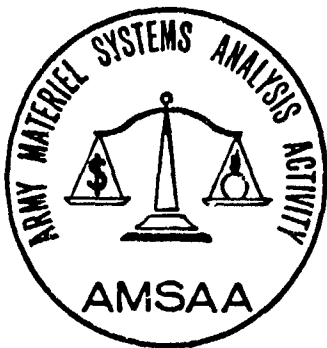


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FINAL

ADAPTING TO MULTI-YEAR PROCUREMENT

MAY 1982

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U.S. ARMY MATERIEL SYSTEMS ANALYSIS ACTIVITY
ARMY PROCUREMENT RESEARCH OFFICE
FORT LEE, VIRGINIA 23801

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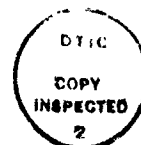
by

Duane D. Knittle

Arthur J. Mandler

The pronouns "he," "his," and "him," when used in this publication, represent both the masculine and feminine genders unless otherwise specifically stated.

Information and data contained in this document are based on input available at time of preparation. Because the results may be subject to change, this document should not be construed to represent the official position of the US Army Materiel Development and Readiness Command.



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Army Procurement Research Office
Army Materiel Systems Analysis Activity
Fort Lee, Virginia 23801

A

EXECUTIVE SUMMARY

A. BACKGROUND AND PROBLEM STATEMENT. Legislation is anticipated in the near future to relax current restrictions on multi-year procurement (MYP). Innovative MYP approaches are also encouraged by a recent Department of Defense (DOD) Policy Memorandum. If the US Army Materiel Development and Readiness Command (DARCOM) is to implement advanced multi-year procurement (AMYP) concepts in a timely manner, a policy framework should now be developed in anticipation of revised legislation.

B. OBJECTIVES. The primary objective of this study is to analyze the impact of the pending legislation on the contracting mission of DARCOM and to recommend AMYP policy positions accordingly. A secondary objective is to catalogue the waivers and deviations which would be required to pursue AMYP in the absence of legislative action.

C. RESEARCH DESIGN. Research consisted of (i) a review of current literature and regulations on MYP; (ii) analysis of MYP statutes currently before Congress; (iii) interviews with DARCOM personnel, other service representatives, and House Appropriation Committee staff members; (iv) review of recent DARCOM MYP Individual Procurement Action Reports, and available AMYP solicitations and contracts.

D. CONCLUSIONS. It is concluded that (i) AMYP can be an effective approach under proper circumstances, but careful screening of AMYP candidates is of the essence; (ii) AMYP is best viewed as a family of interrelated techniques which must be tailored for a given situation; (iii) DARCOM's AMYP policy should be sufficiently flexible to accommodate the latitude to be provided by the anticipated legislation.

E. RECOMMENDATIONS. It is recommended that (i) timing of the MYP decision be contingent upon the acquisition meeting established criteria for MYP application; (ii) MYP be planned and controlled through existent budgetary and contractual processes; (iii) conservative budgeting be employed at present; (iv) advance purchases be contractor financed or termination liability funded; (v) incremental funding be recognized as an AMYP option, but employed judiciously at present; (vi) emphasis be placed on cancellation ceiling computations; (vii) level pricing requirements be relaxed; (viii) flexible progress payments be encouraged for sole source MYP; (ix) fixed price incentive contracts be recognized for MYP use; (x) formal AMYP training be provided; (xi) an AMYP lessons learned program be established; (xii) additional research be conducted on contractual provisions, cost savings projections and incrementally funding AMYP.

F. ADDENDUM. Since this report was drafted, the anticipated legislation on MYP has passed, and interim changes to the Defense Acquisition Regulation have been issued. As neither of these developments materially affects the content of the draft report, no revisions have been made to the basic text. Rather, an addendum has been included as Appendix C to capture the revised legislative and regulatory requirements.

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CHAPTER I

INTRODUCTION

A. BACKGROUND AND PROBLEM STATEMENT.

Government and industry personnel involved in the mainstream of contracting have long subscribed to the theory that relaxation of statutory and regulatory restrictions on the use of multi-year procurement (MYP) would result in a broader usage of this contracting tool. Anticipated benefits of expanded MYP usage include cost savings and increases in contractor productivity. It now appears that relief from certain statutory and regulatory MYP restrictions may be forthcoming. The Senate and the House of Representatives (House) have both introduced legislation that would provide latitude for the application of innovative MYP techniques. Both of these legislative initiatives require that the Department of Defense (DOD) issue implementing regulations within ninety days of passage. The Bills are currently in committee for purposes of resolving their differences, and timely action is expected.

In addition to anticipated statutory changes, the Deputy Secretary of Defense has issued a Policy Memorandum on Multi-Year Procurement, dated 1 May 1981, which endorses the MYP concept under the proper circumstances and encourages innovative contracting techniques. The Memorandum goes on to state that regulatory deviations will be considered on a case-by-case basis. A copy of this Memorandum is included as Appendix A.

Whether the impetus is provided by legislative revisions or DOD policy initiatives, it is clear that there is currently a keen interest in expanding the scope and application of MYP. For the US Army Materiel Development and Readiness Command (DARCOM) to be in a position to aggressively pursue

the potential benefits of MYP in a timely manner, it should now formulate a revised MYP policy based on the assumption that legislative action will be forthcoming. Should passage of the legislation be impeded, DARCOM may still desire to pursue MYP initiatives on an "exception" basis. The purpose of this research is to provide a recommended framework and supporting implementation guidelines for a revised DARCOM MYP policy.

B. OBJECTIVES.

As stated under Section A, above, it is expected that some form of revised MYP legislation will be adopted in the near future. Consequently, the basic objectives of this research are to analyze the implications of pending legislation on the contracting mission of DARCOM and to recommend policy positions for DARCOM based on the revised statutes. Efforts in support of these objectives will include:

1. Analysis of the advantages and disadvantages of the various MYP techniques which could be employed under the revised statutory framework.
2. Identification of issues which must be addressed and resolved prior to promulgating a revised MYP policy.
3. Recommendation of DARCOM positions on open issues for which immediate resolution is feasible.
4. Identification of open issues which do not lend themselves to immediate resolution and will require additional research.
5. Development of a recommended policy on MYP, together with appropriate implementation guidelines.

While legislative action is anticipated in the area of MYP, there is always a possibility that such action may be deferred or abandoned altogether. In the absence of timely legislation, DARCOM may still wish to pursue MYP

initiatives which deviate from current regulatory requirements pursuant to the previously referenced DOD Policy Memorandum. Therefore, a second objective of this research is to catalog the deviations which would be required to pursue innovative MYP applications if legislation does not materialize.

C. SCOPE.

The legislative initiatives discussed above would potentially apply to many types of supplies and services acquired by the Government. However, it appears that the most significant benefits to be realized by DARCOM from the application of those techniques will be related to the acquisition of weapon systems and related hardware. Accordingly, this study will concentrate on the use of MYP as a tool in the acquisition of hardware. The benefits, if any, to be gained when using expanded MYP for services will not be covered in this report.

D. DEFINITIONS.

Throughout this project, communication proved difficult due to definitional problems. That is, various terms used in the context of MYP were discovered to have very different meanings to different people. In order to assure clarity in this report, it was necessary to assign universal definitions to selected terminology. Appendix A includes such definitions for some commonly used terms relating to MYP. When the reader encounters the following terms, it is suggested that the definitions in that Appendix be reviewed:

Advance Procurement	Full Funding	Nonrecurring Costs
Annual Funding	Incremental Funding	Recurring Costs
Block Buy	Multi-Year Contract	Termination for Convenience
Cancellation	Multi-Year Funding	Termination Liability
Cancellation Ceiling	Multi-Year Procurement	Termination Liability Funding

Any other unique terms will be defined when they are used.

E. REPORT RATIONALE.

1. Report Assumptions.

First, it is assumed that legislative action will be forthcoming in the near future.

Second, it is assumed that when the legislation is passed it will not differ significantly from those Bills currently under consideration. The salient points of these Bills are discussed in Chapter II and will serve as the basis for the analysis contained in succeeding chapters.

Third, it is assumed that if revised legislation is not passed, DARCOM may wish to propose candidates for innovative MYP under the latitude provided by the Appended DOD Policy Memorandum. Consequently, brief treatment is given to necessary actions to pursue such candidates.

2. Report Theory.

As noted in Section A, above, the Bills currently before the Senate and House would require DOD to issue implementing regulations within ninety days of passage. There is also a practical need to provide guidance to the field so that MYP candidates can be selected for inclusion in the Army's fiscal year 1983 (FY 83) budget submission. Therefore, time was considered to be of the essence in generating this report. In view of the need for a timely product, research could not address all of the numerous facets of MYP. While the report provides broad coverage of the subject, certain detailed aspects are necessarily deferred for further research.

As the pending revisions would represent a significant departure from DARCOM's previous experience with MYP, empirical data is severely limited.

Consequently, this report is largely based on judgemental data gleaned from current literature in the subject area and interviews with knowledgeable personnel.

Finally, as MYP must be a multi-disciplinary effort, it was considered necessary to address this report to a rather broad readership. This is particularly true in the introductory chapters which are largely educational in nature. Chapters II and III present an overview of the evolution of MYP and its perceived advantages and disadvantages in a rather generic manner. Chapter IV, Exploration of Current Issues in MYP, is more specific and detailed. That chapter is addressed to those personnel with thorough working knowledge of DOD contracting policies and procedures. Chapter V, Conclusions and Recommendations is, like Chapter IV, directed to experienced contracting personnel.

3. Research Design.

Research began with a thorough review of recent literature on various aspects of MYP. The literature included previous research work; regulatory and policy guidance; and Congressional, General Accounting Office (GAO), DOD and Industry positions on MYP. From interviews conducted with knowledgeable and experienced personnel representing the Army, other services and the House Appropriations Committee, a broad perspective of views on both anticipated benefits and potential pitfalls of expanded MYP was obtained. An operationally oriented perspective was gleaned through interviews conducted with personnel working on the current Army candidate programs for Advanced Multi-Year Procurement (i.e., the method of contracting expected to result from impending Congressional legislation). DARCOM's recent experience with Classical Multi-Year Procurement (i.e., the method presently in use)

analyzed by examining computer data extracted from Individual Procurement Action Reports. This approach provided empirical data on past experience, as well as expert opinion as to the direction in which new DARCOM policy initiatives should proceed.

F. REPORT ADDENDUM.

Since this report was originally drafted and submitted for review, a number of events have occurred which necessitate appending an addendum to the basic text. First, the anticipated legislation to relax MYP restrictions has passed. The revised statute (Public Law 97-86) closely parallels the House Bill (H.R. 3519) which served as the basis for the report's analysis. Second, interim changes to the Defense Acquisition Regulation have been issued. Third, the Department of Defense has issued a Memorandum entitled "Funding of Multiyear Contracts." And finally, field comments have been received from DARCOM major subordinate commands. None of these developments materially affects the content of the basic report. Consequently, it was determined to include a synopsis of the key points of each in Appendix C, rather than to embed them throughout the text.

CHAPTER II

EVOLUTION OF MULTI-YEAR PROCUREMENT

A. HISTORICAL PERSPECTIVE.

1. The Annual Appropriation Process.

Each year the Congress of the United States officially allots sums of public revenues for specific purposes. That official action is known as the annual appropriation process. Since 1789 the operations of the Federal Government, for the most part, have been financed through annual appropriations. The reasoning behind the yearly practice reflects the reluctance of one Congress to enact future financial obligations that a succeeding Congress would have to honor.

The yearly Congressional appropriation process has the effect of limiting the methods by which the Government, in general, and the Department of Defense, in particular, conduct business. Meaningful planning is difficult because future funding is often in doubt. Contractual arrangements for the private sector to furnish goods and services to the Government must, in most cases, be dealt with on an annual basis.

2. Weapons Systems - Past and Present.

Two centuries ago, the nature of weaponry was such that the annual appropriation process did not present a great problem. Technology, in retrospect, was basically stable. As compared to the present, capital investment needs were relatively minimal and little attention was given to developing an industrial base. Extremely long leadtimes for material and components did not exist. Weaponry could be contracted for and delivered quickly enough that long range planning, as we know it today, was largely

unnecessary. In sum, it was an era of relative simplicity in weapons acquisition in which swords, pistols, rifles and cannon were the major commodities of the day. In contrast, today's weapon system acquisitions are extremely complex. Technology is ever advancing. Capital investment for weapons production can sometimes exceed tens of millions of dollars, and there is increasing concern over the state of the industrial base and the maintenance of a needed surge capability. Extensive networks of subcontractors and suppliers must be established and maintained. Leadtimes for certain materials and components can be quite long, and it is not uncommon for the first end item deliveries to take years from the time of contract award. To compound matters, all these factors exist in an environment of seemingly chronic inflation. In this era of complexity, it is necessary to look beyond the method of annual contracting which is effectively mandated by the annual appropriation process. One alternative which offers promise is MYP.

B. DEVELOPMENT OF CURRENT MYP POLICY.

A form of MYP was adopted by the Office of the Secretary of Defense (OSD) in 1962. It was thought that utilization of MYP would alleviate or minimize some of the problems which seemed to be inherent in a certain class of annual procurements. This class of procurements included requirements for a particular item or service that was needed on a repetitive basis. The main problems associated with contracting for that class of procurements on a single year basis included:

1. Annual administrative costs to Government and industry associated with annual proposal preparation, evaluation and negotiation.

2. Difficulty in obtaining adequate competition for an item or service that required high initial startup (i.e., nonrecurring) costs due to the fact that a previously successful producer (who has already amortized some of those costs) could easily be in a cost position that would provide a distinct competitive advantage.

3. Instability of contractor work force which led to higher cost due to personnel turnover and loss of learning curve advantages.¹

MYP was devised to overcome the above listed problems (and others), but was still limited by the annual appropriation financing practice. MYP, as implemented, simply amounted to a promise by the Government to award something akin to a series of single year contracts to one particular contractor, if Congress appropriated funds. Each "program year" of a MYP contract had to be authorized separately. The primary linkage among the various program years resulted from the fact that nonrecurring costs (NRC) were amortized over all units to be delivered during the entire multi-year contract period. If the future years were not funded by Congress, the contract was considered cancelled and the Government assumed a legal liability to reimburse the contractor for the portion of NRC that had been allocated to future years' production. Because only NRC was included in authorized cancellation cost, any material purchased or recurring effort expended for a future program year that was never funded became a non-reimbursable expense for the contractor.

¹ Harold F. Candy, "Multi-Year Procurement" (Master's Thesis, Florida Institute of Technology, 1974), p. 4.

Initial DOD procedures required the procuring activity to reserve funds to cover the potential cancellation cost liability which would accrue if funds were not appropriated to complete the contract. This practice was eventually abandoned as experience came to indicate that the probability of cancellation was rather low.² However, in 1972 the Navy presented Congress with cancellation charges exceeding \$109 million which had arisen out of cancelled MYP shipbuilding contracts. While this occurrence did not give rise to reinstatement of the practice of reserving cancellation liability funding, it did illustrate the magnitude of unfunded liabilities which might arise in the absence of appropriate controls. In an effort to prevent the recurrence of this type of situation, Congress instituted a \$5 million cancellation ceiling limitation which became law as part of the FY 76 Defense Authorization Act. Since its inception, this \$5 million limitation has come under attack by critics who claim that the degree of control imposed by such low ceilings has severely limited beneficial application of MYP.

The advent of the Congressionally imposed cancellation ceiling gave rise to the currently used form of MYP, which henceforth will be referred to as Classical Multi-Year Procurement (CMYP) in keeping with the convention adopted in Appendix A. Additional regulatory requirements of CYMP which tend to limit the application of potential MYP techniques include:

1. Limitation of Contract Type.

The current Multi-Year provisions in DAR 1-322.1(b) state, in part,

2

This continues to be the case, as evidenced by a review of MYP Individual Procurement Action Reports from 1976-1980 which revealed that of 131 contracts identified, none reflected cancellation.

that "contracts awarded under this multi-year procedure shall be firm fixed price or fixed price with provisions for economic price adjustment." This restriction is most significant in precluding the use of fixed price incentive contracts.

2. Level Pricing.

DAR 1-322.2(a)(4) requires "that the unit price of each item in the multi-year requirements shall be the same for all program years included therein." This level pricing requirement presents a greater problem to industry than to the government; however, one must consider the industry viewpoint in order to develop an equitable MYP policy. Allen E. Puckett, Chairman of the Board and Chief Executive Officer of the Hughes Aircraft Company commented about particular statutory and regulatory provisions that "stifle multi-year system contracting" in a 20 Oct 80 letter to Representative Richard H. Ichord of the House Armed Services Committee.³ In a specific comment about level pricing, Mr. Puckett stated:

DAR 1-322 contemplates amortizing the non-recurring implementation and all associated costs on a flat unit price per year over the duration of the multi-year contract. With interest rates in the range of 12-20% and progress payment at the current 80% rate, it is financially impractical for a contractor to accept such an arrangement.

3. Limitation on Advance Material Purchases.

As previously stated, CMYP is akin to a series of single year contracts, with the primary linkage of program years being provided by the

3

This letter provides a number of cogent points on industry's views on MYP and has been included as Appendix B to this report.

amortization of NRC over the entire contractual term. In a practical sense, linkage is also effected by continuity of production. On the other hand, recurring costs are treated as single year entities due to the prohibition against their inclusion in any cancellation settlements. This prohibition has resulted in contractor's sacrificing potential economies of scale in material purchasing by continuing to place subcontracts and purchase orders in single year increments.

The basis of this restriction can be traced to Office of Management and Budget Circular A-11, "Preparation and Submission of Annual Budget Estimates," and DOD Directive 7200.4, "Full Funding of DOD Programs." The latter states its purpose as follows:

The objective is to provide funds at the outset for the total estimated cost of a given item so that Congress and the public can clearly see and have a complete knowledge of the full dimensions and cost when it is first presented for an appropriation. In practice, it means that each annual appropriation request must contain the funds estimated to be required to cover the total cost to be incurred in completing delivery of a given quantity of usable end items such as aircraft, missiles, ships, vehicles, ammunition and all other items of equipment. (Emphasis provided.)

