INNOVATIVE GOVERNMENT CONTRACTING

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ABBREVIATIONS AND ACRONYMS

BOS	Base Operating Support
CLN	Clean Contract
DON	Department of the Navy
DOT	Department of Transportation
EFA	Engineering Field Activity
EFD	Engineering Field Division
FDOT	Florida Department of Transportation
IFB	Invitation for Bid
JOC	Job Order Contract
MACC	Multiple-Award Construction Contract
MASC	Multiple-Award Service Contract
MTC	Multi-trade Contract
NASA	National Aeronautics and Space Administration
NAVFAC	Naval Facilities Engineering Command
RAC	Remedial Action Contract
RFP	Request for Proposal
SOC	Service Order Concept

ABSTRACT

Historically, the United States Federal Government has been conservative in its contracting practices. These practices are codified in law by the "Federal Acquisition Regulations (FAR)". In some cases, past practices have not adequately met the need to better address value-to-cost, to shorten procurement times and to operate more adaptively in response to rapidly changing technology and social demands. Until recently, the US Government has continued the status quo (such as "firm fixed price") rather than to assume the risks associated with change. Innovative contracting techniques were developed more in foreign countries than in the United States.[1] The last decade, however, has seen a turn about as the US Government has engaged more innovation in procurements.

This report examines innovative contracting techniques utilized by both Federal and State activities: Construction and Services by the Naval Facilities Engineering Command (NAVFAC); Construction by State Departments of Transportation (DOT's); and Space Systems Development by the National Aeronautics and Space Administration (NASA).

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[1] Transportation Research Board/National Research Council, Innovative Contracting Practices (no date)

INTRODUCTION

Over the past century, the federal government has employed a contracting system that usually awards a "firm fixed price" contract to the lowest responsible bidder. This may seem to be the best deal to the taxpayer, but, ironically, this type of contracting can sometimes be one of the most costly. The firm, fixed price contracting process informs the contractor (offerer) what is to be built, how it is to be built, what materials are to be used and how the government mission is to be maintained during the period of performance. These are stipulated in detailed specifications and drawings. Generally, any contractor is allowed to compete for the job. They submit a "sealed bid"to a designated "bid box" at a designated time. After an evaluation to assess responsiveness to the requirements, the award goes to the lowest responsive bidder. The goal for this type of contracting is to obtain products or services at minimal cost to the taxpayers.

Minimizing risks to the taxpayers is an explicit objective of government, however, the traditional form of contracting has produced an implicit risk - the potential to stifle innovation thus leaving possible benefits unrealized.

The problem can be stated as follows. The nature of traditional firm fixed price contractual processes is to

employ methodical specifications and drawings aimed at securing output by specifying input. With all parties acting in good faith, omissions and errors in specifications or drawings (to which all parties are bound) can jeopardize the final product. Often, costly modifications to the contract are the method of correcting deficiencies. New methods, such as specifying performance (outcome) versus inputs, can often allow the contractor to utilize innovation to circumvent problems as they occur and sometimes even improve the final outcome.

Whether the approach is traditional or innovative, the practice of the "lowest bidder gets the job" is not necessarily cost effective nor the best value for the money. Awarding contracts to the lowest bidder assumes that all fully qualified bidders are equally capable and will deliver an equal value -- and that the price is the only consideration. This logic is applied even when the price difference is only a few dollars -- or even cents, disregarding any differences in reputation or skills.[2]

With constrained government funding as well as increased public expectations of integrity and quality with respect to the use of taxpayer's dollars, it has become necessary that considerations other than low cost be evaluated in order to obtain the best value for the

[2] Collier, Kelt ,Managing Construction the Contractual viewpoint, Delmar Publishers, Inc 1994

government. Government agencies are finding themselves under continuing pressure to streamline their operations. Consequently, several studies and experiments have been performed for the purpose of evaluating innovative contracting methods as alternatives to the traditional Invitation for Bid (IFB) firm fixed price process.

Several new methods for competitive bidding have been recently brought into use by the government. One such item, the competitive "Request for Proposals" (FRP), has the feature that the government has the legal base to consider not only price but also the technical merit of each proposal. This and other new forms of competitive bidding are yielding better value products, streamlined procurement schedules, ability to incorporate emerging technologies, and responsiveness to an environment of changing social demands.

