Introduction

Reality struck hard on 24 September 2007 when Secretary of the Air Force Michael Wynne publicly announced that the 40,000 personnel reduction taken by the Air Force to pay for new airplanes was not reaping the rewards envisioned—stated bluntly, "It isn't working." The purpose of the drawdown in Air Force personnel strength to 316,000 by fiscal year 2009 was to free up money to modernize the Air Force's aging aircraft fleet—average age of 24 years, 14 percent of which is either grounded or possesses mission-limiting restrictions. This type of drawdown, a method commonly used in private industry, is used to liquidate assets to gain the resources needed to recapitalize the company's asset base. However, the funds generated by the drawdown were only sufficient to alter the slope of the aging curve so that the average age was 26.5 years by the end of the current five-year defense plan.[1]

Special Feature

Further, the drawdown generated insufficient savings throughout the out-years to significantly alter the aging curve. Air Force leaders state they need an additional $20B per year to meet aircraft fleet recapitalization needs.[2] Additional drawdown of forces is not realistic and the Air Force Strategic Plans and Programs Division is already taking action for the next Quadrennial Defense Review to add back eight combat-ready wing equivalents and return Air Force end strength to 330,000 in order to meet future requirements for providing global strategic deterrence.[3]

What remains unclear is whether Congress will provide any additional funds to meet recapitalization requirements. Likewise, there is no indication from Congress that money will be appropriated to support the now needed upsizing of Air Force end strength to 330,000, or whether that cost will be borne by the Air Force out of its future budgets. As a result, the Air Force is looking for all means to achieve the needed savings for recapitalization.

The Air Force's current fascination with Air Force Smart Operations for the 21st Century (AFSO21) may help it to do more with less via better management of resources and improved efficiencies—reviewing existing processes and attempting to make them more efficient. In fact, process reengineering has identified some savings in Air Force depot and industrial processes, but not nearly enough to meet the savings needed.

The Air Force budget is comprised of four main areas, all in need of additional funding: personnel (force structure), readiness, infrastructure (sustainability), and procurement (modernization).[4] Personnel costs (pay and benefits) have risen 57 percent over the last 10 years while personnel end strength has decreased by 8 percent. Operating (readiness) costs have increased 179 percent over the last 10 years, even though the aircraft inventory was reduced by some 2,500 airframes. The Air Force baseline budget, however, has not increased commensurate with these rising costs of operation. Figure 1 depicts defense spending as a percentage of gross domestic product (GDP) since Air Force establishment and the trend indicates there will likely be little change in the future.[5] Although there has been debate, a convincing case has not yet been made to secure an increase in defense spending.

Jeffery A. Vinger, PE, Colonel, USAF

Future Air Bases

Power Patches or Military Communities?

A revolutionary approach is needed by the Air Force to reengineer not only its business processes but also its current and future basing methods.

Article Highlights

The Air Force should join with other Services to implement an ideal base study, as conducted in the 1960s, to examine future requirements for a Joint basing structure given changing technologies, potential threats, climate changes, and changing support missions.

Colonel Jeffery A. Vinger in "Future Air Bases: Power Patches or Military Communities" examines what airbases of the future might look like.

The Air Force recently elected to reduce end strength by 40,000 personnel in a private industry approach to liquidate assets to generate needed capital to recapitalize and modernize its core operating systems—aircraft that are rapidly aging. Air Force leadership believes it requires an additional $20B annually to recapitalize its fleet. While Congress shows little inclination to provide the additional funding, analysis of the Air Force budget shows little flexibility to shift sufficient funding from other areas to meet recapitalization needs. Further drawdown of personnel is no longer an option as current Air Force planning indicates a need for increased authorizations to meet future mission requirements and actions are underway to increase end strength from 316,000 to 330,000. This makes the infrastructure area of the budget with its focus on military construction, base realignment and closure (BRAC), family housing, and operations and maintenance the only potential budget area with any flexibility. Unfortunately, this segment of the budget comprises only $5B of the current Air Force budget.

Base realignment was thought to be a method by which to generate future savings, but the approach of simply transferring assets to local communities while constructing new facilities to

Given that the Air Force cannot further reduce end strength (personnel budget) and flying mission operations (readiness budget) must continue, an approach which aggressively examines the only piece of the budget from which savings may be found—infrastructure—is needed. The current infrastructure portion of the budget totals only $5B, and simply transferring the bulk of these funds to other budget areas will not solve the recapitalization problem. Therefore, a more revolutionary approach is needed that strategically leverages the existing infrastructure budget to generate future savings for recapitalization, while at the same time unlocking the potential value of Air Force infrastructure assets.

Given that the Air Force's current infrastructure plant is valued at over $200B, this is an asset base that could be used in various ways to generate the resources needed for recapitalization.[7] The funding used to support infrastructure assets (military construction, family housing, base realignment and closure [BRAC], and operations and maintenance accounts) is available in the short term to create change and generate efficiencies for current and future savings. Over the long term, the Air Force needs a strategy to generate savings from the infrastructure base that can be used to reduce outlays within specific areas—readiness that includes utility accounts and supporting contract accounts.

Throughout the past two decades, amidst budget cuts, personnel reductions, and base closures, the Air Force has been called on continuously to support Department of Defense (DoD) demands for power projection around the globe. While some senior leaders have expressed serious concern for the operations tempo, there seems to be no end in sight to the complex challenges facing our world and strategic national security interests. To remain a viable weapon of choice, the Air Force must transform, making difficult choices for organizing, training, and equipping air, space, and cyberspace forces.[8]

> We're at a critical juncture—a transition period that will shape the Air Force and our nation's security for generations to come. By focusing on our main priorities—winning the global war on terror, developing airmen, and recapitalizing and modernizing the Total Force—we are prepared to face the challenges of today and the uncertainties of tomorrow… Meeting these challenges will require bold new initiatives.[9]

