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OFFICE OF THE SECRETARY OF DEFENSE WASHINGTON DC  
DEPARTMENT OF THE ARMY JUSTIFICATION OF ESTIMATES FOR FISCAL YE--ETC (U)  
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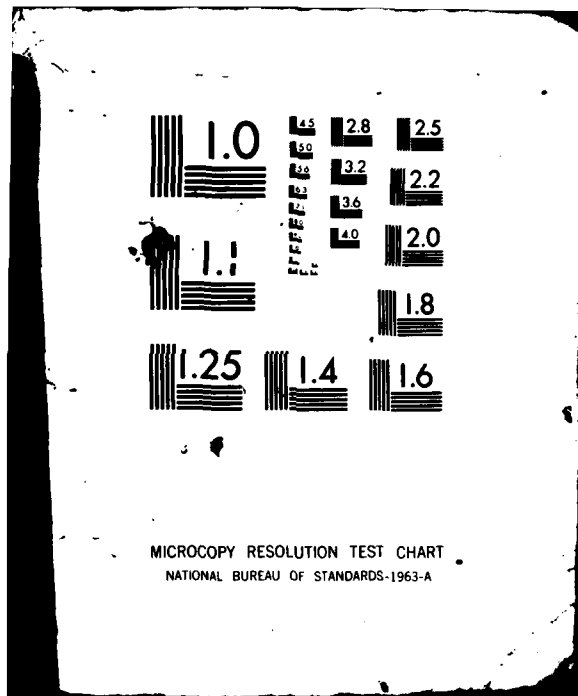
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**DEPARTMENT OF THE ARMY**  
**JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1983**  
**SUBMITTED TO CONGRESS**

**FEBRUARY 1982**



**PART 2 OF 7 PARTS**  
**(MISSILES)**

**PROCUREMENT**

**PROGRAMS**

**AIRCRAFT**

**MISSILES**

**WEAPONS & TRACKED COMBAT VEHICLES**

**AMMUNITION**

**OTHER**

**NATIONAL GUARD EQUIP**

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Army Procurement Programs Budget Justification Book covering Aircraft, Missiles, Weapons and Tracked Combat Vehicles, Ammunition and Other Procurement, Army Appropriations programs submitted by the Army to Congress February 1982 for Fiscal Year 1983		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) In justification of programs requested, this document, in separate volume for each of the five Procurement Appropriations, provides backup data for the Army Budget submission for FY 1983. Included are Summaries of Requirements, Program and Financing Statements and Selected Data Sheets. (This document has been declassified for NTIS distribution).		

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

February 1982

DEPARTMENT OF THE ARMY  
PROCUREMENT APPROPRIATIONS

JUSTIFICATION OF ESTIMATES FOR FISCAL YEARS 1983, 1984

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DEPARTMENT OF THE ARMY  
MISSILE PROCUREMENT, ARMY

JUSTIFICATION OF ESTIMATES FOR FISCAL YEARS 1983, 1984

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**MISSILE PROCUREMENT, ARMY**

**Section 1**

**Budget Appendix Extract**

**Language**

**Program and Financing Schedule**

**Object Classification Schedule**

**2-1 February 1982**

APPROPRIATION LANGUAGE

For construction, procurement, production, modification, and modernization of missiles, equipment, including ordnance, ground handling equipment, spare parts, and accessories therefor; specialized equipment and training devices; expansion of public and private plants, including the land necessary therefor, without regard to section 4774, title 10, United States Code, for the foregoing purposes, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title as required by section 355, Revised Statutes, as amended; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway; and other expenses necessary for the foregoing purposes; (\$2,155,200,000) \$2,846,600,000 to remain available for obligation until September 30, (1984) 1985. (1)  
(2)

Explanation of Changes

- (1) To change the amount of appropriation requested for FY 1983.
- (2) To change the obligation expiration date for the FY 1983 program.



Missile Procurement, Army

08 FEB 82

Program and Financing (in thousands of dollars)

Identification code	21-2032-0-1-051	Budget plan (amounts for procurement actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
<b>Program by activities:</b>							
<b>Direct:</b>							
2.	Other missiles	1,191,311	1,514,400	2,400,300	1,286,783	1,347,081	2,254,504
3.	Modification of missiles	208,189	305,000	93,000	131,767	365,773	120,917
4.	Spare and repair parts	100,319	246,600	233,300	105,819	241,759	229,444
6.	Support equipment and facilities	45,081	89,200	120,000	47,080	77,602	116,142
	<b>Total direct</b>	<b>1,544,900</b>	<b>2,155,200</b>	<b>2,846,600</b>	<b>1,571,419</b>	<b>2,032,116</b>	<b>2,720,007</b>
	Reimbursable program	379,081	718,600	254,100	355,161	609,713	378,227
10.0001	<b>Total</b>	<b>1,923,981</b>	<b>2,873,800</b>	<b>3,100,700</b>	<b>1,926,580</b>	<b>2,641,829</b>	<b>3,098,234</b>
<b>Financing:</b>							
<b>Offsetting collections from:</b>							
11.0001	Federal funds	-97,971	-232,100	-94,100	-97,405	-232,100	-94,100
13.0001	Trust funds	-281,076	-483,400	-160,000	-250,415	-483,400	-160,000
14.0001	Non-federal sources	-34			-48		
17.0001	Recoveries of prior year obligations(-)				-6,519		
21.4001	Unobligated balance available, start of year: For completion of prior year budget plans				-421,248	-387,571	-616,443
21.4002	Reprogramming from or to prior year budget plan	-6,383					
24.4001	Unobligated balance available, end of year				357,571	616,443	620,908
25.0001	Unobligated balance lapsing	6,383			6,383		
39.0001	<b>Budget authority</b>	<b>1,544,900</b>	<b>2,155,200</b>	<b>2,846,600</b>	<b>1,544,900</b>	<b>2,155,200</b>	<b>2,846,600</b>
<b>Budget authority:</b>							
40.0001	Appropriation	1,544,900	2,131,200	2,846,600	1,544,900	2,131,200	2,846,600
42.0001	Transferred from other accounts		24,000			24,000	
43.0001	<b>Appropriation (adjusted)</b>	<b>1,544,900</b>	<b>2,155,200</b>	<b>2,846,600</b>	<b>1,544,900</b>	<b>2,155,200</b>	<b>2,846,600</b>
<b>Relation of obligations to outlays:</b>							
71.0001	Obligations incurred, net				1,678,712	1,926,326	2,642,134
72.4001	Obligated balance, start of year				1,014,717	1,478,949	1,902,277
74.4001	Obligated balance, end of year				-1,478,949	-1,902,277	-2,642,134
77.0001	Adjustments in expired accounts				38,304		
78.0001	Adjustments in unexpired accounts				-6,519		
80.0001	<b>Outlays</b>				<b>1,146,266</b>	<b>1,503,000</b>	<b>2,003,900</b>