The only exception to this policy recognized by the Directive is for long leadtime components. No relief is granted for advance purchases made to exploit economies of scale. This full funding philosophy is reiterated by DAR 1-322.2(g) which states, in part:

For each program year requirement, funds shall be obligated to cover the full quantities to be delivered thereunder.

As the above policies and regulations effectively bar the Government from funding advance purchases for the purpose of cost savings,

economies of scale could only be obtained if the contractor were to finance the initial investment. Aside from the obvious working capital implications, this approach might be feasible if it were not for the exclusion of recurring costs from cancellation settlements. In this regard, DAR 7-104.47(b), Cancellation of Items, is clear in stating that any claim for cancellation settlement shall not include any amount for ". . . labor, materials or other expenses incurred by the Contractor or its subcontractors for production of the cancelled items." Thus, on the one hand the Government refuses to finance advance purchases, and on the other refuses to recognize the cost of contractor financed advance purchases in the event of cancellation. The net effect has been to preclude the advance purchase of economic order quantities.

C. RECENT DEVELOPMENTS IN MYP.

As can be seen in the preceeding section, CMYP is characterized by rather rigid and restrictive requirements. The pending legislation referred to in Chapter I would relax certain of these requirements and allow a move toward more innovative practices. Application of these innovative techniques would result in a concept of contracting that has been termed Advanced Multi-Year Procurement (AMYP).⁴ The latitude that would be provided by adoption of the AMYP concept is such that precise definition is difficult. Nonetheless, it is possible to describe the characteristics of AMYP in the context of a family of possible techniques.

⁴ This terminology was coined for this report. It is roughly analogous to the "advanced multi-year concepts" outlined in Appendix A, but is broader in scope in that it encompasses such techniques as incrementally funding.

It should again be emphasized that separate legislative initiatives are currently under consideration in the House and Senate, respectively. While these Bills are generally compatible, significant differences do exist. A chart reflecting the major aspects of both Bills is included as Table 1. Important differences between the two will be highlighted in the following discussion.

Perhaps most importantly, both versions of the legislation would significantly raise the maximum cancellation ceiling: The Senate Bill to \$50 million and the House Bill to \$100 million. Secondly, the House Bill clearly authorizes the inclusion of recurring costs in cancellation ceilings and settlements. While the Senate Bill is silent on this point, relaxation of the treatment of recurring costs is considered a fundamental characteristic of AMYP for purposes of this analysis. In a similar vein, the House Bill is also clear in authorizing advance purchases for reasons of cost saving, while the Senate Bill is less precise. Once again, the House position has been adopted for discussion in this report.

There are two other characteristics of AMYP which would require only regulatory action for implementation. First, it has been proposed that the requirement for level pricing be rescinded. Secondly, AMYP candidate programs have been put forward which contemplate the use of fixed price incentive contracts.

Taken as a whole, the characteristics of AMYP outlined above would provide a great deal more latitude in MYP contracting than is currently authorized. For ease of reference the characteristics of CMYP and AMYP are displayed in Table 2. Judicious selection and application of the contracting techniques suggested by these AMYP characteristics should facilitate

TABLE 1

COMPARISON OF SENATE AND HOUSE AUTHORIZATION BILLS

ITEM	SENATE BILL (S. 815)	HOUSE BILL (H.R. 3519)
Cancellation Ceiling	\$50 Million Maximum	\$100 Million Maximum
Congressional Controls	Regular authorization process; advance approval if cancellation ceiling is \$50 million or more	Regular authorization process; advance notification if cancellation ceiling is over \$100 million
Maximum Period	Not specified	Five Fiscal Years
Inclusion of Recurring Cost in Cancellation	Not specified	Authorized
Scope of Authorization	Does not clearly authorize MYP	Clearly authorizes MYP and advance procurement of components & materials

Source: Adapted from "Comparison of House and Senate Authorization Bills and Brooks Amendment in Reference to Multi-Year Contracting," Federal Contracts Report, 22 June 1981, p. A-13.

TABLE 2
COMPARISON OF CLASSICAL AND ADVANCED MYP CHARACTERISTICS

CONCEPT	CHARACTERISTIC
Classical MYP	\$5 million cancellation ceiling/settlement Inclusion of only nonrecurring costs in cancellation ceiling/settlement Prohibition of advance purchases other than long leadtime items Requirement for level pricing Utilization of only firm fixed price or fixed price with economic price adjustment type contracts
Advance MYP	\$50/100 million cancellation ceiling/settlement Inclusion of both nonrecurring and recurring costs in cancellation ceilings/settlements Authorization of advance purchases for economies of scale Latitude for non-level pricing Utilization of fixed price incentive type contracts if appropriate

the tailoring of suitable acquisition strategies for appropriate MYP candidates. However, each AMYP technique has distinct advantages and disadvantages. These will be explored in the following chapters.

CHAPTER III
ANALYSIS OF ADVANTAGES/DISADVANTAGES OF
ADVANCED MULTI-YEAR PROCUREMENT

A. INTRODUCTION.

Bearing in mind the necessity to define Advanced Multi-Year Procurement (AMYP) as any of a family of possible techniques rather than a rigidly defined method, it must be pointed out that the advantages and disadvantages to be realized are a function of the particular technique(s) applied. The reader is cautioned to note that an improperly applied technique could, and in many cases would, yield a disadvantage from an otherwise potentially advantageous technique. The advantages and disadvantages cited below are not necessarily all inclusive nor are they all necessarily valid. They are perceptions compiled from ideas put forth by various Government Agencies, industry officials and involved individuals. The first characteristic of AMYP, longterm contractual commitment, shares a degree of commonality with Classical Multi-Year Procurement (CMYP). Likewise, the advantages and disadvantages that characteristic yields also share some commonality. However, the following analysis is addressed to advanced multi-year techniques.

In a broad sense, proponents of AMYP cite the major advantage as being acquisition cost savings. Other significant advantages cited are improvements to the defense industrial base, enhancement of capital investment and increases in productivity. Even the critics of AMYP acquiesce to those cited advantages; however, they believe the specter of cancellation cost in the \$50-100 million range, coupled with some other less significant disadvantages, give reason to avoid the advanced techniques. In sum, proponents of AMYP are willing to accept risk to achieve potential benefits, while critics wish to avoid risk.

An advantage to the Government may, in some cases, represent a disadvantage to industry and vice versa. In recognition of that fact, the Government's perspective will be emphasized. As stated earlier, all the perceived advantages and disadvantages may not be valid. It is the purpose of the following analysis to explore their validity. In the discussions that follow, the techniques are listed and briefly described, then the advantages and disadvantages of a particular technique are considered.

B. ANALYSIS OF AMYP CHARACTERISTICS.

1. Long Term Contractual Arrangement.

Multi-Year Procurement is, by definition, a long term contractual arrangement. Unless otherwise noted, all of the advantages and disadvantages addressed below are common to both CMYP and AMYP. However, when discussed in the context of AMYP they are magnified due to the fact that application of these techniques connotes a greater degree of commitment than is inherent in CMYP. This is mainly due to the Government increasing its financial liability. In the case of contract cancellation, the liability could be as much as \$100 million, as compared to the \$5 million ceiling presently mandated by law.

a. Advantages.

As was noted in the introduction to this chapter, the major advantage of AMYP is cost savings. A long term contractual commitment is decidedly an advantage since it has a major influence on cost savings. First, the elimination of a yearly contract would reduce administrative costs associated with annual solicitations, proposal preparations and, when applicable, negotiations. For both industry and Government, long range planning and forecasting would be enhanced. That should lead to more

economical management methods. Excessive costs normally associated with work force instability and learning curve disruptions should be held down due to production continuity. Additionally, competition should increase for the initial award because a long term contractual commitment (with an opportunity to amortize nonrecurring costs over a greater number of units than in a single year contract) would promote competition from contractors other than previous producers. This is because the possible cost advantage held by the previous producer (vis a vis tooling already amortized, etc.) would be greatly lessened. The opportunity to obtain a long term contract might also induce a given firm to compete for a MYP when it would not be interested in a single year contract. With proper management, a prime contractor could create greater competition among sub-contractors by flowing down this AMYP technique. The enhancement of long range planning previously mentioned, coupled with increased cancellation protection, should lead to greater capital investment. This would favorably affect productivity increases which, to some extent, could help with the expansion and modernization of the overall defense industrial base. It is deducible that, to some extent, there would be an increase in quality assuming a stable, trained workforce utilizing more modern equipment. It has also been stated that standardization would be enhanced since "the use of MYP would mean that a single item of supply would be more widely utilized and thus used more efficiently than if similar but different items were introduced into the inventory each year through annual buys."⁵ It is felt that this perceived advantage may be

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LTC John W. Douglas, "Multi-Year Procurement: Making it Work for Systems Acquisition" (Unpublished Research Paper, Cornell University, 1981), pp. 5-6.

valid for the purchase of supplies, but would provide little benefit for weapon systems acquisition.

b. Disadvantages.

Once an initial award was made there would be fewer opportunities to generate future competition. With a long term contractual commitment, not only would the prime contractor be "locked in" for a number of years, but some of his subcontractors might ultimately become de facto single sources. Future opportunities for spare parts competition might also be limited. In each case, the Government would lose the leverage associated with a competitive market. Further, solicitations and proposals may be very complex and may require, at the outset, an expenditure of additional administrative time. If not properly planned for, this additional administrative time could impact both obligation and production schedules. Finally, a long term contractual commitment would logically impede decisionmaking flexibility to a greater extent than annual contracting. With the AMYP characteristics of very high cancellation costs and advance material buys, the cost to cancel may be so high that both the Army and future Congresses are effectively committed to continue the program.

c. Summary.

A summation of stated advantages and disadvantages of the Long Term Contractual Arrangement appears below.

(1) Advantages.

- (a) Repetitive administrative costs would be reduced.
- (b) Long range planning and forecasting would be facilitated.

(c) Costs associated with work force instability and learning curve disruptions could be reduced.

(d) Competition for initial award should increase.

(e) Capital investment and productivity should increase.

(f) Industrial base could be expanded and modernized.

(g) Quality and standardization could increase.

(2) Disadvantages.

(a) Future competition could be impeded.

(b) Administrative leadtime could increase.

(c) Decisionmaking flexibility could be impeded.

2. Increased Cancellation Ceiling.

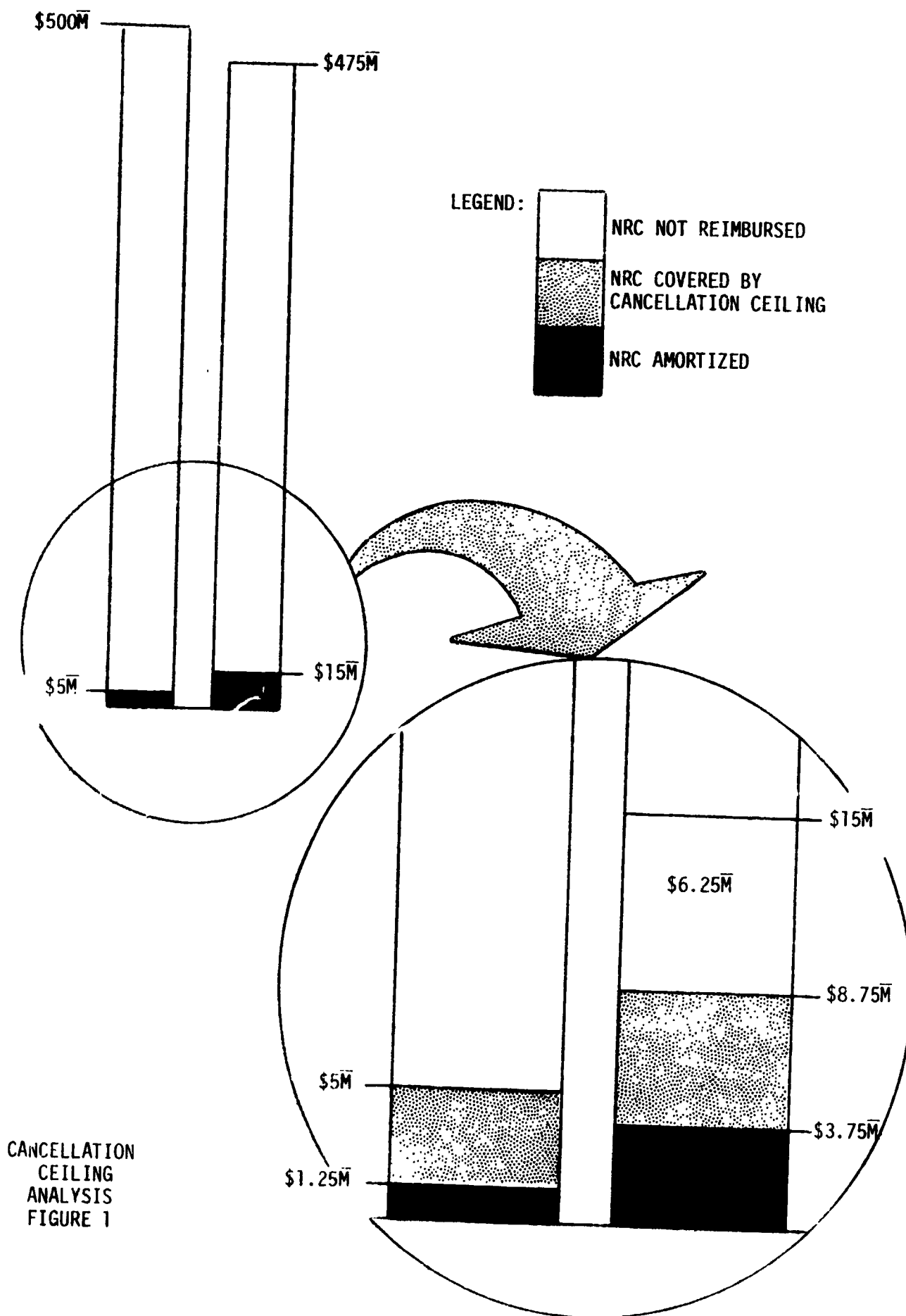
As previously stated, CMYP's \$5 million cancellation ceiling limitation is thought to be a significant impediment to expanded application of MYP. It appears that the maximum ceiling is soon to be raised to the \$50-100 million range. It must be remembered that improper application of an increased ceiling can be financially injurious to the Government. When considering use of a high cancellation ceiling, all the advantages and disadvantages must be weighed on a case-by-case basis, and decisions must be reached based upon the probable effect of a higher ceiling on a particular acquisition. Below, the general advantages and disadvantages are discussed. To be specific, those general advantages would have to be considered in the context of a specific acquisition.

a. Advantages.

The main advantage of the cancellation ceiling concept is that it allows nonrecurring costs (NRC) to be amortized over a period of years which, consequently, serves to reduce the unit cost of a particular item.

With a ceiling of \$5 million, a contractor might tend to minimize his NRC investment, so that in the event of cancellation he would not incur a loss (see example below). If a conflict arose between accepting production inefficiencies and investing in capital equipment to eliminate these inefficiencies, contractors might well determine to continue with their inefficient practices. Their reasoning would be straightforward. Production inefficiencies would be compensated in the event of cancellation, whereas capital investments in excess of the ceiling limitation would be unallowable. Because of the above it is believed that capital investment and productivity would be enhanced by a higher cancellation ceiling. When capital investment would result in productivity increases great enough to justify the capital expenditure, a guarantee of contractor recoupment of that investment up to \$50 or 100 million would greatly reduce the attendant cost risk. This is not to say that AMYP will automatically lead to capital investments, but increased cancellation protection will at least remove the disincentive associated with single-year or classical multi-year contracting. Consider the following simplistic example:

Contractor A can manufacture 500 units of system X over a year period (125 units per year) for a unit cost of \$1 million by keeping its NRC investment at \$5 million. The NRC amortization (allocation) for each unit is \$10,000. If the contract is cancelled after completion of year one, the contractor will receive all costs for the units produced plus the unamortized portion of NRC (375 units cancelled $\times$ \$10,000 per unit NRC = \$3,750,000.00). The contractor would suffer no loss (see Fig. 1). That same contractor could produce identical units for \$950,000.00 each if it bought new equipment that would increase productivity, but this would



require an NRC investment of \$15 million with an allocation of \$30,000 per unit for NRC amortization. If, once again, the contract were cancelled after year one, the contractor would receive all costs for the units produced plus a maximum of \$5 million (assuming the limitation is in effect) to cover the unamortized portion of NRC. The unamortized portion of NRC would be \$11,250,000.00 (\$30,000 NRC per unit x 375 units cancelled). Therefore, after receiving the maximum \$5 million available, the contractor would have a loss of \$6,250,000 (see Fig. 1) because he tried to lower the overall contract cost. An increased cancellation ceiling could, in fact, stimulate capital investment; increase productivity; and lower net acquisition cost from \$500 million to \$475 million. Because of the stimulated capital investment, there should be at least a limited expansion and modernization of the industrial base.

b. Disadvantages.

A high cancellation ceiling would not present any disadvantages if programs selected for AMYP were never cancelled. However, the ceiling would produce large unfunded liabilities, and in the event of cancellation potential savings would be negated. In the introduction to this chapter it was noted that an improperly applied technique could yield a disadvantage from a potentially advantageous technique. Nowhere is this more true than when considering usage of a high cancellation ceiling.

c. Summary.

A summation of the advantages and disadvantages of an increased cancellation ceiling appears below:

(1) Advantages.

- (a) Costs should be reduced due to NRC amortization.

(b) Capital Investment and Productivity should be enhanced.

(c) Industrial base could be expanded and modernized.

(2) Disadvantages.

(a) Large unfunded liabilities are created.

(b) Cancellation settlements could erode or negate any advantages.

3. Advance Purchases of Materials and Components, and Inclusion of Recurring Costs in Cancellation Ceilings.

Although two seemingly different aspects of AMYP, advance purchases and inclusion of recurring costs (RC) in cancellation ceilings/settlements are so interrelated that discussing one almost necessitates discussing the other. It is difficult to conceptualize any significant RC, incurred in advance of a production run, which is not a function of purchasing or processing material and components. Because of that, these two aspects will be discussed together.

