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Dollarizing Qualitative Discriminators Used in Best Value Source Selections

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THESIS

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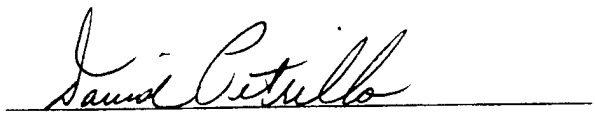

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Jason R. Borchers

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Abstract

A steadily decreasing budget affects the quantity and type of purchases made each year by the U.S. Department of Defense. This results in increasingly less money allocated to the different services each year in order to accomplish their individual missions. We are constantly being asked to do more with less and to research better ways in which to conduct our activities in a more effective and efficient manner. While this trend is significantly affecting many areas of the Air Force, it is having an equally significant impact on the conduction of source selections.

This thesis examines this issue and proposes a "best value" method to source selections that compares not only each offeror's proposal prices to one another, but examines other areas as well. The areas referred to are direct costs; indirect costs; and a dollarization of the relevant strengths, weaknesses, and risks associated with the particular proposal. Direct costs are costs that can be directly attributable to the government's acceptance of the proposed offer. Indirect costs represent all of the secondary costs that would be incurred by other governmental entities pending the selection of an individual proposal. Finally, dollarizing all of the relevant strengths, weaknesses, and risks associated with proposals entails looking at these individual elements objectively and assigning a dollar amount to each of them.

This thesis will depict how to dollarize the qualitative aspects of contract proposals in order to be able to effectively and accurately compare competing proposals against one another. As an end result, the user will be able to select a contractor who, not

necessarily has the lowest proposed cost, but, will in fact, provide the United States Air Force with a product that will provide it the greatest value over the product's life cycle.

This particular thesis effort was primarily a case analysis, where three public/private competitions were examined. The three cases were evolutionary, meaning that all three were in succession to one another, and thus the same cost analysis team performed all three. Finally, the research was supplemented with interviews from the field that represented individuals' current views of how best value currently plays in the source selection process.

The results obtained from this thesis report that this proposed method to determine best value in source selections is a success. This approach has been implemented successfully in each of these three cases.

In conclusion, this method can be used for future source selections if carefully and meticulously implemented. Not all of the analyses will apply across the board to all source selections, but the thought process that went into each of these three cases, as well as this thesis remains the same.

DOLLARIZING QUALITATIVE DISCRIMINATORS USED IN BEST VALUE SOURCE SELECTIONS

I. Introduction

A steadily decreasing budget affects the quantity and type of purchases made each year by the U.S. Department of Defense. This results in increasingly less money allocated to the different services each year in order to accomplish their individual missions. We are constantly being asked to do more with less and to research better ways in which to conduct our activities in a more effective and efficient manner. While this trend is negatively affecting many areas of the Air Force, it is having a significant impact on the conduction of source selections[1].

Previous Source Selections

Throughout the years, a strong precedent has been set for simply choosing the lowest bidder in a competitive source selection (O'Connor and others, 1997:136). This method was preferred because it was not very difficult to come up with additional funding to fix problems, if necessary. While, at the time, this appeared to be an appropriate way to conduct business, with the increased restriction on the amount of money that we are able to receive each year, that avenue to approach source selections now entails a little more insight (Riba, 1998:8).

[1] "A source selection is the formal process by which the government makes procurement decisions for acquisitions" (O'Connor and others, 1997:135)

Future Source Selections

In order to compensate for the decreased funding that we receive each year, future source selections will have to be conducted so that both the qualitative and quantitative aspects of each proposal are considered in the same light in order to determine what the best deal for the government is, overall. This will allow us to wholly and adequately compare one work proposal to another and determine which one provides the greatest value to the government. This would entail being able to dollarize[2] as many of the qualitative aspects of each proposal as we can in order to come up with the total evaluated cost of a proposal. This method of arriving at a total evaluated cost of each proposal and then comparing those amounts to one another is what is known as the "best value" method.

The idea of "best value" is not a completely new concept. Many regulations and instructions describe what "best value" is, but the problem is that no one really knows how to, nor have they attempted to, implement it in proposal selections in the manner that this thesis will describe.

Research Objectives

Research Question 1: Can we successfully quantify the qualitative aspects of competing proposals in order to truly compare them to one another?

Research Question 2: If we answer "yes" to research question 1, then can we develop a generalized model of how to integrate our dollarization technique into source selection criteria?

Applicability of Research

This research will result in the production of accurate analysis tools that will aid decision makers in dollarizing qualitative aspects of competing proposals in future source selections. Through this, these findings will aid in saving the Air Force a significant amount of money over time because contracting officials will be able to make better-informed source selection decisions with respect to competing offerors. Currently, a best value source selection decision is subjective in nature. In other words, all of the thoughts and opinions that go into conducting a source selection are dependent upon the source selection authority (SSA) assigned to the task. What this thesis does is interject a little more objectivity into this analytical process.

Overview of Methodology Used

The methodology that was used for this thesis consisted of two separate elements. First, I interviewed numerous individuals at Wright-Patterson Air Force Base in order to get a better understanding of what people's thoughts and opinions were concerning best value in the source selection process. Further, I discussed the idea of dollarization with each of them. These individuals were selected based on their degree of knowledge and past experience in dealing with best value source selections.

Sequence of Presentation

Chapter two of this thesis presents an overview of relevant literature regarding the use of best value in the government source selection process. It gives the reader an introduction on what best value is and how it is currently used in the source selection

[2] Dollarize – to assign a dollar value to either a proposal characteristic or a difference between proposals

process as described by various government rules, regulations, directives, and operating instructions. Chapter three reveals the methodology used to answer the objectives of my research. Chapter four addresses the data collected in terms of findings and analysis. Chapter five contains the conclusions, limitations, and recommendations for further research obtained from my study.

II. Literature Review

Best value source selection is the purchasing method used by the government in which we choose a supplier based upon evaluation criteria not limited to cost. This chapter examines available writings, regulations, directives, instructions, and research related to the use of best value concepts and techniques as it applies to the source selection process. It delineates current knowledge about the subject and allows the reader to understand the topic a little more thoroughly. Further, this chapter represents a foundation of knowledge about best value required to dollarize the qualitative aspects of source selection proposals.

For the purposes of this review, areas of relevance are arranged by discussion of pertinent literature, structure of the source selection process, the process as it existed in the past, the process as it presently exists now, and what the future holds concerning the evaluation of source selections.

Applicable Air Force Regulations, Directives, Instructions, and Guidelines

There is an abundance of literature that describes the basics concerning the best value source selection process. The Army Federal Acquisition Regulation (AFAR) describes best value as, "(T)he process used in competitive negotiated acquisition to select the most advantageous offer by evaluating and comparing factors in addition to cost or price." (AFAR, 2000:15.601). These factors may be things such as a particular offeror's anticipated performance, their ability to manage risk, their past performance on similar efforts, as well as other non-cost factors (Procurement, 1997:8).

Per the Federal Acquisition Regulation (FAR), source selections are conducted with the goal of providing the government with the proposal that will deliver to them the best overall value (FAR, 2000:15.302). "In short, best value source selection is appropriate when price or cost is not the overriding evaluation factor and the government stands to benefit from comparison of technical proposals and a reasoned tradeoff between technical and non-technical factors (including cost or price)." (Procurement, 1997:9). The offer which provides the government with the best value is the one which delivers the biggest advantage to the Government, including, but not limited to, factors such as cost or price (AFAR, 2000:15.601).

Current Air Force Lightning bolts 99-1, 99-2, & 99-3 all touch upon the need for best value determination in source selections[3]. They are all related and go hand-in-hand with one another. Lightning Bolt 99-1 was initiated to expand the role of Acquisition Support Teams (AST) to encompass the full range of pre-award activities; to include risk assessment management, acquisition strategy development, performance based solicitation development, and source selection. "The goals of this Lightning Bolt are:

- Capitalize upon existing Air Force Materiel Command (AFMC) multi-functional infrastructure to develop and deploy tools to the acquisition workforce
- Provide ready access to expert advice on the full range of acquisition reform and business processes, including Lightning Bolts, Reinvention Teams and other initiatives

[3] "In May 1995, Mrs. Darleen A. Druyan, Principal Deputy Assistant Secretary of the Air Force for Acquisition and Management, announced several initiatives to reform the Air Force's acquisition and sustainment processes towards a faster, better, cheaper way of conducting business. The original Lightning Bolts have been implemented and we have already seen $30B in cost savings and cost avoidance. On 23 April 1999, she announced a new set of Lightning Bolts designed to reenergize our acquisition and sustainment reform activities." (Lightning, 1999)

- Implement Lightning Bolt 99-2 for AFMC acquisition programs." (Lightning, 1999).

This Lightning Bolt is necessary to broaden the influence of the AST's through source selection and "(T)o recognize the relationship of the risk assessment to acquisition strategy development and the creation of a Request For Proposal (RFP) that implements that strategy." (Lightning, 1999).

The Air Force initiated Lightning Bolt 99-2 to improve "(T)he consistency, quality, documentation, and debriefings on all Air Force source selections by identifying expert advisors at each AFMC center and at each operational MAJCOM HQ/LGC that will actively participate in or be available to provide assistance on all Air Force source selections." In essence, it will aid in the implementation of superior source selections (Lightning, 1999).

The Air Force initiated Lightning Bolt 99-3 to create "(M)ulti-functional Centers of Expertise (COE) at each Product and Logistics Center in order to gather, organize, analyze, and maintain information on market products, practices, technologies, standards, and companies. This Lightning Bolt supports the definition of requirements, assessment of risk, development of acquisition strategies, execution of price based acquisition, conduct of source selections, and risk management. The goals of this Lightning Bolt are:

- Expand the use of commercial item solutions and the adoption of commercial practices in support of war fighter needs
- Support the use and conduct of price-based acquisition strategies including the development and deployment of training and tools
- Integrate the technical, contracting, and program management functions in the conduct of market research." (Lightning, 1999)

While Lightning Bolt 99-1 simply suggests the need to evaluate the true discriminators in the source selection process and Lightning Bolt 99-3 addresses improving the conduct of source selections to help the war fighter by providing an improved process to acquire better weapon systems, Lightning Bolt 99-2 directly addresses the aspects of best value source selection. Lightning Bolt 99-2, Superior Source Selections, "(P)rovides a better understanding of how "Best Value" decisions are made, provides real-time support in the conduct of source selections, mandates more open communications with industry, and provides clear, thorough, and consistent documentation of both the evaluation and the decision." (Lightning, 1999).

The Source Selection Process

According to Part 15.101-1 of the FAR, when the government creates the Request for Proposal (RFP), their "(S)olicitation shall state whether all evaluation factors other than cost or price, when combined, are significantly more important than, approximately equal to, or significantly less important than cost or price." (FAR, 2000:15.101-1). Section M of the RFP establishes how the Government will make its selection for award, how the factors interrelate; and the number of awards contemplated (SS Procedures, 2000). "An agency should exercise particular care in conducting a source selection to ensure the evaluation of proposals against the criteria initially established in the government RFP." (Mickaliger, 1999:1).

Although we must tailor each RFP to reflect the specific requirements of a particular acquisition, Section M of the RFP should reflect one of the following three alternatives:

1. Identify the required threshold performance requirements but not any objective performance requirements and inform offerors that any features or technical offerings that enhance the system will be considered in the best value determination.
2. Identify both threshold performance requirements and objective performance requirements and explicitly state that the Air Force reserves the right to evaluate and give evaluation credit for the proposed features that exceed either the stated thresholds or objectives.
3. Identify both the threshold performance requirements and the objective performance requirements and explicitly state that the Air Force reserves the right to evaluate and give evaluation credit for the proposed features that exceed the stated thresholds and offerors will not be given credit for performance beyond the objectives identified (SS Procedures, 2000).

When conducting a best value source selection, the process used will rely on four things:

- the technical intricacy of the need
- how defined the need is
- the subsequent requirement to appraise proposed products/services before contract award
- the relative significance of cost/price (Millisor, 1999).

When taking all of these factors into consideration, there are a wide range of different involvements that a source selection official can adopt, depending on the complexity and the risk of the particular source selection. These involvements can range from minimal involvement (simple source selections) to extensive involvement (formal source selections). We will begin by examining how simple source selections are conducted.

Simple Source Selections. The least complex form of a source selection, a simple source selection, requires the contracting officer to become only minimally involved. In

this type of environment, we will award a contract based simply on a "lowest price, technically acceptable offer." (AFAR, 2000:15.602). This means that the source selection official will only select a source from among the various proposals received that meet the technical requirements set by the government. The source selected will be the one that exhibits the lowest proposed cost to the government. An example of this would be a "sealed-bid" source selection. Here, "best value" is achieved by buying from a bidder, who is both responsive[4] and responsible[5], who requests the lowest price (Millisor, 1999). "Low-price technically acceptable source selection is generally used when there is little likelihood that there will be significant differences, from the Government's perspective, between the products/services offered by different sources." (AFAR, 2000:15.602a1B).

When considering best value, the relative importance of cost or price may vary. In simple source selections, where the requirement is clearly definable and the risk of unsuccessful contract performance is minimal, cost or price will be the dominant determinant in the source selection process (FAR, 2000:15.101). A potential problem exists with conducting a source selection in this manner. If we do things this way, we need to make sure that we are getting the maximum benefit possible in return for the dollars that we spend on purchases. An attraction to the lowest proposed price does not necessarily guarantee that we will receive the maximum benefit.

[4] responsive – bidder submits proposal in a timely fashion and in the correct form

[5] responsible – bidder is capable of performing the work

Formal Source Selections. In a formal source selection, a tradeoff process is appropriate because it may be in the best interest of the Government to award the contract to someone other than the lowest priced offeror, or to award to someone who may not be the highest technically rated offeror (FAR, 2000:15.101-1). In using the best value approach, the Government seeks to award to an offeror who gives the Air Force the greatest confidence that it will best meet our requirements affordably. This may result in an award being made to a higher rated, higher priced offeror where the decision is consistent with the evaluation factors and the Source Selection Authority (SSA) reasonably determines that the technical superiority and/or overall business approach and/or superior past performance of the higher priced offeror outweighs the cost difference. The SSA, using sound business judgment, bases the source selection decision on an integrated assessment of the evaluation factors, subfactors, and elements (FAR, 2000:15.304)

Quantitative Evaluation. The Air Force conducts all source selections with the expectation of adequate price competition. Furthermore, they rely on market forces to ensure awarded prices are reasonable. Only in extraordinary circumstances will additional information beyond proposed prices be necessary for the contracting officer to determine that the proposed price is fair and reasonable. For all firm-fixed price contracts, where the Air Force anticipates adequate price competition, we must obtain approval for requesting cost or pricing information (includes cost or pricing data) from SAF/AQC (See AFFARS 5315.305(a)(1)(iii)) before inclusion of the request in the RFP. Requests should be submitted to SAF/AQCS for approval (See AFFARS 5315.402(a)) (SS Procedures, 2000).

If a cost realism analysis[6] is to be accomplished, the offeror should be advised that the SSA will be shown both the Government estimate of probable cost or price, and the offeror's proposed cost or price during the evaluation briefing. Cost realism analyses are not normally performed in fixed price contracting except in accordance with FAR 15.404-1(d)(3). Section M of the RFP must clearly state how to conduct the cost realism evaluation, as well as what to present to the SSA (SS Procedures, 2000).

Qualitative Evaluation. Formal source selections lie at the opposite end of the spectrum than do source selections of the simple type. The concept of best value cannot be completely determined without performing evaluations of the offeror's proposed supplies and/or services, a risk assessment of relevant past performance, and an assessment of the reasonableness and realism associated with the offeror's cost estimates (Millisor, 1999). It is important to remember that "past performance" and "experience" are not the same things. A past performance evaluation is used to determine how well an offeror has performed previous efforts. Experience, on the other hand, is an indication of the amount of time an offeror has spent on similar efforts.

The past performance evaluation should concentrate on assessing the delivery of an offeror's products and/or services, and be tailored to the challenges, or issues we expect to be significant determinants of success in the acquisition. Examples include, but are not limited to: product performance, manufacturing performance, engineering capability, cost and schedule performance, product quality, configuration management control, subcontract management track record, software performance, system integration, past transition planning and execution, service responsiveness, quality of services rendered,

[6] A cost realism analysis is a separate Government estimate of probable cost or price

ability to provide qualified professional personnel, and demonstrated surge capabilities. Additional Past Performance information may be obtained through Contractor Performance Assessment Reporting System (CPARS) documents, questionnaires, Defense Contract Management Command (DCMC), interviews with program managers and contracting officers, or other sources known to the Government (SS Procedures, 2000). Further, it is essential to consider the subcontractor's past performance when either a teaming arrangement or significant subcontracting effort is proposed.

When determining what previous contracts/programs to assess, the recency and relevancy of the performance information is a critical element. After reviewing the list of information provided by the offeror and the information gathered from other sources, the evaluation should be constrained to the most recent and most relevant contracts/programs that will permit an in depth evaluation focusing on the mission capability subfactors (SS Procedures, 2000). In determining relevancy, consideration should be given to such things as product similarity, product complexity, contract type, program phase, contract environment, the division of the company which will do the work, and subcontractor interaction. Recency simply means that the most recent efforts made by an offeror should receive the majority of the consideration given.

When the source selection team develops the RFP, it is essential that they provide adequate information to allow the offerors to become aware of how the source selection authority will assess past performance, as well as to allow the offerors to recommend other information, if appropriate, that will provide recent, relevant information (subject to the restrictions in FAR 15.306(e)(4)).

When the proposals are evaluated, the contracting officer should adopt a confidence rating to assess the offeror's work record, as described in AFFARS 5315.305(a)(2). The six (6) confidence assessment ratings used are: Exceptional/High Confidence, Very Good/Significant Confidence, Satisfactory/Confidence, Neutral/Unknown Confidence, Marginal/Little Confidence, Unsatisfactory/No Confidence (SS Procedures, 2000). This rating will then be used as a factor in selecting a proposal.

