

THE IMPACTS OF A-76  
ON THE PERSONNEL OF AIR FORCE  
CIVIL ENGINEERING SQUADRONS

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Adam Preston Pauly

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Title

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By

ADAM PRESTON PAULY

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# ABSTRACT

Pauly, Adam Preston, M.S., Department of Construction Management and Engineering, College of Engineering and Architecture, North Dakota State University, November 2010. The Impacts of A-76 on the Personnel of Air Force Civil Engineering Squadrons. Major Professor: Dr. Zhili (Jerry) Gao.

The Office of Management and Budget Circular A-76, revised 2003, is changing the manning of civil engineering squadrons throughout Air Force Air Education and Training Command. Although the circular is attempting to make the most efficient organization for budget purposes, it is important to see how manning will change as a result.

The objectives of this paper were to evaluate what types of performance outcomes were occurring within the A-76 competitions within Air Education and Training Command and also to see how these decisions were forming the personnel changes within the organization. Three separate databases were utilized: one for personnel data retrieval, one for A-76 data retrieval, and one to research the history of contracts involved. The types of competition outcomes were analyzed and compared with how manning had changed over the same period of time.

It was found that there were only two A-76 studies within AETC since the 2003 revision: Keesler AFB and Sheppard AFB. Both of these studies had resulted in a performance decision in favor of the private contractor for base operation services, those which include general building maintenance and grounds keeping, as well as utility and power management. When investigating the personnel outcomes, it can be inferred that A-76 performance decisions definitely have an impact on personnel changes within the organization. As to what those changes are, it appears that when the decision is in favor of

a private contractor, civilian and enlisted engineers are negatively affected, where the effects on officer engineers and the enlisted squadron as a whole are not so straightforward.

This paper helps to define the changes occurring in today's Air Force as a result of fewer airmen available. The results may be useful to policy makers, squadron commanders, and those interested in contracting with the Air Force.

# ACKNOWLEDGEMENTS

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I would also like to thank Courtney, my loving wife, and Madalyn, my beautiful baby daughter. They were both the solid foundation that allowed me to concentrate on this study and helped keep me going when the going got tough. Thank you, ladies, for keeping me on the straight and narrow.

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# ACRONYM LIST

|        |  |
|--------|--|
| ACE    | Agency Cost Estimate                     |
| AETC   | Air Education and Training Command       |
| AFB    | Air Force Base                           |
| AFI    | Air Force Instruction                    |
| AFPC   | Air Force Personnel Center               |
| AFSC   | Air Force Specialty Code                 |
| ATO    | Agency Tender Official                   |
| CES    | Civil Engineering Squadron               |
| CO     | Contracting Officer                      |
| CSO    | Competitive Sourcing Official            |
| DoD    | Department of Defense                    |
| FPDS   | Federal Procurement Data System          |
| FTE    | Full Time Equivalent                     |
| FY     | Fiscal Year                              |
| GAO    | General Accounting Office                |
| IDEAS  | Interactive Demographic Analysis System  |
| MAJCOM | Major Command                            |
| MEO    | Most Efficient Organization              |
| OMB    | Office of Management and Budget          |
| OMBC   | Office of Management and Budget Circular |
| PWS    | Performance Work Statement               |

# 1. INTRODUCTION

## 1.1. Background

In order to most efficiently utilize the taxpayer's dollar, the government constantly strives to find better ways of spending its capital. The military is no different in its quest to be the most efficient with limited resources, always striving to do more with less and getting 100% out of the resources it is allotted. United States Air Force Civil Engineering Squadrons (CES) are groups within the military which have undergone many changes in the last few years trying to find its most efficient use of resources. One large influencing factor of these changes has been the latest Office of Management and Budget Circular (OMBC) A-76 (Revised).

OMBC A-76 is a document, published by the United States Office of Management and Budget, which sets federal policies and procedures that the government must follow for identifying and accomplishing commercial-type activities. The first A-76 circular was published in 1966, with federal revisions in 1983, 1999, and 2003 (Office of Management and Budget, 2003).

The most current amendment is the 2003 revision, which became the parent document for setting outsourcing policy for Air Force CES. This newest revision also superseded the Circular No. A-76 Revised Supplemental Handbook (Revised 2000), March 1996; Office of Federal Procurement Policy Letter 92-1, "Inherently Governmental Functions," September 23, 1992; and the OMB Transmittal Memoranda 1-25, Performance of Commercial Activities (Office of Management and Budget, 2003).

On 29 May 2003, OMBC A-76 (Revised) was finally published, effectively changing the way governmental agencies perform commercial-type activities. This revision to the A-76 Circular encompassed the entire United States government and was intended to ensure the American people received the maximum value for their tax dollar by enforcing competition within government functions. The actual policy implemented concerned three main points (Office of Management and Budget, 2003):

1. Identify all the activities performed by government personnel as either a commercial activity or inherently governmental
2. Perform all inherently governmental activities using government personnel
3. Use a streamlined or standard competition to determine if the government should perform a commercial activity

While outlining policy, OMBC A-76 also outlines the general procedures for implementation. The three main categories of implementation, The Inventory Process, Public-Private Competitions, and Calculating Public-Private Competition Costs, are outlined in the circular itself, as well as in Air Force Instruction (AFI) 38-203, Commercial Activities Program, which is the Air Force's instruction for competitive sourcing (Commercial Activities Program (AFI 38-203), 2008).

### **1.1.1. The Inventory Process**

On the Federal level, the inventory process involves documenting projects that are inherently governmental and accomplished by governmental personnel, as well as commercial activities which are performed by governmental personnel. After the inventories are compiled, the agency must go through each activity listed as inherently governmental and justify why it is so. An inherently governmental task is defined in

OMBC A-76 (Revised) as “...intimately related to the public interest...,” where a commercial activity is a “...recurring service that could be performed by the private sector...” and “...is not so intimately related to the public interest as to mandate performance by government personnel (Office of Management and Budget, 2003).” The two inventories are published to the Federal Register and are made available to members of congress and the public. The Air Force accomplishes this requirement through an annual review done at the end of the fiscal year, effectively taking a snapshot of all programs at that time. Only programs which use appropriated funds and are located in the unit manning document are considered for review (Commercial Activities Program (AFI 38-203), 2008).

The final part of the inventory process concerns the challenge and appeal process. Once the agency’s government and commercial inventories are published to the Federal Register, an individual interested party has 30 working days to submit a challenge of the inventory to the agency. The challenge can concern either the classification of an activity as inherently governmental or commercial, or a challenge to the justification of classifying an activity as inherently governmental or commercial. In the case of an adverse challenge decision on the part of the agency, an interested party has 10 working days to appeal the decision of the challenge (Office of Management and Budget, 2003).

### **1.1.2. Public-Private Competitions**

The public-private competition of A-76 involves the preliminary planning for the competition, announcing the competitions to the public, properly administering the competition, and maintaining accountability post-competition. During the preliminary planning for a competition, the agency needs to determine which activities will be up for competition, assessing how to group activities for contracting purposes, and if a

streamlined or standard competition should be used (Office of Management and Budget, 2003).

Preliminary planning in the Air Force is accomplished to determine if a public-private competition is the optimal sourcing option. It is normally accomplished within six months of receiving approval from Headquarters AF. At a minimum the preliminary planning process should include project scoping to determine what activity will be competed, preliminary planning and labor market research, a services identification highlighting workload and data systems, a preliminary baseline cost using standard competition criteria, and a competitive sourcing decision package submitted for review (Commercial Activities Program (AFI 38-203), 2008).

The determination of competition type falls to criteria including the number of full time equivalent (FTE) positions. While OMBC A-76 has its requirements, the Air Force is more restrictive, using the number of Department of Defense (DoD) civilian employee authorizations required for the competition. The numbers are located in table 1, where the initial authorizations are on the competition start date and ACE stands for the agency cost estimate. It is important to note that the competition is decided based on number of DoD civilians involved and has no bearing on number of military personnel involved (Commercial Activities Program (AFI 38-203), 2008).

Once the competition is set up, there are two important dates to consider. The start date is the public announcement date and is posted via the website: *FedBizOpps.gov*. A local announcement must also be given. The public announcement date is the official start date of the competition. The other date of importance is the end date, or performance decision date. This is the date where the agency will make a formal public announcement

Table 1. Air Force Public-Private Competition Type Determination

| Public-Private Competition Type  | Comments   |
|--|--|
| *Streamlined - Required  | 1 to less than 10 DoD civilian employee authorizations and ACE is based on less than 10 DoD civilian Employee Authorizations |
| *Streamlined - Optional  | No DoD civilian employee authorizations and the ACE is based on less than 10 DoD Civilian employee authorizations            |
| Standard   | 10 or more DoD civilian employee authorizations  |
|  |  |
| <p>* When a private sector performance decision results from a streamlined competition without a solicitation, a solicitation will be issued after the competition end date.</p> |  |

Source: Commercial Activities Program (AFI 38-203)

of the competition decision. This must also be done via locally and at *FedBizOpps.gov* and is the official end date for the competition. Competitions can be cancelled at any time with written consent of the Competitive Sourcing Official (CSO), who is the government official responsible for implementing OMBC A-76 (Revised) within the concerned agency. A cancellation notice and rationale must be published via *FedBizOpps.gov* and any directly affected employees must be notified (Office of Management and Budget, 2003).

There are a few differences between the streamlined and standard competitions. The streamlined competition follows the flow of figure 1. The streamlined process is a swift process, where 90 calendar days from the public announcement to performance decision date shouldn't be exceeded unless a time waiver is granted. The process usually can be completed in-house for the agency accomplishing the method. The streamlined process has its own competition form that is based off of the cost of an agency's

performance, cost of a private sector bidder or public reimbursable tender performance, the agency's adjusted cost estimate, and any cost estimate firewalls noted.

## The Streamlined Competition Process

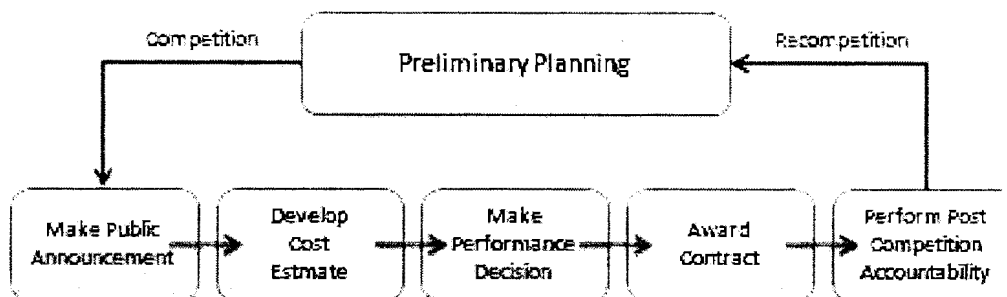


Figure 1. Streamlined Process Flow

The cost of agency performance should be based off of three performance periods and may use the incumbent activity; however, the agency is encouraged to develop a more efficient organization. The cost of private sector/public reimbursable performance is an estimate based off of documented market research or soliciting cost proposals. The adjusted cost estimate is based off of factors built into the streamlined competition form and taking into account the costs of performance. Finally, the cost estimate firewalls ensure that the individuals preparing the agency cost estimate and the individuals preparing the private sector cost estimate are different, and don't share any information to prevent a conflict of interest. The actual performance decision of a streamlined competition is based off of three certifications on the streamlined competition form made by three separate individuals, with a public announcement made on the local level and on *FedBizOpps.gov* (Office of Management and Budget, 2003).

The standard competition process is referenced in figure 2. It is a lengthier process in both time and manpower, where it can take up to 12 calendar months from the public



announcement to performance decision. A time waiver may be granted, but can only waive the performance decision up to a maximum of 18 calendar months from the public announcement. Instead of the agency filling out costs as in the streamlined process, there are teams of personnel who focus on developing performance standards, developing a Most Efficient Organization (MEO), and a final team which is in charge of the source selection.

