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BY THE U.S. GENERAL ACCOUNTING OFFICE

**Report To The Chairman, Subcommittee
On Defense, Committee On Appropriations,
House Of Representatives**

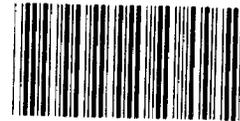
**An Assessment Of The Army's Multiple
Launch Rocket System Multiyear Contract**

The DOD Authorizations Act, 1982 (Public Law 97-86) authorized multi-year contracting of major DOD weapon systems to reduce procurement costs and to broaden the defense industrial base. One of the first multiyear contracts approved by the Congress after enactment of Public Law 97-86 was for the Army's Multiple Launch Rocket System (MLRS). The Army justified the \$1.7 billion multiyear contract claiming \$209.1 million savings and improvements in the industrial base.

This report presents (1) an assessment of the supportability of the Army's claimed savings, (2) industry views on whether the contract will broaden the industrial base, and (3) an evaluation of the extent to which the contract complies with applicable provisions of Public Law 97-86.

GAO found support for estimated budgetary savings to the Army of \$166.8 million of its \$209.1 million estimated savings for advance material purchases. In present value terms, the \$209.1 million is a savings of about \$67.7 million.

Though MLRS contractors told GAO that they increased investments, retained skilled employees, had better training programs, and enhanced mobilization preparedness, GAO had no baseline from which to measure improvements nor does GAO know the extent to which these benefits might also have been possible under annual contracts.



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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

B-215825

The Honorable Joseph P. Addabbo
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

This letter responds to your February 14, 1984, request that we provide a status report of the Army's Multiple Launch Rocket System's (MLRS's) multiyear contract and a validation of the claimed savings and other benefits to the government. It also addresses a subsequent request by your Office that we evaluate whether the MLRS multiyear contract complies with the criteria outlined in the Department of Defense (DOD) Authorizations Act, 1982 (Public Law 97-86). We presented our preliminary views during discussions with your staff on September 12, 1984, supplemented by a formal decision on December 21, 1984, on the contract options and a fact sheet on June 13, 1985.

The Army awarded a multiyear contract with options to Vought Corporation--now LTV Aerospace and Defense Company--on September 15, 1983, to satisfy MLRS requirements from fiscal years 1983 through 1989. MLRS is an unguided surface-to-surface rocket system which consists of a self-propelled launcher/loader and carries 12 rockets and supporting equipment. The basic contract extends over a 5-year period, covering fiscal years 1983 through 1987, and contains provisions to purchase materials in advance of annual requirements. In addition, the contract includes four options to satisfy requirements for two fiscal years--1988 and 1989. The contract value, including options, spares, and repair parts is \$1.766 billion.

We evaluated the Army's \$209.1 million savings estimate to determine present value savings and whether the estimate could be supported. When present value techniques are applied to the Army's \$209.1 million savings estimate, present value savings are \$67.7 million. Additional information about the status of the contract is discussed in appendix I.

A true validation of savings and benefits was not possible because this would require the Army to negotiate and operate under both annual and multiyear contracts. Our analysis, therefore, was limited to determining the extent to which claimed savings and benefits were reasonable and adequately

supported and whether the Army completely identified possible savings from the contract. Army estimates of savings and benefits, and our analysis, could have been more exact if both annual and multiyear contracts were negotiated and the Army or the prime contractor established a baseline from which to evaluate other benefits. However, this is not always practical, especially when contracts are to be awarded competitively. Further, additional costs would be incurred to negotiate both proposals, as well as other costs.

The first two of the four options are for the purchase of materials which will be used to fabricate rockets to be purchased in fiscal years 1988 and 1989. The remaining two options are for the balance of materials and the fabrication of rockets in fiscal years 1988 and 1989. In a Comptroller General Decision (B-215825), dated December 21, 1984, we advised the Army of the impropriety of exercising the first option for advance material purchases for fiscal year 1988 which was exercised on December 30, 1983. We concluded that the exercise of this option was improper because it resulted in the Army exceeding the 5-year statutory limit on multiyear contracts. We noted, however, that since the contractor had already completed its obligations, no useful purpose would be served by voiding the option and seeking to recover the funds. We also recommended that the Army refrain from exercising the option for advance material for fiscal year 1989 unless or until the Congress enacted explicit legislation authorizing it to do so. The Army plans to exercise the option for advance materials for fiscal year 1989 and has sought specific legislative authority.

ANALYSIS OF CLAIMED SAVINGS

After the Congress enacted Public Law 97-86, the House and Senate Committees on Appropriations required the military services to justify proposed multiyear contracts. The Army justified its multiyear contract for the MLRS system claiming that the contract with options would result in savings of \$193.2 million. After negotiating the contract, the Army revised its saving estimate to \$209.1 million--\$165.9 million from the advance purchase of materials and \$43.2 million from cost growth avoidance. The Army projected savings based on the difference between the estimated price of seven successive annual contracts and the negotiated value of the multiyear contract, including options. Although the Army made this comparison, it did not compare the estimated savings with those available through a 5-year multiyear contract without options.

Supportability of savings

We found support for most of the Army's claimed savings, as well as some potential savings, or cost avoidance, not included in the Army's estimate.¹ These are shown below.

| <u>Source of savings</u> | <u>Savings Estimates</u> | | |
|--|--------------------------|-------------------|-----------------------|
| | <u>Army</u> | <u>Contractor</u> | <u>Our assessment</u> |
| | ------(millions)----- | | |
| Advance materials | \$165.9 | \$205.8 | \$166.8 |
| Cost growth avoidance | 43.2 | - | - |
| Other savings not included in Army estimates | | | |
| Administrative | | | |
| Contractor | - | - | 11.9 |
| Government | - | - | 1.2 ^a |
| Production efficiencies | - | - | - ^b |

^aOur estimates range from \$.5 million to \$1.2 million.

^bWe did not attempt to quantify savings from production efficiencies although there were indications that such savings are possible.

Based upon proposal data LTV provided to us which it received from its major subcontractors, we estimated that about \$166.8 million of the Army's estimated savings of \$209.1 million is attributed to the fact that LTV has, or will, purchase certain raw materials and components earlier, and in more economical quantities, than it would have under annual contracts.

The Army also estimated \$43.2 million in savings from cost growth avoidance. However, it could not provide support for these projected savings. Moreover, one of the criteria for proceeding with a multiyear contract is that the design of the system is stable--which is true of the MLRS. Therefore, we do

¹As discussed in appendix IV, we concluded that exercise of the MLRS multiyear contract options for advance materials is improper. To be consistent with Army savings estimates, and because data only exists to support claimed savings over the 7-year period, our assessment assumes that the options will be exercised.

not understand the Army's reason for including cost growth avoidance in its estimate of savings. Responsible officials provided us with examples of cost risk, such as lack of competition and reduction in contract quantities which they believed could lead to long-term cost growth, but we have no basis for determining the likelihood that they would occur.

Although the Army only estimated savings from advance material purchases and cost growth avoidance, other categories for potential savings include administrative cost avoidance, production efficiencies, and program stability. We did not attempt to seek out all possible savings that could accrue under this multiyear contract, but we evaluated two areas-- administrative cost avoidance and production efficiencies--to identify such savings and the extent to which they could be measured. The Army and LTV provided data indicating that the government and LTV will avoid about \$13.1 million by not having to negotiate and administer a series of seven annual contracts. Although we could not measure savings from production efficiencies, LTV and its subcontractors indicated that such savings may be achieved as a result of better long-term planning, production stability, and greater flexibility.