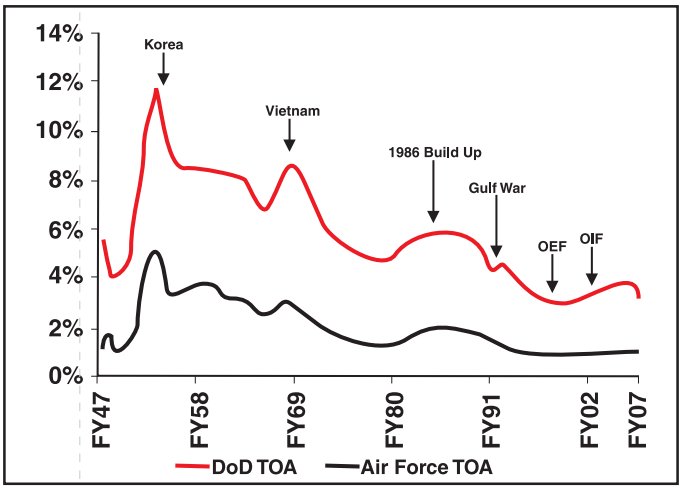

Figure 1. GDP Spending on Defense[6]

Discussion

Article Focus

The intent of this article is to focus on the Air Force's priority of recapitalizing and modernizing the Total Force. This article assumes the Air Force is making the most of its infrastructure budget to create efficiencies over the short term to include focusing investment on more energy efficient technologies, facilities, design standards, and utility reducing systems.[10] This article will focus on long-term changes that can generate efficiencies from which savings can be generated from the infrastructure base. Given this position, it is believed that the footprint of the Air Force can and will be dramatically reduced in the future, providing tremendous efficiencies in the number, look, and operations of continental United States (CONUS) air bases. As such, the Air Force basing structure may hold the greatest potential for generating resources needed to support the recapitalization and modernization needed to further Air Force transformation.

A revolutionary approach is needed by the Air Force to reengineer not just its business processes, but also its future basing methods. An approach is needed to both free up substantial existing infrastructure assets (value in excess of $200B) and unlock the potential value of Air Force installations for potential liquidation or exploitation. Such an approach must also generate multiple efficiencies to reduce bills, rather than continue to increase future costs that compete for limited budget funds.

History

Past approaches to basing have been incremental rather than revolutionary. This is evidenced with a review of the current inventory of installations. Currently, 20 percent of CONUS Air Force installations existed well before World War II.[11] For example, Francis E. Warren Air Force Base (AFB), Wyoming and Offutt AFB, Nebraska are locations decided upon as western outposts during the American Indian wars. In most cases, we continue to invest heavily in maintaining and operating the ancient infrastructure at such bases. Also, 94 percent of existing CONUS Air Force installations were active War Department installations or Army airfields during World War II. Others, like Malmstrom AFB, Montana and Beale AFB, California, are remnants of bases thought to be only temporarily established to support lend-lease ferrying operations to the Soviet Union or prisoner of war internment during World War II.[12] The majority of our current bases were simply the result of inheritance from the Army following World War II, as politically directed by Congress, whether they met the needs of the Air Force or not, with incremental changes over the decades to continue to maintain, operate, and modernize some of the same existing infrastructure. Only 6 percent of our current airbases were actually the result of any actual strategic, analytical planning processes.[13] Some former Strategic Air Command (SAC) bases (Minot AFB, North Dakota and Grand Forks, South Dakota) were consciously located based on technology of the time to be within interceptor range of Soviet bombers. Likewise, Schriever AFB, Colorado was established in the 1980s to provide command and control of space-based assets.[14] As seen by the few installations added to the Air Force inventory, the major justification for these bases focused on the technological aspects of the weapons systems needed to reside at those installations.

Methodology

Future technology may leave these past basing strategies as well as many of the resulting current installations obsolete. Likewise,

Article Highlights

realign assets to other locations chewed away at any potential savings, preventing long-term savings from materializing. Colonel Vinger proposes a revolutionary approach to reengineer a segment of Air Force business processes. Future basing methods need to free up and unlock the value of some assets for liquidation and generate efficiencies that reduce budget layouts rather than continue to increase future budgets. Past approaches to basing have been incremental rather than revolutionary. Many current Air Force bases are locations decided upon from the result of the Indian wars, while the locations of other bases are simply the result of inheritance from the Army following World War II. Only a handful of our current stateside airbases were the result of any actual strategic planning process. Today's technology and future technology may leave these past basing strategies even more obsolete. Vinger believes the current BRAC process merely locks in future incrementalism. In an effort to determine a potential revolutionary approach, he assumes a clean slate and assesses three very broad categories to see if we can learn anything that may be useful in influencing future BRAC considerations. These three areas are basing aligned with Homeland Security, military basing aligned with the Total Force structure, and military basing aligned for Joint missions. The article concludes by assessing the benefits of each option.

Article Acronyms

AFB – Air Force base
AFSO 21 – Air Force Smart Operations for the 21st Century
BRAC – Base Realignment and Closure
CBO – Congressional Budget Office
CONUS – Continental United States
DHS – Department of Homeland Security
DoD – Department of Defense
GDP – Gross Domestic Product
SAC – Strategic Air Command
UAV – Unmanned Aerial Vehicle

potential future threats to these bases such as encroachment, force protection issues, and even climate change are serious concerns warranting consideration in assessing future basing strategies. Current processes for modernizing airbases for the future such as military construction and BRAC realignment continue to perpetuate and lock in future incrementalism. In an effort to determine a potential revolutionary approach, this article assumes a blank sheet of paper unfettered by current and historical constraints of base geometry, geology, infrastructure, location, or politics. It will examine three very broad categories to see if we can learn anything that may be useful in metering into future military construction and BRAC process considerations. The three broad areas reviewed by this article include military basing aligned with:

- Homeland security concerns
- The Total Force structure
- Joint operations

This article will present various ideas for consideration in matching or combining mission capabilities to establish major installations under the three broad areas mentioned. Finally, this article reviews the benefits of the potential options assessed, drawing general conclusions on future basing strategies the Air Force might consider for maximizing efficiencies for future operations. It then discusses recommendations for proposed future basing strategies.