## The Standard Competition Process

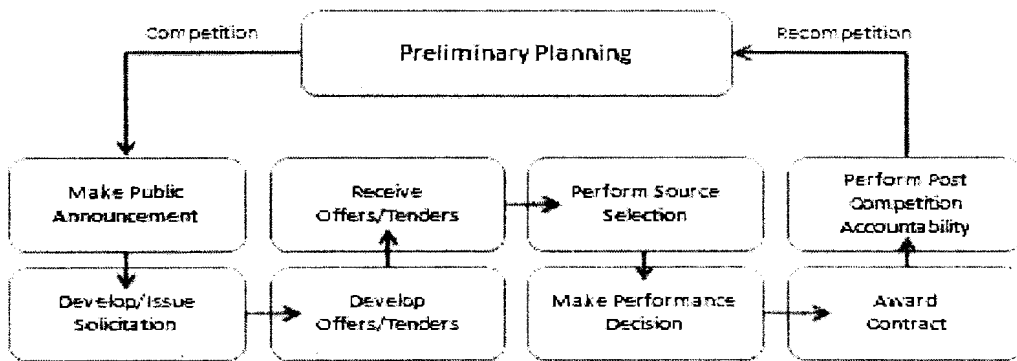


Figure 2. Standard Process Flow

Also, unlike the streamlined competition where private sector costs can be gathered from market research, the standard competition uses a solicitation and quality assurance surveillance plan. This plan is used to ensure that an agency doesn't issue a solicitation which may place a prospective bidder in an unfair advantage. Issues such as number of prior performance periods required for consideration, if government property will be furnished for use of all prospective providers, if performance bonds will be required, any incentive or award fees, and the quality control plan are all discussed. The plan also outlines issues such as whether the acquisition procedures will include sealed bid or negotiated procedures, and what the source selection process will include.

Once the solicitation plan is developed, offers and agency tenders are developed. The Agency Tender Official (ATO) is the person responsible for the government's position in the bid. This person is also responsible for the development of the MEO, the development of a certified agency cost estimate, developing a quality control plan and phase-in plan for the MEO, and any existing contracts. The actual MEO is not necessarily a depiction of the current organization, but one that is the theoretical outcome of administration analysis which concerns issues such as activity based costing, industrial engineering, and market research. Other factors which may come into play are productivity assessment, utilization studies, and value engineering (Office of Management and Budget, 2003). The actual MEO can consist of purely government personnel or a combination of government personnel and subcontracted help.

A public reimbursable tender is a government agency, different than the agency involved with the competition, responding to the solicitation. The personnel mix can be the same as the MEO. Private sector offers are also considered, and are a direct response to the solicitation plan. If there is no acceptable public reimbursable or private sector source then the solicitation plan must be revised, or if that is not feasible, the agency tender will be implemented (Office of Management and Budget, 2003).

According to the circular, for the source selection and performance decision steps, the agency has the choice of either a sealed bid acquisition or negotiated acquisition. When using the sealed bid acquisition method, the Contracting Officer (CO) opens the private sector bids, public reimbursable tenders, and agency tender on the solicitation closing date. The apparent lowest public reimbursable tender or private sector bid is entered into a cost matrix to complete a set of standard competition form calculations. If the bids are both

responsive and responsible, then the standard competition form can be certified and a performance decision can be made.

There are three separate ways to complete a negotiated acquisition. The A-76 circular mentions that the performance decision can either be made via the lowest price technically acceptable, a phased evaluation, or by a tradeoff selection process. The lowest price technically acceptable is similar to the sealed bid process but focuses on technical acceptability. A price cost and cost realism analysis is performed to aid in determining the technical acceptability.

The phased evaluation source selection process has two phases. In the first phase, the CO opens and evaluates only the technical proposals. If alternate performance standards are received from any organization, the CO evaluates the alternate performance, considers the discrete cost or price difference with the alternate performance, determines if an alternate standard is necessary, and documents the evaluation of each standard in writing. If an alternate performance standard is accepted, then each party is given a chance to resubmit offers based on an alternate standard. The second phase concerns the price analysis and cost realism of all proposals after technical acceptability has been determined in phase one.

The tradeoff source selection method is the final manner and the one used when an organization wishes to consider a bid other than the lowest priced. This method may only be used if the competition involves information technology, commercial activities completed by a private sector source, new requirements, or segregable development. The CSO also has the authority of permitting the tradeoff selection source method if it is approved in writing. Upon making a performance decision in favor of other than the low

cost competitor, a rationale for the decision must be made and certified on the standard competition form.

The final area of both the standard and streamlined competitions is one where neither differs, the post completion accountability phase. During this phase, agencies are responsible to track their best practices and lessons learned on SHARE A-76! (<http://emissary.acq.osd.mil/inst/share.nsf/>), track the progress of all ongoing and completed competitions, submit quarterly competitive sourcing reports to the Office of Budget and Management, and monitor the performance of the selected service provider for the period stated in the solicitation. Before the end of the last performance period, the agency should also complete another streamlined or standard competition, unless the CSO extends the performance period for a high performing organization, up to a maximum of 3 years (Office of Management and Budget, 2003).

### **1.1.3. Calculating Public-Private Competition Costs**

In order to reflect the full cost of using an agency or public reimbursable source to complete a task, OMBC A-76 requires a costing software called COMPARE to be used. This software is maintained by the DoD and is used on all standard and streamlined competitions. The software takes into account issues such as phase-in costs, the conversion differential of using someone else to complete your task, inflation, general wage, Medicare, and benefit costs of employees. Government tenders are logged into the software which calculates an equivalent cost which can be used in competition with private bids (Office of Management and Budget, 2003).

## **1.2. Problem Statement**

The new OMBC -76 (Revised) meant many changes for the CES located throughout the Air Force. A CES can be responsible for many roles on the typical Air Force Base (AFB), including anything from daily maintenance and upkeep of facilities to firefighting, as well as the more conventional tasks of engineering, constructing, and inspecting infrastructure. While some tasks such as maintenance, as well as engineering and constructing infrastructure, can be performed by the private sector, the military still needs to keep an active proficient staff of civil engineers and laborers who are capable of deploying.

## **1.3. Research Objectives**

The overall objective of this research was to see if A-76 competitions have changed the structure of United States Air Force Civil Engineering Squadrons in the Air Education and Training Command (AETC) after the 2003 A-76 Circular revision. Specific objectives were to

- Determine the manning changes of the AETC CES post OMBC A-76 (Revised)
- Determine the outcome trend of new Base Operations Support A-76 competitions

## **1.4. Research Methodology**

This paper was developed by utilizing statistical inference to evaluate personnel data retrieved from the Air Force Personnel Center and contracting data retrieved from the DoD public contracting databases, including Federal Business Opportunities. The information to be retrieved included numbers of civilian, enlisted, and officers employed

by Air Force CES involved in the engineering department at the end of every fiscal year from 2002-2010, A-76 contracts from January 2002- September 2010 utilized by the United States Air Force, and contracts utilized by Air Force CES from January 2002- September 2010.

The personnel data, upon retrieval, will be sorted via officer, enlisted, and civilian categories. The personnel numbers for each Air Education and Training Command base will be highlighted, and standardized against its mean and standard deviation. A control group will be established to compare the results of bases utilizing new A-76 competitions against those which should show stable trends throughout the command. This control will allow for the isolation of manning trends due to deployments across the command, general manning changes throughout the Air Force, and changes due to command policy. All that should remain are trends due to the A-76 competitions.

Bases with A-76 competitions recently completed or in-progress will be compared against this control and the contracting data discovered to infer what changes have occurred within the different categories of personnel. Contracting data will be compared against different bases to discover the outcome trends of A-76 competitions, seeing if civil engineering squadrons favor the MEO, public reimbursable tenders, or private contractors.

## **2. REVIEW OF LITERATURE**

Previous research on the impacts of A-76 on the DoD was reviewed to gain insight on the scope of effects A-76 has had on different branches of the military. Several studies have been conducted by the United States General Accounting Office, the RAND corporation, and students of the Air Force Air War College. While none of these studies specifically focused on the manning changes of CES in the Air Force, the studies did offer insight into the changes the armed forces have gone through during the multiple A-76 revisions. The A-76 review will encompass how the circular has changed employee compensation and training as well as the unintended consequences and problems previous versions of A-76 imposed.

### **2.1. Changes in Employee Compensation and Training**

With any change in how and who an organization uses to complete a task, changes will occur in how these individuals are compensated and trained. Since the A-76 circular necessitated that tens of thousands of positions within the DoD's jurisdiction would be up for public/private competitions, the DoD had the RAND Corporation study the effects A-76 competitions had on the civilian component's education and training (Keating, et al., 2006). The General Accounting Office (GAO) of the United States also studied the subject on a broader level, focusing more on the aspect of which agency would employ government workers and how the employees would be compensated (US General Accounting Office, March 2001).

The RAND Corp. started its study at military education institutions, most notably the Naval Postgraduate School, the Defense Language Institute at the Presidio of Monterey,

and the Air Force Academy. It found that most A-76 competitions at all three locations focused on support agencies (i.e. logistics, public works, and maintenance) and that all seemed to have generated savings post-competition, whether the function was performed by government personnel or civilian contractors, as more work was being performed by less people. It was also noted that competitions were a lengthy and expensive processes that were damaging to the employee's morale and that most of the cost savings were realized through budget cuts (Keating, et al., 2006).

Other interesting facts Keating, et al. uncovered concerned the training demand of civilian personnel. As private contractors were winning A-76 competitions, it was necessary to re-train people as employees were moving to new positions and out of those being occupied by private contractors. The private contractors would also have to be trained as some had never accomplished the contracted position. This would cause short-run increase in the training demand and instructors required to complete the training. On the other hand, long-range training actually decreased, as if a civilian contractor was victorious, the government was no longer responsible for their training. If an MEO won, it was typically smaller than that which was used before the competition, resulting in less employee training demand over time. It was also found that leadership positions changed. The DoD was taking on more of a supervisory role as positions were contracted out to private organizations (Keating, et al., 2006). This necessitated a training shift as well, as supervisors have different training requirements than that of the day laborer.

While training employees after turnover is important, determining how to reimburse employees for their time and job knowledge is essential to all employers. It is also an aspect employers drastically try to keep to the minimum amount possible. The GAO



addresses the issue of how the A-76 circular has changed employment reimbursement and benefits. Although it was written in 2001 before the current revision to the A-76 circular, it still addresses important facts that need to be considered.

Like the RAND Corporation, GAO starts with discussing the cost benefits of the A-76 program by addressing how costs of a program are reduced due to fewer positions utilized to perform the required work. Whether the MEO or private contractor wins the competition, the end result of most A-76 competitions still results in a benefit to the government in reduced personnel costs through fewer employees. An example of this is addressed in the text, where a maintenance competition within AETC had 1,444 authorized positions. After competition, the winning agency was a civilian contractor who anticipated being able to accomplish the task using 735 civilian personnel, almost a 50% reduction (US General Accounting Office, March 2001). The GAO focuses on the techniques of performing more than one skill, designing new work processes, substituting civilian for military workers, and limiting activities to those which can be streamlined per the PWS to assist in finding the least number of personnel required to complete a specific task (US General Accounting Office, March 2001).

Unlike the RAND Corporation report, the GAO studied the impact A-76 had on employment, benefits, and payment of employees directly involved in A-76 competitions. It found that the results varied directly depending on the organization, results of the competition, availability of other government employment, as well as individual personal issues. Pay was one of the more variable factors, as it could also change depending on the technical character of the work involved. While these reasons made it complicated for the

GAO to draw general conclusions about the A-76 circular's impact on employment opportunities, wage, and benefits, it was able to draw several specific conclusions.

When drawing specific conclusions, the GAO found some interesting facts concerning employment trends. The first of which was the fact that about 50% of the civilian general schedule workers stayed in some type of federal employment after the competitions, in either the new government organization or another with similar wage and benefit scales. The second finding was that those who didn't stay usually received a cash incentive to separate or retire, with some receiving up to \$25,000. Most chose to separate on their own and receive the incentive; the findings of the GAO showed very few involuntary separations. The third finding concerning employment was that the workers who left the government and applied to work with a winning contractor usually received employment; some even were paid a bonus for signing with the contractor. Pay and benefits were found to vary depending on location or law, as some who left government service were paid more by private contractors and some were paid less. Benefit packages offered by private organizations were also found to differ based on the same conditions, but the GAO found the types of benefits offered were similar to those offered by the government (US General Accounting Office, March 2001).

## **2.2. Problems and Unintended Consequences**

The A-76 process was found to not be without its challenges. While everyone involved is entitled to their opinion, there are some vast general concerns of the process as it pertains to the military. These key points were highlighted in Thomas's research report to the faculty of Air War College in her 2002 A-76 report. While there are challenges to

the process, some keys and tools for success have also been highlighted, which will be seen in GAO's 2001 report on broader reinvention options.

One of the largest areas of concern is the ability of the armed forces to deploy and achieve its wartime mission when an MEO for peacetime is in place. Thomas addresses this issue by stating how A-76 and the downsizing of the military focuses on building an organization which is most efficient during peacetime instead of one which is truly effective on the battlefield. She further advances the concern by digging into the fact that the accurate portrayal of the workload required is difficult to attain. When a job is contracted out some work goes undone since it was a function of the organization which was disbanded due to losing the competition. This results in other organizations within the service branch picking up the tasks, or even modifying the contract which usually ends up cost prohibitive. She addresses the fact that the contractor is in the business of making money, and by doing "extras" not in the writing of the contract, won't make much of a profit (Thomas, 2002). Multiple examples of the Air Force Instruction involved with the contract not being specific enough for the contractor and other issues of work gone undone are referenced in the text.

