United States General Accounting Office 130767

GAO

Report to Congressional Requesters

August 25, 1986

DOD ACQUISITION

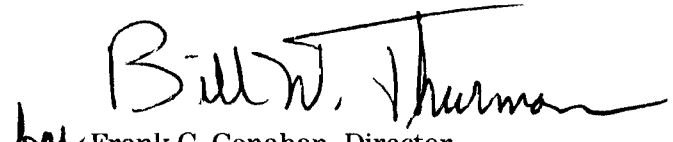
Case Study of the Army Light Helicopter Program

GAO/NSIAD-86-45S-1

Preface

The Chairmen of the Senate Committee on Governmental Affairs and its Subcommittee on Oversight of Government Management asked GAO to examine the capabilities of the program manager and contracting officer in weapon systems acquisition. As part of this study, GAO examined 17 new major weapon system programs in their initial stages of development. These case studies document the history of the programs and are being made available for informational purposes

This study of the Army Light Helicopter Program focuses on the role of the program manager and contracting officer in developing the acquisition strategy. Conclusions and recommendations can be found in our overall report, DOD Acquisition: Strengthening Capabilities of Key Personnel in Systems Acquisition (GAO/NSIAD-86-45, May 12, 1986) Further details on this program can also be found in our report, Weapon Systems: Issues Concerning the Army's Light Helicopter Family Program (GAO/NSIAD-86-121, May 22, 1986).



for Frank C. Conahan, Director
National Security and
International Affairs Division

Light Helicopter Family

Background

The Army plans the Light Helicopter Family (LHX) to be a small, lightweight, affordable aviation system capable of performing missions in the high-threat environment of the 1990s and beyond. The LHX is expected to expand the Army's ability to perform its aviation missions continuously in many types of terrain, weather, and battle environments

A Scout/Attack version will be configured as a helicopter which can be tailored to perform both light attack and armed reconnaissance missions. The Scout/Attack version will replace the aging AH-1, OH-58A/C and OH-6A helicopters. It will complement the OH-58-D.

A utility version of LHX will possess extensive commonality with the Scout/Attack version to include the same dynamic components (engine, transmission, rotor, etc), and many common subsystems and mission equipment. The utility version will transport troops, unit commanders and cargo. It will complement the UH-60 squad-carrying troop assault helicopter and replace the UH-1 helicopter.

Origin of Start

The Army identified the need for the LHX in its Army Aviation Mission Area Analysis completed in January 1982. This study concluded that the current fleet of Army light helicopters would be unsupportable and nonsurvivable on the future battlefield. An Army Aviation Systems Program Review in March 1982 endorsed the Mission Area Analysis and made a recommendation to replace portions of the current fleet of Army helicopters with the LHX.

A LHX special working group was formed in January 1983 to develop the framework of the LHX program. Six Army organizations[1] were represented on the special working group In conjunction with this effort, numerous generic technology base programs were identified as critical to supporting the LHX development. The Department of the Army approved the Operational and Organizational Plan and the Justification for a Major Systems New Start in May 1983, and included the necessary LHX program funding in its fiscal year 1985 budget and outyear funding profile.

The first LHX project manager reviewed the mission need document to know what was in it but not for the purpose of determining whether the

[1] Aviation Research and Development Command, Army Aviation Center, Missile Command, Armament Command, Training and Doctrine Command, and Army Materiel Command

need was stated in terms which would restrict design competition. He believed that competition was inherent in the LHX program because of its size (quantity required). The contracting officer was not involved in the development of the acquisition strategy; thus, he did not review the mission need document to ascertain whether it restricted design competition

In May 1983, the Army Aviation Center issued a Systems Attribute Document This document expressed preliminary operational characteristics and parametric design criteria that the Aviation Center wished to have considered during the LHX concept exploration phase.