In Performance-Price Tradeoff (PPT) source selections, the "best value" award would normally be the lowest priced, technically acceptable offeror if that offeror also has a low performance risk rating. However, if the lowest priced, technically acceptable offeror does not have a low performance risk rating, the SSA[7] must make a "best value" determination in order to award to someone else. Because of this, someone other than the lowest priced offeror may receive the award. Lastly, as an offeror's performance risk rating rises, their technical or past performance considerations will play an increasingly dominant role in the source selection (FAR, 2000:15.101).

How We Conducted Source Selections in the Past

Throughout the years, a strong precedent has been set for simply choosing the lowest bidder in a competitive source selection (O'Connor and others, 1997:136). This method was preferred because it was not very difficult to come up with additional funding to fix problems, if necessary. One of the problems associated with this method dealt with the possibility of purchasing goods for a comparatively lower price that may have been made of a lesser quality than what we could have purchased for a slightly higher price. It

[7] Throughout this thesis, the Source Selection Authority will refer to the individuals who are actually performing the source selection

became apparent that as the product aged, some of these less expensive goods tended to wear out more quickly than the better quality goods would have that we neglected to purchase in the beginning. This, over time, contributed to more cost being spent over the life of a project than would have been had we just invested a little more money up-front for the higher quality goods. This method was possible because it was fairly easy to request more money to fix the problems. While at the time, this was an acceptable way to conduct business, but with the increased restriction on the amount of money that we are currently able to receive, source selections now entail a little more insight (Riba, 1998:8). We need to find more innovative and creative ways to be able to acquire more with less. Consequently, making our source selection decisions based solely on this bottom line criteria known as lowest stated price has posed some problems (either technical or financial) that occur over the life cycle of the system in question. One problem is the possible hidden support costs that may go along with a low initial cost. This may become apparent as the product ages. Further, there may be added benefits that may be inclusive in a more expensive proposal, when compared to a lesser expensive one that will inevitably cause it to cost more. Today, it is essential to consider and analyze these potential problems, as well as the added benefits when making our source selection decision.

How We Currently Conduct Source Selections

Recently, there has been a shift in the source selection process. The government is no longer just simply selecting the lowest priced proposal. Instead, we are incorporating the previously-mentioned factors (past performance, quality, service, etc.) into our decision.

This approach leads to a more accurate evaluation, but there are still certain aspects in a source selection that need to be improved. For example, the source selection authority tends to shy away from attempting to dollarize the qualitative aspects of a proposal.

The current source selection process attempts to gain best value for the Government. This process entails three critical sub-process elements in order to make it work effectively (Procurement, 1997:8).

Sub-process element 1 -- Proposal evaluation. Proposal evaluation is the first of the three elements. Here, the Air Force evaluates each proposal based on cost and non-cost/technical factors as specified in the solicitation. Each proposal is broken down into manageable elements and then individually evaluated with respect to cost. Further, we utilize a rating system during proposal evaluation of non-cost evaluation factors (Procurement, 1997:8). Consistency among proposals is a significant key to success when using this rating system. It is extremely important that the proposals are consistent with one another because, if they are not, the evaluator might ineffectively assign a rating system to one proposal that does not comparatively match up to another proposal. It would be like trying to compare apples to oranges. This, in itself, could cause problems for the source selection authority in trying to distinguish which proposal will give the government the best value.

Sub-process element 2 – Comparative Analysis. The second element of the three entails conducting a comparative analysis between the competing proposals. Here, the source selection official identifies all of the technical differences between the competing proposals. The SSA then compares all of the strengths, weaknesses, and risks of the competing proposals to the criteria established in the RFP. With respect to risk

evaluation, there should be an assessment of the technical risks, the schedule risks, and the financial risks, as well as an assessment of the offeror's past performance with respect to the risks identified (Mickaliger, 1999:7).

Subprocess element 3 – Cost-Technical Tradeoff Analysis. The third element involves conducting a cost-technical tradeoff analysis amongst all competing proposals. Currently, this is the touchstone of the best value source selection evaluation process. This analysis will determine which of the competing proposals is the most advantageous to the U.S. government, overall.

In conducting this analysis, the potential impact of each technical difference (a proposal discriminator[8]) needs to be identified for all of the strengths, weaknesses, and risks of the competing proposals that were identified in sub-process element two. By assigning either a positive (+) or a negative (-) to each respective strength or weakness in a proposal, potential impacts for the strengths, weaknesses, and risks can be identified (Mickaliger, 1999:2-3).

Next, the SSA needs to consolidate and evaluate all of the similar technical differences between each proposal. To make things more simplistic, the source selection team needs to eliminate all of the technical differences between proposals that would have only a small impact on the final decision. After defining all of the relevant discriminators, an analysis of all of the non-quantifiable proposal discriminators should be prepared.

The last step in this third sub-process element entails preparing a report that reiterates all of the findings in the previous steps, and then selecting a source from which to

purchase. This report will document, "(A)ll of the analytical processes and the cost/technical tradeoff process that an agency uses to calculate the dollar value of the quantified proposal discriminators and/or the relative value of the proposals by considering their non-quantified discriminators." (Mickaliger, 1999:5).

Summary

This chapter laid the foundation for describing how best value is currently viewed, as well as dictate what the SSA does in order to arrive at it in conducting a source selection. In addition, it examined applicable regulations, directives, instructions, and guidelines pertaining to the determination of best value in the source selection process. Further, this chapter looked at the lack of understanding concerning current knowledge about being able to dollarize the qualitative aspects of source selection proposals. With these elements in place, Chapter three will address the methodology that the author will use in order to answer the investigative questions posed at the beginning of this thesis.

[8] A proposal discriminator is some characteristic of the proposal that would cause one proposal to be chosen in lieu of another.

III. Methodology

Overview

This chapter explains the methods by which this study collected and analyzed the necessary data in order to answer the investigative questions first introduced in Chapter 1. These investigative questions exist to allow the researcher to be able to determine the total evaluated cost of each competing contract proposal. This, in turn, will take on a role that will ultimately lead to the Source Selection Authority's award decision.

Interviews

In order to be able to gain current information on what individuals involved in source selections know about best value as well as how to dollarize the qualitative and quantitative aspects of proposals, a series of interviews were conducted with individuals who had experience in dealing with previous source selections that involved a desire to determine "best value". The population from which the sample was drawn consisted of both the program manager and the financial communities at Aeronautical Systems Center (ASC), Wright Patterson Air Force Base, Ohio. In these interviews, the selected individuals answered a series of questions ranging from collection of the most basic knowledge of best value to knowledge that requires a little more involvement or thinking. A copy of the interview worksheet exists in Appendix A. The following are the conclusions derived from the interviews.

Most of the individuals interviewed had attempted to determine "best value" on previous source selections. One inconsistency found was that "best value" gets

interpreted in many different ways by different people. Furthermore, every aspect of a source selection is either judgmental (qualitative) or quantitative in nature. The qualitative aspects are difficult to quantify. To accommodate this, the experience of the source selection authority is very important. This difficult quantification was related to the examining of the dimples of the Florida ballots that drove the controversial 2000 presidential election – very subjective in nature.

Per the interviews, the risks and the weaknesses associated with the individual proposals are easier to dollarize than their respective strengths. More particularly, it was believed that risk is the only thing that can be dollarized in a source selection. Strengths have been reviewed before, but in general, cannot be dollarized. If a contractor possesses a particular strength, such as over-shooting the requirement, then that strength should be addressed in discussions (the offeror may be too good, and that may hurt them in the price evaluation. Furthermore, if an offeror is chosen who has over-shot the requirement, the Government will probably be subject to a protest based on faulty Section M criteria.

One potential problem suggested is the lack of clear guidance over what best value actually is and how it is to be used in the source selection process. This creates a great deal of confusion among individuals involved in a source selection and can contribute to a lack of consistency in the evaluation process. As an example, in one particular source selection, one offeror had so many risks and weaknesses associated with their proposal that once their risks were dollarized, the source selection evaluation board selected the highest bidder, rather than the lowest. Another offeror could have just as easily been selected if a different source selection team selected the offeror.

Past performance of the offeror can also be a big contributor in determining who the successful bidder will be. In examining past performance, it is crucial to only consider contracts that most closely resemble the effort that is being reviewed. In one particular example, an offeror who's proposal was 18% higher in price than its competitor won based solely on their past performance on similar efforts. In general, the Government would rather select an offeror who has been around a while and who has proven themselves on similar efforts in the past rather than select an offeror who is new and inexperienced in this type of work. In essence, a lack of past performance can turn a neutral decision for an offeror into a negative decision for them when there is another offeror who has good, relevant past performance. This examination of past performance is becoming an increasingly larger player in the determination of a source selection.

In the past, it was not uncommon for the source selection authority to override the best value assessment that was done on an offeror's proposal in favor of adding their own subjective judgment. This is still a concern today because the SSA may still select an offeror that he or she determined would provide the government with inferior value in comparison to competing proposals. As a result, the best value decision is ultimately in the mind of the source selection authority. On the other hand, it is believed by some that most SSAs, today, do listen to their source selection teams. The source selection team should not give the SSA a recommendation. Instead, they should provide the SSA with all of the information gathered and then allow the SSA to make the ultimate decision. When selecting a source, the SSA should then inject his/her own subjective judgment into the decision only when the offerors' proposals are similar in comparison. In summary,

currently, the determination of best value is in the mind of the person(s) making the source selection decision (very subjective in nature).

In the future, most source selections at Aeronautical Systems Center (ASC) will be of the best value variety. This is due to better definitions of what best value exactly is and better risk analyses conducted on the offerors. Further, given the lack of competition in today's source selection environment, the Government is writing the requirements better in order to evaluate a proposal utilizing best value.

The source selection environment is different today than it was in the past. This is evident in the fact that the contractor is much more willing to protest a decision today than they were in the past. In fact, most of the people interviewed were extremely cautious when it came to the topic of protests. According to some, everything the source selection team does is geared towards avoiding protests. This involves more thorough and comprehensive documentation throughout the source selection process. The key to a good source selection is upfront planning. The source selection team needs to get as much of the data from the offerors up front in order to determine which offeror gives the government the best value .

A word of caution was elicited from the interviewees: a difficult trade-off could exist between the cost an effort and the amount of support that the government will receive in relation to that effort. It must be advised that too low of an offer for a particular effort in comparison to other offers could be a bad thing. This may materialize through cheap material used in the production process, short-cuts utilized in the manufacturing process, or low support given in the out-years.

Analysis of Data

The concept of "cost comparability" is not to be confused with simply comparing the dollar value of one work proposal to another. The competitive source selection process requires that the seller (the bidding public or private depot) propose to the buyer (requiring or managing authority) all costs that will be incurred to maintain the workload under consideration, in response to a request for proposal or other type of solicitation. This process also requires that the bidder's cost proposal must remain the responsibility of the bidder and not be altered or modified by the Source Selection Authority. During the source selection process; however, additional costs that are often outside of the bidder's control must be evaluated to determine the overall cost of each bid to the government. To the extent that these costs can be determined and supported by the bidder, such cost data may be required in the solicitation. Therefore, the Cost Comparability Committee[9] has determined that a structured method for documenting cost evaluation during the source selection process and listing (not all inclusive) potential source selection evaluation factors is appropriate.

The Source Selection Authority, representing the buyer (DoD component), will tailor cost analysis to include those evaluation factors determined to be appropriate to the specific competition. Once determined, the evaluation factors must be stated in the request for proposal. While the source selection process is a buyer's tool, it is inappropriate for the seller (public or private) to be accountable for cost determination for many of the possible evaluation factors. Unless otherwise specified in the listing of

[9] The Cost Comparability Committee was chartered by the Joint Policy Coordinating Group on Depot Maintenance (JPCG-DM) to maintain currency based on changes in cost accounting policies, standards, and practices.

evaluation factors, it is the buyer's (or buyer's representatives) responsibility to determine the cost impact of the proposed cost evaluation factors. This holds true unless the required cost data is accumulated in seller data systems or is routinely used by the seller for other purposes.

All costs to DoD must be considered when evaluating competitive bid awards to determine "best value", regardless of whether they are recurring[10] costs or nonrecurring[11] costs. Other costs may be included or excluded as the individual competition or consolidation requires. However, any additions or deletions to these costs must be completely identified and justified. Furthermore, any assumptions made in developing these costs must be clearly stated.

When evaluating the cost proposal, it should meet the requirements specified for in the request for proposal (RFP). The RFP must clearly communicate Air Force requirements, how the evaluation team will be evaluating the proposals, and how the Source Selection Authority will determine the award. The requirements should consist of those performance-based factors that deliver the most mission capability; this allows the offeror the latitude to propose a suitable method or solution for meeting the objective. This enhances creativity and maximizes the Air Force's desire to obtain the best commercial practices. However, just selecting performance-based factors is not good enough. The RFP writers should carefully choose discriminator criteria to present to the potential offerors. Furthermore, the RFP should clearly state how the acquisition will be

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[10] Recurring costs that are the result of the consolidation or bid award decision will continue as long as the decision is in place.

[11] Nonrecurring costs are those one time costs incurred as a result of a workload move decision.

conducted, the relative importance among all of the variables included in determining best value, as well as the specific factors and subfactors included (Best Value, 2000).

When writing the RFP, the source selection team should limit their description of the discriminating characteristics that impact the source selection decision to no more than six sub-factors. This allows the SSA to better focus on the essential aspects of successful contract performance (Best Value, 2000).

While Air Force FAR Supplement 5315 prescribes the rating categories for evaluating past performance, mission capability, and proposal risk, the requirement drives the tradeoff emphasis. The RFP must state this emphasis. The statement will tell offerors how important all of the evaluation factors are in relation to cost or price. (Wright, 2000:30). In particular, the RFP should discuss how the cost and technical factors will be evaluated, as well as how the offeror's past performance will be evaluated. The above section has given an overview concerning what is included in analyzing the data that is requested for in the RFP. Now, a more detailed look at what is included will be laid out. There are essentially four distinct steps that have to be followed to determine best value in the source selection process. Step one involves an analysis of the quantitative aspects of the contract proposal data. This is essentially analyzing and summarizing all of the cost data that comes from the CLIN[12] structure provided in the offeror's proposal. Step two is the analysis and quantification of all of the relevant direct costs that result from the selection of the proposal. Step three is the analysis and quantification of all of the indirect costs that will result from the selection of the proposal.

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[12] A CLIN is a contract line item in a contract that represents a specific effort performed

Lastly, step four involves quantifying all of the unique, relevant strengths, weaknesses, and risks that are associated with each proposal.

Analysis of Quantitative Aspects of Contract Proposal Data. The quantitative analysis should address how fair and reasonable the price is and how realistic the cost is (Wright, 2000:32). Fairness and reasonableness are both determined by the contracting officer. There are three types of analyses used to determine a fair and reasonable price: price analysis, cost analysis, and cost realism analysis. Price analysis is simply evaluating the proposed price without looking at the offeror's cost and proposed profit. Price analysis is good for determining the fair market value of the effort. The performance of a cost analysis addresses the reasonableness of the individual cost elements and profit to determine their accuracy. A cost realism analysis can be used for cost reimbursable contracts. Here, the specific cost elements are examined to determine if they: 1) are realistic for the proposed effort, 2) represent a clear understanding of the effort, and 3) are consistent with the methods of performance and materials contained in the proposal (Wright, 2000:33).

Evaluating and Quantifying Direct Costs. Direct costs are costs to the government that result directly from the selection or a particular offeror. These need to be considered because they do represent actual costs that the government will incur if they choose one particular offeror over another. Although this list is not all-inclusive, direct costs are areas such as state unemployment payments, unfunded civilian retirement, depreciation for certain facilities, casualty insurance, impact aid, retiree health benefits, base support costs, use of specified resources, contract DMAG surcharge, and mobilization support. All of these will be discussed in greater detail in the next chapter. For public/private

depot maintenance competitions, a viable source of information concerning direct costs is the Cost Comparability Handbook (CCH).

Evaluating and Quantifying Indirect Costs. These are costs that will materialize because of the selection of one offeror over another. They are adjustments that represent all of the secondary costs that would be incurred by other governmental entities pending the selection of an individual proposal.

At the request of the Source Selection Authority (SSA), the DCAA and the DCMC will evaluate these secondary costs / savings and their impact on other government programs which would be affected by indirect rate changes. DCMC will advise the SSA on whether the costs / savings should be used to calculate the total cost to the government. These cost categories would consist of, but not limited to, things such as overhead savings, RIF[13]/PCS[14]/VERA[15]/VSIP[16] expenditures, second destination transportation, contract administration, cost of capital, federal income tax, quality jobs credit, carrying cost, transition adjustment, environmental insurance, contract surcharges, depreciation, asset storage, and governmental material costs.

Evaluating and Quantifying all Proposal Strengths, Weaknesses, and Risks. This is the most complicated and abstract area to attempt to evaluate. All of the criteria that define this step come from the Request For Proposal (RFP). There are three main areas that need to be reviewed. The first is the evaluation of the technical aspects of each proposal.

[13] RIF - Reduction in Force, a reduction in personnel because of various reasons
[14] PCS – Permanent Change of Station, The long-term, physical relocation of a military member and his/her family
[15] VERA – Voluntary Early Retirement Authority
[16] VSIP – Voluntary Separation Incentive Pay

Here, items such as material cost risk, labor cost risk, process qualification risk, flow day improvement risk, labor efficiency risk, warranties, and guarantees will be evaluated. Each offeror's proposal will be given a color/adjectival rating for each factor in the technical area based on an evaluation against previously established standards. The color/adjectival rating depicts how well the offeror's proposal meets the evaluation standards and solicitation requirements. The colors assigned can either be B (blue), G (green), Y (yellow), or R (red). These colors correspond respectively to exceptional, acceptable, marginal, and unacceptable.

Two separate risk assessments will then be conducted on the offeror's proposal: proposal risk and performance risk. Proposal risk will be applied at the factor level for the technical area only. Performance risk will be applied at the area level for both technical and cost. Proposal risk is assessed by the government and is associated with the offeror's approach for each factor of the technical area. Proposal risk assesses the risks associated with the offeror's proposed approach as it relates to accomplishing the requirements of this solicitation. The rating of the proposal risk assessment can be L (low), M (moderate), or H (high).