The other issue of readiness is also discussed. It is cited in Thomas's text how large portions of the service and civil engineering squadrons have been contracted out to private industry, leaving the current military force a shell of its former self. This shell is still expected to perform all of the support for exercises and deployments. Since there is no military force left in the organization, members from other organizations need to step in to help and fill the vacated jobs. When one steps back to view this on a larger scale, none of the organizations have the number of people they require and the forces back home have a

lower priority than those which are deployed when personnel shortages arise. Thomas sums this up by illustrating how not having the reserve requirement back home results in members who are not as well trained and a longer, faster ops tempo deploying as there are not enough people to share the burden (Thomas, 2002).

While A-76 competitions have certain challenges when it comes to the military, there are some other general pitfalls which have been noticed since its inception. The GAO dives into this by highlighting four main issues:

- The time required to complete studies,
- The costs and resources required to conduct and implement studies,
- The difficulties finding functions to compete, and
- The timing of budget reductions in anticipation of cost savings.

These problems were all those which surfaced on the previous revision to the A-76 Circular (US General Accounting Office, June 2001). Most have been subsequently fixed in the 2003 revision, as each standard or streamlined competition has strict rules as to how long the competition can take, cost, and how it can compete. Finding the correct time to implement budget reductions is an ongoing battle. Even though some of the problems have been fixed, an analysis will be provided as these problems lay the backbone for the perceptions people have on the program today.

One of the main problems concerning the time to complete studies was the fact that the services drastically underestimated the time required to conduct an A-76 study. Overly optimistic assumptions were made which negatively affected the outcome of competitions. An example was the Army projecting competitions to take 13-21 months, with the numbers being drastically adjusted upward after the first few competitions to 24 months for a single

function and 27 months for multifunction studies (US General Accounting Office, June 2001).

Costs and resources for implementing studies were also scrutinized. The GAO found that since the studies were taking longer than first anticipated, more resources would be needed to complete the study. By August of 2000, the DoD had increased its study cost estimates considerably from the previous year and was concerned that it was still underestimating the cost (US General Accounting Office, June 2001). The President's budget summary for 2001 showed costs from around \$1,300 per position in the Army to over \$3,700 per position in the Navy. The GAO did its own independent study and found costs to be up to \$9,000 per position. One other important issue concerning cost was implementing the results of a competition. Transitional costs for DoD employees who lost their jobs as a result of a competition included early retirement, voluntary separation incentives, and involuntary separation costs. The President's budget for fiscal year 2001 included about \$1-billion in transitional costs for A-76 competitions in fiscal years 1997-2005 (US General Accounting Office, June 2001).

Not only did the GAO find competitions costly, but it was difficult to find functions to compete. While a project may have been identified as available for competition, factors such as being geographically dispersed, commercial activities not being separated from inherently governmental work, or even having the resources required for competition all hampered the process (US General Accounting Office, June 2001). The new 2003 revision to A-76, coupled with AFI 38-203, the Commercial Activities Program, helped fix this problem by outlining specific criteria for which programs could compete and which ones should compete.

The final finding of the GAO in 2001 was their concern about premature budget reductions when it was believed savings could be realized. It was found that although it was easy to presume a savings would be realized, in actuality, the mounting costs of completing a competition combined with the transitional costs involved were much more than anticipated. The budget cuts that ensued as a result of the competitions were perhaps too much to cover all of the associated costs involved (US General Accounting Office, June 2001). This isn't necessarily a problem unique to the A-76 process, as most government agencies are trying to do more with less right away. It is a problem, none the less, and one that will probably show little change in the future.

### **2.3. Conclusions from Literature Review**

Previous studies on the effects A-76 has had on the DoD were reviewed to gain insight on how the circular has affected different branches of DoD. The A-76 review encompassed how A-76 changed employee compensation and training requirements as well as the unintended consequences and problems previous iterations of A-76 have imposed. Specific conclusions drawn from the literature review are as follows:

- A-76 competitions usually generate post-competition savings versus the old organization. Most likely, these savings are the result of less people doing the same work.
- Many of the activities suited for A-76 competitions involve support agencies, such as those in charge of general maintenance and logistical support.

- After an A-76 competition, short-term training requirements will increase for people moving to other jobs and supervisory training for those left. Long-term training will decrease due to less people required for the job.
- It is difficult to precisely quantify universal effects on employment, pay, and benefits among A-76 competitions as factors such as geographic region, skill type, and employee pool can affect the results.
- Most people affected by A-76 competitions find employment with the MEO, a different organization, or with the private contractor winning the competition. Most of those not receiving employment accept separation incentives and voluntarily leave.
- Either MEOs or the government agency responsible for supervising the contracted labor need to ensure the organization can accomplish the wartime mission while still having an efficient peacetime organization.
- Factors such as time and resources to accomplish the study, transitional costs after a study, and when to adjust budgets to comply with study results need to be considered before making changes.

## **3. DATA COLLECTION**

The data collection process focused on collecting officer, enlisted, and civilian employment information as well as data on A-76 competitions across the Air Force. The employment information was retrieved from the Air Force Personnel Center's (AFPC) Interactive Demographic Analysis System (IDEAS), which is available now to the public via an unsecure connection due to the Freedom of Information Act. A-76 competition data was retrieved through FedBizOpps.gov and the Federal Procurement Data System (FPDS), which is also available via an unsecure connection due to the Freedom of Information Act.

### **3.1 Personnel Data Collection**

The IDEAS program was utilized to retrieve information on how the Air Force's work force has changed from fiscal year (FY) 2002-FY2010. The date range of FY 2002 to FY 2010 was chosen because of the data involved. The new A-76 circular became effective in 2003 and there were no performance decisions in AETC until 2007. This allowed for six years of data to be compiled to establish trends within the command. Another factor for why data collection started in 2002 concerned how data was organized within the IDEAs program. After FY 2002, datasets followed the same format and were easier to organize.

The database was searched utilizing the report builder function and three separate rank categories: Active Duty Officer, Active Duty Enlisted, and Civilian Employee. These three data sets pulled information from AFPC's archived datasets from 2002-2010. Each year was searched separately per rank category, as that is how the program listed the information. As personnel information from civil engineering squadrons was desired, the



information was filtered to include the civil engineering duty Air Force Specialty Code (AFSC) and then sorted according to MAJCOM and base. Only data for the AETC MAJCOM was used, as that was the focus of this study. The actual IDEAS program would allow one to filter and sort within the program, providing the end-result report in either HTML or Microsoft Excel formats. For the purpose of this paper, the Excel format was utilized to aid in the processing of data.

When going through the process of building the report, officer, enlisted, and civilian all had different criteria to for structuring purposes. The officer report utilized the demographics of MAJCOM followed by Military Personnel Flight (MPF), allowing the breakdown of data into individual bases if required. The filter option was available before actually building the report, upon which the duty AFSC 32EX was selected, filtering all results by the civil engineering duty code. This duty code involved all officers responsible for supervisory, operational, and engineering responsibilities for construction and maintenance of Air Force real property.

The enlisted report was broken into two parts, but used a similar format to that of the officer. The first enlisted group was filtered by the 3 digit level duty AFSC of 3E5. This broke the enlisted career field down into enlisted personnel currently assigned to a position of civil engineering, which for an enlisted person involves duties like design, drafting, surveying and contract surveillance. The second enlisted group only filtered by the 2 digit level of 3E, which returned results of every enlisted airman in the civil engineering structure. This category captures those that don't fall under the category of professional civil engineers, grabbing the support personnel and those involved with building maintenance, most of which positions were affected by A-76 competitions. This

allowed the ability to see how the professional civil engineer force structure was changing, along with the general structure of the entire squadron.

Finding personnel information for civilian government service employees involved in the civil engineering process was different. The demographic options involved with the civilian search were different, where the MAJCOM servicing was selected, followed by civilian personnel flight. The civilians don't fall under the same supervisory channels as the military members and therefore have different demographic search criteria. The filter option was again split into two categories: one which utilized the occupational series and one the career field ID. Applying the Civil Engineering option to the occupational series returned the number of civilians coded with working in the civil engineering field as professional civil engineers, where the career field ID returned results of all civilians working in the civil engineering field. Only the occupational series was utilized since not all years were addressed by career field ID. Results were again sorted by MAJCOM and base.

After the information for each fiscal year (FY) from 2002-2010 was generated it was filtered for the AETC MAJCOM. All involved in the search included 10 MAJCOMs:

- AF Materiel Command,
- AF Space Command,
- AF Special Operations Command,
- Air Combat Command,
- Air Education and Training Command,
- Air Force Reserve Command
- US Air Forces in Europe,

- Pacific Air Forces,
- Air Mobility Command, and
- Global Strike Command

Individual data for the requested bases was available within the AETC MAJCOM and also broken down individually at the end of each report for civilians, enlisted, and officers.

### **3.2. A-76 Competition Data Collection**

A-76 competition data was retrieved via the publicly available website database FedBizOpps.gov. The database was searchable without registering if interested in current and archived opportunities. Since this study was looking at the cumulative historical period of A-76, a registration was not required, but utilized to help manage data retrieval. Registering was accomplished to aid in search refinement and organization. For information not available on the FedBizOpps.gov database, the FPDS was utilized. This was an internet-based system available to the public upon registration and has every contract over an estimated \$3,000 written by the federal government in its database. All records go back as far as 2004, with most records archived back to 1979 (Welcome to Federal Procurement Data System - Next Generation).

Upon registering on the FedBizOpps.gov website, a search was accomplished on the national database by utilizing the agency option, where "Department of the Air Force / Air Education and Training Command" was selected. This returned every opportunity that fell under the contracting offices of AETC. Archive was selected, followed by searching all AETC functions with the phrase: "standard competition" "streamlined competition" BOS "Base Operating Support". This specific phrase was selected to return every opportunity which involved a standard competition or streamlined competition, as well as

every opportunity which involved base operating support. Since all A-76 opportunities include either a standard or streamlined competition, the first section of the search phrase returned all A-76 opportunities in AETC. The second portion of the search phrase was for returning every opportunity involving base operating support. Some of the entries were listed as BOS, and some utilized the full name of Base Operating Support.

The search yielded 73 results, which were manually processed and sorted to find those which pertained to civil engineering squadrons. Upon manual review, nine total solicitations were discovered that had resulted in a contract. Out of these nine solicitations, only two were from a new standard or streamlined competition since the 2003 A-76 revision. The information was pulled off of the database and organized in an Excel spreadsheet, documenting the solicitation numbers, contract numbers, base of occurrence, dollar amount of the contract, contractor involved, and what service the contract was for. Two solicitations didn't have contract information listed; only the fact that one was awarded. Upon researching the solicitation information in the FPDS, contract numbers and amounts were found.

### **3.3. Lessons Learned From Data Collection**

There were a number of good takeaways discovered while collecting data for this project. While some concerned finding personnel statistics, most concerned the ability to find information regarding A-76 studies. First off, there is a plentiful amount of information concerning personnel statistics. The Air Force made the duty AFSC breakdown very simple and easy to understand, with their database being very user-friendly. The breakouts using the IDEAS system could be grouped and filtered in almost any way conceivable, separating groups into officer, enlisted, and civilian in Active Duty

Air Force, Air National Guard, and Air Force Reserve rank categories. This database may be very useful in future studies.

One of the more troubling issues discovered while collecting data is the small amount that exists concerning A-76 studies and competitions. In its 2005 report, the Office of the Inspector General, DoD, found that the DoD had not been effectively tracking and assessing the cost of performance, didn't maintain supporting documents, and had multiple different methods for calculating baseline costs. This was found to be true, as there was little data which outlined where competitions had been accomplished and what the outcomes of each were. FedBizOpps.gov was found to have incomplete data sets at best. The DoD had implemented a database called DCAMIS following the Inspector General report, but this database remains for official use only and not available to the public. This database is supposed to house the records of all DoD A-76 studies, the outcomes, and records for assessing the performance functions of the entities.

## 4. DATA ORGANIZATION

Personnel and A-76 competition data, as well as information pertaining to contracts received for similar work, was organized using Microsoft Excel. Data was broken up into logical parts for ease of statistical analysis.

### 4.1. Personnel Data Organization

The personnel data collected was broken down into personnel numbers from each AETC base from FY 2002 through FY 2010. The bases included were Altus, Columbus, Goodfellow, Keesler, Lackland, Laughlin, Luke, Maxwell, Randolph, Sheppard, Tyndall, and Vance Air Force Bases. The information is displayed in four charts, one each for officers, enlisted engineers, total enlisted squadron members, and civilian engineers.