The Deputy Secretary of Defense endorsed the LHX program as a new start on December 29, 1983, by approving Program Budget Decision 216R

Concept Exploration Contracts Awarded

During the concept exploration phase, the acquisition strategy is developed, system alternatives are proposed and examined, and the material requirements document is refined to support the subsequent acquisition phases. To support the Army's concept exploration activities, competitive preliminary design contracts were awarded in September 1983 to the four major helicopter firms—Bell Helicopter Textron, Sikorsky Aircraft, Boeing Vertol and Hughes Helicopter Inc.[2] —to define specific aircraft system configurations (point designs) Contracts were also awarded in December 1983 to define the advanced/integrated cockpit design and architecture and demonstrate the feasibility of a single-pilot LHX Scout/Attack through full-mission simulations These contracts were awarded to the four major helicopter firms and to IBM.

Formation of the Program Office

Initially, a small cadre of people from the U.S Army Aviation Research and Development Command, St. Louis, was assigned to the LHX program as needed and was, in effect, functioning as a project office. In December 1983, a provisional project office was formed. The office consisted of the small cadre of staff formed earlier, who continued to manage the LHX program to meet the responsibilities of the Army's system developer—Aviation Research and Development Command These people were subsequently assigned to the Aviation Systems Command (AVSCOM). (AVSCOM was established on March 1, 1984, when the Aviation Research

[2]Currently McDonnell Douglas Helicopter Company

and Development Command merged with the aviation portion of the Troop Support and Aviation Materiel Readiness Command).

On March 12, 1984, a fiscal year 1984 manpower authorization voucher was approved to establish a centralized office at AVSCOM to manage the LHX program. This voucher approved 3 military and 10 civilian spaces for technical and management positions. Subsequent amendments to the fiscal year 1984 voucher increased the number of approved civilian technical and management positions to 20.

The first LHX project office at AVSCOM was officially established on October 31, 1984, when a fiscal year 1985 manpower authorization voucher was approved for 7 military and 47 civilian technical and management positions.

Staffing of the LHX project office has been a slow process. For instance, at the end of April 1985, 41 percent of the authorized positions had not been filled. The LHX project manager told us that availability of qualified staff is limited and obtaining qualified staff is paramount even if delays are encountered in bringing staff on board

The LHX project manager, recognizing the shortage of staff assigned to the LHX project office, decided to obtain help in order to accomplish the responsibilities of his office. Thus, in March 1985, AVSCOM awarded a contract to XMCO, Inc. to assist the LHX project office in its review, analysis and evaluation efforts and in preparing and updating required documents which will form the basis for deciding whether to enter the LHX air vehicle into full-scale development.

Assignment of the Project Manager

On January 16, 1984, the first LHX project manager came on board.[3] The project manager was a colonel with a Bachelor of Science degree in Industrial Engineering and a Master of Science degree in Mechanical Engineering. He had attended several Army specialized acquisition training courses including a 3-week course held at the Defense Systems Management College. He did not have prior experience as a project manager or experience in a project office. However, he did have about 3.5 years experience at Army headquarters monitoring weapon systems (including helicopter systems) under development. In February 1984, AVSCOM's Commanding General approved the first project manager's

[3]The Army refers to program managers as project managers

charter, although the charter was never approved by the Secretary of the Army.

In August 1984, the first project manager was replaced by a brigadier general. The new project manager told us the decision to assign a general officer was made by the Under Secretary of the Army and the Vice Chief of Staff, Army, because of the importance of the LHX program.

The second project manager had previously served as project manager for the Black Hawk helicopter program. He has a bachelor's degree in engineering and a master's degree in aerospace engineering. At the time of his appointment, he was AVSCOM's Deputy Commander for Research and Development, a position he continued in until April 1985. He told us that 90 percent of his time after his appointment was spent accomplishing his duties as project manager for the LHX program. His charter was approved by the Secretary of the Army on March 28, 1985, about 8 months after he was assigned.

The project manager's charter for the LHX program states that he (1) reports to the Commanding General, AVSCOM, and (2) is delegated the full line authority of the Commanding General of the Army Materiel Command for centralized management of the LHX project.

In addition to listing numerous responsibilities, the charter specifically lists nine interfacing and 17 participating organizations, including AVSCOM. AVSCOM provides the LHX project office with functional support such as engineering and procurement. Regarding communication channels with these organizations, the charter states

1 Direct communication by the project manager is authorized between all participants involved in the implementation of the approved project to assure timely and effective direction and interchange of information between participants.