The next area deals with an offeror's past performance on similar contracts. The Performance Risk Assessment Group (PRAG) generally assesses past performance. This area will receive a relevance rating depending on the degree of similarity between the current effort and the offeror's previous efforts and a risk rating of L (low), M (moderate), or H (high) to demonstrate the degree of risk that the proposal team feels should be attributed to the particular offeror. Performance risk assesses the probability of the offeror successfully accomplishing the proposed effort based on the offeror's

demonstrated present and past performance. Performance risk assessment may also include identification of performance strengths and/or weaknesses derived from the performance data. The performance risk assessment will consider the number and severity of problems, the effectiveness of any corrective action taken, and the offeror's overall work record.

In evaluating performance data, the relevancy of each contract/negotiated workload needs to be determined. This can be accomplished by observing how closely the demonstrated experience in the present or prior contract/negotiated workload matched the skills, capacity, and capabilities required to successfully perform the requested workload. The following definitions can be used to assign each past workload an assessment reflecting its degree of relevancy towards the proposed effort:

Very Highly Relevant - Offeror demonstrates current experience that directly relates to all of the PBA workload (including transition workload), utilizing all of the skills required for success, at equivalent quantity levels, using the same technology/processes and industrial equipment.

Highly Relevant - Offeror demonstrates current experience that directly relates to most of the PBA workload (including transition workload) utilizing most of the skills required for success, at equivalent quantity levels, using equivalent technology/processes and industrial equipment.

Relevant - Offeror demonstrates recent experience that directly relates to some of the PBA workload (including transition workload) utilizing some of the skills required for success, at significant quantity levels, using nearly equivalent technology/processes and industrial equipment.

Somewhat Relevant - Offeror demonstrates experience directly relating to a small portion of the PBA workload (including transition workload) utilizing few of the skills required for success, at lesser quantity levels, using less complex technology/processes and industrial equipment.

Not Relevant - Offeror demonstrates no experience or experience with no correlation to the PBA workload.

It is the Performance Risk Assessment Group's (PRAG's) job to evaluate any of a contractor's relevant past performance that he possesses concerning previous work accomplished. The Government will conduct a performance risk assessment based on the offeror's relevant present and past performance. Performance risk assesses the probability of the offeror successfully accomplishing the proposed effort based on the offeror's demonstrated present and past performance. Performance risk assessment may also include identification of performance strengths and/or weaknesses derived from the performance data. In assessing this risk, the Government will use performance data to evaluate the technical and cost areas. The performance risk assessment will consider the number and severity of problems, the effectiveness of any corrective action taken, and the offeror's overall work record.

The recency and relevancy of the performance information is critical in determining what contracts/programs should be assessed. In determining relevancy, consideration should be given to such things as product similarity, product complexity, contract type, program phase, contract environment, the division of the company which will do the work, and subcontractor interaction. Special consideration should be given to subcontractor past performance evaluation in teaming arrangements and when significant subcontracting effort is proposed. After reviewing the list of information provided by the offeror and the information gathered from other sources, the evaluation should be constrained to the most recent and most relevant contracts/programs that will permit an in depth evaluation focusing on the Mission Capability subfactors.

The past performance evaluation should concentrate on assessing the delivery of an offeror's products and/or services, and be tailored to the challenges or issues that are expected to be significant determinants of success in the acquisition. Examples include, but are not limited to: product performance, manufacturing performance, engineering capability, cost and schedule performance, product quality, configuration management control, subcontract management track record, software performance, system integration, past transition planning and execution, service responsiveness, quality of services rendered, ability to provide qualified professional personnel, and demonstrated surge capabilities. Other factors may affect relevance, such as source of the information (federal, state, local, or commercial), context, contract dollar amount, information time lines, and general trends in the offeror's performance. "Past performance information may include key personnel and management of quality, cost, timeliness, subcontracts, organization structure, work force, property, inventory, small business subcontracting, technical requirement accomplishments, continuous improvement, and innovation." (Wright, 2000:33).

It is important to remember that "past performance" and "experience" are not the same thing. Past performance evaluation is used to determine how well an offeror has performed previous efforts; experience is an indication of how often and the number of years (or months) an offeror has performed similar efforts, not necessarily how well the offeror performed. If "experience" is considered to be an important and necessary part of the evaluation, it should be evaluated under Mission Capability. Additional Past Performance information may be obtained through Contractor Performance Assessment Reporting System (CPARS) documents, questionnaires, DCMC, interviews with program

managers and contracting officers, or other sources known to the Government. When requested, DCAA will consider past financial performance during their audit (Cost Comparability Handbook, 1998).

The last area looks at the strengths, weaknesses, and risks that are associated with the actual proposal cost. Here, areas such as completeness, realism, and reasonableness will be examined. Completeness refers to how comprehensive the offeror's proposal is. Here, we want to ask the question, "Did the offeror include everything that we asked for in the RFP?" Realism refers to how realistic the offeror's proposed offer is. Here, we want to determine the likeliness that we will receive what the offeror says we will receive at their proposed price. Reasonableness refers to how reasonable the particular offer is. Here, we want to determine if the price matches up with the effort.

When conducting the integrated assessment of best value, it should be emphasized how important the technical areas are in comparison to the cost areas. If one is more important, or is going to be weighed differently, than the other, then that should be emphasized. Within the factors of the technical area (i.e., color/adjectival ratings, proposal risk, and performance ratings), it should be stated how the consideration will be divided up amongst each of them (how important they are). One suggestion would be to list the factors within the technical area in descending order of importance in the RFP to aid the offeror by making proposal development intuitively easy.

Total Evaluated Cost. The last appropriate step is to sum up each of the four amounts that make up the previously discussed levels of cost (quantitative, direct costs, indirect costs, and a dollarization of the proposals strengths, weaknesses, and risks). This total

evaluated cost will allow the source selection team to effectively choose which offeror will provide the government with the best overall value.

C-5 Source Selection.

Background. This evaluation was conducted to determine who would take over the current C-5 business area workload that was currently being accomplished at San Antonio Air Logistic Center (SA-ALC), San Antonio, Texas. This solicitation was necessary because the 1995 Base Realignment and Closure (BRAC) Commission decision directed the realignment of Kelly Air Force Base by Jul 2001. This meant that the C-5 business area workload would need to be competed for. Competition for the C-5 business area workload was approved by the Defense Depot Maintenance Council (DDMC) on 30 Jan 96.

The C-5 Business Area consists of scheduled Programmed Depot Maintenance (PDM), and the Speedline Program. The C-5 PDM requirement is governed by Technical Order 00-25-4, Depot Maintenance of Aerospace Vehicles and Training Equipment. The Speedline Program includes Time Compliance Technical Order (TCTO) activities to the C-5 aircraft. The PDM and Speedline Programs are required to ensure the readiness of the C-5 aircraft fleet in supporting Air Force airlift requirements. A major objective of the program is to complete workload transition in a manner that does not disrupt or degrade mission support. Following the public/private competition, this workload will be progressively assumed by the winning offeror in accordance with a mutually agreed transition plan.

The Outcome of the Source Selection. Proposals were received from the following offerors: McDonnell Douglas, AeroCorp S.A., Warner Robins ALC, and Lockheed.

After a determination of competitive range was conducted by the PCO, the following offerors were left: McDonnell Douglas, Warner Robins ALC, and Lockheed. The SSA approved the contracting officer's determination that the proposal submitted by AeroCorp S.A. did not fall within the competitive range and was excluded from further consideration for award under this RFP. This determination was based on consideration of all aspects of AeroCorp S.A.'s proposal. The proposal was found to have not adequately addressed the essential requirements of the solicitation and would have required virtually an entirely new technical proposal.

Warner Robins was selected to perform the effort because they were determined to have the lowest total evaluated cost for the government ($ 746,519,392). Lockheed was second ($788,847,746), and McDonnell Douglas ($ 1,096,026,912) was third.

Sacramento Source Selection.

Background. This competition was solicited for in order to see who would take over the SM-ALC Depot Maintenance Workload currently being accomplished at McClellan AFB CA. The 1995 Defense Base Closure and Realignment Commission (DBCRC) directed the closure of McClellan AFB, CA. The DBCRC report identified the portion of the SM-ALC Depot Maintenance Workload that must be transferred to the Army because of this closure. Competition for the remaining SM-ALC Depot Maintenance Workload was approved by the Defense Depot Maintenance Council (DDMC) on 1 Aug 96.

This acquisition is for the SM-ALC Depot Maintenance Workload designated for transfer to another source of maintenance via a public/private competition. The workload involves programmed and unprogrammed KC-135 and A-10 aircraft inspection,

maintenance, modification, and Analytical Condition Inspection, and overhaul and repair of Hydraulics, Instruments/Electronics, and Electrical Accessories and non-routed backshop/manufacturing support services.

The Outcome of the Source Selection. Two offerors responded to the RFP and both were determined to be in the competitive range. The two offerors were Ogden Air Logistics Center (OO-ALC) and Lockheed Martin Corporation. OO-ALC teamed up with Boeing Aerospace Corporation and utilized Raytheon Services as a minor teaming partner. Lockheed Martin Corporation teamed up with AAI Aerospace Corporation and GEC-Marconi Avionics Incorporated as subcontractors.

The competitive range was determined by the Procuring Contracting Officer (PCO) and approved by the SSA on 23 Jun 98. Both offerors listed above were included in the competitive range.

Ogden Air Logistics Center was selected to perform the effort because they were determined to have the lowest total evaluated cost for the government ($ 1,707,243,712 (low range) to $ 1,819,717,982 (high range)). Lockheed was second with a range of $ 1,886,780,080 (low) to $ 1,902,848,080 (high).

Oklahoma City Source Selection.

Background. This competition was solicited for in order to see who would take over the Propulsion Business Area (PBA) workload currently being accomplished at San Antonio Air Logistics Center (SA-ALC), San Antonio TX. This was necessary because in June, 1995, the Defense Base Closure and Realignment Commission (BRAC) directed the realignment of Kelly AFB and SA-ALC by July 2001. Competition for the SA-ALC

depot maintenance workload was approved by the Defense Depot Maintenance Council on 1 Aug 96.

The SA-ALC PBA Program provides for the effective continuation of depot engine repair operations, using Reliability Centered Maintenance (RCM) principles, for repair, overhaul, and modification of engines, modules, and components. Specifically, the PBA consists of: repair and overhaul of TF39 and T56 (including Navy requirements) engines, and two-level maintenance (2LM) on the TF39 and T56 engines. Also included is the F100 workload consisting of F100 (non-core) engines/modules/controls and accessories and airframe accessories.

The objectives of this competition were to ensure that engine repair capabilities are preserved to support user needs after base realignment and to provide for the seamless transition of workload from organic performance at SA-ALC to a public or private repair source. The primary focus of these objectives is to maintain readiness while reducing cost to the Government. The resulting contract issued pursuant to Federal Acquisition Regulation (FAR) Part 12, Acquisition of Commercial Items, will have an ordering period of not less than 5 years after completion of the transition period and not greater than 15 years from the award of the contract.

The Outcome of the Source Selection. Two offerors responded to the RFP and both were determined to be in the competitive range. The two offerors were Oklahoma City Air Logistics Center (OC-ALC) and Pratt & Whitney San Antonio Engine Services (SAES). OC-ALC's principal subcontractor was LMKAC. LMKAC's major subcontractors included Standard Aero Limited, Chromalloy Gas Turbine, and Woodward Governor. SAES proposed that each respective team member would

accomplish engine and accessory work as followed: Pratt & Whitney would repair F100 engines, modules, and components. General Electric would repair TF39 engines, modules, and components. Allison/Rolls Royce/Standard Aero would repair T56 engines, modules, and components. Allied Signal would repair accessories for all PBA product lines. Lastly, a joint venture, consisting of Caterpillar Logistics and Allied Signal, would provide supply chain management and logistics support.

Oklahoma City Air Logistics Center was selected to perform the effort because they were determined to have the lowest total evaluated cost for the government ($ 10,480,810 (low range) to $ 10,713,070 (high range)). Pratt & Whitney San Antonio Engine Services was second with a range of $ 10,709,860 (low) to $ 10,823,960 (high).

Research Validity

Validity refers to the appropriateness, meaningfulness, and usefulness of the specific inferences made from the measures. Furthermore, it refers to the likely truth of an assertion. Thus, validity belongs not just to a measure, but depends on the fit between the measure and its label (Dooley, 1999:90). Validity is applicable to this research to demonstrate that this "four level of cost" method of determining best value in a source selection is the most accurate method to determine total evaluated cost in a source selection.

Research Reliability

Reliability refers to the degree to which observed scores are "free from errors of measurement". The results of this study, and hence this best value method of conducting source selections, have proven themselves to be reliable because there have yet to be any

sustained protests against the decisions made during the source selection process in all three of the competitions that were examined.

IV. Research

This chapter will accomplish two things. First, it will, through actual best value source selections, provide a general, or generic, way to examine and conduct each element that makes up best value. Second, it will give examples taken from the actual results of previous best value source selections.

This analysis begins with a replication of the total spreadsheet that depicts the flow of the quantitative analysis performed, down through the Form 1 adjustments, then the Form 2 adjustments, and finally, the dollarized strengths, weaknesses and risks. Immediately following the spreadsheet is a summary of what the evaluators did in order to come up with the amounts that they did.

To begin with, it should be noted that if only a quantitative analysis would've been performed on this source selection, then the total proposed cost to the customer would've been simply the face value cost stated on the proposal ($ 10,164,013,176). However, because a full "best value" comparison was performed, the total evaluated cost to the government was $ 9,624,778,616 (proposed cost).

C-5 Source Selection

Direct Costs.

State Unemployment Payments. This adjustment captures the amount of state unemployment compensation paid by a central fund that is not funded through the depot's industrial fund.

Unfunded Civilian Retirement. This adjustment captures the unfunded DoD contribution to the Civil Service Retirement System

Depreciation for Military Construction Program (MCP) Facilities. This adjustment captures the depreciation of two fixtures that will be moved from the SA-ALC to the WR-ALC.

Casualty Insurance. This adjustment captures the amount of casualty insurance for facilities based on a factor of .005 times the estimated replacement cost.

Military Non-Depot Costs. This adjustment represents the time that military members of the depot staff spend on non-depot time / military duties.

Test Pilots. This adjustment exists because Warner Robins imbedded into their rates the portion of Flight Operations personnel equivalents that support functional aircraft test flights. In actuality, the Flight Operations personnel are Government furnished, and should not have been included in their rate.

Impact Aid. This adjustment represents the amount of funds the Department of Education contributes to local public schools based on civilian and military employment figures.

Retiree Health Benefits. This adjustment captures what the government pays for the cost of federal retiree's health benefits.

Base Operating and Support (BOS) Costs. This adjustment captures the unfunded base support costs that benefit the DMAG.

Other Non-Recurring Costs. This adjustment captures the one-time labor cost of reservists supporting work-in-process (WIP) during transition.

Indirect Costs

Overhead Savings. This adjustment represents the amount of savings that the government, as a whole, will save because of a contractor adding a new workload to an

existing workload which results in savings to the original workloads due to better utilization of those existing facilities and personnel.

RIF/PCS/VERA/VSIP. This adjustment represents the cost to the government to pay for the reduction in force that will occur by awarding the contract to someone other than the company currently performing the contract. The criteria for releasing personnel is contained in the U.S. Office of Personnel Management's regulation. There are currently 1,298 positions associated with the C-5 workload that will be displaced due to the RIF. The analysis considered lump sum leave payments, unemployment compensation, medical insurance, PCS costs, training, VSIP and VERA. The factors and assumptions used in the development of this analysis were those used in the development of the Base Realignment and Closure (BRAC) Civilian Pay Budget for the San Antonio Air Logistics Center, Kelly AFB. Those factors were provided to the Cost Panel by San Antonio Air Logistics Center/Financial Management Operating Funds Integration Management Branch (FMIO). The head-count on the number of personnel in the C-5 Directorate was provided by the 76th Air Base Wing/ Civilian Personnel/Resource Management Function (DPCCR).

Contract Administration. This adjustment reflects the amount of money that the government will have to pay DCMC in order for them to manage this contract. DLA(AQ) determines the number of individuals required, as well at the cost of administrative oversight required for both the public and private offerors. The adjustment is made up of their salaries, fringe benefits, PCS costs, travel costs, and training costs.

Cost of Facilities Capital. The adjustment is necessary because the Kelly Economic and Development Conveyance will transfer the majority of the real estate,

facilities and equipment used in the C-5 business area to the local redevelopment agency in San Antonio, the Greater Kelly Development Corporation (GKDC), IAW BRAC law. Under this arrangement, the GKDC assumes the property with an interest-free mortgage on the assessed market value of $104M. This arrangement results in a government subsidy to the GKDC which they will pass on to the tenants (including those performing Air Force contracts) in the form of lower rates. This subsidy represents a potential revenue loss to the US government due to the subsidization of the private offeror's lease below market levels. As a comparability adjustment, the cost panel added the prorated cost of the loan interest to the private bids. This adjustment would not be applicable for the public offeror.

Federal Income Tax. This adjustment is necessary due to a SAF/AQ and SAF/FM Memorandum, dated 20 Dec 96 that states that

> A federal income tax adjustment shall be made to each private offeror's proposal price based on guidance provided in OMB Circular A-76 dated March 1996. To determine the amount of estimated Federal Income tax, the contract price for each performance period will be multiplied by the appropriate tax rate contained in Appendix 4 of OMB Circular A-76. The estimated amount of Federal Income tax shall then be deducted from the private offeror's price for comparability purposes. (C-5 Par, 1997:18-19)

This adjustment would not be applicable to the public bid.

Overhead Costs. This adjustment represents the increase in overhead costs at the current base after the program under consideration transitioned to the winning offeror. The cost panel assessed the cost impact that C-5 workload transition will have on the general and administrative (G&A) overhead costs to workloads remaining at Kelly AFB through base closure slated for 13 July 2001. Using analysis similar to that used for calculating the overhead savings, the cost panel determined the increase in overhead cost

at Kelly to the remaining programs after the C-5 programs transitioned to the winning offeror. Three cost pools were developed. The first represented business as usual where no workload transition occurs. The second cost pool represented the impact of incremental, total SA-ALC DMAG workload transition. The third cost pool isolated the C-5 portion of the second cost pool. The difference in cost comparing the third and second cost pool is the assessment of overhead cost increase to other DMAG workloads at SA-ALC attributable to C-5 transition.