Officer data is displayed in table 2. This dataset corresponds to all officers with a 32E(x) DAFSC, representing all officers in the civil engineering career field.

Table 2. Officer Civil Engineer Personnel

| Year              | 2002       | 2003       | 2004       | 2005       | 2006       | 2007       | 2008       | 2009      | 2010      | Mean         | Std Dev      |
|-------------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|--------------|--------------|
| <b>Base</b>       |            |            |            |            |            |            |            |           |           |              |              |
| <b>Altus</b>      | 8          | 10         | 8          | 9          | 8          | 7          | 7          | 9         | 8         | 8.22         | 0.97         |
| <b>Columbus</b>   | 9          | 8          | 7          | 9          | 7          | 6          | 7          | 4         | 3         | 6.67         | 2.06         |
| <b>Goodfellow</b> | 7          | 9          | 11         | 10         | 9          | 8          | 9          | 8         | 7         | 8.67         | 1.32         |
| <b>Keesler</b>    | 10         | 12         | 10         | 9          | 8          | 9          | 7          | 2         | 1         | 7.56         | 3.71         |
| <b>Lackland</b>   | 8          | 11         | 10         | 9          | 13         | 11         | 9          | 4         | 1         | 8.44         | 3.75         |
| <b>Laughlin</b>   | 6          | 10         | 11         | 10         | 9          | 7          | 7          | 9         | 7         | 8.44         | 1.74         |
| <b>Luke</b>       | 12         | 13         | 14         | 14         | 12         | 11         | 9          | 8         | 9         | 11.33        | 2.24         |
| <b>Maxwell</b>    | 9          | 0          | 2          | 0          | 1          | 2          | 0          | 1         | 0         | 1.67         | 2.87         |
| <b>Randolph</b>   | 27         | 28         | 29         | 28         | 26         | 21         | 17         | 16        | 20        | 23.56        | 5.08         |
| <b>Sheppard</b>   | 14         | 15         | 21         | 17         | 22         | 18         | 22         | 25        | 16        | 18.89        | 3.76         |
| <b>Tyndall</b>    | 9          | 10         | 9          | 10         | 9          | 7          | 8          | 8         | 8         | 8.67         | 1.00         |
| <b>Vance</b>      | 0          | 0          | 0          | 1          | 0          | 0          | 0          | 0         | 0         | 0.11         | 0.33         |
| <b>Totals</b>     | <b>119</b> | <b>126</b> | <b>132</b> | <b>126</b> | <b>124</b> | <b>107</b> | <b>102</b> | <b>94</b> | <b>80</b> | <b>112.2</b> | <b>17.53</b> |

As can be seen in table 2, generally officer manning increased until 2005, where manning crested. There was a steady decline in the number of employed civil engineer officers until 2010, where it hit the lowest number of the study. Randolph AFB has had the most populated career field until 2008, when Sheppard AFB started to outnumber. The trend of Sheppard AFB having the largest officer cadre of civil engineers continued until 2009, when Randolph seems to recover. Vance AFB had the least number of civil engineer officers, where the base only had one during the entire study in 2005. This also made Vance AFB rank in as having the lowest mean number of officers on staff. Besides Vance AFB, Altus AFB had the lowest standard deviation of 0.97. Randolph AFB had the largest standard deviation among officers of 5.08, but also had the largest mean number of officers on staff among all of the bases in AETC.

Enlisted engineer manning is displayed in table 3. This data corresponds to all enlisted personnel with a 3E5(x) DAFSC, representing all enlisted members who have a professional engineering-type duty title as explained in paragraph 3.1.

Table 3. Enlisted Civil Engineer Personnel

| Year              | 2002      | 2003      | 2004      | 2005      | 2006      | 2007      | 2008      | 2009      | 2010      | Mean         | Std Dev      |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|--------------|
| <b>Base</b>       |           |           |           |           |           |           |           |           |           |              |              |
| <b>Altus</b>      | 6         | 7         | 4         | 7         | 5         | 7         | 8         | 7         | 10        | 6.78         | 1.72         |
| <b>Columbus</b>   | 3         | 4         | 4         | 2         | 3         | 3         | 2         | 1         | 2         | 2.67         | 1.00         |
| <b>Goodfellow</b> | 1         | 2         | 2         | 3         | 2         | 2         | 0         | 2         | 2         | 1.78         | 0.83         |
| <b>Keesler</b>    | 3         | 4         | 3         | 4         | 1         | 3         | 2         | 0         | 0         | 2.22         | 1.56         |
| <b>Lackland</b>   | 8         | 9         | 8         | 6         | 3         | 9         | 8         | 6         | 1         | 6.44         | 2.79         |
| <b>Laughlin</b>   | 5         | 4         | 5         | 6         | 7         | 5         | 5         | 3         | 3         | 4.78         | 1.30         |
| <b>Luke</b>       | 11        | 8         | 6         | 8         | 6         | 6         | 7         | 9         | 8         | 7.67         | 1.66         |
| <b>Maxwell</b>    | 4         | 1         | 1         | 0         | 1         | 1         | 1         | 1         | 1         | 1.22         | 1.09         |
| <b>Randolph</b>   | 6         | 5         | 2         | 2         | 0         | 0         | 1         | 1         | 1         | 2.00         | 2.12         |
| <b>Sheppard</b>   | 21        | 4         | 53        | 14        | 23        | 41        | 40        | 18        | 14        | 25.33        | 15.87        |
| <b>Tyndall</b>    | 5         | 6         | 7         | 7         | 8         | 7         | 6         | 5         | 4         | 6.11         | 1.27         |
| <b>Vance</b>      | 1         | 2         | 2         | 0         | 2         | 2         | 2         | 2         | 4         | 1.89         | 1.05         |
| <b>Totals</b>     | <b>74</b> | <b>56</b> | <b>97</b> | <b>59</b> | <b>61</b> | <b>86</b> | <b>82</b> | <b>55</b> | <b>50</b> | <b>71.25</b> | <b>15.84</b> |

The enlisted civil engineer career field was erratic the entire study period, with the low occurring in 2010. One fact which stands out is how Sheppard AFB has sharp increases its enlisted civil engineer personnel in 2004, 2007, and 2008, followed shortly after in 2009 with a sharp decline. This makes Sheppard AFB the largest mean and also the largest standard deviation, outnumbering even the total standard deviation for all of AETC over the study time period. Maxwell AFB has the lowest mean number of enlisted civil engineers, while Goodfellow AFB is the least erratic having a standard deviation of only 0.83 maintaining a mean number of 1.78 engineers over the study period. Other than Sheppard AFB, the rest of the command was fairly steady in its enlisted civil engineer personnel retention, having standard deviations only up to 2.79 personnel over the study period.

Table 4 displays another enlisted category which was utilized. This category includes the DAFSC of 3E(x,x), which is a step above the 3E5(x). This is the entire civil engineering duty code, containing all enlisted personnel who fall underneath a civil engineering squadron. The enlisted civil engineering squadron personnel is by far the

Table 4. Enlisted Civil Engineering Squadron Personnel

| Year              | 2002        | 2003        | 2004        | 2005        | 2006        | 2007        | 2008        | 2009        | 2010        | Mean           | Std Dev       |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|---------------|
| <b>Base</b>       |             |             |             |             |             |             |             |             |             |                |               |
| <b>Altus</b>      | 132         | 168         | 173         | 133         | 114         | 122         | 113         | 123         | 137         | 135.00         | 21.76         |
| <b>Columbus</b>   | 40          | 62          | 65          | 51          | 47          | 55          | 47          | 51          | 46          | 51.56          | 7.97          |
| <b>Goodfellow</b> | 150         | 263         | 410         | 177         | 330         | 279         | 238         | 194         | 161         | 244.67         | 86.08         |
| <b>Keesler</b>    | 222         | 367         | 259         | 216         | 183         | 200         | 171         | 72          | 62          | 194.67         | 92.47         |
| <b>Lackland</b>   | 165         | 165         | 176         | 179         | 187         | 174         | 158         | 154         | 79          | 159.67         | 32.00         |
| <b>Laughlin</b>   | 41          | 51          | 54          | 45          | 47          | 47          | 42          | 41          | 41          | 45.44          | 4.75          |
| <b>Luke</b>       | 238         | 259         | 265         | 235         | 210         | 186         | 200         | 212         | 212         | 224.11         | 26.76         |
| <b>Maxwell</b>    | 100         | 7           | 4           | 2           | 4           | 3           | 3           | 3           | 2           | 14.22          | 32.20         |
| <b>Randolph</b>   | 155         | 147         | 64          | 58          | 56          | 56          | 48          | 49          | 54          | 76.33          | 42.64         |
| <b>Sheppard</b>   | 530         | 786         | 1033        | 382         | 416         | 494         | 579         | 647         | 634         | 611.22         | 200.71        |
| <b>Tyndall</b>    | 59          | 74          | 98          | 84          | 89          | 90          | 87          | 87          | 78          | 82.89          | 11.32         |
| <b>Vance</b>      | 6           | 7           | 8           | 7           | 7           | 8           | 8           | 8           | 10          | 7.67           | 1.12          |
| <b>Totals</b>     | <b>1838</b> | <b>2356</b> | <b>2609</b> | <b>1569</b> | <b>1690</b> | <b>1714</b> | <b>1694</b> | <b>1641</b> | <b>1516</b> | <b>1888.88</b> | <b>380.08</b> |



largest category, having a standard deviation larger than all the other categories combined. In general, this category is marked by shallow increases in the number of personnel, followed by a sharp decline in 2005 and then settling into a small bell curve. The trend at the end of the study period was a slow decline in the number of personnel employed. The high during the study was in 2004 with a total of 2609 personnel employed. Sheppard AFB again had the largest mean number of employees by far, outnumbering its closest competitor by over double at 611.22 enlisted personnel. Vance AFB had the least mean amount of personnel at 7.67 over the course of the study. Sheppard AFB had the largest standard deviation of personnel at 200.71, which can be seen by going from 786 personnel in 2003 to 1033 in 2004 and back to 382 in 2005. Like the officer category, Vance AFB again had the lowest standard deviation of personnel at 1.12. There were fairly large fluctuations throughout the entire command during the study, with bases which showed fairly small standard deviations of officers and enlisted engineers showing standard deviations up to 86 in the general squadron personnel pool.

The final category studied was civilian professional civil engineering personnel, with results displayed in table 5. The category concentrated on civilians working as general schedule government employees within the civil engineering squadrons of AETC. This group of personnel represented a fairly small number of employees compared to the other three categories studied, having a total mean of only 27.78. The general trend for this group was fairly stable until 2005, upon which there was a slow steady decrease until the current year. Tyndall AFB had the largest mean number of personnel at 8.44, while the largest standard deviation was 1.39 located out of Lackland AFB. On the other hand,

Goodfellow AFB and Vance AFB didn't even have any civilian engineer employees, while Maxwell AFB only had one back in 2002.