2. The project manager has a direct channel of communication to the Chief of Staff, Army, and the Secretary of the Army should any of the participating organizations fail to respond to project requirements in any of the several management areas

The project manager stated that the authority delegated to him in his charter truly exists He can call the Commanding General of the Army Materiel Command directly and when he makes decisions or makes requests that certain actions be taken, he speaks for the Commanding

General of the Army Materiel Command. He added that this degree of autonomy did not exist when he was project manager for the Black Hawk helicopter program.

Assignment of the Contracting Officer

On March 1, 1984, AVSCOM appointed the first contracting officer to the LHX program. He was assigned to AVSCOM's Directorate of Procurement and Production—a functional organizational unit which supports the LHX program The contracting officer holds a Bachelor of Arts in Political Science. He entered the procurement function through the Army's intern program and had about 12 years of experience as a contract specialist before he received his initial warrant in October 1978

Regarding his authority, he stated that contracting officers have never been as powerful as regulations suggest and that they have evolved into technical experts—basically implementors. He also noted that, at one time, contracting officers were more involved in broader program management issues.

During August 1984, the first contract officer resigned to take a job in the private sector His replacement holds a bachelor's degree in administrative justice. He entered the procurement field through the Army Materiel Command's 3-year intern program. After completing the intern program, he worked in various procurement-related functions for 3 years before he applied and was selected for a contracting officer position He received his first warrant during calendar year 1980.

When asked whether he has the necessary authority to effectively fulfill the duties of the contracting officer, he stated that he played a significant role in coordinating and consolidating requirements and approaches for the LHX engine request for proposal and has been the government's point of contact for all direct dealings with the contractors However, he also stated his flexibility was limited by requirements in the acquisition strategy and engine request for proposal He believed such requirements limited his flexibility to work out different situations among the various source selection teams and that he is basically implementing guidance

Development of the Acquisition Strategy for the Air Vehicle

During calender years 1982 and 1983, as LHX concepts were being explored, the Directorate for Advanced Systems began investigating various LHX acquisition strategies. This Directorate was an organizational unit of the Army Aviation Research and Development Command. During 1983, AVSCOM's Trade Off Determination Board also explored acquisition strategy alternatives which were presented in the board's October 1983 acquisition strategy report.

After reporting in January 1984, the first LHX project manager presented the acquisition strategy to congressional committees and key senior Army officials. In March 1984 an LHX acquisition strategy was prepared and approved by the project manager in accordance with the format described by Army regulations. This acquisition strategy document was to obtain Department of the Army and Department of Defense (DOD) approval and provide the authority needed to start the LHX engine development and LHX program's demonstration and validation phase.

The project manager briefed the Under Secretary of the Army on the LHX acquisition strategy on May 2 and July 25, 1984. On the basis of these briefings, a baseline LHX acquisition strategy was approved in August 1984.

The first LHX contracting officer told us that his involvement in the development of the baseline acquisition strategy was basically as an observer—being advised of the results and attending some of the briefings on the acquisition strategy given by the project manager to AVSCOM and Department of Army officials. The second contracting officer stated that he was not involved in the development of the baseline LHX acquisition strategy because the strategy decisions had already been made when he was assigned.

Baseline Acquisition Strategy

The LHX baseline acquisition strategy approved by senior Army officials included competition for the LHX air vehicle in both the full-scale development and production phases. Two LHX development contracts were to be awarded leading to a fly-off to select the winning design. The prototype to be used for the fly-off was to be an air vehicle produced during a pilot production program to be incorporated into the full-scale development phase.

Full production competition would be introduced not later than production lot number 3. If the winner of the fly-off was a team consisting of two firms capable of producing the LHX, these two firms would compete

for the production contracts. In the event the winner of the fly-off did not consist of a team with two firms capable of producing the LHX, the loser of the fly-off would become the alternate competitive production source The winner of the fly-off would be responsible for qualifying the loser to produce the winning design for full production competition by lot number 3.