Army

Mobile Equipment, Army

08 FPN 82

Object Classification (in thousands of dollars)

Identification code	21-2032-0-1-051	1981 actual	1982 est.	1983 est.
<b>Direct obligations:</b>				
Other services:				
125.004	Other	351,633	523,839	670,858
129.001	Supplies and materials	785,526	873,287	1,214,422
131.001	Equipment	434,260	634,989	834,727
189.001	<b>Total direct obligations</b>	<b>1,571,419</b>	<b>2,032,115</b>	<b>2,720,007</b>
<b>Reimbursable obligations:</b>				
Other services:				
225.004	Other	79,604	86,565	89,452
226.001	Supplies and materials	176,800	354,387	170,074
231.001	Equipment	96,557	169,751	118,701
299.001	<b>Total reimbursable obligations</b>	<b>352,961</b>	<b>610,703</b>	<b>378,227</b>
999.901	<b>Total obligations</b>	<b>1,924,380</b>	<b>2,642,818</b>	<b>3,098,234</b>

Army

Missile Procurement, Army -

08 FEB 82

Program and Financing (in thousands of dollars)		1979 Fiscal year program					
		Budget plan (amounts for procurement actions programmed)			Obligations		
Identification code	21-2032-0-1-051	1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
<b>Program by activities:</b>							
<b>Direct:</b>							
	2. Other missiles				7,049		
	3. Modification of missiles				3,798		
	4. Spares and repair parts				6,717		
	5. Support equipment and facilities				91		
	Total direct				17,655		
	Reimbursable program				10,631		
10.0001	Total				28,186		
<b>Financing:</b>							
<b>Offsetting collections from:</b>							
11.0001	Adjustment to prior year federal fund orders				1,323		
13.0001	Adjustment to prior year trust fund orders				3,293		
14.0001	Adjustment to non-federal sources				-9		
17.0001	Recoveries of prior year obligations(-)				-2,704		
	Unobligated balance available, start of year:						
21.4001	For completion of prior year budget plans				-38,472		
21.4002	Reprogramming from or to prior year budget plan				-6,383		
28.0001	Unobligated balance lapsing				6,383		
40.0001	Budget authority						

2-5 February 1982

Army

Missile Procurement, Army

06 FEB 62

Program and Financing (in thousands of dollars)		1960 Fiscal year program					
Identification code	21-2032-0-1-051	Budget plan (amounts for procurement actions programmed)			Obligations		
		1961 actual	1962 est.	1963 est.	1961 actual	1962 est.	1963 est.
Program by activities:							
Direct:							
	2. Other missiles				164,836	31,061	
	3. Modification of missiles				31,977	2,644	
	4. Spares and repair parts				20,341	14,604	
	5. Support equipment and facilities				8,348	884	
	Total direct				225,502	49,293	
	Reimbursable program				69,972	19,828	
10.0001	Total				295,474	69,121	
Financing:							
Offsetting collections from:							
11.0001	Adjustment to prior year federal fund order				-757		
13.0001	Adjustment to prior year trust fund orders				27,368		
14.0001	Adjustment to non-federal sources				-8		
17.0001	Recoveries of prior year obligations(-)				-3,818		
21.4001	Unobligated balance available, start of year				-384,776	-69,511	
24.4001	Unobligated balance available, end of year				69,511		
40.0001	Budget authority						

2-6 February 1962

Arm,

Missile Procurement, Army

09 FEB 82

Program and Financing (in thousands of dollars)

1981 Fiscal year program

Identification code	21-2032-0-1-051	Budget plan (amounts for procurement actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
		<b>Program by activities:</b>					
<b>Direct:</b>							
	2. Other missiles	1,191,311			1,114,898	28,760	47,653
	3. Modification of missiles	208,189			95,982	103,679	8,328
	4. Spares and repair parts	100,318			78,761	17,645	4,013
	5. Support equipment and facilities	45,081			40,621	1,128	3,331
	<b>Total direct</b>	<b>1,544,900</b>			<b>1,330,262</b>	<b>151,312</b>	<b>63,325</b>
	Reimbursable program	378,081			274,658	68,238	18,188
10.0001	<b>Total</b>	<b>1,923,981</b>			<b>1,604,920</b>	<b>240,547</b>	<b>78,513</b>
<b>Financing:</b>							
<b>Offsetting collections from:</b>							
11.0001	Federal funds	-97,971			-97,971		
13.0001	Trust funds	-281,076			-281,076		
14.0001	Non-federal sources	-34			-34		
21.4001	Unobligated balance available, start of year					-319,040	-78,513
24.4001	Unobligated balance available, end of year				319,040	78,513	
40.0001	Budget authority	1,544,900			1,544,900		

Army

Missile Procurement, Army

08 FEB 82

Program and Financing (in thousands of dollars)

1982 Fiscal year program

Identification code	21-2032-0-1-051	Budget plan (amounts for procurement actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
		<b>Program by activities:</b>					
<b>Direct:</b>							
2.	Other missiles		1,514,400		1,287,240	166,564	
3.	Modification of missiles		305,000		259,250	33,550	
4.	Spare and repair parts		246,600		208,610	27,126	
6.	Support equipment and facilities		89,200		75,620	9,811	
	<b>Total direct</b>		<b>2,155,200</b>		<b>1,831,920</b>	<b>237,071</b>	
	Reimbursable program		715,500		500,650	189,169	
10.0001	<b>Total</b>		<b>2,870,700</b>		<b>2,332,770</b>	<b>426,240</b>	
<b>Financing:</b>							
<b>Offsetting collections from:</b>							
11.0001	Federal funds		-232,100		-232,100		
13.0001	Trust funds		-483,400		-483,400		
21.4001	Unobligated balance available, start of year					-837,930	
24.4001	Unobligated balance available, end of year				537,930	117,690	
39.0001	<b>Budget authority</b>		<b>2,155,200</b>		<b>2,155,200</b>		
<b>Budget authority:</b>							
40.0001	Appropriation		2,131,200		2,131,200		
42.0001	Transferred from other accounts		24,000		24,000		
43.0001	Appropriation (adjusted)		2,155,200		2,155,200		