This report examines a suite of innovative contracting techniques utilized by several Federal and State activities. An exploration of new methods of contracting for construction and services by the US Naval Facilities Engineering Command (NAVFAC) is followed by new methods of contracting for construction of highway infrastructure by State Departments of Transportation (DOT's). Beyond the construction perspective, the National Aeronautics and Space Agency's (NASA's) new practices for contracting for space systems development are examined.

CHAPTER-1

REPRESENTATIVE GOVERNMENT ENTITIES

Organizational dividing lines within governmental structures are set at the highest level that defines a unique mission. Typically, both Federal and State governments classify these organizational levels as Departments or Agencies. The need for innovation in contracting techniques is driven by the nature of the unique mission assigned to each governmental department or agency. Each Department or Agency tailors its own policy for government contracting activities to best carry out its mission. The practices and procedures that implement this policy are conducted within its subordinate organizations.

This report examines the innovative contracting techniques utilized by three representative government organizations having clearly different missions. The United States Department of Defense, with the national defense as its mission, is among the largest and most rigorous issuers of contractual procurements by the Federal Government. The US Naval Facilities Engineering Command (NAVFAC) is a significant subordinate entitiy utilizing DOD policies and procedures. State Departments of Transportation are focused on serving socio-economic needs in their missions. Transportation systems are expensive to build and maintain as well as being evolutionary in nature. The National

Aeronautics and Space Agency (NASA) with its scientific mission focus is required to develop expensive and often unique space systems to implement its mission. These three government entities typify organizations having ongoing need to embrace new practices for contracting.

Naval Facilities Engineering Command (NAVFAC)

The Naval Facilities Engineering Command (NAVFAC) is the U.S. Navy's facilities, installation and contingency engineering systems command primarily serving the Navy and Marine Corps team, but also serving Unified Commanders, the Department of Defense (DOD) and other federal agencies[3]. NAVFAC is a service organization providing overall facilities engineering, management planning, design, construction, maintenance and repair oversight to all naval shore facilities. Regional oversight is delegated by NAVFAC to four Engineering Field Divisions (EFD's) and five Engineering Field Activities (EFA's). These EFD's and EFA's are located across the United States and the Mediterranean Region and are responsible for all Naval Construction Procurements. NAVFAC and its subordinate commands have a work force of approximately 18,000 civilian and military personnel. NAVFAC Headquarters is located in Washington DC at the Washington Navy Yard.

[3] Naval Facilities Engineering Command: NAVFAC Mission Statement, April 1999

Department of Transportation (DOT)

The US transportation infrastructure includes Federal, State, and local systems. The Federal Department of Transportation (DOT) has delegated to each individual State DOT responsibility for the respective federal transportation elements in that State. Additionally, each State DOT has responsibility for its own State transportation system. For example, the Mississippi Department of Transportation is responsible for providing a safe inter-modal transportation network that is planned, designed, constructed and maintained in an effective, cost efficient, and environmentally sensitive manner throughout the state of Mississippi[4]. In a like manner, each individual State has its own State Department of Transportation with a similar mission statement. Though each State DOT is independent from the Federal DOT, the interaction and co-ordination necessary to conduct their missions and interactive contracting activities have led to virtual transparency in organizational demarcation lines.

[4] Mississippi Department of Transportation, MDOT Mission Statement

National Aeronautics and Space Administration (NASA)

NASA, a Federal Agency, has a threefold mission[5]:

- to advance and communicate scientific knowledge and understanding of the Earth, the solar system, and use the environment of space for research
- to explore, use, and enable the development of space for human enterprise
- to research, develop, verify, and transfer advanced aeronautics, space, and related technologies

Often, the findings from NASA's scientific research are used to guide US policy makers in setting US governmental policy for issues such as environmental pollution control and long term weather forecasting - items which often affect US economic trends. The space systems that are used to gather data for scientific research are complex and expensive. The essentially unique nature of each system design, the long time to specify and procure such systems, and the ongoing need to incorporate new technology during development has driven NASA to seek innovative contracting methods to help secure performance in an environment that often precludes exactness in pre-contractual specifications.

[5] NASA Strategic Plan

CAHPTER-2

NAVAL FACILITIES ENGINEERING COMMAND CONTRACTING

"Managing the Acquisition process to Meet the Navy's Goals"

In an effort to improve contract procurement procedures, the Naval Facilities engineering command (NAVFAC) identified five critical areas that needed particular attention. These areas are considered to be NAVFAC's largest challenges as they enter the twenty-first century. These areas are identified and briefly discussed below:

1) Reduce Work Backlog - NAVFAC recognizes that it is critical to remove the sometimes huge backlog of work that has been "dragging" on or just simply not been started due to lack of personnel, funding, or extremely long traditional procurement practices. NAVFAC's customers want their products and services in a more timely fashion using a more cost effective method of procurement than in the past.