Before continuing into the full-scale development phase, DOD was to complete its risk reduction effort (proof of concept) by awarding competitive contracts to the same firms that received contracts to support the Army's concept exploration activities. The risk reduction effort consists of validating and demonstrating (1) preliminary air vehicle designs by performing engineering simulations and scale model wind tunnel tests and (2) the single-crew, integrated/ automated cockpit which includes developing the designs for some of the LHX mission equipment that have high development risks.

Development of the LHX Engine Request for Proposal

The LHX program planning guidance formulated during the May 2 briefing with the Under Secretary of the Army stated that both the aircraft and engine requests for proposals would be simple, concise, performance-oriented documents that avoided excessive detail and complexity. This guidance was formulated the same month (May 1984) that the initial draft of the engine request for proposals (about 650 pages) was released to industry for comment. The present (second) project manager told us that the functional directorates at AVSCOM were tasked to prepare the first engine request for proposals draft and, subsequent to this first draft, the project manager became involved in condensing the request for proposals.

According to the project manager's assistant for the LHX engine, both project managers, the Under Secretary of the Army, and the Deputy Commanding General of the Army Materiel Command provided verbal guidance to the staff responsible for developing the engine request for proposals He also stated that:

- the Commander of the Applied Technology Laboratory was the main focal point for preparing the request for proposals;
- the project manager's assistant for the LHX engine was responsible for certain parts of the request for proposals and was assisted by the contracting officer and propulsion engineers from AVSCOM's Directorate of Engineering; and

the Director of the Army Propulsion Laboratory was responsible for the section dealing with evaluation factors for award.

The present project manager stated that high-level Army officials outside of AVSCOM were involved in the preparation of the engine request for proposals because of the program's importance and high interest by the Under Secretary of the Army Senior Army officials perceived the LHX program as a vehicle to provide the impetus needed to change the Army's way of doing business and the engine request for proposals as a prototype for future Army acquisitions.

On August 16, 1984, 10 days after the present project manager was assigned, the second draft of the engine request for proposals (535 pages) was released to industry for comments.

On September 12, 1984, the current project manager briefed the Commanding General of the Army Materiel Command on the engine program. They discussed the engine request for proposals' structure and decided that a dialogue on its development should continue.

On October 1, the third draft of the engine request for proposals (352 pages) was released to industry for comments On October 6, 1984, the current project manager and other Army officials (including the contracting officer) met with the Under Secretary of the Army to discuss his concerns on the engine request for proposals

On October 26, 1984, the fourth draft (142 pages) of the request for proposals was submitted to industry for comment. On this same date, the project manager briefed the Under Secretary of the Army, the Source Selection Advisory Council, and the Source Selection Evaluation Board on the request for proposals. On October 31, 1984, the LHX project manager met with the Commanding General of the Army Materiel Command and obtained his approval of solutions to the issues raised during the October 26 meeting.

In November 1984, the project manager briefed the Under Secretary of the Army regarding four different full-scale development competition alternatives for the engine. Discussions also continued with the Under Secretary on the draft request for proposals and a final request for proposal was agreed upon.

On November 26, 1984, the contracting officer submitted a letter to industry informing them that the draft engine request for proposals

transmitted to them on October 26, 1984, was structured with the intent to award one full-scale development contract. However, the letter stated, as a result of new program direction, the government was considering more than one award for full-scale development; if more than one development contract was awarded, the Army planned to authorize each contractor to complete preliminary flight rating testing,[4] at which time, the Army would select a design to complete development. The present project manager told us that this engine acquisition strategy was structured at the Army secretariat level and was approved by the Source Selection Authority Previously, the Army's acquisition strategy for the engine had been to select only one contractor for developing the engine on the basis of evaluating paper design proposals.

The source selection evaluation plan for the LHX engine development contracts was prepared in parallel with the engine request for proposals As the request for proposal requirements changed, the evaluation plan also changed. The evaluation plan was approved in November 1984 by the Chairman of the Source Selection Advisory Council. We were told that the development of the evaluation plan was a team effort consisting of basically the same key members (including the LHX project manager and contracting officer) that developed the engine request for proposal.