Army

Missile Procurement, Army

08 FEB 82

Program and Financing (in thousands of dollars)		1983 Fiscal year program					
Identification code	21-2032-0-1-051	Budget plan (amounts for procurement actions programmed)			Obligations		
		1981 actual	1982 est.	1983 est.	1981 actual	1982 est.	1983 est.
Program by activities:							
Direct:							
	2. Other missiles			2,400,300			2,040,267
	3. Modification of missiles			93,000			79,039
	4. Spares and repair parts			233,300			168,305
	6. Support equipment and facilities			120,000			102,000
	Total direct			2,846,600			2,419,611
	Reimbursable program			254,100			177,870
10.0001	Total			3,100,700			2,597,481
Financing:							
Offsetting collections from:							
11.0001	Federal funds			-94,100			-94,100
13.0001	Trust funds			-160,000			-160,000
24.4001	Unobligated balance available, end of year						503,219
40.0001	Budget authority			2,846,600			2,846,600

2-9 February 1982

MISSILE PROCUREMENT, ARMY

Section 2

Introductory Statement

2-10 February 1982



DEPARTMENT OF THE ARMY  
ANNUAL BUDGET ESTIMATES

FY 1983, 84  
Budget

Appropriation:  
Missile Procurement, Army

Section 2 - INTRODUCTORY STATEMENT

This appropriation finances the acquisition of surface-to-air, surface-to-surface, and antitank/assault missile systems. Also included are major components, modifications, targets, test equipment, and depot repairable spares and repair parts; and production base support.

The FY 1983 program continues procurement of the TOW antitank/assault missile system, STINGER, and PATRIOT air defense systems, PERSHING II (theater nuclear weapon system), and the HELLFIRE anti-tank missile system; and completion and closeout of the U.S. ROLAND missile system, funded in prior fiscal years. Multiyear procurement is initiated for the Multiple Launch Rocket System. Also included is procurement for the modification of the CHAPARRAL, DRAGON, and TOW Missile Systems and the LANCE.

The FY 1984 program continues procurement of the HELLFIRE missile system, PATRIOT air defense system, STINGER manportable air defense weapon, TOW antitank/assault missile system, MLRS multiyear, and the PERSHING II missile system funded in previous fiscal years. Also included is the modification of the Improved HAWK, CHAPARRAL, and TOW missile systems, and the AN/TSQ-73 Missile Finder System.

2-11 February 1982

MISSILE PROCUREMENT, ARMY

Section 3

Summary of Requirements

2-12 February 1982

**SUMMARY OF REQUIREMENTS (in Thousands of Dollars)**

Appropriation:	FY 1981 Actual	FY 1982 Estimate	FY 1983 Estimate
<b>Missile Procurement, Army</b>			
Antiballistic System.....	-0-	-0-	-0-
Other Missiles.....	\$ 1,191,311	\$ 1,514,400	\$ 2,400,300
Modification of Missiles.....	208,189	305,000	93,000
Spares and Repair Parts.....	100,319	246,600	233,300
Support Equipment and Facilities.....	45,081	89,200	120,000
<b>Total Direct Program.....</b>	<b>\$ 1,544,900</b>	<b>\$ 2,155,200</b>	<b>\$ 2,846,600</b>
Reimbursable Program.....	379,081	715,500	254,100
<b>TOTAL PROGRAM REQUIREMENTS.....</b>	<b>\$ 1,923,981</b>	<b>\$ 2,870,700</b>	<b>\$ 3,100,700</b>
<b>Less: Portion of program to be obligated in subsequent fiscal years.....</b>	<b>\$ 319,061</b>	<b>\$ 537,930</b>	<b>\$ 503,219</b>
<b>Plus: Obligation incurred against prior year program funds.....</b>	<b>\$ 321,660</b>	<b>\$ 309,058</b>	<b>\$ 498,753</b>
<b>TOTAL OBLIGATIONS.....</b>	<b>\$ 1,926,580</b>	<b>\$ 2,641,828</b>	<b>\$ 3,096,234</b>

**SUMMARY OF REQUIREMENTS (in Thousands of Dollars)**

Appropriation:	FY 1984 Estimate
<b>Missile Procurement, Army</b>	
Antiballistic Systems.....	-0-
Other Missiles.....	\$ 2,706,900
Modification of Missiles.....	182,400
Spares and Repair Parts.....	324,458
Support Equipment and Facilities.....	120,100
<b>Total Direct Program.....</b>	<b>\$ 3,333,858</b>

2-14 February 1982

**MISSILE PROCUREMENT, ARMY**

**Section 4**

**Budget Activity Justification**

**Activity 1 - Antibalistic Missile System**

**Activity 2 - Other Missiles**

**Activity 3 - Modification of Missiles**

**Activity 4 - Spares and Repair Parts**

**Activity 5 - Support Equipment and Facilities**

**2-15 February 1982**

FY 1983	Department of the Army Annual Budget Estimate JUSTIFICATION	Appropriation		FY 1981
	Budget Program or Budget Project Account	Missile Procurement, Army		Budget
	Activity 2 - Other Missiles	(Thousands of Dollars)		
		Actual	Estimate	Estimate
	Direct Obligation or Direct Budget Plan	FY 1981	FY 1982	FY 1983
	\$ 1,191,317	\$ 1,514,600	\$ 2,400,300	

Section 1 - PURPOSE AND SCOPE

Provides for procurement of surface-to-air, antitank/assault, surface-to-surface and air-to-surface missile systems; related ground support equipment; and initial issue and replacement of losses consumed in reliability firings, crew proficiency firings, and other training activities.

Section 2 - JUSTIFICATION OF FUNDS REQUESTED

ROLAND Missile System - \$61.3 million is requested for completion of the restructured program and close-out of the US ROLAND system.

PATRIOT Missile System - \$805.1 million is requested to procure 376 missiles and 12 fire units for the PATRIOT missile system. PATRIOT is an improved system which will replace NIKE-HERCULES and HAWK and is better able to meet the threat of the 1980's and beyond.