As stated earlier, classical multi-year procurement permits advance purchasing on an exception basis, but only for the acquisition of long lead-time items. AMYP, on the other hand, would permit advance procurement for the purpose of achieving savings through economic lot buys. Economic lot buying is akin to obtaining quantity discounts.

The relationship between advance purchases and RC inclusion in cancellation costs is to be found within contractor's inventory. Through economic lot buying, a contractor could have incurred RC for the advance purchased material and/or components in anticipation of production in a future "program year." Should that program year not be funded, the contract would be cancelled. If RC were not an allowable cancellation cost (as is now the

case), the contractor could not be paid for the material purchased in anticipation of usage in a future program year. Thus, the contractor would incur a loss.

a. Advantages.

The major advantage of advance procurement (with inclusion of RC in cancellation costs) is potential contract savings. This anticipated savings is to be realized from the prime contractor utilizing Economic Order Quantity (EOQ)⁶ purchasing techniques. The present reason that contractors tend to avoid EOQ purchasing techniques is that the materials and/or components are considered RC and, as such, are not reimbursable (under CMYP) in the event of contract cancellation if the items are for use in a future program year. The inclusion of RC in the cancellation costs would promote the use of EOQ purchases, which in many cases would actually be advance procurement. It is widely believed that the greatest overall saving from AMYP usage will occur in the subcontract area.⁷ Many subcontracts would present a potential for savings if EOQ purchasing techniques were utilized.

It has been stated that advance procurement could aid in inflation avoidance, but increased storage and borrowing costs⁸ could easily

⁶ EOQ is the optimal quantity of materials and/or components to order periodically in terms of demand (production needs), cost to hold (cost of maintaining inventory), and cost of reordering.

⁷ See, e.g., Appendix B in which Mr. Puckett asserts his belief that "The single most significant benefit to be derived from multi-year contracting would be our ability to place larger and more economical buys with our suppliers. . . ."

⁸ At this point it should be noted that "borrowing costs" are defined to include either (1) interest charges on contractor debt capital, or (2) interest charges on the national debt resulting from deficit spending. The former would arise from contractor financing of advance purchases, the latter if Government funding were provided.

offset this perceived benefit. Any savings attributed to inflation avoidance must be weighed against these attendant cost increases on a case-by-case basis.

b. Disadvantages.

The major disadvantage of advance procurement (with inclusion of RC in cancellation cost) is a highly increased level of financial liability in the event of contract cancellation. DOD could find itself in a position of having purchased (through a prime contractor) up to a four-year supply of unique components that, through program cancellation, may have become nothing more than scrap. If these components were procured in advance through utilizing EOQ purchasing techniques under AMYP, they become an allowable cancellation cost. At best, potential MYP savings may be reduced; at worst, incurrence of these cancellation costs may serve to increase unit prices for uncanceled program years well beyond those which would have been paid under a single year contract.

Another more subtle disadvantage, which is unique to only the advance procurement aspect of AMYP, is design changes and/or obsolescence. Consider the following:

A prime contractor advance purchases a 3-year supply of an expensive, critical component. During the first program year, it is discovered that by making a major change to that component (already in the contractor's inventory) reliability would greatly increase. It seems that DOD would then be left with only two alternatives (assuming the component could not be reworked in a cost effective manner): DOD could either pay for the now obsolete component and purchase the better replacement (through

change order procedures) or, to keep costs from increasing, accept a much lower level of reliability. Neither choice is very attractive.

Shelf life and maintenance costs could also be problems, but those factors should be considered by the prime contractor as part of his EOQ purchasing decisions.

c. Summary.

A summation of the stated advantages and disadvantages of advance procurement (with inclusion of RC in cancellation costs) appear below:

(1) Advantages.

- (a) Cost savings due to EOQ considerations.
- (b) Cost savings due to inflation avoidance.

(2) Disadvantages.

- (a) Increased cost in event of cancellation due to large inventory.
- (b) Increased cost due to obsolescence or design changes.
- (c) Hidden costs of storage, maintenance and shelf life

C. SUMMATION.

It would appear that the potential benefits of advanced multi-year procurement far outweigh the risks involved, though the perceived advantages of AMYP are very situational in nature. If proper candidates are selected and appropriate strategies are developed from the various available techniques, AMYP should benefit the Government and industry alike. Conversely, if advanced multi-year techniques are improperly applied, the Government's financial exposure in the event of cancellation would be severe.

CHAPTER IV
EXPLORATION OF PRINCIPAL AREAS OF
ADVANCED MULTI-YEAR PROCUREMENT

A. INTRODUCTION.

The following sections discuss the four principal areas which must be addressed in formulating an overall policy on Advanced Multi-Year Procurement (AMYP). As can be seen in preceding chapters, AMYP characteristics and techniques are closely interrelated. Similarly, the issues addressed below are often interdependent. While they have been segregated into policy, funding, pricing and contractual issues for purposes of this report, in reality making such fine distinctions is often difficult. Consequently, no section should be viewed as an entity in itself, but rather as an integral part of an overall AMYP policy. The chapter concludes with a brief discussion of the waivers and deviations which would have to be obtained to apply advanced multi-year techniques in the absence of revised legislation.

B. POLICY AREAS.

1. Criteria for Use of AMYP.

While AMYP can be an effective contracting approach, care must be taken in selecting candidate items. Therefore, both Congress and DOD have established criteria for its application. Table 3 captures these criteria. Reference to the Table will reveal that while these prerequisites vary in detail, they reflect a general concern over cost saving potential, design stability and requirement continuity.

Projections of cost savings attributable to advanced multi-year techniques are widely varied. Upon issuance of the DOD Policy Memorandum

TABLE 3

CRITERIA FOR AMYP UTILIZATION

LEGISLATIVE: ● WILL RESULT IN REDUCED COSTS ● CONTINUING REQUIREMENT CONSONANT WITH CURRENT PLANS ● LOW RISK OF CONTRACT CANCELLATION ● STABLE DESIGN - LOW TECHNICAL RISK	OSD: ● BENEFIT OF GOVERNMENT (COST OR OTHER) ● STABILITY OF REQUIREMENT ● STABILITY OF FUNDING ● STABLE CONFIGURATION ● DEGREE OF COST CONFIDENCE ● DEGREE OF CONFIDENCE IN CONTRACTOR CAPABILITY
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on Multi-Year Procurement (Appendix A), preliminary cost savings projections were solicited for potential DARCOM multi-year candidates. Analysis of the resultant estimates reveals that projected savings varied from 3 to 14 percent, with an average projection of 8.44 percent. The Defense Science Board's 1980 Summer Study on Industrial Responsiveness estimated the savings potential for multi-year contracting to be from 10 to 15 percent in constant dollars.⁹ As a final example, the Joint Logistics Commanders have estimated that application of AMYP techniques could result in 10 to 25 percent savings.¹⁰ It can be seen that while there is general agreement that the use of AMYP will lead to substantial cost reductions, the precise level of such savings is debatable. Until empirical data can be gathered to lend confidence to these estimates, the percentage of savings potential must remain speculative. A more detailed discussion of factors which must be considered in estimating savings is included under Pricing Issues, below. At this point, suffice to say that knowledgeable personnel from both Government and industry feel that tangible savings will accrue if AMYP is properly applied. Still, the remaining criteria for AMYP use must be satisfied if potential savings are to be realized.

As to design stability, it is absolutely essential that the probability of major technical changes is minimal if MYP is to be successful. This is not to say that no changes can be accommodated. But it must be recognized that significant design changes will counteract potential cost savings if such changes result in advance purchased component obsolescence. Both

⁹ Report of the Defense Science Board 1980 Summer Study Panel on Industrial Responsiveness (Washington, D.C., January 1981), p. 68.

¹⁰ Report of the Defense Industrial Base Panel of the Committee on Armed Services, The Ailing Defense Industrial Base: Unready for Crisis, House of Representatives, Ninety-Sixth Congress (Washington, D.C., December 31, 1980), p. 33.

the Government and the contractor must have a solid technical baseline upon which to plan the application of MYP, particularly if advance purchase of materials and components is envisioned. It is not possible to pinpoint a particular phase of the life cycle at which technological maturity is generally attained. For example, in a highly complex acquisition such as helicopters, it may be impractical to employ MYP until several years of production experience is attained. On the other hand, in programs such as training devices which frequently employ mature hardware with development efforts largely confined to software, confidence in design stability may be achieved at the time of initial production. Pre-planned product improvements must also be considered in determining both the advisability and duration of a MYP commitment. It can be seen that design stability is very situational in nature. The central point is that achievement of technical maturity is a vital prerequisite for MYP success in any situation.

Requirement and funding stability are virtually inseparable. The mission need of an AMYP candidate must be of sufficient duration to warrant a long term commitment. Any anticipated changes in threat or doctrine should be considered. Having identified a number of possible candidates based on continuing need, the Army must weigh the relative priority of these candidates. Prioritization is a function of the Planning, Programming and Budgeting System (PPBS). In essence, a number of potential candidates must compete for available funds based on the urgency of the mission need to be satisfied. By assigning a high priority to a given system or item, the Army has taken a position that funds will be budgeted for its acquisition at the expense of lower priority items. By selecting a MYP strategy in conjunction with this high priority, it has committed itself to maintaining the priority

of the item over the duration of the MYP contract. Once this determination has been made, the concurrence of DOD is obtained during its review of the Army's proposed program and budget. Congress is then requested to authorize the program and to appropriate funds for its first program year. If Congress appropriates funds to initiate MYP for the selected items, it has given at least tacit agreement to likewise fund the outyears. In sum, if candidates are carefully selected based on continuing threat and validated need, and if approval for MYP is obtained from DA, DOD and Congress, a pact should have been formed which reflects commitment to stabilize that portion of the Army's procurement budget over a number of years. Funding stability should, in effect, be the logical result of the selection and approval of candidate items which can demonstrate cost saving potential, design stability and requirement continuity.

If each of the criteria discussed above is present, the risk of cancellation should be low. This assurance will allow for an optimistic approach to MYP, rather than a preoccupation with cancellation provisions. Appropriate safeguards should, of course, be included to protect the interests of the parties if cancellation or termination should be necessary. However, careful adherence to the stated MYP criteria will go far in mitigating this possibility. The importance of these prerequisites cannot be overemphasized.

2. Planning and Control Mechanisms.

As previously noted, the move toward AMYP would relax many of the restrictions on the use of existing multi-year techniques. The question then arises as to the proper planning tools and control procedures to be applied.

With regard to the pending legislation, both the House and Senate Bills would rely primarily on the normal authorization and approval processes to provide Congressional visibility. The House version would also require thirty days advance notification prior to the award of a multi-year contract with a cancellation ceiling over \$100 million. The Senate Bill would require advance approval for MYP's with a cancellation ceiling of \$50 million or more.

Within the Army, the primary means for planning and controlling AMYP are embodied in the PPBS and procurement review processes. These processes should be mutually supportive, and together should provide adequate visibility to decisionmakers at all levels.

The programming phase of the PPBS results in DOD approval of the Army's Program Objectives Memorandum (POM). In essence, the approved POM sets forth the Army's five-year program for accomplishing its missions. As this five-year planning horizon coincides with the maximum MYP term envisioned by the legislation, a ready avenue is provided for coordination of fiscal and contractual planning at the outset. The POM also serves as the foundation for the Army's annual budget submission. Together, the programming and budgeting phases of the PPBS provide the long and near term perspectives required of any sound planning system. The yearly budgeting cycle also serves as a short term control mechanism. Further, the fact that PPBS submissions are reviewed by the Army hierarchy, by DOD, and ultimately by Congress provides assurance of full visibility and an avenue for gaining consensus and advocacy at all levels.

With respect to procurement planning and control, a given acquisition may be subjected to a number of higher headquarters approvals. These include

review of any Secretarial Determination and Findings/Justification for Authority to Negotiate, the Acquisition Plan required by DAR 1-2100, and the resultant solicitation. Of the documents covered by these reviews, the Acquisition Plan is considered to be the most appropriate for MFP planning and control. The DAR states that the Acquisition Plan should be initiated concurrently with the request for program funding. Thus, linkage with the PPBS is established at the outset. Acquisition Plans for production procurements whose contractual costs are estimated at \$15 million for all years or \$5 million for one year are reviewed by both DARCOM and the Department of the Army, with approval required at the Assistant Secretary level. While it is felt that these thresholds are somewhat low in today's environment,¹¹ this review and approval process provides an excellent avenue for gaining advocacy for AMYP application through procurement channels. It also provides an opportunity to tap corporate memory within the Army as to which AMYP techniques may have worked well in similar circumstances. Finally, use of the Acquisition Plan as a baseline document would facilitate monitoring progress through subsequent solicitation and business reviews.

It should be noted that the Illustrative Acquisition Plan Format presently set forth in DAR 1-2102 does not specifically address multi-year considerations as one of its elements. However, the format is strictly advisory, and latitude is provided to encompass such coverage.

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See APRO 904, "Acquisition Strategy Development," pp. 64 and 94. If these thresholds were raised significantly, it might be advisable to establish separate review criteria for AMYP's based on the anticipated obligation level and the cancellation ceiling.

There is ongoing debate as to the relative merits of centralized versus decentralized control of the Army's procurement mission. In the case of AMYP, it is felt that the risks inherent in applying largely untested techniques warrants close scrutiny by higher headquarters. As more experience is gained and confidence in the new techniques rises, relaxation of central control may be advisable.

3. Budgeting Considerations.

One of the most attractive benefits of AMYP is the perceived opportunity to reduce costs. As previously noted, there is general agreement that some level of savings will accrue, but no consensus as to the magnitude of such savings. Given this situation, there is currently debate concerning the budgeting strategy which should be employed. That is, should an optimistic budget be prepared on the assumption that a given level of savings will be forthcoming, or should a more conservative approach be employed?

Discussions with field personnel revealed that there is no established technique for projecting cost savings under AMYP. This is understandable in light of the lack of experience with these techniques. When coupled with the fact that overall estimates vary from ten to twenty-five percent savings, the absence of proven estimation techniques makes reliance on assumed savings in the budgeting process a risky proposition.

Current regulations require that alternative proposals be solicited on the basis of both multi-year and single-year awards. It is not anticipated that this requirement will change. Therefore, the possibility always exists that the Army will opt for the single-year contract.

In a similar vein, it is possible that industry will decline to submit a proposal on a multi-year basis. If this were the case, DARCOM

would have no alternative than to award a single-year contract at a presumably higher cost.

Given the above, it is felt that a conservative budgeting strategy should be employed at present. That is, in some cases there may be a strong possibility that a single-year contract will have to be awarded. If so, funds should be budgeted on that assumption. In other cases, it may be assumed that a multi-year contract will be employed, but it may be impossible to forecast savings with precision. If it is only possible to project a range of potential savings, the budget should be prepared on the assumption that the minimum savings projection will actually accrue. As more experience is gained in AMYP savings estimation, it may be advisable to adopt a more optimistic budgeting strategy. Nonetheless, caution is indicated at this time.

4. Timing of the AMYP Decision.

Three major factors influence the point in an item's life cycle when the use of MYP should be considered. These factors generally parallel the criteria for MYP application discussed above (i.e., design stability, cost savings potential, and requirement stability).

The earliest point at which MYP should be considered is at the time that design stability is achieved. Design stability is a relative concept in that some degree of technological change can normally be expected over the extended period of AMYP. The central point is that a determination must be made that the level of anticipated change will not materially compromise the pricing arrangement of the AMYP contract.

Once it is determined that the design is sufficiently stable, the validity of cost and pricing data must be considered. The application of MYP contemplates the use of a fixed price type contract, and anytime this tight a pricing arrangement is utilized a firm cost baseline must be present. The need for cost confidence is particularly acute in AMYP in view of the long term commitment involved. Reliable cost data is also needed if cost savings attributable to MYP are to be accurately projected. As in the case of design stability, it is not possible to identify a particular life cycle phase when cost confidence is generally attained. Production costs for certain items with stable technology might be projected from such planning documents as the Baseline Cost Estimate with reasonable confidence. However, a period of actual cost experience must normally be gained through either low rate or full scale production of the item. The need for cost confidence may necessarily delay MYP application, but such confidence must be attained to assure that the cost savings criteria of MYP is satisfied.

The third factor to be addressed is the magnitude of the remaining requirement. That is, there must be a continuing requirement which is large enough to provide opportunities to exploit economies of scale. At some point in the life cycle this will no longer be true, and the opportunity for AMYP savings will have been lost. In essence, the period from attainment of design stability and cost confidence through the loss of economies of scale can be viewed as a "window" for AMYP application.

As a final point, there is a secondary consideration which might influence the timing of the AMYP decision. This concerns the impact of a long term AMYP commitment on a contractor's capital investment decisions.

Simply stated, the earlier that an MYP arrangement is entered into, the greater the impact it should have on capital investment. That is, if MYP is applied at the time the contractor is initially establishing its production line, the company should be more willing to invest in capital equipment due to the cancellation protection afforded by AMYP. Aside from the cost advantage inherent in amortizing the nonrecurring cost for such equipment over the multi-year period, savings should also result from increased productivity. While the influence on capital equipment decisions should not receive the same weight as the major factors discussed above, it should also receive attention in determining the optimal timing of MYP application.

C. FUNDING AREAS.

1. Introduction.

In Chapter III of this report it was stated that AMYP should be viewed as a family of techniques which can be selectively tailored to fit the situation at hand. Nowhere is this more evident than in the area of funding alternatives. The following sections discuss the various options available, and attempt to identify their respective advantages and disadvantages.

2. Full Funding.

As defined in Appendix A, full funding contemplates the appropriation and obligation of funds in an amount which is sufficient to cover the estimated cost to deliver a total fiscal year's requirement of complete, military usable end items or services. The philosophy is that each fiscal or program year should "stand alone" for funding purposes, thus providing decisionmakers with full visibility of its attendant cost. Under current

policy (DODD 7200.4) full funding must be provided unless an exception for advance purchase of long leadtime items has been requested by DOD and approved by Congress. This funding approach is associated with Classical Multi-Year Procurement. With the advent of AMYP, the full funding concept would be modified at least to the extent of providing for advance purchases for reasons of cost savings. As will be seen under paragraph 3, below, there are three alternatives for financing advance material purchases, two of which require Government funding that could not be provided under the current regulations.