Our detailed analyses of savings from the MLRS multiyear contract is contained in appendix II.

Present value analysis

Our present value analysis of data used by the Army in computing its savings for congressional approval for multiyear contracting indicates that MLRS multiyear contract options reduce, rather than increase, savings to the government because of the early expenditure of funds and the delay of 5 years to realize the benefits. Present value analysis--a technique used to compare two procurement alternatives having different expenditure streams--converts a future dollar amount into its value at the present time by taking into account inflation and interest costs.

Our analyses of the Army's data shows that its choice of using the multiyear contract with options reduced present value savings from \$80.9 million to \$67.7 million or \$13.2 million in comparison to a 5-year multiyear contract with two follow-on annual contracts.

At the conclusion of our review, the MLRS Project Office performed a present value analysis, which is very sensitive to

the expenditure rate used, using similar methodology to that which we used except for the rate of expenditures. The Project Office's analysis showed that present value savings would be reduced by \$7.1 million. Our analysis was based on DOD's official expenditure rates for all missile procurements, whereas the MLRS Project Office used LTV projections under the multiyear contract and history under previous annual MLRS contracts. We believe the use of DOD's official rates are more appropriate because data was not available to determine if LTV's projections under the multiyear contract and history under previous annual MLRS contracts were representative of the actual government expenditures under these contracts. In addition, the DOD expenditure rates cover a 6-year period while the rates based on the projections and history on prior contracts cover a 3-year period.

Although the Project Office's analysis also showed a reduction in savings from using the multiyear contract with options if the contract options are exercised, they felt there were uncertainties associated with the savings loss, such as production breaks and escalation reduction, that led the Project Office to conclude that the contract options were in the best interest of the government, but these factors were not quantified. Even if legislation is enacted to allow the Army to legally exercise the second option, we believe the Army should determine whether these judgmental factors will offset the decreased savings sufficiently, or in total, to justify proceeding further with the contract options.

OTHER BENEFITS

In addition to monetary savings, the Army stated in its justification that the contract would broaden the defense industrial base through additional capital investments, improved workforce skills, and the ability to rapidly increase manufacturing capabilities in the event of war (mobilization preparedness).

Although we could not substantiate whether the MLRS multiyear contract will broaden the defense industrial base, LTV and several of its major subcontractors told us that the contract has resulted in additional capital investments, better retention and training of their workforce, and enhanced mobilization preparedness. However, it was not possible to validate whether or to what extent these benefits would broaden the industrial base because neither the Army nor LTV had identified specific weaknesses in the base or established a baseline from which to measure improvements. Moreover, we do

not know the extent to which these benefits might also have been possible under annual contracts in a relatively stable program like the MLRS. Appendix III discusses the nonmonetary benefits expected to be achieved from the contract.

COMPLIANCE WITH
PUBLIC LAW 97-86

Because of the long-term commitment of a multiyear contract, both benefits and risks must be carefully weighed to avoid unnecessary termination or cancellation costs or an inventory of useless parts. Public Law 97-86 specified certain conditions that must be met to balance benefits and risks--the contract must reduce costs and promote national security; there must be stability of requirements, funding, and design; and estimates of contract costs and savings must be realistic.

With regard to the MLRS multiyear contract, our study indicated that

- the contract will likely benefit the government through monetary savings and possible industrial base enhancements;
- the extent of savings remain uncertain because they are not all measurable or easily measurable;
- minimum requirements for the MLRS appear firm;
- the Army plans to request sufficient funds to support the contract, as it has in the past; and
- design changes will likely have minimal cost impact.

Public Law 97-86 provides authority to enter into multiyear contracts for a maximum period of 5 years. We found that the Army improperly exercised a contract option for economic ordering of advance materials to support options outside this 5-year limitation. Moreover, our present value analysis shows that the multiyear contract options with large up-front investments of advance materials may not be as cost effective because of the 5-year delay to realize benefits.

Our assessment of the extent to which the multiyear contract complies with Public Law 97-86 is further discussed in appendix IV.

CONCLUSIONS

The MLRS multiyear contract savings cannot be completely validated; however, most of the Army's savings claims are supported. Savings related to administrative costs and production efficiencies were not included in the Army's estimates, and savings attributed to cost growth avoidance could not be substantiated from available information. LTV and its subcontractors believe other benefits will be realized from the multiyear contract such as additional capital investments, improvements in workforce skills, and mobilization preparedness. Whether these benefits would have been realized under annual contracts, or if they will actually broaden the defense industrial base, is difficult to substantiate.

Our evaluation of the Army's \$209.1 million estimated savings found support for budgetary savings of \$166.8 million and, in present value terms, the Army's contract savings with options is \$67.7 million. However, our further present value analysis of data used by the Army in computing its saving indicated that if it did not include the options with advance funding in the contract the savings could have been \$13.2 million more by using two follow-on annual contracts with the 5-year multiyear or \$80.9 million. The Army did not make an analysis of this alternative at the time its multiyear proposal was prepared. A more complete analysis would have provided the Congress better visibility of the multiyear contract alternatives and assisted DOD in selecting the most desirable procurement approach.

RECOMMENDATIONS

We recommend that the Secretary of Defense separately identify and justify savings associated with multiyear contract options when seeking multiyear contract approval from the Congress. We recommend that the Secretary of the Army determine whether the judgmental factors will offset the decreased savings sufficiently, or in total, to justify proceeding further with the contract options under the MLRS even if legislation is enacted to allow the Army to legally exercise the options.

The views of directly responsible officials were sought during the course of our work and are incorporated in the report where appropriate. In accordance with your wishes, we did not request DOD to review and comment officially on a draft of this report.

B-215825

We are sending copies of this report today to the Chairmen, House and Senate Committee on Appropriations, the House Committee on Government Operations, the Senate Committee on Governmental Affairs, and the House and Senate Committees on Armed Services. Copies are also being sent to the Secretary of Defense and the Secretaries of the Army, Navy, and Air Force.

Sincerely yours,

A handwritten signature in cursive script that reads "Frank C. Conahan".

Frank C. Conahan
Director

BACKGROUND

On September 15, 1983, the Army awarded a multiyear contract to LTV to purchase 334,356 tactical rockets and other major components of MLRS. The MLRS is an unguided surface-to-surface rocket system which consists of a self-propelled launcher/loader and carries 12 rockets and supporting equipment. The negotiated contract value, including options, is \$1.766 billion.

MULTIYEAR CONTRACTS IN DOD

Multiyear contracting is a recently initiated procurement strategy to improve the weapon system acquisition process and reduce procurement costs.

The term multiyear contracting means a contract for more than 1 year's requirement of items or services. Although a multiyear contract covers more than 1 year, funds are typically appropriated annually and the contract is subject to being cancelled or terminated by the government.¹ There are several types of multiyear contracts, one of which can involve advance purchases of materials. MLRS is this type of multiyear contract, that is, one in which the agency contracts to buy materials, parts, or components before receiving funding for the completed end item. Usually, advance purchases of materials permit discounts for larger quantity buys and more efficient production rates.