STINGER Missile System - \$214.6 million is requested for procurement of 2256 STINGER missiles and ground support equipment. The program for FY 1983 represents the sixth year of a planned eleven-year procurement effort designed to fill the Army inventory objective. The STINGER, which replaces the obsolete REDEYE, has greater accuracy and a significantly improved engagement capability.

TOW Missile System - \$145.2 million is requested to procure 12,000 TOW missiles to support the inventory objective and provide blast simulators needed for training. The 1983 procurement program will afford continuation of a cost effective warm production base, providing improved tactical missile, needed to defeat the increasing armor threat.

Other Missile Support - \$4.5 million is requested. \$4.1 million for purchase of 230 replacement rocket motors for I-HAWK and \$400 thousand for CHAPARRAL Test Sets.

FORM 1

Department of the Army Annual Budget Estimate JUSTIFICATION		FY 1983 Budget
Appropriation Missile Procurement, Army	Budget Program or Budget Project Account Activity 2 - Other Missiles	

Multiple Launch Rocket System (MLRS) - \$368.9 million is requested to procure 23,640 rockets and associated ground support equipment. The MLRS is an 8.9 inch diameter multiple rocket launcher system with tracked self-propelled launcher/loader, disposable pods, and fire control equipment. Its mission is to neutralize or suppress enemy field artillery, air defense systems, and supplement cannon artillery when targets exceed capabilities during surge conditions.

MLRS Advance Procurement (Multi Year Procurement)- \$53.2 million is requested to procure bulk materials and components in economic order quantities as a part of the multi contract acquisition strategy for MLRS.

HELLFIRE - \$249.2 million is requested to procure 3971 missiles and associated support equipment. The purpose of the HELLFIRE missile system is to defeat the current and future armor threat at long stand-off ranges. When mounted on the Advanced Attack Helicopter, AH-64, it will increase helicopter survivability and fire power.

PERSHING - \$498.3 million is requested to procure 91 PERSHING II missiles and ground support equipment, including telemetry for the operational firing program. PERSHING II will replace the aging PERSHING Ia.

FORMAT	Department of the Army Annual Budget Estimate <b>JUSTIFICATION</b>	<b>Appropriation</b> Missile Procurement, Army	FY 1983 Budget
	Budget Program or Budget Project Account	(Thousands of Dollars)	Estimate
	Activity 2 - Other Missiles		FY 1984
	Direct Obligation or Direct Budget Plan		\$ 2,706,900

**Section 1 - PURPOSE AND SCOPE**

Provides for procurement of surface-to-air, air-to-surface, antitank/assault, and surface-to-surface missile systems; related ground support equipment and initial issue and replacement of losses consumed in reliability firings, crew proficiency firings and other training activities.

**Section 2 - JUSTIFICATION OF FUNDS REQUESTED**

**PATRIOT Missile System** - \$965.2 million is requested to procure 664 missiles and 18 fire units in FY 1984. PATRIOT is a mobile air defense system consisting of a phased array radar set, engagement control station, power plant, and launching station, each mounted on a wheeled vehicle. The missile is mounted within a canister which serves both as a shipping container and launch tube.

**STINGER Missile System** - \$258.3 million is requested to procure 3,293 STINGER missiles. The program for FY 1984 represents the seventh year of a planned eleven year procurement effort designed to fill the Army's inventory objective. The STINGER, scheduled to replace the obsolete REDEYE, has greater accuracy and a significantly improved engagement capability.

**HELLFIRE Missile System** - \$255.1 million is requested to procure 6218 HELLFIRE missiles and associated ground equipment. The purpose of the HELLFIRE missile system is to defeat the current and future armor threat at long stand-off ranges. When mounted on the Advanced Attack Helicopter, AH-64, it will increase helicopter survivability and fire power.

**Other Missile Support** - \$9.9 million is requested for procurement of 541 HAWK missile replacement rocket motors.



V AVNROF	Department of the Army Annual Budget Estimate		FY 1983
	JUSTIFICATION		Budget
Appropriation	Budget Program or Budget Project Account		
Missile Procurement, Army	Activity 2 - Other Missiles		

TOW Missile System - \$223.9 million is requested for procurement of 18,000 improved missiles in support of the inventory objective and for blast training simulators.

MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) - \$461.6 million is requested to procure 36,000 tactical rockets, and associated ground support equipment. This is the fifth year of procurement designed to fill the Army inventory objective. MLRS is a self-propelled, fast-reacting, multiple rocket launcher which will provide a high volume of fire in a very short time against the surge threat.

MLRS Advance Procurement (MYP) - \$104.9 million is requested to continue to procure bulk materials and components in economic order quantities as a part of the multi contract acquisition strategy for MLRS.

PERSHING II - \$428.0 million is requested to procure 95 PERSHING II (PII) missiles. PII missiles have added range and accuracy and will provide nuclear fire support to Supreme Allied Command, Europe in the Quick Reaction Alert Role.

C. I. W. H. S. G. F.	Department of the Army Annual Budget Estimate <b>JUSTIFICATION</b>	Appropriation		FY 1983
	Budget Program or Budget Project Account	Missile Procurement, Army		Budget
	Activity 3 - Modifications of Missiles	(Thousands of Dollars)		
		Actual	Estimate	Estimate
Direct Obligation or Direct Budget Plan	FY 1981	FY 1982	FY 1983	
	\$ 208,189	\$ 305,000	\$ 93,000	

**Section 1 - PURPOSE AND SCOPE**

Provides for the modification of surface-to-air, surface-to-surface, and anti-tank missile systems.

**Section 2 - JUSTIFICATION OF FUNDS REQUESTED**

**CHAPARRAL** - \$32.5 million is requested to provide the CHAPARRAL missile system with a Forward Looking Infrared (FLIR) sight capability which allows target engagements during periods of darkness and limited visibility conditions. This modification more than doubles the systems operability. The program also includes procurement of selected items for the pneumatic systems to increase system reliability, smokeless rocket motors and better rocket motor insulation to avoid premature burnout.

**TOW** - \$58.4 million is needed to procure six-inch (full caliber) improved warheads for tactical missiles, and guidance system hardening needed to defeat the advanced armor threat.

**MODIFICATION LESS THAN \$900,000** - \$0.6 million is requested for Forward Area Alerting Radar (FAAR) Support Maintenance Test Set improvements and to improve the reliability of the CHAPARRAL radio.