Modifying the full funding approach only to the extent necessary to authorize advance purchases for economies of scale would have the advantage of being the least radical departure from the current funding policy. Visibility of annual procurement costs would also be maintained, and delivery of full program year requirements would be assured in the event of cancellation. However, sufficient funds would have to be budgeted in the early years of the contract to cover such advance purchase costs. This level of funding might be difficult to obtain, particularly if a number of AMYP programs are proposed on this basis in a given fiscal year.

3. Advance Purchase of Materials.

There are three basic alternatives for funding advance material purchases. The following sections discuss these options in the context of a hypothetical AMYP, and analyze the relative merits of each alternative.

Figures 2 through 4 will serve as the framework for the ensuing analysis. Each alternative assumes a three-year contract requiring delivery of 33 end items per program year. Nonrecurring costs (NRC) in the amount of \$35 million are amortized across all three years. Advance purchase of

materials is included at \$100 million. A distinction is then made between the prime contractor's obligation and expenditure profiles. That is, it is assumed that subcontracts for advance materials will be awarded as follows: \$60 million to be obligated in FY 1; \$40 million in FY 2. However, actual vendor payments will not be made until delivery takes place. The expenditure profile developed in this example assumes payment of \$50 million in FY 1; \$30 million in FY 2; and \$20 million in FY 3. The effect of progress payments on this expenditure profile is also considered. Finally, other recurring costs (ORC) are established at \$165 million, or \$55 million in each program year. While highly simplified, the following examples of advance purchase alternatives illustrate many of the advantages and disadvantages of each option.

a. Contractor Financing.

If the alternative portrayed in Figure 2 is applied, the financing of the advance purchase would come from the contractor's own working or debt capital. Under this concept, the contractor would incur a deficit in FY 1 of \$16.67 million which would not be fully recouped until contract completion. While some relief would be provided by progress payments, this would not be sufficient to cover purchases for all unfunded program years. Borrowing costs associated with a contractor financed advance purchase would either be absorbed in the form of reduced profit or reflected in inflated cost figures.¹² In addition, the prospect of having to finance advance

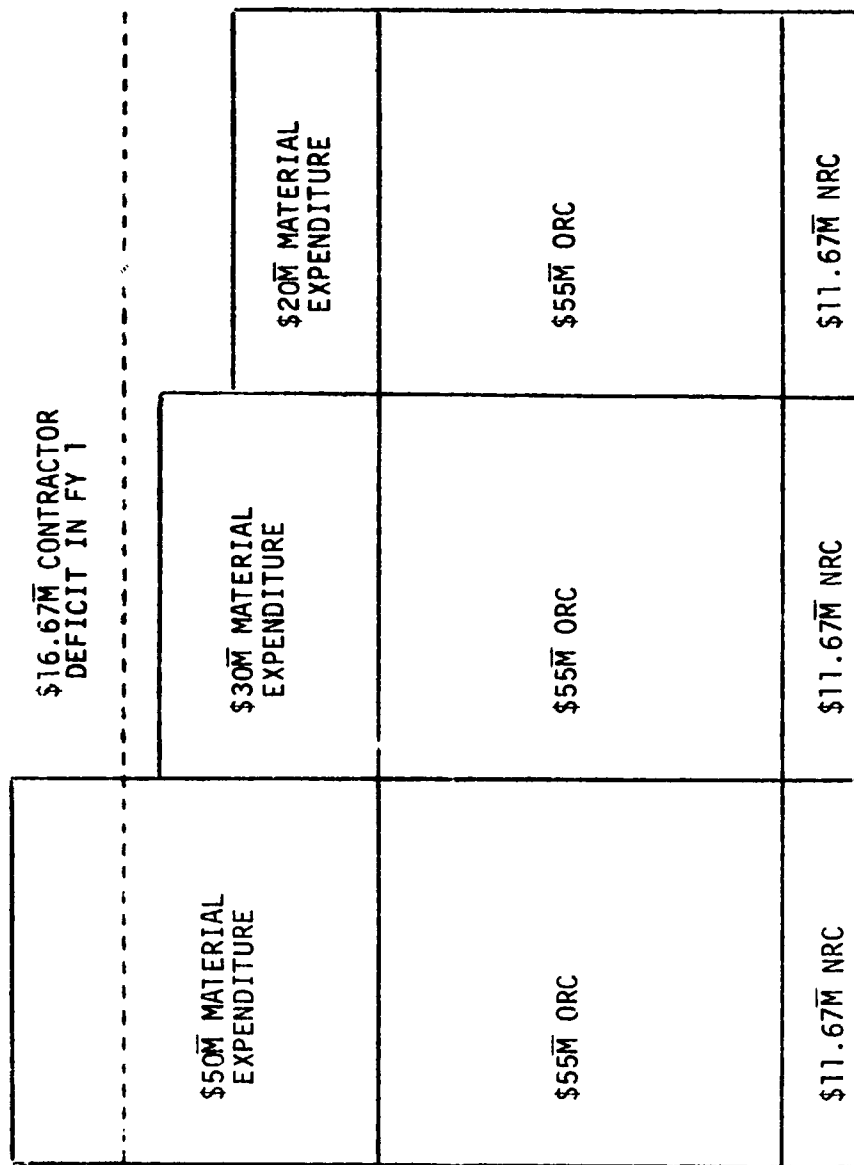
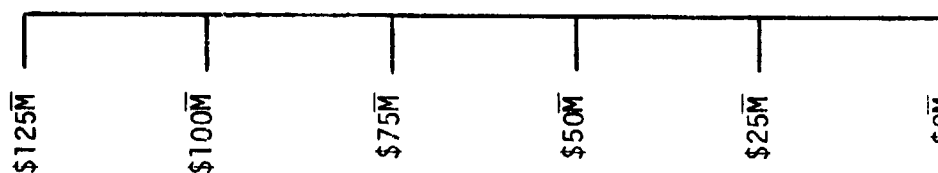
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The latter course of action would place the contractor in a compromised position as DAR 15-713.7 specifically designates interest and other financial costs as patently unallowable.

FY 1

FY 2

FY 3



CONTRACTOR
RECOUPMENTS -
\$3.335M IN FY 2
\$13.335M IN FY 3

DELIVERIES: 33 UNITS

TOTAL FUNDING: \$100M

LEGEND: ----- FUNDING LEVEL
EXPENDITURE LEVEL

M = MILLIONS

CONTRACTOR FINANCED ADVANCE PURCHASE
FIGURE 2

purchases may inhibit competition. In sum, while this concept may be appealing on the surface, it carries distinct disadvantages and may be difficult to implement.

b. Full Funding.

Figure 3 illustrates the full funding concept as it would apply to advance purchases in AMYP. Under this approach, the Government would develop a funding profile which paralleled the contractor's obligation profile. That is, if the contractor intended to place subcontracts and purchase orders totalling \$60 million in FY 1, that amount would be funded on the prime contract. Similarly, \$40 million would be funded for advance purchases in FY 2. It should be emphasized that this approach is not tied to the contractor's expenditure profile, and therein lies its major drawback. Aside from progress payments, the prime contractor will incur no payment liability to its vendors until delivery is actually made. Reference to the figure will show that actual expenditures (i.e., delivery payments) continue through FY 3. By comparing the funding levels with the expenditure profile reflected in the example, it can be seen that \$10 million in FY 1 and a like sum in FY 2 would lie dormant for payment purposes over extended periods, pending delivery of vendor items. While these balances would ultimately be utilized in succeeding years, the cash flow disadvantage to the Government should be clear. In sum, strict application of this concept would result in premature obligation of funds to the benefit of neither party.

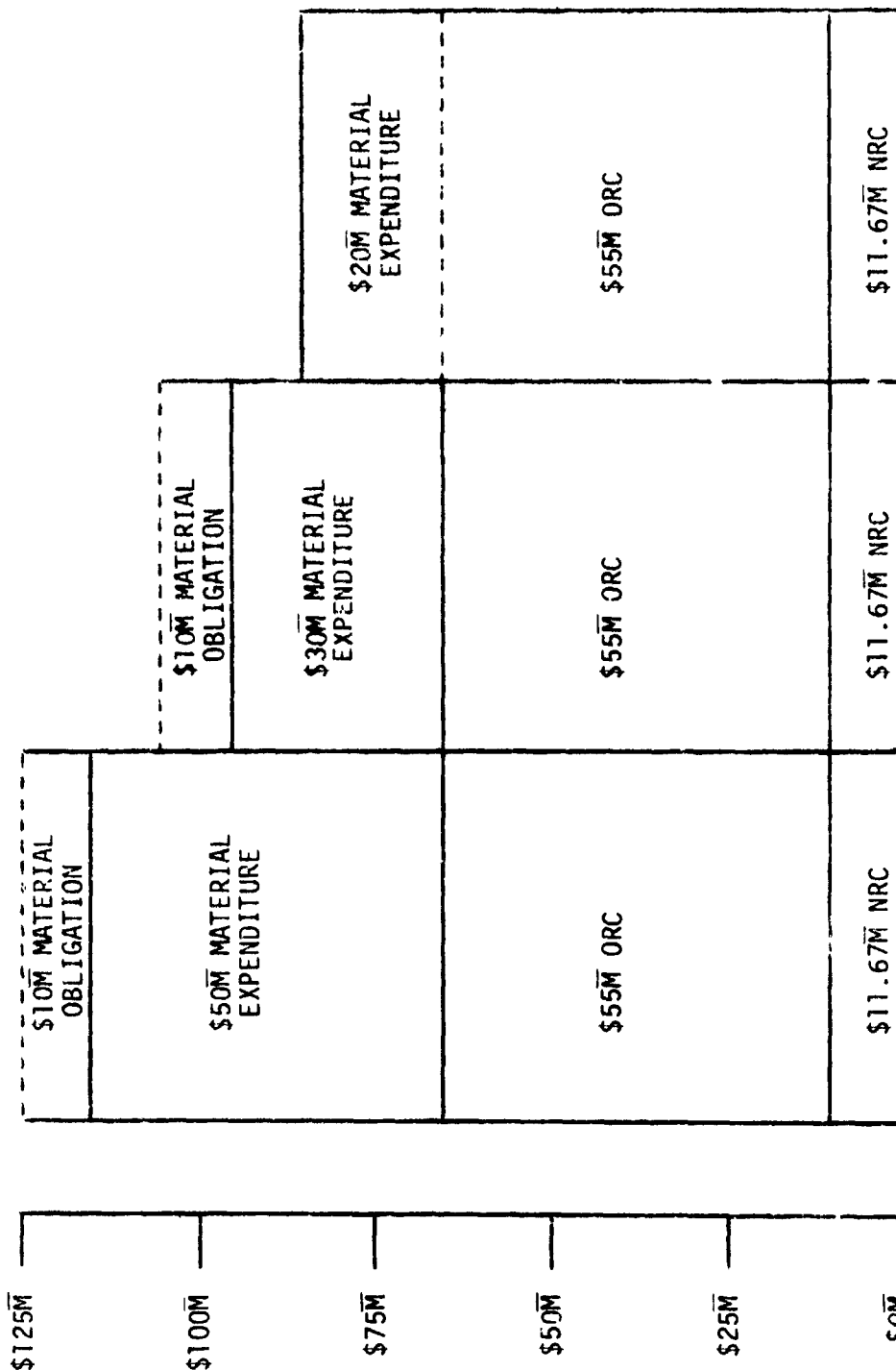
c. Termination Liability Funding.

The alternative illustrated in Figure 4 essentially represents a compromise between the two funding strategies outlined above. It attempts

FY 3

FY 2

FY 1



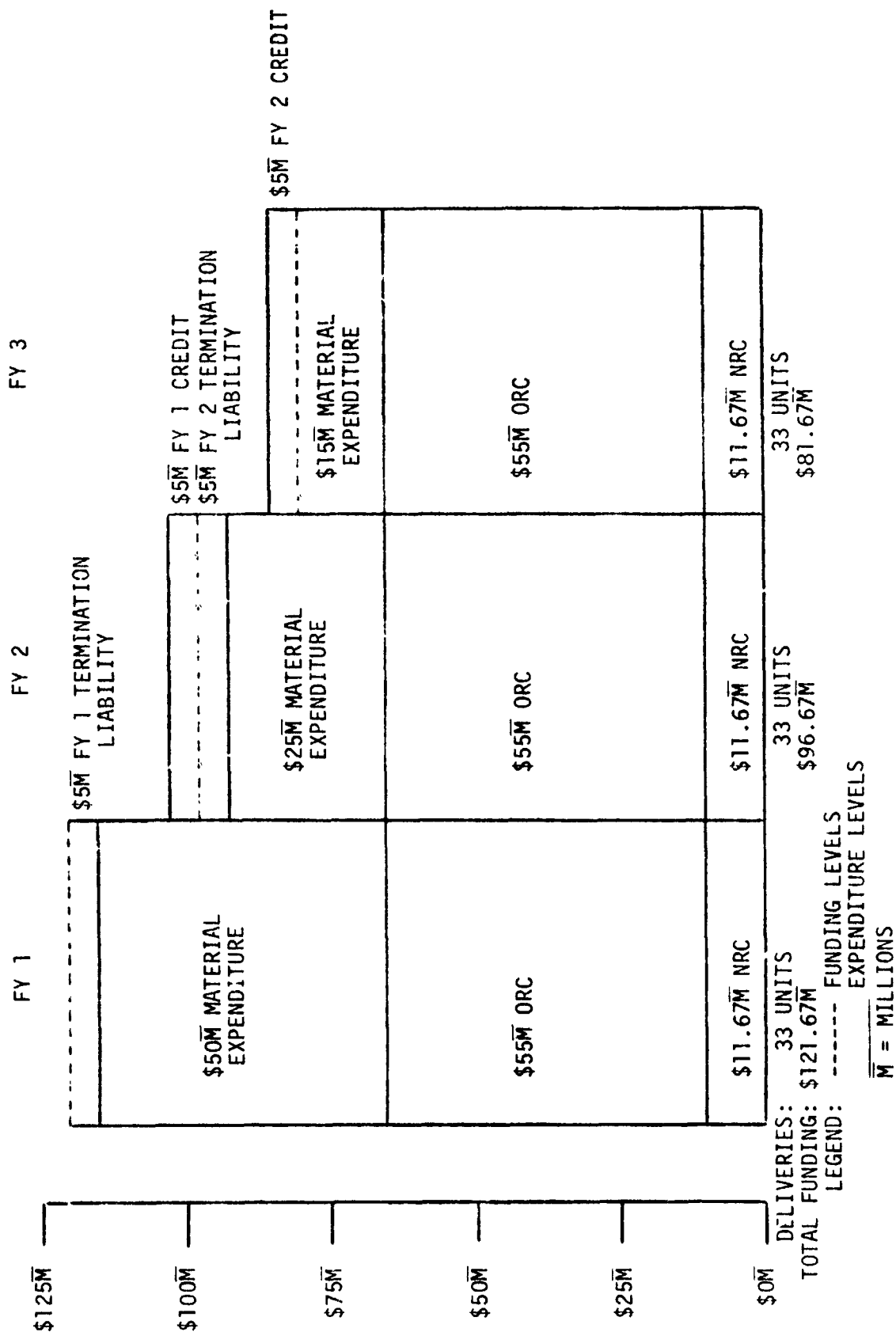
DELIVERIES: 33 UNITS
TOTAL FUNDING: \$126.67M
LEGEND: ----- FUNDING LEVELS
EXPENDITURE LEVELS

33 UNITS
\$106.67M

33 UNITS
\$126.67M

M = MILLIONS

FULL FUNDED ADVANCE PURCHASE
FIGURE 3



to provide the contractor with sufficient working capital, while reducing the initial funding requirements associated with the full funding technique

Under the concept of funding to termination liability, the Government would provide advance purchase funds sufficient to cover payments for deliveries actually made by vendors during a given fiscal year. In addition, funds would be included to cover any termination costs for which the prime contractor would be liable if future program years were cancelled. Referring to Figure 4, funds would be obligated on the prime contract in FY 1 for (1) actual payments of \$50 million for items to be delivered to the prime contractor in FY 1, and (2) termination liability of \$5 million associated with work in process for FY 2 deliverables. Such termination liability funding could be considered a progress payment reserve to cover costs incurred by vendors in FY 1 in support of deliveries to be made in FY 2. This would be a logical approach in that any resultant termination settlement would similarly include payments for completed items and work in process. The approach has several merits. Constructive use would be made of funds reserved to cover termination liability by providing the prime and subcontractors with sufficient working capital. This would not represent an unearned benefit, as any progress payments would be based on costs actually incurred. In the event of cancellation, any outstanding progress payments could simply be credited against the negotiated termination settlement(s). Application of this technique would also reduce the initial financial obligation associated with fully funding advance purchases. Its major disadvantage appears to be administrative complexity. First, progress payments made during FY 1, for example, would have to be liquidated against delivery payments in FY 2. Second, as progress payments cover only

a portion of costs actually incurred, exclusive of profit, a mechanism would have to be developed to credit any unused FY 1 termination liability funds to the FY 2 account. By applying this technique to the example given, only \$25 million would have to be obligated for FY 2 advance purchases, the remaining \$5 million being provided by FY 1 progress payment liquidations and other credits. A similar situation would occur in FY 3, in which only \$15 million would have to be obligated. As is often the case with AMYP, these factors would lend an additional element of complexity, but should not present an insurmountable barrier to the application of an otherwise sound technique.