In contrast, the term annual contracting simply means a contract for only 1 year's requirements of items or services. Annual contracts are fully funded; that is, funds are made available at the time of award to purchase a 1-year quantity of complete end items or services. They often include a unilateral

¹Cancellation would occur at the completion of a fiscal year if the contract provides that performance during the second and subsequent years is contingent on the appropriation of funds and the government could not continue the contract for subsequent fiscal years due to lack of funding. Termination would occur if during the course of the fiscal year the government decided to terminate the remaining portion of the contract for any reason. The termination liability would include certain nonrecurring costs already incurred but not paid for. Cancellation liability may include both nonrecurring and recurring costs which have or would have been incurred during the remaining years of the contract.

government option to renew for additional years. Before fiscal year 1982, DOD used annual contracts to purchase its major weapon systems because of statutory restrictions on multiyear contracts. DOD concluded, however, that in many cases annual contracts were disadvantageous because they stymied the government's ability to achieve lower unit costs through quantity discounts, production efficiencies, and better use of facilities. Annual contracts also created an administrative burden and program instability because of time consuming annual negotiations, if the previous years terms required changing, and uncertainty of continued production.

DOD saw multiyear contracts as a desirable procurement technique to resolve these difficulties, if used selectively. It offered opportunities to reduce weapon system costs and provide incentives to contractors to improve productivity through investment in capital facilities, equipment, and advanced technology. The major disadvantage of multiyear contracts is the risk to the government resulting from potential termination, cancellation, or obsolescence. For example, if funds are not available for the full contract period or if the need or design features of the item are changed, the government may be obligated for a large quantity of useless parts and for termination or cancellation costs.

In December 1981, the Congress permitted use of multiyear contracting for major weapon systems by enacting Public Law 97-86, but established certain requirements to ensure a balance of benefits and risks. Public Law 97-86 requires that a multiyear contract benefit the government by saving money and promoting national security. In addition, estimated contract costs and projected savings must be realistic and the system must have stability of design, requirements, and funding. The Congress also restricted multiyear contracts for major weapon systems to no more than 5 years because, among other things, realistically projecting costs and savings becomes more difficult after a 5-year period, and longer-term contracts are more susceptible to cancellation or change because of improvements in technology or competing priorities. Appendix IV further elaborates on the requirements of Public Law 97-86.

THE MLRS MULTIYEAR CONTRACT

The MLRS multiyear contract, with options, covers a period of 7 years and totals \$1.766 billion, as shown below.

| | |
|---|-------------------------------|
| Basic contract (FY 1983 thru 1987) | \$1,236,103,618 |
| Option 1 (advanced materials in FY 1984 for FY 1988 end items) | 82,673,486 |
| Option 2 (advanced materials in FY 1985 for FY 1989 end items) | 56,592,369 |
| Option 3 (balance of FY 1988 end items) | 263,196,276 |
| Option 4 (balance of FY 1989 end items) | <u>127,673,595</u> |
| Total | <u>\$1,766,239,344</u> |

As shown in the above table, the basic contract is for 5 years--fiscal years 1983 through 1987--and contains provisions for advance purchases of materials to support the basic contract end items. In addition, the contract contains four options to satisfy fiscal years 1988 and 1989 requirements for rockets and other system components. The first option which was exercised on December 30, 1983, and the second option which the Army plans to exercise after receiving enabling legislation to provide for the purchase of advance materials which will be used to fabricate rockets and other system components in fiscal years 1988 and 1989, respectively. The other two options, to be exercised in fiscal years 1988 and 1989, are for the balance of the materials and the fabrication of end items required in those years.

The table below shows the basic contract and option quantities for major MLRS components.

| <u>Items</u> | <u>Basic contract</u> | <u>Fiscal year 1988 options</u> | <u>Fiscal year 1989 options</u> | <u>Total</u> |
|---------------------------------|-----------------------|---------------------------------|---------------------------------|--------------|
| Tactical rockets | 231,846 | 72,000 | 30,510 | 334,356 |
| Practice rockets | 16,452 | 3,948 | 3,960 | 24,360 |
| Self-propelled launcher/loaders | 149 | - | - | 149 |

LTV manufactures the MLRS at its production facilities at Camden, Arkansas, with 20 major subcontractors and vendors from various locations in the United States supplying materials and fabricated components.

OBJECTIVES, SCOPE, AND METHODOLOGY

We conducted this study to respond to a February 14, 1984, request by the Chairman, Subcommittee on Defense, House

Committee on Appropriations to (1) provide a status report and an assessment of the ongoing MLRS multiyear contract and (2) validate the claimed benefits and savings to the government.

To assess the status of the multiyear contract we concentrated our analysis on the contract's compliance with applicable sections of the DOD Authorizations Act, 1982 (Public Law 97-86). This analysis involved determining the Army's authority to award a contract covering more than 5 year's requirements and evaluating the benefits and risks associated with the contract. Areas of risk, as defined by the law, are confidence in contract costs and savings, stability of requirements, stability of funding, and stability of design. We reviewed Army plans; budget requirements; engineering changes; and cost, schedule, and production reports.

A totally accurate "validation" of savings and benefits would only be possible if the Army negotiated and operated under both annual and multiyear contracts which is obviously not feasible. Therefore, in validating savings and benefits, our work focused on (1) identifying the extent to which the Army's most recent estimate of savings and benefits was reasonable and adequately supported and (2) determining whether the Army had completely identified possible savings from the multiyear contract.

We reviewed the contract and other documentation used to justify the Army's MLRS multiyear contract. To test the accuracy and reasonableness of Army savings estimates which was based, in large part, on contractor estimates, we traced the estimates of savings to proposal data, negotiation records, or other supporting documentation.

We also performed a present value analysis of the Army's savings estimates. A present value analysis was necessary to determine the net savings to the government after accounting for effects of anticipated inflation and interest costs. By using present value techniques, we converted future dollar amounts into their values at the present time. Although present value analysis is a generally accepted practice, selecting an appropriate interest rate has been the subject of much controversy. For federal government investment analyses and decisionmaking, arguments have been presented for interest rates ranging from the cost of borrowing by the Treasury to rates of return that can be earned in the private sector. Since Treasury meets most government funding requirements, we have maintained that its estimated cost to borrow is a reasonable basis for the interest rate used in present value analysis. Accordingly, for our analysis, we used the average yield on outstanding marketable Treasury obligations that had remaining maturities

similar to the time period involved in our analysis. The average yield was 11.1 percent as of September 16, 1983, when the Army awarded the MLRS multiyear contract. We also assessed the sensitivity of savings to changes in the present value rate to determine if savings would still be preserved if the interest rate changed. Our analysis, which varied the present value rate from 6 to 16 percent, showed savings would still be achieved if the rate changed. DOD uses the Office of Management and Budget Circular A-94 prescribed present value method which applies a flat 10-percent discount rate to constant dollars.

Because amounts appropriated for the contract will not be expended in 1 year, we used the Army's projected expenditure rates for missile procurements to convert obligations shown in the Army's multiyear contract justification documents into expenditures. We could not compare proposed rates with actual expenditures because the contract was not complete and LTV had not developed expenditure projections. However, present value savings are very sensitive to the rate of expenditures and only as reliable as the expenditure rates projected by the Army. For example, if more funds are spent earlier in the program, projected savings would be reduced.