WIP Hour Realism, Government Transition (WIP), and BEQ Aircraft Adjustments. Each offeror made a slightly different interpretation of the RFP in determining their FY98 bid. They were allowed to bid on a WIP amount and a number of new inductions. For evaluation purposes only, to allow the cost panel to evaluate the same workload for each offeror, the following adjustments were made. The reason for making this adjustment is to evaluate all offerors using the same workload over the same period. Adjustments were based on the number of FY98 new inductions, the cost of WIP and the cost of the government to perform WIP not done by the offeror. The cost of government transition is calculated by determining the number of WIP hours during the period times the published government WIP rate. The BEQ adjustment is based on subtracting the cost of certain FY98 aircraft from an offeror's bid if they included the full price of those aircraft in their bid.

Government Transition (Personnel). The purpose of this analysis is to quantify the cost to the Government of carrying the employee workforce (the Kelly C-5 employee workforce) that are not re-hired by the offerors from contract award through the end of

the RIF period. This adjustment must be broken down on by a monthly basis to account for the attrition rate of the personnel.

Award Fee. This adjustment is necessary because per SAF/AQ/FM Memorandum, 20 Dec 96, Cost Addendum, page 33:

> An adjustment shall be made to any private offeror's annual contract proposal price if they include award fees/incentives in their proposal. The adjustment shall be made according to guidance provided by OMB Circular A-76 by adding 65% of the annual maximum fee/incentive to the annual contract proposal price for each of the proposals. (C-5 Par, 1997:20)

In this particular instance, the award Fee is calculated at 3% of the Firm Fixed Price Line Item times .65. This award fee adjustment is not applicable to the public offeror.

Dollarization of Strengths, Weaknesses, and Risks.

Warner-Robins.

De-paint/Paint Capacity. This adjustment represents the proposal risk in the Warner-Robins proposal for anticipated aircraft flow through the designated paint facility. This dollarization of the risk assumes that there would be an increase in direct labor cost of 20% due to mitigation efforts. This total adjustment would be determined by multiplying the total paint/scuff direct labor costs ($ 9,193,833) by 20%. The adjustment would be a dollarized risk of $1,838,767.

Reduced Flowdays From RFP Requirement. Based on information in the technical proposal, WR-ALC proposed a reduction of 521 flowdays compared to the RFP requirement. Data for this analysis was provided by the Air Mobility Command (AMC). AMC reported FY96 revenue flying hours of 46,192 at a contribution revenue rate of $4597 per hour. The analysis calculates the number of the additional aircraft hours that

are made available and multiplies them by the contribution revenue rate. This rate is the portion of the total costs that contributes toward fixed costs in excess of the normal variable costs. The end result is a dollarized flowday benefit of **$2,755,456** for Warner Robins.

Lockheed Martin.

Reduced Flowdays From RFP Requirement. Based on information in the technical proposal, Lockheed Martin proposed a reduction of 2753 flowdays compared to the RFP requirement. Data for this analysis was provided by Air Mobility Command (AMC). AMC reported FY96 revenue flying hours of 46,192 at a contribution revenue rate of $4597 per hour. The analysis calculates the number of the additional aircraft hours that are made available and multiplies them by the contribution revenue rate. This rate is the portion of the total costs that contributes toward fixed costs in excess of the normal variable costs. The end result is a dollarized flowday benefit of **$14,560,019** for Lockheed.

Sacramento Source Selection

Boeing.

Price. The Sacramento proposal price incorporated the areas of direct labor dollars, direct labor hours, direct material costs, production overhead expenses, general and administrative expenses, and an amount for profit.

Direct Costs.

State Unemployment Payments. State unemployment payments are the amount of contribution the Department of Labor provides to a state's unemployment fund based on working capital fund (WCF) employment fluctuations.

Unfunded Civilian Retirement. The Civil Service Retirement System (CSRS) unfunded liability is an adjustment made in the proposal. This adjustment equates to the

amount of unfunded civilian retirement liability the public offeror will incur based on the number of employees still covered by the CSRS.

Depreciation of Military Construction Program (MCP) Facilities. This adjustment includes the depreciation of the existing facilities at OO-ALC. This depreciation is based on a 20 year amortization schedule, adjusted for the percentage of the buildings used for depot effort and the percentage of depot effort that will be used in the competition.

Casualty Insurance. This adjustment covers the risk for casualty losses and liability claims the Government assumes because it is self-insured and must pay for each loss incurred. These risks are normally covered by insurance in the private sector. To estimate the cost of insurance, the same factor of .005 that was used in the C-5 case was applied to the net book value (current depreciated asset value) of Government industrial plant equipment (class 3 and 4) and to the estimated facilities replacement cost including the depreciation value of class 2 equipment. Allocation of these costs to the competitive workload is done on the basis of direct labor hours.

Military Non-Depot Cost. This adjustment mirrors the adjustment that was done in the C-5 case. Examples of these non-depot/military duties are military training, rifle range, physical fitness training, special projects, parades, Armed Forces Day, and other non-depot duty. OO-ALC determined that military non-depot duties comprised 7.0% of the duty time of the military personnel. For the initial proposal, the military cost rate of $24.43 was multiplied times the hours generated by this factor.

Impact Aid. This adjustment is similar to the adjustment given in the C-5 case.

Retiree Health Benefits. This adjustment is a little different from the adjustment given in the C-5 case because these costs are included in a private offeror's rates, but are not included in a public offeror's proposal. Retiree health benefits are determined by multiplying a 3.0% factor times the total labor costs, including the full fringe costs. DCAA pointed out that the initial proposal included only partial fringe costs. The amount was then adjusted to reflect the competition workload only.

Base Operating Support (BOS)(FY00-FY08). BOS is the cost of miscellaneous base services provided to the Depot Maintenance Activity Group (DMAG) by other base organizations such as fire prevention and police services. This BOS adjustment is to capture the unfunded DMAG costs which are paid by Operations & Maintenance (O&M) starting in FY98.

Indirect Costs. These costs are represented in the cost comparability handbook (CCH) as Form 2 costs. This form is used to tabulate the additional costs that are outside the offeror's control, but still must be evaluated to determine the overall cost to the Government of each proposal. This form is completed by the PCO or the PCO's representative as part of the source selection process. Form 2 is applicable to all offerors, public and private.

Overhead Savings. Section L of the RFP specified the information required to support proposed overhead savings; Section M of the RFP explained the rigorous level of scrutiny to be applied to proposed overhead savings during evaluation, and that the burden of proof for any savings rests completely with the offeror.

OO-ALC proposed a regression based methodology to develop their proposal and to calculate overhead savings. This method used normalized G035 data for the entire

center broken down into three categories: labor, material, and other. The results of this regression was then used to calculate cost pools at the division allocated by division hours. While the regression approach is widely used, it is highly dependent on the input data. In this case, most regressions had only eight data points. The raw data showed very poor relationships, and even when normalized, still provided relatively poor statistical relationships. While the regression methodology is adequate, it is only as good as the source data—which is this case was poor.

The next problem dealt with the allocation of the center level results to the divisions. While using center level regressions is satisfactory for G&A allocations, it is not accurate for detailed division estimates. The reason is that each division has different cost profiles while a center level regression method assumes each has the same cost profile as hours are added. The Cost Team challenged this assertion in several ENs and face-to-face discussion sessions. The RFP required that the offeror provide proof either through historical evidence with appropriate supporting detail or evidence on how cost change as workload is added (bottoms-up build). The offeror provided little support in either area. The historical evidence only addressed center level rates and they failed to provide significant evidence of how this center level data applied to these individual divisions. In one case (MNC), OO-ALC proposed to add approximately 400% more hours than it had ever previously accomplished in the division with only a 267% increase in production overhead costs. In the G&A Other cost category, the regression actually projects a net decrease in costs as hours are added. The net result is that this drives a risk that the developed rates do not accurately reflect the expected future costs and that the overhead savings are inaccurate, and overstated

At FPR, OO-ALC proposed $151M for production overhead and $72M for G&A savings. From this starting point, the evaluation team made minor changes to correct for statistical errors. Next, the evaluation team discounted the savings streams and considered several scenarios. The basis for this discounting was their lack of confidence in the regression results provided by the offeror, the methodology of applying center level results to the divisions, and the lack of supporting or independent analysis to verify the rates, and the application of the savings beyond the initial years of the contract.

The evaluation team first limited the production overhead savings to only three years beginning with FY00. These savings were derived primarily from personnel costs. We assumed that if the depot lost the competition, HQs AFMC and OO-ALC management would reduce their personnel costs (RIF or attrition) to eliminate the excess capacity that contributed to the savings. They also discounted the savings due to their low confidence in the proposed overhead rates and the proposed savings differential between the old and new rates based on the offeror's suspect methodology and general lack of supporting data. The evaluation team believed the future savings to be much smaller and discounted them appropriately. The G&A savings were allowed for a longer period and at a much higher level. The central level approach of the regression methodology is more appropriate for G&A determination and the regression data had a much higher confidence level. The evaluation team concluded that the realistic savings for production overhead is in the range of $13-34M and for G&A in the range of $12-36M.

This specific point estimate provides credit for production overhead savings but at a lower rate than proposed in recognition of the cost methodology risk, but it models the

quick draw down of the savings. The downward profile for G&A reflects the risk from the methodology, but the continued savings through contract completion recognizes the high degree of fixed cost that would be spread over the new workload.

OO-ALC/Boeing proposed $39,962,152 in BASC cost avoidance on the C-17 program. These savings are based on the lower wrap rates that will be incurred because of the move from Tulsa OK to BASC, San Antonio TX. The savings are computed by subtracting the yearly projected BASC wrap rate from the yearly Tulsa Forward Pricing Rate Agreement (FPRA) wrap rate to determine the net wrap rate decrease created by the transfer. This difference, by year, is multiplied by the hours estimated for C-17 work for each year. This is done for years 1998 through 2002, the duration of the C-17 flexible sustainment contract.

Contract Administration. Contract administration is the cost associated with DCMC oversight of the contract. These costs include non-recurring costs associated with the establishment of new offices or expansion of existing offices to accommodate the competition workload. The recurring costs for operations are based on a steady state staffing level of 19 personnel at OO-ALC and 11 personnel at San Antonio.

Cost of Capital. This cost adjustment is for private offerors only. This adjustment is applied only to Boeing, OO-ALC's teaming partner. This factor is the amount of income that would have been realized had the dollars been invested in another manner rather than the procurement of capital assets.

Federal Income Tax. This cost adjustment is for private offerors only. This adjustment is applied only to Boeing, OO-ALC's teaming partner. The Federal income tax paid by a private offeror is considered a reduction in the true cost to the taxpayer.

Award Fee. This cost adjustment is for private offerors only. This adjustment is applied only to Boeing, OO-ALC's teaming partner. The award fee pool is a potential cost to the Government. The CCH specifies that the award fee will be included for evaluation purposes at 65% of the maximum fee amount.

Commodities – GFM. This adjustment is to add the appropriate cost for GFM to each offeror.

RIF/Transfer Costs. This adjustment is to account for both the cost of transferring personnel to OO-ALC and RIFing those at SM-ALC who do not transfer. The Cost Team took all data provided by OO-ALC into consideration. The starting point for the Cost Team evaluated amount is to give a credit for the $9.3M OO-ALC proposed in CLIN 0001AA. This amount is to transfer 372 personnel to OO-ALC at $25,000 each. An analysis of the workforce at SM-ALC projected that only 198 personnel would reasonably be willing to transfer to OO-ALC. This was based on the assumptions that all personnel who had requested placement outside the local commuting area and one half of the remaining personnel who were not eligible for any type of retirement would transfer. This reduced the 372 proposed to 198. A detailed analysis in conjunction with the SM-ALC personnel office was performed to determine the most probable costs to RIF or transfer a SM-ALC worker based on the specific profile of the SM-ALC workforce. This produced composite costs of $42,248 per person for the average RIF cost and $40,249 for the average transfer cost. These factors multiplied by the appropriate personnel numbers, and then adjusted by the $9.3M credit for proposed direct cost for transfers, produced the evaluated cost for RIF/Transfer Costs.

Transition (WIP). This cost adjustment is to include the cost of the transition year workload that OO-ALC and Boeing have elected not to perform. This work must then be performed by SM-ALC. This cost is calculated by the CCM. In addition, the hours and workload OO-ALC will take and the hours and workload left for SM-ALC are proposed via the CCM.

Government Transition (Personnel). This adjustment is to include the cost for SM-ALC personnel left without work between contract award and the completion of attrition.

This adjustment takes into consideration personnel who are hired by OO-ALC, used to complete the Government portion of the workload, retire, quit, or are loaned. The cost projections are based on the profile of the SM-ALC workforce.

Maintenance & Repair/BOS (FY99). Maintenance & Repair is the cost of maintaining DMAG facilities. BOS is for those base-wide services that are required for general base operations. Examples are police and fire services. The offerors were instructed in the RFP to exclude all costs for Maintenance & Repair and BOS from FY99 rates. These costs are a fixed cost for SM-ALC in FY99. The total cost for these efforts are discounted for the hours of work performed by the offeror during transition at SM-ALC.

CRI/CSI Asset Storage. These costs are for material storage, warehousing, issuing, receiving, etc. over the full contract period. The private offerors were required to provide warehouse and packaging services that are currently provided by the Defense Logistics Agency (DLA) at Sacramento for the competed workload. OO-ALC did not include these costs since they will be provided by DLA for the Ogden area. Both offerors

have proposed using GFM, so material costs in this area are equal. For OO-ALC, the DLA function at Sacramento is closing. This represents a savings to DLA of $46,766,043 for the contract period. This estimate was prepared in cooperation with the Sacramento DLA personnel.

Contract DMAG Surcharge. This is for Industrial Fund overhead charges. This is applied to all contracts. The Air Force wide surcharge is 1.5% of the cost of all non-BRAC workload being accomplished by a private contractor. It is applied to the Boeing portion of the OO-ALC proposal.

Dollarization of Strengths, Weaknesses, and Risks.

Transition Risk. The Transition phase is CPAF for OO-ALC's teaming partner Boeing. OO-ALC has four separate components for transition risk consideration. Boeing will perform the KC-135 work at the old C-5 facility in San Antonio using a new workforce. Almost all WIP on the KC-135 will be left for SM-ALC to complete (estimated completion Mar 2000) in place at McClellan AFB. The assumed risk considers schedule and efficiency changes that would add cost to the proposed WIP completion amount. The WIP to be completed at Sacramento has an assumed efficiency of 80% and a Government rate of $98.71. Boeing left Sacramento 210,735 hours of WIP with an assessed completion cost of $20,801,652. If the evaluation team assumes the work force efficiency drops to 45 percent as a worst case, this adds $10,716,000 of risk. Boeing proposes to begin work at a 90% efficiency. This is optimistic since they are starting with a new workforce, which will have some aircraft maintenance experience but little KC-135 experience. The evaluation team assumed the efficiency would start at 75%

and climb to 85% at the end of the first year. This adds another $3,426,000 of risk for a total of $14,142,000.

The Sacramento projected efficiency was 80% for the WIP they will perform. The evaluation team adjusted the efficiency to 65% for a worst case risk adjustment of $2,036,000 because they believed productivity will not decline as dramatically as if the private sector won. OO-ALC proposes to set up an OL at Sacramento and to start work at OO-ALC with a combined efficiency of 85%. The evaluation team adjusted this combined rate down to 65% which resulted in an additional risk adjustment of $4,554,000 for a total of $6,590,000.

Steady State Risk. Steady state cost risk for OO-ALC considers the quantified risk from the OO-ALC technical proposal and the risk associated with their ability to estimate future costs. OO-ALC proposed reducing total commodity hours ($6,897,705 over nine years) of approximately 479,000, based on process improvements and re-engineered hours to complete the workload. The evaluation team considered a risk range of 201,000 hours to 303,000 hours. The technical evaluators accepted a level of reduced hours of 10% (201,000 hours) based on what was considered reasonably achievable over the SM-ALC experience. The proposed hour reduction above 10% is considered a risk. This risk is quantified as the number of hours that exceed reasonable reduction times the proposed rate - $17,380,738.

Cost Plus vs Firm Fixed Price Risk – Commodities. For the past eight years since creation of the Defense Business Operating Fund (DBOF), now known as the Working Capital Fund (WCF), it has been DOD policy and practice to cover all net losses in the WCF accounts. Each DOD component, including the Air Force, will transfer funds

from their respective accounts to the WCF customer accounts to make up for losses no matter what the cause. In past years it has also been well documented that these losses and subsequent fund transfers have amounted to several hundreds of millions of dollars. Because of this added funding capacity, a public offeror gains a significant economic advantage over a private offeror who is generally constrained by the firm-fixed price terms in a contract. The cost team did an extensive analysis to determine the dollar impact of this practice and what it means for the commodities workload. In order to do this, the cost team requested detailed accounting data from the public depots for the past nine years.

Based on the data received, the cost team found that OO-ALC came up with the funds to cover increased costs for commodities at OO-ALC. In several cases, revenue earned increased during the budget year and easily covered costs. For example, in FY96, OO-ALC commodities planned revenue was $158.1M compared to actual revenue of $201.7M. For the same period, planned costs were $155.3M, but actual costs were $179.5M. This suggests that (a flexible tool exists) in the WCF for adjusting to increased costs over a relatively short period of time. This trend is even more pronounced when adjusting for DPAHs actually worked compared to planned hours worked.

Over the period FY89 to FY97 actual costs for each year were 2.65% higher than planned costs. However, for the same period, actual revenue was 4.64% higher than planned revenue, thus fully offsetting all cost increases over the nine year period. If the same data are adjusted for planned hours and actual hours, costs increase by 5.66% and revenue increases 8.52% from planned to actual. Thus, the accounting data showed what was described above, and it was determined to adjust the OO-ALC proposal to account

for this unique funding advantage over a firm fixed price proposal. The cost team's first risk analysis used the above analysis and computed a risk range from 2% to 8% which produced a risk range of $12.8M to $41.0M.

