;
- Implementation by communities surrounding military installations of planning and zoning measures to prevent encroachment and preserve the installation's mission capability; and
- Development of innovative partnerships involving private interests as well as public agencies to address issues critical to the installation's sustainability and preservation.

These achievements provide a framework to continue to build consensus on the needs for the long-term sustainability of the State's network of military facilities and to implement a partnership for action at the State, local, and federal levels to achieve that sustainability.



Each military facility in Arizona has a mission to carry out in support of the nation's defense. However, the sustainability of the installation to carry its mission depends not only on the ability to maintain its own capabilities, but also on its linkages with a network of other facilities and installations in the State. For example, Luke Air Force Base's sustainability depends on its ability to use Auxiliary Field #1 and Gila Bend Auxiliary Airfield for training sorties. Davis-Monthan Air Force Base uses Laguna Army Airfield at Fort Huachuca. MCAS Yuma requires access to the Yuma Training Range Complex. Silverbell Army Heliport needs access to its outlying Picacho and Rittenhouse training fields. Yuma Proving Ground provides a site for joint exercises involving all of these installations. Access to Barry M. Goldwater Range, with its superior training facilities is a critical element for the mission sustainability of all of these installations. And all of these installations as well as Fort Huachuca and the Arizona Air National Guard Units at Phoenix Sky Harbor and Tucson International Airport depend on the availability of airspace to maintain the network between their mission-critical facilities.

The common elements in this network that form these linkages are essential to securing its long-term viability and allowing the State's network of military installations and facilities to serve a much broader role in the national defense. In addition, each installation has certain key elements and linkages that are essential to maintaining its mission. The following sections summarize the Statewide elements for long-term mission sustainability as well as those specific to each installation.

3.1 STATEWIDE ELEMENTS FOR LONG-TERM MISSION SUSTAINABILITY

The common Statewide elements that are critical for maintaining the network of installations and sustaining their missions are:

- Availability of Restricted Airspace
- Superior Range Capabilities
- Geographic Proximity
- Variety of Climate, Terrain, and Natural Environment
- Lack of Encroachment
- Opportunities for Joint Operations
- Public and Community Support
- Continued Environmental Stewardship
- Funding for Preservation and Expansion

Together, these elements create an ideal environment for joint training, with an ideal climate to conduct aviation missions for all services, and the ability to conduct electronic warfare training and education in an environment free of electromagnetic interference.



3.1.1 Availability of Restricted Airspace

Airspace is vital to long-term mission sustainability for Arizona's military facilities. The ability to conduct aviation training and joint air-ground training is dependent on the availability of sufficient airspace that has the capacity to sustain basic flight-maneuver training and air-to-air combat training. The extensive airspace associated with the Barry M. Goldwater Range (BMGR), the Yuma Training Range Complex, the Yuma Proving Ground, the MOAs, and the MTRs are essential assets for not only the ranges, but also for any of the installations that carry out aviation training. Availability of this restricted airspace is critical for the day-to-day conduct of aviation training and other aviation-related missions of all of the State's facilities. The MOAs provide the capability for aircraft maneuvers and flight training. The 5,000 miles of MTRs, in addition to providing the corridors by which aircraft access the training ranges, also provide for low-level flight training. The airspace allows for large-scale joint and combined training exercises, as exemplified by the Joint Air-Ground Center of Excellence, in which aircraft from four installations in the State are involved across a space of some 200 miles.

3.1.2 Superior Range Capabilities

Like the extensive airspace, the extensive ground area of the ranges in Arizona provide capabilities that support multiple installations in the State, including MCAS Yuma, Luke Air Force Base, Davis-Monthan Air Force Base, Silverbell Army Heliport, and Arizona Air National Guard units at Tucson International and Phoenix Sky Harbor Airports, as well as other units that come to Arizona to train. The spectrum of training capabilities at the ranges includes aerial maneuver, air-to-air combat, air-to-ground combat, as well as artillery and ground maneuvers. With the size of BMGR and the other ranges at Yuma Training Range Complex, as well as at Yuma Proving Ground, training at multiple locations on the ranges can occur concurrently, and the airspace at the ranges is an essential dimension to their capabilities.

3.1.3 Geographic Proximity

A key element in the ability of the State's military facilities to operate together as a network and provide opportunities for joint and combined training is their geographic proximity. Most of the State's principal installations are located along a 200-mile band extending from Fort Huachuca in the east to MCAS Yuma and Yuma Proving Ground in the west, and from the State's southern border north to Phoenix. Within this area, the bases have ready access to the facilities of BMGR, with MCAS Yuma being less than 10 miles from the range (and within close proximity of the other components of the Yuma Training Range Complex, while the Tucson area installations are approximately 20 miles away and the Phoenix area installations are less than 50 miles away. This proximity makes the most effective use of the flying time available. Similarly, the bases have ready access to the Military Training Routes that crisscross the State and that provide access to BMGR, Yuma Training Range Complex, and the ranges at Yuma Proving Ground.



3.1.4 Variety of Climate, Terrain, and Natural Environment

The principal training ranges in Arizona have a variety of terrain, ranging from low desert to mountains, and a climate that approximates that of Southwest Asia and the Middle East. This variety of terrain and climate provides an asset that is unique in the United States for replicating realistic conditions for desert operations and combat. In addition to the terrain capabilities for air-to-air and air-to-ground training at BMGR and the Yuma Training Range Complex, the terrain at Yuma Proving Ground provides a variety of opportunities for ground maneuvers and testing, while the Colorado River provides opportunities for conducting training and testing under conditions similar to those that U.S. forces encountered in Iraq. The relative absence of environmental constraints and the ability of the installations to maintain an effective and cooperative environmental awareness and protection program allow for broader training opportunities than in more environmentally constrained environments.

3.1.5 Lack of Encroachment

Although encroachment by incompatible uses is a growing concern, particularly for installations in the State's rapidly growing metropolitan areas, such as Phoenix, Tucson, and Yuma, much of the land around the State's military facilities, particularly at BMGR, Yuma Proving Ground, and Ft. Huachuca is undeveloped or sparsely developed. The lack of urban encroachment at these installations is a critical element in allowing their missions to be carried out without conflict due to noise or other impacts affecting the surrounding areas. In addition, the lack of radio, electromagnetic, or light interference due to urban encroachment is a critical element in carrying out Ft. Huachuca's mission.

3.1.6 Opportunities for Joint Operations

As emphasized in the Department of Defense Quadrennial Defense Review Report, joint and combined operations are a key element in meeting future warfare challenges. The network of installations and facilities in Arizona are unique in their ability to support joint and combined operations. With thousands of miles of restricted airspace available for military operations, superior training facilities, state-of-the-art communications capabilities, a leading position in the development of unmanned aerial vehicles, and extensive areas of varied terrain to support a wide range of air and ground operations, this network can accommodate joint and combined operations at the largest scale.

An example of the capabilities of the State's network of facilities is the Army Forces Command (FORSCOM) joint exercise that will be conducted in early 2004, which will connect units at Silverbell Army Heliport, Davis-Monthan, Luke Air Force Base, MCAS Yuma, Yuma Proving Ground, Fort Huachuca, Fort Hood, 29 Palms (California), and the National Training Center. These units will use ranges and air space at Chocolate Mountains (California), BMGR, and the many MOAs in Arizona. The exercise will be live, virtual, and constructive training using state-of-the-art communications, for which the lack of electromagnetic interference and the ability to test joint



interoperability of communications equipment between services will be a critical factor.

Other examples of joint operations are the use of Yuma Proving Ground by the Army and Marine Corps, with both Army and Marine command responsibilities; the coordination with the Department of Homeland Security and other federal agencies to secure the U.S.-Mexico border; and the use of BMGR on a regular basis by all of the services.

As the transformation of U.S. military capabilities continues with a focus on capabilities for joint and combined operations, the capabilities of Arizona's military facilities position the State at the forefront of the transformation process and enhance the sustainability of the military missions.

3.1.7 Public and Community Support

The preservation of Arizona's military facilities and their missions has received broadly based public support over the years, recognizing the vital role these facilities play in the nation's security, as well as their contribution to the economy of the State. Translated into support for legislation at the State and local level to protect the State's major military installations and their essential mission capabilities, this has produced the State legislation that is nationally recognized as a model for the protection of military airports, as well as local measures such as the Airport Environs Zones used by the City of Tucson and Pima County since the 1980s to promote compatible land uses around Davis-Monthan Air Force Base.

Another aspect of public and community support that is vital for the future of the State's military facilities is the development of creative public-private organizations and partnerships that are able to address the issues of sustainability and preservation at the local level. Within the West Valley of Maricopa County, Fighter Country Partnership is a community support and advocate group for Luke Air Force Base, which was founded in 1997 by concerned civic leaders and elected officials. Its membership includes business people, elected officials, military retirees, and a diverse group of citizens who support Luke Air Force Base and want to ensure its future. Similar organizations at other bases include D-M 50, supporting Davis-Monthan Air Force Base; the Yuma County Chamber of Commerce Military Affairs Committee, supporting MCAS Yuma and Yuma Proving Ground; and the Barry M. Goldwater Range Intergovernmental Executive Committee.

Another example of a successful local partnership is the Upper San Pedro Partnership, which is a unique consortium of 18 agencies and organizations that own land, control land, control water, or contribute important resources in Cochise County. The members of the Partnership include Fort Huachuca, as well as local, State, and federal agencies and private organizations such as The Nature Conservancy and the National Audubon Society. The Partnership is a voluntary, collaborative effort that brings together scientists, agency heads, and political leaders to develop guidelines for the development of sound water policy that will meet the needs of area residents and the San Pedro River National Conservation Area. In addition, the Partnership provides a



forum for members to work collaboratively to pursue federal and state funding, with over \$20 million committed for the study and implementation of conservation actions.

Other opportunities exist for partnering between the military installations and their host communities, such as in the provision of infrastructure. As an example, the City of Sierra Vista and Fort Huachuca recently completed jointly funded improvements at one of the Fort's main gates that enhanced community access while improving the installation's security.

In addition to partnerships at the local level, the Arizona Military Regional Compatibility Project, which is sponsoring Joint Land Use Studies (JLUS) that focus on issues of land use compatibility around military installations, is an example of the ability to bring together State, federal, and local resources. With funding provided by the Department of Defense Office of Economic Adjustment, the JLUS process involves a broad spectrum of stakeholders in the local communities to develop recommendations that maintain the installations' mission capabilities while addressing community concerns.

3.1.8 Continued Environmental Stewardship

As responsible stewards for the land they manage, Arizona's military installations maintain environmental programs designed to comply with Department of Defense policies for environmental protection of natural resources. A primary example of this stewardship is BMGR, where 94 percent of the area managed by the Range is relatively undisturbed Sonoran desert which thrives under natural conditions. The BMGR Range Management Office employs an environmental team to protect the habitat included within the boundaries of the range, and similar efforts are undertaken at other installations with significant natural resources. For example, Fort Huachuca is a member of the Upper San Pedro Partnership, which is working to develop an Upper San Pedro Conservation Plan to protect the people and natural resources of the area. Dealing with a different aspect of environmental protection, Luke Air Force Base in 2002 was the first active U.S. Air Force base to be delisted from the U.S. Environmental Protection Agency (USEPA) list of Superfund hazardous waste sites. Implemented through an agreement with the USEPA, the Arizona Department of Environmental Quality, the Arizona Department of Water Resources, and the Air Force, the cleanup of the base's WWII-era contamination was recognized as a model of how state and federal agencies can work together in this area.