2) Increase Cost Efficiency - As was stated earlier, the traditional firm, fixed price, sealed bid approach to contracting is not necessarily cost efficient. NAVFAC wants to shift more towards performance-based contracting whereby the amount of in-house design and specification effort is greatly reduced and the majority of the design effort is the responsibility of the contractor as in the design-build method of contracting which will be discussed later.

3) Focus on Response Time - NAVFAC recognizes that it must reduce the timeline from the time a customer requests a project to the time that the project is advertised for contract. NAVFAC wants the customer to be not only satisfied but elated with the response time that can be realized under innovative contracting practices. The traditional low bid method of contracting takes 90 to 120 days to award once the government has a full set of plans and specifications and the funding in place. It takes 60 days alone to advertise the project in the Commerce Business Daily (CBD) and another 30 to 60 days to receive bids and qualify the contractor before making the award. This time-frame can be cut by approximately 66% when innovative contracting methods are utilized.

4) Ensure Quality - It is important to emphasize that quality can not be sacrificed in the quest for a faster more streamlined method of procurement. Quality is of paramount importance.

5) Deliver on Time - The Navy expects and deserves to receive a completed project on time, regardless of the complexities involved. Whether it be a new facility or the renovation of an existing facility - NAVFAC must be able to deliver within the time frame promised; credibility is crucial.

It has been recognized by NAVFAC that the Request for Proposal (RFP) method of procurement provides the best value

for the government. In 1990, NAVFAC explored the use of RFP type contracts on an experimental basis. What they found was that the few contracts that were awarded using the RFP process were an overwhelming success. These projects, generally, completed either ahead or on schedule, provided quality construction, and received a much greater customer satisfaction than projects awarded under the traditional methods of contracting. As time progressed, more EFD's and EFA's were using the RFP process and were achieving the same positive results. By 1996, there were as many RFP's as traditional IFB's (low bid) projects and today NAVFAC is awarding 70% of their contracts using the RFP process.[6] NAVFAC attributes reduced litigation to the RFP process (650 claims in 1989 compared to 200 claims in 1998).[7]

Since experimenting with the RFP method of procurement in 1990, NAVFAC has adopted several more types of innovative contracting methods into their acquisition strategy. The following represents a sampling of NAVFAC's recent innovative acquisition tools:

Multiple Award Construction Contract (MACC):

An effective new acquisition tool that NAVFAC has recently utilized for construction procurement is called the MACC (Multiple-Award Construction Contract). This form of

[6] Naval Facilities Engineering Command brief of February 26, 1999, "Effective Acquisition Tools", pg 3

[7] Naval Facilities Engineering Command brief of February 26, 1999, "Effective Acquisition Tools", pg 4

contracting is used for all multiple-award indefinite delivery construction contracts where award is made to more than one contractor, each of whom will compete for future construction task orders.

Solution Order Contract (SOC):

A Solution Order Contract is one type of a MACC which has recently been used with great success. The SOC is a multiple award task order contract. Some of the reasons for using a SOC are:

- Quality Contractors - The SOC process utilizes a Request for Proposal method of procurement to select multiple qualified contractors (usually three) to perform future task orders for a stated period of time (usually three years) with a minimum and maximum funding limit set. Because the selection of contractors is based on a defined set of technical and performance factors, the highest quality contractors are selected to perform the work -- not necessarily the least expensive.
- Contractors are Motivated & Solution Oriented - Once a SOC has been awarded, the three successful contractors who are awarded the SOC contract are very motivated, they are only competing between the other two awarded contractors for future projects (task orders) under the scope of the SOC contract. This is a great benefit for the successful three contractors as these same contractors would have been competing against perhaps 50-100 contractors for projects

under the traditional sealed bid method of procurement. Also, after each task order of the SOC contract is completed, the contractor's performance is rated by the government. This provides additional motivation for the contractor to do a good job. Contractors particularly like the SOC method of procurement because they can receive a task order in a short period of time - usually one to weeks - as opposed to waiting for the award period of 90 to 120 days that is associated with a traditional contracting method.