Optimizing Air Base Installations

This section of the article assesses three different actions that may provide tremendous opportunity for the Air Force to relook at its current force structure and supporting infrastructure, capitalizing on economies and efficiencies for the future. It discusses how future Air Force supporting infrastructure might be molded to enhance support to homeland security efforts. It reviews the potential for efficiencies and savings by tying a baseline supporting infrastructure with future Total Force initiatives. Finally, it makes a case for efficiencies created utilizing a baseline supporting infrastructure with a program of Joint basing or consolidation, combining multiple activities to fully utilize the available space of our military installations.

Molding into Homeland Security

The creation of the Department of Homeland Security (DHS) was the largest restructuring of federal agencies since the 1947 National Security Act establishing the Air Force.[15] Section 202 of Title 6, United States Code makes the DHS responsible for securing the borders, territorial waters, ports, terminals, waterways, and air, land, and sea transportation systems of the United States and preventing the entry of terrorists and the instruments of terrorism into the United States. According to the *National Strategy for Homeland Security*, two ways in which the DoD contributes to homeland security are domestic missions of homeland defense and civil support. While DoD trains and equips its forces for homeland defense, it does not do the same for the civil support mission, instead relying on dual-capable forces for civil support activities. According to the *Strategy for Homeland Defense and Civil Support*, the National Guard also trains and equips for warfighting missions while being tasked with being a state's military responder to emergencies.[16] Securing the homeland is the DoD's top priority and is listed as the first strategic objective in the current *National Defense Strategy*.

The damage inflicted by Hurricane Katrina was huge and the likelihood of similar catastrophic natural disasters occurring again is inevitable. There are other scenarios that could provide similar catastrophic disasters such as chemical, biological, radiological, nuclear or high-yield explosion attacks. In these disasters it is highly probable that local and state capabilities will be overwhelmed and the states will require federal assistance. DoD's responsibility is to provide support to DHS, when directed by the President or when requested by the Secretary of DHS and approved by the Secretary of Defense.[17]

In addition to disasters, the DoD may be called upon to provide other forms of domestic support. Recently, the President directed the use of National Guard personnel to temporarily support the border patrol in protecting the nation's borders. This measure was intended to be an immediate, short-term measure to reduce cross-border violence, prevent entry of possible terrorists, combat trafficking in persons and illegal narcotics, and stemming the flow of illegal immigrants. There may be additional requirements in the future for Guard, Reserve, and active duty personnel and installations should there be changes made in the Posse Comitatus Act.[18]

The Posse Comitatus Act currently prohibits federal military personnel and units of the National Guard (while under federal authority) from acting in a law enforcement capacity within the United States, except where expressly authorized by the Constitution or Congress.[19] While there are currently no plans to deploy additional active duty personnel to the border, DHS informed Congress that there may, in the future, be some skills and capabilities found in active duty units that can be employed to gain and maintain increased security along the border. The future use of Air Force aerial surveillance, unmanned aerial vehicles (UAVs), command, control, communications, computers, intelligence, surveillance, and reconnaissance, transport, logistics, and engineering capabilities would be useful to the DHS border security mission. Tying future basing initiatives to provide better support to this critical DHS mission could generate efficiencies for the Air Force as well as the DoD as a whole.

Currently the DoD does not budget and program for civil support missions, viewing these missions as derivative of its wartime mission.[20] However, it is a likely assumption that Congress will increase spending for homeland security to some degree for some time into the future given the continued threat of terrorism. However, constrained funding even for homeland security, and between competing departments, will drive a future strategy of consolidating available assets to provide an interoperable system of intelligence, surveillance, and reconnaissance supporting a rapid response force capability, rather than dispersing large forces along the expansive borders of the United States. Future Air Force technologies including UAVs, unmanned combat aerial vehicles, and cyberspace capabilities will greatly enhance support to this consolidated mission, providing the intelligence data needed to identify potential threats to United States territory. Air Force assets in space and in the air will identify and track suspect traffic approaching the United States. Likewise, the same assets will be used to monitor border violations, track, and coordinate rapid interdiction response.

The operation and information gathering mission of these air and space assets can be achieved from combined operations at a single key consolidated airbase, with the information output then dispersed widely to information users. The use of future air assets will, however, require locating them at airbases closer to the locales affected. Border and coastal surveillance will require airbases (primary and alternate recovery support) within range of the expansive territories involved in order to provide the persistent imagery, surveillance, and reconnaissance needed . As an example, the North Dakota Air National Guard recently flew its first MQ-1 Predator remotely piloted aircraft from Fargo, North Dakota. The data collected by this unit (and others like it) can be consolidated centrally, interpreted, and dispersed to the appropriate DHS agency for action.[21]

The March 2007 Commission on the National Guard and Reserve found that the National Guard has assumed increased responsibilities for homeland related missions since 9-11, a trend that will continue in the future. Domestically, members have been deployed to support an increased security presence at state airports and other transportation hubs, especially during the holiday seasons or other times of elevated force protection conditions. Likewise, members have volunteered and been mobilized in large numbers to support the continuing efforts in Operation Enduring Freedom and Operation Iraqi Freedom. The Commission found that these increased responsibilities include newly created missions for the National Guard, both domestically and overseas, for which the current force structure is not sufficiently flexible enough to handle adequately. In light of the existing need for force structure change, the DoD should accomplish an aggressive review of the Guard's force structure and identify opportunities to push additional missions into the Guard, especially those key to responding and supporting the DHS mission for domestic defense and civil response.[22]

Given DHS reliance on National Guard and Reserve support, opportunities may exist for the transfer of air assets to these components to be operated and maintained at widely dispersed Air Guard and Reserve bases and local airports. With this approach, the infrastructure needed for these operating locations need only consist of core supporting infrastructure to support the air assets.