On December 5, 1984, the engine request for proposal was released to industry Regarding competition, the request for proposal included the following provisions·

- It is the intent of the Army to negotiate and award a firm fixed-price contract for the engine full-scale development based on competitive evaluation of the offerors' proposals.
- The government reserves the right to award more than one contract for engine development through preliminary flight rating with down selection to one contract after preliminary flight rating testing.
- Bidders are required to propose and justify their method of accomplishing the Army's production competition requirement for the end item and parts. Parts are subsystems, support equipment, components and replenishment parts.
- The resultant contract will require that the development contractors qualify a second source for the end item to enable the government to procure production engine quantities from competing sources during the production phase.

[4]Preliminary flight rating is the testing of a prototype engine against specifications

- The resultant contract will require that the development contractor establish an agreement for mutual exchange of data and transfer of technology between the proposed competitive production sources.
- It is the government's intent to split end items production quantities between the qualified sources for the first two production lots utilizing one contract for each lot and initiate total production competition by lot 3 contract award
- The resultant contract will require the development contractor to identify selected parts for the purpose of increasing competition. Firm fixed prices for each part will be negotiated for one of these two alternatives: competitive technical data packages or qualification of additional sources.
- The contractor, commencing 72 months after award date of the full-scale development contract, shall grant the government additional rights in limited rights technical data deliverable under the development contract or any future related contract.
- The proposals initially will be evaluated to assure that the production competition requirements have been met. Should the evaluation find that the proposal for production competition does not meet minimum requirements, the offeror will be deemed ineligible for award regardless of merit in the other areas.

Contracting Officers' Involvement in Developing Request for Proposals

Both contracting officers had active roles in the development of the engine request for proposals. The first contracting officer said his involvement primarily consisted of (1) providing input and guidance to the LHX project office pertaining to the statement of work and the specifications, (2) taking the lead in developing the business terms for the request for proposal, (3) informing potential contractors about pertinent facts they should be knowledgeable about, (4) submitting drafts to potential offerors for comments, and (5) planning for a pre-solicitation conference with the potential offerors prior to release of the final request for proposals.

The second contracting officer said his involvement consisted of (1) coordinating the review and approval process through the required AVSCOM functional directorates, (2) briefing the Source Selection Advisory Council on the source selection criteria, (3) having responsibility for the contractual sections of the request for proposal, (4) putting the entire proposal package together and making sure all required reviews were obtained before release, and (5) participating in the development of the specifications and contract data requirements, basically in a reviewing and editing capacity.

Evaluation of Engine Development Proposals

On March 5, 1985, three offerors submitted proposals for the engine development contract Two of the offerors were teaming arrangements and the other a leader-follower arrangement. Evaluation of these proposals was performed by a Source Selection Evaluation Board, Source Selection Advisory Council and Source Selection Authority.

The contracting officer stated that his involvement in the source selection evaluation process included

- advising the Source Selection Evaluation Board,
- participating in Source Selection Advisory Council meetings,
- holding conferences with contractor representatives,
- being the point of contact between the contractors and members of the various Source Selection Evaluation Board teams, and
- leading the negotiations and preparing the contracts to be awarded.

The project manager told us that he was an advisor to the Source Selection Evaluation Board and attended the Board's meetings.

Award of Engine Development Contracts

On July 19, 1985, AVSCOM awarded two full-scale development contracts for engine development. Both contracts were awarded under teaming arrangements, one to the AVCO Lycoming/Pratt & Whitney team for $240 million and the second to the Garrett/Allison team (Garrett Turbine Engine Company/Allison Gas Turbine Division of General Motors) for $264 million

Each team will compete its design against the other during early development up to a preliminary flight rating. At that time, the Army will select one team—based on bench test demonstrations—to complete the engine's development. At the completion of the development phase both engine manufacturers of the surviving team are to be capable of producing production engines. The Army then intends to require both engine manufacturers of the surviving team to produce approximately equal quantities of engines for production lots 1 and 2. Starting with production lot 3, the two engine manufacturers will compete with each other for full-rate production using guaranteed prices (already negotiated) as the ceiling prices.

The engine development contracts also require the contractors to qualify and maintain a minimum of two sources for all subassemblies, components, subsystems and replenishment parts.