Table 5. Civilian Civil Engineer Personnel

| Year              | 2002      | 2003      | 2004      | 2005      | 2006      | 2007      | 2008      | 2009      | 2010      | Mean         | Std Dev     |
|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|-------------|
| <b>Base</b>       |           |           |           |           |           |           |           |           |           |              |             |
| <b>Altus</b>      | 1         | 1         | 2         | 2         | 1         | 1         | 1         | 1         | 1         | 1.22         | 0.44        |
| <b>Columbus</b>   | 0         | 0         | 1         | 1         | 1         | 1         | 1         | 1         | 1         | 0.78         | 0.44        |
| <b>Goodfellow</b> | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0.00         | 0.00        |
| <b>Keesler</b>    | 3         | 3         | 2         | 3         | 2         | 2         | 2         | 0         | 0         | 1.89         | 1.17        |
| <b>Lackland</b>   | 4         | 6         | 6         | 5         | 5         | 3         | 4         | 7         | 7         | 5.22         | 1.39        |
| <b>Laughlin</b>   | 0         | 0         | 1         | 1         | 0         | 0         | 0         | 0         | 1         | 0.33         | 0.50        |
| <b>Luke</b>       | 1         | 3         | 1         | 3         | 3         | 0         | 0         | 1         | 2         | 1.56         | 1.24        |
| <b>Maxwell</b>    | 1         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0.11         | 0.33        |
| <b>Randolph</b>   | 6         | 6         | 6         | 7         | 5         | 6         | 4         | 4         | 7         | 5.67         | 1.12        |
| <b>Sheppard</b>   | 3         | 3         | 3         | 3         | 3         | 3         | 3         | 1         | 1         | 2.56         | 0.88        |
| <b>Tyndall</b>    | 9         | 10        | 9         | 9         | 8         | 8         | 7         | 7         | 9         | 8.44         | 1.01        |
| <b>Vance</b>      | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0         | 0.00         | 0.00        |
| <b>Totals</b>     | <b>28</b> | <b>32</b> | <b>31</b> | <b>34</b> | <b>28</b> | <b>24</b> | <b>22</b> | <b>22</b> | <b>29</b> | <b>27.78</b> | <b>4.32</b> |

## 4.2. A-76 Data Organization

The solicitation data was organized using Microsoft Excel for statistical data with results displayed in table 6. Overall there were eight solicitations which ended up in contract: four solicitations for base operating services, one for housing maintenance, one encompassing utility and energy management, one for worldwide civil engineering support, and one specifically for civil engineering. Data retrieved off of FedBizOpps.gov stated that the only two solicitations which were a direct result of an A-76 study post 2003 revision were the Keesler AFB Utilities and Energy Management and Sheppard AFB Civil Engineering Services solicitations. The remaining contracts were an outcome of past A-76 studies being completed prior to the 2003 revision and resulted in a private company outsource outcome. These other solicitations were included to provide a benchmark upon which to base manning changes from. While the HQ AETC projects were from 2005 and

for engineering support services required globally, the remaining projects from Vance AFB, Maxwell AFB, and Laughlin AFB were all contract renegotiations resulting from the prior studies arriving at their performance term. Performance from private contractors in these projects were good enough to result in keeping the services privately contracted, with the Del-Jen contract with Laughlin AFB actually being a bridge contract until negotiations could be set up.

Table 6. Solicitation Data

| <u>Solicitation #</u> | <u>Contract #</u> | <u>Base</u>  | <u>Award Amnt</u> | <u>Contractor</u>                  | <u>Date Posted:</u> | <u>Description</u>         |
|-----------------------|-------------------|--------------|-------------------|------------------------------------|---------------------|----------------------------|
| FA3002-04-R-0025      | FA3002-06-D-0001  | HQ<br>AETC   | \$15,000          | Washington Group International     | 8-Nov-05            | Engineer Services Support  |
| FA3002-04-R-0025      | FA3002-06-D-0002  | HQ<br>AETC   | \$15,000          | CH2M Hill/KBR Global Service       | 9-Nov-05            | Engineer Services Support  |
| FA3002-04-R-0025      | FA3002-06-D-0003  | HQ<br>AETC   | \$15,000          | URS/Berger Joint Venture           | 10-Nov-05           | Engineer Services Support  |
| FA3002-04-R-0025      | FA3002-06-D-0004  | HQ<br>AETC   | \$15,000          | Bechtel National Inc.              | 10-Nov-05           | Engineer Services Support  |
| FA3002-04-R-0025      | FA3002-06-D-0005  | HQ<br>AETC   | \$15,000          | DynCorp International, LLC         | 10-Nov-05           | Engineer Services Support  |
| FA3002-04-R-0025      | FA3002-06-D-0006  | HQ<br>AETC   | \$15,000          | Readiness Management Support, L.C. | 10-Nov-05           | Engineer Services Support  |
| F41689-02-R-0048      | FA3002-08-C-0001  | Keesler AFB  | \$6,630,530       | CSC Applied Technologies, Inc.     | 14-Sep-07           | Utilities/Energy Mngmnt    |
| FA3002-06-R-0003      | F41689-00-C-0503  | Vance AFB    | \$29,583,353      | CSC Applied Technologies, Inc.     | 11-Feb-08           | Base Operating Services    |
| FA3002-07-R-0021      | FA3002-09-C-0003  | Sheppard AFB | \$19,502,761      | Defense Support Services, LLC.     | 2-Sep-08            | Civil Engineering Services |
| FA3002-06-R-0004      | FA3002-09-C-0001  | Maxwell AFB  | \$370,963,957     | ITT Corporation                    | 13-Nov-08           | Base Operating Services    |
| FA3099-10-R-0003      | FA3002-10-C-0010  | Laughlin AFB | \$10,485,434      | Del-Jen, Inc.                      | 1-Apr-10            | Base Operating Services    |
| FA3002-08-R-0019      | FA3002-10-C-0016  | Laughlin AFB | \$73,254,592      | Akima Facilities Management        | 2-Aug-10            | Base Operating Services    |

Looking at the actual contract values, Maxwell AFB had the largest contract award to a private company for base operating services, with Laughlin AFB having the smallest award for base operating services. The civil engineering support contracts were worth the least amount and spread out over six different contracts and companies. These contracts were written for services utilized on an as-needed basis, with a guaranteed minimum of \$15,000 awarded. More would be issued on a unit-priced basis. CSC Applied Technologies, located in Fort Worth, TX, had the largest number of contracts, having one

at Vance AFB and one at Keesler AFB. Both of these contracts involved A-76 actions, with the Keesler AFB contract being the only new action since the 2003 A-76 revision.

One final issue to note is A-76 competition outcome. While Vance, Maxwell, and Laughlin Air Force Bases had all previously switched to civilian contracting for base operations services, Keesler AFB and Sheppard AFB were the only two during the study timeframe to accomplish A-76 competitions. Both outcomes favored the civilian contractors with no-one selecting the base's MEO.

## 5. DATA ANALYSIS AND RESULTS

After sorting and organizing the data, personnel numbers were compared against each other as well as the A-76 contracting data with some interesting results. The data from two specific bases incurring A-76 studies will be discussed individually. The control will also be discussed, which will be used throughout the results section.

All data was standardized for comparing results between categories. Data was standardized in Microsoft Excel and explained as (Hill & Lewicki, 2007):

$$Z = \frac{X - \mu}{\sigma}$$

where  $Z$  is the output value,  $X$  is the normalized value,  $\mu$  is the mean, and  $\sigma$  is the standard deviation. This presented all data in a normalized fashion since the difference in values between groups was large. It is also important to note that the  $Z$  value represents units of standard deviation; a  $Z$  value of (1) would indicate one standard deviation from the mean.

### 5.1. Control Group

The bases of Altus, Columbus, Laughlin, Luke, Tyndall, and Vance were used as the control group. These bases were those which didn't have an A-76 competition during the study period and were not involved with Headquarters or training any airmen involved with the civil engineering structure. This was important as any base with an A-76 competition would bias the control group, as the goal of this research was to find how A-76 competitions affected the base populous. Personnel involved at headquarters change on an irregular basis, depending on what the current mission is. Because of these reasons, the

control should be able to absorb any changes in AETC manning due to deployments, wars, or general manning trend changes within the Air Force. Any results in manning changes due to policy should be absorbed within the control as well, leaving mostly trends which can be explained by this study and due to A-76 competitions. The values for the standardized control group are shown in figure 3. When looking at figure 3 it is important

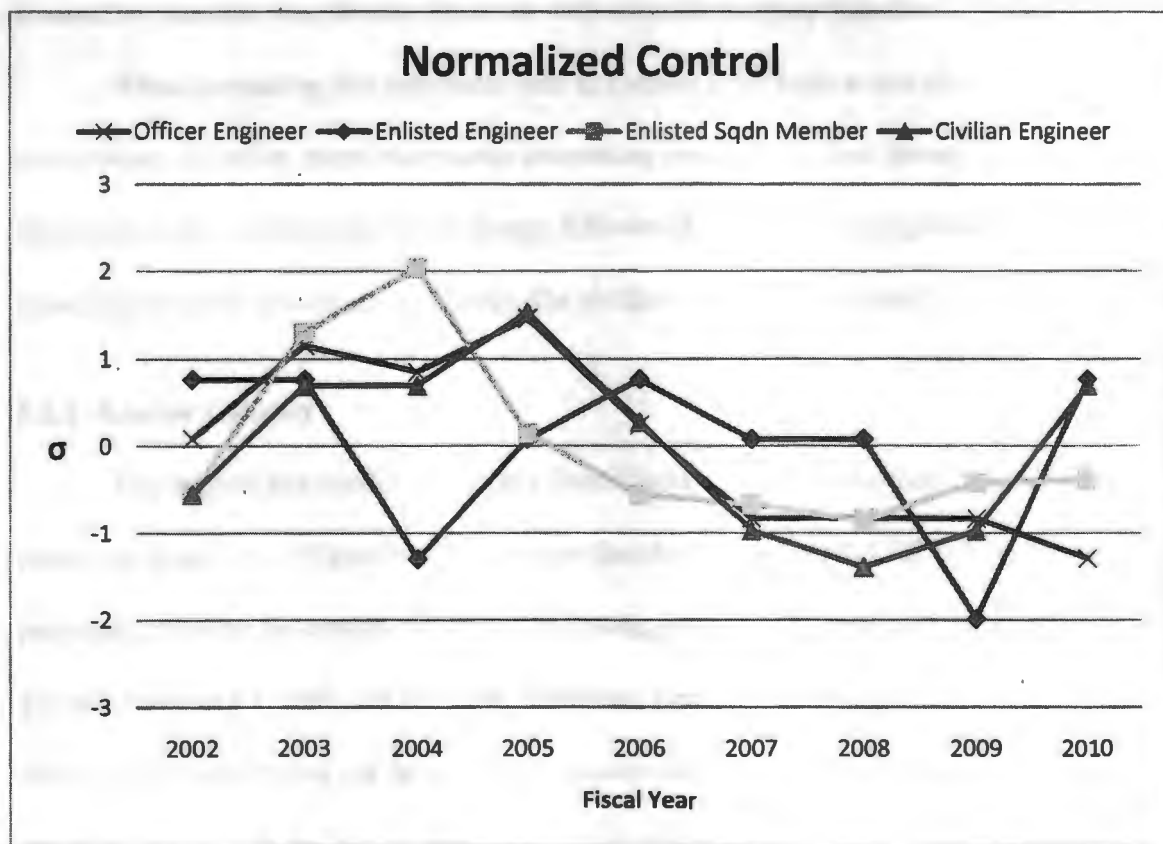


Figure 3. Normalized Control Data

to note how there was a large dip in the engineer enlisted force in 2004, while the total enlisted force was at a high. There was a general trend of decrease throughout the study period for the entire control group, with the civilian and enlisted engineering force recovering in 2010. In general, however, the entire control group stayed within 2 standard deviations throughout the entire period.

## **5.2. Keesler AFB**

It was found that Keesler AFB was the first base in AETC to perform an A-76 competition under the new 2003 revision. The performance decision and transition to contract services for utilities and energy management was made in late FY 2007. While the results were not startling, it was interesting to see the result went in favor of a private contractor; one that was already involved with a similar support function at Vance AFB.

When comparing the personnel data at Keesler AFB before and after the competition, however, there were some interesting results. The first group that will be discussed is the engineering officer group, followed by the enlisted engineer group, enlisted squadron member personnel, and finally the civilian engineer personnel.

### **5.2.1. Keesler Officers**

The normalized results of officers from Keesler compared to that of the control group are displayed in figure 4. One can see that the Keesler AFB CES officer manning essentially follows the results of the control group, with the exception of the control group's spike in FY 2005. In FY 2008, however, Keesler's officer manning starts a strong decline while the control group is showing steady slightly lower than the average manning since FY 2007. The decline in officer personnel at Keesler AFB continued until the end of FY 2010, upon which there was only one officer left. FY 2007 was the year Keesler's A-76 study was completed with the performance decision in favor of the contractor, with the contractor taking over base operation services in early FY 2008. This is in direct correlation with the downward trend experienced at Keesler during this time and continuing until the present. The slight rise in officer manning in FY 2007 could be

explained by having extra assistance to aid in the A-76 competition and the need to have subject matter experts at the base while the competition was ongoing.