Future Air Force cyberspace systems will need to integrate information collected from a wide range of sources and share that information by linking across: federal, state, and local agencies; the private sector; and international partners. The Air Force will coordinate with interagency and intergovernmental partners to cooperate closely in the execution of homeland defense and civil support missions. To best support the homeland security mission, Air Force infrastructure will need to ensure interoperability. Many urban communities are obtaining federal grants to establish regional command and control centers, or *fusion centers*, to consolidate and coordinate civil emergency support operations.[23] The Air Force could benefit greatly by offering available space to incorporate these regional centers on federal property to facilitate the joint operability of local authorities with military defense operations. To become eligible for grant money, local communities must abide by federal rules for establishing state plans that, aside from standardizing responder equipment and capabilities, also provide for continuity of local government operations in the event of an emergency. Local airbases could provide the needed space for establishing these secure alternative operating facilities in return for fees for future operations and maintenance that can be provided through the comprehensive grant formula matrix being developed by the DHS in partnership with states and local communities. Los Angeles and Las Vegas are two examples of major urban areas in which these fusion centers will operate continuously—both cities possess major Air Force installations that could play host. The most efficient baseline supporting infrastructure is that which comprises the minimum core facilities, utilities, and airbase systems needed to ensure the Air Force is capable of meeting its mission to deliver sovereign options for the defense of the United States and its global interests.

Tying into Total Force Initiative

Numerous efforts are underway to assess potential actions to make the Air Force's Total Force more seamless. The Total Force Initiative may be akin to a chapter out of Army history in which Army General Creighton Abrams established the Total Force Policy as a result of the lessons of Vietnam.[24] At that time, it was General Abrams' intent to circumscribe the freedom of action permitted to the President to opt for war. By placing critical functions into the Reserves, without which the conduct of major campaigns was all but impossible, he made the active Army operationally dependent on the call-up or mobilization of the Reserves.[25] Like the Army, the Air Force has a significant part of its combat capabilities in the Guard to include 30 percent of personnel end strength, 33 percent of fighter squadrons, 12 percent of bomber aircraft, 45 percent of tankers, 49 percent of theater airlift, and 100 percent of air defense capability. Support units include air traffic control, combat communications, civil engineering, weather, medical, and aerial port capabilities. National Guard units are highly dispersed, existing in more than 88 flying units and 579 mission support units located in 54 states and territories of the United States. They can be mobilized quickly and deployed where needed. This size and composition is derived principally from the Total Force Policy of the 1970s, conceived as a means to meet global commitments while saving money in personnel accounts.[26]

As with past policy, the Air Force can further capitalize on Total Force initiatives to produce a smaller, more capable Air Force composed of regular, Guard and Reserve components by recapitalizing the force and changing organizational constructs. Former Chief of Staff of the Air Force (CSAF) General T. Michael Moseley's efforts to further Total Force integration will, in the coming years, provide substantial savings through shared leveraging of Air Force resources with the overall intent of increasing combat capabilities. By assigning active associates or Reserve units with Air National Guard units, these units are allowed to share responsibility for limited weapon systems. The associate unit concept has been around since 1968, successfully supporting strategic airlift operations. Associate units fly the same missions, fly the same aircraft, maintain the same aircraft, and support the same mission under the operational control of the active duty commander, but are still under the administrative control of the Air Force Reserves. Likewise, consolidating commissioning programs, training, and military education programs for active, Reserve, and Guard personnel creates efficiencies, bonding, and total integration of forces. At the same time, the Air Force's total footprint will shrink along with its required infrastructure assets and duplicative manpower activities.[27]

Figure 2 depicts 138 initiatives currently identified for action by the Air Force that will partner active duty, National Guard, and Reserve Air Force units. These initiatives allow fuller integration and sharing of future weapon systems, combining of future operations, training of the Guard and Reserve on the newest technologies and systems to increase the Air Force's reachback capabilities. They also will allow National Guard and Reserve members to directly support operations from their home airbase. Such initiatives leverage limited manpower and free active duty Air Force members for expeditionary deployments. Likewise, establishing Guard and Reserve units as associate units will allow sharing of assets rather than procuring additional assets to stand up separate units and continually resourcing them to maintain the same combat ready status.[29]

The Air Force, National Guard Bureau, and Air National Guard are working closely with the adjutant generals of all states and territories to resolve issues regarding time lines, manpower and resources, emerging mission potential locations, and new organizational constructs to increasingly integrate active duty, Air National Guard, and Air Force Reserve components. As this effort matures, the Air Force's combat capability and peacetime efficiency will increase.

In the past, one of the primary barriers to accessing and utilizing the Air National Guard in overseas missions was that the Air National Guard's traditional manning structure was more suited to the demands of a Cold War environment rather than the contingency demands of today. One option available to allow the Air National Guard to meet more demanding taskings, for longer periods of time and with less impact on the traditional Guard force, is to increase the number of active duty Air Force personnel in Air National Guard units. An example of such an arrangement is the 124th Fighter Group and the B-1 unit at McConnell AFB. The addition of active duty personnel allows these units to be capable of performing no-notice, long-duration taskings as well as crisis response. It stands to reason other Gurard units would also experience these same benefits with an increase in the number of active duty personnel assigned.[30]

The establishment of associated units either pulls National Guard and Reserve personnel to active duty units for training and operations (classic associate or ARC associate) or pushes active duty personnel out to Air National Guard or Reserve Air Force units to provide training and integration (active associate). In the latter case, active duty members will live and work in what is being termed *community basing arrangements*.[31] One of the advantages of the Reserve and Guard components is that they are community based, meaning most of the personnel assigned to these units are generally sourced from within a 50-mile radius of the unit's home base. As such, the majority of these units are located near large metropolitan areas. Another advantage is that this work force, having always been community based, has always depended on the local community for its needs and will continue to do so into the future. The benefit of leveraging manpower from the Guard and Reserves through future Total Force initiatives is increased flexibility of the active duty force—allowing greater mobility as well as future personnel reductions to generate additional funding for recapitalization, or simply to balance the budget for ever-increasing personnel costs. Increasing Guard and Reserve forces will push out the overall retirement bill for budgeting purposes. As funding for these future Total Force initiatives comes directly from the air budget, state adjutant generals, especially those with missions becoming less relevant to the warfighter or to the Air Force's air and space expeditionary force concept, are readily volunteering to accept new associated missions. Future infrastructure requirements could be drastically reduced for those associated missions pushed toward community basing operations since only core infrastructure would be needed to support those missions or systems. Likewise, for associated missions drawn toward active duty installations, the leveraging of manpower should allow further reductions in active duty personnel and a further reduction in community and communal support infrastructure as active bases could benefit by mirroring the community basing concept of Air National Guard units.