Under contracts taking longer than a year to complete, Treasury regulations allow contractors to use the completed contract method for federal income taxes and defer payments of taxes on profits until the year of completion. Corporations electing to use this method will obtain a greater deferral of tax payments than otherwise available and, consequently, less overall corporate tax revenues flow to the federal government.

The task of computing the tax implications of the MLRS contract was not feasible. Computations of whether any taxes are foregone by the federal government under multiyear contracts are complex. There were several computations in this particular multiyear program--there is a prime contractor and 20 major subcontractors. The MLRS contract contained substantial advance funds for the prime contractor to procure components and end items in economic order quantities. If this earlier expenditure of funds is highly labor intensive, then the federal government will receive income taxes through payroll deductions earlier than it would have under annual contracts. Actual tax consequences then depend on the tax filing status of each employee. Further, taking into account the effects of the income tax credit and accelerated cost recovery system deductions that may be allowed a contractor can further complicate the computation of taxes foregone. In addition, various assumptions, such as the delivery schedule on an annual basis, would have to be made since the contractor did not propose on an annual basis. Thus, the tax implications were not

considered during our review because of the prohibitive cost and time required to obtain all needed data (if available) and the complexity of the many calculations required for this analysis.

While we were unable to conclusively demonstrate that the industrial base was broadened because of the multiyear contract, we obtained contractor and subcontractor views on the extent to which they believed the multiyear contract could result in improving industrial operations. (See app. III.) This was accomplished through use of questionnaires which we sent to 7 of 20 subcontractors, representing about 83 percent of the total MLRS multiyear subcontract costs and about 85 percent of LTV's projected savings from advance material funding. We also followed-up on responses to the questionnaire by conducting telephone interviews with subcontractor officials.

We performed our work between April and September 1984 primarily at the MLRS Project Office, U.S. Army Missile Command, Huntsville, Alabama, and LTV's offices in Grand Prairie, Texas. During this time, we also visited LTV's manufacturing facilities and two subcontractors' plants in Camden, Arkansas. The views of directly responsible officials were sought during the course of our work and are incorporated in the report where appropriate. As requested by the Chairman, we did not ask DOD to review and officially comment on a draft of this report, but we did obtain their views on the results of our work and considered them where appropriate. Our work was performed in accordance with generally accepted government auditing standards.

MONETARY SAVINGS

Most of the Army's estimated savings were adequately supported. The Army estimated that advance purchases of materials and cost growth avoidance would result in budgetary savings of \$209.1 million. We found that about \$179.9 million of the Army's \$209.1 million estimated budgetary savings were adequately supported. We found support for savings from advance purchases of materials and possible reductions in administrative costs. Additional savings may be achieved from production efficiencies, but these could not be quantified. Our present value analysis showed that when the cost of annual and multiyear contract alternatives are adjusted for inflation and the time value of money, present value savings of the multiyear contract with options are about \$67.7 million. Our analysis further indicates that a multiyear contract without options with advance funding and two annual follow-on contracts would have achieved additional present value savings of about \$13.2 million, or about 20 percent more savings.

ARMY ESTIMATES OF SAVINGS

The Army did not request both annual and multiyear contract proposals to estimate savings from the MLRS multiyear contract, a practice which is sometimes followed by DOD to establish the most advantageous method of contracting. Instead, the Army derived its savings estimate of \$209.1 million by estimating that successive noncompetitive contracts would cost \$1,936.9 million based on a model it developed which simulated manufacturing and material costs. It then compared this estimate to the \$1,727.8 million negotiated value of the MLRS multiyear contract, excluding spares and repair parts--the difference being \$209.1 million. The Army attributed \$165.9 million of the savings to advance material purchases during fiscal years 1983 thru 1985, and the remaining \$43.2 million to cost growth avoidance.

In addition, the Army estimated that about \$86 million, or about 40 percent, of the \$209.1 million savings results from options in the multiyear contract. According to an MLRS project official, savings from contract options were derived by assuming that (1) multiyear contract savings were proportionate to advance material purchases and (2) about 40 percent of the advance materials related to contract options.

We made a further analysis of the Army's estimates. Our analysis which used Army estimates of annual costs that we have no way of determining at this time whether the actual costs will be higher or lower than the estimates, showed that a 5-year multiyear contract without options but with two follow-on annual contracts would cost \$1,771.6 million. While on the surface

this appears to be a more costly alternative than the multiyear contract with options, a present value analysis showed that estimated savings would be increased by \$13.2 million.

PRESENT VALUE ANALYSIS

Our present value analysis of data available to the Army in computing its savings for congressional approval for multiyear contracting indicates that the MLRS multiyear contract with options with funding for advance materials is a less effective acquisition choice than a 5-year contract without options and two follow-on annual contracts. When present value techniques were applied to the Army's \$209.1 million budgetary savings estimate, present value savings are \$67.7 million which is \$13.2 million less than if the Army had not put in the options as shown below.

Comparison of Costs and Savings of MLRS Contracts With and Without Advance Funding for Fiscal Years 1988 and 1989^a

| <u>Type of contract</u> | <u>Current dollars</u> | <u>Savings</u> | <u>Present value dollars^b</u> | <u>Savings</u> |
|--|------------------------|----------------|--|----------------|
| Annual | \$1,936.9 | | \$1,129.0 | |
| Multiyear with options | 1,727.8 | \$209.1 | 1,061.3 | \$67.7 |
| 5-year multiyear without options plus two follow-on annual contracts | 1,771.6 | 165.3 | 1,048.1 | 80.9 |