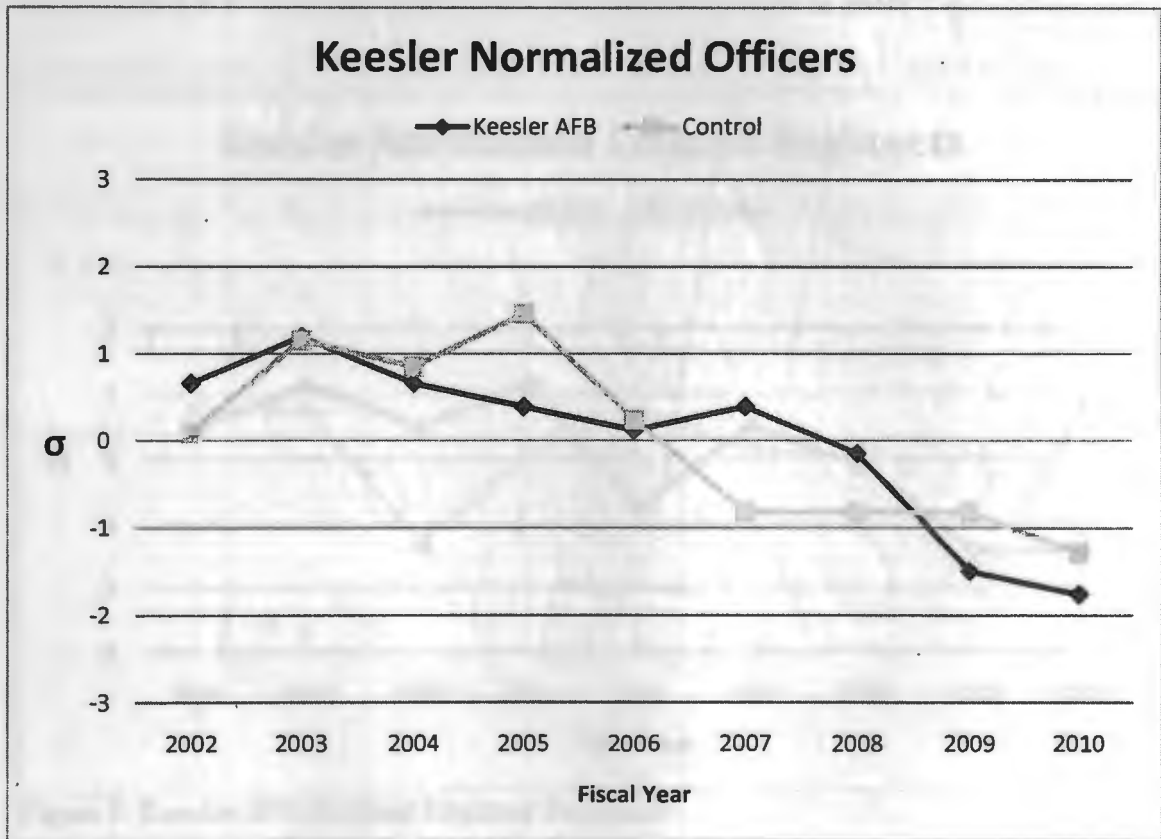


Figure 4. Keesler AFB Officer Personnel

### 5.2.2. Keesler Enlisted Engineers

The results for the enlisted engineers at Keesler AFB followed a similar trend as that of the officers. The normalized results can be seen in figure 5. Looking at the data, it appears that Keesler manning follows closely to that of the control data. FY 2006 posed a change for Keesler manning not reflected in the control, but recovered to the trend of the control by the end of FY 2007. When Keesler's A-76 study started in FY 2007, the base still had enlisted engineers. There was a steady decline during and after the competition, however. By the end of 2009, after the A-76 performance decision had been made and the



base support services were taken over by contractors, Keesler no longer had any enlisted engineers. The opposite trend was noticed within the control group, where a slight decline was noticed in FY 2009, but made a strong recovery was made in 2010.

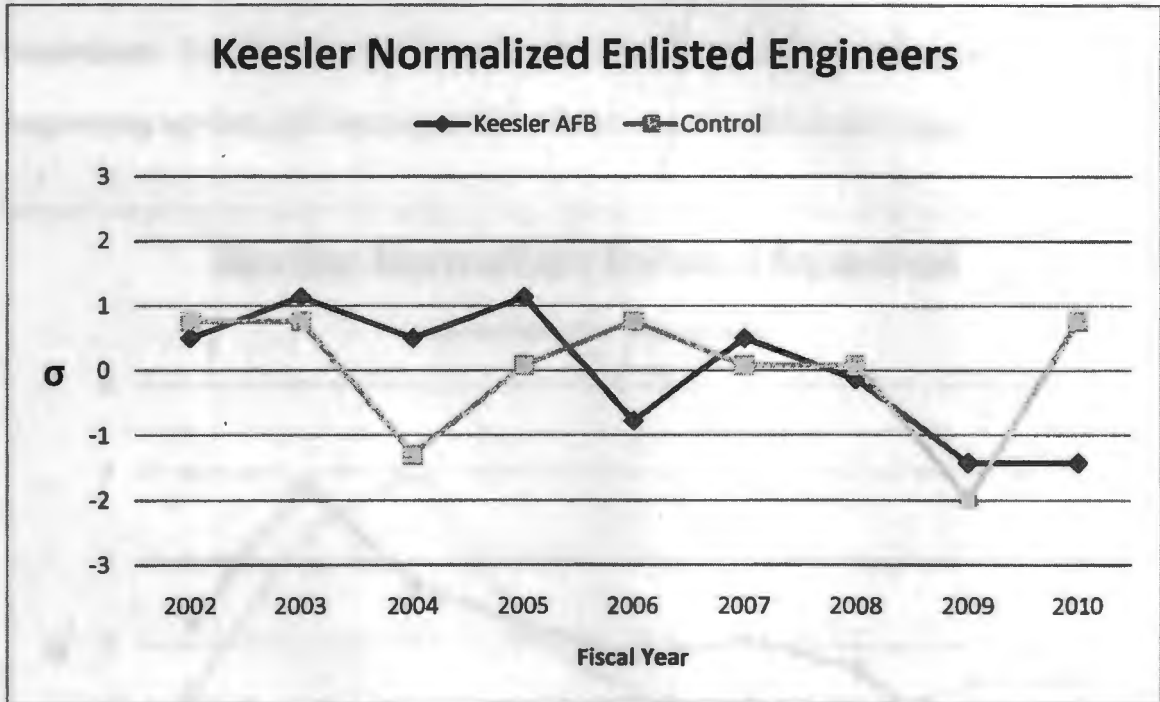


Figure 5. Keesler AFB Enlisted Engineer Personnel

### 5.2.3. Keesler Enlisted Squadron Personnel

The Keesler AFB enlisted squadron member results versus the control group are displayed in figure 6. When addressing the comparison, one of the first things noticeable was how the control group seemed to follow the same trend as the Keesler AFB group one year after. The data continued like this until the end of FY 2007, which was the year of Keesler's A-76 competition. In FY 2008, when Keesler AFB started to implement the privatization of their A-76 study, the trend followed in suit with the control group.

2009-2010, however, displayed quite the opposite trend of the control group, with the manning of Keesler AFB at the all-time low during the study period. If assuming that

the drastic dip in personnel after FY 2008 was due to the privatization of certain base operation services, the delay seen throughout FY 2008 could have been caused by personnel who were stuck in the training pipeline enroute to their next base, or just personnel in general who were not at the limit of their permanent change of station requirement. It is fairly evident, however, that after the privatization of certain civil engineering services, the manning of the enlisted squadron diminished significantly.

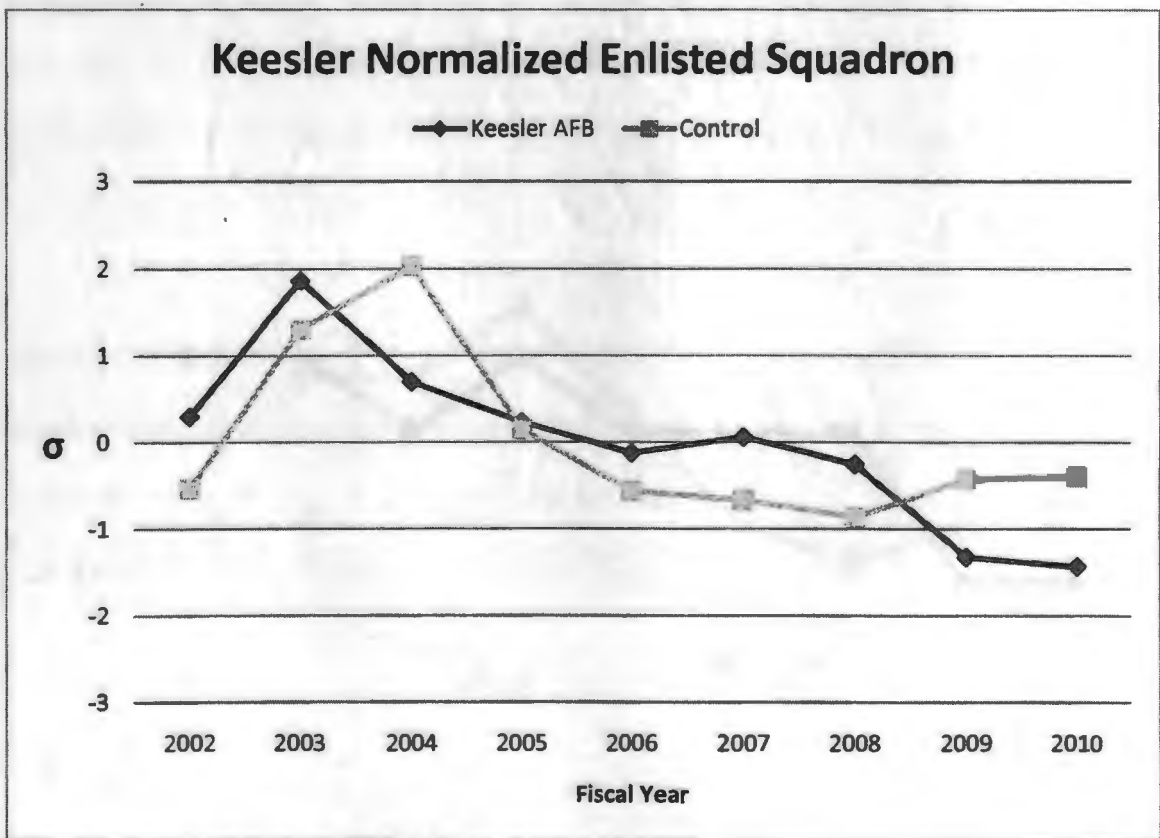


Figure 6. Keesler AFB Enlisted Squadron Personnel

#### 5.2.4. Keesler Civilian Engineers

The normalized data for Keesler AFB civilian engineer employees is displayed in figure 7. When analyzing the civilian data, it is important to note that this data pool was considerably smaller than most, with some bases not having any civilian employees at all.

Keesler AFB did, however, have personnel at the beginning of the study so this group will be discussed.

The control group displayed a general increasing trend until the end of FY 2005, upon which it reversed upon itself and started a steady decline in personnel until the end of FY 2008, upon which the cycle reversed yet again. Keesler AFB, on the other hand, was fairly consistent holding two to three civilian engineers until FY 2008. During FY 2009,

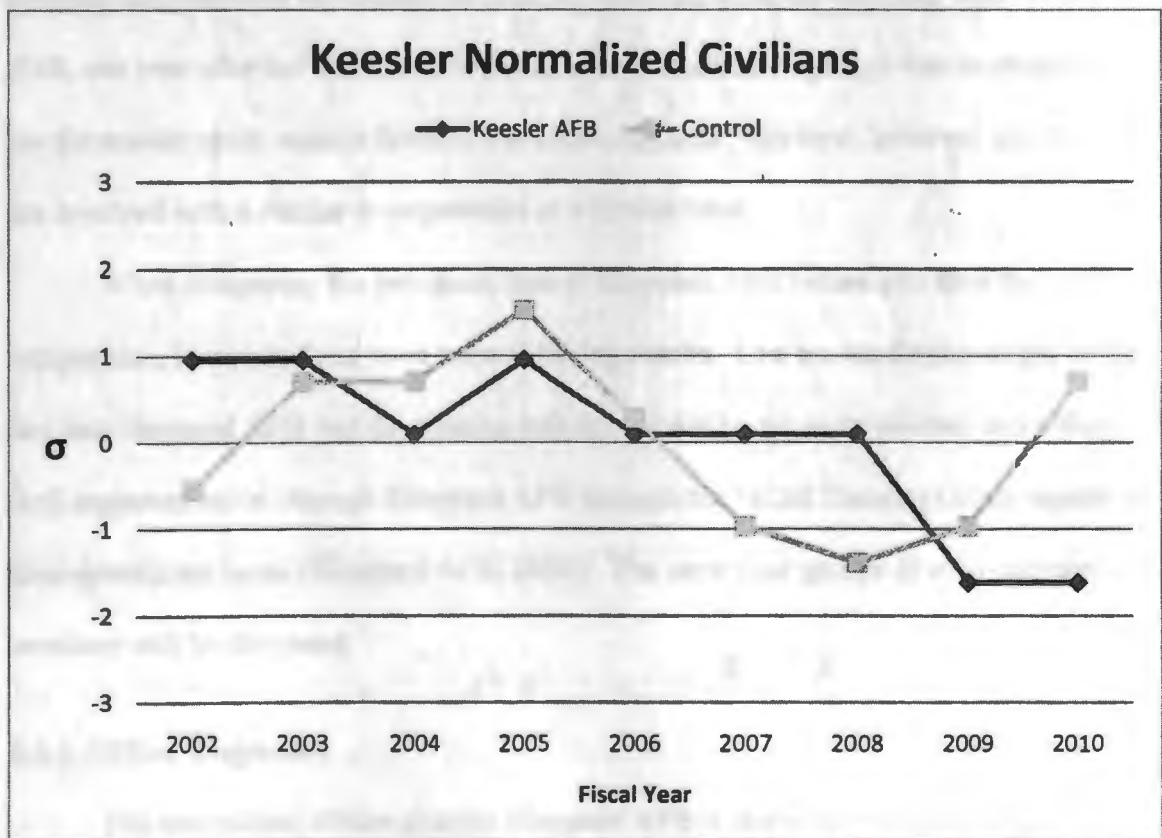


Figure 7. Keesler AFB Civilian Engineer Personnel

Keesler AFB lost both of the civilian employees that it had, even though the control group was showing to be back on the upswing. Keesler continued to have no civilian engineers from the end of FY 2009 until the end of the study. This was consistent with the trend of the other three groups of personnel from Keesler AFB studied, where during and after

FY 2008, personnel continued to decline or were at zero when the control group it was compared against was either constant or gaining personnel.