4. Incremental Funding.

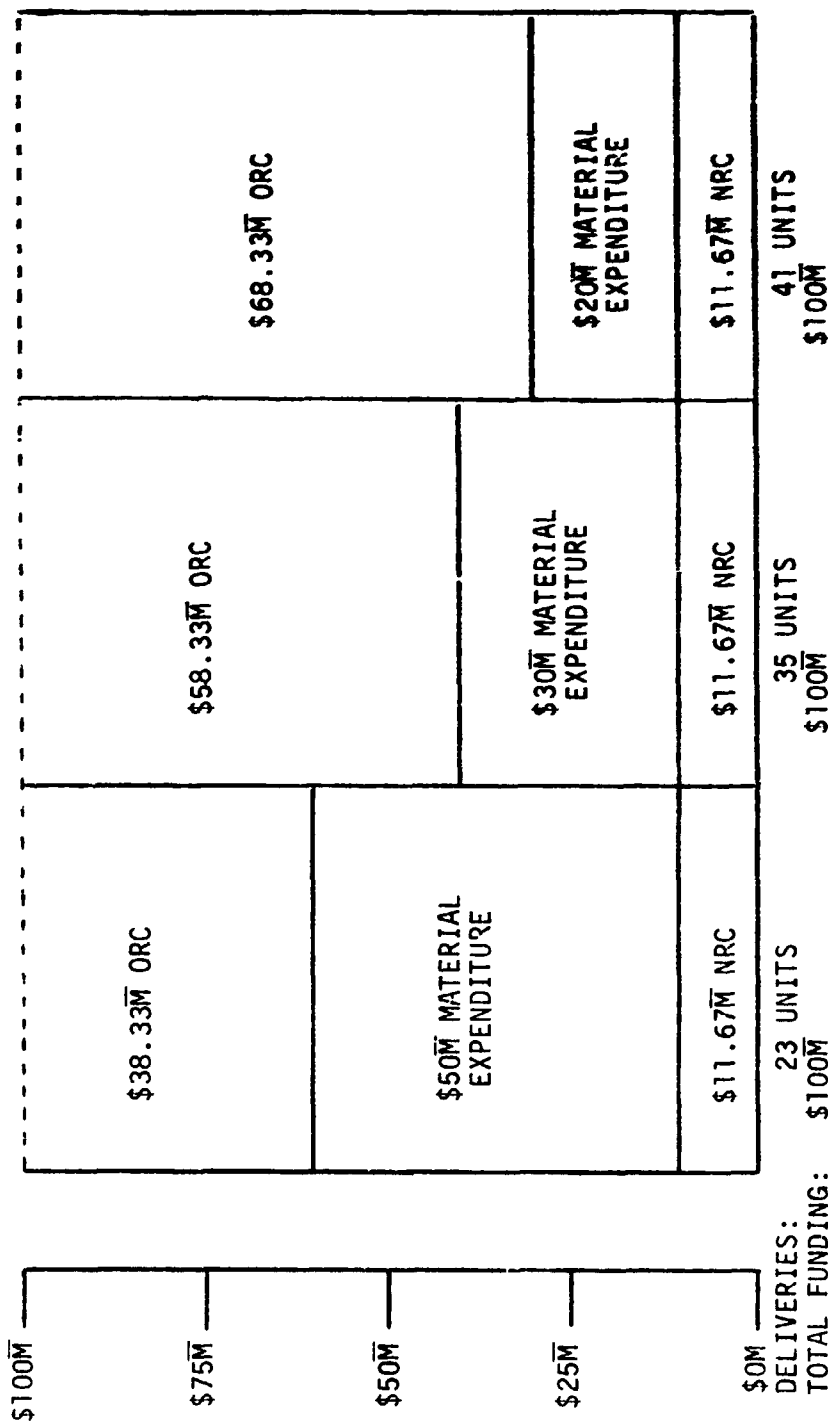
Again referring to Appendix A, an incremental funding approach envisions the appropriation and obligation of funds in an amount which is not sufficient to complete a total fiscal year's quantity of end items or services in a finished, military useable form. This type of funding is provided with the understanding that future year appropriations will be required to complete the items or tasks. Incremental funding is currently a common practice on research and development programs, and could be adapted to certain multi-year procurements.

Figure 5 illustrates the incremental funding concept as it would apply to the same contractual situation portrayed in the preceding examples. In this case, level funding of \$100 million would be maintained throughout the MY period. The contractor would then be allowed total latitude in expending these funds without regard to the program year such expenditures support. Viewed in this light, an incrementally funded AMYP approaches being a single, extended term contract which is funded in three separate

FY 3

FY 2

FY 1



INCREMENTAL FUNDING
FIGURE 5

allotments or increments. In the example presented, NRC is again amortized over the entire three year period. The contractor has next expended \$50 million of advance purchase costs in order to exploit available economies of scale. This would leave only \$38.33 million in other recurring costs (ORC) with which to begin fabricating end items. As approximately \$1.67 million ORC per unit is required for manufacture ($\$165 \text{ million ORC} \div 99 \text{ units}$), only 23 end items could be produced with FY 81 funding. This quantity would be further reduced if progress payments for future year advance purchases were considered. However by FY 2, \$48.33 million ORC would be available after NRC and advance purchase costs are expended. This would allow for the fabrication of 35 units in FY 2, thus beginning to offset the shortfall experienced in FY 1. By FY 3, \$68.33 million ORC would be available to manufacture the remaining 41 units.

The reader is again cautioned that this is a highly simplified example in that no material costs other than advance purchases are included; no consideration is given to learning curve effects; and no indirect expenses are recognized. Nonetheless, it illustrates several points about incremental funding. First, incremental funding minimizes the Government's initial financial commitment while still providing the contractor with adequate working capital. Secondly, the latitude provided the contractor in expending available funds should maximize AMYP's cost saving potential. Thirdly, this funding strategy should not require a high cancellation ceiling due to the fact that advance purchase costs and ORC expended would be subject to a termination for convenience type settlement which could be largely paid from available funds. Only NRC (assuming that it continues to be

amortized) and possibly some incidental termination liability costs would be included in the cancellation ceiling. Finally, it should present no barrier to competition as contractor working capital requirements should be minimal.

On the other hand, a perceived disadvantage of incremental funding is the fact that early cancellation would result in delivery of less than a total program year's requirement. In this example, if the contract were cancelled after FY 1, the Government would receive only 23 finished end items, plus a large inventory of materials and components. A similar, though less acute, situation would arise upon cancellation after FY 2. If this were to occur, the Government would either be forced to accept lesser deliveries or to appropriate additional funds for completion of the uncanceled program year requirements. This additional ORC funding requirement should approximate the moneys that would have had to have been initially appropriated under the termination liability funding approach outlined above. However, a supplemental appropriation would be needed, and the required funds might not be provided. The specter of an unfavorable cancellation settlement makes the selection of stable programs of the essence for incrementally funded AMYP.

As a final note, it should also be recognized that incremental funding represents a radical departure from the current policy in DODD 7200.4. While this does not make the approach any more or less appropriate for a given acquisition, it may present a practical constraint on wide usage.

5. Treatment of Nonrecurring Costs.

Each of the examples discussed above assumes that NRC will be expended at a steady rate throughout the MY period. In fact, NRC expenditures

would probably be skewed toward the first program year due to the fact that a large proportion of NRC is attributable to preproduction or start up costs. As discussed previously, classical multi-year procurement requires the contractor to amortize these costs evenly across the unit price of all deliverable end items. While no formal statements in support of revising this policy were discovered during the course of this research, the flexibility encouraged by the appended DOD Memorandum would appear to open this issue to debate. Suffice to say that if NRC funding is allowed to track the contractor's expenditure profile, additional monies would generally be required at the outset. While such funds may be difficult to obtain, it may be necessary to adopt this practice in situations where initial NRC expenditures are expected to be high, so as not to inhibit competition by placing an undue cash flow burden on potential contractors.

D. PRICING AREAS.

1. Introduction.

This section includes a general discussion of pricing considerations in MYP. Issues to be addressed include cost savings projections, cancellation ceiling calculation, level pricing implications and payment provisions. Emphasis is placed on AMYP pricing, and the close relationship between the funding method to be applied and its attendant pricing options is stressed. Each selection is qualitative in nature, addressing the basic factors to be considered and their interrelationships. No attempt is made to develop quantitative models for treatment of these factors.

2. Cost Savings Projections.

a. Advance Purchase Savings.

As touched upon in Chapter III of this report, the estimation

of advance purchase savings should embody the basic principles of economic order quantity calculations. Just as there are economies of scale to be realized at the prime contract level, there should be economies of scale at the subcontract level. Anticipated savings would arise from such factors as increased labor learning, workforce stability and more efficient scheduling. Similar savings should accrue from second tier subcontractor economies, and so on through the subcontracting network. In addition, there should be economies associated with reduced administrative costs for subcontract placement and administration. On the other hand, increased lot sizes and accelerated deliveries may result in large inventories of components and materials at the prime and/or subcontractor's facility. Such inventories give rise to storage costs which will have the effect of offsetting other savings to some degree. Primary factors to consider include the physical characteristics of the items (e.g., size and special protective requirements) and the company's storage capacity (i.e., present capacity versus need for additional facilities).

In a related area, there may be a certain amount of inflation avoidance associated with early subcontract deliveries at each tier. However, as can be seen under Funding Issues above, either the contractor or the Government must provide early funding to finance advance purchases. This accelerated funding profile will carry either borrowing or lost opportunity costs which will mitigate inflation avoidance savings to some extent. The precise interplay of inflation avoidance and borrowing/lost opportunity costs is dependent on the situation at hand, but careful analysis of the subcontract expenditure profile(s) should provide key information in this

regard. By coupling the estimated expenditure profile with projected inflation rates, it should be possible to apply a form of present value analysis to calculate net savings in this area.

As a final point on advance purchase savings, the Government's termination liability in the event of cancellation should be considered. This is essential if termination liability funding is to be provided. It is also advisable to estimate the level of the Government's potential liability under other funding strategies, as this is also a key step in establishing an equitable cancellation ceiling (see below). The primary value of this analysis in savings projection is to develop visibility of the Government's cost-to-complete versus cost-to-cancel options. The contractor's expenditure profile is again an excellent source of information, though it may be necessary to solicit data which reflects termination liability for each cancellation possibility as part of the contractor's proposal.

b. Labor Savings.

Labor savings should arise from two closely related factors: workforce stability and learning curve improvements. The former is intuitively clear, but difficult to quantify. The long term commitment of MYP will provide a stable production environment over a number of years. This, in turn, should allow contractors to recruit, train and retain highly qualified workers based on the promise of long term employment. The precise effect of such workforce continuity cannot be foreseen. Learning curve improvements, on the other hand, are much more quantitative in nature. The first factor to consider is an absolute improvement in the learning rate. For example, one of the Army candidate programs estimated an improvement in the

learning curve factor from 92 to 87 percent if AMYP were applied.¹³ Second, disruptions in the learning curve should be eliminated in the stable production environment provided by AMYP. In sum, while other savings associated with workforce stability are largely intangible, it should be possible to quantify learning effects by applying established techniques in light of the factors outlined above.

c. Nonrecurring Cost Savings.

As has been discussed previously, one of the primary cost savings associated with classical multi-year procurement resulted from the amortization of a fixed level of NRC over a large number of end items. This concept has been thoroughly explored in the literature and need not be treated extensively in this writing.¹⁴ With the advent of the increased cancellation protection provided by AMYP, NRC investments in capital equipment to support the production program should become much more attractive. Such investments would presumably increase the contractor's productivity and lead to recurring cost savings. The interaction of nonrecurring expenditures and recurring cost savings should always be analyzed to determine their net effect on overall contract costs. It may be that pricing arrangements will be negotiated which reflect a high ratio of NRC to RC. If so, the effect of this arrangement on cancellation ceilings should be carefully considered.

¹³

Project Manager for Training Devices, "COFT Procurement Concept Analysis" (Naval Training Center, Orlando, FL, 1981), p. 19.

¹⁴

See, e.g., Report of the Commission on Government Procurement, Vol. 1 (Washington, D.C., 1972), p. 27.

3. Cancellation Ceiling Calculation.

Under the concept of CMYP, only NRC could be included in any cancellation settlement. Consequently, the methodology for determining a cancellation ceiling was rather straight-forward. The amount of NRC to be expended was first estimated and then amortized over the unit prices of deliverable end items. The only complicating factor was the \$5 million cancellation ceiling limitation. Even this was not so much a complication as a limitation on the amount of NRC to be expended on the contract. With the advent of AMYP the determination of a realistic cancellation ceiling becomes much more complex. The latitude provided by a \$50 - 100 million ceiling limitation should result in ceilings being tailored to the situation at hand rather than being established at the maximum allowable level. Further, the flexibility allowed in formulating a funding strategy requires careful analysis of the types of cost to be included in the ceiling on a case-by-case basis.

As stated earlier in this report, the advance purchase of materials for purposes of cost savings is inherent in AMYP, and will require the modification of present full funding policies to accommodate its application. Beyond this, each of the possible advance purchase financing arrangements discussed above carries its own implications for cancellation ceiling calculations. That is, if contractor financing is envisioned, all material allocable to future program years would have to be included in the ceiling. However, if direct Government financing is to be provided (either by fully funding or termination liability funding advance purchase costs), inclusion of such costs in the cancellation ceiling would be inappropriate.

While these costs would form a part of any cancellation settlement, they would already be funded on the contract. Consequently, they could be handled in the same manner as a termination for convenience settlement.

Another area of concern in establishing a cancellation ceiling is unrealized labor learning. For purposes of cancellation settlements, the DAR treats unrealized learning as NRC. If level pricing is retained with regard to labor costs, unattained learning must be included along with other NRC in the resultant ceiling.

A special situation arises if incremental funding is to be applied to a given AMYP. As presented above, incremental funding assumes that the contractor will be allowed a great deal of latitude in expending available funds. In the example discussed under Funding Areas, it was assumed that the contractor would incur NRC, advance purchase costs and ORC in roughly serial order. If NRC is again amortized evenly across all program years, any unamortized amounts would be subject to inclusion in the ceiling. There should be no need to include large amounts of RC, as the contractor would be paying for materials and components as they are delivered. It would also be making progress payments for work in process. All of these costs could be assumed to be expended at the expense of ORC effort to fabricate end items. Depending on the timing of the cancellation, the prime contractor might be able to divert funds from ORC to cover any termination liability costs for cancelled vendor items. If this were not possible, the amount of termination liability incurred (exclusive of prior progress payments) would be appropriately included in the ceiling. Nonetheless, the need for RC inclusion should be minimal as compared to the contractor financing option for advance purchases.

It can be seen that as the funding strategy approaches the conservative end of the spectrum in requiring full NRC amortization and contractor financed advance purchases, the cancellation ceiling will increase proportionately. Conversely, if more liberal Government financing is provided or incremental funding is adopted, the magnitude of the ceiling should diminish. In short, the greater the financial risk to be borne by the contractor, the greater is the need for the cancellation protection afforded by a high ceiling.

4. Level Pricing Implications.

As discussed in Chapter II of this report, the DAR currently requires that end item prices be identical throughout the multi-year period. As applied to CMYP, this requirement has the effect of forcing contractor's to amortize NRC over all deliverable items. With the advent of AMYP, the question of amortizing RC associated with advance purchases also comes into play. The following paragraphs address these topics separately.

While the amortization of NRC is a well established practice, the equity of its results is still in question. Several factors should be considered in determining if level pricing of NRC is appropriate.

First, the question of finance charges should be addressed. A large proportion of NRC is normally associated with preproduction or start-up costs which are incurred during the first program year. If level pricing is required, the contractor must defer reimbursement for a large portion of these costs until items are delivered in future program years. The borrowing costs associated with financing such expenditures until reimbursement is received can be significant in view of today's high interest rates. On the other hand, if the Government reimburses NRC as it is incurred,

additional funds would have to be appropriated at the outset of the multi-year period. In this era of budget deficits, this early funding would be reflected in increases to federal taxes or to the national debt if adequate funds could not be reprogramed from another account. Assuming that either party would have to pay approximately the same interest rate for its debt capital, the question of NRC financing has little significance from a purely economic standpoint. A wide disparity in interest charged to the respective parties would swing the balance accordingly. Similarly, the advent of a balanced budget would alter this premise. However, in today's environment it appears that the question of finance charges simply hinges on which party is to assume the responsibility.

A second factor to consider is the effect of level pricing on contractor's willingness to compete for MYP awards. Simply stated, requiring contractors to finance NRC expenditures over a number of years can act as a serious impediment to competition. As noted previously, contractors must provide such financing from either working or debt capital. If working capital were considered as a source of funds, other opportunities might well be more attractive. If debt capital were to be considered, the contractor is faced with the fact that borrowing costs are unallowable expense under the DAR cost principles. If unreimbursable interest charges were to be absorbed in the form of reduced profitability, other ventures might again be more attractive. And if interest charges were to be "hidden" in other cost elements, resultant unit prices might be too high to be competitive. These factors would tend to favor Government financing of NRC in order to promote competition.

On the other hand, Government financing carries adverse budgeting implications. That is, in financing NRC at the outset the Government would be forced to budget funds to parallel the contractors expenditure profile. This would require disproportionately high budgets for the early program years. Borrowing costs aside, such budgeting upheavals might well be politically unpalatable. Thus, level budgeting is a tangible benefit of level pricing from the Government's perspective.

Turning to the treatment of RC, if significant amounts are expended for advance purchases on the basis of contractor financing, the considerations outlined above are greatly magnified. In essence, when the Government opts to fund the advance purchase it has determined to waive level pricing as it applies to recurring costs.

It can be seen that there are many factors to be considered in weighing the advantages and disadvantages of level pricing in a given situation. There seems to be no universal answer to the problem. In general it is felt that the same latitude should be provided for the treatment of NRC in this regard as will apparently be afforded to the financing of advance purchase expenditures under AMYP.

5. Payment Provisions.

As alluded to at various points throughout this report, one of industry's primary concerns with MYP is maintaining an adequate flow of working capital. The preceding section outlined the cash flow implications of AMYP in the context of level pricing. That is, if industry is asked to finance the accelerated expenditure profile associated with AMYP, attendant borrowing costs may discourage contractor participation. Even if unusual progress payments are considered, the funding level in the early years of

the MYP would most likely preclude full recoupment of all expenditures. If the Government provides funding to cover these front end costs, cash flow problems would be lessened. However, as only eighty percent of costs incurred are reimbursed by customary progress payments, the contractor would still have to provide working capital to cover the remaining expenditures. Over the extended term of AMYP, this could amount to a sizable investment.