Fusing into Joint Basing Initiatives

The 2005 BRAC plan included a mandate to consolidate 25 DoD installations into 12 Joint bases in an effort to generate efficiencies and savings by reducing the duplication of effort and capitalizing on economies of scale in the management and support of combined-use installations. The concept of bundling management of facilities, infrastructure, and services is a successful business concept used extensively worldwide. The 2005 BRAC Joint Basing Initiative is expected to generate $212M in annual savings. The concept of joint basing supports the DoD's vision for all Services to operate in an efficient businesslike manner, emphasizing timely, reliable, and relevant management information for decisionmaking and regular clean audit opinions. The common delivery of installation support assists the Services in making informed risk-based decisions to program resources for installation support by allowing them to report to Congress, with confidence, where money is being spent, the cost of doing business, and the return on DoD investments. Common standards for all Services is the ultimate goal. The warfighter should receive the same standard of service, regardless of the color of the uniform.[32]

As of July 2007, the Air Force has taken a *slow-it-down* approach, prodding the Secretary of Defense to accept a concept of testing the Joint basing concept in only a couple of situations to see if it works and to develop solutions for problems before considering other bases for conversion at a later time, if at all.[33] Most Air Force apprehension centers on the loss of control by wing commanders. Under the Joint concept, the wing commander would no longer run the installation and his or her unit would be a tenant on the base with a Joint installation commander. Some fear, under this concept, that combat leaders will be replaced by managers focused only on the business principles needed to manage installation support services, but lacking a battlefield warrior ethos. Both the Navy and Army, for some time, have had organizations working very much like those envisioned in the Joint concept. The Navy Installations Command guides operations, administration, and support for all Navy shore installation support to the fleet, fighter, and families worldwide. This structure reduces infrastructure management layers, regionalizes many support operations, conserves resources, establishes enterprise-wide standards, and improves facility infrastructure. It is not the ship commander's responsibility to operate the shore base when he or she is in port. Similarly, the Army Installation Management Agency manages Army posts to support readiness and mission execution, providing facilities and services, optimizing resources, and sustaining and enhancing the

well-being of the military community. Like the Navy, the Army accomplishes support through regional offices with garrison commanders at each installation responsible solely for the management of the installation and supporting the multiple tenants located thereon. Both the Army and Navy structure allows the warfighter to concentrate on the warfighting mission and not on managing the installation.

Some elements of Air Force leadership have been concerned that the other Services are known to defer base maintenance from time to time to fund other mission priorities. Such actions may impact the quality of life at the Air Force installations, which unlike the other Services, are the Air Force's fighting platforms. That said, the Air Force has also been known to defer base maintenance as well. In fact, base operations is consistently under funded in the hopes of making up the deficit with year-end fallout money. For fiscal year 2007, the base operations account was funded at only 64 percent.[34] Likewise, claiming Air Force bases as fighting platforms is not much of an argument as the weapon systems at these bases (excluding the B-2 at Whiteman Air Force Base and the strategic nuclear deterrence mission) must be forward deployed to fighting platforms in a theater of operations. Additionally, Air Force installation wing commanders seldom, if at all, deploy with their assets to the theater. With few exceptions, they remain behind to manage the installation while their assets fall-in on established forward installations with standing warfighting wing commanders. This current arrangement already makes the *wing* commander in essence a *garrison* commander, managing the base while the forces are deployed. Restructuring airbases to the Joint installation concept with wing commanders and their units as flyaway tenants should be achievable. Hard line statements that the Air Force will not lower its standards, nor compromise its warfighting capabilities, will likely result in civilian leadership dictating the Joint standards be complied with by all Services. Similarly, readiness at any cost may no longer be a viable option in the limited funding atmosphere of the future. Joint basing can offer tremendous efficiencies in consolidation of support service missions. Consideration should be given to extending consolidation efforts even further in order to fully utilize the space and assets available at a smaller number of installations, thus allowing further reduction of infrastructure inventory.

Consolidation or realignment of Air Force or other Service missions has the potential to combine numerous activities to include multiple wings or Joint missions at the same base. This will allow more efficient use of the space available at these installations and a reduction of excess capital assets. In the 1960s the Air Force established *super-wings* in SAC, but these were actually the result of partial consolidation of just strategic bomber and tanker assets.[35] In the 1990s the Air Mobility Command established *composite wings*. These wings were the result of a partial consolidation of mobility airlift airframes and tanker assets.[36] A concept of *super consolidation* should not be limited to only missions of common major commands. Historically, there are numerous examples of multi-command missions having been collocated at airbases. In the 1960s, there were many combined use installations. Seymour Johnson Air Force Base was a tri-command installation hosting a tactical fighter wing, a strategic bombardment wing, and an air defense division.[37] Today, there