3.1.9 Funding for Preservation and Expansion

Arizona's military industry is an essential component of the State's economy and the network of military facilities in the State is an irreplaceable asset for U.S. national security. As with any industry, funds are necessary to maintain operational capabilities of the assets or to expand to take on new missions, but the funding that is necessary to preserve these assets or to provide for future expansion has been constrained by the demands of competing priorities for funding at the State, federal, and local level, and in recent years by the economic recession that has adversely affected revenue for all levels of government. At the State level, the severe fiscal



difficulties and budget deficits have limited the potential for providing a dedicated stream of funding that would support projects to preserve and strengthen the State's military facilities. The recent upturn in economic activity and in State revenues along with the growing recognition of the economic importance of the military to the State provide the opportunity to address the need for funding at the State level for projects that represent an investment in the State's economic future.

At the federal level, the Arizona congressional delegation has been successful in obtaining appropriations in each of the last two fiscal years for acquisition of land around Luke Air Force Base in order to forestall encroachment and maintain the base's operating capabilities. This kind of investment at the federal level to maintain the mission capabilities of facilities such as Luke Air Force Base, which are vital to the nation's security, is also a vital part of the overall ability to ensure the long-term sustainability of the State's military facilities.

3.2 KEY ELEMENTS FOR INSTALLATION SUSTAINABILITY

Each of the installations that make up the network of military facilities in Arizona has certain elements and linkages that are critical to carrying out its mission. These elements, which allow the installation to carry out its specific mission and maintain its long-term viability within the overall framework of the network of facilities, are summarized in the following sections.

3.2.1 Marine Corps Air Station Yuma

The future viability of MCAS Yuma is directly related to the proximity, availability, and viability of the superior range facilities of the Yuma Training Range Complex, including the western half of BMGR, and the Chocolate Mountain Aerial Gunnery Range in California, which is only 35 miles from the base. Access to these ranges, along with unencumbered airspace and the favorable climatic conditions are critical elements to the MCAS Yuma mission.

MCAS Yuma controls and manages the most extensive aerial target complex in the Marine Corps, consisting of more than 2.8 million acres and containing supersonic flight corridors, live ordnance targets, and several electronically instrumented ranges. These ranges have the ability to support additional usage, as their current usage rates, on average, are less than 50 percent.

In addition, MCAS Yuma Air Traffic Control has the authority to schedule and control more than 8,500 square miles of national and special-use airspace. This unencumbered airspace is essential to support the base's training mission.

3.2.2 Yuma Proving Ground

The key elements for sustaining Yuma Proving Ground's mission are its extensive land area (with few environmental restrictions), its control of over 2,500 miles of restricted airspace. No other testing facility in the U.S. is capable of testing long-range and



large-caliber weapons and munitions. Yuma Proving Ground's extensive land area and complex of ranges (the Kofa Range, the Red Bluff Direct Fire Range, and the Cibola Aircraft Range) allow for concurrent aircraft, artillery, ground vehicle, combat systems, and ammunition testing. These features provide a combined arms development and operational testing capability available only at Yuma Proving Ground. These capabilities are available to support joint-service testing and training.

With elevations ranging from sea level to 2,700 feet above sea level, the desert environment and terrain of Yuma Proving Ground provide test conditions very similar to those in the Middle East. The terrain features at Yuma Proving Ground provide a natural barrier for laser and munitions firing and for testing of terrain-sensitive systems; there are several undeveloped range areas that could be utilized for an expansion of Yuma Proving Ground's mission.

3.2.3 Fort Huachuca

Key elements for Fort Huachuca to sustain its missions focused on electronic intelligence and warfare are its uncluttered frequency spectrum, its favorable terrain, its access to restricted airspace, and the synergism that exists among the organizations at the Fort who are involved in Command & Control, Communications, Computers, and Intelligence (C4I) and electronic warfare systems.

Surrounding Fort Huachuca is over 9,000 square miles of land that provides the U.S. Army Electronic Proving Ground (EPG) with a unique interference-free electromagnetic environment for testing terrestrial and space communications and electronic and signal warfare systems without disrupting commercial broadcast systems. This area of operations is the only location in the U.S. where the Joint Interoperability Test Command and the Intelligence and Electronic Warfare Directorate of the Operational Test Command test joint-service C4I and electronic warfare systems.

Fort Huachuca is also in the forefront of Unmanned Aerial Vehicles (UAV) development and is the U.S. Army's test and training center for sophisticated UAV systems that are on the cutting edge of aerial surveillance technology. The access to restricted airspace and electromagnetic environment are also critical for this mission.

3.2.4 Davis-Monthan Air Force Base

At Davis-Monthan Air Force Base, the combination of a climate that is favorable for training and testing operations; proximity to live -firing ranges; and access to low-level training routes, high-performance-maneuvering airspace, and drop zones provides an ideal environment for integrated-force training. The 2.7-million-acre BMGR, along with the 5,000-square mile Sells MOA adjacent to BMGR are 35 miles from Davis-Monthan Air Force Base. Pilots from Davis-Monthan Air Force Base also have access to 10,000 square miles in five contiguous MOAs located less than 50 miles north of the base, and to nearly 5,000 square miles of restricted and MOA airspace less than 30 miles southeast of the base. Libby Army Airfield, which is used for training operations from Davis-Monthan Air Force Base, is located approximately 50 miles from the base. More than 5,000 miles of designated MTRs in the southern half of the



State allow high-speed, low-level training in visual or instrument flight over terrain that varies from 300 to 9,000 feet above sea level.

Climatic conditions allow the base to operate 365 days per year, with little or no weather interference or stand-down days. The climate is ideal for Aerospace Maintenance and Regeneration Center (AMARC) operations at Davis-Monthan Air Force Base. The high, dry atmosphere inhibits rust and corrosion and allows for pollution-free maintenance throughout the year. In addition, the AMARC facilities have adequate land area for the storage of 5,000 aircraft along with rail and air access.

3.2.5 Luke Air Force Base

As one of the premier training bases in the Air Force, Luke Air Force Base has ideal climatic conditions and access to the airspace and training areas that provide for highly realistic combat training. The 2.7-million-acre Barry M. Goldwater Range and the adjacent Sells MOA, both of which are critical to Luke's training operations are 50 miles south of the base. Pilots from Luke need access to both Gila Bend Auxiliary Field for practice approaches and landings and to Auxiliary Field #1 for instrument approach training; also, the Low Altitude Navigation and Targeting, Infra-Red, Night (LANTIRN) pattern is critical for the confidence check of the Terrain Following Radar (TFR) that F-16s carry prior to carrying out low-level training sorties.

In addition to the Sells MOA, the base has scheduling and operational control of extensive special use airspace, including the Gladden/Bagdad MOA located 39 miles northwest of Luke Air Force Base and the Sunny MOA, located northeast of Flagstaff. Luke Air Force Base also uses the Outlaw/Jackal MOA, located approximately 30 miles east of Phoenix, for air-to-air and night training missions. All of these MOAs are needed for Luke to be able to carry out its air-to-air tactics and night training missions as well as basic courses for F-16 pilots. The base has Special Use Airspace scheduling and operational control for eight low-level Military Training Routes that start to the east, south, and north of Luke Air Force Base and terminate at the Goldwater Range. These routes are vital, not only to provide access to the range, but for low-level training sorties.

3.2.6 Barry M. Goldwater Range

BMGR is a critical facility for all of the State's installations with a flying mission. The key value of the Barry M. Goldwater Range is that it is authorized for live-fire training. This training is essential for developing and strengthening the ability of pilots and aircrews to survive and win in combat. Live-fire training at the Goldwater Range is made possible through military control of the surface and airspace. This controlling authority is critical to the safety of both the public and military personnel and for the prevention of interruptions of training operations by non-participating surface users or aircraft.

The extensive land and airspace areas of the Goldwater Range are important for four reasons:



- The range is large enough to safely accommodate many independent but simultaneous operations, permitting cost- and time-effective flight training.
- The range and many of its individual subranges are large enough to support training at or near the full capability of existing and planned aircraft and weapons systems.
- When multiple subranges are used in blocks or the range is used as a whole, it has the capacity to accommodate realistic training exercises involving complex battle scenarios with large forces of friendly and adversary aircraft.
- It is large enough to absorb the changes in tactics, targets, and increased aircraft performance that will occur in the future.

The Goldwater Range has the capacity to keep pace with the evolution of aircraft technology and changing tactics of aerial warfare. The range will continue to be a critical asset for ensuring national defense air power readiness.

3.2.7 Arizona Air National Guard, Phoenix Sky Harbor International Airport

The key mission elements at Sky Harbor Airport that support the 161st Air Refueling Wing's mission of worldwide air refueling support are the proximity of nearly 500 receiving aircraft based within 15 to 25 minutes of the facility and the availability within a 15-minute flight time of eight air refueling areas designated under the National Airspace System. The 161st ARW has more aircraft and refueling areas within a short distance from its base than any other refueling unit in the Department of Defense.

3.2.8 Arizona Air National Guard, Tucson International Airport

Like Luke Air Force Base and Davis-Monthan Air Force Base, key mission elements for the 162nd Fighter Wing's mission are the combination of favorable climate, proximity to live firing ranges, and access to low-level training routes, high performance maneuvering airspace and drop zones, providing the ability to support integrated force training. The 2.7-million-acre BMGR, along with the 5,000-square-mile Sells MOA adjacent to BMGR are 35 miles from the 162nd Fighter Wing's base at Tucson International Airport. Also important for the Wing's operations is access to Libby Army Airfield, which is less than 30 miles from its base at Tucson International Airport.

3.2.9 Silverbell Army Heliport (Arizona Army National Guard)

Key mission elements for Silverbell Army Heliport are the combination of extensive and unrestricted local training airspace surrounding the Heliport, the proximity to range facilities, and the weather that allows for 360 days a year of Visual Flight Rules (VFR) training. Also important for its mission are the relative lack of encroachment around the Heliport and maintaining the ability to access and use the outlying training areas (particularly Picacho and Rittenhouse Stagefields).



3.2.10 Florence Military Reservation (Arizona Army National Guard)

The combination of extensive acreage available for training on various ranges and proximity to the Phoenix metropolitan area are key elements that allow the Reservation to effectively train and deploy the National Guard members. No other comparable tract of land is available so close to the Phoenix metropolitan area. Also important for the sustainability of its training mission is the relative lack of encroachment by urban development around the Reservation.

3.2.11 Camp Navajo (Arizona Army National Guard)

Key mission elements for Camp Navajo are the extensive training areas with modern facilities available for use by the National Guard units, and the storage infrastructure that exists because of the base's former mission as an Army Ordnance Depot. The use of this infrastructure is particularly important, as the ability to serve a variety of public and private customers provides income for the upkeep of the base.

3.2.12 Papago Park Military Reservation (Arizona Army and Air National Guard)

The central location of the Papago Park Military Reservation is an important element for its function as the headquarters for the Arizona Army and Air National Guard, as is the ability to provide for aircraft operation with the Reservation's runway and heliport.

3.2.13 Air Force Research Laboratory, Mesa Research Site

As the USAF's premier organization for research and development in warfighter training techniques and technologies, the Air Force Research Laboratory at Mesa operates a collaborative environment in which personnel from government, academia, and industry backgrounds team with users and customers. A location, such as Williams Gateway Airport in Mesa, where the Laboratory has access to diverse, multidisciplinary specialists in government and at educational institutions such as Arizona State University, and where high-quality communications can be maintained with remote sites are critical to the Laboratory's long-term sustainability. In addition, the proximity of the Mesa site to users, such as Luke Air Force Base, is an important factor, as is the ability to use the runway at Williams Gateway Airport as part of its research and development program.