A current DOD initiative which offers promise in alleviating this problem is the flexible progress payment rate program. The flexible progress payment technique utilizes the "CASH" program of the Copper Impact computer network to analyze a contractor's working capital requirements. In order to receive this form of payment, the contractors must submit cash flow data to include the time-phased level of cost incurrence (by individual cost element), the end item delivery schedule required by the solicitation, and the projected billing and payment cycle. The "CASH" program then uses this data to calculate the highest possible progress payment rate (up to 100%) which will keep the contractor's cumulative working capital investment from falling below five percent.

The flexible progress payment concept is highly compatible with selected forms of AMYP. Such progress payments will go far in easing contractor's working capital problems by reducing their investments from twenty to about five percent. While there is concern that front end funding may not always be adequate to maintain this low investment level, certain funding techniques can alleviate this possibility to a great degree. For example, providing termination liability funding to cover advance purchases should ensure that adequate monies are available. The use of the

incremental funding technique should likewise facilitate flexible progress payments. On the other hand, it may not be possible to reimburse ninety-five percent of all expenditures if contractor financing of the advance purchase is required.

In another vein, the cash flow data provided by the contractor to support its flexible progress payment request could also be used in many of the calculations discussed in preceding sections. While this data could be solicited in the absence of flexible progress payments, this technique provides a ready avenue to obtain such information for multiple purposes.

There is still a major limitation on the use of the flexible progress payment rate test which reduces its effectiveness in MYP. That is, it cannot be applied to price competitive contracts. In view of this fact, flexible progress payments will do nothing to remove the cash flow impediments to competition in AMYP.

E. CONTRACTUAL ISSUES.

1. Introduction.

The innovative techniques of AMYP, since they are a significant departure from MYP of the past, give rise to a number of contractual questions. Examples of these questions are: What contract placement methods can be successfully employed? What contract types lend themselves to AMYP? Must certain standard contractual provisions be amended? What special treatment must be afforded advance material purchases? There are no simple answers because AMYP itself is not simple. Perhaps once AMYP legislation is approved by Congress and the regulatory procedure begins, AMYP will be defined in such a way that the answers to many of these questions will be virtually prescribed. The present difficulty is largely due to the variety

of individual techniques and combinations thereof which would potentially be available. As AMYP has been defined as a family of possible techniques, it seems obvious that the answers to those questions posed above depend upon the particular techniques utilized in a specific contract. In order to properly treat all the "what ifs," a voluminous document would be required. In addition, prescribing rigid answers would lessen the flexibility of AMYP and might run counter to the legislation and/or regulations which are ultimately forthcoming.

It is believed that the most significant contractual issues are included in the following paragraphs of this section, but it should be recognized that those issues are generally treated in a broad manner. More detailed coverage would require further research and, as stated in the introductory chapter, the need for a timely report precluded addressing all the numerous facets of AMYP.

2. Method of Placement.

Any form of AMYP can be placed by means of negotiation (competitive or noncompetitive), but AMYP can be placed through advertising (formal or two-step) only when some of the more simplistic techniques are employed. For example, if a particular AMYP differed from classical multi-year only to the extent of raising the cancellation ceiling and including recurring cost in the ceiling, formal advertising might be an appropriate placement method. On the other hand, if a given AMYP contemplated a complex advance purchase to be termination liability funded, advertising might be too restrictive as discussions would most likely be required. In general, if innovative funding methods are to be used, negotiation will probably be necessary.

Total small business set-asides, when otherwise appropriate, can be utilized for AMYP. As is presently the case with CMYP, partial set-aside procedures are generally not compatible with AMYP when high start-up costs are involved. For further discussion of MYP set-aside applicability, see DAR 1-322.1(e).

3. Type of Contract.

In the past, the only contract types authorized for MYP use (per DAR 1-322.1(b)) were Firm Fixed Price (FFP) and Fixed Price with Economic Price Adjustment (FPE). Fixed Price Incentive (FPI) contracts were noticeably omitted. However, DAR 3-401(b)(6) states in part, "... when price competition is not present, and (i) when the cost and pricing data available does not permit sufficiently realistic estimates of the probable cost of performance, or (ii) uncertainties surrounding the contract performance cannot be sufficiently identified to evaluate their impact on price, the use of a type of contract other than FFP should be considered. For example, a profit incentive to control cost can be achieved through the use of the fixed-price incentive contract..."

In light of the above cited DAR passage, one would wonder why FPI usage was excluded from authorized contract types for MYP. Perhaps it is due to the fact that only with the issuance of Defense Acquisition Circular 76-20 dated 17 Sep 79 has MYP permitted non-competitive procurements. FPI, per the above cited DAR passage, should be considered when the situation warrants.

For AMYP, applicable contract types should be FFP, FPE, and FPI. A cost type contract would not be appropriate since criteria for AMYP usage

(i.e., design stability and cost confidence) include factors that are not compatible with a cost type contract.

FFP application to AMYP does not present any new problems. FPE would require extra thought, particularly in the way the Economic Price Adjustment (EPA) would apply to advance procurements. For example, it would be negligent to allow the EPA index for program year four to apply to items actually purchased and delivered in program year one. FPI would raise yet more difficult questions so far as contract structure and administration are concerned. For instance, if level pricing is applied, how would NRC be dealt with in terms of incentive targets, share ratios, etc.? How would advance purchases be accommodated? Should there be incentive targets and ceilings for each program year? In the event of cancellation, should the FPI contract revert to FFP? If so, how can this be done? While the answers to these and other questions are not self evident, certain general guidelines can be offered. First, particular care should be taken in separating those elements of cost associated with the current program year from those incurred in anticipation of future years. The former would be included in the price incentive settlement for that year; the latter would be allocated to the appropriate future year. In the event of cancellation, such future year costs would be included in the resultant cancellation settlement as either funded or unfunded Government liabilities. To facilitate this cost segregation, it is felt that agreement should be reached at the outset as to the costs allocable to each category, and that separate price and cancellation ceilings should be negotiated accordingly. Having separate incentive arrangements for each year may be desirable to facilitate price definitization as yearly requirements are completed, but this tight an

arrangement may not always be necessary. Regarding conversion to FFP in the event of cancellation, the negotiation of the FPI settlement for the uncanceled year(s) would have the effect of converting the contract to firm prices. Consequently, inclusion of separate provision for FFP reversion under those circumstances should not be necessary. In a related area, one of the Army's candidate programs included a provision for converting the FPI arrangement for future program years to FFP by mutual agreement. This may be advisable, particularly if a full five-year MYP is envisioned. In fact, a key consideration in determining if a FPI AMYP is advisable should be the likelihood of being in a position to negotiate a FFP/FPE contract within the proposed multi-year period. If this is considered to be possible, either the MYP commitment should be deferred until that time, or a provision for conversion to FFP/FPE should be included.

4. Contractual Provisions.

a. General Considerations.

Since some aspects of AMYP are such a significant departure from past MYP, it will be necessary to tailor some existing contractual provisions to provide coverage for the new techniques. It is possible that some entirely new provisions may have to be drafted. New or revised provisions may have to be developed in the following areas to accommodate the particular AMYP techniques to be employed:

- (1) Allowability of RC in any cancellation costs.
- (2) Authorizations for advance procurements.
- (3) Funding methods.
- (4) Proposal Pricing Instructions.
- (5) FPI Provisions.

- (6) EPA provisions.
- (7) Value Engineering Provisions.
- (8) Proposal Evaluation Provisions.

The above listing is not meant to be all inclusive. It is only an example of the types of considerations which must be addressed. Specific examples of clauses which might require modification are set forth below.

b. Tailored Provisions.

Many of the current DAR General Provisions were never intended to accommodate AMYP. The following paragraphs present some examples of DAR clauses which would have to be modified to adapt them for AMYP usage.

Paragraph (e) of DAR 7-104.47(b), Cancellation of Items, specifically disallows "labor, materials, or other expenses incurred by the contractor or its subcontractors for production of cancelled items." If RC is to be included as a part of cancellation ceilings/settlements, that paragraph would have to be modified accordingly.

The Limitation of Price and Contractor Obligations clause of DAR 7-104.47(a) may or may not require amendment. If incremental funding is envisioned, paragraph (d) of that clause should be modified to (1) provide the contractor with the flexibility to expend funds without regard to program year and (2) note that the contractor is not obligated to incur costs over and above the current funding level of the contract. If incremental funding is not applied, no modification should be necessary.

Although it has always been common practice to adapt economic price adjustment (EPA) clauses to the requirement at hand, AMYP may again require special treatment. That is, if advance purchase of materials is

authorized, particular case must be taken to link the EPA provision to the contractor's expenditure profile for purposes of computing any adjustments. Beyond this, suffice to say that the extended term of MYP makes the selection of appropriate economic indices extremely important.

The need for careful treatment of FPI pricing provisions has already been explored. Other examples which require tailoring could also be presented. The central point is that consistency among contractual provisions must be ensured in light of the particular AMYP techniques to be applied.

c. Value Engineering.

A problem arises in the treatment of instant and future contract savings if a fixed price incentive (FPI) contract is used for AMYP. In providing coverage for MYP, the DAR assumes that a FFP or FPE type contract will be used in accordance with current CMYP requirements. Based on this assumption, it defines instant savings as encompassing only those program years which are funded at the time the value engineering change proposal (VECP) is approved. Subsequently funded program years are treated as future savings for purposes of computing the Government and contractor's respective shares of net acquisition savings. In the case of FFP/FPE MYP, this approach results in a 50/50 share of both instant and future savings in accordance with DAR 1-1706.1(a). In providing coverage for FPI, the DAC, #76-26 changed DAR 7-104.44 to provide that instant savings on FPI contracts will be the same ratio as the contractor's cost incentive ratio. This means that if we were to try to overlay the FPI requirement that the

incentive share ratio apply to instant savings with the MYP requirement that unfunded program years be considered future savings, there would be inconsistencies as the table below depicts.

	<u>Year 1 funded</u>	<u>Year 2 unfunded</u>	<u>Year 3 unfunded</u>	<u>Year 4 unfunded</u>
CMYP (FFP)	50	50	50	50
AMYP (FPI)	20	50	50	50
Percentage Savings Assume 80/20 FPI share ratio				

VALUE ENGINEERING SHARING ANALYSIS

TABLE 4

The treatment of future savings under an FPI AMYP presents a dilemma. On one hand, if consistency is to be maintained in limiting the contractor's share of future savings to its share under the incentive ratio, the clause should be modified accordingly. On the other hand, this approach may inhibit a contractor's incentive to conduct extensive value engineering under MYP. This is considered to be an open issue at present; it should be explored thoroughly at the time that implementing regulations are drafted.

5. Advance Material Purchases.

The advance procurement aspect, although not specifically a contractual issue in the strictest sense, will nonetheless be covered in this section.

As has previously been stated, perhaps the single most significant aspect of AMYP will be abolition of the \$5 million cancellation ceiling which has limited the beneficial applications of multi-year procurements. The second most significant aspect of AMYP is authorization for advance purchases of materials and components. In Chapter III, the advantages and disadvantages associated with the advance material purchase aspect of AMYP have been discussed. It should be clear that one of the greatest cost benefits achievable from the entire AMYP concept can be derived from advance purchases. This area also presents the greatest cost risk; but with proper forethought, adequate contractual control can be established to reduce this risk.

During the data gathering phase of this research, knowledgeable acquisition personnel interviewed were asked for their thoughts as to the degree of control, if any, that the Government should maintain in relation to authorizing advance material purchases. Most of the following discussion is based upon the analysis of their experience and judgement.

In view of the fact that the multi-year contracts being discussed are of the fixed-price variety, some experienced procurement personnel might immediately state that it is an anathema to impose any material purchasing controls over the performing contractor. In some cases, this philosophy may be entirely proper. In other cases, however, imposing some level of control may be advisable. It is felt that the general philosophy of fixed-price contracting can be maintained while adequately controlling advance purchases. The key rests in thorough analysis of the contractor's advance purchase proposal at the outset. Several factors should be considered. Chapter III discussed the advance purchase obsolescence costs

which could result from implementing technical changes. In some cases, the Government may be in a better position to anticipate such changes than the contractor. If this is the case, steps should be taken to eliminate components which would be affected by the change from the proposed advance purchase inventory. Such factors as limitations on shelf-life and expectations of lower prices in the future should also be considered. A number of personnel interviewed also suggested that advance purchases be limited to items which the Army could use on other projects in the event of cancellation (i.e., items already integrated into the supply system). This is considered to be unwise as a general policy. It would tend to so limit advance purchases as to sacrifice many cost savings opportunities. It might also demonstrate a preoccupation with cancellation which would bring the advisability of pursuing AMYP into question. While commonality of components might be an attractive ancillary benefit of a given advance purchase proposal, it should not be a major consideration in most instances.

In summary, it is felt that careful analysis of contractor proposals in light of the situation at hand should be the primary means of controlling advance purchases. In most cases, the parties should be able to resolve any differences through discussion of the issues. If mutual agreement cannot be reached, specific language may have to be developed to restrict the advance purchase. Even if this is necessary, the contractor's flexibility should be restricted only to the degree necessary to assure that the Government's interests are protected.

It should be noted at this point that complex advance purchase arrangements may require detailed discussions with the contractor. This would preclude the use of advertised placement for those contracts.

F. WAIVERS AND DEVIATIONS.

As stated in Chapter I of this report, if revised legislation is not forthcoming the Army may wish to propose AMYP candidates in accordance with Appendix A. If so, a number of statutory and/or regulatory waivers and deviations would have to be obtained. These are catalogued briefly below. The order of presentation parallels the characteristics of AMYP displayed in Table II.

In order to include a cancellation ceiling in excess of \$5 million, the limitation set forth at DAR 1-322.1(a) would have to be waived. More importantly, the consent of Congress would be required as the current limitation was established by the FY 76 Defense Authorization Act. If Congress fails to pass comprehensive legislation, its attitude toward MYP will be clear. Consequently, obtaining Congressional authorization for an increased ceiling could be expected to be difficult.

If recurring costs are to be included in cancellation ceilings/settlements a deviation from DAR 1-322.2(c)(2) would be required. In addition, DAR 7-104.47(b), Cancellation of Items, would have to be modified accordingly. No Congressional action should be required in this regard.

The requirement for full funding is technically regulatory in nature, although it is understood that this policy is endorsed and expected by Congress. Consequently, it can be viewed as being a de facto statutory requirement. In view of this fact, a waiver of DODD 7200.4 to allow for advance purchases for economies of scale would be required, and Congressional

consent should be obtained to avoid any adverse legislative ramifications.

Finally, waivers from DAR 1-322.2(a)(4) and 1-322.1(b) would be required to employ non-level pricing and fixed price incentive contracts, respectively. The current restrictions are regulatory, and no legislative action would be needed.

It can be seen that limited forms of AMYP could be applied in the absence of a revised statute. But the major MYP restrictions (i.e., the \$5 million cancellation ceiling limitation and the full funding requirement) would still be present.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS.

Multi-year procurement, in general, and advanced multi-year procurement, in particular, can be effective contracting methods under the proper circumstances. If candidate items/systems are selected on the basis of the criteria set forth in Table 2 of this report, substantial benefits should accrue to Government and industry alike. The latitude provided by AMYP could potentially result in its application to a broad array of DARCOM requirements. Nevertheless, AMYP should be implemented judiciously until more experience and confidence are gained in the use of advanced multi-year techniques. AMYP should be viewed as only one of a number of available strategies, and should be applied only after the risks attendant to a long term commitment have been carefully weighed.

It is further concluded that a flexible MYP policy is needed to accommodate the latitude to be provided by anticipated AMYP legislation. As AMYP is viewed as being a family of interrelated techniques rather than the restricted methodology associated by CMYP, individual approaches to AMYP implementation will have to be selectively tailored to fit a given situation. The primary value of AMYP lies in its innovative potential. Innovation should not be constrained by an unduly restrictive MYP policy.

B. RECOMMENDATIONS.

1. Introduction.

The following recommendations generally parallel the presentation of issues in Chapter IV of this report. In some cases, immediate resolution of the issue does not appear to be feasible. These open issues are

identified and recommended for further research under Section C, below.

2. Policy Issues.

a. Criteria for Use of MYP/Timing of MYP Decision.

It is recommended that the selection of MYP candidates in strict accordance with established criteria be strongly emphasized in DARCOM's forthcoming MYP policy. Careful selection of MYP candidates will facilitate optimism in the efficacy of the approach and confidence in the outcome of the effort. It is further recommended that the principle of coordinating the timing of the MYP decision with the realization of these criteria be firmly established. Implementation of this recommendation would require the coordinated efforts of field activities, DARCOM headquarters and the Department of the Army Staff.

b. Planning and Control Mechanisms.

It is felt that appropriate control of MYP decisions can be provided without imposing additional paperwork requirements on the field. Primary reliance should be placed on existent PPBS and contractual review processes in this regard. With regard to contractual review, it is recommended that the Acquisition Plan be used as the document of record. It is further recommended that the Army establish MYP Considerations as a separate element of the Acquisition Plan. If current review thresholds are raised significantly, it is also recommended that MYP review criteria be specified. Such criteria should be keyed to both the obligation level and the cancellation ceiling anticipated for the resultant contract. Implementation of this recommendation could be accomplished by amending Section 1-2100 of the Army Defense Acquisition Regulation Supplement (ADARS).

c. Budgeting Considerations.

It is recommended that a conservative budgeting policy be adopted at present. The uncertainty surrounding cost saving projections and the potential necessity of resorting to a single year contract have led the researchers to believe that budgets should be predicated on "worst case" assumptions. As more confidence is gained in cost savings projections and industry acceptance of MYP, it may be advisable to revise this approach accordingly.

3. Funding Issues.

a. Advance Purchase of Materials.