**LANCE** - \$1.5 million is requested for completion of LANCE product improvements.

FORM 3-1	Department of the Army Annual Budget Estimate <b>JUSTIFICATION</b>	Appropriation Missile Procurement, Army	FY 1981 Budget
	Budget Program or Budget Project Account	(Thousands of Dollars)	Estimate
	Activity 3 - Modifications of Missiles		FY 1984
	Direct Obligation or Direct Budget Plan		\$ 182,400

Section 1 - PURPOSE AND SCOPE

Provisions for the modification of surface-to-air, surface-to-surface, and anti-tank missile system.

Section 2 - JUSTIFICATION OF FUNDS REQUESTED

CHAPARRAL - \$13.1 million is requested to complete procurement of improved, selected items for the pneumatic system to increase system reliability, smokeless rocket motors and improved motor insulation.

HAWK - \$85.7 million is requested for factory facilitization and material, test equipment and contract award of Phase III modifications which will improve the fire power, training, target tracking and low altitude target reporting capabilities of each fire unit. Also included is contract award of Multiple Blinking Jammer modifications.

TOW - \$66.1 million is needed to procure six-inch improved warheads for tactical missiles and guidance system hardening, needed to defeat the advanced armor threat.

MODIFICATIONS LESS THAN \$900,000 - \$0.7 million is requested to complete the Forward Area Alerting Radar (FAAR) Support Maintenance Test Set modifications.

AN/TSQ-73 - \$8.3 million is requested to provide an expanded memory capacity.

Advance Rocket Control System - \$8.5 million is requested for a classified program.

2-21 February 1982

FORMAT	Department of the Army Annual Budget Estimate JUSTIFICATION	Appropriation Missile Procurement, Army		FY 1983 Budget
	Budget Program or Budget Project Account	(Thousands of Dollars)		
	Activity 4 - Spares and Repair Parts	Actual	Estimate	Estimate
	Direct Obligation or Direct Budget Plan	FY 1981	FY 1982	FY 1983
		\$ 100,319	\$ 246,600	\$ 233,300

Section 1 - PURPOSE AND SCOPE

Provides for the procurement of initial provisioning and peacetime replenishment of repairable major assemblies and repair parts for surface-to-air and surface-to-surface and antitank missile systems and other support items.

Section 2 - JUSTIFICATION OF FUNDS REQUESTED

Required for the procurement of initial provisioning and peacetime replenishment requirements of centrally managed, high dollar value depot repairable components, assemblies, and repair parts which are not carried in Army Stock Fund inventories.

INITIAL PROVISIONING - \$118.4 million is requested for initial provisioning spares to support major item procurements as follows: \$75.9 million for PATRIOT spares, \$1.1 million for HELLFIRE spares; \$22.3 million for Multiple Launch Rocket System (MLRS) spares; \$1.8 million for TOW modifications spares; \$1.9 million for Air Defense Target spares; \$10.3 million for PERSHING II spares; and \$5.1 million for CHAPARRAL modifications spares.

REPLENISHMENT REPAIR PARTS - \$114.9 million is requested for peacetime replenishment repair parts.

2-22 February 1982

FORMAT J-1	Department of the Army Annual Budget Estimate <b>JUSTIFICATION</b>	Appropriation Missile Procurement, Army (Thousands of Dollars)	FY 1983 Budget
	Budget Program or Budget Project Account		Estimate
	Activity 4 - Spares and Repair Parts		FY 1984
	Direct Obligation or Direct Budget Plan		\$ 324,458

Section 1 - PURPOSE AND SCOPE

Provides for the procurement of initial provisioning, peacetime replenishment, and mobilization reserve of repairable major assemblies and repair parts for surface-to-air, air-to-surface, surface-to-surface, and antitank missile systems and other support items.

Section 2 - JUSTIFICATION OF FUNDS REQUESTED

Required for the procurement of initial provisioning, peacetime replenishment, and mobilization reserve requirements of centrally managed, high dollar value depot repairable components, assemblies, and repair parts which are not carried in Army Stock Fund inventories.

INITIAL PROVISIONING - \$ 196.1 million is requested for initial provisioning spares to support major item procurements as follows: \$162.2 million for PATRIOT spares; \$2.9 million for HELLFIRE spares; \$3.1 million for PERSHING spares; \$18.3 million for Multi: e Launch Rocket System spares; \$0.5 million for CHAPARRAL modification spares; \$0.2 million for TOW modification spares; \$2.5 million for HAWK modification and \$6.4 million for Air Defense Target spares.

REPLENISHMENT REPAIR PARTS - \$128.4 million is requested for peacetime replenishment repair parts.

FY 1983	Department of the Army Annual Budget Estimate JUSTIFICATION	Appropriation		FY 1983
		Missile Procurement, Army		Budget
	Budget Program or Budget Project Account	(Thousands of Dollars)		
	Activity 5 - Support Equipment and Facilities	Actual	Estimate	Estimate
		FY 1981	FY 1982	FY 1983
Direct Obligation or Direct Budget Plan	\$ 45,081	\$ 89,200	\$ 120,000	

Section 1 - PURPOSE AND SCOPE

Provides for the procurement of support equipment, items less than \$900,000 and production base support for the Army missile system.

Section 2 - JUSTIFICATION OF FUNDS REQUESTED

Air-Defense Targets - \$12.1 million is requested for the MQM-107, MQM-33, and FQM-117A targets, scoring devices and ground support equipment. This program provides target missiles for training of air defense personnel and for evaluation of air defense weapons systems.

Items Less Than \$900,000 - \$4.8 million for procurement of tool and test sets peculiar to missile system maintenance and repair.

Production Base Support - \$69.3 million is requested. \$11.6 million is for manufacturing methods and technology, and deals with the advancement of manufacturing techniques for various missile components. \$40.6 million for Provision of Industrial Facilities consisting of providing replacement or new equipment used for production testing of weapons systems and associated materials at White Sands Missile Range, rehabilitation of buildings at a Government-owned contractor-operated (GOCO) facilities and preparation of design criteria and specification for submission to Corps of Engineers for execution of concept/final design and specification for construction. \$17.1 million is requested for procurement of capital plant equipment required to support the depot maintenance mission.

Other Production Charges - \$33.8 million is requested for the procurement of test system/equipment to accomplish the Quantity Evaluation mission through stock surveillance, and evaluation of tactical weapon systems in the stockpile.