The cost team asked the DCAA to perform a rate risk analysis. They had concerns about the development of the public offeror's overhead rates. For this analysis, DCAA did a thorough review of the rates and compared the proposed rates to current OO-ALC rates. The Cost Team took the DCAA results and replaced the proposed rates in the cost model with the DCAA rates and re-computed the total costs. With the proposed DCAA rates, this would increase the proposal by $37,373,690.

In dollarizing the total risks, the cost team combined the commodities hour risks, the transition risk, and the rate risk to attain a risk range and point estimate. The recommended transition risk of $20.7M represents a 16% cost risk over the proposed transition price. The recommend steady state risk range is from a low of $12M to $57M. At the low end, the low historical cost risk is represented, and at the high end, the sum of the commodities risk and the high historical risk are represented. The transition and steady state risk combined produces a risk range of $12M to $79M.

Lockheed-Martin.

Price. Lockheed-Martin included the categories of direct labor, direct material, other direct, production overhead, and general and administrative costs in coming up with their proposal price.

Direct Costs. Direct costs were not applicable for Lockheed-Martin in this source selection.

Indirect Costs. These are costs that are outside the offeror's control, but still must be evaluated to determine the overall cost to the Government of each proposal. These costs are applicable to all offerors, both public and private.

Overhead Savings. Lockheed Martin did not propose any overhead savings to other programs.

Contract Administration. Contract administration is the cost associated with DCMC oversight of the contract. These costs include non-recurring costs associated with the establishment of new offices or expansion of existing offices to accommodate the competition workload. The recurring costs for operations are based on a steady state staffing level of 26 personnel at Sacramento.

Cost of Capital. This cost adjustment is for private offerors only. This factor is the amount of income that would have been realized had the dollars been invested in another manner rather than the procurement of capital assets.

Federal Income Tax. This cost adjustment is for private offerors only. The Federal income tax paid by a private offeror is considered a reduction in the true cost to the taxpayer.

Award Fee. This cost adjustment is for private offerors only.

Commodities – GFM. This adjustment is to add the appropriate cost for GFM to each offeror.

RIF/Transfer Costs. This adjustment is to account for both the cost of transferring personnel to other Government locations and RIFing those left at SM-ALC

Transition (WIP). This cost adjustment is to include the cost of the transition year workload that the offeror will not perform, which must then be performed by SM-ALC.

Government Transition (Personnel). This adjustment includes the cost for SM-ALC personnel left without work between contract award and the completion of attrition. This adjustment takes into consideration personnel who are hired by the offeror, used to complete the Government portion of the workload, retire, quit, transfer or are loaned. The cost projections are based on the profile of the SM-ALC workforce.

Maintenance & Repair/BOS. Maintenance & Repair is the cost of maintaining DMAG facilities. BOS is for those base wide services that are required for general base operations. Examples are police and fire services.

GFE Depreciation Expense. The GFE depreciation expense adjustment is for the depreciation that is booked against the equipment that is furnished to the offeror but is still carried on the Government books. The public offeror will use the same equipment and includes these costs in their proposal. The cost from the existing depreciation schedules for all equipment to be provided to the offeror as GFE are carried out over the duration of the contract.

Contract DMAG Surcharge. This is for Industrial Fund overhead charges. This is applied to all private contracts. The Air Force wide surcharge is 1.5% of the cost of all non- BRAC workload being accomplished by the private contractors.

Dollarization of Strengths, Weaknesses, and Risks.

Transition Risk. Lockheed Martin has a CPAF contract for the Transition year FY99. The total cost to the government considers the cost for Lockheed Martin for that

year plus the cost for Sacramento to complete WIP not taken by the Lockheed Martin during FY99. A major risk element that drives cost is the actual labor efficiency of the Lockheed Martin workers and the Sacramento workforce. Both cost estimates are based on assumptions about labor efficiency, which if not achieved will cause total Government cost to rise. Recent experience on the C-5 workload transfer to WR-ALC demonstrated that worker efficiency during the transition year at SA-ALC was less than estimated during proposal evaluation with a resulting increase in costs. The chart below shows the basis for the private transition risk on the KC-135. Lockheed Martin left Sacramento 181,500 hours of KC-135 WIP. The CCM evaluated this cost at $98.71 per hour assuming an efficiency of 80% for an evaluated cost to the Government of $18,641,865. The risk analysis assumed a worst case of 65% which added an additional cost of $5,142,000 due to the implied increased hours. The analysis also considered the cost for Lockheed Martin if their proposed efficiency of 90% was not achieved and a lower rate (80% rising to 87%) applied. The original transition cost of $33,094,018 for 478,500 hours would rise by $1,778,000 due to the increased risk assessment. The total transition risk for the KC-135 is $6,920,000.

The Cost Team also considered the transition risk for commodities using the same methodology. The Sacramento depot workforce completing the commodities WIP not being done by Lockheed Martin was based on an assumption of 80% direct labor efficiency. This equated to a $33,881,149 adjustment for 471,860 hours for the Government to complete WIP. Using a worst case drop in efficiency by the closing depot workers to 65%, this would add $6,492,000 as a risk adjustment. Lockheed Martin proposal indicated a direct labor efficiency of 90%. This was discounted for possible risk

to 85% initially, with a rise to 87% the last months of the year. Lockheed Martin proposed a transition cost of $47,893,893 for 775,140 hours. Using the lower efficiency rates produced a risk adjustment of $2,656,000. The total risk for commodities is $9,148,000. The total transition costs are $100,338,273 for Lockheed Martin. All of these transition adjustments total $16,068,000 were added as a below-the-line adjustment to the total alternative cost.

Oklahoma City Source Selection

Quantitative Analysis	Proposed	Low	High
Customer Cost	$ 10,164,013,176	$ 10,164,013,176	$ 10,164,013,176
Qualitative Analysis			
CCH Form 1 Adjustments			
State Unemployment Payments	$ 105,467	$ 105,467	$ 105,467
Unfunded Civilian Retirement	$ 27,100,211	$ 27,100,211	$ 27,100,211
Depreciation for MCP Facilities	$ 12,576,884	$ 12,576,884	$ 12,576,884
Casualty Insurance	$ 25,516,566	$ 25,516,566	$ 25,516,566
Impact Aid	$ 2,145,247	$ 2,145,247	$ 2,145,247
Retiree Health Benefits	$ 36,334,858	$ 36,334,858	$ 36,334,858
Base Support Costs	$ 97,919,767	$ 97,919,767	$ 97,919,767
Use of Specified Sources	$ (98,268,930)	$ (44,949,390)	$ (44,949,390)
Contract DMAG Surcharge	$ (56,793,362)	$ -	$ -
Mobilization Support	$ (54,462,515)	$ (4,883,353)	$ (4,883,353)
F100 Packaging	$ -	$ 9,352,907	$ 9,352,907
OK Quality Jobs Credit	$ (26,181,032)	$ (26,181,032)	$ (26,181,032)
Other Nonrecurring Costs	$ -	$ -	$ -
Total Form 1 Adjustments	**$ (34,006,839)**	**$ 135,038,132**	**$ 135,038,132**
Customer/Depot Maint. Comparability Costs	**$ 10,130,006,337**	**$ 10,299,051,308**	**$ 10,299,051,308**
CCH Form 2 Adjustments	Proposed	Low	High
Overhead Savings	$ (393,580,359)	$ (210,617,658)	$ (160,119,093)
RIF/PCS/VERA/VSIP Expenditures	$ (20,063,714)	$ 89,398,954	$ 89,398,954
Second Destination Transportation	$ -	$ -	$ -
Contract Administration	$ -	$ 17,619,600	$ 17,619,600
Cost of Capital	$ -	$ -	$ -
Federal Income Tax	$ (78,424,733)	$ (78,424,733)	$ (78,424,733)
OK Quality Jobs Credit	$ (13,158,914)	$ (13,158,914)	$ (13,158,914)
Carrying Cost	$ -	$ 4,059,715	$ 4,059,715
Transition Adjustment	$ -	$ 12,002,090	$ 12,002,090
Contract DMAG Surcharge	$ -	$ (56,793,362)	$ (56,793,362)
GFE Depreciation	$ -	$ 15,707,232	$ 15,707,232
CRI/CSI Asset Storage	$ -	$ 28,731,413	$ 28,731,413
USAF T56 Material Cost	$ -	$ 12,755,639	$ 12,755,639
Total Form 2 Adjustments	**$ (505,227,720)**	**$ (178,720,024)**	**$ (128,221,459)**
Total Alternative Cost	**$ 9,624,778,617**	**$ 10,120,331,284**	**$ 10,170,829,849**

Dollarized Strengths, Weaknesses, & Risks	Proposed	Low	High

Material Cost Risk	$ -	$ 43,342,175	$ 389,780,822
Labor Cost Risk	$ -	$ 19,974,001	$ 108,956,995
F100 Process Qualification Risk	$ -	$ 26,335,737	$ 71,850,386
Flow Day Improvement	$ -	$ (10,067,417)	$ (10,067,417)
Warranties and Guarantees	$ -	$ (3,600,000)	$ (3,600,000)
SA-ALC Labor Efficiency Risk	$ -	$ 21,900,000	$ 32,600,000
Total Dollarization	**$ -**	**$ 97,884,496**	**$ 589,520,786**
Total Evaluated Cost	**$ 9,624,778,617**	**$ 10,218,215,780**	**$ 10,760,350,635**

Table 1 – Oklahoma City Source Selection Evaluation Sheet

Direct Costs. In analyzing the direct cost adjustments, some methodologies are worth noting.

State Unemployment Payments. In general, state unemployment payments are determined by figuring out how much has been paid out in state unemployment payments in any given year(s) and then find out how many personnel are assigned to the population that you determined the state unemployment payments came from. Divide the total state umemployment payments by the total number of personnel and this will produce a state umployment rate per employee. By then converting this actual hour rate to a standard hour rate, through the means of multiplying it by a labor efficiency factor, and then adjusting for inflation, total state unemployment payments can be forecasted into the future. For example, the actual Tinker AFB state unemployment payments for FY96 and FY97 were determined to be $119,886 and $71,201, respectively (both FY98$). Base population figures for Tinker AFB were 21,475 and 21,437 for FY96 and FY97, respectively. DMAG population figures were 6,559 and 6,615 for FY96 and FY97, respectively. Averages were then calculated for FY96 and FY97 unemployment payments [($119,886 + $71,201)/2 = $95,544], DMAG personnel [(6,559 + 6,615)/2 = 6,587] and Tinker AFB personnel [(21,475 + 21,437)/2 = 21,456]. The average of the

Tinker AFB unemployment payments for FY96 and FY97 was then allocated to the average DMAG population as a percentage of the average base population [$95,444*6,587 / 21,456 = $ 29,332]. This average DMAG unemployment cost for FY96 and FY97 ($29,332 in 98$) was then converted into a cost per DPAH by dividing by the average number of DMAG DPAH for FY96 and FY97 (7,738,677). The DPAH rate was $0.004/hr (98$). For FY99 through FY13, the DPAH rate was then converted to a DPSH rate by dividing by a proposed direct labor efficiency factor (0.902) for the center. The result (0.004 / 0.902 = $0.004/hr) was the DMAG state unemployment rate per DPSH. This DMAG unemployment cost per DPSH was then adjusted for inflation, for years FY99 – FY13, using USAF inflation indices dated 14 Jan 98. Amounts for FY99 and FY00 were converted to TY$ and all other amounts were converted to 99$. The DMAG state unemployment rate per DPSH was multiplied by the PBA DPSH for each fiscal year to calculate the PBA state unemployment cost. The total amount of the State Unemployment Payments adjustment was $ 105,467.

Unfunded Civilian Retirement. In general, unfunded civilian retirement can be determined in the following manner. Under the Civil Service Retirement System (CSRS), a CSRS adjustment will be made in the proposal. This adjustment will equate to the amount of unfunded civilian retirement liability the government bidders will incur based on the number of employees still covered by the CSRS. When computing this amount, a percentage of an employee's basic pay[17] will be used. This percentage can be obtained from the Office of Personnel Management (OPM).

[17] In determining basic pay, other forms of pay may first need to be extracted out of the pay amount to arrive at this figure (overtime, holiday pay, and premium pay).

The unfunded civilian retirement adjustment was determined for OC-ALC as follows. The office of Personnel Management (OPM) stated that a cost factor of 10.2% of a Civil Service Retirement System (CSRS) employee's basic pay should be used in estimating unfunded civilian retirement.

Certain data was used to determine DMAG civilian labor costs, however, the data captured labor expenses above the basic pay amount needed i.e., overtime, holiday pay, and premium pay. A percentage of this data was used in determining the basic pay portion of the proposed civilian labor costs. DMAG civilian labor costs for FY98 totaled $371.2M. Because the CSRS factor provided by OPM is applied against basic pay, the benefits portion of the $371.2M figure needed to be backed out. This was accomplished by dividing the direct labor, overhead, and G&A wages portion ($320.9M) of the total DMAG civilian labor by the benefits portion of the acceleration factor (FY98 acceleration factor = 1.431; benefits portion = 1.231). The resulting figure, $259.8M, represents 83.77% of FY98 civilian labor costs, less benefits. Total DMAG projected civilian labor costs for FY99 through FY13 (already adjusted for inflation) were obtained from the OC-ALC proposal. Each year's civilian labor costs were multiplied by 83.77%, with the resulting figure representing the portion of total labor subject to acceleration. Before applying OPM's CSRS factor, the benefits portion of each year's labor costs needed to be backed out. This was accomplished by dividing direct labor, overhead, and G&A wages by the benefits portion of the acceleration factor (1.231) as described above. The result was the total DMAG basic civilian labor cost for each year. Total DMAG basic civilian labor for each year was multiplied by the percentage of DMAG employee's covered by CSRS (54%). Further, it was determined that DMAG employees would

diminish 3% a year after FY99. This resulted in the total DMAG basic civilian labor that was subject to CSRS. Total DMAG basic civilian labor subject to CSRS was then multiplied by OPM's factor of 10.2%. The result was the DMAG unfunded civilian retirement cost for each fiscal year. This amount was then divided by the total estimated DMAG DPAH in that year to calculate the unfunded civilian retirement cost per DPAH. Next, the efficiency factor (described above in state unemployment payments) was then factored in for the out-years to give the standard rate. This rate was then multiplied by the total standard hours for each fiscal year to calculate the total unfunded civilian retirement cost. This amount was $27,100,211.

Depreciation for Existing Military Construction Projects. In general, depreciation for existing military construction projects (MCP) is determined as follows. First, an amount that represents the unfunded depreciation cost needs to be determined. Next, an assumption needs to be made as to whether this amount is going to remain constant over the years in question, or if that amount is going to change. Assuming that the amount is going to remain constant, it should be divided by the total projected actual labor hours to be worked each year to calculate the unfunded cost per actual labor hour. Next, this figure should be multiplied by a direct labor efficiency factor to arrive at a cost per standard labor hour. This amount should then be multiplied by the total projected standard labor hours to arrive at a total unfunded MCP depreciation cost for the out-years.

In the OC-ALC project, an unfunded depreciation cost of $4,381,468 for DMAG Military Construction Project (MCP) facilities was taken from the OC-ALC FY98 Trial Balance. This unfunded depreciation cost was assumed to remain constant throughout

the 15 years of the contract. This amount was divided by the total projected DMAG DPAH in each year to calculate the DMAG unfunded MCP depreciation cost per DPAH. This DPAH rate was converted to a DPSH rate by dividing by a proposed direct labor efficiency factor (0.902) for the center. The result was the DMAG unfunded MCP depreciation rate per DPSH.

The DMAG unfunded MCP depreciation rate per DPSH was multiplied by the DPSH for each fiscal year to calculate the unfunded MCP depreciation cost. The total amount of this category was $12,576,884.

Casualty Insurance. In general, it is advisable to break down casualty insurance adjustments between the amount for facility replacement and the amount for equipment replacement. Facility replacement costs should be obtained from a local office, as well as the related equipment net book value. Funded capital purchase program (CPP) dollars can be identified from the proposal. An equation taken from the Cost Comparability Handbook (CCH) can be used for estimating the casualty insurance adjustment. The equation for the equipment insurance adjustment is:

[(Net book value of equipment – funded Capital Purchase Program) + (Replacement cost of facilities - $500,000)]*0.005

The result of this equation should then be adjusted for inflation using the latest USAF inflation indices. Next, this cost should then be divided by the total projected DPAH for the organizations scheduled to perform the workload. This will result in a rate per DPAH. The DPAH rate should then be converted to a DPSH rate by multiplying by a labor efficiency factor. This result will be the equipment casualty insurance rate per

DPSH. This rate should then be multiplied by the projected DPSH for each year, resulting in the total casualty insurance cost.

In the OC-ALC example, casualty insurance adjustments were broken down between facilities and equipment. Facility adjustments were provided as follows. Facility replacement costs were provided by 72 CEG/CERR. Using the equation obtained from the CCH, replacement costs for all OC-ALC facilities were summed with the cost for the one MILCON project planned for use in accomplishing the work. $500,000 was subtracted from this figure, and the difference was multiplied by 0.005. The resulting product was the DMAG facilities casualty insurance adjustment. The DMAG facilities casualty insurance adjustment was then adjusted for inflation, for years FY99 – FY13, using USAF inflation indices dated 14 Jan 98. Amounts for FY99 and FY00 were converted to TY$ and all other amounts were converted to 99$. This cost was divided by the total projected DMAG DPAH in each year to calculate the DMAG facilities casualty insurance rate per DPAH. This DPAH rate was converted to a DPSH rate dividing by a proposed direct labor efficiency factor (0.902) for the center. The result was the DMAG facilities casualty insurance rate per DPSH.