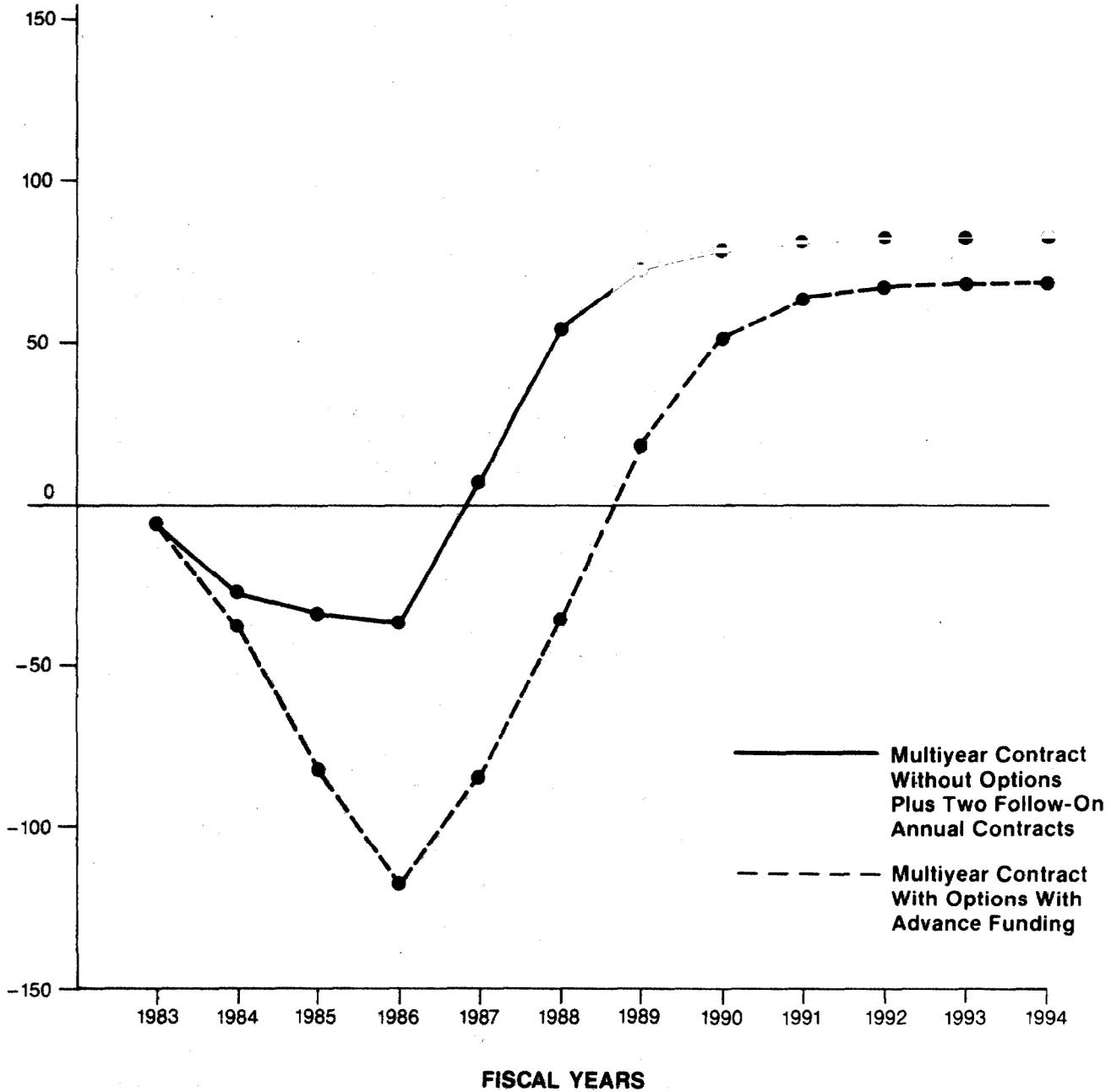
^aA comparison of annual and multiyear contracts, with and without options, would produce the same results.

^bDiscount rate of 11.1 percent.

Present value savings for the contract without options are higher than with options because of the \$139.3 million up-front costs for advance materials in options 1 and 2 and the delay of 5 years to realize benefits from those options. The following graph illustrates this by comparing projected cumulative savings streams for an MLRS multiyear contract with options with a 5-year multiyear contract without options and two follow-on annual contracts.

Comparison of Cumulative Present Value Savings of Alternative MLRS Multiyear Contracts

PRESENT VALUE DOLLARS (IN MILLIONS)^a



^aDiscount Rate of 11.1 Percent

We also performed a sensitivity analysis to determine if savings would be preserved if the present value rate varied significantly. We varied the rate from 6 percent to 16 percent and the results showed savings would still be achieved.

Before awarding the contract, the Army performed a present value analysis of its multiyear procurement strategy, but did not separately analyze the present value costs of the options with advance funding. An MLRS project official believed an analysis was not required because the Army considered a multiyear contract with options with advance funding as the only viable sole-source acquisition strategy. In our opinion, such an analysis would have helped the Army make a more informed decision in selecting among acquisition alternatives.

At the conclusion of our review, the MLRS Project Office performed a present value analysis using similar methodology as we used except for the expenditure rates. The Project Office's analysis showed that the multiyear contract options with advance funding reduced savings by \$7.1 million. Our analysis was based on DOD's official expenditure rates, whereas the MLRS Project Office used LTV's projections and history under previous MLRS contracts. We believe the use of DOD's official rates are more appropriate.

Although the Project Office's analysis also showed a reduction in savings from options with advance funding in the contract, they felt there were uncertainties with the savings loss. This led the Project Office to conclude that the contract options were in the best interest of the government. Specifically, the Project Office was concerned that risks associated with follow-on annual contracts would more than offset the apparent loss of savings associated with the multiyear approach. These factors were: (1) possible production breaks between the basic contract and option periods, (2) skewing of cost growth into the option periods, (3) stability of overhead rates achieved in the multiyear contract, and (4) reductions in escalation.

The MLRS Project Office, however, could not quantify these factors or determine the extent to which they would affect present value savings. We believe the Army should attempt to make such a determination before exercising additional contract options.

SUPPORTABILITY OF ARMY SAVINGS ESTIMATE

Our review of contractor and subcontractor information showed that about \$166.8 million of the Army's \$209.1 million savings estimate was adequately supported. In addition, we found support for another \$13.1 million in savings from reductions in administrative cost, which the Army did not

include in its savings estimates. Our assessment¹ of the Army's savings estimate is shown below.

| <u>Source of savings</u> | <u>Savings Estimates</u> | | |
|---|--------------------------|-------------------|-----------------------|
| | <u>Army</u> | <u>Contractor</u> | <u>Our assessment</u> |
| | ----- (millions) ----- | | |
| Advance materials | \$165.9 | \$205.8 | \$166.8 |
| Cost growth avoidance | 43.2 | - | - |
| Other savings not included in Army estimates | | | |
| Administrative | | | |
| Contractor | - | - | 11.9 |
| Government | - | - | 1.2 ^a |
| Production efficiencies | - | - | - ^b |

^aOur estimates range from \$.5 million to \$1.2 million.

^bWe did not attempt to quantify savings from production efficiencies although there were indications that such savings are possible.

Supportability of savings from advance materials

We found support for \$166.8 million savings from advance material purchases under the MLRS multiyear contract. The MLRS Project Office used LTV's contract proposal, dated December 23, 1982, to support estimated savings from advance material purchases. We noted, however, that LTV made changes to this initial proposal in the materials to be purchased in advance. Because of these changes, we requested that LTV provide to us its estimate of savings based on negotiated contract prices. In response, LTV furnished a savings estimate of \$205.8 million which involved 13 of 20 major subcontractors, who were expected to supply advance materials, and several other vendors of miscellaneous raw materials and parts. All but 1 of the 13 subcontractors separately proposed prices for multiyear subcontracts with and without advance materials. These proposals are the primary basis for LTV's savings estimate.

We did not perform an in-depth analysis of the subcontractor proposals, but we made certain adjustments (upward and downward) to reflect more realistic estimates. For example,

¹As discussed in appendix IV, we concluded that exercise of the MLRS multiyear contract options for advance materials is improper. To be consistent with Army savings estimates and because data only exists to support estimated savings over the 7-year period, our assessment assumes that the options will be exercised.

the largest adjustment we made was to decrease the estimated savings from advance purchases of aluminum. LTV used prices derived from historical data rather than using current prices adjusted for escalation. LTV applied historical prices because the subcontractor did not furnish price quotes for a contract without advance material purchases, as requested. In our opinion, a more appropriate methodology for estimating aluminum savings would have been to compare negotiated prices to the market prices at the time of contract award. Using market prices as a baseline and adjusting for escalation, overhead and profit, the savings from aluminum purchases would be less than LTV projected.

Another example where we changed the estimate was where LTV officials could not locate supporting documentation to substantiate its estimated savings resulting from advance purchases of miscellaneous raw materials and parts. According to LTV officials, the savings estimate was based on projected, rather than actual, prices or price quotes. As of August 1984, many of the items had not been purchased, and according to one LTV official, the cost of some of the items purchased varied from the costs LTV anticipated. While there may be savings from these miscellaneous purchases, we were not provided support for the estimated savings so we did not include them in our assessment of savings. All of our adjustments resulted in a \$32.2 million net decrease in LTV's savings estimate.