- Quick Engineering Design Solutions to Meet Budget Needs - It is not necessary to provide the contractor with 100% plans and specifications. Frequently performance specifications are provided as opposed to a complete set of drawings and specifications. Drawings may or may not be included in the task order depending on the complexity of the project involved; or they may be provided at a greatly reduced level. It has been (somewhat jokingly) stated that a sketch on a cocktail napkin will suffice provided that a meeting of the minds between the government and the contractor occurs. There is a mandatory job scope/site visit before the award of a task order to ensure a mutual understanding of the scope and depth of the project.

- Joint Scoping With Customer - The customer is involved right from the start with the SOC process. This is very important as the customer frequently felt left out and ignored in the traditional IFB method of contracting. Due

to the lack of input from the customer prior to and during construction, the finished product frequently did not meet the customer's expectations. This problem is eliminated with the SOC process since the customer is involved in the project at the beginning and remains a critical player until the project task order has been completed. The customer participates in the site visit and continues as an active participant throughout the entire contracting process and has input into the performance rating of the contractor.

- On-Site Solutions to Design/Budget Issues - Discussions regarding the project take place before the award of the task order, frequently at the mandatory on-site walk through of the project, so that solutions to design/budget issues can be rectified before the proposal receipt. Also, since the task orders are written for a particular region, if a design issue arises during the performance period of the task order, all parties (government representative, customer and contractor) are available and provide input into determining what solution(s) should be implemented. The task order can then be modified with very little effort to include the design solution. This can be performed in a much faster state than the lengthy modification (change order) process that is inherent in a low bid (IFB) contract.

- Fast, Flexible, Best Value - Once this contract is awarded, task orders can be executed in an extremely fast manner, usually within one to two weeks after the

requirement is defined. NAVFAC's experience is that the SOC process provides a best value product for the government.

- Partnering With Other Agencies to Maximize Efficiencies in Administering Orders at Remote Sites - Another benefit of this type of procurement is that it enables other agencies to "tap" into the Navy's SOC method of contracting to have work performed at their location (provided that it is in the same region). Funds can be transferred from the requesting agency to NAVFAC and a task order will be awarded to one of the three contractors. This saves the agency a tremendous amount of funding and personnel resources by partnering with the Navy in a shared procurement method.

The SOC is awarded through the Request for Proposal process. Prior to advertising, a geographic region must be established along with the time limit and a maximum funding amount available. With this form of contracting, a commitment is made to each of the awarded contractors that will guarantee that each contractor will be awarded at least one task order that will be a minimum of ten percent of the total SOC value. All of the awarded contractors are in a position to compete for additional task orders; however, if one of the three contractors does not receive a task order over the duration of the SOC, he is guaranteed to receive 10% of the SOC value. It is a win-win situation for both the government and the contractors.

A recent project completed using the SOC method of procurement is the renovation of the Child Development

Center at the Naval Support Activity in Millington Tennessee. This task order was awarded for $600,000 in June 1998 and was completed by January 1999 with a beneficial occupancy date (BOD) of 23 December 1998. This project had a reduced acquisition time of 66% over traditional contracting methods.

Multiple-Award Service Contract (MASC):

Similar to the MACC (Multiple-Award Construction Contract) is the MASC (Multiple-Award Service Contract). This type of contracting is the same as the MACC except it is to be used for services instead of construction or renovation (delivering of a product). Examples of services utilized under this form of contracting may be snow removal, tree trimming, etc.

Job Order Contract (JOC):

The Job Order Contract is a relatively new form of innovative contracting that NAVFAC utilizes at several of the Navy's larger bases. Like the SOC, the JOC uses the Request for Proposal (RFP) to award the contract; however, unlike the SOC, only one contractor is selected. The contractor proposes on the basis of a coefficient applied to a price book such as R.S. Means. Contacts are indefinite delivery contracts with a single contractor. This contract is sometimes preferred over other contracts because a

military base can use this contract to issue delivery orders on a wide variety of construction, renovation or service projects without going through an additional award process for projects that the navy base requires. Generally, this type of contract is issued for a period of time, say one year, with the government reserving the right to exercise an option for an extended period of time, say another year. This type of contract initially produces intense competition among contractors. This is because, in order to be awarded, a JOC contract must guarantee the contractor a significant amount work during the period that the contract remains in force, and, the winning contractor has no competition for delivery orders since only one contractor is awarded the contract. Some of the benefits to the government from the JOC are quality of service, timely response, reduced design work and less acquisition time.

Base Operating Support (BOS):

Similar to the JOC, the Base Operating Support contract is an indefinite delivery base operating support service. Like the JOC, the BOS contract is awarded to a single contractor. The BOS contract differs from the JOC contract in that the BOS contract includes line items that are priced out in the schedule. It is not based on a price book but rather an agreed upon schedule of prices.