3.2.14 United States Naval Observatory, Flagstaff Station

The Naval Observatory Station in Flagstaff was established because the climatic conditions and lack of development in the Flagstaff area would allow for relatively unobstructed viewing of stellar phenomenon, and these elements continue to be critical for the Observatory's mission. The proximity to Lowell Observatory, as well as Arizona Northern University, both of which are also located in Flagstaff, is also a significant factor for the Flagstaff Station to be able to undertake joint research programs.



CHAPTER 4: AVAILABLE TOOLS TO ENSURE LONG-TERM MISSION VIABILITY

Recognizing that incompatible land use and encroachment in the vicinity of Arizona's military facilities constrains their ability to perform current and future missions, a primary focus of the State's efforts to assure a sustainable future for its military installations has been to address these compatibility issues. State legislation amending Title 28, Article 7, Airport Zoning and Regulation (ARS §28-8480, §28-8481 and §28-8482) addressed the control of impacts generated by military airport operations on public health and safety, particularly in high-noise or accident potential zones. The focus of that legislation was to mandate that areas within those zones be addressed in municipal general plans and county comprehensive plans, and to ensure that land development in the vicinity of a military airport be compatible with the high-noise and accident potential generated by military airport operations. Arizona's approach has been widely viewed as a model for other states to follow in addressing land use compatibility.

The State of Arizona, through amendments to existing law, including ARS §9-461.05, §9-461.06, §9-462.04, also enacted Growing Smarter and Growing Smarter Plus measures that address growth and land development issues through changes in the community planning and rezoning processes. These measures require political jurisdictions with property within territory in the vicinity of a military airport, as defined in ARS §28-8461, to include consideration of military airport operations in their General Plans and to allow an opportunity for official comment by the military airport officials on the General Plans. The Growing Smarter and Growing Smarter Plus legislation requires that plans provide for a rational pattern of land development and an extensive public participation program.

Some three decades ago, the Department of Defense recognized incompatible uses around military airports presented potential for disruption of the military mission and potential conflicts with surrounding residents and property owners, and created the Air Installation Compatible Use Zone (AICUZ) Program to provide guidance for communities around military airports in planning for compatible land use. In 1983, the Army implemented a similar program that included its non-aviation activities; now known as the Installation Environmental Noise Management Plan (IENMP), the Army program addresses all sources of noise at Army installations, including aircraft (fixed and rotary wing), weapons fire, and ordnance. The Department of Defense, through its Office of Economic Adjustment, also sponsors the Joint Land Use Study (JLUS) program, which provides support for compatible land use planning, conducted jointly by the military installation and surrounding communities.

The following sections summarize the State legislation concerning compatible development around military installations as well as the Department of Defense programs that are available to address the threats and opportunities facing the State and its military installations.



4.1 STATE LEGISLATION

The State of Arizona began regulating planning and zoning around military airports in 1978, with legislation that permitted cities and counties to plan and zone to ensure development compatible with the high-noise and accident potential of military airports. The principal tools for addressing the sustainability of military installations are a series of State Statutes adopted between 1978 and 2001.

While the 1978 legislation permitted cities and counties to plan and zone to ensure development would be compatible with the high-noise and accident potential of military airports, in 1986, the State adopted legislation requiring that local jurisdictions plan and zone for compatible development around military airports. The 1986 statement of legislative intent stated that Arizona's policy is to minimize the number of people exposed to airport hazards and to assure appropriate development in light of the noise and accident potential generated by military airports. However, neither the 1978 or 1986 legislation provided a standard for determining compatible development.

In 1996, the State legislature passed requirements that cities and counties incorporate sound attenuation standards into their building codes, and in 2000 and 2001 made major additions to laws concerning development around military airports. These included:

- A table specifically defining compatible uses; limits the planning and zoning restrictions to high-noise or accident potential zones;
- Requiring school district compliance when building or expanding schools;
- Requiring political subdivisions to notify property owners in high-noise or accident potential zones of any changes to land use plans or zoning regulations in those zones;
- Requiring owners of property within the high-noise or accident potential zones to notify potential purchasers, lessees, and renters that the property is located within those zones;
- Requiring that any subdivision public report or any public report authorizing the sale or lease of unsubdivided lands issued by the Arizona Department of Real Estate include a statement that the property is within the vicinity of a military airport if it is located within the vicinity as defined in State law
- Requiring that the Department of Real Estate maintain a public registry of information as provided by the military airports, including maps of military flight operations and contact persons at the military airports;
- Requiring political subdivisions to submit proposed amendments to land use plans affecting property in high-noise or accident potential zones to the State Attorney General before initial public hearing;



- Requiring political subdivisions to submit annual reports to the State Attorney General by August 15th of each year, demonstrating compliance with legislation concerning planning and zoning around military airports;
- Allowing the Attorney General to investigate complaints on non-compliance;
- Requiring the Attorney General to submit annual reports to the Arizona Military Preservation Committee indicating which political subdivisions are and are not in compliance, and the actions taken or to be taken to bring about compliance;
- Allows any person with property in high-noise or accident potential zones to challenge the Attorney General's determination of compliance in court;
- Allows the Attorney General to bring enforcement action against a political subdivision to restrain, enjoin, correct, or abate violations; and
- Allows a court to impose fines for non-compliance.

The current State legislation applies only to military airports, which are defined as airports operated by an armed force and primarily used for military fixed wing aircraft. A military airport is also defined to exclude runways or airstrips not immediately adjacent to operational control, maintenance, and permanent parking facilities. The military facilities covered by current legislation are Luke Air Force Base, Davis-Monthan Air Force Base, Marine Corps Air Station Yuma, Libby Army Airfield at Fort Huachuca, and Laguna Army Airfield at Yuma Proving Ground. The legislation defines an area around each of these facilities, designated as "Territory in the Vicinity of a Military Airport," within which planning and notification provisions of the legislation apply. The legislation also defines noise and APZs for each facility, as well as "approach-departure corridors" for Luke Air Force Base and Davis-Monthan Air Force Base; the table in the legislation specifically defining compatible uses applies within these zones.

Airfields used primarily by rotary-wing aircraft such as Silverbell Army Heliport, and auxiliary fields such as Luke Auxiliary Airfield #1 and Gila Bend Auxiliary Airfield are not covered. In addition, the legislation does not apply to aircraft operations at the Barry M. Goldwater Range or to the MTRs that are used for low-level training operations. Finally, non-aviation military facilities are not covered by current legislation.

In addition to Titles 9 and 28, other Titles of the ARS related to military facilities address county planning issues (Title 11); location of schools in relation to military airports (Title 15); real estate transactions in the vicinity of military airports (Title 32); duties of the State Department of Commerce with respect to military reuse zones (Title 41); and agricultural preservation districts in the vicinity of military airports (Title 48).

The relevant titles and statutes of the Arizona Revised Statutes (ARS) containing legislation that address a variety of land use and other factors associated with the operation of military facilities are briefly summarized below.



Title 9 of the ARS contains legislation governing cities and towns; the cited sections are especially concerned with municipal planning issues. **[NOTE: The Governor's Military Facilities Task Force has recommended that Title 9 be revised; see Recommendations 15, 19, 22 and 23 in Chapter 5].**

- **ARS §9-461.05.** This section stipulates that the general plan prepared by municipalities within the territory in the vicinity of a military airport have a land use element that includes consideration of military airport operations.
- **ARS §9-461.06.** This section requires that the governing body shall consult with, advise, and provide an opportunity for official comment by the military airport if the municipality has territory in the vicinity of a military airport as defined in ARS Section 28-8461.
- **ARS §9-462.04.** This section requires that in proceedings involving rezoning of land that is located within the territory in the vicinity of a military airport the municipality shall send copies of the notice of public hearing by first class mail to the military airport.

In municipalities with territory in the vicinity of a military airport, the governing body shall hold a public hearing if, after notice is transmitted to the military airport and before the public hearing, the military airport provides comments or analysis concerning the compatibility of the proposed rezoning with the high-noise or accident potential generated by military airport operations that may have an adverse impact on public health and safety, and the governing body shall consider and analyze the comments or analysis before making a final determination.

Title 11 of the ARS contains legislation governing counties; the cited sections are especially concerned with county planning and zoning and provide similar requirements for counties as Title 9 does for municipalities. **[NOTE: The Governor's Military Facilities Task Force has recommended that Title 11 be revised; see Recommendations 16, 20, 22 and 23 in Chapter 5].**

- **ARS §11-806.** The section requires that counties with territory in the vicinity of a military airport must prepare a comprehensive plan that considers the operation of the military airport and allows the military airport the opportunity to consult with, advise, review, and comment on the plan.
- **ARS §11-829.** In proceedings involving rezoning of land that is located within territory in the vicinity of a military airport the planning commission shall send copies of the notice of public hearing to the military airport. In counties with territory in the vicinity of a military airport, the Board of Supervisors is required to hold a public hearing if the military airport provides comments or analysis concerning the compatibility of the proposed rezoning with the high-noise or accident potential generated by military airport operations the Board shall consider and analyze the comments or analysis before making a final determination.



Title 15 of the ARS contains legislation governing education; the cited sections are especially concerned with financing school development.

- **ARS §15-2002.** The executive director of the school facilities board is required to establish procedures in compliance with the official notice and hearing requirements that, with respect to monies to fund the construction of new school facilities proposed to be located in the territory in the vicinity of a military airport, the military airport receive notification of the application for funding at least thirty days before any hearing.
- **ARS §15-2041.** The section requires that, with respect to monies to fund the construction of new school facilities proposed to be located in the territory in the vicinity of a military airport the board shall consider and analyze the comments or analysis from military airport before making a decision.

Title 28 of the ARS contains legislation governing transportation; the cited sections are especially concerned with airport zoning and regulation and joint powers airport authorities. **[NOTE: The Governor's Military Facilities Task Force has recommended that Title 28 be revised; see Recommendations 13, 14, 17, 18 and 21 in Chapter 5].**

- **ARS §28-8461.** This section is concerned with a number of definitions that directly relate to military airport operations. It defines Accident Potential Zone One and Accident Potential Zone Two, Clear Zone, high-noise or accident potential zones, military airport, territory in the vicinity of a military airport, etc.
- **ARS §28-8480.** This section allows political subdivisions to acquire or lease land or interests in land for the continued operation of a military airport.
- **ARS §28-8481.** This section requires a political subdivision that has territory in the vicinity of a military airport to adopt comprehensive and general plans for property in the hazard zone to assure development compatible with the high-noise and accident potential generated by military airport operations.

Political subdivisions that have property in a high-noise or accident potential zone can not grant zoning variances without a specific finding that the purpose of military airport compatibility is preserved.

A political subdivision that has territory in a high-noise or accident potential zone is required to notify the owner or owners of property in that zone of any additions or changes to the general plan, comprehensive plan, zoning regulations applicable to property in those zones. The political subdivision shall provide a notice of such additions or changes including a statement that the property is located in a high-noise or accident potential zone.

Each political subdivision that has territory that includes property in a high-noise or accident potential zone is required to file with the attorney general a report that demonstrates compliance during the previous reporting period.