Supportability of savings
from cost growth avoidance

The MLRS Project Office believes that about \$43.2 million of its estimated savings, or 2-1/2 percent of the contract value, is attributable to potential cost growth avoidance from successive annual contracts. We had no basis for validating this estimate because the MLRS Project Office did not have analysis or documentation substantiating its cost growth estimate. Moreover, one of the criteria for proceeding with a multiyear contract is that the design of the system is stable--which is true of the MLRS. Therefore, it is difficult to understand the Army's reason for including cost growth avoidance in its estimate of savings.

Examples of cost risk which project officials believed could lead to long-term cost growth, if the Army awarded annual successive contracts for the MLRS system included (1) the lack of competition, (2) changes in national economic conditions, (3) changes in the contractor's business base, (4) strike or wage settlements, changes in production rates, and (5) reductions in contract quantities. Although such conditions could certainly affect annual contract costs, we have no basis for determining the likelihood that they would occur or the extent to which they would affect annual contract costs.

Moreover, arguments could be presented to suggest that, even under annual contracts, significant cost growth may not occur, particularly in a stable program like the MLRS. For example, the Army entered into the multiyear contract with limited production experience. Under annual contracts, the Army might improve its negotiating position due to more experience and better data about production costs. Also, the stable design and requirements for the MLRS system might reduce the likelihood of cost growth often seen in other major weapon system procurements.

Other potential savings

Although the Army claimed monetary savings only from purchasing materials in advance and cost growth avoidance, our review indicates possible savings in other areas, such as administrative costs and production efficiencies.

Administrative costs

Our analysis indicates that both LTV and the Army would have incurred additional administrative costs if the Army had awarded successive annual contracts instead of the multiyear contract.

LTV officials provided cost data which showed that LTV will save an estimated \$11.9 million by negotiating one MLRS multiyear contract, primarily because LTV will not need to hire additional personnel to administer a series of annual contracts. This savings is based on LTV's estimate of the costs to negotiate seven successive annual contracts, about \$13.7 million, and the MLRS multiyear contract, about \$1.8 million. Costs associated with preparing and negotiating these contracts include personnel salaries, fringe benefits, travel and subsistence, computer services, printing, and bidding and proposal expenses. Contractors usually charge such costs to the government as general and administrative expenses.

In addition, the Army should be able to avoid the cost of negotiating and awarding annual contracts and possibly save between \$.5 million and \$1.2 million. To date, however, the reduced efforts have not resulted in administrative personnel reductions, but according to Army contracting officials, the time saved as a result of the MLRS multiyear contract will be productively used for other projects having shortages in contracting personnel.

We estimated the Army's administrative costs for annual and multiyear contracts based on guidance from U.S. Army Missile Command Regulation 715-25 and a series of discussions with procurement, pricing, and project officials. Our estimates indicate that the total cost for seven annual contract negotiations would be between \$2.0 million and \$2.7 million. In comparison, we estimated the costs of negotiating the multiyear

contract to be about \$1.5 million. Contracting officials noted that because every negotiation is different, estimates of administrative costs are inexact, but they agreed that our methodology for estimating alternative costs, as well as the magnitude of the results, was reasonable.

Production efficiencies

Although the Army did not claim monetary savings from production efficiencies in its justification package, it recognized that the multiyear contract would provide LTV with an incentive to improve the efficiency of its operations and those of its subcontractors and suppliers. We could not quantify the potential for additional savings from production efficiencies, but we obtained examples of how such savings might be achieved.

According to LTV and its subcontractors, some savings from production efficiencies could be realized from manufacturing operations. LTV's \$205.8 million savings estimate applied only to advance material and component purchases, which represents only about 20 percent of the contract value. LTV officials told us that LTV anticipated production efficiencies from its in-house manufacturing and fabrication efforts, as well as, those of its subcontractors. For example, one LTV official stated that the contract has permitted greater efficiencies in manufacturing operations because production can be accelerated. We noted that this was also considered during the negotiations.

Similarly, the major subcontractors we contacted also generally believed that additional savings may be realized because of production efficiencies, and they provided examples of inefficiencies possibly created by annual contracts.

- Successive annual contracts do not provide the flexibility to schedule production in the most cost efficient manner.
- Because annual contract quantities are not always constant, production and shipments cannot always be planned in the most efficient manner.
- Possible delays in awarding successive annual contracts could result in production stoppages.

Subcontractors also said the MLRS multiyear contract provides production stability, better planning, and greater flexibility. One major subcontractor representative, however, expressed the view that although there was a high potential for improved production efficiency from multiyear contracting, it was too early to tell if this would be realized under the MLRS multiyear contract.

OTHER MULTIYEAR CONTRACT BENEFITS

In addition to achieving monetary savings, the Congress emphasized that multiyear contracts should broaden the industrial base. Although not specifically defined in Public Law 97-86, broadening the defense industrial base usually pertains to (1) existing firms in the defense industrial base expanding their capability in terms of machinery, buildup, skilled workforce, and others or (2) new firms entering the defense industrial base.

In obtaining congressional approval for MLRS multiyear contract funding, the Army identified benefits that would ultimately broaden the industrial base. According to the Army's multiyear contract justification documents,

- the long-term contract commitment would encourage additional capital investments,
- program stability would lead to retention of skilled personnel and better training programs, and
- advance material purchases could enhance mobilization preparedness by shortening leadtimes necessary to expand production rates.

LTV and its subcontractors told us that each of these benefits would be realized and provided examples of where these benefits would be achieved. However, it was not possible for us to validate to what extent these benefits would be achieved. Moreover, we could not verify to what extent these benefits might also have been possible under annual contracts in a relatively stable program like the MLRS.

ENHANCED INVESTMENTS

We asked LTV and some of its subcontractors whether the long-term commitment of multiyear contracting encouraged capital investments. They said it had, however, we were not able to verify all the expenditures or whether they would have been made under annual contracts. LTV said it spent \$13.2 million for capital investments for the multiyear contract. Six of its seven subcontractors we contacted also estimated they would invest about \$33.5 million during the multiyear period. However, we noted that LTV and its subcontractors had made investments under annual production contracts prior to the multiyear contract. According to the subcontractors, most of the investments would not have been made, or made as quickly under successive annual contracts. Some examples of such subcontractor investments are:

- One company invested about \$7.9 million in tooling, manufacturing, and inspection equipment to support the multiyear subcontract. The company said it would not have made as substantial a capital investment without a multiyear contract.
- An aluminum manufacturer spent about \$800,000 to purchase a casting machine, automated packing, and other support equipment. It expects to spend another \$78,000 for additional casting equipment. The manufacturer claims that these investments would not have been made under successive annual contracts.
- A rocket tube manufacturer spent about \$3.1 million for facility improvements, equipment, and warehousing, to support the MLRS program. The company estimates that under annual contracts about \$836,000 would not have been spent to construct warehousing and office space, resurface a parking area, and install a waste management system.
- Another manufacturer invested, or plans to invest, a total of \$18.8 million in buildings, leasehold improvements, machinery, and equipment. Company representatives state that all of these investments would have been made under successive annual contracts, but with the long-term commitment of the multiyear contract the company initiated capital improvement projects more quickly than it would have under annual contracts.