Multi-Trade Contract (MTC):

Still another innovative procurement method that utilizes multiple trades is called the Multi-trade Contract. This is an indefinite delivery contract where award is made to a single contractor and each task order is negotiated based on a price book such as R. S. Means.
The purpose of this type of contract is typically for construction projects, but it can be used for other projects, as it is not limited to construction.

Clean (CLN):

An indefinite delivery environmental contract where a single award is made is called the Clean contract. In this form of contract, line items are negotiated. This type of contract is used only for environmental work.

Remedial Action Contract (RAC):

The Remedial Action Contract is used for all indefinite delivery remedial contracts for remedial action work. Like the CLN contract, the RAC is a single award contract where individual task orders are negotiated.

Design-Build:

Among NAVFAC's most effective innovative acquisition tools for construction and renovation projects is the Best Value Design-Build contracting method. This is a single provider, accelerated delivery method of procurement.

It has been used, successfully, for many projects over the past five to ten years.

A team consisting of members from an Architect Engineer (A&E) Firm and a construction firm join ("partner") to provide a proposal that meets the technical specifications and required schedules. Generally, for this process, minimal technical specifications are created by the government. These identify only the top-level facility requirements such as square footage limits.

The construction industry is then "challenged" to propose solutions for evaluation during the source selection process. With the "minimal" approach, the selection is based largely upon the proposers' qualifications and approach to the solution. The winning proposer is required to develop the detailed design in increments completed prior to each phase of construction.

The risk that is involved in this type of contracting is that the minimal approach offered by the government could lack information causing proposers to misunderstand the goals and not offer an acceptable solution.

The key to success with the Best Value Design-Build selection process (especially in view of the "minimal" technical specification) is ongoing communication between the government and the proposers. In such communications, information exchange must be concise, accurate and balanced for all parties. On some design-build request for proposals, NAVFAC requires that the proposer submit a one-

hour video describing their organization, approach to the project (problem), and a proposed solution. This has proven to be very helpful in the selection process.

Selection of the successful proposer is made from the initial proposals along with any subsequent documentation requested by the government as a result of discussions held. The primary selection factors are generally cost and technical merit. Throughout the acquisition process, when it is necessary to hold discussions with the proposers, the information exchanged is open to all proposers.

After award, the proposer completes the design in phases. Here in lies a major risk to the government with the design build process. By its nature, the process of refining requirements, developing technical solutions and completing detailed design during the phases after award makes the contract susceptible to frequent changes. Because of this, contingency funds must be available in addition to the base value funding required for award. Also, it is a growing observation for design-build contracting that although pre-award effort by the government is reduced, the total effort expended by the government on design-build projects is not significantly less than for traditional acquisition methods. There is simply a shift of the effort and time from the pre-award phase to the post-award phase.

In spite of the potential short-comings stated above, the experience has been that the relationship among the A&E, the contractor and the government has tended to be

cooperative with this type of acquisition process. The "minimal" technical specification approach in conjunction with Best Value Design-Build approach allows the government to concentrate on the key functional and operational requirements of the facility and challenges the proposers to derive feasible solutions within the project scope and available funds. Critical detailed design reviews by the government are performed as in the traditional acquisition method but they are made in conjunction with in-progress construction rather than prior to contract award.

The Design-Build method of procurement should only be used where the government has well defined, documented functional requirements; knowledge of the process, and the willingness to accept risk in return for early award and possible earlier occupancy and innovative design. The type of projects that work well with the design build method of procurement are administrative offices, family housing, bachelor quarters, lodges, exchanges, commissaries, recreation/physical fitness centers, and child development centers. Highly technical, mission critical facilities that require a tremendous amount of detail are much better suited for 100% up-front design before construction begins.

In the past decade, the use of design-build in the private sector has been greatly accelerated, making this delivery method one of the most significant trends in the design and construction industry. Owners are finding it attractive because it eliminates some of the contracting

complexities involving responsibilities. The use of design-build is attractive to government agencies because the process allows for earlier commitment of funds in the overall process.[8]

[8] Naval Facilities Engineering Command Criteria Office/Atantic Division, Engineering Innovation Division Design Build Study - no date.