Equipment adjustments were determined next. Related equipment net book value (NBV) was obtained from the OC-ALC G017 for the engine directorate (ME) and for the applicable branches scheduled to perform the work. Additionally, the NBV of all related equipment was identified from a database in the bidder's library. CPP dollars were identified from the OC-ALC proposal. The NBV of all OC-ALC equipment possessed by the organizations scheduled to accomplish the workload was summed with the NBV of all SA-ALC equipment. The funded amount of the Capital Purchase Program for each

organization scheduled to accomplish the workload was subtracted from this sum. This difference was multiplied by 0.005, and the product was the equipment insurance adjustment for organizations scheduled to perform the workload. The equipment insurance adjustment for organizations scheduled to perform the workload was then adjusted for inflation, for years FY99 – FY13, using USAF inflation indices dated 14 Jan 98. Amounts for FY99 and FY00 were converted to TY$ and all other amounts were converted to 99$. This cost was divided by the total projected DPAH (for the organizations scheduled to perform the workload) in each year to calculate the equipment casualty insurance rate per DPAH. This DPAH rate was converted to a DPSH rate by dividing by a proposed direct labor efficiency factor (0.902) for the center. The result was the equipment casualty insurance rate per DPSH (for the organizations scheduled to perform the workload). Both the facilities and equipment casualty insurance rates were added together to arrive at a total casualty insurance adjustment rate. The casualty insurance rate per DPSH was multiplied by the DPSH for each fiscal year to calculate the casualty insurance cost. The total amount of the Casualty Insurance adjustment was $25,516,566.

Impact Aid. Impact Aid cost should generally be obtained from the latest local installation's Economic Resource Impact Statement. This amount must then be allocated to only the personnel to which the adjustment is to apply (a percentage of the installation population). Next, this amount should be divided by the total DPAH for the section to come up with a rate per DPAH. Next, this rate should then be divided by a direct labor efficiency factor to arrive at the rate per DPSH. This amount should be adjusted for

inflation in all of the out-years. Finally, this rate should then be multiplied by the total DPSH for each year to arrive at a total amount of the Impact Aid adjustment.

In OC-ALC's methodology, they obtained impact aid cost from the latest Tinker AFB Economic Resource Impact Statement, which was estimated based on the number of new employees this workload would bring to OC-ALC. This total Impact Aid amount ($1,700,000) was multiplied by the percentage of Tinker AFB personnel who were DMAG (DMAG Personnel = 6,559, TAFB Population = 21,475. The result ($1,700,000*6,559/21,475 = $519,222) was the DMAG Impact Aid cost. This number was then divided by DMAG DPAH (7,661,472 hours) to get the DMAG Impact Aid rate per DPAH ($0.068/hr). This DPAH rate was then converted to a DPSH rate by dividing by a proposed direct labor efficiency factor (0.902). The result ($0.069/hr) was the DMAG Impact Aid rate per DPSH. This amount was then adjusted for inflation, for years FY99 – FY13. The Impact Aid rate per DPSH was multiplied by the DPSH for each fiscal year to calculate the Impact Aid Cost ($2,145,247).

Retiree Health Benefits. The Office of Personnel and Management (OPM) has estimated that 3% of accelerated annual labor costs covers the Government funding for post employment benefits. In general, one should take their annual labor costs, adjust them for inflation, and then multiply each of those figures by the 3% to arrive at amounts that, when added together, should be used for post employment benefits. This amount should then be divided by the total projected DPAH in each year to arrive at a retirement health benefits rate per DPAH. This DPAH rate should then be divided by a proposed labor efficiency factor to arrive at a rate per DPSH. This rate should then be multiplied by the total DPSH for each fiscal year to calculate the retiree health benefits cost.

For OC-ALC, DMAG accelerated annual labor costs (already adjusted for inflation) for FY99 –FY13 were taken from the OC-ALC proposal. These costs were multiplied by the OPM figure of 3% to arrive at the DMAG retiree health benefit cost. This cost was then divided by the DMAG DPAH to calculate the DMAG retiree health benefits rate per DPAH. This DPAH rate was converted to a DPSH rate by dividing by the direct labor efficiency factor of .902. This retiree health benefits rate per DPSH was multiplied by the DPSH for each fiscal year to arrive at the retiree health benefits cost ($36,334,858).

Base Support Costs. Base Support Costs are the next category of a Form 1 adjustment. An organization first needs to determine the true amount of Base Operating and Support (BOS) cost that is allocable to the organization in question. This may be determined by tasking an outside source to do the job (Price Waterhouse Coopers). The cost should then be adjusted for inflation for the out-years. This amount should be divided by the total projected DPAH in each year to calculate the BOS rate per DPAH. Next, the DPAH rate needs to be converted to a DPSH rate by dividing it by a proposed direct labor efficiency factor. The result will be the BOS rate per DPSH. Finally, multiply the BOS rate per DPSH to the projected DPSH for each fiscal year to calculate the total BOS cost.

OC-ALC tasked Price Waterhouse Coopers to determine the amount of Base Operating and Support (BOS) costs that are allocable to the DMAG. After this analysis, as well as an additional analysis that examined the effects of changing over the BOS costing approach from full costing to incremental costing, it was determined that there was a total DMAG unfunded BOS cost of $32,653,473. This BOS cost was then adjusted

for inflation for FY99 – FY13, using USAF inflation indices dated 14 Jan 98. Amounts for FY99 and FY00 were converted to TY$ and all other amounts were converted to 99$. These costs were divided by the total projected DMAG DPAH in each year to calculate the DMAG BOS rate per DPAH. This DPAH rate was then converted to a DPSH rate by dividing it by a proposed direct labor efficiency factor (0.902) for the center. The result was the DMAG BOS rate per DPSH. The BOS rate per DPSH was multiplied by the DPSH for each fiscal year to calculate the BOS cost.

Use of Specified Resources. In determining the adjustment for use of specified resources, OC-ALC broke the calculations down into two parts. The first part dealt with the adjustment for MSD Second Destination Transportation. Second destination transportation covers the costs for shipping material from the original destination to a secondary destination to fill a higher priority requirement. This adjustment needs to be made because private offeror's have developed their material costs based on F.O.B. origin., and thus do not have the second destination transportation costs imbedded in their prices. This results in a cost comparability disparity between private and public offerors. The MSD total (Direct Allocable Cost Recovery (DACR) / Business Overhead Cost Recovery (BOCR)) second destination transportation charge is 3.89% of the total MSD surcharge.

In calculating the Expense Items (ERRC N) DACR, OC-ALC started with the DACR Surcharge @ Latest Acquisition Cost (LAC) for each MSD item. They multiplied this DACR Surcharge @ LAC by the UPA. This result was then multiplied by the SRP. Next, this result was multiplied by the BEQ for that item. They then added together all

the NSN which resulted in a total ERRC N DACR Surcharge @ LAC. This amount was then multiplied by the 3.89% to obtain the total ERRC N DACR@ LAC adjustment.

In calculating the Expense Items (ERRC N) BOCR, the same steps stated above for the DACR were followed except that they started with the BOCR Surcharge @ LAC for each MSD item rather than the (ERRC N) DACR @ LAC for each MSD item.

The Exchange Items (ERRC T) DACR were calculated by starting with the DACR Surcharge @ Latest Repair Cost (LRC) for each MSD item and then multiplying it by the UPA. This result was then multiplied by the SRP. They then multiplied the result by the BEQ for that item. Next, they added together all the NSN which results in a total ERRC T DACR Surcharge @ LRC. This result was multiplied by the 3.89% to obtain the total ERRC T DACR@ LRC adjustment. For the Exchange Items (ERRC T) BOCR calculation, the same as above was done except that they started with the BOCR Surcharge @ LRC for each MSD item rather than the DARC Surcharge @ LRC for each MSD item. The adjustments for each year were then reduced accordingly to comply with AFMC/CC's directed five-percent reduction in SMAG operating costs.

The second part for determining the adjustment for the use of specified resources was adjusting the cost of the MSD Distribution Depot Operations. The Distribution Depot has two elements, Lines and Storage. Lines covers the costs of receiving and issuing material, inter-depot transportation, and packaging. For SA-ALC, this portion, for FY99 DACR and BOCR, equates to $62.3M or 20.27% of this surcharge. The Storage portion of the surcharge includes all costs for storing material at the ICP. For SA-ALC, the FY99 amount equates to $9.5M or 3.15% of the total MSD surcharge. The total Distribution Depots cost equates to $71.83M or 23.88%.

In general, an organization needs to follow the method that OC-ALC used above in determining the adjustment for Use of Specified Resources.

Mobilization Support. In general, an organization should determine what percentage of their annual labor expense is used up on mobilization support efforts. This percentage can be determined by inquiring with the local Wartime Plans and Contingency Division of an organization. That percentage should then be multiplied by the projected labor expenses to determine the annual cost of mobilization support. Finally, prorate the costs to the effort based competed organic hours to compute the appropriate adjustment.

For OC-ALC, DMAG incurs costs when they are asked to assist in the preparation of mobilization support plans, and when such plans are tested (deployments and Threatcon exercises where DMAG personnel are required to man both the war room and perform ID checks at all doors). After coordinating with OC-ALC/XPW, which is the Wartime Plans and Contingency Division, they determined that approximately 0.3% of the annual labor expense for DMAG is expended on mobilization support and exercises. This 0.3% was then multiplied by the projected labor expenses to determine the annual cost of mobilization support. These costs are then prorated to the effort based on competed organic hours to compute the appropriate adjustment.

F100 Packaging. To ensure cost comparability, the public offeror is required to include the packaging costs for all ELIN items. In general, a few things must be done in order to determine this adjustment. First, the number of trips that a container can be used must be determined. Next, the average cost per container (materials and labor to construct it) must be determined. Then, the cost per trip can be determined by dividing the average cost per container by the number of trips that it can be used. Lastly, an

average packaging cost for all ELINs has to be developed. This cost then needs to be multiplied by the number of ELIN occurrences in each fiscal year to arrive at the packaging cost for each given year.

OC-ALC accomplished this adjustment by assuming that all containers possessed a 10 trip minimum usage rate (they will last a minimum of 10 trips). Then, an average packaging cost for all F100 ELINs was developed, and this was multiplied by the number of ELIN occurrences in each fiscal year to arrive at the packaging cost for each given year. This produced the total amount of the F100 packaging adjustment.

Oklahoma Quality Jobs Credit. The Oklahoma Quality Jobs Program is a state program that allows qualifying businesses that are creating large numbers of new quality jobs to receive a special incentive to locate or expand in Oklahoma. Upon qualifying for the Oklahoma Quality Jobs Program based on expansion, it was determined based on the number of additional jobs that was added to OC-ALC (2,303) and other information, that 4.87% of the additional payroll dollars will be paid back to the Government. This resulted in a total payback over a 10-year period of $39,339,946. This credit is a direct payment to the federal Treasury rather than directly to OC-ALC. These payments to the federal Government fall into two categories: payment for these specific workload employees and payment for other workload employees. The payment for these employees are appropriately form 1 adjustments. The payment for other employees actually constitute an indirect Government savings and is appropriately recognized as a Form 2 adjustment.

The only authority for OC-ALC to enter into a contract with the state for this credit comes under the teaming authority granted during public/private competitions.

Therefore, if the proposed workload is not awarded to OC-ALC, no credit at all will be paid by the state. Therefore, $26,181,033 was included as a Form 1 adjustment for the proposed workload employees, and $13,158,913 was included as a Form 2 adjustment for the other workload employees.

In general, if a contractor is able to qualify for some type of Quality Jobs Credit, the contractor or the evaluation team should determine the number of jobs that will be added due to the new workload. Based on this, usually the state Department of Commerce will determine the percentage of the payroll dollars that will be paid back to the Government. Next, the amount of the credit should be split between the amount that will be a Form 1 adjustment, and the amount that will be a Form 2 adjustment. This split will can be calculated by figuring out how much the credit would be for the additional employees if the new workload falls through and is not adopted.

Indirect Cost Adjustments.

Overhead Savings. In general, overhead savings is a spreading of the overhead costs amongst a larger number of projects and items, thus causing each item to be assigned a smaller portion of the overhead. This amount can be found talking with the contractor and determining the amount that will be alleviated off of other government contracts as a result of taking on this additional effort.

Overhead Savings was considered as an adjustment because the total indirect costs incurred at OC-ALC will increase due to the added workload; however, the cost per unit produced will be lower. This lower rate for all work at OC-ALC produces savings to other non-competition workloads. In calculating both the low cost and the high cost, two separate methods were used. In determining the low cost, they summed the proposed

fixed costs and allocated them to existing workload hours. This eliminated the impact of rate change due to changes in the workload mix. The high cost was determined by applying discounts to out-years based upon anticipated persistence of savings and then adding all of these costs together. They figured that production overhead savings (POH) and G&A savings would both be reduced by 5% annually beginning FY02.

RIF/PCS/VERA/VSIP Expenditures. In general, one would want to examine each of these areas separately before combining the figures to arrive at a total adjustment. To find each of these amounts, the demographics of the employee base at the installation would need to be utilized. For those individuals who would elect to stay in the government, a PCS adjustment would have to be made. This consists of two parts: the PCS cost and the excess leave cost. For the PCS cost, the number of members PCSing because of this project needs to be multiplied by the estimated cost of an individual's PCS. Additionally, the average hourly rate of each member needs to be multiplied by the average number of excess leave hours per employee. Next, this amount should then be multiplied by the number of employees PCSing. Lastly, these two amounts, the PCS cost and the excess leave cost, need to be added together to come up with the total cost.

A few calculations need to be made for the individuals who elect to take advantage of VERA/VSIP. Members who accept VERA/VSIP are also eligible for subsidized medical insurance. This amount (percentage of salary) can be obtained from the Office of Personnel Management. Next, multiply this percentage by the average employee's salary and the amount (per employee) of the medical insurance will be obtained. Next, as in the PCS calculation, the cost for the amount of excess leave needs to be determined for these individuals. These two amounts (medical insurance

adjustment and excess leave adjustment) then need to be added together to arrive at a total VERA/VSIP adjustment.

Lastly, an adjustment for reduction in force (RIF) needs to be made. This begins by determining the amount of employees who would be eligible for a RIF (total personnel – personnel involved in PCS – personnel involved in VERA/VSIP). Next, unemployment benefits for each individual for each week for an assumed amount of weeks need to be determined. This amount would then be added to the amount of severance pay that would be paid out per employee. This amount then need to be multiplied by the number of employees affected. Next, an amount for excess leave adjustment needs to be made. This is similar to the last two that were done (PCS & VERA/VSIP). Finally, all of these amounts need to be added together to arrive at a total RIF cost.

In the OC-ALC case study, an adjustment was made to account for the cost of displacing the Kelly AFB PBA workforce. Per SA-ALC/LP-1, the average PBA employee is a WG-10/GS-11 step 4, 46 years old with 14.5 years of federal civil service. Pay rates are $27,983 and $40,269 respectively, with an average of $39,126. The average hourly salary for these grades (assuming 2,087 hours per workyear) is $19.31. The average severance pay for such an employee subject to RIF would be $22,348. Further, PBA demographics as of 31 October 1998: 2,691 personnel, 1,001 signed up for the Priority Placement Program (PPP), and 660 approved for VERA/VSIP. Three elements were included: 1. continue to work for the federal government, 2. retirement or separation, 3. reduction in force (RIF).

For the first element, continue to work for the federal government, OC-ALC has indicated that it intends to move 550 SA-ALC workers to Tinker AFB to work the PBA workload if they win the competition. Additionally, it was assumed that 20% of the 1,001, or 750 members, signed up for priority placement program (PPP) will be offered federal civil service positions elsewhere, and will actually elect permanent change of station (PCS) relocation. PCS costs are estimated at $25,000 per employee by HQ AF/DP. Additionally, every member of the PBA will be paid a lump sum amount for the excess leave they have been allowed to accumulate since the installation was identified for closure by the Base Realignment and Closure Commission. PBA employees, who would PCS, were estimated to have 416 hours of excess leave, based on demographics of the individuals who elected to PCS following the C-5 PDM Source Selection. At an hourly rate of $19.31, this will require a lump sum payment of approximately $8,033. Therefore, the average PBA employee who would stay within federal civil service and PCS would cost $33,033. For 200 individuals, the cost is $6,606,600. The cost to buy out 550 employee's excess leave is $4,418,150. This brings the total cost to $11,024,692.

The second element, VERA/VSIP, was analyzed as follows. Per SA-ALC/LP-1, 660 PBA employees have been approved for VERA/VSIP. It was assumed that all 660 PBA employees would be eligible for the maximum amount. Those employees who would accept VERA/VSIP are also eligible for subsidized medical insurance. The cost of this coverage is estimated by the Office of Personnel Management at 4.7% of salary. At an average salary of $29,126, this amounts to $1,839. Further, every eligible member will be paid for their accrued leave. These employees were estimated to have 656 hours of excess leave, based on demographics of the individuals who elected to retire following

the C-5 PDM source selection. At an hourly rate of $19.31, this will require a lump sum payment of $12,667. The average PBA employee who would accept VERA/VSIP and leave the workforce would cost $39,506. For 660 individuals, the cost is $26,074,107.

Finally, the last element, a reduction in force (RIF) would apply to the PBA employees remaining after the PCS and VERA/VSIP. This would amount to 1,281 PBA employees. Those displaced by the RIF would be eligible for unemployment compensation if they were unable to find other work. Unemployment benefits of $245 per week for a maximum of 26 weeks were assumed, for a total unemployment payment of $6,370 per employee. The average PBA employee subject to RIF is eligible for $22,348 in severance pay. Further, every member of the PBA will be paid a lump sum amount for the excess leave accumulated. Each employee was estimated to have 656 hours of excess leave. At an hourly rate of $19.31, this will require a lump sum payment of $12,667. The average PBA employee who would leave the PBA workforce due to RIF would cost $41,385. The total cost for RIF would be $52,398,954.

Finally, all of these amounts (RIF, PCS, VERA, & VSIP) were totaled to arrive at a final adjustment of $89,398,954.

Contract Administration. In general, the number of people that will be used each fiscal year to administer the contract should be determined. Next, the labor costs, the non-labor costs, overtime, non-recurring, and PCS costs for each of these individuals should be added together. This will give the adjustment for contract administration.

In calculating the contract administration adjustment, OC-ALC assumed that 12 full-time equivalent personnel (FTE) for FY99 and 18 for FY00 – FY13 would be administering this contract. The estimate includes costs for labor, non-labor, overtime,

non-recurring, and PCS expenditures. The total amount of the Contract Administration adjustment was $17,619,600.

Federal Income Tax. This adjustment represents the anticipated federal taxes to be paid on profits earned by private offerors. It is calculated by first determining the income tax rate that will be applied to the particular effort in question. Next, this rate will be multiplied by the total amount of "other direct" costs in the proposal. This may be the subcontractor costs.