- **ARS §28-8482.** This section requires political subdivisions in the vicinity of a military airport to incorporate sound-attenuation standards in their building codes.
- **ARS §28-8483.** The State Real Estate Department and political subdivisions that have territory in the vicinity of a military airport are required to request from the military airport a registry of certain information concerning flight operations and contact persons; this registry shall be available to the public on request.
- **ARS §28-8484.** Any public report applicable to property located within territory in the vicinity of a military airport is required to include the statements that the property is located within territory in the vicinity of a military airport; the maps of military flight operations provided by the military airport are available to the public on request. Each military airport may provide the State Real Estate Department and each political subdivision with territory in the vicinity of the military airport with a map that shows the boundaries of each territory in the vicinity of a military airport and the boundaries of each high-noise or accident potential zone.
- **ARS §28-8485.** This section allows the state or a governing body of a political subdivision that operates an airport to designate an airport influence area of all property that is exposed to aircraft noise and overflights and has a 65 Ldn noise level or higher. If such an airport influence area is established it shall be recorded with the appropriate county recorder so as to be sufficient to notify owners or potential buyers of property that the area is currently subject to aircraft noise and overflights.
- **ARS §28-8486.** This section defines the terms, public airport, and territory in the vicinity of a public airport and directs the State Real Estate Department to make available to the public a map showing the boundaries of each territory in the vicinity of a public airport.
- **ARS §28-8521-§28-8528.** These sections allow two or more political jurisdictions to enter into an agreement establishing a joint powers airport authority in connection with the closing of a military facility.
- **ARS §28-2113.** This section establishes requirements for disclosure applicable to property that is located within territory in the vicinity of a military airport: "This property is located within territory in the vicinity of a military airport and may be subject to increased noise and accident potential."
- **ARS §28-2181.** This section establishes notification requirements of intentions to subdivide lands and requires a statement as to whether all or any portion of the property is located within territory in the vicinity of a military airport or a public airport, or a high-noise or accident potential zone.

Title 32 of the ARS contains legislation governing professions and occupations; the cited sections are especially concerned with real estate transactions and land development.



- **ARS §32-2181.** Permits the commissioner to exempt certain land subdivisions or fractional interests from one or more of the stipulations of the statute.
- **ARS §32-2195.** This section requires the commissioner to be notified of the intent to offer unsubdivided lots or parcels for sale or lease; that notice shall include a statement as to whether the property is located within territory in the vicinity of a military airport or within territory in the vicinity of a public airport, or a high-noise or accident potential zone.
- **ARS §32-2195.03.** Establishes the requirements for the commissioner to issue a report on unsubdivided lands and determines that if the unsubdivided land is located within territory in the vicinity of a military airport such a statement shall be included as shall be a map showing its location within the vicinity of a military airport.

Title 41 of the ARS contains legislation regulating State government; the cited sections are especially concerned with the duties of the State Department of Commerce with respect to military facilities.

- **ARS §41-1531.** This section determines the procedures to establish military reuse zones at closed military facilities.
- **ARS §41-1532.** This section establishes the conditions for tax incentives with respect to activities in a military reuse zone.
- **ARS §41-1533.** This section defines the duties of the State Department of Commerce with respect to military reuse zones.

Title 48 of the ARS contains legislation regulating special taxing districts; the cited sections are especially concerned with agriculture preservation districts and military airports.

- **ARS §48-5702.** This section establishes and defines an agriculture preservation district; requires these districts to take actions that are consistent with the continued use and operation of military airports.
- **ARS §48-5703.** The procedures for the operation of an agriculture preservation district determined in this section and the district location with respect to an existing military airport or decommissioned military airport are defined.

4.2 THE ARIZONA MILITARY AIRPORT PRESERVATION COMMITTEE

The Arizona Military Airport Preservation Committee was established by legislation in 1995 “to encourage the preservation of the long-term viability of military airports and the private property rights of property owners in the vicinity of military airports.” The committee is composed of a total of 22 members (18 voting members and 4 nonvoting advisory members and, in conjunction with the State Land Department, is required to make recommendations to the Legislature to preserve the long-term viability of military airports and the private property rights of property owners in the vicinity of military airports (specifically, at Fort Huachuca, Davis-Monthan Air Force Base,



Marine Corps Air Station Yuma, and Luke Air Force Base. Specific duties of the Committee are to:

- Make recommendations to the legislature that will preserve the long-term viability of military airports and the private property rights of property owners in the vicinity of military airports
- Consider the purchase or exchange of land or development rights as a method of achieving the above goals
- In consultation with political subdivisions and the State Department Of Commerce, encourage development that is compatible with military airports by recommending nonresidential uses and other economic development strategies for property on which the day-night average sound level is 65 decibels or higher in the vicinity of a military airport
- Study and promote a constitutional mechanism for exchanging State Trust Lands with private or public lands of equal or greater value to assist in preserving military airports in this State
- Create a data base of current ownership and date of purchase of property in the vicinity of a military airport on which the day-night average sound level is sixty-five decibels or higher
- Consider the accuracy of existing noise contours in relation to current flight missions
- Study new noise contours as they are issued and determine if they are built upon technology or assumptions that differ from those used to generate the noise contours specified in Section 28-8482
- Facilitate the development and distribution of metes and bounds legal descriptions of noise contours to be utilized in the implementation of Sections 28-8481 and 28-8482

4.3 DEPARTMENT OF DEFENSE GUIDANCE

The AICUZ Program was implemented in 1973 by the Department of Defense to promote compatible land use development around military airfields. The AICUZ Program creates standard land-use guidelines for areas affected by possible noise exposure and accident potential combinations and provides local government jurisdictions with information that can be used to regulate land use and development. Included in the AICUZ program is a table of accident potential zones, noise zones, and guidance concerning the compatibility of various uses.

The Army began a similar program in the January 1983 called the Installation Compatible Use Zone (ICUZ) program, and the Navy/Marine Corps initiated a Range AICUZ program (RAICUZ). The Army program addresses all sources of noise at Army installations, including aircraft (fixed and rotary wing), weapons fire, and ordnance. The program has since become known as the Army's Installation Environmental Noise Management Plan (IENMP). As part of the IENMP, noise zones and accident potential



zones are mapped for aircraft, and noise zones are mapped for weapons fire and ordinance.

The Department of Defense adopted the NOISEMAP computer program to describe noise impacts created by aircraft operations. NOISEMAP is one of two Environmental Protection Agency (EPA) approved programs. The other is the Integrated Noise Model (INM), which is used by the FAA for civilian airports. The next significant event in the development of the military noise program was the 1974 EPA designation of the noise descriptor, day-night average sound level (Ldn). Ldn refers to the average sound level exposure, measured in decibels, over a 24 hour period. A 10 decibel penalty is added to sound levels for operations occurring during the hours of 10 p.m. to 7 a.m. This penalty is applied due to the increased annoyance created by noise events which occur during this time. Ldn is a quantity that can be calculated directly at a specific location. Accident Potential Zones (APZs) are one aspect of the AICUZ program where military application differs from civilian airfields.

An analysis of aircraft accidents within 10 nautical miles of an airfield for the period of 1968 - 1972 led to defining areas of high accident potential known as the Clear Zone (CZ), Accident Potential Zone One (APZ I), and Accident Potential Zone Two (APZ II). The majority of these accidents (62 percent) occurred either on or adjacent to the airfield or within the CZ, while about 8 percent occurred in APZ I and 5 percent in APZ II. It was concluded that the CZ warranted special attention due to the high incident of accident potential that severely limited acceptable land uses. The Air Force has spent approximately \$65 million to acquire real property interests within the clear zones. The Department of Defense's position is that percentages of accidents within the two APZs are such that, while purchase is not necessary, some type of land use control is essential, particularly to limit the number of people exposed through selective land use planning.

The Army uses different software to predict noise based upon the type of activity. In addition to NOISEMAP, used for aircraft operations at airfields, noise contours for the corridors used for entering and exiting Army installations are generated using ROUTEMAP, which is also used for predicting noise exposure from aircraft operations on military training routes. The noise simulation program used to assess heavy weapons noise, which is typically perceived differently than aircraft noise, is BNOISE, while small arms noise contours are generated using the Small Arms Range Noise Assessment Model (SARNAM), which incorporates the latest available information on weapons noise source models. The Army also uses the SHOT model to predict noise from a single event, such as artillery firings or explosive detonations.

Based on output from these models, the Army defines four Noise Zones for non-aircraft operations—Zones I, II and III, and a Land Use Planning Zone (LUPZ). Noise Zones I, II and III describe contours based on reaction to noise exposure. Zone I is defined by the noise exposure which would be expected to result in less than 15 percent of the population describing themselves as “highly annoyed,” while in Zone II, between 15 percent and 39 percent would describe themselves as “highly annoyed” and in Zone III, more than 39 percent of the population would describe themselves as “highly annoyed.”



The LUPZ contour is being included on noise contour maps because it can offer a better prediction of noise impacts when levels of operations are above average. For example, if operations are approximately three times more numerous than the normal daily firing, average noise levels increase approximately 5 dB, and by increasing the extent of the LUPZ contours the equivalent of 5 dB, the variability in the installation noise environment can be accounted for. The LUPZ also can provide the installation with an adequate buffer for land use planning, and can reduce conflicts between the installation noise-producing activities and the civilian community. It encompasses areas where, during periods of increased operations, community annoyance levels can reach those levels associated with Zone II.

To protect the installation training and readiness mission, areas within a 1.6-kilometer (1 mile) buffer adjacent to the installation boundary, that are not already contained within a Noise Zone would be included in a Zone of Influence (ZOI), within which local communities should disclose, to existing and potential landowners, the existence of the installation and its activities.

In 1985, Congress authorized the Department of Defense to make community planning assistance grants to state and local government to help better understand and incorporate the AICUZ and IENMP technical data into local planning programs. Known as the Joint Land Use Study Program and managed by The Office of Economic Adjustment (OEA) of the Department of Defense, a JLUS is a cooperative land use planning effort between affected local government and the military installation. The recommendations present a rationale and justification, and provide a policy framework to support adoption and implementation of compatible development measures designed to prevent urban encroachment; safeguard the military mission; and protect the public health, safety, and welfare. The *Western Maricopa County/Luke Air Force Base Regional Compatibility Plan* was completed in 2003 as part of the Arizona Military Regional Compatibility Project, under the sponsorship of the Arizona Department of Commerce. With a community planning assistance grant from OEA, the Project is currently undertaking Joint Land Use Studies for Davis-Monthan Air Force Base and Luke Auxiliary Airfield #1. JLUS studies will also be prepared for the Barry M. Goldwater Range and MCAS Yuma.



CHAPTER 5: RECOMMENDED ACTIONS FOR LONG-TERM SUSTAINABILITY OF ARIZONA'S MILITARY FACILITIES

In recommending actions needed to ensure the long-term sustainability of Arizona's military facilities, the Governor's Military Facilities Task Force considered many different factors that affect the sustainability of the facilities and their ability to carry out their missions. These factors included the diversity of the facilities and the need to provide protection for all of the facilities; the need for compatible land use around the facilities; the need for funding dedicated to the preservation of the facilities and their missions; the need for continuing environmental stewardship and monitoring at the facilities; the need to treat Arizona's military facilities as one of the State's primary industries; and the need to implement a partnership for action at the State, federal, and local levels.

From these considerations came the understanding that Arizona is uniquely positioned to satisfy most of the needs of the Department of Defense for many years to come and that Arizona's military installations provide substantial and stable contributions to the Arizona economy. The recommendations of the Task Force are guided by the following common themes:

- Preserve and grow Arizona's network of military facilities to satisfy the long-term needs of the Department of Defense and maximize their benefit to the State economy.
- Maximize actions at the local level to support the retention and long-term sustainability of Arizona's military facilities.
- Establish solid State and federal support for the retention and long-term sustainability of Arizona's military facilities.
- Recognize and leverage existing statutes, initiatives, and effective efforts to support the retention and long-term sustainability of Arizona's military facilities.

The Task Force's recommendations include:

- Actions Requiring Executive Direction;
- Actions Requiring Legislative Change; and
- Actions Requiring Congressional Support.

The recommendations of the Task Force are presented in the following sections.