It is recommended that DARCOM policy issuances recognize both contractor financing and termination liability funding as viable options for advance purchases. Selection between these approaches should then be predicated on a thorough review of such factors as (1) the dollar magnitude of the advance purchase; (2) the anticipated expenditure profile attendant to the purchase; (3) current borrowing cost advantages being enjoyed by either party; and (4) the projected level of competition for award. It is further recommended that fully funding advance purchases be discouraged as a matter of policy, as this approach prematurely obligates funds to the benefit of neither party.

As funding policies should be consistent among the services, it is felt that the Army should sponsor a revision to DOD Directive 7200.4 to effect this recommendation. If consensus among the services cannot be attained, Army/DARCOM funding policies should nonetheless be modified to reflect these positions.

b. Incremental Funding.

With regard to incremental funding, it is felt that this technique offers the greatest cost savings potential for extremely stable programs. However, it is recognized that this technique is largely untested in MYP production contracting, and the ramifications of a possible cancellation are not yet completely clear. Consequently, it is recommended that incremental funding be tested on a limited number of MYP candidates before a firm decision is reached on its general application. At present, the advisability of incremental funding is considered to be an open issue.

4. Pricing Issues.

a. Cost Savings Projections.

While this report addresses some of the considerations attendant to projecting MYP savings, it is by no means all encompassing. This is considered to be a prime area for additional research and is so recommended under Section C, below.

b. Cancellation Ceiling Calculations.

With the advent of AMYP, establishing equitable cancellation ceilings will become much more complex. This additional complexity arises from both the anticipated increase in the current ceiling limitation and the inclusion of recurring cost in cancellation ceilings/settlements. It is, therefore, recommended that DARCOM policy strongly emphasize the need for careful analysis of cancellation ceiling requirements in light of the funding strategy to be employed.

c. Level Pricing Implications.

Both the feasibility and advisability of level pricing will be largely dictated by the funding methods to be applied. Competitive leverage

may also be a factor. It is recommended that DARCOM actively support the rescission of the present DAR level pricing requirement to accommodate the flexibility inherent in AMYP.

d. Payment Provisions.

Flexible progress payments are highly compatible with AMYP in that they will provide the contractor with adequate working capital, while also serving as a means for obtaining cash flow data from the contractor. It is, therefore, recommended that the inclusion of flexible progress payment provisions in sole source AMYP solicitations be encouraged.

5. Contractual Issues.

a. Method of Placement.

To assure flexibility in AMYP implementation, it is recommended that the current DAR latitude for contract placement be retained.

b. Type of Contract.

It is recommended that DARCOM actively support a DAR revision to recognize the use of FPI contracts as a viable option in MYP. However, it is also recommended that the application of FPI contracts to MYP be approached with caution until more experience is gained in their use. Finally, it is felt that the use of cost type contracts for MYP production contracting should be strongly discouraged as a matter of policy.

c. Contractual Provisions.

With the advent of AMYP, certain standard DAR provisions will require modification. This is particularly true if a FPI contract is envisioned. Two actions are recommended. First, DARCOM should scrutinize AMYP candidates during the solicitation review process to identify tailored

clauses which might have general applicability. Any such clauses should then be distributed to DARCOM field activities for their use in contract construction. Second, it is recommended that those provisions identified for revision in this report, as well as any others discovered during solicitation reviews, be submitted to the DAR Committee for inclusion in the revised regulations.

With regard to value engineering, an apparent inconsistency in the treatment of future savings arises when a FPI contract is applied to MYP. This is considered to be an open issue as the efficacy of either approach has not been demonstrated. It is recommended that this inconsistency be elevated to the DAR Committee for resolution as all services would be affected by any revision.

6. Deviations and Waivers.

If Congress fails to pass comprehensive legislation, the negative (or at least cautious) attitude of that body toward AMYP should be clear. Nonetheless, if appropriate candidates are identified, it is felt that DARCOM would be remiss in not pursuing AMYP on an exception basis. Therefore, it is recommended that necessary waivers and deviations be requested to pursue such candidates under the circumstances outlined in this report.

7. Training Requirements.

The use of AMYP techniques would represent a radical departure from familiar CMYP procedures. Consequently, adequate training should be provided to the field on any revised DARCOM MYP policies. A three-fold approach is recommended. First, a second Multi-Year Workshop should be convened to familiarize key personnel with the revised policies. This should occur as

soon as practicable after the revised statutes and regulations are published. Second, seminars should be conducted at DARCOM Major Subordinate Commands after DARCOM policies are solidified. The target audience in this case should be journeyman level procurement personnel. Finally, it is recommended that AMYP instruction be incorporated into the US Army Logistics Management Center curriculum for purposes of ongoing education. Altogether, these steps should go far in assuring effective implementation of DARCOM's AMYP policies.

C. OPEN ISSUES.

1. Introduction.

The opening chapter of this report made note of the fact that all facets of MYP contracting could not be covered in the time allotted to this research. Consequently, a number of issues remain open at this writing. The advisability of scrutinizing AMYP solicitations for tailored clauses with potentially broad applicability has already been discussed. The following paragraphs set forth three additional areas which are considered to be prime candidates for further research and analysis.

2. Cost Saving Projections.

Discussions with field personnel indicated that there is presently no standard methodology for projecting AMYP savings. The uncertainty surrounding this issue is also evidenced by the fact that overall savings estimates vary from ten to thirty percent. Moreover, representatives of the House Appropriations Committee's Surveys and Investigations Team identified the need for a standardized cost projection and risk assessment model as a result of their survey of MYP candidates. It is, therefore, recommended

that additional research be conducted in this regard. All Army MYP candidate programs were tasked to provide "Estimated Savings for Multi-Year Procurement" by the Deputy Chief of Staff for Research, Development and Acquisition in his letter of 14 May 1981. As a result of this tasking, considerable efforts must have been expended by the field in formulating these estimates. The resultant data base should facilitate research into developing a standard methodology. This research could proceed in the near future.

3. Incremental Funding.

The incremental funding concept is considered to have potential merit for stable MYP programs. It appears that incremental funding has the greatest potential for cost savings, and it has the additional benefit of allowing for level budgeting. However, it represents the most radical departure from current funding policies, and the effect of any cancellation is not totally clear at present. It is recommended that this concept be explored more thoroughly and restricted to a very limited number of programs at present. Additional research in this area may require efforts from both contracting and budgeting personnel.

4. Lessons Learned.

As AMYP is a new and relatively untried approach to contracting, much of the literature on the subject is necessarily speculative in nature. As more experience is gained, the validity of current AMYP assumptions will be demonstrated. It is considered important that the Army institute a "lessons learned" program for early AMYP candidates. Thorough analysis of

lessons learned by these initial candidates should facilitate problem avoidance on later AMYP programs. Such analyses could also serve as an avenue for refining DARCOM's AMYP policy in the future. It may be advisable to have this office revisit the subject of AMYP as more experience is gained and documented in these lessons learned.

D. REPORT ADDENDUM.

As noted in Chapter I, it was necessary to prepare a report addendum to (1) outline the revised MYP statutory requirements; (2) discuss the interim DAR changes which implement the revised legislation; (3) analyze the application of expenditure funding to advance purchases; (4) present the Department of Defense policy on advance purchase funding; and (5) accommodate field comments on the draft report. None of these developments affect the conclusions and recommendations set forth above. Nonetheless, the reader should refer to Appendix C to this report to review the latest developments in multi-year procurement.

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THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON D C 20301

APPENDIX A

MAY 1 1981

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTORS, DEFENSE AGENCIES

SUBJECT: Policy Memorandum on Multiyear Procurement

POLICY

It is the policy of the Department of Defense (DoD) to acquire required property and services in the most economical manner, consistent with sound management. Property and services should, when practicable, be acquired at times and in quantities that will result in reduced costs to the Government and provide incentives to contractors to improve productivity through investment in capital facilities, equipment, and advanced technology. For quantity production, contracts should be structured and funded wherever possible to benefit from economies of scale where such economies can be attained at an acceptable level of risk to both the Government and the contractor.

The economies and efficiencies of multiyear contracts shall be balanced against risks from unstable operational, technical, design, or quantity requirements. Planning shall be conducted sufficiently early to permit inclusion of monetary requirements and the multiyear concept adopted (including any necessary request for cancellation ceiling authority) in the appropriate budget documents.

Development of the strategy involving multiyear concepts shall be the responsibility of program, system, support, or commodity managers in close cooperation with contracting and financial management specialists. Deviation from the provisions of Defense Acquisition Regulation (DAR) 1-322 and DoD Directive 7200.4 shall be authorized on a case-by-case basis by appropriately designated Departmental officials in conformance with the provision of this memorandum. Revisions to these two documents shall be made by the DAR Council and the Assistant Secretary of Defense (Comptroller) after determining what changes should be made.

DEFINITIONS

Terms that shall be used for multiyear procurement actions are defined in enclosure 1. The definitions may vary from currently accepted uses of the terms to conform to the new policies and procedures contained in this memorandum.

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CRITERIA

The process of deciding to use or not to use special economic concepts for procurement requirements requires management judgment. The criteria to be considered are provided in enclosure 2.

CONCEPTS

Full funding is the preferred method. Contractual commitments for support of outyear end items are authorized but shall be made only after careful assessment of benefits versus risks. The following depicts the spectrum of primary alternatives for weapon system acquisitions:

1. Full funding - Congressional obligation authority (OA) for fully financing any quantity of end items in a single fiscal year. Currently two partial exceptions to the full implementation of this policy are authorized and extensively used for weapon system application.

(a) Classical multiyear procurement - A contract covering more than one year's requirements but budgeted and financed in annual increments. The contractor is protected against the loss resulting from cancellation to allow reimbursement of unrecovered non-recurring costs.

(b) Advance Procurement - Financing of long lead components in a fiscal year in advance of that in which the related end item is to be acquired.

2. Advanced Multiyear Concepts - A spectrum of contracting and financing authority which will permit more economic and efficient acquisition of weapon systems which meet established criteria.

(a) Full Funding with Expanded Advance Buy - Extension of advanced buy concepts to include economic order quantities for more than one fiscal year contract requirements.

(b) Multiyear with Expanded Advance Buy - Identical to classical multiyear with advance procurement of materials, components and their associated labor for end items in the outyear portions of the contracts. Economic lot buys of such materials and components will be permitted based on established guidelines/criteria.

(c) Funding to Termination Liability - Funds are appropriated for specific increments of work to be accomplished during the fiscal year for which the funds are approved. Increments of work are based on economic production considerations of the total end items on contract (including block buy quantities) but are generally not segregated to a specific subset of the total quantity. This concept has only limited application to production rate type programs and should be considered as an exception to normal procurement financing.

BUDGET PLAN

Budget plans for multiyear procurements shall be in accordance with enclosure 3.

CONTRACTUAL CONSIDERATIONS

To ensure broad application of multiyear procurement to suitable programs, acquisition managers and contracting officers are encouraged to be innovative in developing contractual terms and conditions that recognize the risk assumption by the contractor and the appropriate control by the Government. While control by the Government should be little different in a multiyear contract than in year-to-year contracting, risk assumption by the contractor for outyear production under a multiyear contract may be significant. With regard to this risk assumption, consideration in pricing contracts should be given to (1) tailored economic price adjustment provisions, (2) profit objectives comparable with the risk, and (3) financing arrangements which reflect the contractor's cash flow requirements. In specific cases deviations from existing policies in these areas may be necessary and should be handled in accordance with DAR 1-109.

MONITORING

Existing procedures shall be reviewed to ensure that they adequately provide the mechanism for monitoring and controlling the progress of those programs selected for multiyear procurement.

APPLICATION

These principles are applicable to preparing budget submissions and justification material for FY 1983 and beyond. They are also applicable to FY 1981 and 1982, but since they may deviate from material submitted to the Congress and how Congress provided fund authorizations and appropriations, they may require the use of reprogramming procedures before they can be used.

IMPLEMENTATION

Wherever the planned acquisition of property or services for FY 1983 and subsequent years meets the criteria set forth above, program, system, support, or commodity managers should formally evaluate the potential value of MYP to reduce costs. Where conditions appear feasible, requests for proposals for FY 1983 and subsequent year requirements should require both annual year and multiyear proposals. Generally, before release of the RFP, requests for deviation to DAR and DoDD 7200.4 should be forwarded for case-by-case approval by appropriately designated Departmental officials. Solicitations should request proposals for the MYP effort to remain valid for a period of time consistent with obtaining any required deviations to current directives.



Frank C. Carlucci

Enclosures
As stated

NOTE: Enclosure 3 has been withdrawn from this Appendix A.

DEFINITIONS

Advance Procurement. An exception to the full funding policy which allows procurement of long leadtime items (advanced long lead procurement) or economic order quantities of items (advance EOQ procurement) in a fiscal year in advance of that in which the related end item is to be acquired. Advance procurements may include materials, parts and components as well as costs associated with the further processing of those materials, parts and components.

Annual Funding. The current Congressional practice of limiting authorizations and appropriations to one fiscal year at a time. The term should not be confused with two year or three year funds which permit the Executive Branch more than one year to obligate the funds.

Block Buy. Buying more than one year's requirement under a single year's contract. A total quantity is contracted for in the first contract year. Block buys may be funded to the termination liability or fully funded.

Cancellation. A term unique to multiyear contracts. The unilateral right of the Government not to continue contract performance for subsequent fiscal years' requirements. Cancellation is effective only upon the failure of the Government to fund successive FY requirements under the contract. It is not the same as termination.

Cancellation Ceiling. Upon cancellation, the maximum amount that the Government will pay the contractor which the contractor would have recovered as a part of the unit price, had the contract been completed. The amount which is actually paid to the contractor upon settlement for unrecovered costs (which can only be equal to or less than the ceiling) is referred to as the cancellation charge. Currently, this ceiling includes only non-recurring costs.

Full Funding. Funds are available at the time of award to cover the total estimated cost to deliver a given quantity of complete, militarily useable end items or services. Under current policy (DOD Directive 7200.4), the entire funding needs of the fiscal year production quantity must be provided unless an exception for advance procurement has been approved. A test of full funding is to ask the question, Does any part of this year's buy depend on a future year appropriation to result in the delivery of complete units? If the answer is yes, the contract is probably not fully funded. The principle of full funding applies only to the Procurement Title of the annual appropriation act and therefore affects production contracts but not RDT&E contracts.

Enclosure 1

Incremental Funding. Funds are not available at the time of contract award to complete a fiscal year's quantity of end items in a finished, military useable form. Future year appropriations are required in order to complete the items or tasks. Incremental funding is commonly used for RDT&E programs.

Multiyear Contract. A contract covering more than one year's but not in excess of five year's requirements. Total contract quantities and annual quantities are planned for a particular level and type of funding as displayed in the current FYDP. Each program year is annually budgeted and funded and, at the time of award, funds need only to have been appropriated for the first year. The contractor is protected against loss resulting from cancellation by contract provisions which allow reimbursement of costs included in the cancellation ceiling.

Multiyear Funding. A Congressional authorization and appropriation covering more than one fiscal year. The term should not be confused with two year or three year funds which cover only a one fiscal year's requirement but permit the Executive Branch more than one year to obligate the funds.

Multiyear Procurement. A generic term describing situations in which the Government contracts, to some degree, for more than the current year requirement. Examples include multiyear contracts, block buys, advance EOQ procurement. Generally, advance long lead procurements in support of a single year's requirement would not be considered a multiyear procurement.

Nonrecurring Costs. Those production costs which are generally incurred on a one time basis include such costs as plant or equipment relocation; plant rearrangement; special tooling and special test equipment; preproduction engineering; initial spoilage and rework; and specialized work force training.

Recurring Costs. Production costs that vary with the quantity being produced such as labor and materials.

Termination for Convenience. Procedure which any apply to any Government contract, including multiyear contracts. An contrasted with cancellation, termination can be effected at any time during the life of the contract (cancellation is commonly effected between fiscal years) and can be for the total quantity or a partial quantity (whereas cancellation must be for all subsequent fiscal year's quantities).

Termination Liability. The maximum cost the Government would incur if a contract is terminated. In the case of a multiyear contract terminated before completion of the current fiscal year's deliveries, termination liability would include an amount for both current year termination charges and outyear cancellation charges.

Termination Liability Funding. Obligating sufficient contract funds to cover the contractor's expenditures plus termination liability but not the total cost of the completed end items.

CRITERIA

The process of deciding to use or not to use a multiyear procurement (MYP) for production programs as well as how best to tailor and structure MYP requires management judgment. The following criteria have been prepared as guidelines for decision makers. The criteria are to be considered in a comparative benefit/risk analysis format where criterion 1 below, represents the benefit factor and criteria 2 through 6 represent risk factors. A format for a hypothetical program is shown at Attachment 1.

1. Benefit to the Government. A multiyear procurement should yield substantial cost avoidance or other benefits when compared to conventional annual contracting methods. MYP structures with greater risk to the Government should demonstrate increased cost avoidance or other benefits over those with lower risk. Savings can be defined as significant either in terms of dollars or percentage of total cost.
2. Stability of Requirement. The minimum need (e.g., inventory or acquisition objective) for the production item or service is expected to remain unchanged or vary only slightly during the contemplated contract period in terms of production rate, fiscal year phasing, and total quantities.
3. Stability of Funding. There should be a reasonable expectation that the program is likely to be funded at the required level throughout the contract period.
4. Stable Configuration. The item should be technically mature, have completed RDT&E (including development testing or equivalent) with relatively few changes in item design anticipated and underlying technology should be stable. This does not mean that changes will not occur but that the estimated cost of such changes is not anticipated to drive total costs beyond the proposed funding profile.
5. Degree of Cost Confidence. There should be a reasonable assurance that cost estimates for both contract costs and anticipated cost avoidance are realistic. Estimates should be based on prior cost history for the same or similar items or proven cost estimating techniques.
6. Degree of Confidence in Contractor Capability. There should be confidence that the potential contractor(s) can perform adequately, both in terms of Government furnished items (material, data, etc.) and their firm's capabilities. Potential contractors need not necessarily have previously produced the item.