OC-ALC based this adjustment upon the income tax rate identified in OMB Circular A-76 for the aircraft. This credit was calculated as 3% of LMKAC costs. This 3% was multiplied by the "other direct" figure (subcontractor costs) of $2,617,539,278. The total amount for the Federal Income Tax adjustment was -$78,424,733.

Oklahoma Quality Jobs Credit. In the OC-ALC case, this adjustment was used to represent the credit that the state of Oklahoma will grant to the contractor for establishing "quality jobs" within the state of Oklahoma. This adjustment is similar to the credit given in the Form 1 adjustment section, but it is necessary here because not all of the jobs being established are due to the transfer of this particular effort, hence, the non-PBA workload jobs will fall under "indirect costs".

OC-ALC applied for a credit based on this program and a determination was made that approximately 2,303 new jobs will be added at OC-ALC. It was then determined that because of these new jobs, 4.87% of the additional payroll dollars will be paid back to the government. This resulted in a total payback over a 10-year period of $39,339,946. Of this amount, as previously mentioned, $26,181,033 was included as a

direct cost (Form 1 adjustment) and $13,158,913 was included in this section as an indirect cost for the non-PBA employees (Form 2 adjustment).

This adjustment may or may not apply to a particular contractor depending on what state they are located in, and whether they meet the specific qualifications (determined by the state) that would be required for it. In general, if a contractor is able to qualify for some type of Quality Jobs Credit, the contractor or the evaluation team should determine the number of jobs that will be added due to the new workload. Based on this, usually the state Department of Commerce will determine the percentage of the payroll dollars that will be paid back to the Government. Next, the amount of the credit should be split between the amount that will be a Form 1 adjustment, and the amount that will be a Form 2 adjustment. This split will can be calculated by figuring out how much the credit would be for the additional employees if the new workload falls through and is not adopted.

Personnel Carrying Cost. This adjustment considers the cost of government personnel who will no longer be required to support the PBA workload after the successful offeror assumes responsibility. There will be a lag between the completion of their PBA duties and the implementation of the reduction in force. During this time period, the employees will remain on the Kelly AFB payroll.

In this computation, it was determined that there were 2,691 governmental PBA personnel employed on 1 February 99. The June 1999 transition date requires that OC-ALC hire 1,671 employees in May 1999, thus taking them away from the PBA workforce. Further, in June 1999, 660 additional employees will leave the PBA workforce due to VERA/VSIP. Those employees who remain, waiting to be RIFed, are a

cost to the Government, and an appropriate adjustment for the cost of their salaries and benefits was made. To arrive at this adjustment, it was assumed that the average PBA employee was a WG-10/GS-11 step 4, 46 years old with 14.5 years of federal civil service. Pay rates were $37,983 and $40,269 respectively, with an average of $39,126, and the average salary for these grades (assuming 2,087 hours per workyear) is $19.31. The total amount for the Personnel Carrying Cost adjustment was $4,059,715.

In general, there may be an incremental cost to the Government for the salaries and benefits of certain employees, not hired by a private contractor, or PCSed to another location, who are subject to RIF. The demographics of the relevant employees (their pay grade, pay, and hourly salary) should be used to determine the total amount of the personnel carrying cost. This amount should be determined by taking the number of employees who remain (waiting to be RIFed) after the initial VERA/VSIP and RIF and multiply that number by their average hourly wage and then multiply that number by the average number of hours worked by each employee per year (make an assumption).

Transition Adjustment. This adjustment is for any additional work that will be incurred by the government in order to perform any necessary work prior to the successful offeror's assumption of the Work in Process (WIP). This cost adjustment will be the difference between the successful contractor's proposed labor rate and the Government's hourly labor rate. This amount should be multiplied by the average daily direct labor hours of each workload as specified in the RFP. This daily rate should then be multiplied by the number of workdays prior to the successful contractor's assumption of the WIP.

This adjustment is for any additional work that will be incurred by the government to perform PBA repair and overhaul work prior to OC-ALC's assumption of Work in Process (WIP). The daily cost adjustment was the difference between OC-ALC's proposed labor rate and the Government's hourly labor rate (to include overhead and G&A) of $90.16, multiplied by the average daily direct labor hours of each workload as specified in the RFP. This daily rate was multiplied by the number of workdays prior to OC-ALC's assumption of the WIP. The date of the WIP assumption of 14 June 99 was obtained from the proposal Transition Integration Plan (TIP). The 93 workdays was obtained by calculating the number of workdays between the contract award date (1 February 1999) and the WIP Assumption Date of 14 June 1999 (95 days) and subtracting all of the applicable holidays (2 days). OC-ALC's proposed labor rate for each workload was calculated by adding the proposed costs for direct labor, overhead, G&A, profit, and cost of money. This number was then divided by the proposed number of hours. The total amount of the Transition Adjustment was $12,002,092.

Contract DMAG Surcharge. This surcharge exists because the Contract DMAG Industrial Fund adds a surcharge to the unit price of each end item repaired in the private sector to cover Industrial Fund overhead costs. In FY99, the unit price of every item repaired by private contractors was increased by 2.5%. Additionally, the surcharge rates were expected to be 1.4% and 1.3% in FY00 and FY01, respectively. This is an additive cost every Government Agency must pay to cover the Depot Repair workload that is accomplished through the Contract DMAG Industrial Fund. This resulting adjustment reflects the proposed cost avoidance that the Government will realize by transferring this

workload to an outside contractor. The total amount for the Contract DMAG Surcharge adjustment was determined to be -$56,793,362.

In general, surcharges like this may exist when governmental items are repaired in the private sector to cover certain Industrial Fund overhead costs. When determining the offeror's total price to take on a particular workload, an adjustment like this should be made to account for the decreased expenditures that the government will have to pay out in order to have repairs done on the items. These adjustments will be the savings realized as a percentage of the unit prices of the end items.

GFE Depreciation. Capital equipment used to perform any workload can either be obtained by the contractor or provided as Government Furnished Equipment (GFE) for use at the contractor locations. In the case of OC-ALC, the capital equipment could either be obtained through a lease agreement from the Greater Kelly Development Corporation and used at the Kelly AFB location or it could be provided as GFE for use at other contractor locations. This adjustment represents the undepreciated value of equipment to be provided as GFE.

In the case of OC-ALC, straight line depreciation was applied to the proposed equipment meeting the DMAG criteria for capital equipment. This is equipment with a minimum of $100,000 acquisition value. Each piece of GFE was depreciated over its remaining life to derive the total remaining depreciation. This total was then evenly distributed over the maximum remaining years available for depreciation. This value represents an average annual value for use in each contract year. The total amount for the GFE Depreciation adjustment was $15,707,232.

In general, an annual depreciation amount should be determined for each piece of GFE that the contractor is going to utilize. These annual amounts should then be added together to come up with a lump sum representing the total cost to the government to account for the total depreciation on all of the pieces of GFE used. This amount should then be added into the proposal price as an adjustment.

CSI/CRI Asset Storage. This adjustment reflects the cost of services provided to the public depot by the DLA warehouse. The solicitation requires offerors to maintain a consolidated reparable inventory and CRI/CSI. Private firms, including the public offeror's private teammate, will receive ELIN items needing repair direct from the field user and will ship direct to the field to fill requisitions. The costs to receive, store, and handle the reparable and serviceable items are included in private offeror proposals. For OC-ALC, the on-site DLA warehouse will provide these services. DLA recoups costs for these services from the SMAG based upon a unit transaction fee. The SMAG recoups this cost through surcharges (Directly Allocable Cost Recovery (DACR)) applied to the serviceable ELIN items shipped to the field customer. These customer paid costs are not in OC-ALC's, yet they receive beneficial services which a private offeror must provide and recoup through contract prices. Adjustment is, therefore, required to ensure comparability.

The total adjusted BEQ (1,168,280 units over 15 years) was multiplied by the average unit transaction rate of $24.59. The rate was calculated based upon data submitted by OC-ALC. The rate is the average of the FY97 and FY98 actual costs for OC-ALC as reported by DLA Defense Distribution Center. The total amount for the CSI/CRI Asset Storage adjustment was $28,731,413.

In general, an adjustment should be made for the storing and redistributing of reparables if some of the offerors account for the cost and others do not. This should be calculated by multiplying the average replenishing cost by the number of units that will be affected.

USAF T56 Material Cost. This adjustment was required to correct an erroneous pricing assumption that was made by OC-ALC regarding T56 repairs. OC-ALC assumed that the Government, during contract execution would provide replacement reparable parts for certain condemned components. This adjustment reflects the estimated under-pricing attributable to the error.

In this case, offers were required to price repair of SubELINs as part of the higher assembly. The RFP states that if an ELIN or Sub ELIN can not be repaired and must be condemned, the Government will replace that item with another reparable item. Offerors were not required to price the purchase of replacement material for condemned ELINs or SubELINs. Offeror A made an error in the final proposal revision by assuming that replacement SubELINs would be provided for USAF T56 Reduction Gearboxes and Cold Sections. This would entail that the government provide Navy SubELINs to replace condemned USAF components, which they cannot do. This total adjustment equals $17.8M. This adjustment should be made in addition to any estimated cost performance risk since it is considered a correction to the proposed price.

This scenario just described is a fairly detailed adjustment and probably would not apply as it stands to other scenarios. How it could be used, however, is to show how an adjustment has to be made when an offeror makes an error in their proposal. This assessment would be based on current prices relevant to the matter.

Dollarized Strengths, Weaknesses, and Risks. In the OC-ALC source selection, it was stated that total evaluated cost will be comprised of each offeror's total alternative cost plus the dollarized impact of significant discriminators to the extent that a dollar value can be assigned to such discriminators based upon identified proposal strengths, weaknesses, and risks.

Material Cost Risk. This evaluation seeks to quantify the risk that OC-ALC will be able to perform the proposed effort at or below the proposed price. Proposed material dollars are 20% less than the Government cost baseline. The PRAG analysis of OC-ALC's past performance indicates that over the period of FY94-98, OC-ALC has overrun planned material planned material costs by an average of 5% per year.

Risk of material cost increases can be attributed to unplanned changes in either the prices paid for material or the quantities planned for the requirement. Risk drivers for each aspect are addressed below:

Prices: OC-ALC "straight-lined" material unit prices for all 15 years of the contract with the following exceptions: (1) An allowance for inflation was made for FY00; (2) An adjustment was made to all prices for FY01 and beyond based on incorporating AFMC/CC's 6-year 5% cost reduction goals. The SSEB believes there is a risk in material prices based upon historical variances in supply system prices and the risk that the AFMC goals will not be achieved. The method of pricing is also very sensitive to changes in material sales volume. A large increase in sales will reduce the surcharge rates and lower prices, while a drop in sales will cause increased prices. While many of these factors are external to OC-ALC control, they do create a significant possibility of unplanned cost growth during contract performance.

Quantities: A 50 ELIN review was done to help to mitigate the risk associated with understated quantities and to minimize the potential magnitude of this risk. As a result of a 50 ELIN review and related discussions, OC-ALC made changes to their proposed material cost resulting in a $246M increase.

Low Range: This 50 ELIN analysis evaluated material and labor content on 50 items that comprised 85% of the total price value in the Government baseline. If this correction is extended proportionally to the 15% of price that was not reviewed, the adjustment equals $46.3M. This only considers risk related to understated quantities but does not address the risk of price variances.

High Range: A screening process was used to focus on the top cost-driver material records. In the government baseline, these reviewed items represented 43% of the total material cost. If the correction that the offeror made is extended proportionally to the 57% of material cost that was not discretely reviewed; the adjustment equals $324.2M. The offeror also incorporated projected material cost reductions based upon an AFMC directed cost reduction goal (5% reduction over six years). This impact is estimated at $75M using the material in the Government baseline ($65.6M impact to the offeror's proposed material). For the above position, the $65.6M was added back to the price representing the risk of failure to achieve these goals. Other than the AFMC cost reduction goal impact, this analysis makes no allowance for price volatility. The SSEB attempted to develop an estimate for this risk, but concluded that there was insufficient data to develop a reasonable estimate.

In general, material cost risk can be attributed to unplanned changes in either the prices paid for material or the quantities planned for the requirement. A dollar value

needs to be determined as an adjustment that will account for the potential variability in both quantity and prices of the items in question. This will, more than likely, be determined by utilizing a method similar to the one described above.

Labor Efficiency Cost Risk. This evaluation seeks to quantify the risk that OC-ALC will be able to perform the proposed effort at or below the proposed labor cost. OC-ALC proposed a 75% efficiency rate for the San Antonio Operating Location (OL) with no ramp-up or ramp-down. OC-ALC proposed a 90.1% composite efficiency rate for the F100 workload at OC-ALC during steady state with a fairly quick ramp-up from a reduced starting efficiency. The PRAG analysis of OC-ALC's past performance indicates that over the period of FY94-97, OC-ALC had labor cost variances that averaged 13.5% per year. The SA-ALC Director considered the proposed efficiencies to be somewhat risky. Also, the SSEB technical evaluation identified several weaknesses related to transition which are likely to impact start-up efficiencies and improvement curves. The SSEB used the OC-ALC proposal information to calculate revised actual hours and costs based upon 8 different scenarios (4 related to OL costs and 4 related to OC-ALC F100 costs).

The increased costs for OL operations were estimated at from $4.0 million to $17.2 million. The anticipated SA-ALC average daily work hours were used for the basis to estimate the work scope to be performed by OC-ALC at the OL. The DPAH hours listed for F100 and accessories (3,014 and 3,848, respectively) were converted to DPSH per month using the SA-ALC efficiency rate of 92.3% and a standard of 22 workdays per month. The 92.3% factor was the actual rated on which the RFP workload hours were based. These DPSH hours were then adjusted to DPAH using the proposed 75%

efficiency rate. A delta from the proposed efficiency rate to the various scenario monthly efficiencies was calculated and multiplied by the monthly DPAH hours to determine the added hours due to the potential efficiency degradation. The additional hours were multiplied by the proposed fully burdened labor rate to derive a monthly cost impact. The monthly impacts were summed to yield the net impact over the period of OL operations. The following is an example for the F100 impact of a 70% efficiency rate (or a 5% decrement) for one month:

3104 (F100 daily DPAH) x 22 (days) x 92.3% (SA-ALC efficiency rate) = 73,985 (DPSH/mo)

73,985 (DPSH/mo) / 75% (proposed effic. Rate) = 98,646 (DPAH/mo)

98,646 (DPAH/mo) x 5% (decrement) = 4,932 (additional hours)

4,932 (hours) x $80.19 (proposed burdened rate) = $395,497 (added monthly cost)

OC-ALC F100 Workload. This adjustment is a subsection of Labor Cost Risk. Past performance: OC-ALC's past performance was derived from the G037 Labor Summary Report contained in Book 3 of their Cost Volume. OC-ALC stated that work would be performed in the LP and LI directorates. Using the monthly reports, labor hours and computed efficiencies were extracted from Duty Codes (DC) 11 and 12 which contains civilian and military labor. The hours and efficiencies were weighted based on the contribution each duty code made to the total resulting in the labor efficiency for that month. This was done for both directorates and in what is listed on the chart by month. Each directorate's hours were averaged to obtain average efficiency. Then, the hours were totaled and weighted to obtain a composite weighted-average by month. Based on this analysis, the composite average efficiency is 87.37. As a crosscheck, the total

number for hours by workload for years 99-01 was totaled to determine the effective contribution of each product direct to the efficiency. The bulk of the hours will be worked in the F100 area. Therefore, the hours were weighted to determine the composite efficiency. Listed below is a summary of that analysis:

	May-98	Apr-98	Mar-98	Feb-98	Jan-98	Dec-97	Nov-97	Oct-97	Average	Total Hours
LP	87.53	88.03	78.79	87.40	86.77	88.36	91.42	81.21	86.00	1,165,541
LI	94.20	100.84	99.30	93.27	103.60	103.60	102.24	79.70	97.51	1,203,120
Composite	88.32	89.55	81.24	88.10	88.78	90.18	92.71	81.03	87.37	2,368,661

Workload Contribution	Hours	Eff Contribution
F100	4,463,202	76.82
C&A	553,050	10.40

Table 2 -- Labor Efficiency Cost Risk – OC-ALC F100

Estimating Proposed Efficiencies : OC-ALC's projected efficiency is based on what is stated in Book 2 of the Cost Volume and Tab 35, Book 3. OC-ALC lists the Depot Production Shop Hours (DPS) and Depot Production Actual Hours (DPAH). To determine the efficiency, the DPSH were divided by the DPAH. This resulted in what is contained in the following table:

Clin 0004	FY99	FY00	FY01	FY02	FY03-13
Competed Workload					
DPSH	132,034	1,384,724	1,742,836	1,772,815	1,788,718
DPAH	163,281	1,734,281	1,936,038	1,967,160	1,985,298
Efficiency	80.86%	79.84%	90.02%	90.12%	90.10%
Operating Location					
DPSH	784,342	452,937	30,556		
DPAH	1,045,789	603,916	40,741		
Efficiency	75.00%	75.00%	75.00%		

Table 3 -- OC-ALC's Proposed Labor Efficiencies

In comparing OC-ALC's past performance, it was determined that they operated at 87.3% efficiency. In their proposal, as listed above, OC-ALC proposed to perform at an efficiency of 90.1%. An adjustment is appropriate based upon OC-ALC's past performance and the transition weaknesses identified by the SSEB.

The adjustment was calculated as follows: The proposed OC-ALC hours were converted from DPSH to DPAH using the scenario annual efficiency rates. This DPAH was compared to OC-ALC's proposed DPAH. The difference is the additional DPAH that will be required due to the efficiency variance. These hours were multiplied by the average fully burdened rate to yield the delta cost impact. The cost impacts ranged from $16.0 million to $91.8 million. The following example shows how the impact is calculated for scenario #1, FY99.