### **5.3. Sheppard AFB**

Sheppard AFB was the second base in AETC to perform an A-76 competition under the new 2003 revision, and the last one considered for this study. The performance decision and transition to contract services for base operation services was made in late FY 2008, one year after the Keesler AFB performance decision. Again, it was interesting to see the second result went in favor of a private contractor; this time, however, one that was not involved with a similar re-negotiation at a similar base.

When comparing the personnel data at Sheppard AFB before and after the competition, however, there were some differing results. One reason for this might be the fact that Sheppard AFB was the training hub for the Air Force; most enlisted and officer civil engineers travel through Sheppard AFB through the 782nd Training Group enroute to their operational bases (Sheppard AFB, 2010). The same four groups of civil engineer members will be discussed.

#### **5.3.1. Officer Engineers**

The normalized officer data for Sheppard AFB is shown in figure 8. Upon analyzing the data, there were no clear-cut trends as was the case for Keesler AFB. While the control had an upward trend until the end of FY 2005, Sheppard tended to be erratic, but maintained a general increase in personnel until 2009. Sheppard AFB did not follow the control trend from the start of FY 2006 until end of FY 2007 either, as the control

started a steady decrease and then leveled out, while Sheppard essentially continued its increase until the start of FY 2010, whereupon the manning took a strong downward trend.

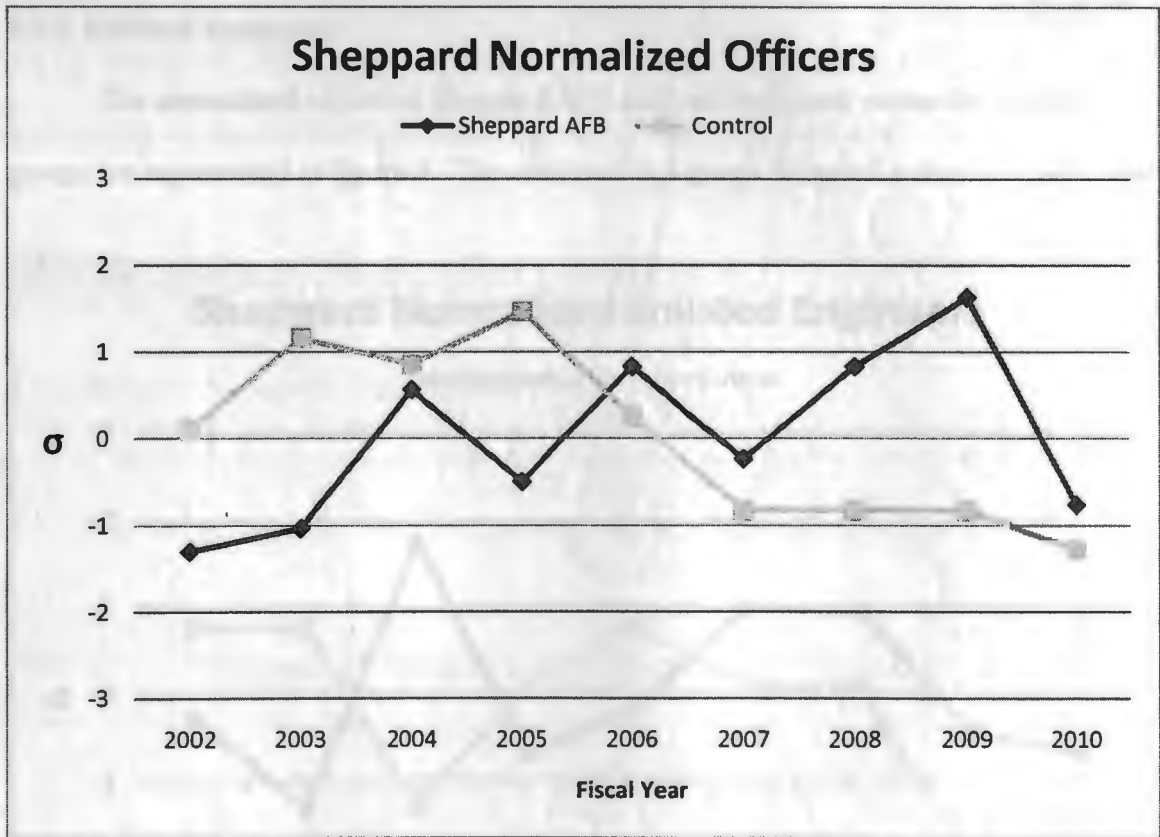


Figure 8. Sheppard AFB Officer Personnel

When the A-76 competition was superimposed onto the data, the change wasn't as expected. While the performance decision was made in late FY 2008, manning continued to increase through FY 2009 until the drop of FY 2010. It is also important to note, however, that while it appears the changes in Sheppard's personnel were drastic in response to the control, the change could have been contributed to class size and needs of the Air Force for that particular year, as well as the fact that personnel from Sheppard leave and go to all of the other MAJCOMs. Outside of this fact, there didn't appear to be any

significant change to the officer manning at Sheppard due to the A-76 competition, or at least none that could be drawn from the data of this study.

### 5.3.2. Enlisted Engineers

The normalized values of Sheppard AFB enlisted engineers versus the control groups are represented in figure 9. The results of this group followed a similar trend to that

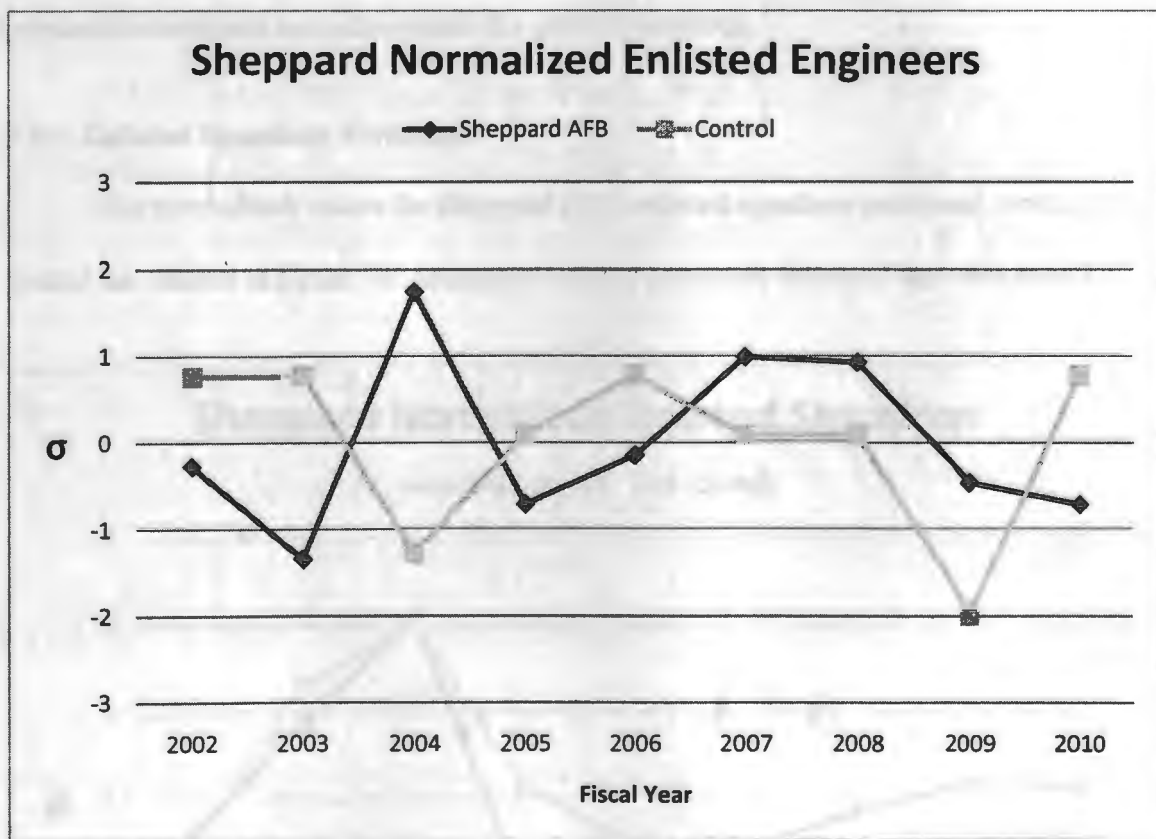


Figure 9. Sheppard AFB Enlisted Engineer Personnel

of the officer engineers. There was no direct correlation between that of the control group and the personnel at Sheppard AFB until 2005, when the personnel changes seemed to settle down. The spikes at the end of FY 2003 and 2004 were fairly large, going from 4 personnel to 53, back to 14 personnel at the end of FY 2005. Sheppard AFB seemed to

follow the trend of the control from the start of FY 2006 until the end of FY 2009, upon which the control spiked in the positive direction and the Sheppard personnel continued to decline.

The A-76 outcome superimposed on the enlisted engineers showed the same trend as Keesler's enlisted engineers, but the opposite of Sheppard's officers. With the privatization of base operation services in FY 2009, Sheppard's enlisted engineer population continued to decline while the control increased.

### 5.3.3. Enlisted Squadron Personnel

The normalized values for Sheppard AFB enlisted squadron personnel versus the control are located in figure 10. Sheppard enlisted personnel followed the same trends as

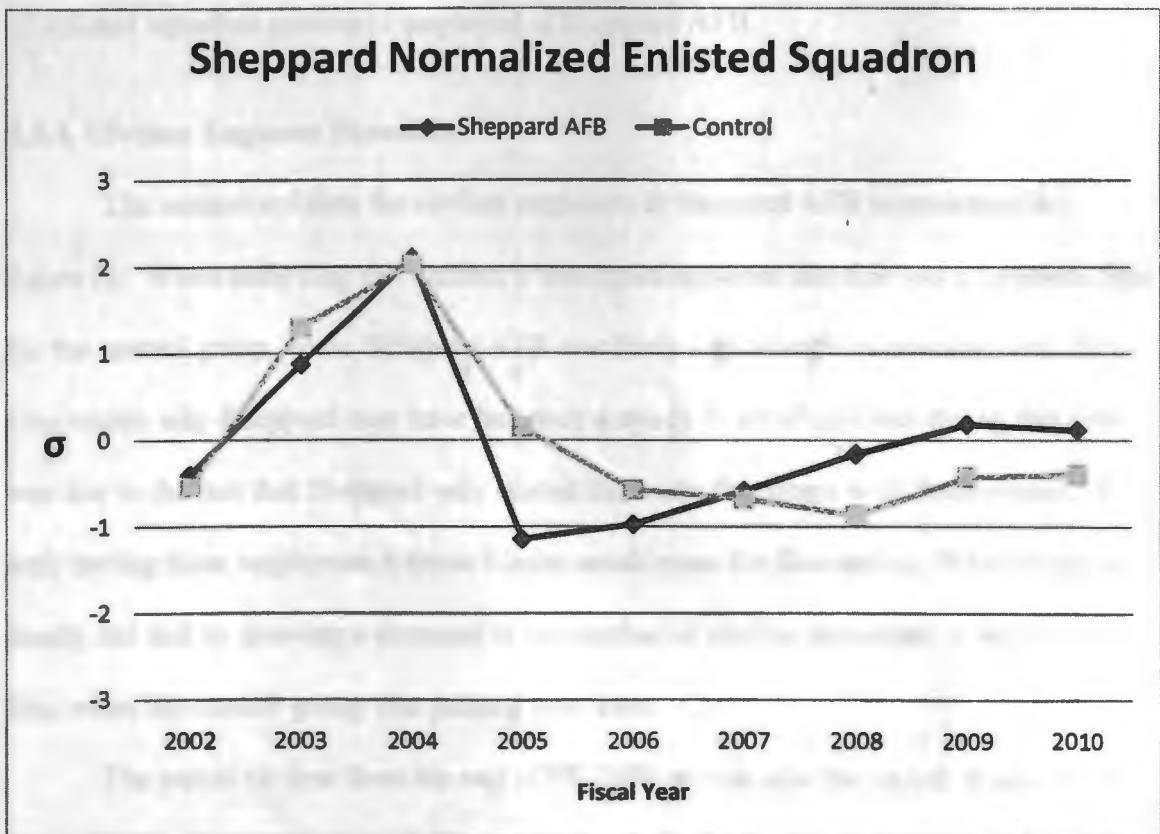


Figure 10. Sheppard AFB Enlisted Squadron Personnel

the control until the end of FY 2006, where Sheppard started a growth trend and the control was stuck in a steady decline. The control caught up with Sheppard after FY 2008, where the control started to increase again. Since the enlisted personnel included everyone within the CES, the early rise of Sheppard personnel could be due to Air Force Personnel Center starting an early increase in personnel to help fill positions elsewhere, since these people needed to go through training at Sheppard first. It could also be due to reasons out of the scope of this study.