TRAINING AND RETENTION OF PERSONNEL

The stability of the MLRS multiyear contract has apparently encouraged improvements in training programs, and the promise of long-term employment encourages the workforce to be more receptive to training. For example,

- one subcontractor said the multiyear contract encouraged his company to establish and maintain a technical training center to develop skills difficult to find in the job market;
- a propellant subcontractor reported that because the multiyear contract provides the concept to plan for future managers, a program was established to develop existing managers as well as potential managers from the wage-grade ranks; and
- another subcontractor said that better training is possible when the length of the program provides time and opportunity for personal growth.

LTV and its subcontractors also shared the view that the MLRS multiyear contract promoted recruitment and retention of workforce skills. An LTV official, for example, said that skilled workers can be retained through the promise of long-term employment; whereas, under successive annual contracts, the possibility exists for gaps in production due to delays in funding. These gaps could cause LTV to lay off skilled personnel, retrain these personnel when called back, or train new personnel when annual appropriations are finally approved.

Subcontractors provided specific examples:

- One subcontractor representative said a stable workforce and retention of skilled labor has contributed to less product rejection both at the subcontract and second and third subcontract levels.
- A rocket propellant subcontractor representative stated that with the multiyear contract his company purchased more sophisticated electronic equipment and acquired the people with the technical skills needed to operate the equipment--neither of which would have occurred under annual contracts.
- An electronics manufacturer stated that the stable production schedule, among other things, facilitated continuity in program personnel resulting in, not only cost savings, but also improved product quality.

MOBILIZATION PREPAREDNESS

The MLRS multiyear contract was also viewed as a means to enhance mobilization preparedness. According to an LTV official, advance material purchases will enable LTV to shorten the leadtime necessary to step-up production in the event of a sudden increase in Army needs. For example, raw materials--such as ammonium perchlorate--normally require from 5 to 16 months to procure. Under the advance material provisions of the MLRS multiyear contract many of these long-lead items are on hand.

The seven major subcontractors we contacted said that in the event of mobilization their companies could begin producing at surge capacity--above their most efficient rate of production--sooner under the multiyear contract than under an annual contract. One subcontractor representative, for example, said his company is forecasting an annual production level of about 76,000 rocket launch tubes beginning in 1986. Under annual contracts, that production level would not have been reached until 1987.

COMPLIANCE WITH PUBLIC LAW 97-86

The DOD Authorization Act, 1982, enacted as Public Law 97-86, stipulated certain conditions that must exist before awarding a multiyear contract, namely: the contract must benefit the government; the contract cost and estimates of savings must be realistic; and there must be stability of requirements, funding, and design. Moreover, the contract may not cover the needs of more than 5 years. Except for realism in estimates of savings, we believe the MLRS multiyear contract satisfies these conditions.

Public Law 97-86 also provided authority to purchase advance materials in economic order quantities to support a multiyear contract covering no more than 5 years. The Army exceeded that authority by exercising the first option in December 1983 to purchase economic order quantity materials for needs outside the basic contract period without obtaining specific legislative authority. In a Comptroller General Decision (B-215825), dated December 21, 1984, we concluded that although exercise of the first option was unauthorized, no useful purpose would be served by cancelling it and seeking to recover funds. However, we recommended that the Army refrain from exercising the second option unless or until the Congress enacts explicit legislation authorizing it to do so.

COMPLIANCE WITH MULTIYEAR
CONTRACT CRITERIA

Our study indicates that

- the contract will likely benefit the government through monetary savings and industrial base enhancements;
- the extent of savings remains uncertain because they are not all measurable or easily measurable;
- minimum requirements for the MLRS appear firm;
- the Army plans to request sufficient funds to support the contract, as it has in the past; and
- design changes are expected to be minimal.

The following describes the multiyear contract criteria and our assessment of the extent they are met for the MLRS multiyear contract.

Benefit to the government

The first criterion, benefit to the government, has two parts: (1) the use of the contract will promote the national security of the United States and (2) it will result in reduced total costs under the contract.

Promoting the national security of the United States can be construed to mean that use of the multiyear contract will result in improvements in the defense industrial base and thereby provide the industrial resources necessary for mobilization preparedness. As discussed in appendix III, we did not have a basis to evaluate whether or to what extent the industrial base would be improved as a result of the MLRS multiyear contract, but our work indicates that LTV and its subcontractors are making additional capital investments and expect to benefit from improvements in workforce skills, training programs, and increased production capabilities.

In terms of reducing total costs, we found support for estimated budgetary savings of at least \$179.9 million from the advance purchase of materials and administrative cost avoidance, as discussed in appendix II.

Degree of cost confidence

Public Law 97-86 also requires that the contract cost and anticipated cost savings be realistic. Initially, the military services produce budgetary estimates of the potential multiyear contract savings, which are usually based on prior history, information received informally from contractors, or engineering cost models. Confidence in the cost estimates may be increased by the receipt of firm proposals from the contractor on an annual and multiyear basis, and then comparing and analyzing those proposals. Present value analysis also adds realism to these estimates because the time value of money is taken into consideration.

As discussed in appendix II, most of the Army's contract savings are supported, but not all potential savings resulting from the contract were identified. For example, the Army did not attempt to estimate savings relating to administrative costs and production efficiencies.

One way to gain confidence in savings is pointed out in DOD's policy memoranda and statements by the Deputy Assistant Secretary of Defense. DOD's policy is to solicit both annual and multiyear proposals, where feasible and necessary, and upon completion of proposal evaluation to determine which method of contracting is the most advantageous to the government. According to contracting officials, the Army did not solicit both annual and multiyear proposals because procurement regulations, in effect at the time of the contract, did not require annual and multiyear proposals in a noncompetitive contract. Contracting officials believed that the contractor might inflate annual contract prices to gain a multiyear contract. While we agree that contractors could possibly inflate annual prices in a noncompetitive situation, careful evaluation of the proposal could identify and minimize any exaggerated annual contract costs.

Stability of requirements

The criterion for stability of requirements is that the minimum need for the equipment to be purchased should remain substantially unchanged during the contemplated contract period in terms of (1) production rate, (2) procurement rate, and (3) total quantities. Decreases in the total quantities procured or delays in procurement or production rates could adversely affect savings.

The required production rate for the MLRS multiyear contract appears to be stable, although there are some concerns about achieving it. Production rates in the multiyear contract correspond to the rates specified in the Army's MLRS Master Procurement Plan, dated March 31, 1983. According to current schedules, MLRS production is progressing at a steady pace and LTV expects to produce 6,000 rockets monthly by 1987. However, a U.S. Army Missile Command MLRS production rate capability study, dated August 8, 1984, cited rejection as a problem which could negatively affect the production rate. A rejected unit is repaired, whenever possible, or scrapped. According to the study, if the rejection rate is not decreased, scheduled production rates will be very difficult to reach and maintain. However, the study recognized that LTV has begun to use computers as management tools to analyze these problems.

The minimum procurement rate and total quantities for the MLRS also appears to be stable. The MLRS Master Program Plan documents the number of rockets and self-propelled launcher/loaders the Army plans to procure each year. According to the most recent plan, dated March 31, 1984, these procurement rates are essentially the same as specified in the contract. The only difference was that the Army plans to procure 15 additional self-propelled launcher/loaders in fiscal year 1986. Also, DOD's Five Year Defense Plan, dated May 21, 1984, matches the total quantities of rockets and other components specified in the contract.