129,858 (DPSH for OC-ALC effort in FY99 after deleting LMKAC hours) / 75% (scenario assumed efficiency rate) = 173,144 (annual DPAH for scenario)

173,144 (DPAH) – 160,295 (proposed DPAH) = 12,849 (added DPAH)

12,849 (DPAH) x $83.50 (proposed average burdened rate) = $1,072,892 (annual cost impact)

In general, a labor efficiency cost risk adjustment should be made in any offeror's proposal. This adjustment will reflect the amount of risk associated with a particular offeror's idea of how efficient they will be with their labor, versus what their past performance shows. Also, the government's baseline will also be a factor in the adjustment that is made to the offeror's proposal.

F100 Process Qualification Risk. In the OC-ALC case, this risk adjustment is necessary because of the following scenario. OC-ALC had planned on transitioning all current F-100 processes to organic repair as part of their proposed transition. Over 120 of

those processes were currently outsourced by SA-ALC. OC-ALC was already qualified to perform all but 61 of these processes. To bring these processes in-house, OC-ALC would have to become certified on these processes and in some cases, gain the data rights. OC-ALC proposed to complete all of this within a one-year transition period. The SSEB considered this to be a cost risk, since failure to do so according to schedule would require OC-ALC to continue the current contractual arrangements. In summary, the SSEB thought that OC-ALC's qualification schedule was too aggressive and entailed an amount of risk.

Initial Assessment. An Independent Technical Assessment (ITA) was conducted to determine the feasibility of the plan and the soundness of the schedule. The ITA determined that some of the repairs were "not achievable" and proposed extension to the schedule for many of the others. This determination directly impacted the cost of 55 ELINs. A cost impact assessment was done for each of the affected ELINs. The following information was used for each ELIN assessment: OC-ALC Full Operating Capability (FOC) Date, ITA FOC Date, UPA (Units Per Assembly), ELIN Best Estimated Quantities (BEQs), Mod BEQs (Quantities resulting from higher assemblies), Occ Factor (Repair Occurrence Factor), Current Contract Unit Price, and OC-ALC Bid Price. The following formula was used to determine that cost impact:

(ITA FOC – OC-ALC FOC) * ((ELIN BEQ + Mod BEQ) * UPA * Occ Factor) * (Contract Price – OC-ALC Bid Price) = Cost Impact

For example, the following assessment was made for ELIN EOBT, the diffuser case:

(1 Feb 00 – 24 Sep 99)*((181+455)*1*100%)*($30,750.46 - $19,064.16) = Cost Impact
(0.347945 years)*((636)*1*100%)*($11,686.30) = Cost Impact
$2,586,098 = Cost Impact

This formula was applied to the 55 affected ELINs. A total cost impact was determined to be $24,235,737. This estimate represents the lower bound of the possible cost impact.

OEM Technical Support Assessment. OC-ALC identified $1.2 million for F100 process qualification technical support from the OEM. This support was to be provided over the period from Feb 99 through Jul 00. This amount would allow for eight (8) man-years of support at $150K per man-year. This level of effort equates to approximately $67K per month in technical support.

Based on this initial assessment from the Independent Team Assessment (ITA), a cost adjustment for technical support was determined to be $1.8M. This assessment reflects the fact that the more complex a repair is, the longer and more expensive it will be to qualify. Using a period of qualification of forty-five months, an additional 27 months of technical support was assessed. This assessment was calculated as follows:

(18 months x $66,666.67 per month) + (27 months x $66,666.67 per month) = $3M in technical support

($1.2M) + ($1.8M) = $3M in technical support

Based upon additional information provided by OC-ALC, the ITA performed a follow-on assessment that determined the development of a satisfactory PWA 279 process would require sixty months. This process requires an additional assessment of fifteen months of technical support but at a reduced manpower level. This assessment was calculated as follows:

(15 months x $66,666.67 per month) x (0.3 reduced manpower factor) = $0.3M in additional technical support for PWA 279)

($0.3M) + ($1.8M) = $2.1M increased technical support assessment for all qualifications.

The final assessment for total OEM technical support for F100 process qualification is ($1.2M) + (2.1M) = $3.3M. OC-ALC has already included $1.2M, so an additional $2.1M must be added to the costs for contract repairs pending OC-ALC Qualification on these F100 critical processes. The total range for the F100 Process Qualification adjustment ranged from $26,335,737 to $71,850,286 as summarized below:

		LOW		HIGH
FY00	$	5,742,778	$	16,512,493
FY01 and beyond	$	18,492,959	$	53,237,893
OEM Support	$	2,100,000	$	2,100,000
TOTAL	$	26,335,737	$	71,850,386

Table 4 -- OC-ALC F100 Process Qualification Adjustment

Although this qualification risk adjustment cannot be applied directly to the majority of source selections, the general idea can be. This adjustment exists because there is going to be a risk with certain work elements that require the offeror to become certified, or qualified, before they are eligible to take on work that is currently being done by others. The offeror is going to state that they can be certified in a given amount of time and that is going to cost a given amount of money. It is the source selection evaluation board's job to determine how accurate this assessment is, and then decide how much risk is involved, thus adjusting the time table and dollar figures accordingly. The method used for assigning a dollar value to this element of risk can be determined similar to the above mentioned manner.

Flow Day Improvement. This adjustment represents the savings to the Government due to cancellation of planned purchases of spare reparable end items.

There is an incremental cost to the Government when additional spares must be obtained to fill the shop flow days "pipeline". This "pipeline" consists of the spare parts required to fill demands that occur during the period of time between the contractor's receipt of a reparable part and the time a part is delivered to the customer. These "pipeline spares" are required to fill the "holes" created while the reparables are in depot maintenance. Where reparables are not available, the DO41 requirements computation will generate a requirement to purchase additional spares which is then reflected in the budget forecast.

To determine the savings for reduced shop flow days, the pipeline requirements were calculated for the PBA shop flow days specified in the RFP, exhibit E, and for each of the offerors, based on their proposed shop flow days. The DO41 Centralized Secondary Item Stratification (CSIS) file from the Mar 98 budget cycle was the source of the acquisition cost and Air Force Acquisition Objective (AFAO) deficit position (FY 2003). The shop flow days and repair cost for FY 2003 were used in the calculations to coincide with the AFAO time period and to better reflect reductions in shop flow days that will not be implemented during the first years of contract performance. These calculations for each ELIN are as follows:

1. The Mean Time Between Demand (MTBD) was determined by dividing the BEQ by 365 days. The BEQs were developed based on the demands projected in the DO41 requirements computations.

2. The shop flow days were then divided by MTBD to determine the number of reparables being turned in during that period to provide the pipeline requirement for that flow day period.

3. Where the Centralized Secondary Item Stratification (CSIS) budget report for the Air Force Acquisition Objective (AFAO) shown in the DO41 CSIS file in the March 98 budget cycle reflected a deficit (buy requirement), the forecast acquisition price was multiplied by the pipeline requirement to determine the pipeline requirement cost. Where

there was no buy requirement, the pipeline requirement cost was calculated based on OC-ALC's proposed repair cost.

4. The value of each offeror's pipeline cost was subtracted from the RFP pipeline requirement to determine the variance due to reduced shop flow days. This variance is the basis for the dollarization adjustment.

The shop flow days adjustment calculation incorporated the shop flow days and unit repair prices proposed by OC-ALC for CLIN 0004, FY03 in Cost/Price Volume III (Book 1), Exhibit E. The reduced shop flow days proposed by OC-ALC resulted in a credit adjustment of $10,067,417.

In general, this adjustment would be necessary to adjust for the savings to the government due to the cancellation of planned purchases of spare reparable end items. It will be calculated in a manner similar to the one shown above in the OC-ALC example.

Warranties and Guarantees. OC-ALC proposed warrantees and guarantees that would either reduce costs from fewer BEQs in the outyears or provide free maintenance on guaranteed and warranted items.

SA-ALC Labor Efficiency Risk. This adjustment quantifies the risk that the labor efficiency at SA-ALC will degrade between contract award and the beginning of transition. Once the award announcement is made, the workforce will begin planning for other employment or retirement. Based on experience during the movement of the C-5 workload, direct labor efficiencies decreased dramatically. Although hiring more Cuts can mitigate efficiency loss, the efficiency loss will still occur. The efficiencies were based on the expert opinion of the Director, Propulsion Business Area, Col Robert McMahon. His opinion is that efficiency will decrease about 1.5% per month. To

consider greater changes in efficiencies, several "what-if" scenarios were developed to capture the impact of the efficiencies decreasing at a greater rate per month.

Using the workload and hours per day published in the RFP, Amendment 0008, the monthly DPAHs were computed.

Workload	Hours/Day	DPAH Hours/Mo
T56	2,116	46,552
TF39	1,398	30,756
F100	3,104	68,288
FA	3,848	84,656
T56 2LM	1,647	36,234
TF39 2LM	1,933	42,526

Table 5 -- SA-ALC's Depot Production Actual Hours

These hours were based on 92.3% efficiency rates for the current SA-ALC PBA workload. This rate was developed based on SA-ALC performance at the time the request for proposal was drafted. Since efficiencies are projected to decrease monthly, an efficiency variance was calculated at 92.3% minus the efficiency anticipated for SA-ALC as projected by the Director of Propulsion (SA-ALC/LP). Example: In Feb 99, using the T56 workload, Col McMahon stated that the SA-ALC efficiency would be 80%. The baseline efficiency of 92.3% minus 80% leaves a variance of 12.3%. This variance is then multiplied by the hours per month to obtain the additional hours required to meet the baseline efficiency. The SA-ALC labor rate per DPSH is $90.16 (again, this is the rate that was published in the RFP). The cost of performing the hours per month is multiplied by the labor rate to obtain the total cost of the work. Since SA-ALC is performing below the 92.3% efficiency, the additional hours are also multiplied by the labor rate to determine the additional cost. The additional cost then becomes the cost due to lower efficiency. This is done for each month until transition which occurs in Jun 99. The costs range from $21.9M to $32.6M.

In general, a labor efficiency risk adjustment need to be applied to an offeror's proposal to recognize the increased cost to the Government due to worker inefficiencies that occurs when one contractor is about to lose a workload. These inefficiencies are due to a lack of motivation and planning for transition. This amount can be determined in a manner similar to the above mentioned method. First, the initial efficiency rate needs to be determined. Then, per the expert opinion of some worthy individual, a percentage that will represent the drop in efficiency each month needs to be determined. Last, the labor rate per standard hour worked needs to be determined. Now, the following formulas will determine the additional cost to the Government due to increasing labor inefficiencies on the part of the losing organization.

(Baseline efficiency – (% efficiency decrease per month * # of months)) = efficiency for month in question

Baseline efficiency – efficiency for month in question = variance

Variance * hours per month = additional hours required to meet baseline efficiency

Labor Rate Per Std. Hour * additional hours = total cost of work for month

Sum all of the total costs of work for each of the months until contract transition using the above calculations to determine the total amount of adjustment that needs to be inserted into each of the offeror's proposals.

Cross Site Analysis

Direct Costs. Looking at the three cases, because they are evolutionary, or build upon one another, each case gets more and more detailed and precise. For instance, in the first case, the C-5 source selection, very minor explanations were given for each of the levels of analysis. The thought process that went into determining these numbers was very

primitive. As one looks at both the Sacramento and the Oklahoma City source selections in succession, it becomes evident how each case get more and more detailed and accurate in their analysis.

Indirect Costs. Following along the same logic as in the direct costs, each case built off of the preceding one, thus becoming better and better as it evolved. The C-5 case possessed very primitive logic and the Oklahoma City case is the current benchmark from which to follow.

Strengths, Weaknesses, and Risks. There were very few strengths, weaknesses, and risks that were dollarized in the first case (C-5). The cost team was very new at utilizing this best value method during this case and it is evident in their analysis. In fact, the only areas that were looked at were flowdays and the paint facility. Both of these were discussed previously in their respective areas of this research paper.

In the second case, the Sacramento case, the cost team used what the results and the experience that they had gained from the C-5 case to their advantage. The best value analysis that was performed on this source selection included dollarizing transition risk, lean logistics, commodities hours, and cost plus vs. fixed price contracting. All of these are discussed earlier in the paper. As is evident, this analysis included a couple more elements in the evaluation of the strengths, weaknesses, and risks that were not previously included in the C-5 analysis.

Lastly, in the Oklahoma City case, the cost team was at the top of their game. This was evident in both the quantity of elements evaluated, as well as the in-depth analysis that accompanied each one. This best value analysis considered the elements of material cost risk, labor cost risk, F100 process qualification risk, flow day improvement,

warranties and guarantees, and SA-ALC labor efficiency risk. It is evident that the cost team considered quite a few more aspects of the strengths, weaknesses, and risks that they had previously done. These are all described to a greater extent earlier in this paper.

V. Conclusions

Summary of Findings

A proven method has been developed that allows the evaluation team performing the source selection team to better select the offeror that provides the most value to the Air Force. This takes the traditional evaluation method of simply evaluating the proposal price, and includes other factors such as direct costs, indirect costs, and a dollarization of all relevant strengths, weaknesses, and risks. These costs, when combined together, determine the total evaluated cost per offeror to perform an effort, and thus allows the U.S. Air Force to benefit by selecting the "best" offeror.

By examining how previous source selections have been conducted, and then comparing that method to the new "best value" method, if has become apparent through this research that this new method allows the SSA to conduct a better, more objective evaluation of all of the costs involved in an offeror's proposal.

When comparing the three different source selections that were evaluated in this research, it is evident that each successive evaluation was better than the one that preceded it. The second source selection, Sacramento, involved a more thorough and a more detailed analysis than the first source selection, the C-5. In turn, the third source selection, Oklahoma City, was more thorough and more detailed than the second, the Sacramento source selection.

This method of dollarizing does work. This has been proven by the degree of success that all three of the researched source selections have shared. All three

evaluations have provided the basis for choosing the winning offeror in each of the source selections.

Limitations

The primary limitation that exists is that in each of the source selections that were evaluated, there was at least one public offeror and at least one private offeror. This fundamental difference between offerors is what provided the basis in this comparison for being able to evaluate their distinct discriminators, thus distinguishing them from one another. When performing a best value analysis for a competition that poses two or more public offerors or two or more private offerors against one another, care must be taken to ensure that only the discriminators that distinguish one offeror from another are evaluated in this manner.

Recommendations

Concerning future source selections, there are three different things that the author recommends. First, future source selections, whether public vs. private, public vs. public, or private vs. private, should be conducted in this manner. Per this research, this is a proven method that far exceeds any other method of offeror evaluation.

Next, the cost team should take the time in order to evaluate each proposal aspect meticulously. As evident throughout this thesis, these evaluations can, and should, become involved. There are many details that are contained within each offeror's proposal. Each of these details, as long as they are proposal discriminators, should be thoroughly and meticulously reviewed and researched to ensure that the offeror's proposal is collectively and correctly being represented by the cost that is portrayed.

Lastly, it cannot be stressed enough for the source selection team to document everything that they do thoroughly. This is essential for three main reasons. To begin with, protests is a concern that all source selection teams have to deal with from time to time. Proper documentation will aid the source selection in supporting their conclusion in the face of a protest. This is especially important when using an evaluation method, such as this, that may not necessarily select the lowest price proposal available to the government.

Next, it is essential to document every detail to aid others if they want to perform a re-creation of the source selection team's work. This will save both the inquirer and the source selection team time, money, and confusion if, years down the road, they need to re-create how they arrived at the decision that they did.

Lastly, thorough documentation is necessary to support the legitimacy of the source selection evaluation method. It is a given that there will be outsiders who were not on the source selection team that will question how the team arrived at coming up with the solution that they did. Without proper documentation, the source selection team would not be able to prove the legitimacy of the decision-making process.

Future Research

There are three recommendations for future research that the author advises. First, it would be beneficial to the understanding of this subject to conduct additional interviews with individuals who sat on previous source selection teams and who were involved with the cost analysis teams that sat on previous and recent source selections. The individuals who were interviewed for this thesis were all Air Force employees from different

functional areas here at Wright-Patterson Air Force Base. They all fell under both Air Force Material Command (AFMC) and Aeronautical Systems Center (ASC). It would benefit future researchers to gain more insight from a larger number of individuals who've dealt with previous source selections. In addition, it would be nice to see what individuals outside of AFMC, or at least outside of ASC have to say about their previous experience with conducting source selections in this manner.

As a second recommendation, it would be beneficial to future research to gather a larger data sample from which to draw conclusions from. As of the time of this thesis research, to the knowledge of the author, these three source selections were the only ones that were conducted in this particular manner. As more source selections are conducted in this manner, it would be beneficial to analyze them to better support that the method described in this thesis is the best evaluation method for future source selections.

Lastly, a follow-up of these source selections is recommended. It will aid this research to see what comes of these three efforts in the next few years.

Appendix A

Best Value Questionnaire

1. Are you familiar with Best Value and how it is used in source selections?

2. Have you used Best Value in past or present source selections?

3. Are you planning on using Best Value in future source selections?

4. How did you dollarize (assign a value to) the qualitative aspects of each proposal in
   order to adequately compare the proposals to determine best value?

5. In the process stated in (4) above, did it seem to work?

6. What would you change in future source selections that would build upon, or be caused
   by your initial findings using this dollarization process?

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Vita

Captain Jason R. Borchers was born on [redacted] in Troy, Ohio. He graduated from Tippecanoe High School in Tipp City, Ohio in June of 1991. He entered undergraduate studies at The Ohio State University in Columbus, Ohio. After attending for one year, he transferred to Wright State University in Dayton, Ohio where he graduated with a Bachelor of Science in Accounting in June of 1996. He received his commission through Officer Training School in February of 1997.

His first assignment was at Wright Patterson AFB, where he was assigned to the Reconnaissance Systems Program Office as a Foreign Military Sales financial manager. In January of 1999, he was assigned to the 88th Air Base Wing, Wright Patterson AFB, as a base level budget analyst. In September, 1999, he entered the Graduate Acquisition Management Program, School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to Hanscom AFB as a member of the cost staff.

He has a wife, [redacted], and a son, [redacted].

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14. ABSTRACT

With the decreasing budget that gets allocated to the Department of Defense each year, the government needs to be able to acquire more with less. This has a direct impact on how source selections are conducted. This research proposes a method using four different levels of cost that will provide the government with the best overall value in the conduction of source selections. This differs from previous source selections, because source selection teams, in general, only considered proposal price in their evaluation.

15. SUBJECT TERMS

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