CHAPTER-3

DEPARTMENT OF TRANSPORTATION CONTRACTING

As the need to repair or replace existing highways and roads increases, so does the need to reduce inconveniences to the motoring public who depend, daily, on these roads for transportation to and from work, school, etc. The public has expressed a willingness to pay for increased construction costs in order to accelerate project completion.

Accelerated project completion has many benefits including reduced disruption of traffic and inconvenience to motorists and abutting businesses. Several businesses have been forced to shut down due to changing traffic patterns while construction or rehabilitation of roadways takes place. The Department of Transportation recognizes the impact that construction has on the public (both motorists and businesses) and has authorized the use of innovative contracting techniques to minimize such disturbances. The following represents a few of the innovative contracting techniques that State Departments of Transportation have implemented recently:

A + B Bidding Method:

The A + B Bidding Method has been used by the many Departments of Transportation around the United States in the last ten years. In this method, contractors bid on the

cost (part A) and on the time (part B) and the lowest combined bidder (A+B) is awarded the project.[9] Sometimes, this method of procurement is referred to as Cost-plus-time bidding. The cost or "A" component is "the traditional bid" for the contract items and is the dollar amount of all work to be performed under the contract. The time or "B" component is a "bid" of the total number of calendar days required to complete the project, as estimated by the bidder[10].

For award purposes, the bid is based on a combination of the bid for the item under contract and the associated cost of the time that will be used to complete the work. The following formula (A) + (B x Road Cost/Day) is used to determine the award. It is important to note that contract payments will be based upon the "A" component only.

A recent example of the A + B method of procurement is the US-1 Bridges of Nassau and Duval Counties in Florida. The Florida Department of Transportation needed to bring 14 bridges along the US-1 corridor from Jacksonville, Florida north to the Georgia border up to current safety and load rating standards. It was decided that the only feasible design solution was to completely replace 11 bridges and widen 3 structures along the 48 KM (30 mile) stretch of US-1. Standard time allowance, assuming two production crews, led to a 650 calendar day construction period. The Florida Department of Transportation advertised the project

[9] Herbsman, Zohar J., The A + B Bidding Method - A Hidden Success Story, pg 1.

utilizing the A + B method of procurement to determine the successful low bidder. FDOT set the value of a contract day at $6,000 and included an incentive clause that would enable the contractor to earn this $6,000/day for each day of early completion. Early completion was based upon an adjusted contract time that allowed for schedule extensions due to weather impacts and critical path schedule adjustments due to unforeseen conditions beyond the contractor's control.

Seven construction firms submitted bids with time performance varying from a low of 300 calendar days to a high of 600 days. The successful low bidder, under the A + B concept, submitted an "A" bid of $9,424,281 and a "B" segment of 300 calendar days. The bid was 4th from the lowest cost by $196,281.00 (approximately 2%)[11], however, the "B" portion of the formula drove the selection. The time difference of 300 days valued $6,000 per day ($1.8 million) significantly outweighed the bid cost differential.

There were doubters who thought that a 300 calendar day construction period was not feasible, however, FDOT awarded the contract to Superior Construction Company for $9,424,281 and a 300 calendar day construction period. During the performance of the contract, this aggressive schedule was only adjusted by 81 days: weather delays -- 46 days; and unforeseen supplemental work affecting the critical path -- 35 days. The contractor completed all work in 311 days,

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[10]Florida Department of Transportation, Innovative & Alternative Contracting Practices, August 1996
[11]Keith and Schnars, PA memorandum "The US-1 Bridges of Nassau and Duval Counties, June 1999

thereby earning a $420,000 incentive for completing 70 days ahead of schedule[12].

The acceleration in construction schedule had many ancillary benefits. The Florida Department of Transportation realized a cost savings of $550,000 in consultant CEI costs. The cost avoidance for maintenance of traffic items exceeded $180,000. The enhanced safety to the public and construction crews along with the avoidance of inconvenience to motorists due to reducing exposure time by more than 11 months was a very significant intangible "savings" which can not be priced. This project was a notible success and a model for future A + B projects.

Incentive/Disincentive:

Incentive/Disincentive contracts provide an incentive to the contractor for early completion but at the same time increase the penalty for failure to complete the project on time. The amount of the Incentive/Disincentive is set by the State DOT by project and is based upon daily road user costs and construction engineering inspection and administrative costs actually born by the State DOT.

Incentive/Disincentive is assessed on a daily basis and can be used to achieve specific milestones within a project or to encourage timely completion of the total contract[13].