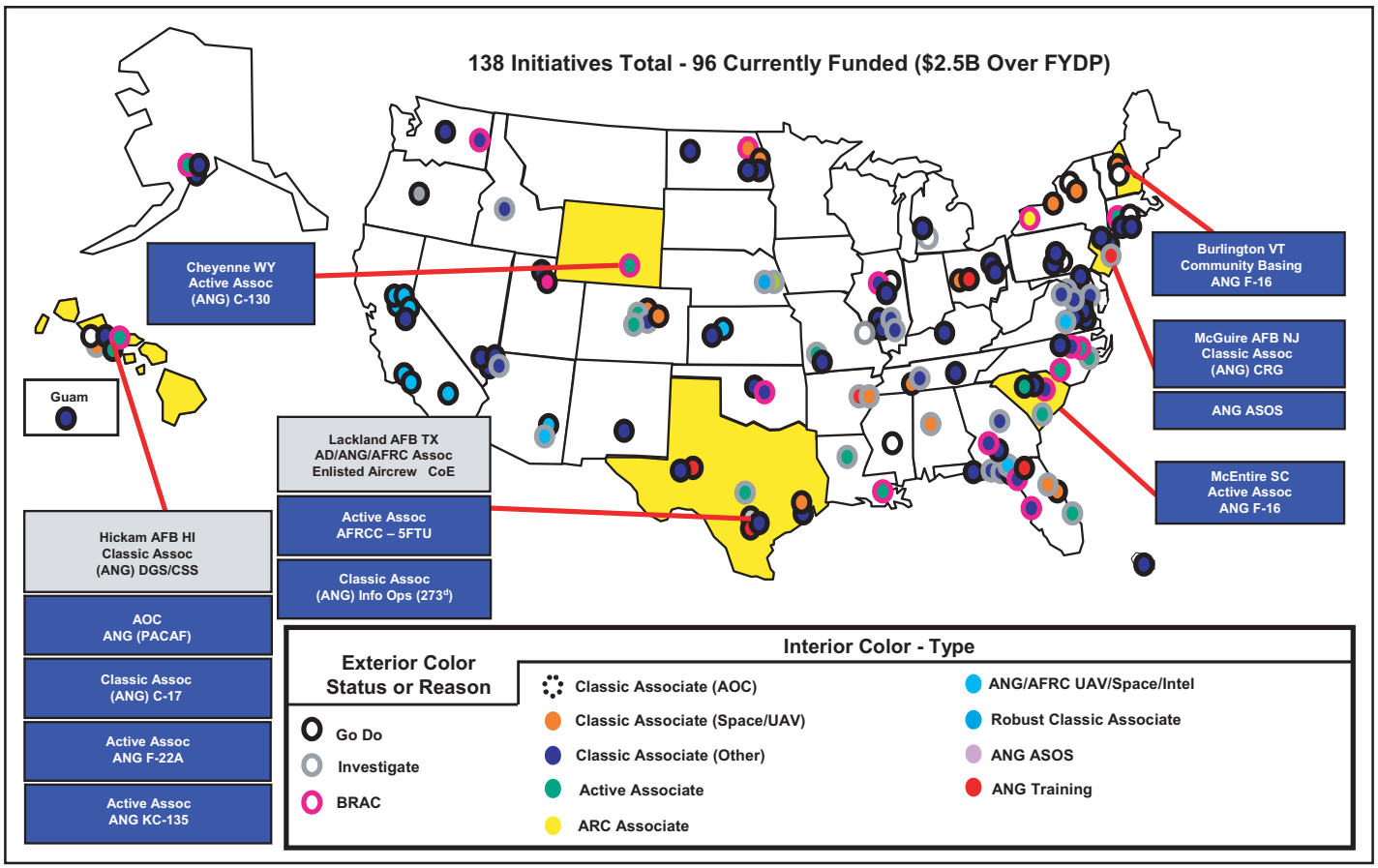

Figure 2. Total Force Initiatives[28]

are fewer examples of combined command installations, but cases do exist such as Minot Air Force Base sharing two command missions—Air Combat Command and Space Command. Likewise, cases exist today in theaters where Joint warfighting missions are consolidated and operate from the same forward operating base. Historically, the Air Force has moved units and consolidated functions in an effort to reduce operating costs, surrender capital investment, and achieve efficiencies. Likewise, the Air Force has consolidated missions for the purpose of reducing the number of commands (such as Air Defense Command to Tactical Air Command and then Tactical Air Command and SAC to Air Combat Command). There may be great benefit and efficiencies to be gained by assessing the super consolidation of multiple missions on enduring Air Force bases.

True savings will be achieved by the reduction of duplicative management and support of superfluous infrastructure. However, a counter argument might question the space available on potential enduring installations. A review of the 1998 BRAC Report by the Congressional Budget Office determined that DoD installations, on average, have more than 20 percent excess capacity when comparing the size of bases with the force and workload present.[38] In some cases, however, this argument might justify a new basing choice altogether to better meet Joint mission needs, physical space needs, future climate changes, or force protection needs. In some cases, the Air Force might need to relook at its true infrastructure needs. The most efficient baseline supporting infrastructure needed would be those core facilities, utilities, and systems critical to ensuring mission accomplishment. In mirroring a community basing concept, the core systems, facilities, and utilities are those directly impacting operational support, mission support, and personnel support systems. Operational support systems include flight line and runway systems, fuel systems, ramp space, and operations and planning centers. Mission support systems include munitions and weapons storage, hangars, maintenance backshops, logistics warehouses, and armory space. Additional infrastructure needs would include personnel support systems such as expeditionary personnel and equipment processing centers, training centers, fitness centers, and administrative space.

Assuming this position implies all other infrastructure to be superfluous, inefficient, and an added expense to the limited Air Force budget of the future. During World War II and the Korean War period, the Air Force was building for a specific objective—winning a global war, and family separations were accepted and understood. Given that, not much was spent on quality of life or communal facilities. Following the Korean War, the Air Force was building a force based on the strategic concept of deterring future wars without a foreseeable termination. As such, maintaining and retaining a quality force required more attention to providing for the families of that force. Communal facilities such as barracks, messes, housing, chapels, exchanges, theaters, clubs, and libraries began to show up in construction programs. Even in those early days of the Air Force it was assumed by Congress that military personnel would obtain their support needs from the surrounding communities; however, various surveys and reports to Congress provided sordid stories of local profiteers taking advantage of military personnel and their families. As a result, Congress was pressed to fund for more and better quality of life accommodations vital to "the comfort of the personnel."[39]