When the A-76 performance decision was overlaid in late FY 2008, this group of personnel displayed the same trend that officers from Sheppard did. There was an upward trend to slight decrease of squadron personnel from FY 2008 on. This showed that the A-76 outcome of outsourcing to the civilian private sector had little impact on the number of enlisted squadron personnel employed at Sheppard AFB.

#### **5.3.4. Civilian Engineer Personnel**

The normalized data for civilian engineers at Sheppard AFB is presented in figure 11. When analyzing this dataset, it was again apparent that this was a turbulent time for the control group, while Sheppard AFB was fairly steady with its manning until 2008. One reason why Sheppard may have had such a steady force of civilians during this time was due to the fact that Sheppard only started the study timeframe with three overall. With only having three employees it doesn't leave much room for fluctuation. When Sheppard finally did end up showing a decrease in the number of civilian personnel, it was during a time when the control group was gaining personnel.

The period of time from the end of FY 2008 on was also the period of time when the performance decision from the A-76 study was formalized and the process of changing



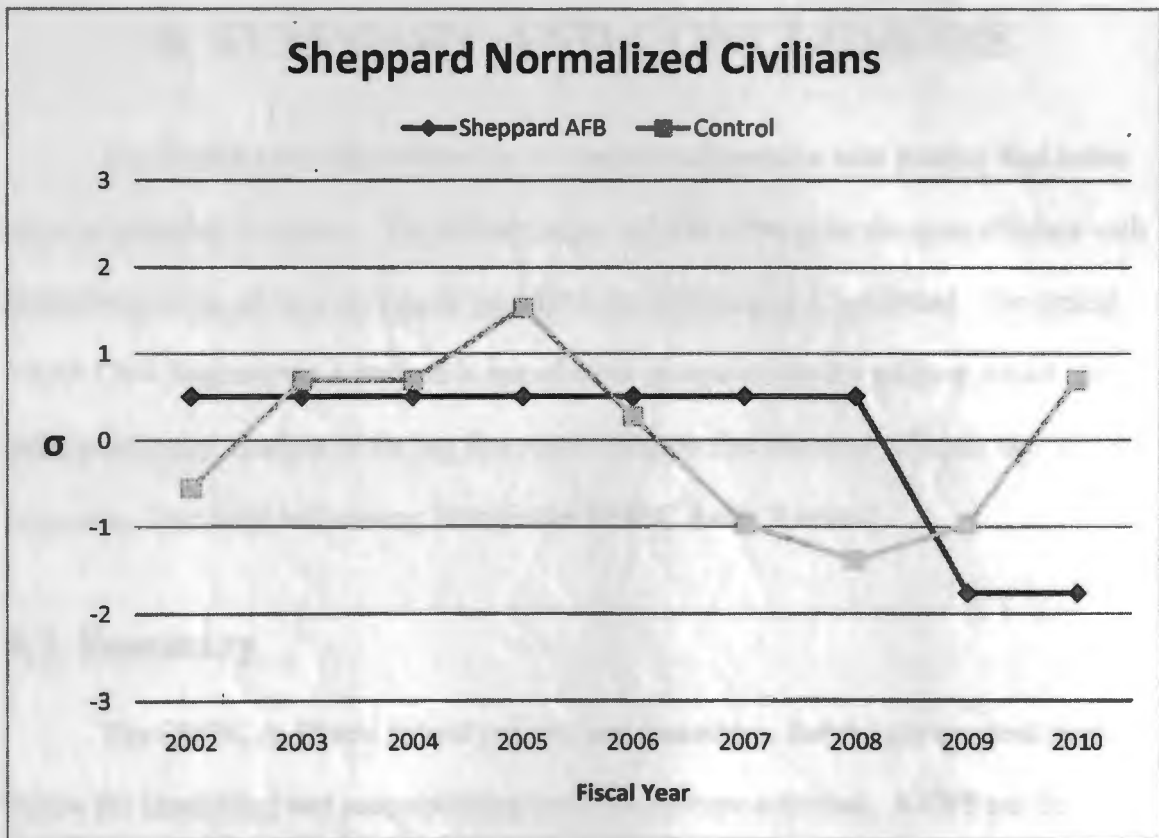


Figure 11. Sheppard AFB Civilian Engineer Personnel

base operation services over to the civilian contractor had begun. It can be inferred from the data that the A-76 outcome did have an effect on the civilian engineering force of Sheppard AFB, as by the end of the study there was only one person left in the shop.

## **6. SUMMARY AND CONCLUSIONS**

The United States Government is in constant competition with itself to find better ways of spending its capital. The military is part of this effort to be the most efficient with limited resources, always striving to get 110% out of the assets it is allotted. The typical USAF Civil Engineering Squadron is one of these groups within the military which has undergone many changes in the last five years trying to find the most efficient use of resources. One large influencing factor is the OMBC A-76 (Revised).

### **6.1. Summary**

The OMBC A-76 sets federal policies and procedures that the government must follow for identifying and accomplishing commercial-type activities. A CES can be responsible for many commercial-type activities on the typical Air Force Base, including anything from daily maintenance and upkeep of facilities to firefighting, as well as the more conventional tasks of engineering, constructing, and inspecting infrastructure. While some tasks such as maintenance, as well as engineering and constructing infrastructure, can be performed by the private sector, the military still needs to keep an active proficient staff of civil engineers and laborers who are capable of deploying.

The overall objective of this research was to see if A-76 competitions have changed the structure of United States Air Force Civil Engineering Squadrons in the Air Education and Training Command after the 2003 A-76 Circular revision. Specific objectives were to

- Determine the manning changes of the AETC CES post OMBC A-76 (Revised)
- Determine the outcome trend of new Base Operations Support A-76 competitions

This paper was developed by utilizing statistical inference to evaluate personnel data retrieved from the Air Force Personnel Center and contracting data retrieved from the DoD public contracting databases, including Federal Business Opportunities. The information to be retrieved included numbers of civilian, enlisted, and officers employed by Air Force CES involved in the engineering department at the end of every fiscal year from 2002-2010, A-76 contracts from January 2002- September 2010 utilized by the United States Air Force, and contracts utilized by Air Force CES from January 2002- September 2010.

## **6.2. Conclusions**

The data retrieved from the IDEAS and FedBizOpps.gov databases helped form conclusions about how manning has changed as a result of the present-day A-76 competitions. As Congress has decreased the numbers of personnel allotted to the Air Force in recent years, A-76 competitions have aided the transition to less manning by helping organizations such as CES either find their most efficient organization or contract out the commercial-type activities available to the local private sector.

Upon analyzing the contract data retrieved from the FedBizOpps.gov database, it was found that there were only two A-76 studies within AETC since the 2003 revision: Keesler AFB and Sheppard AFB. Both of these studies had resulted in a performance decision in favor of the private contractor for base operation services, those which include general building maintenance and grounds keeping, as well as utility and power management. That being discovered, these bases were separated from the group and

compared against a control group to evaluate how manning had changed as a result of the competition outcomes.

To evaluate how, exactly, A-76 competitions have affected CES, personnel data from the IDEAS database was retrieved and statistically analyzed. The data was separated into MAJCOMs and then bases, with the AETC data pulled out for study. Altus, Columbus, Laughlin, Luke, Tyndall, and Vance Air Force Bases were used as a control group for the study, as these bases were not involved with HQ AETC or the mass training of CES in any way. The data for each base was then statistically studied to find the mean and standard deviation within each base and group. Each base and group was then standardized so data could be referenced within its own standard deviation. This method of modeling the data was believed to be the most effective for the wide array of personnel ranges involved.

### **6.2.1. Keesler AFB Conclusions**

After comparing the personnel data from each of the four personnel groups against that of the AETC control group selected, it was fairly clear that the privatization effort imposed by the command had a diminishing affect on the personnel in each of the four categories. While the engineer enlisted and civilian categories only started with three personnel each before the performance decision, the base didn't have any of either left at the end. The officer group had started with 10, and the enlisted squadron personnel with over 200, while both had diminished to fewer than 30% of their original manning as well by the end of the study.

### **6.2.2. Sheppard AFB Conclusions**

In general, after comparing Sheppard's manning data against the AETC control data, it appeared that the privatization of base operation support provided by the A-76 performance decision had different effects on each category. While the privatization provided a fairly clear-cut effect on the civilian and enlisted engineers, the impact on the officer engineers and enlisted squadron personnel was not so visible.

### **6.2.3. Overall Conclusions**

Conclusions from comparing the A-76 affected bases to the control were the following. Concerning officers, the study was unclear. While Keesler AFB demonstrated a slight increase in officer manning during the study followed after by a sharp decline with respect to the control, Sheppard AFB displayed an increase after the competition outcome followed by a sharp drop one year later. One reason why Sheppard's reaction may have been delayed could be coupled with the fact that Sheppard AFB is a main training base for civil engineers.

The total enlisted squadron population follows the same trend as the officer group. While Keesler AFB shows a sharp decrease in personnel with respect to the control group following the performance decision, Sheppard AFB seems to remain coincident with the control to even slightly out rating it in the positive direction. This may again be explained by the fact that personnel visit Sheppard AFB for training and are then distributed out to the Air Force in general making changes to this larger group transparent as a result of the A-76 competition.

Both bases agreed on the outcome of enlisted engineers. Both bases seem to show the same trend as the control throughout the period of the competition and performance

decision. A year following the performance decision when the contractor is implementing its practice, the enlisted engineer force continues a slow decline while the control starts a recovery. Civilians follow the same trend, with Keesler ending the study with no civilian engineers and Sheppard only having one.

In general it can be inferred that A-76 performance decisions definitely have an impact on personnel changes within the organization. As to what those changes are, it appears that when the decision is in favor of a private contractor, civilian and enlisted engineers are negatively affected, where the officer engineers and enlisted squadron as a whole are not so clear-cut.

## 7. RECOMMENDATIONS AND FUTURE WORK

After seeing the outcomes of this study, it would be beneficial for any further research on this subject to take into account outcomes of A-76 studies from other MAJCOMs, as well as those from other sister services and branches of government. When compiling data for AETC, it became apparent that base operation services would be usually contracted out. Finding cases where the MEO was the performance decision would allow one to see how this affected personnel manning. By expanding the research to include other branches of the military, one might get a broader view of A-76 studies accomplished within the civil engineering structure and be able to draw further conclusions.

One more avenue to pursue for future work on the subject of A-76 outcomes within the civil engineering structure would be to study how civil engineering contracts have changed in organizations that have participated in A-76 studies. Most organizations that were found in FedBizOpps.gov that had MEOs win a competition were significantly smaller in personnel size than the organization which started the competition. A smaller organization may have to fundamentally change the duties of personnel, including moving from being “hands-on” in the design and construction of a project to holding more of an oversight and inspection function. While the only contracts considered in this study were for personnel services, it would be interesting to see how actual project contracting has changed. The results of having these smaller organizations may fundamentally influence the outcome of project contracts from being design-bid-build focused to being more design-build contract or construction manager focused.

A final idea to follow up on would be interviewing actual civil engineering squadrons to see how A-76 competitions have changed the way the organization functions.

This was not feasible for this study as all interviews or questionnaires sent to military personnel must be commander sponsored. Since this was not a study done for the military, command sponsorship was not feasible.



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