FORMAT J-1

Department of the Army Annual Budget Estimate <b>JUSTIFICATION</b>	Appropriation Missile Procurement, Army	FY 1983 Budget
Budget Program or Budget Project Account	(Thousands of Dollars)	Estimate
Activity 5 - Support Equipment and Facilities		FY 1986
Direct Obligation or Direct Budget Plan		\$ 120,100

Section 1 - PURPOSE AND SCOPE

Provides for the procurement of support equipment, items less than \$900,000 and production base support, for the Army missile programs.

Section 2 - JUSTIFICATION OF FUNDS REQUESTED

Air Defense Targets - \$11.0 million is requested for procurement of air defense target missiles, towed targets, and ground support equipment.

Items less Than \$900,000 - \$4.5 million is requested for procurement of tool and test sets peculiar to missile systems hardware maintenance and repair.

Production Base Support - \$68.2 million is requested to support Manufacturing Methods and Technology (MM&T) projects (\$10.0 million), Provisions of Industrial Facilities (PIF) projects (\$41.0), Layaway of Industrial Facilities (\$0.6 million), and capital equipment in support of the depot maintenance mission (\$16.6 million).

Other Production Charges - \$36.4 million is requested. Content is SECRET.

2-25 February 1982

MISSILE PROCUREMENT, ARMY

Section 5

Comparison of Program Requirements and Financing

Comparison of FY 1982 program requirements as reflected in FY 1982 budget with FY 1982 program requirements as shown in FY 1983 budget.

Comparison of FY 1982 financing as reflected in FY 1982 budget with FY 1982 financing as shown in FY 1982 budget.

Comparison of FY 1981 program requirements as reflected in FY 1982 budget with FY 1981 program requirements as shown in FY 1983 budget.

Comparison of FY 1981 financing as reflected in FY 1982 budget with FY 1981 financing as shown in FY 1983 budget.

2-26 February 1982



COMPARISON OF FY 1982 PROGRAM REQUIREMENTS  
AS REFLECTED IN FY 1982 BUDGET WITH  
FY 1982 PROGRAM REQUIREMENTS AS SHOWN IN FY 1983 BUDGET

SUMMARY OF REQUIREMENTS (In Thousands of Dollars)			
Appropriation:	Total Program Requirements Per FY 82 Budget	Program Requirements Per FY 1983 Budget	Increase (+) or Decrease (-)
Activity 1 - Antibalistic Missile System	-0-	-0-	-0-
Activity 2 - Other Missiles	1,547,600	1,514,400	- 33,200
Activity 3 - Modification of Missiles	440,200	305,000	- 135,200
Activity 4 - Spares and Repair Parts	181,600	246,600	+ 65,000
Activity 5 - Support Equipment and Facilities	40,800	89,200	+ 48,400
TOTAL	2,210,200	2,155,200	- 55,000

Explanation by Activity

Activity 2 - Other Missiles (\$ -33.2) - The following changes occurred:

Escalation Adj - Increase of \$16.9 due to inflation adjustment.

PATRIOT - Decrease of \$50.8 million due to Congressional reduction.

STINGER - Decrease of \$31.8 million due to Congressional reduction.

HELLFIRE - Decrease of \$15.0 million due to Congressional reduction.

ROLAND - Increase of \$50.0 million due to Congressional increase.

National Guard Transfer - Decrease of \$2.5 million due to Congressional general reduction.

2-27 February 1982

Activity 1 - Modification of Missiles (-\$135.2)

Escalation Adjustment - Increase of \$3.4 million due to inflation adjustment.

National Guard Transfer - Decrease of \$0.6 million due to Congressional general reduction.

General Reduction - Decrease of \$10.0 million directed by Congress.

DRAGON - Decrease of \$17.5 million due to Congressional reduction.

High Priority Efforts - Decrease of \$150.8 million and an increase of \$40.3 million.

Activity 4 - Spares and Repair Parts (+\$65.0)

Includes a decrease of \$0.8 million directed by Congress and increases of \$2.7 million for inflation adjustments and \$63.1 million to finance spare parts deficiency.

Activity 5 - Support Equipment and Facilities (+\$48.4)

Includes increases of \$1.0 million for inflation adjustments and \$47.4 million to alleviate serious backlog of rehabilitation projects at CO-CO plants.

COMPARISON OF FY 1982 FINANCING AS REFLECTED  
IN THE FY 1982 BUDGET WITH FY 1982 FINANCING  
AS SHOWN IN FY 1983 BUDGET

	(In Thousands of Dollars)		
	Financing Per FY 1982 Budget	Financing Per FY 1983 Budget	Increase (+) or Decrease (-)
Program Requirements, (Total)	\$ 2,689,400	\$ 2,870,700	\$ + 181,300
Program Requirements (Service Account)	(2,210,200)	(2,155,200)	(- 55,000)
Program Requirements (Reimbursable)	( 479,200)	( 715,500)	(+ 236,300)
<b>Less:</b>			
Anticipated reimbursements	479,200	715,500	+ 236,300
Reprogramming from prior year budget plans			
Unobligated balance available from prior years to finance new budget plans			
Unobligated balance transferred from other accounts			
<b>Add:</b>			
Unobligated balance transferred to other accounts			
Unobligated balance available to finance subsequent year budget plans			
<b>BUDGET AUTHORITY</b>	<b>2,210,200</b>	<b>2,155,200</b>	<b>+ 55,000</b>
<b>BUDGET AUTHORITY</b>			
Appropriation	2,210,200	2,131,200	- 79,000
Transferred from other accounts	-	24,000	+ 24,000
Appropriation (Adjusted)	2,210,200	2,155,200	+ 55,000

EXPLANATION OF CHANGES IN FINANCING

The Fiscal year 1982 program has increased by \$181.3 million since submission of the Fiscal Year 1982 budget to Congress. Adjustments to financing categories are explained below:

1. Anticipated reimbursements; \$236.3 million increase in Foreign Military Sales Program.
2. Budget Authority: Decrease of \$79.0 million due to Congressional reductions offset by a transfer in of \$240 million to finance escalation rate increases.