A project requiring the replacement of the Duval Street Bridge over Hogan Creek in Jacksonville, Florida was

[12] Keith and Schnars, PA memorandum "The US-1 Bridges of Nassau and Duval Counties, June 1999

recently awarded utilizing the Incentive/Disincentive method of procurement. FDOT required the replacement of the existing bridge over Hogan Creek in order to meet safety and load standards. The original structure from Catherine Street to Palmetto Avenue was constructed in 1915 and was not capable of carrying loads imposed by modern vehicles[14].

Many different considerations governed this project including reduced construction period to avoid impacts to Jacksonville Jaguars Home games, condition of adjacent structures, limited right of way and environmental considerations associated with existing contaminated soils. The contract required completion with 120 calendar days and included incentive provisions for early completion. The successful bidder used multiple crews, extensive overtime and worked seven days a week to achieve early completion. The project was completed after only 70 days of construction. The contractor received an incentive of $750,000 for completing the project fifty days ahead of schedule[15].

Lane Rental:

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[13]Florida Department of Transportation, Innovative & Alternative Contracting Practices, August 1996

[14] Keith and Schnars, PA memorandum" Project Information for Replacement of Duval Street Bridge over Hogan Creek, June 8, 1999.

[15] Keith and Schnars, PA memorandum"Project Information for Replacement of Duval Street Bridge over Hogan Creek, June 8, 1999.

Under the lane rental concept, the contractor is free to develop alternate methods or work hours to complete construction at its own schedule. The state DOT charges the contractor for lane rentals based on traffic use (rents are higher for peak traffic times). The contractor's bid price, plus lane rental "costs" are totaled to determine the successful bidder[16]. Under this approach, the contractor has a distinct disincentive to close traffic lanes during peak usage hours. Rental rates also encourage the contractor to complete the project at the earliest possible time to minimize interference to existing traffic patterns.

The lane rental rates are stated in the bidding proposal in dollars per lane per time period, which could be daily, hourly or even fractions of an hour. The bidder then determines the number of lane rental days required to perform the required contractual work and includes this number in the bid item in the proposal. The Department of Transportation then multiplies the number of lane rental days by the daily lane rental rate to determine the total lane rental bid. This is then added to the base bid and used to determine the low bid. Like the A + B method, this "adjusted" price is used only to determine the apparent low bidder, it is not used to determine the contract amount or used for payment purposes. If the contractor finds that more lane rental is required than was bid, the appropriate amount of lane rental fees are deducted from the progress

[16] Highway and Heavy Construction, January 1990

payments to the contractor. Hence, there is a definite incentive for the contractor to minimize the use of lane rentals.

Bid Averaging Method (BAM):

There is often a concern that contractors will "low ball" a project to achieve the award of a contract and then "make up" the difference in modifications and claims. The Bid Averaging Method (BAM), is designed to encourage the contractors to submit a true and reasonable cost for a project. The process works as follows:

- If 5 or more bids are received, the State DOT will exclude the low and high bids, average the rest and select the contractor whose bid is closes to the average.
- If 3 or 4 bids are received, the State DOT will average all bids and select the contractor whose bid is closest to the average.
- If fewer than 3 bids are received, the State DOT will reject all bids and re-advertise.

After award of the project, the State DOT's normal contract administration processes are used[17].

No Excuses Bonus Method:

[17] Florida Department of Transportation, Innovative & Alternative Contracting Practices, August 1996

Like the Incentive/Disincentive method, the No Excuses Bonus method is intended to reward the contractor for early completion of the project. The bonus is usually tied to a final completion date but can also be calculated based on other milestones. Bonuses differ from Incentive/Disincentive clauses in that bonuses do not allow for any time extensions, thus the title, "No Excuse Bonuses". They are tied, strictly, to a drop-dead date that is either met or not met. Unforeseen conditions, weather delays, and other such issues, which normally extend contract time, are not a consideration when granting a bonus[18]. This method of procurement places a strong incentive on the contractor to meet original schedule. If the contractor fails to meet the "no excuses" deadline, for any reason, the bonus is forfeited and normal contract administration processes are applied.

[18] Florida Department of Transportation, Innovative & Alternative Contracting Practices, August 1996

CHAPTER-4

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION CONTRACTING

Unlike some of the NAVFAC and State DOT contracts previously mentioned in this report, NASA's contractual acquisition process has tended to be somewhat longer in duration -- sometimes up to ten years or more! By the very nature of space exploration, contracts requiring enabling technology for such missions as the Mars Lander and Hubble Space Telescope require significant time to achieve a high confidence design before going out for bid. Due to the extensive technical content of such systems which includes Ground communications and data handling systems, launch vehicles, spacecraft, etc., NASA has too often experienced high cost over-runs and extensive contract modifications resulting from unforeseen conditions unable to be captured in pre-award drawings and specifications.