Stability of funding

Stability of funding, another multiyear contract criterion, means that DOD must be fully committed to the program to ensure that sufficient funds will be made available to complete a multiyear contract at planned production rates. A turbulent funding history for a weapon system may suggest an unstable requirement or wavering support.

This criterion is being met because (1) the MLRS is listed as a high priority on the Army's requirement list, (2) both DOD and the Army have provided funds at a level to support the MLRS multiyear contract, and (3) planning documents indicate that DOD and the Army will continue to request sufficient funding.

The following table shows the Army's actual or planned budget for the MLRS program compared to the funds that will be needed to meet contractual obligations.

| | Fiscal Years | | | | | | | | Total |
|---|------------------------|----------------|----------------|----------------|----------------|----------------|----------------|------------|------------------|
| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | |
| | ----- (millions) ----- | | | | | | | | |
| Multyear contract | | | | | | | | | |
| Basic | \$ 15.4 | \$246.6 | \$226.4 | \$278.8 | \$253.0 | \$263.2 | \$127.6 | \$- | \$1,420.6 |
| Advanced materials | <u>53.2</u> | <u>114.1</u> | <u>137.4</u> | <u>41.0</u> | <u>-</u> | <u>-</u> | <u>-</u> | <u>-</u> | <u>345.7</u> |
| Subtotal | 68.6 | 370.2 | 363.8 | 319.8 | 253.0 | 263.2 | 127.7 | - | 1,766.3 |
| Prior contracts, nonmultyear contracts, and other program costs | <u>712.0</u> | <u>155.7</u> | <u>177.6</u> | <u>246.1</u> | <u>207.3</u> | <u>216.7</u> | <u>121.8</u> | <u>1.6</u> | <u>1,838.8</u> |
| Budgeted (Actual or planned) | <u>\$780.6</u> | <u>\$525.9</u> | <u>\$541.4</u> | <u>\$565.9</u> | <u>\$460.3</u> | <u>\$479.9</u> | <u>\$249.5</u> | <u>1.6</u> | <u>\$3,605.1</u> |

Stability of design

Before awarding a multiyear contract, the design of a system or subsystem should be stable and the technical risk associated with the item should be minimal. To achieve stability, test and evaluation should be complete and performance problems should be resolved. This is important because design changes to resolve performance problems are expensive, particularly when the multiyear contract involves early procurement and fabrication of materials and components.

MLRS test and evaluation is essentially complete and performance problems identified during testing are not expected to result in major design changes. Design changes affecting contract costs have been minimal through September 1984, and the Army established additional controls to screen out unnecessary design changes.

The test program for the MLRS culminated in December 1982 with the completion of Operational Test III. During these tests, trained soldiers extensively evaluated the MLRS system in a simulated battlefield environment. Test results showed four problem areas: (1) system accuracy, (2) reliability, availability, and maintainability of the self-propelled launcher/loader, (3) effectiveness of a communication device, and (4) performance of the position locating device. According to MLRS project officials, these problems were corrected and retested during a follow-on evaluation in August 1984. Evaluation of the operational testing results, however, were not part of our review.

Another indicator of design stability is the extent to which design changes affect contract costs. Our analysis shows only minor design changes since contract award. Of the 126 engineering changes approved since September 15, 1983, 116 related to documentation errors and other design changes not affecting contract costs. Seven changes increased contract costs by about \$1 million, and three reduced costs by \$.5 million. Thus, design changes have increased contract cost by about \$.5 million.

Also, the Army has required extra discipline to ensure stability of design. That is, the Deputy Commander, U.S. Army Materiel Development Command must review and approve all MLRS design changes that will increase contract costs. Such review and approval is not required for design changes on other major weapon systems purchased by annual contracts.

OPTIONS FOR ADVANCE
MATERIAL PURCHASES ARE
IMPROPER

Although the MLRS contract basically satisfies the essential conditions for multiyear contracting, exercising options for advance purchases of materials to support needs outside the basic 5-year contract period without obtaining specific statutory authority violates limitations established by Public Law 97-86, as well as long standing statutory funding restrictions.

Section 909 of Public Law 97-86 defines a multiyear contract as a contract for the purchase of property or services for more than one, but not more than five, program years. This section also provides for a limited exception to the rule that an appropriation may only be used to pay for the bona fide needs attributable to the year or years for which the appropriation was made. (See 31 U.S.C. § 1502(a).) The section authorizes purchases for the needs of subsequent years as follows:

"Contracts made under this subsection may be used for the advance procurement of components, parts, and materials necessary to the manufacture of a weapon system, and contracts may be made under this subsection for such advance procurement, if feasible and practical, in order to achieve economic-lot purchases and more efficient production rates."

Therefore, economic purchases of materials for the basic 5-year term of the MLRS contract would be authorized under Public Law 97-86, but without an additional statutory exception, options for such purchases to satisfy needs beyond the 5-year term would not be authorized.

A statutory exception authorizing purchases of advance materials for the options years, however, was not provided. Public Law 97-377, December 21, 1982, appropriated \$422.1 million for the purchase of the MLRS under a multiyear contract, to remain available for obligation until September 30, 1985. The accompanying conference report stated with regard to the MLRS contract that:

". . . The conferees are in agreement that the contract shall extend for no more than five years. The two additional option years proposed by the Army are unacceptable since procurement would begin for items to be funded in those years during the basic contract period. If the Army wishes to propose fixed price, fully funded, and severable options for years six and seven, the Committees on Appropriations of the House and Senate would consider such a proposal." (H.R. Rep. No. 980, 97th Cong., 2d Sess. 116 (1982).)

The Senate Committee on Appropriations had failed to approve multiyear procurement authority for the MLRS (S. Rep. No. 97-580, 97th Cong., 2d Sess. 73 (1982)), while the House Appropriations Committee had approved multiyear procurement provided that the contract be no longer than 5 years in duration, with no options. The House report explained that the Army's plan to begin procurement of economic order quantity items for the 6th and 7th year options (fiscal years 1988 and 1989) beginning in fiscal year 1984 resulted in a contract which was essentially 7 years in duration. (H.R. Rep. No. 943, 97th Cong., 2d Sess. 108 (1982).)

We also noted that both the House and Senate Committee reports¹ which accompanied the DOD Appropriation Act for Fiscal

¹S.Rep. No. 292, 98th Cong., 1st Sess. 84, 86 (1983) and H.R. Rep. No. 427, 98th Cong., 1st Sess. 125 (1983).

Year 1984 (Public Law 98-212) indicated that \$114.1 million of the MLRS lump-sum appropriation was intended for advance procurement, and the figure of \$114.1 million corresponds to the total amount allotted by the MLRS contract for the purchase of advance materials, including the exercise of option 1, during fiscal year 1984. We cannot assume, however, that the Congress as a whole intended to make the funds available for exercise of the option to procure advance materials in 1984 for 1988 end items. But, given that the advance procurement of materials for an option year after the 5-year basic term is not authorized, even if the Army did request funding for exercise of the option in its budget estimate, the subsequent appropriation of funds without specific reference to such use does not overcome the statutory funding restrictions, nor does it constitute authority for the proposed expenditure or make the appropriation available for that purpose. (26 Comp. Gen. 545 (1947).)

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