2-30 February 1982

COMPARISON OF FY 1981 PROGRAM REQUIREMENTS  
AS REFLECTED IN FY 1982 BUDGET WITH  
FY 1981 PROGRAM REQUIREMENTS AS SHOWN IN FY 1983 BUDGET

SUMMARY OF REQUIREMENTS (In Thousands of Dollars)			
Appropriation:	Total Program Requirements Per FY 82 Budget	Program Requirements Per FY 1983 Budget	Increase (+) or Decrease (-)
Activity 1 - Antibalistic Missile System	-0-	-0-	-0-
Activity 2 - Other Missiles	\$ 1,188,100	\$ 1,191,311	\$ + 3,211
Activity 3 - Modification of Missiles	218,200	208,189	- 10,011
Activity 4 - Spares and Repair Parts	98,800	100,319	+ 1,519
Activity 5 - Support Equipment and Facilities	<u>41,700</u>	<u>45,081</u>	<u>+ 3,381</u>
<b>TOTAL</b>	<b>\$ 1,546,800</b>	<b>\$ 1,544,900</b>	<b>\$ - 1,900</b>

EXPLANATION BY ACTIVITY

Activity 2 - Other Missiles (+\$3,211) - Includes reprogramming increases of \$4.9 million to HELLFIRE for facilitization; \$5.0 million to TOW for contractual increases. Decreases include \$3.9 million from ROLAND; and \$0.9 million from MLRS. Also includes a Congressional reduction of \$1.9 million from PERSHING.

Activity 3 - Modification of Missiles (- \$10,011) - Includes decreases of \$9.5 million from HAWK which was reprogrammed to Production Base Support (\$4.6), HELLFIRE (\$4.9) and \$4.9 million from TOW Modifications to TOW Missiles. Also includes reprogramming increases of \$3.4 million to GRASS BLADE from ROLAND and \$1.0 million for PERSHING.

Activity 4 - Spares and Repair Parts (+ \$1,519) - Increase of \$1.5 million was reprogrammed from Air Defense Targets for target spares.

Activity 5 - Support Equipment and Facilities (+ \$3,381) - An increase of \$4.9 million reprogrammed from ROLAND and HAWK to fund Production Base Support. A decrease of \$1.5 million from Air Defense Targets to fund Spares and Repair Parts.

COMPARISON OF FY 1981 FINANCING AS REFLECTED  
IN THE FY 1982 BUDGET WITH FY 1981 FINANCING  
AS SHOWN IN FY 1983 BUDGET

Appropriation:	Financing Per FY 1982 Budget	Financing Per FY 1983 Budget	Increase (+) or Decrease (-)
(In Thousands of Dollars)			
<b>Missile Procurement, Army</b>			
Program Requirements, (Total)	\$ 1,989,100	\$ 1,923,981	- 65,119
Program Requirements (Service Account)	1,546,800	1,544,900	(- 1,900)
Program Requirements (Reimbursable)	442,300	379,081	(- 63,219)
Less:			
Anticipated reimbursements	442,300	379,081	- 63,219
Reprogramming from prior budget plans			
Unobligated balance available from prior year to finance new budget plans			
Unobligated balance transferred from other accounts			
add: Unobligated balance transferred to other accounts			
Unobligated balance available to finance subsequent year budget plans			
<b>BUDGET AUTHORITY</b>	<b>1,546,800</b>	<b>1,544,900</b>	<b>- 1,900</b>
<b>BUDGET AUTHORITY</b>			
Appropriation	1,546,800	1,544,900	

EXPLANATION OF CHANGES IN FINANCING

The Fiscal Year 1981 program has decreased \$65.1 million since preparation of the Fiscal Year 1982 budget to Congress. Adjustments to financing categories are explained below:

1. Anticipated Reimbursements: \$63.2 million decrease in Foreign Military Sales Program.
2. Budget Authority: Decrease of \$1.9 million due to Congressional reduction.

MISSILE PROCUREMENT, ARMY

Section 7

Analysis of Unobligated Balances

2-33 February 1982

MISSILE PROCUREMENT, ARMY

Analysis of Unobligated Balances - FY 1983 Program  
Summary by Category

<u>Category</u>	<u>Estimated Unobligated</u>	
	<u>Dollars</u> <u>(Millions)</u>	<u>% of Total</u> <u>Unobligated</u>
1. Reserved to support contracts	\$440.8	71.0
2. Engineering changes	85.1	13.7
3. Other	95.0	15.3
	<u>\$620.9</u>	<u>100.0 %</u>
TOTAL Unobligated FY 1983		

Explanation by Category

Based on past experience, it is predicted that the above amounts will remain unobligated at the end of FY 83. Reasons for the unobligated balance have been grouped into three general categories, and are detailed below. These unobligated amounts will therefore be required in subsequent years to complete the procurement of the FY 83 program.

1. Reserved to Support Contracts:

- a. Held pending award of firm contracts as opposed to letter orders.
- b. Amounts reserved for incentive contract payments.
- c. Amounts held to support Product Component Improvement Programs; modification of missiles during production; modification ordered by customers.
- d. Contractor claims, amounts required to cover liabilities for contracts containing escalation clauses for labor or material cost increases and price redeterminations.
- e. Contract close-out costs; packing, crating, handling, and packaging and loading charges.
- f. Government-furnished equipment breakout procurements; preparation of manuals and technical data; reserve for completion of construction elements of production base support facilities projects.
- g. Delay due to design or testing difficulties.
- h. Update technical data or procurement package.



MISSILE PROCUREMENT, ARMY (Continued)

2. Engineering Changes:

- a. Engineering services in support of production (unobligated only as expenses are incurred).
- b. Validated engineering change orders to be incorporated into the current manufacturing process.
- c. Engineering changes as a result of acceptance testing.
- d. Amounts reserved to support engineering changes and value engineering proposals.

3. Other:

- a. Additional time required to complete audits of cost data and to obtain contract cost data.
- b. Unfavorable presaward surveys and extended negotiations with contractors.