Given the budget issues discussed and continually increasing costs, the Air Force could benefit greatly by revisiting its method of *taking care of people*. Continuing to maintain the quality of life as we have for the last 60 years may not be fiscally possible over the next 60 years. In today's world of several Wal-Marts in every town and a gas station on every corner, the Air Force's only argument to maintain extensive quality of life facilities on each installation is that the low prices they offer are a cost-effective alternative to providing additional cash compensation to Service members. The CBO charges this argument is not credible when the costs that the system imposes are taken into account. The argument overlooks a $2B a year congressional subsidy that could easily disappear, forcing the Air Force to make difficult quality of life decisions in the future.[40] A more efficient and economical benefit may be to authorize national tax-free purchases, or more simply, income tax rebates for military personnel and their families, rather than manage subsidized retail sales establishments. Likewise, family housing has been touted as a means for retention of quality personnel since the establishment of the Air Force; however, less than a third of active duty military members actually live in on-base housing. According to a GAO report, based on RAND study data, 72 percent of military personnel would prefer civilian housing and it recommended the Air Force consider decreasing housing in the future to encourage military members to live off base.[41] It is assumed that current trends toward increasing pay, housing allowances, and decreased out-of-pocket expenses will further decrease the desire for on-base housing, leading to decreased needs for quality of life community facilities or other communal facilities. As such, now may be the right time to assess the future needs for costly retail, community, and communal infrastructure. Decreases in personnel support requirements will reduce the infrastructure footprint, greatly reduce utility costs, and generate open space for alternate uses on future airbases.

Findings and Conclusions

> Any base complex constructed to accommodate present-day equipment must be tested for applicability against future developments. The threat of being forced to adapt or prostitute future developments in equipment and strategy to take advantage of costly complexes which could not be abandoned in view of adverse public opinion must always be considered in determining the course of action to be followed. Thus, technological developments are a critical factor in the location of bases.[42]

Findings

Air Force relevance in the future depends on continuous technological modernization of capabilities in the realms of air, space, cyberspace, and other potential realms. Future funding for recapitalization and modernization should provide decisionmakers the ability to project power directly from airbases within the United States, thus avoiding costly forward presence. Modernization of weapon systems will create obsolescence in current infrastructure systems and even the airbases themselves due to limiting factors. The decisive factor in determining the location and continuation of an airbase is its suitability for its military mission. Establishing air bases with an eye to the technological developments in the foreseeable future would

seem common sense. However, according to Air Force historian Howard B. Seim Jr, in World War II air bases were constructed to B-17 standards while the B-29 was being test flown and the B-36 was on the drawing boards.[43] Similarly, we are designing the future bomber, tanker, strike fighter, and unmanned vehicles for operation on our World War II airbases. The Air Force needs to take more aggressive actions concerning efforts underway within the DHS, Total Force initiatives, and Joint basing to produce a smaller, more capable Air Force composed of regular, Guard, and Reserve airmen—recapitalizing the force and changing organizational constructs. The Air Force can capitalize on the unique organizational frameworks offered by these initiatives, thus enabling a more efficient and effective use of Air Force assets.

Potential Benefits

The areas discussed in this article provide valid avenues for the Air Force to examine its current force structure and supporting infrastructure and to find ways to capitalize on economies and efficiencies for the future. Molding force structure and supporting infrastructure to enhance support to homeland security and Total Force initiatives together has numerous benefits. With the emergence of securing the US homeland following the attacks of 9-11, there is a strong belief that developing a stronger, more robust, and more capable force to protect the United States is needed. This protection will likely manifest itself with increases to National Guard units throughout the country interlinked by the DHS.[44]

Other foreign countries are investing aggressively to secure their expansive borders using the high technology benefits of UAVs. An ABC TV *Asia Focus* segment interview with Air War College professor Dr Adam Cobb (fall of 2007) illustrated how Australia was testing the use of UAVs to patrol its border given the persistent capabilities of these systems.[45] The 119th Wing of the North Dakota Air National Guard recently converted from flying F-16s to a new mission flying UAVs. This conversion should be the first of many mission changes for the Air National Guard, pushing new technology and critical missions from the active duty force and making the Air National Guard a highly capable and ready force to support overseas missions as well as the domestic mission of homeland security and disaster response.[46] The adjutant generals of every state will become tremendous allies in the Air Force's efforts to modernize its force, particularly when members of Congress seek to protect constituencies in their home districts. To the greatest extent possible, the Air Force should push missions into the National Guard, taking advantage of the potential to obtain funding for modernization and acquisition of weapon systems such as UAVs that serve a dual role of border surveillance, while training the future total force needed to conduct missions abroad. In a RAND Corporation study, the CBO reported that a Guard unit is 60 to 70 percent cheaper to maintain than its active duty counterpart.[47] Transfer of more missions to the Air National Guard will generate substantial savings.

Joint basing and the overall consolidation of multiple activities to fully utilize the available space of our military installations will provide tremendous opportunities to bundle management of facilities, infrastructure, and services, and is a proven successful business concept used worldwide. The 12 Joint basing initiatives identified for testing in the 2005 BRAC action are expected to generate a $212M annual savings. As with past manning cuts, these manpower savings may or may not materialize, but not included in this estimate is the expected savings in economies of scale for bundling of contracts and services, nor the savings for further reductions of redundant supporting communal services. Aside from building closer relationships with other Services, the Air Force needs to embrace and capitalize on future Joint basing initiatives to further realign and consolidate more of its own missions. The Air Force could benefit from a full assessment of the methods used by the Navy and Army to manage their installations with a mostly civilianized, contract, and regional work force.

Potential Pitfalls

Of the choices facing the Air Force, two pose the most risk. Failing to raise the funds needed to modernize the Air Force's aging fleet will draw out or even slow down the rate of modernization, forcing the Air Force to accept the risk of aging aircraft. As of the writing of this article, 60 percent of the current fleet of F-15s (452 aircraft) was grounded by possible fleet-wide airworthiness problems due to defects in the metal holding the fuselage together.[48] These mission impacting episodes will become more frequent with more and more aging weapon systems. Failure to modernize will jeopardize the relevancy of the Air Force and the Air Force mission vis-a-vis the other Services.