5.1 ACTIONS REQUIRING EXECUTIVE DIRECTION

- 1) **Through the Arizona Department of Commerce, recognize Arizona's military installations, training resources, and research, development, test, and evaluation activities as a separate economic cluster to recognize their value as a foundation of the Arizona economy and fully incorporate them into State, regional, and local economic development planning and marketing.**

Rationale: Arizona's military industry is an essential component of Arizona's economic fabric. In the 2002 Maguire study on the *Economic Impact of Arizona's Principal Military Operations*, total employment impact, total output, and total annual taxes revenues for Arizona's military industry equaled 83,506 jobs, \$5.66 billion, and \$233.6 million respectively. The stable nature and high pay-scale value of military jobs make them a fundamental part of Arizona's economy. These are the kinds of jobs that are present in good and bad economic times. Thus, recognizing the military industry as a separate economic cluster in Arizona is critical to the efforts to educate the public about its importance to the fiscal health of Arizona. In conjunction with this effort, a public education program implemented by government, businesses, and other interested parties would provide an important means to inform legislative leaders and the public regarding the importance of military facilities in Arizona.

- 2) **Develop an on-going State revenue source to assist military installation preservation and expansion projects where appropriate at the local level and installation level.**

Rationale: Funding is needed to create a mechanism to compensate willing landowners within the vicinity of the territory of Arizona's military airports, military facilities, and operating areas to ensure compatible land use around Arizona's military installations. We recognize that all private property around these installations has value. We also acknowledge that this alone is not an adequate fund to address private property rights, but it is only one of five possible tools in our recommendations to address this issue.

To ensure that this fund is used in the most prudent way possible for acquisition of land or development rights, there are generally accepted appraisal practices (i.e., the Army Corp of Engineers) that will be used. We want to ensure a fair and open system is used for dispersal of the money. Our suggestion is through a grant process. Under this grant process, the money is dispersed through local governments, not to private or non-governmental organizations, upon approval of their grant application. This is similar to the process used by other states (i.e., Florida and Texas). The reason for this is that only local governments are accountable to the citizens of their communities respectively.



The following is recommended as an on-going State revenue source to assist military installation preservation and expansion projects at the local and installation level.

- In Fiscal Year 2005 (effective July 1, 2004), divert \$1 million to establish Military Installation Fund.
- For the tax year beginning on or after December 31, 2004 through Fiscal Year 2024, divert 5 percent of Arizona income tax attributable to active-duty, National Guard, reserve, and retired compensation originating from the Federal government with a minimum of \$3.5 million per year.
- This revenue stream should be protected and the Military Installation Fund designated for the sole purpose it was intended according to established criteria.

Implementation Actions required are:

- December 1, 2003 – June 30, 2004
- Budget \$1 million in Fiscal Year 2005 budget
- Establish Military Installation Fund (Arizona Department of Revenue)
- Have the Arizona Department of Revenue track the Arizona income tax attributable to active-duty, National Guard, reserve, and retired compensation originating from the Federal government through the Defense Finance and Accounting Service (DFAS) by the applicable the W-2s and 1099Rs
- Determine criteria for award of grants (Military Affairs Commission)
- Tax year beginning on or after December 31, 2004
- Fund Military Installation Fund

3) Establish a permanent body (i.e., a Military Affairs Commission) to monitor and make recommendations on executive, legislative, and federal actions necessary to sustain and grow Arizona's network of military installations, testing and training ranges, and airspace.

Rationale: An ongoing body is needed to oversee the implementation of the recommendations developed by this Task Force. The approval of appointees for the composition of this commission rests with the Governor. However, we would like to request that the Governor select appointees that have a Statewide perspective and that representation specifically for private property owners and environmental interests be considered.

It is envisioned that the Military Affairs Commission be established by Executive Order. Our suggestions for the Commission's mission, duration, membership, and staff are:



Mission: Monitor and make recommendations on executive, legislative, and federal actions necessary to sustain and grow Arizona's network of Military installations, training ranges, and airspace.

- Actively support the implementation of recommendations of Governor's Military Facilities Task Force.
- Regularly meet with Governor to advise the Governor on military issues and report progress on implementation.
- Serve as resource for communications with the legislature, the federal delegation, the media, and the community.
- Develop criteria, including accountability, for awarding community grants from the Military Installation Fund.
- Annually recommend a priority listing of grants with available resources.
- Establish Statewide network at local level.
- Monitor implementation of Task Force recommendations.

Duration: Twenty years to coincide with revenue stream for Military Installation Fund.

Membership: By appointment of the Governor:

- Four year terms – no term limits except that locally elected officials limited to term of office
- Individual members must be knowledgeable and committed to mission
- Composition: 15 members:
 - 5 – Local elected officials from cities, towns and counties; 5 – Individuals qualified and committed; 2 – Representatives from the State Legislature (1- appointed by the Speaker of the House and 1 – appointed by the President of the Senate); 1 – Member at large; 2 – Co-chairs selected by Governor
 - Ex Officio – Governor's Chief of Staff, State Legislative Military Base Advisory Group, Installation Commanders, Arizona Adjutant General and a representative from a federal agency involved in land use issues

Staff: Governor's Policy Advisor for military affairs and Representatives from Attorney General, State Land Department, Real Estate Commission, Arizona Department of Commerce and others depending on issue



- 4) **Establish a full-time presence in Washington D.C. to represent the importance and capabilities of each of Arizona's military installations as a unique network of multi-service bases and monitor and report back to the Governor and a State-level Military Affairs Commission on issues impacting these installations.**

Rationale: The message about the importance and capabilities of Arizona's military installations as a unique network of multi-service bases that provide training and testing operations critical to our readiness and national defense needs to be carried to Washington, D.C. At the same time, information about issues impacting these installations needs to be monitored and carried back to the State so that we have time to respond. In addition, there is a considerable opportunity to leverage public and private efforts and expenditures that currently exist in Washington to promote military activities in Arizona. These linkages and integrated efforts, where possible, should be established between and among all the public and private lobbying/marketing efforts that currently have a presence in Washington.

- 5) **Direct the Arizona State Land Commissioner to consider land use compatibility with Arizona's military installations in planning, management, and disposition of State Trust lands through existing and future tools, including an exchange authority, if granted, and in the best interests of the trust beneficiaries.**

Rationale: Arizona's land base includes 13 percent State Trust Lands (lands held in trust for the beneficiaries). These lands are situated near military facilities and are a significant factor in regard to compatible land use. In addition, State Trust Land exchange authority could help ensure that lands adjacent to military facilities are compatible and provide a mechanism for the State to deal with land areas impacted by military airports, military facilities, and operating areas.

The mechanism developed for exchanges could help the State deal with land areas impacted by military airports, military facilities, and operating areas.

- 6) **Recognize the current Attorney General's position on ARS §28-8481(k) and that no further action is needed at this time.**

Rationale: There has been confusion about whether or not new residential subdivisions are allowed within the noise contours. This confusion arises from the existence of the secondary entry to the use chart contained in ARS §28-8481(k). Some have interpreted this entry to allow subdivisions within the noise contours up to 75 Ldn. The Attorney General's Office has made it clear that that is an improper interpretation of the law. This recent position taken by the Attorney General clarifies the intent of this statute, so no further action is needed.



7) Encourage local jurisdictions (i.e., cities, counties, and towns) affected by military installations to consider innovative approaches used in other locations to deal with land use issues.

Rationale: There are many different approaches being developed by local jurisdictions around the State. Through the identification of best practices, communities and counties Statewide can develop approaches that address their unique circumstances in balancing the needs of the community with the maximum mission capability of their military neighbors. Specific strategies may also be appropriate for integration into the organizational or operational structure of various military installations and facilities to enhance local relationships.

The appropriate role of the State is to reinforce actions (i.e., land use planning and development decisions to preserve the missions of Arizona's military installations, military facilities, and operating areas) at the local level. The State should not inhibit local communities from setting stricter standards if they so choose. These actions should be encouraged to ensure the long-term retention of Arizona's military installations, military facilities, and operating areas but the State should not mandate their use.

Elements of this Strategic Toolbox could include:

Maximum Mission Contours. Jurisdictions can work with active military airports to establish noise contours reflecting a maximum mission scenario to ensure compatible land use and development with base operations and maintain essential quality of life for local residents.

Graduated Development Concept. Dense development up to and surrounding the high-noise contours (65 Ldn and above) and accident potential zones at active military airports threaten future operations at these airfields. The concept of graduated development (low-density/intensity uses graduating to higher-density/intensity uses) moving away from the high-noise contours and accident potential zones is more consistent with military airport operations than is intense or dense development near the high-noise contours. The Graduated Development Concept is a graduating of densities away from the high-noise contours and accident potential zones as in the following example suggested by Luke Air Force Base:

- o 0-2 dwelling units per acre (du/ac) from the 65 Ldn to one-half mile out
- o 2-4 du/ac from the one-half-mile point to one mile out
- o 4-6 du/ac from the one-mile point to three miles out

Interspersing areas of land use with very low or no population density within the graduated-density area and the Vicinity Box is another



component of this concept. Low concentrations of people include uses such as agriculture, industrial, warehousing, and other similar uses. Communities using approaches similar to the Graduated Development Concept include the City of Goodyear, and the City of Surprise (currently proposed in General Plan Amendment).

Purchase of Development Rights. Local jurisdictions can create incentives for developers to reduce the intensity and density of use in areas identified as significant to preserving the base's mission while increasing density in other areas by encouraging the purchase of development rights in appropriate situations and areas. When development rights are purchased, a landowner is paid a fair market value for the rights that are purchased. The value of the purchased rights is roughly equal to the value of the land without any special restriction less the value of the land with the land use restrictions.

Purchase/Lease Back Program. Purchase agricultural lands around bases that are most directly impacted by safety, or noise considerations and lease properties back to farmers who will use them for agricultural purposes.

Transfer of Development Rights. Reduce the intensity and density of use in areas identified as significant to preserving the base's mission while increasing density in other areas by encouraging local jurisdictions to create incentives for developers to use the density transfer technique in appropriate situations and areas in proximity to the base. The transfer of development rights is similar to the purchase of development rights, except rather than paying cash for development rights, the landowner is compensated by having the permitted uses of other land, owned by the landowner, expanded. For example, the uses of an acre of land currently zoned for agricultural purposes outside the APZs would be modified to include higher-density residential development at the same time the use of the acre of land in the APZs currently zoned to permit single-family residential development would be restricted to agricultural uses. As a consequence, there would be no out of pocket cost for the imposition of limitations on the land in the APZ.

Partnerships with Non-Governmental Organizations to Facilitate Transfers of Development Rights. Governmental or non-governmental entities such as the Trust for Public Land (TPL), may acquire development rights for land adjacent to a military installation or facility, especially for parcels in the high-noise or accident potential zones, and dedicating it to uses compatible with military missions or to transferring those lands to public ownership for conservation or open space uses. TPL also has a program to assist communities in pursuing a preservation ballot initiative, providing services that include political analysis and campaign strategy.



Military Base Outreach. Military installations, facilities and ranges are encouraged to establish a consistent mechanism for outreach and input by surrounding communities on environmental and growth issues. The Community Initiatives Team at Luke Air Force Base is a good example of military commitment to ensuring ongoing communication throughout the region.

Enhanced Local Notification and Disclosure. Increasingly, communities have identified the value to their citizens in going beyond the minimum public notification and disclosure standards outlined in law for areas within the Vicinity of an Active Military Airport. Greater understanding of local military operations builds support. Specific mechanisms to enhance public notification and disclosure include:

- Require notices and maps to be posted in real estate sales and leasing offices, including identification of noise contours
- Require notices placed in model home complexes and sales offices advising potential buyers that the area is subject to military aircraft overflights
- Require aviation easements and indemnification/release of liability language on all recorded subdivision plats
- Install overflight signage at roadway intersections within the noise contour lines

The cities of Goodyear and Surprise are currently implementing some or all of the aforementioned strategies.