To comply with Public Law 98-473, the Army notified Congress on July 19, 1985, that at the completion of the full-scale development program, the Army will have two fully qualified sources to produce the engine and at least two sources for all parts of the engine.

Secretary of Defense Review

Normally an acquisition strategy is developed during the concept formulation phase and is approved by the Secretary of Defense during the milestone I review. The Army's decision to attempt to field the LHX in 1992 required acceleration of the LHX program. Thus, the LHX program did not undergo a milestone I Secretary of Defense level review. The Army plans to go through its first Secretary of Defense level review before entering the full-scale development phase—milestone II.

The project manager told us that the decision to have a combined milestone I/II Secretary of Defense level review was approved at the Office of the Secretary of Defense level. He said that the Defense Resources Board was briefed on the LHX acquisition strategy, and the strategy was approved at the Secretary of Defense level via the Program Budget Decision.

However, the DOD Inspector General concluded in a November 1984 report, regarding a review of the effectiveness of the Secretary of Defense level review, that the Army accelerated its LHX acquisition strategy by combining concept exploration and demonstration/validation without requesting the concurrence from the Secretary of Defense The report stated that the available documents used by the Army to present the LHX program to the Office of the Secretary of Defense (including the Defense Resources Board) showed an LHX program structure with discrete milestone I and II reviews. In addition, the Inspector General reported that the Program Budget Decision document approving the LHX as a new start did not discuss or specifically approve an accelerated acquisition strategy.

The DOD Inspector General recommended that the Office of Secretary of Defense (1) schedule an LHX program review to determine if the Army's planned accelerated acquisition strategy is compatible with the degree of risk associated with the development of the LHX mission equipment, and (2) prepare a decision memorandum documenting the results of the program review

In a memorandum dated January 22, 1985, the Acting Under Secretary of Defense agreed with the DOD Inspector General's recommendation

that an Office of the Secretary of Defense level LHX program review was in order. The Acting Under Secretary in his memorandum also stated that an Office of the Secretary of Defense level program review was being scheduled and that a decision memorandum following the review would complement the Justification for Major Systems New Start and provide more complete interim program documentation pending the combined milestone I/II review (planned for 1987).

External Influences

A survey performed by the Aerospace Industries Association of America, Incorporated, indicated that industry believed that insufficient front-end funding and unstable requirements have affected the LHX program acquisition process. Industry felt that the contracted feasibility studies for the single-crew, integrated/automated cockpit were underfunded in fiscal year 1984, which caused the LHX program schedule to slip. The Army requested fiscal year 1984 reprogramming funds after it decided to accelerate the LHX development program and attempt to field the LHX by 1992, but Congress denied reprogramming funds. The program manager agreed that denial of the fiscal year 1984 reprogramming funds had an impact on the accelerated LHX program schedule

Industry also felt that the LHX speed and weight requirements have been unstable, preventing the preliminary design work from holding a steady focus. This, in turn, has been responsible for lack of support for up-front funding.

The project manager disagreed that the weight requirement has had any impact He stated that the gross weight goal has been 8000 $\pm$ 500 pounds for a long time. He did agree that the speed requirement was not defined early on However, the speed issue was resolved when the Army decided to develop a conventional LHX helicopter The Army Chief of Staff decided on March 4, 1985, to develop a conventional helicopter and eliminate other design concepts previously being considered. The principal factor which prompted this decision was the risk involved in developing the other design concepts (that is, compound, advancing blade, and tilt rotor). Other factors were cost, weight, and design needed to meet required performance capabilities.

As a result of reductions in the fiscal year 1986 budget, some of the contractual risk reduction (validation and demonstration) efforts planned for in the baseline acquisition strategy were delayed until fiscal year 1987. The planned start of the full-scale development phase for the

air vehicle was delayed from fiscal year 1987 until the first quarter of 1988.

Affordability considerations have caused the Department of the Army to significantly reduce its planned LHX research and development funding amounts in the Army's fiscal years 1987 to 1991 funding guidance submitted to DOD This reduced budget profile does not provide adequate funds to implement the baseline acquisition strategy which was to carry two LHX air vehicle developers through the entire full-scale development phase, have a fly-off, and select the best design for production.