APPENDIX B

HUGHES AIRCRAFT COMPANY

CULVER CITY, CALIFORNIA

ALLEN E. PUCKETT
CHAIRMAN OF THE BOARD AND
CHIEF EXECUTIVE OFFICER

October 29, 1980

The Honorable Richard H. Ichord
Committee on Armed Services
Subcommittee on Research & Development
U.S. House of Representatives
2302 Rayburn House Office Building
Washington, DC 20515

Dear Mr. Ichord:

Subsequent to my statement regarding the status of the Nation's defense industrial base, you requested that I comment for the record on how the annual authorization and appropriation process needs to be changed to allow for multiyear authorizations and appropriations and what changes would need to be made to the Defense Acquisition Regulations (DAR).

Hughes heartily endorses consideration by the House Armed Services Committee of this important issue. My remarks will be directed specifically at changes in Congressional, OMB and DoD acquisition policies and various Directives and DAR that stifle multiyear system contracting.

First -- Full Funding. There appears to be an unwritten policy in the Congress that acquisitions under the "procurement title" must be fully funded. This unwritten policy is implemented by OMB in Directive A-11 and by DoD in Directive 7200.4 titled, Full Funding of DoD Procurement Programs. These policies require all of the funding for recurring costs for a multiyear contract (that is, a contract calling for hardware deliveries over a period of several years) to be included in the first year's authorization and appropriation, plus the first year's portion of the total program nonrecurring cost, thereby creating a budgetary "bow wave." For major programs, this is a significant stumbling block to utilizing multi-year contracting.

Second -- \$5M Cancellation Ceiling. The Defense Authorization Act of 1976, Public Law 94-106, Section 810, imposes a termination ceiling of \$5M for multiyear procurement as defined in DAR 1-322, dated 26 September 1972. The \$5M ceiling is far too low for major programs and the DAR further restricts its usage to only nonrecurring costs for system acquisitions. The latter is not a problem if the program is fully funded in the first year, but is a problem if an alternative to full funding is considered.

The Honorable Richard H. Ichord
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Third -- Flat Pricing. DAR 1-322 contemplates amortizing the non-recurring implementation and all associated costs on a flat unit price per year over the duration of the multiyear contract. With interest rates in a range of 12-20% and progress payments at the current 80% rate, it is financially impractical for a contractor to accept such an arrangement.

Fourth -- Flexibility. The Congress, to some degree, and the Executive Branch have expressed concern about the loss in flexibility to meet changing priorities if a substantial number of large DoD procurements were handled on fully funded multiyear contracts.

While we believe that the single most significant benefit to be derived from multiyear contracting would be our ability to place larger and more economical buys with our suppliers and thus to provide lower hardware costs to the government, we note two additional significant benefits:

- (a) increased program stability at both the prime and sub-contractor levels, thereby attracting greater investment for productivity improvement
- (b) over a period of time, the possibility of significantly increasing production rates in the event of an emergency.

The statutory and regulatory impediments can be corrected by the Legislative and Executive branches of the Government. However, the budgetary "bow wave" and loss in flexibility resulting from fully funding several large multiyear programs in a single year is believed to be undesirable from a budgetary point of view in spite of the long-term cost benefits. We, therefore, suggest an alternative providing the benefits of multiyear contracting without the problems associated with full funding. It involves a significant change in procurement policy, but is not precluded by any significant legislative barriers. In brief, the Congress would commit to a production buy spanning three or four years for those programs that:

- (a) have been through low rate initial production (LRIP), operational test and evaluation (OT&E), and full rate production implementation;
- (b) are stable in design; and
- (c) have several years of planned production.

Such programs would be funded annually for:

- (a) current program year hardware deliverables (recurring and nonrecurring costs), less any prior years' advanced funding; plus

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(b) advanced funding for recurring production costs (including best economic buy of materials, parts, labor, etc.) applicable to future year requirements.

In addition, a termination ceiling would be contractually established for each program year to cover recurring costs applicable to future year production requirements.

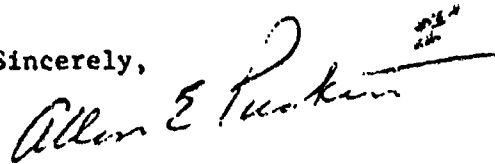
This concept would permit the DoD to terminate at any time or to adjust each year's procurement within modest limits ($\pm 10\%$) as conditions may demand.

Because of the savings anticipated with this multiyear contracting approach, it is judged that even in the event of termination, the funding of multi-year contracts, as described above, for each of the early years will not exceed the annual program funding under the current procurement process and the funding in the final year(s) of the multiyear contract would be considerably lower.

A summary of the proposed changes to implement the above is presented in Attachment A.

In conclusion, it is interesting to observe that the impediments to multi-year contracting are associated with policy, perceived policy, directives or regulations, all of which may be changed with a minimum of effort, given the commitment to capitalize on the opportunities that longer term contracting would offer.

Sincerely,



Allen E. Puckett

AEP:prs

Attachment

(a) Sec. 810 of Public Law 94-106

- (1) Repeal Sec. 810 of Public Law 94-106

(b) DoD Directive 7200.4

- (1) Revise this directive to require best economic buy of materials, parts, labor, etc., under multiyear contracts on an advanced funding and termination liability basis vs. the current 7200.4 full funding basis.

(c) DAR 1-322 Multiyear Contracting

- (1) Revise DAR 1-322 to include a cancellation provision covering the recurring cost of best economic buy of materials, parts and labor, etc., applicable to future year production.

- (2) Delete the cancellation ceiling.

- (3) Provide policy guidance for best economic buy billing milestones, per paragraph (e) below.

- (4) Revise 1-322.2 (f) to require inclusion of appropriate Economic Price Adjustment (EPA) and energy shortage clauses in all multiyear contracts.

(d) DAR, Appendix E-529

- (1) Revise Appendix E to require billing milestones at price covering recurring costs for best economic buy of materials, parts, labor, etc., applicable to future year production. This revision is appropriate since the above costs would be incurred several years in advance of end item delivery and 80% progress payments do not adequately finance the cost of contract performance.

APPENDIX C
REPORT ADDENDUM

I. INTRODUCTION.

A number of events have occurred since the issuance of APRO Draft Report 81-10 in October 1981. Most importantly, Section 909 of the Department of Defense Authorization Act of 1982 (Public Law 97-86) which formalizes legislative authority for advanced multi-year procurement was signed into law on 1 December 1981. Second, the Defense Acquisition Regulation (DAR) Committee issued interim changes on 26 February 1982 to implement the revised legislation. Third, the Department of Defense has established its policy for advance purchase funding. And finally, field comments in the area of controlling advance purchases deserve attention. The purpose of this addendum is to finalize APRO Report 81-10 by addressing each of the areas outlined above.

II. PUBLIC LAW 97-86.

Table 1 of APkO Draft Report 81-10 reflects a "Comparison of Senate and House Authorization Bills." Public Law 97-86 essentially adopted the key elements of the House Bill (H.R. 3510) reflected in the Table. As the House Bill served as the basis for the analysis contained in the draft report, no revisions to the text will be necessary. Salient points of the revised legislation include:

- a. A requirement to notify Congress 30 days in advance of entering into a multi-year contract with a cancellation ceiling in excess of \$100 million;

b. A clear authorization for the advance procurement of components, parts and materials in order to achieve economic-lot purchases and more efficient production rates;

c. A clear authorization to include both recurring and nonrecurring costs in cancellation provisions; and

d. A maximum term of five program years for multi-year contracts.

The legislation also contains rather specific criteria for the use of multi-year procurements. Again, the formal criteria do not materially affect the content of the draft report. For purposes of emphasizing their importance, the legislative criteria for multi-year contracting are set forth in full:

a. The use of such a contract will promote the national security of the United States and will result in reduced total costs under the contract;

b. The minimum need for the property to be purchased is expected to remain substantially unchanged during the contemplated contract period in terms of production rate, procurement rate, and total quantities;

c. There is a reasonable expectation that throughout the contemplated contract period the Department of Defense will request funding for the contract at the level required to avoid contract cancellation;

d. There is a stable design for the property to be acquired and the technical risks associated with such property are not excessive; and

e. The estimates of both the cost of the contract and the anticipated cost avoidance through the use of a multi-year contract are realistic.

As was the case for classical multi-year procurement, Public Law 97-86 provides that cancellation or termination settlements may be paid from:

- a. Appropriations originally available for performance of the contract concerned;
- b. Appropriations currently available for procurement of the type of property concerned, and not otherwise obligated; or
- c. Funds appropriated for those payments.

Finally, as anticipated the Act requires that the Secretary of Defense issue implementing regulations within 90 days of enactment.

III. DEFENSE ACQUISITION REGULATION - INTERIM CHANGES.

In order to meet the 90-day deadline imposed by Congress, interim changes to paragraph 1-322 of the DAR were issued on 26 February 1982. With regard to the procurement of weapon systems (as opposed to services or commercial items), the following revisions were made:

- a. DAR 1-322.1(a) was modified to reflect the Congressional notification requirements for multi-year contracts with cancellation ceilings in excess of \$100 million;
- b. DAR 1-322.1(b)(2) was modified to add the policy statement that (among other things) multi-year contracting is encouraged to "provide incentives to contractors to improved productivity through investment in capital facilities, equipment and advanced technology;" and
- c. DAR 1-322.1(c)(1) was modified to require the Secretary or his designee to determine that proposed multi-year procurements meet the criteria specified in Public Law 97-86.

Essentially, the interim DAR changes outlined above reflect the

minimum revisions needed to bring paragraph 1-322 into compliance with the revised legislation. It is significant to note that no provision is made for inclusion of recurring costs in cancellation ceilings, notwithstanding the option provided by Public Law 97-86. As stated in a 9 Feb 1982 Memorandum for the Director, DAR Council, the rationale for this exclusion is that current Department of Defense (DOD) Policy is that such recurring costs will be funded. Consequently, there is no need to include recurring costs in the cancellation ceiling. This funding policy will be discussed in some detail under Section IV below. At this point, suffice to say that inclusion of unfunded recurring costs in cancellation ceilings would require a DAR waiver.

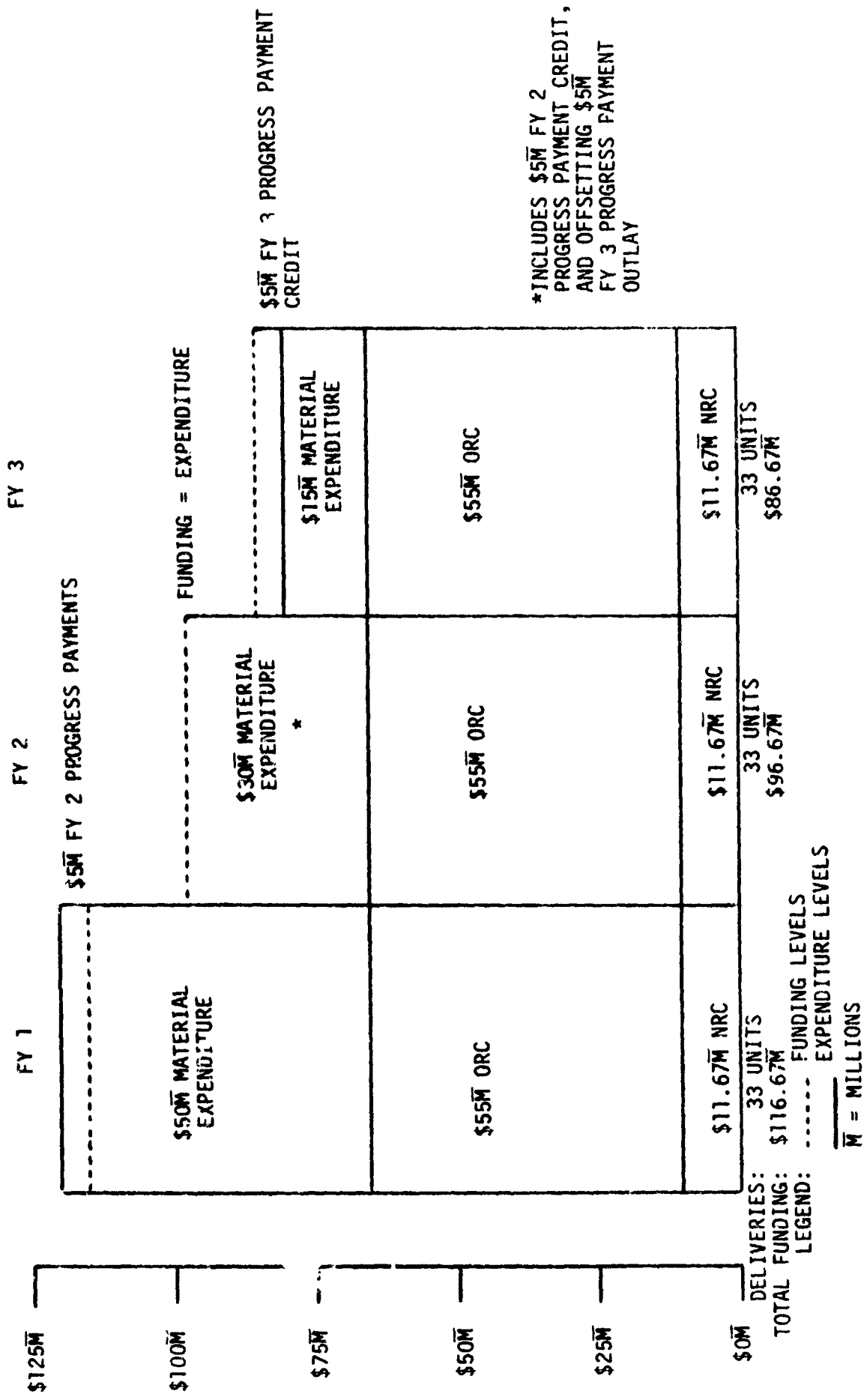
The interim DAR changes also fail to address such topics as the elimination of level pricing requirements and the use of fixed price incentive contracts. Conversations with the Chairman of the Multi-Year Subcommittee indicate that such revisions are still under consideration and may be included in the final change to the DAR. The introductory paragraphs to the interim change encourage contracting officers to request applicable deviation authority under DAR 1-109 to the extent that greater latitude is provided by Public Law 97-86.

IV. FUNDING AREAS.

Two developments of note have occurred with regard to multi-year funding. First, the concept of Expenditure Funding has been introduced. More importantly, DOD policy for the funding of advance purchase costs has been established. These developments are treated briefly below.

A. Expenditure Funding.

Figure 6 illustrates the concept of expenditure funding for advance purchase costs. The figure is based on the same example that was used under Section IV. c. of the basic report. Under the expenditure funding concept, Government funds would be obligated at a level sufficient to cover the contractor's payments for delivered items in each program year. Thus, \$50 million would be obligated to cover advance purchase deliveries in fiscal year one (FY 1); \$30 million in FY 2; and \$20 million in FY 3. Comparison of the funding profile reflected in Figure 6 with that reflected for termination liability funding in Figure 4 illustrates the primary difference between the two methods. That is, expenditure funding eliminates the amount that would be obligated to cover the prime contractor's termination liability for outyear work in process. Thus, expenditure funding reduces the "bow wave" associated with termination liability funding. Expenditure funding would reduce contractor investment as compared to the contractor financing alternative. However, it would probably not eliminate contractor investment, as progress payments to vendors would generally be required for outyear fabrication. Funding shortfalls would most certainly occur if flexible progress payments were included in the contract. Nonetheless, contractor investments would be greatly reduced, thus reducing the inhibition to competition associated with contractor financing. Expenditure funding would likewise reduce the unfunded cancellation liability which would accrue with contractor financing. The only unfunded liability arising from expenditure funding would be costs associated with outyear vendor terminations. In sum, like



EXPENDITURE FUNDED
ADVANCE PURCHASE
FIGURE 6

the other funding options discussed in the basic report, expenditure funding carries both advantages and disadvantages. It will be appropriate for certain contractual situations and should be recognized as a legitimate alternative for advance purchase funding.

B. Current DOD Funding Policy.

On 5 October 1981, a memorandum from the Office of the Under Secretary of Defense established the DOD policy of providing termination liability funding for the economic buying of outyear material. This concept is endorsed by the authors for the majority of multi-year contracting situations. Nevertheless, it is felt that the alternatives of contractor financing, expenditure funding and incremental funding should not be discarded. Each of these options would fall within the latitude provided by Public Law 97-86, and as noted above, deviation requests are being encouraged when the situation warrants.

V. CONTROL OF ADVANCE PURCHASES.

Field comments received on the draft report reflected a general concern over the control of advance material purchases. While no specific suggestions were offered for establishing such contractual controls, a number of commodity experts felt that they should be applied more stringently than suggested in the draft. The authors have endorsed a flexible policy which would accommodate such local concerns. Suffice to say that it appears that the application of multi-year procurement within the major subordinate commands can be expected to include fairly stringent advance purchase controls.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Recent legislation has revised the groundrules for multi-year procurement. In anticipation of this legislation, research was undertaken in May 1981 to frame a revised multi-year contracting policy for the US Army Materiel Development and Readiness Command (DARCOM). The objectives of this study were to (1) analyze advantages/disadvantages of various multi-year techniques which could be employed under the expected legislation; (2) identify issues which would have to be resolved prior to promulgating a revised multi-year policy; (3) recommend		

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DARCOM positions on open issues for which immediate resolution would be feasible; (4) Identify open issues which would require further research; and (5) develop a recommended DARCOM policy on advanced multi-year procurement. METHODOLOGY. Research consisted of (1) review of current literature and regulations; (2) analysis of statutes then before Congress; (3) interviews with Army, other service and Congressional staff personnel; (4) review of recent multi-year solicitations and contracts; and (5) subsequent revision of the text to reflect passage of revised multi-year legislation (Public Law 97-86) in December 1981. SUMMARY AND CONCLUSIONS. The revised multi-year statute will provide for broader application of innovative multi-year techniques. DARCOM's multi-year policy should be sufficiently flexible to take advantage of the latitude provided by the revised legislation. Multi-year procurement can provide many advantages over single-year contracting, but selection of appropriate candidate systems/items is of the essence.

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