Expanded Approach/Departure Corridors. Local jurisdictions and military airports can work in partnership to create an approach/departure corridor that establishes greater flexibility to accommodate current and future military operations. As a minimum standard, State statute calls for a 30,000-foot corridor at active military airports. The City of Tucson and Pima County have chosen to go beyond this minimum to establish a 50,200-foot approach/departure corridor within which land uses are regulated to ensure compatibility. In this way, the local communities demonstrate commitment to longevity of the military presence in their region.

Land Acquisition through Municipal Bonds. Cities and towns surrounding active military airports installations continue to identify purchasing land as a key to preserving the maximum operational levels of their military neighbors. Communities that pursue land purchase can save money by using the Greater Arizona Development Authority (GADA). GADA's purpose in State statute is to sell municipal bonds at a lower interest rate and by subsidizing the costs of issuance. All of the municipalities surrounding the military installations facilities are eligible



for the program. Participation in the GADA program requires that there be an estimate of the total cost of the land to be purchased and a determination that GADA has enough capacity to loan.

Fee Simple Land Acquisition. Local jurisdictions can pursue various mechanisms to purchase lands in areas critical to military operations to assure compatible uses.

Desert/Open Space/Agricultural Uses. Jurisdictions can designate land for desert, open space, or agricultural uses compatible with the operation of the military installation. This strategy would be used in conjunction with one or more strategies listed in this Toolbox with regard to fee simple land purchase, purchase of development rights, or transfer of development rights. One or more national conservation groups, such as the Trust for Public Lands, may participate as well in this endeavor.

Military Facilities District. Provide authorizing legislation for Counties and/or Cities at their choosing to use all funding mechanisms for the purchase of lands (i.e., taxes, development fees) and provide the option to establish a Military Facilities District.

- 8) **Request the Arizona Department of Real Estate modify their public report application to include disclosures about “military facilities and operating areas” as defined in ARS §28-8461 (see recommendation 14) and update the disclosure statements on the public report to reflect this change.**

Rationale: Through research into this recommendation, the Task Force decided that Department of Real Estate licensees were taking sufficient actions to advise land purchasers that their respective properties were in the vicinity of a military airport, but military facilities and operating areas are still not addressed. In addition, there is a consensus that a disclosure statement is needed on the deed to run with the land for all properties impacted by military over flights. This is needed to cover all types of buyers (new home or resale) and would ensure that they receive the disclosure.

- 9) **Recommend State support and encourage the activities of local partnerships within local jurisdictions, impacted communities, State agencies, military installations and various other stakeholders to address military preservation issues at the local level.**

Rationale: We do not want to create a new body to take the place of partnerships that are already successfully dealing with these issues. We want to offer our support to their efforts. Other local jurisdictions should use the approach of the Upper San Pedro Partnership as a model for addressing growth-related and other issues that may impact Arizona's military facilities. The Fighter Country Partnership, DM50, Fort Huachuca 50, BMGR Executive



Council, and Yuma County Chamber of Commerce Military Affairs Committee are other good examples of local partnerships.

10) Direct Arizona natural resource agencies to monitor and manage issues of environmental concern as they relate to Arizona's military installations and submit written reports to the Governor's Military Affairs Commission on an annual basis as follows:

Rationale: We do not want to create a new body and there are State-level departments with the expertise to do this type of monitoring and can report their findings to a State-level military affairs commission. These departments and their responsibilities include:

- Arizona Department of Environmental Quality monitor and report status under their jurisdiction including but not limited to air quality, water quality, and hazardous waste issues as they relate to Arizona's military facilities and provide annual report including recommendations, if appropriate;
- Arizona Department of Water Resources to monitor water usage and implement water policy in a manner to maintain sustainable yield in aquifers located in the vicinity of Arizona's military facilities and to submit written report on water use management and conservation measures; and
- Arizona Game and Fish Department in fulfilling their mission to protect Arizona's wildlife to submit written report on the status of listed and/or threatened species and relationship of those species to Arizona's military facilities.

11) Reestablish the Governor's Advisory Council on Aviation with appropriate military representation and direct the Arizona Department of Transportation to secure federal funding to finance detailed analysis and planning for future needs and demands of both military and civil aviation in Arizona.

Rationale: The majority of Arizona's military installations are aviation oriented (i.e., Davis-Monthan Air Force Base, Luke Air Force Base, Marine Corps Air Station Yuma). Availability of airspace is a crucial component of military aviation training. However, the Task Force also recognizes that the needs of civil aviation are growing. An efficient and reliable aviation is a critical element of Arizona's transportation system and the vitality of our State's economy. Aviation's economic impact to Arizona was \$15.1 billion in 1998 and supported over 167,000 jobs with a payroll of \$4.3 billion. Over the next 20 years, the total number of passengers boarding commercial aircraft at Sky Harbor International and Tucson International is expected to increase by 79 percent. Thus, it is imperative that the State takes an accurate and comprehensive assessment of its airspace capacity and utilization. Then develops plans to address the needs of both the civilian and military aviation community from a



strategic standpoint on both a short- and long-term time horizon (i.e., next 20 years) to meet the demands of a growing Arizona. A cooperative relationship between the Governor's Advisory Council on Aviation and the newly formed Governor's Military Affairs Commission (MAC) (see recommendation 3) is needed because the airspace needs of the military community should be brought to the table by the Governor's MAC. However, the technical expertise needed to deal with the comprehensive issues surrounding airspace utilization does not exist under the MAC's mission. Thus, this separate advisory council is needed.

5.2 ACTIONS REQUIRING LEGISLATIVE CHANGE

12) Develop an ongoing State revenue source to assist military installation preservation and expansion projects where appropriate at the local level and installation level where appropriate.

Rationale: This recommendation is the legislative counterpart to recommendation 2, which addresses executive direction for a new funding source to assist in the preservation and expansion of Arizona's military facilities.

Funding is needed to create a mechanism to compensate willing landowners within the vicinity of the territory of Arizona's military airports, military facilities, and operating areas to ensure compatible land use around Arizona's military installations. We recognize that all private property around these installations has value. We also acknowledge that this alone is not an adequate fund to address private property rights. But it is only one of five possible tools in our recommendations to address this issue.

To ensure that this fund is used in the most prudent way possible for acquisition of land or development rights there are generally accepted appraisal practices (i.e., the Army Corp of Engineers) that will be used. We want to ensure a fair and open system is used for dispersal of the money. Our suggestion is through a grant process. Under this grant process, the money is dispersed through local governments, not to private or non-governmental organizations upon approval of their grant application. This is similar to the process used by other states (i.e., Florida and Texas). The reason for this is that only local governments are accountable to the citizens of their communities respectively.

The following is recommended as an on-going State revenue source to assist military installation preservation and expansion projects at the local level and installation level.

- In Fiscal Year 2005 (effective July 1, 2004), divert \$1 million to establish Military Installation Fund.



- For the tax year beginning on or after December 31, 2004 through Fiscal Year 2024, divert 5 percent of Arizona income tax attributable to active-duty, National Guard, reserve and retired compensation originating from the Federal government with a minimum of \$3.5 million per year.
- This revenue stream should be protected and the Military Installation Fund designated for the sole purpose it was intended according to established criteria.

Implementation Actions required are:

- December 1, 2003 – June 30, 2004
- Budget \$1 million in Fiscal Year 2005 budget
- Establish Military Installation Fund (Arizona Department of Revenue)
- Have the Arizona Department of Revenue track the Arizona income tax attributable to active-duty, National Guard, reserve and retired compensation originating from the Federal government through the Defense Finance and Accounting Service (DFAS) by the applicable the W-2s and 1099Rs
- Determine criteria for award of grants (Military Affairs Commission)
- Tax year beginning on or after December 31, 2004
- Fund Military Installation Fund

13) Revise the “Military Airport” definition listed in ARS §28-8461 to recognize Gila Bend Air Force Auxiliary Airfield, Luke Air Force Base Aux-1 and the two helipads (Picacho Stage Field and Rittenhouse Stage Field) used for helicopter training at Silverbell airfield as critical operating components of Arizona’s the military airport operations and provide similar protections to these critical operating components, but excluding Yuma Aux-2.

Rationale: Under the current definition, “Military Airport” is an airport that is operated by an armed force of the United States and that is primarily used for military fixed wing aircraft operations, excluding a runway or airstrip that is not immediately adjacent to facilities primarily used for operational control, maintenance, and permanent parking of aircraft.”

The original purpose of the statute was to protect military bases from encroachment; however, critical facilities that do not meet all of the criteria in the definition, such as at Luke Air Force Base Auxiliary Field # 1, Gila Bend Auxiliary Field and the Picacho and Rittenhouse Stage Fields are not covered. This recommendation would allow these operations to fall under the definition of a “military airport.”



Because the recommendation would have adversely impacted the Yuma community and how they are dealing with Auxiliary Field-2, we have excluded this facility from this recommendation.

14) Revise the definitions listed in ARS §28-8461 to read as follows:

Proposed Addition: # 21. “Military facilities and operating areas” means heliports, auxiliary fields, ranges, training and testing facilities and military training routes essential to the military mission in Arizona and used as critical operating components for military operations conducted by an armed force of the United States.

Rationale: This addition will allow the facilities used for the military operations that do not involve fixed winged aircraft operations to be addressed (i.e., rotorcraft such as the F-22 Osprey in operation at MCAS Yuma; Rotary wing aircraft such as the Apache operating at Silverbell and Papago AANG training fields and the U.S. Army Yuma Proving Grounds; and UAVs operating extensively at Fort Huachuca.). Our intention is to recognize that only those facilities that are “essential to Arizona’s military mission and critical operating components of military operations should be considered. We feel that Arizona’s base commanders and their respective local communities should work together to determine how to address these areas.

Concerning ranges, we recognize that there are a number of different types ranges to support military operations. Our intent is to be inclusive of these different types including, but not limited to artillery ranges and electronic ranges.

15) Revise ARS §9-461.05C.1. (f) to read as follows:

Revision (in Bold): C. The general plan shall consist of a statement of community goals and development policies. It shall include maps, any necessary diagrams and text set forth objectives, principles, standards and plan proposals. The plan should include the following: (f) For cities and towns with territory in the vicinity of a military airport as defined in Section 28-8461, includes consideration of military airport operations, **military facilities and operating areas.**

Rationale: This statute deals with the requirements for local jurisdictions under Growing Smarter. The current Language is:

C. The general plan shall consist of a statement of community goals and development policies. It shall include maps, any necessary diagrams and text set forth objectives, principles, standards and plan proposals. The plan should include the following: ... (f) For cities and towns with territory in the vicinity of a military airport as defined in Section 28-8461, includes consideration of military airport operations.



This recommendation is to ensure that the Task Force is providing consistent guidance to applicable legislation with its recommendations.

The appropriate role of the State is to reinforce actions (i.e., land use planning and development decisions to preserve the missions of Arizona's military installations, military facilities, and operating areas) at the local level. The State should not inhibit local communities from setting stricter standards if they so choose. These actions should be encouraged to ensure the long-term retention of Arizona's military installations, military facilities, and operating areas but the State should not mandate their use.