This funding problem led the LHX project manager to develop alternative air vehicle full-scale development acquisition strategies which he believes will maximize risk reduction efforts and still be consistent with the fiscal years 1987-91 funding guidance.

During the May-September 1985 time frame, the project manager presented various acquisition strategy alternatives to senior level Army officials. These alternatives were also presented by memorandums from the Commanding General of the Army Materiel Command to the Under Secretary of the Army for the purpose of obtaining an approved acquisition strategy.

The currently planned strategy is as follows

a The Army will award competitive air vehicle full-scale development contracts to two system teams through critical design review—each system team consisting of two helicopter manufacturers.

b. Each system team will be required to have subcontractors team to co-develop the LHX mission equipment package which consist of high risk subsystems.

c. After critical design review, the Army will select a single system team for the remainder of full-scale development phase.

d. The two helicopter manufacturers of the surviving system team will compete for production contracts not later than production lot number 3.

Program Costs

As discussed in our May 1986 report on the LHX program, the Army estimates that it will cost $38 billion (fiscal year 1984 dollars) to develop

and acquire over 5,000 LHX rotorcraft. This includes $3.2 billion in research and development costs and $35.7 billion in procurement costs

Evaluation of Roles And Acquisition Strategy

Roles and Responsibilities

After being assigned in January 1984, the first project manager played a lead role in developing the August 1984 baseline acquisition strategy. He developed strategy alternatives with the help of his staff and presented them to senior Army officials The current project manager has played a lead role in modifying the air vehicle acquisition strategy. The project manager also played an active role in the management team that oversaw development of the engine request for proposals and evaluation plan.

The contracting officers were not actively involved in the development of the LHX acquisition strategy, but participated in the development of the engine request for proposals and evaluation plan. The contracting officer played an active role during the evaluation of the engine proposals and source selection process and had the lead role during contract negotiations and contract award.

Design Competition

Competitive contracts were awarded for the concept exploration and demonstration/validation phases. Design competition for the engine will consist of hardware (bench test) demonstration by two developers (two teams) through preliminary flight rating. After preliminary flight rating, one of the two competing engine designs will be selected for completion of all development and qualification tests.

The Army changed the air vehicle design competition approach for the full-scale development phase because of insufficient funding. The Department of the Army, due to affordability, was unable to provide adequate funds in its fiscal years 1987 to 1991 funding guidance to support a competitive LHX fly-off. The original acquisition strategy was approved because it offered the lowest risk to LHX development. The Army now plans to down-select to one contractor at critical design review.

Production Competition

The Army's engine development contracts require that both members of the winning team be in a position to fully compete for the end item production requirements no later than production lot number 3. The contract also requires the winning team to qualify at least two competitive sources for the engine subsystems and replenishment parts before the production phase starts

This same approach for acquiring production competition capabilities is planned for the LHX end item and its subsystems and replenishment parts.

Present Status

Engine full-scale development began in July 1985 with contract award to two contractor teams. Airframe development is scheduled to begin in October 1987. LHX production is expected to begin in January 1994.

Chronology of Events

May 1983	Justification for Major Systems New Start approved by Secretary of the Army.
September 1983	Four contracts awarded for preliminary design.
December 1983	Provisional project office established. Justification for Major Systems New Start approved by Deputy Secretary of Defense. Five contracts awarded for advanced/integrated cockpit design and architecture and feasibility demonstration of single-pilot LHX.
January 1984	First project manager appointed.
March L984	First contracting officer appointed
August 1984	Second project manager appointed. Second contracting officer appointed. Baseline acquisition strategy approved.
December 1984	Request for proposals for engine development released to industry.
July 1985	Two contracts awarded for engine full-scale development.
December 1985	Draft request for proposals for air vehicle full-scale development (phase I) released to industry.

Requests for copies of GAO reports should be sent to:

U.S General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877

Telephone 202-275-6241

The first five copies of each report are free. Additional copies are $2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

United States
General Accounting Office
Washington, D.C. 20548

Official Business
Penalty for Private Use $300

Address Correction Requested

First-Class Mail
Postage & Fees Paid
GAO
Permit No. G100