In an effort to streamline the contracting, NASA has adopted performance (outcome) based contracting as one of its acquisition tools. This is a new way of doing business for NASA. The contractor is asked to propose its own unique approach and design to achieve a mission outcome versus reliance on a NASA pre-award representative design package. They are now telling the industry what to do--not how to do it[19].

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[19] NASA NEWS, June 1994

A key attribute of NASA's approach to cost control under performance based contracting is a risk sharing mechanism. The contract sets down a potential award fee that the contractor may earn for full performance. Typically, progress towards full system performance is gauged at key milestone points in the development. In NASA's systems, often, full performance is required, therefore, the issue is how much cost is to be incurred to reach full performance. When a milestone is being evaluated, if the contractor has incurred cost over-runs, the contractor faces a one-for-one (dollar for dollar) reduction of fees which is in turn applied to offset the cost over-run.

NASA is also using a request for proposal method of procurement so that award can be made based on significant factors other than costs. Because NASA's systems are highly technical in nature, this allows a major emphasis to be placed on the qualifications of a contractor to undertake the type of work being solicited.

NASA, like many other government entities operating under the discretionary component of the Federal Budget, is faced with a high degree of budgetary uncertainty that complicates long range planning. In response to the unpredictable cost growth experience in its long span projects, NASA is turning to an emphasis on smaller, shorter duration and less costly missions than in the past when budgets weren't so constrained. NASA's policy for acquisition strategy is "Better, Faster, Cheaper". The

trend is to try to accomplish missions in a few years rather than a decade. This will show progress more quickly and reduce the risk to NASA's mission of single flight failure. It will also enable incorporation of new technology without risking "billion dollar" spacecraft.

Putting NASA's "faster, better, cheaper" policy into practice, they awarded two new "Smallsat" satellites that will observe the earth with unprecedented sensor technology[20]. The entire contract process from final announcement to contract signing was completed in 70 days--much less time than the average six months to a year that NASA traditionally allowed. The challenge for the Smallsat contracting process was to streamline NASA management, cut costs, prepare commercial and scientific payloads, demonstrate low-cost on-orbit operations, and produce working spacecraft in 24 months or less. Highlights of this innovative contracting mechanism include:[21]

- Smallsat uses the integrated product development team approach. Industry bidders organized competitive teams, drawing from established industry leaders, small businesses, disadvantaged businesses, government laboratories and academia;
- Three to four NASA managers will oversee both projects, setting performance standards, and allowing industry to integrate a top-to-bottom program, from design, test and

[20] NASA NEWS, June 1994

integration, through launch and on-orbit operations for one year;

- Time from the final contract solicitation (RFP) to contract award was 70 days - instead of the usual six months or more through traditional contracting methods;
- No performance fees will be awarded unless on-orbit performance objective are met;
- If schedules slip or cost overruns occur, the industry will see a dollar-for-dollar reduction in performance fees;
- Base fees are eliminated--performance is the sole standard for contractor fees;
- Performance requirements are set up front - the NASA program office will work with the industry team to minimize formal reviews and unnecessary paperwork, while still preserving close oversight of the team effort on a daily basis;
- Performance requirements and measurable milestones are set at each program stage;

NASA's experience with performance based contracting has been generally encouraging. As such it plans to continue the policy of "faster, better, cheaper" into the twenty-first century.

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[21] NASA Fact Sheet Small Spacecraft Technology Initiative

CONCLUSION

Major drivers stimulating the use of innovative contacting techniques are: improved value-to-cost; shorter procurement schedules; flexibility to insert new technologies during construction; flexibility to accommodate omissions and changes in specifications; and conformity to changing social and economic environments.

Both Federal and State Governments are currently utilizing a diverse ensemble of innovative contracting mechanisms. The degree of innovation varies from small departures from traditional contracting to major overhaul of the contracting processes. The determination of the contracting avenue to follow depends largely on the complexity of the development required to reach the desired outcome. In general, there is a tendency toward performance based contracting, a technique which tells the supplier what-is-wanted versus how-to-do-it.

Innovative contracting techniques examined under this report show varying degrees of success. Often, however, innovative methods of contracting are popular because of the intangible gain of better customer/supplier relations.

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