16) Revise ARS §11-806B to read as follows:

Revision (in Bold): B. The commission shall prepare and recommend to the board a comprehensive plan of the area of jurisdiction of the county in the manner prescribed by article 2 of this chapter. The purpose of the plan is to bring about coordinated physical development in accordance with the present and future needs of the county. The comprehensive plan shall be developed so as to conserve the natural resources of the county, to insure efficient expenditure of public funds, and to promote the health, safety, convenience, and general welfare of the public. Such comprehensive plan may include but not be limited to, among other things, studies and recommendations relative to the location, character and extent of highways, railroads, bus and other transportation routes, bicycle facilities, bridges, public buildings, public services, schools, parks, open space, housing quality, variety and affordability, parkways, hiking and riding trails, airports, forests, wildlife areas, dams, projects affecting conservation of natural resources, air quality, water quality and floodplain zoning. For counties with territory in the vicinity of a military airport as defined in section 28-8461, the commission shall also consider military airport operations **military facilities and operating areas**. Such comprehensive plan shall be a public record, but its purpose and effect shall be primarily as an aid to the county planning and zoning commission in the performance of its duties.

Rationale: This statute also deals with the requirements for local jurisdictions under Growing Smarter. The current language is:

B. The commission shall prepare and recommend to the board a comprehensive plan of the area of jurisdiction of the county in the manner prescribed by article 2 of this chapter. The purpose of the plan is to bring about coordinated physical development in accordance with the present and future needs of the county. The comprehensive plan shall be developed so as to conserve the natural resources of the county, to insure efficient expenditure of public funds, and to promote the health, safety, convenience, and general welfare of the public. Such comprehensive plan may include but not be limited to, among other things, studies and recommendations relative to the location, character and extent of highways, railroads, bus and other transportation routes, bicycle facilities, bridges,



public buildings, public services, schools, parks, open space, housing quality, variety and affordability, parkways, hiking and riding trails, airports, forests, wildlife areas, dams, projects affecting conservation of natural resources, air quality, water quality and floodplain zoning. For counties with territory in the vicinity of a military airport as defined in section 28-8461, the commission shall also consider military airport operations. Such comprehensive plan shall be a public record, but its purpose and effect shall be primarily as an aid to the county planning and zoning commission in the performance of its duties.

This recommendation is to ensure that the Task Force is providing consistent guidance to applicable legislation with its recommendations.

The appropriate role of the State is to reinforce actions (i.e., land use planning and development decisions to preserve the missions of Arizona's military installations, military facilities, and operating areas) at the local level. The State should not inhibit local communities from setting stricter standards if they so choose. These actions should be encouraged to ensure the long-term retention of Arizona's military installations, military facilities, and operating areas but the State should not mandate their use.

17) Revise the definitions listed in ARS §28-8461(8) (b) and(c) to read as follows:

Revisions (in Bold): (b) In political subdivisions located in a county with a population of more than eight hundred thousand persons but less than two million persons, the area southeast of the runway within the noise contours established by the most recent air installation compatible use zone report **or the report of a cooperative land use planning effort among affected political subdivisions and the military airport** recognized by the military airport and political subdivisions in that county, including the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the end points of the main runways and at a width of three thousand feet and symmetrical about a centerline between the runways extending outward to a point thirty thousand feet from the point of beginning. The outer width is seventeen thousand five hundred feet.

(c) In political subdivisions located in a county with a population of eight hundred thousand persons or less, within the noise contours established by the most recent air installation compatible use zone report **or the report of a cooperative land use planning effort among affected political subdivisions and the military airport** recognized by the military airport and political subdivisions in that county, including the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the end points of the main runways and at a width of three thousand feet and symmetrical about a centerline between the runways



extending outward to a point thirty thousand feet from the point of beginning. The outer width is seventeen thousand five hundred feet.

Rationale: The current language for these sections is:

(b) In political subdivisions located in a county with a population of more than eight hundred thousand persons but less than two million persons, the area southeast of the runway within the noise contours established by the most recent air installation compatible use zone report recognized by the military airport and political subdivisions in that county, including the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the southeast runway end at a width of two thousand feet and extending outward thirty thousand feet to a width of ten thousand four hundred feet.

(c) In political subdivisions located in a county with a population of eight hundred thousand persons or less, within the noise contours established by the most recent air installation compatible use zone report recognized by the military airport and political subdivisions in that county, including the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the end points of the main runways and at a width of three thousand feet and symmetrical about a centerline between the runways extending outward to a point thirty thousand feet from the point of beginning. The outer width is seventeen thousand five hundred feet.

In order to reinforce State code for noise contours and accident potential zones as the minimum standard for compatible land uses around military airports, to provide certainty to affected landowners and allow for potential mission growth, to provide political subdivisions and the military airport, and to encourage local jurisdictions to adopt more restrictive measures as appropriate (see recommendation 7 for current “best practices” identified by recent joint land use studies).

Local jurisdictions have public processes (i.e., public hearings) for making these types of planning and development decisions to involve all stakeholders.



18) Identify acreages affected by departure corridors, APZs and high-noise areas as defined in ARS §28-8461-8 in sufficient detail for land use determination; Formally incorporate these acreages into State statutes and local ordinances for planning and zoning purposes.

Rationale: This is necessary to determine land use and the potential cost of compensating affected landowners. The areas affected are defined in ARS §28-8461-8 as follows:

8. "High-noise or accident potential zone" means any property located in the following zones:

(a) In political subdivisions located in a county with a population of two million or more persons, within the 1988 noise contours developed and recognized by the regional planning agency in that county that includes the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the south end of the westernmost runway at a width of one thousand five hundred feet west and two thousand five hundred feet east, measured perpendicular to the centerline of the runway, and extending southwesterly parallel to the runway for a distance of thirty thousand feet.

(b) In political subdivisions located in a county with a population of more than eight hundred thousand persons but less than two million persons, the area southeast of the runway within the noise contours established by the most recent air installation compatible use zone report recognized by the military airport and political subdivisions in that county, including the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the southeast runway end at a width of two thousand feet and extending outward thirty thousand feet to a width of ten thousand four hundred feet.

(c) In political subdivisions located in a county with a population of eight hundred thousand persons or less, within the noise contours established by the most recent air installation compatible use zone report recognized by the military airport and political subdivisions in that county, including the approach and departure corridor that is the accident potential zone one and accident potential zone two plus the land area described as follows: starting two hundred feet from the end points of the main runways and at a width of



three thousand feet and symmetrical about a centerline between the runways extending outward to a point thirty thousand feet from the point of beginning. The outer width is seventeen thousand five hundred feet.

19) Revise ARS §9-461.06 by adding a new section D (with subsequent sections being re-lettered) to read as follows:

Proposed Addition: D. If the general plan or portion, element or major amendment of the general plan is applicable to properties within the high-noise or accident potential zones of a military airport, a military facility and operating area as defined in Section 28-8461, the Department of Commerce or any other State agency designated as the planning agency for the State must determine compliance with Section 28-8481 and Section 28-8482 before the general plan or a portion, element or major amendment may be adopted.

Rationale: The current procedure for determination of compliance with the State's statutes on compatibility requires post-action reporting. The obvious disadvantage to that procedure is that the Attorney General's Office is not aware of any violation until after it has taken place. This could result in the creation of vested rights when pre-action could have prevented that creation. Any planning or zoning decisions within the noise contours or the accident potential zones should require a letter of compliance from the State before they may be approved by the local jurisdiction. This function should be placed with the Department of Commerce with the Attorney General's acting as its legal counsel. The Department of Commerce is the logical place for this function because of its involvement with the past land use compatibility studies and the Growing Smarter legislation. The Department of Commerce and the Attorney General's Office should each be given a new full time employee to perform the functions. The legislature would need to fund those positions.

The intent of this recommendation is not to make a change to the compatibility statutes but to ensure that an analysis of compliance check is accomplished. This will provide an objective third party clarification of the public record and should be transparent in the planning process. But, the Department of Commerce will not receive any vesting authority as a result of this revision.

20) Revise ARS §11-806 by adding a new section H to read as follows:

Proposed Addition: H. If the comprehensive plan or portion, element or major amendment of the comprehensive plan is applicable to properties within the high-noise or accident potential zones of a military airport military facility and operating area as defined in Section 28-8461, the Department of Commerce or any other State agency designated as the planning agency for the State must determine compliance with Section 28-8481 and Section 28-8482 before the



comprehensive plan or a portion, element or major amendment may be adopted.

Rationale: The current procedure for determination of compliance with the State's statutes on compatibility requires post-action reporting. The obvious disadvantage to that procedure is that the Attorney general's Office is not aware of any violation until after it has taken place. This could result in the creation of vested rights when pre-action could have prevented that creation. Any planning or zoning decisions within the noise contours or the accident potential zones should require a letter of compliance from the State before they may be approved by the local jurisdiction. This function should be placed with the Department of Commerce with the Attorney General's acting as its legal counsel. The Department of Commerce is the logical place for this function because of its involvement with the past land use compatibility studies and the Growing Smarter legislation. The Department of Commerce and the Attorney General's Office should each be given a new full time employee to perform the functions. The legislature would need to fund those positions.

The intent of this recommendation is not to make a change to the compatibility statutes but to ensure that an analysis of compliance check is accomplished. This will provide an objective third party clarification of the public record and should be transparent in the planning process. But, the Department of Commerce will not receive any vesting authority as a result of this revision.

21) Revise ARS §28-8461 to repeal the post-action reporting requirement of local jurisdictions in the vicinity of a military airport to the Attorney General's Office.

Rationale: The current procedure for determination of compliance with the State's statutes on compatibility requires post-action reporting. The obvious disadvantage to that procedure is that the Attorney general's Office is not aware of any violation until after it has taken place. This could result in the creation of vested rights when pre-action could have prevented that creation. Any planning or zoning decisions within the noise contours or the accident potential zones should require a letter of compliance from the State before they may be approved by the local jurisdiction. This function should be placed with the Department of Commerce with the Attorney General's acting as its legal counsel. The Department of Commerce is the logical place for this function because of its involvement with the past land use compatibility studies and the Growing Smarter legislation. The Department of Commerce and the Attorney General's Office should each be given a new full time employee to perform the functions. The legislature would need to fund those positions.

NOTE: If recommendations 19 and 20 are not accepted, then recommendation 21 would be removed, because some level of reporting should still be retained.



22)Mandate that local jurisdiction(s) adopt via the public hearing process established in Titles 9 and 11 for land use decisions, noise contours if appropriate for military facilities and operating areas and utilize the land use compatibility recommendations set forth in ARS §28-8481.

Rationale: Since there is nothing currently in statute to allow for protections of military facilities and operating areas, we would like to see local jurisdictions and military installations work together to develop compatible land use planning procedures.

The appropriate role of the State is to reinforce actions (i.e., land use planning and development decisions to preserve the missions of Arizona's military installations, military facilities, and operating areas) at the local level. The State should not inhibit local communities from setting stricter standards if they so choose. These actions should be encouraged to ensure the long-term retention of Arizona's military installations, military facilities, and operating areas but the State should not mandate their use.

23)Mandate that local jurisdictions adopt via the public hearing process established in Titles 9 and 11, the appropriate "vicinity boxes" for notification of purchasers of property in areas affected by military facilities and operating areas. (Applies only to areas that do not already have a vicinity box defined).

Rationale: Since there is nothing currently in statute to require notification in areas affected by military facilities and operating areas. We would like to see local jurisdictions and military installations work together to develop the vicinity boxes that are needed.

The appropriate role of the State is to reinforce actions (i.e., land use planning and development decisions to preserve the missions of Arizona's military installations, military facilities, and operating areas) at the local level. The State should not inhibit local communities from setting stricter standards if they so choose. These actions should be encouraged to ensure the long-term retention of Arizona's military installations, military facilities, and operating areas, but the State should not mandate their use.

24)Expand current county planning and zoning authority to enable better management of growth and development in areas impacted by military airports, military facilities, and operating areas, including the impact of lot splits, and to allow the transfer of development rights.