The second choice of gutting the Air Force community by removing quality of life or communal support facilities and infrastructure will be a life-altering change for many. It may be argued that the Air Force community of profession is characterized by the way it treats its personnel, and that these communal support facilities act to bind its members with a sense of identity. It may also be argued that these assets are needed to establish and maintain this identity, so as to allow Air Force members to distinguish themselves from civilians and society. Stanley Finer, in discussing the differences of military and society noted:

> … it differs in function from the society that surrounds it and this function requires that it be separated and segregated … distinguishing it from the civilian masses … it requires separate housing, in purely military quarters and barracks … separate code of morals and manners from that of the civilian population.[49]

For years, this separation was deemed necessary to identify Air Force members as professionals and part of a distinct professional community. This distinction grows ever more costly in nonmonetary benefits to members and retirees in the form of infrastructure and subsidized amenities. Although a notable feature to be a member of a microcosm sheltered from society at large, the military risks being perceived by society as alien, negative, and differently distinctive, leading to a downward spiral of suspicion and distrust from the society of which it is nonetheless an integral part.[50]

Recommendations

Though hated by many in his day, there is a sense of irony today in the words of former Secretary of Defense Robert S. McNamara who emphasized cutting waste and improving efficiency by closing 40 airbases during his tenure from 1961 to 1968:

> Technological progress causes obsolescence not only in weapon systems, but also in the often highly specialized facilities constructed for their deployment and maintenance. Just as we continually measure our weapon system developments and procurement programs against the ever-changing yardstick of military need, so too must we review our worldwide complex of installations in light of our present and future requirements. Facilities and installations, which fail this test of true need, only encumber the national security effort and waste resources.[51]

The Air Force must vigorously voice its concerns for the ever-growing cost of continuing to maintain unnecessary infrastructure, highlighting the threat to national security vis-a-vis the diversion of vital funding from critical mission enabling systems of the future. The Air Force should take a lesson from the Army's post World War II actions in which it simply mothballed many of its excess installations, not closing them, but making deals with local communities to rent space in return for operation and maintenance costs and guaranteed future use should national security situations require it.[52] In so doing, the Air Force can fully utilize the space available at its enduring installations by further consolidating major commands, headquarters, wings, and supporting units. This consolidation will lead to numerous efficiencies in supporting personnel overhead, supporting facilities, supporting equipment, supporting infrastructure, and supporting utility requirements. Likewise, the Air Force may benefit financially from leasing or sale of excess property, facilities, utilities, and other infrastructure at market rates.

To take advantage of DHS and Total Force initiatives the Air Force needs to work with adjutant generals of each state to strategically review what missions can and should be pushed into the National Guard, allowing accomplishment of the homeland defense mission while at the same time building, equipping, and training the force that will also be called on to support future missions abroad.

The Air Force must embrace Joint Basing initiatives and seek additional opportunities. The current test consolidation of facilities is only a start. The Air Force needs to assess fully the potential and advantages of collocating and consolidating those Joint missions that would benefit greatly from the closer Joint operations and training opportunities for units expected to support each other in wartime. It should join with the other Services to implement an ideal base study, as conducted in the 1960s, to examine future requirements for a Joint basing structure given changing technologies, potential threats, climate changes, and changing support missions.[53] Such a study should be accomplished through the establishment of a Joint and interagency center that could nurture the expertise necessary to generate ideas, develop strategies, and set in motion the actions needed to reach future goals. This pool of expertise can organize teams to travel to each installation to provide assessment and guidance to improve resource management, budgeting, planning, training, and personnel and manpower. Too often we strike out with tactical attempts to train the entire force for what are truly strategic initiatives, delaying execution, diffusing expertise, and failing to take strategic advantage of seeing the bigger picture and potentially bigger economies and benefits as a whole. The Air Force will need to develop and nurture change expertise throughout the Air Force. To ensure a balanced and grounded understanding of what are truly corporate business matters, the Air Force should expand opportunities for formal education in business and business administration.

As always, personal interest and involvement of senior Air Force leaders will be required to bring about the massive institutional changes needed to make the hard choices necessary in consolidating or transferring missions. Making change a priority in speeches, policy guidance, and programmatic decisions will convince institutional Air Force, other Services, and political leaders of the benefits and efficiencies to be gained by cooperating in future efforts to combine operations in beneficial ways.

Additional Considerations

The current migration of funds from the infrastructure area of the budget to fund recapitalization and modernization of Air Force aircraft is being accomplished at an acceptance of great risk to the operations and maintenance of our existing infrastructure. As a result, periodic or recurring maintenance is being deferred. Base operations and maintenance for fiscal year 2008 is currently being funded at 64 percent. This deferment will result in future and more frequent failures of systems and interruptions of service or missions requiring emergency response, repair, or replacement at potentially greater costs. Continued under-funding will make future Air Force infrastructure questionable in its ability to support the high-tech systems being developed for Air Force operations of the future. As the DoD undergoes a future shift in its budgetary, training, and operational priorities from a focus on major nation state wars to smaller and possibly longer interactions with rogue states and international terrorist organizations, the Air Force will need to make hard choices. These choices will determine the continued relevancy of the Air Force as a whole, its core mission, and ultimately whether accomplishing that mission is more important than maintaining the military community as it exists today.

What airbases may look like in the future depends on the tough decisions needed to be made today by our senior military, civilian, and congressional leaders. This article provides recommendations driven by the assumption of continued budgetary constraints that seriously limit the basing options toward anything other than lean, agile, power projection from a smaller active force focused on long-range strike capabilities. This smaller active force will be highly consolidated and jointly based with other Services on bases, providing the minimum of communal infrastructure and greatly dependant on a widely dispersed total force to conduct future military operations abroad.

It is evident that future changes to basing options must be driven through continued BRAC rounds. The criteria used in BRAC rounds generally focuses on determining which bases to leave open based on continued military value, cost, and expected return on investment. This article suggests that BRAC criteria should also look at where the right place to put these military units may be and what is the best way to combine military units to best affect and utilize DHS, Total Force, and Joint basing as the major variables of consideration.

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He who will not apply new remedies must expect new evils; for time is the greatest innovator.

—Viscount Francis Bacon