Rationale: The counties understand the value of Arizona's military installations, military facilities, and operating areas. At the present time, they have exhausted all their authority under Arizona statutes to address decisions in the best interests of the military installations. We support continued county efforts to plan, zone, and enforce densities that are compatible with Arizona military operations. These efforts include the actions already taken by the



following counties, but not limited to Yuma County for Marine Corps Air Station and Yuma Proving Ground, Maricopa County for Luke Air Force Base, Cochise County for Fort Huachuca, Pima County for Davis-Monthan, and Pinal County for the National Guard and Reserve Operations. Thus, we support an increase to their authority to address future decisions in the best interests of the military installations as needed.

25) Add a disclosure statement on the title of the property and/or lease agreement to enhance the notification for all buyers, renters, and leasers of property in the vicinity of a military airport (note: this will require a statutory change).

Rationale: This is needed to ensure that these notification requirements run with the land so that all subsequent buyers are aware that homes are in the vicinity of a military airport and to ensure consistency across jurisdictions. This should prevent noise and safety issues before they happen with an early notification process.

5.3 ACTIONS REQUIRING CONGRESSIONAL SUPPORT

26) Recommend to the Arizona Congressional Delegation that enabling and funding legislation be drafted and enacted within the 108th Congress that would direct the Bureau of Land Management (BLM) move forward in a timely and expeditious manner with the acquisition of nonfederal lands through an exchange process, on a willing seller basis, which would protect and enhance operations at military installations within the State of Arizona. The enabling legislation should also include provisions to authorize the BLM to sell at public auction certain public lands and use the proceeds from such sales, within the State of Arizona, to purchase nonfederal lands, on a willing seller basis, which may be identified as necessary to protect the long-term mission viability at military installations in Arizona. The enabling legislation should additionally include such provisions as may be necessary to allow for the transfer of all or part of those nonfederal lands legislatively authorized and acquired by the BLM in the vicinity of the military installations to be conveyed to the State of Arizona via friendly condemnation, for certain State Trust Lands located within areas of special federal designation.

Rationale: The mechanism developed for exchanges could help the State and federal government deal with land areas impacted by military airports, military facilities, and operating areas in all 50 states as well as Arizona. It must be noted that expedition of the process does not eliminate or bypass environmental or other important review processes. In addition, all exchanges must be in the best interest of the trust.

27) Request that the Arizona Congressional Delegation continue to seek federal appropriations for the purchase and/or lease of development rights or acquisition of property from willing landowners of properties within the high-



noise or accident potential zones of a military airport, a military facility and operating area as defined in ARS §28-8461.

Rationale: Arizona is uniquely positioned to satisfy most of the needs of the Department of Defense for many years to come with our unique network of capabilities, training resources, research, development, test and evaluation activities. It is in the best interests of the Department of Defense to ensure the long-term retention Arizona's military installations to fulfill its National Defense mission.



CONCLUSION

The Report of the Governor's Military Facilities Task Force is the culmination of the work of the Governor's Military Facilities Task Force over the past seven months. This report answers every element of Executive Order 2003-18, dated May 27, 2003. Based upon in-depth study, extensive research, and careful consideration of perspectives offered by many individuals and interest groups, the Task Force's 27 recommendations define an implementation strategy to ensure the long-term sustainability of Arizona's military facilities. This implementation strategy is based upon the recognition that Arizona is uniquely positioned to serve most of the long-term needs of the Department of Defense and that the military preserve in Arizona is a stable and substantial foundation of Arizona's economy. The full implementation of the Task Force's 27 recommendations will be a challenge and will require concerted action at the State, local, and federal levels. A commitment to full implementation of the recommendations is essential to ensure the long-term preservation of Arizona's United States Military industry. The Task Force is ready to assist in this endeavor.



APPENDIX A: EXECUTIVE ORDER 2003-18

ESTABLISHING A GOVERNOR'S TASK FORCE FOR MILITARY FACILITIES

WHEREAS, the State of Arizona is a premier operational and training location for our military services; and

WHEREAS, the State of Arizona has excellent weather, available airspace, access to world class training and research, development, test and evaluation ranges and communities that appreciate and respect our military services; and

WHEREAS, military operations and training in Arizona are extremely cost effective; and

WHEREAS, the operation of military facilities in Arizona contributes more than 5.7 billion dollars to our economy annually; and

WHEREAS, it is the responsibility of the State and local communities to ensure that all of our military facilities continue to operate long-term in a manner that is effective for the military and compatible with local communities.

NOW, THEREFORE, I, Janet Napolitano, Governor of the State of Arizona, by virtue of the authority vested in me as Governor by the Arizona Constitution and the laws of the State, do hereby order the creation of a Task Force to develop strategies for ensuring long term retention of all premier military facilities in Arizona so that they may continue to perform their vital national defense missions. This Task Force is to be known as the *Governor's Military Facilities Task Force*.

1. The Task Force shall be comprised of nine voting and two advisory members. It will function under authority of the Governor and be chaired by R. Thomas Browning and Robert Johnston who will serve as co chairs of the Task Force. If the occasion shall so arise, the Governor may designate another member of her staff to chair meetings.
2. Members shall be appointed by the Governor and shall serve at the pleasure of the Governor.
3. Members or designees shall not send alternates to represent them at Task Force meetings.
4. The Task Force shall advise the Governor on matters affecting the operational viability of military facilities within Arizona.
 - a. The Task Force shall understand the mission of each military facility in the state and the contribution of each such facility to our national defense.
 - i. The Task Force shall also understand each facility's requirements for performing its mission.
 - b. The Task Force shall identify any obstacles to the mission of each of the facilities with regard to criteria used by their respective military service.
 - c. The Task Force shall examine any state law, local ordinance, local zoning ordinances or requirements, or any other state or local requirement, rule or regulation that adversely

**The Report of the
Governor's Military Facilities Task Force**



- impacts the mission of each of the military facilities in this state, and shall make recommendations on how such laws, ordinances, requirements, rules or regulations can be amended to better enable each military facility to perform its mission efficiently.
- d. The Task Force shall evaluate any locally-developed proposals intended to mitigate the impact of military facilities on surrounding areas or the impact of non-military activities in surrounding areas on the mission of military facilities.
 - e. The Task Force shall study and reaffirm the economic contributions to the State of Arizona of each military facility in the State.
5. The Task Force shall make recommendations to the governor relating to actions needed to ensure the long-term viability of military installations and resources.
- a. The Task Force shall identify tools available and responsible agencies for actions needed to ensure the long-term viability of military installations and resources.
 - b. The Task Force shall recommend any required changes to state law, local ordinances, local zoning requirements or any other state or local requirement, rule or regulation in order to encourage the continued operation of military facilities within the state.
 - c. The Task Force shall recommend any required actions to be taken by the state at the federal level in support of military facilities within the state.
 - d. The Task Force shall identify federal, state and local monies as appropriate to ensure the proper functioning and the continued operation of military facilities within the state.
6. The Governor's Military Facilities Task Force shall be reviewed no later than December 31, 2003 to determine appropriate action for its continuance, modification or termination.

IN WITNESS WHEREOF, I have hereunto set
my hand and caused to be affixed the Great Seal
of the State of Arizona.

GOVERNOR

Done at the Capitol in Phoenix on this 27th day
of May in the Year of Our Lord Two Thousand
and Three and of the independence of the United
State of America the Two Hundred and Twenty-
Second.

ATTEST:

Secretary of State



APPENDIX B: GLOSSARY OF ACRONYMS

A

ACC – Air Combat Command
ACS – Air Control Squadron
AETC – Air Education and Training Command
AFAF – Air Force Auxiliary Field
AFMC – Air Force Materiel Command
AFRL/HEA – Warfighter Training Research Division/Human Effectiveness Directorate
AFSOC – Air Force Special Operation Command
AFW – Air Refueling Wing
AICUZ – Air Installation Compatible Use Zone
AMARC – Aerospace Maintenance and Regeneration Center
AOC – Air Operations Center
APZ – Accident Potential Zone
ARS – Arizona Revised Statutes
ASC – Army Signal Command
ATCAA – Air Traffic Control Assigned Airspace
AWACS – Airborne Warning and Control System

B

BLM – Bureau of Land Management
BMGR – Barry M. Goldwater Range

C

C4I – Command & Control, Communications, Computers, and Intelligence
CCD – Charge Coupled Device
COMSEC – Communications Security
CSAR – Combat Search and Rescue
CZ – Clear Zone

D

DISA – Defense Information Systems Agency
DFAS – Defense Finance & Accounting Service
DMT – Distributed Mission Training
du/ac – Dwelling Units Per Acre



E

EC – Electronic Combat
ECG – Electronic Combat Group
EPA – Environmental Protection Agency
EPG – Electronic Proving Ground
EW – Electronic Warfare

F

FAA – Federal Aviation Administration
FMR – Florence Military Reservation
FOB – Forward Operations Base
FORSCOM – Forces Command

G

GADA – Greater Arizona Development Authority

I

ICUZ – Installation Compatible Use Zone
IENMP – Installation Environmental Noise Management Plan
IEW – Intelligence and Electronic Warfare
IEWTD – Intelligence and Electronic Warfare Testing Directorate
IFR – Instrument Flight Rules
ILS – Instrument Landing System
IMA – Information Mission Area
IMT – International Military Training
INM – Integrated Noise Model
IP – Instructor Pilot
ISEC – Information Systems Engineering Command
ISR – Intelligence, Surveillance, and Reconnaissance

J

JAGCE – Joint Air-Ground Center of Excellence
JCNTF – Joint Counter Narcotics Task Force
JITC – Joint Interoperability Test Command
JLUS – Joint Land Use Study
JNTC – Joint National Training Capability

L

LANTIRN – Low Altitude Navigation and Targeting, Infra-Red Night (pattern)



Ldn – Day-Night Average Sound Level
LUPZ – Land Use Planning Zone

M

MAC – Military Affairs Commission
MAG – Marine Aircraft Group
MAWTS – Marine Aviation Weapons and Tactics Squadron
MCAS – Marine Corps Air Station
MDS – Major Defense System
MI – Military Intelligence
MOA – Military Operating Area
MP – Maintenance Pilot
MRTFB – Major Range and Test Facility Base
MTR – Military Training Route

N

NATO – North Atlantic Treaty Organization
NCO – Noncommissioned Officer
NETCOM – Network Enterprise Technology Command
NPOI – Navy Prototype Optical Interferometer
NTC – National Training Center

O

OEA – Office of Economic Adjustment
OTC – Operational Test Command

P

PAR – Precision Approach Radar
POP – Proof of Principle
PMM – Precision Measuring Machine
PPMR – Papago Park Military Reservation
PZ/LZ – Pick-up/Landing Zone

R

R&D – Research and Development
RAICUZ – Range Air Installation Compatible Use Zone
RQS – Rescue Squadron

S

SARNAM – Small Arms Range Noise Assessment Model



SDC-H – Software Development Center – Huachuca
SEMA – Special Electronic Mission Aircraft
SLT – Simulated Laser Target
SUA – Special Use Airspace

T

TACAN – Tactical Air Navigation
TACTS – Tactical Air Combat Training System
TACTS/EWS – Tactical Air Combat Training System/Electronic Warfare System
TFR – Terrain Following Radar
TPL – Trust for Public Land

U

UAV – Unmanned Aerial Vehicle
U.S. – United States
USEPA – United States Environmental Protection Agency
USACCSLA – United States Army Communications-Electronics Command
Communications Security Logistics Activity
USMC – United States Marine Corps

V

VFR – Visual Flight Rules

W

WAATS – Western Army Aviation Training Site
WTI – Weapons Tactics Instructor

Y

YCAA – Yuma County Airport Authority

Z

ZOI – Zone of Influence