2-35 February 1982

MISSILE PROCUREMENT, ARMY

Section 9

Modification of Missiles (Exhibit P-33)

<u>P-1 Numbers</u>	<u>Item Nomenclature</u>	<u>Page No.</u>
	MISSILE MODIFICATION PROGRAM	
13	CHAPARRAL	2-38
14	HAWK	2-41
15	TOW	2-45
16	LANCE	2-46
18	Modifications Less Than \$900,000	2-47
21	Advance Rocket Control System	2-49
20	Air Defense Command & Control System, AN/TSQ-73	2-50

2-36 February 1982

MISSILE MODIFICATION, ARMY

FY 1983 PRESIDENT'S BUDGET

System	Missile/Mod No.	FY 1983		FY 1984	
		Quantity	FY 83 Cost	Quantity	FY 84 Cost
CHAPARRAL	PIP 1-80-03-0306	45	23.1	-	0
	PIP 1-80-03-0309	200	3.9	245	7.4
	PIP 1-83-03-0325	-	1.1	-	1.2
	PIP 1-84-03-0326	524	4.4	524	4.5
HAWK	PIP 1-81-03-0137	-	-	-	10.8
	PIP 1-81-03-0134	-	-	-	2.6
	PIP 1-81-03-0132	-	-	-	22.2
	PIP 1-79-03-0119	-	-	-	40.8
	PIP 1-82-03-0130	-	-	-	4.5
	PIP 1-81-03-0131	-	-	-	4.8
TOW	PIP 1-79-03-3018	-	58.4	-	66.1
LANCE	PIP 1-79-03-0810	-	1.5	-	-
<u>Modifications Less Than \$900,000</u>					
	PIP 1-81-03-0313	500	.3	-	-
	PIP 1-80-03-0705	10	.3	-	.7

2-57 February 1982

MISSILE MODIFICATION  
(\$ in Millions)

Appropriation: Missile Procurement, Army

Missile Type: CHAPARRAL Guided Missile Intercept, Aerial MIM-72-A/C

Missile Modification Title:

Night Capability - PIP 1-80-03-0306  
Pneumatic System - PIP 1-80-03-0309  
Rocket Motor Insulator PIP 1-83-03-0325  
Smokeless Rocket Motor PIP 1-84-03-0326

Description/Justification:

PIP 1-80-03-0306 - The night capability improvement when added to the CHAPARRAL Fire Unit will enable the operator to detect and engage aircraft during periods of darkness and limited visibility conditions. The principle elements of this improvement are a Forward Looking Infrared (FLIR) thermal imaging device, optics, display, autotrack and controls. Note: The present system missiles have the capability to track and engage aircraft during darkness and limited visibility, but the system is presently limited by the necessity for the operator to visually detect and acquire aircraft for the missiles. The night sight will more than double the percent of a 24-hour day in which the system may operate.

PIP 1-80-03-0309 - This Reliability Improvement of Selected Equipments (RISE) PIP results from the low Mean Time Between Failure (MTBF) of the CHAPARRAL Air Compressor and its associated pneumatic system and the consequent excessive depot overhaul requirements and logistics costs. Selected items from the entire pneumatic system, as well as the compressor itself, will be improved or replaced with more suitable and reliable items. To the maximum extent possible, program will consist of improvements to existing items or replacement with items currently designed and in production.

PIP 1-83-03-0325 - This provides an improvement to the M121 smokeless motor by eliminating the use of asbestos in the motor case insulator and also reduce the motor production cost. The basis for this improvement is a requirement by DOD and OSHA to eliminate the use of chrysotile asbestos.

PIP 1-84-03-0326 - This provides for the repouring of CHAPARRAL Missile Rocket Motors with a smokeless propellant. The smokeless rocket motor is required to reduce missile signature when the CHAPARRAL fire unit engages targets.

CHAPARRAL Guided Missile Intercept, Aerial MIM-72-A/C (Continued)

Scope of Program:

	FY 1981 & Prior Year		FY 1982 Current Year		FY 1983 Budget Year		FY 1984 Budget Year + 1		Future Years		Total Program	
	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt
<u>PIP 1-80-03-0306</u>												
MIPA	80	38.5	120	57.7	45	23.1	-	0.0	-	0.0	245	119.5
RDTE	-	15.8	-	0	-	0.0	-	0.0	-	0.0	-	15.8
OMA	-	0.0	-	0	-	.3	-	2.2	-	2.4	-	4.9
<u>PIP 1-80-03-0309</u>												
MIPA	-	0.0	100	1.7	200	3.9	245	7.4	-	0.0	545	13.0
RDTE	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
OMA	-	1.1	-	.1	-	.4	-	.7	-	3.1	-	5.4
<u>PIP 1-83-03-0325</u>												
MIPA		0	-	0	0	1.1	0	1.2	-	0	0	2.3
RDTE		0		0		0		0		0		0
OMA		0		0		0		0		0		0
<u>PIP 1-84-03-0326</u>												
MIPA		0		0	524	4.4	524	4.5	1672	14.0	2720	23.9
RDTE		0		0		0		0		0		
OMA		0		0		.6		.4		1.5		2.5

Basis for Cost Estimate: Analytical and engineering techniques.

Method of Implementation: Field installation by contractor/government contract team.

CHAPARRAL Guided Missile Intercept, Aerial MIM-72-A/C (Continued)

Development Status:

<u>PIP 1-80-03-0306</u>	-	Initiate Engineering Effort	-	2QFY80
		Production Contract Award	-	1QFY82
		First Hardware Delivery	-	3QFY83
		Start Installation	-	1QFY84
		Complete Installation	-	1QFY85
<u>PIP 1-80-03-0309</u>	-	Initiate Engineering Effort	-	2QFY80
		Production Contract Award	-	4QFY82
		First Hardware Delivery	-	3QFY83
		Start Installation	-	1QFY84
		Complete Installation	-	1QFY86
<u>PIP 1-80-03-0325</u>	-	Initiate Engineering Effort	-	1QFY83
		Production Contract Award	-	NA*
		First Hardware Delivery	-	NA
		Start Installation	-	NA
		Complete Installation	-	NA
<u>PIP 1-80-03-026</u>	-	Initiate Engineering Effort	-	2QFY76
		Production Contract Award	-	2QFY80
		First Hardware Delivery	-	4QFY81
		Start Installation	-	4QFY81
		Complete Installation	-	4QFY87

\* New Insulation being cut into existing contract for rocket motors.

MISSILE MODIFICATIONS  
(\$ in Millions)

Appropriation: Missile Procurement, Army

Missile Type: HAWK

Missile Modification Title:

Software/Improved Continuous Wave Acquisition Radar (ICWAR) Data Link Update PIP 1-81-03-0137  
Trainer Elimination/Integrated Operator Trainer PIP 1-81-03-0134  
Improved Platoon Command Post (IPCP) Computer Update PIP 1-81-03-0132  
Missile ECM Upgrade/Multiple Blinking Jammer (MBJ) PIP 1-79-03-0119  
Low Altitude Simultaneous Hawk Engagement (LASHE) PIP 1-82-03-0130  
Improved High Power Illuminator (INPI) RAM II PIP 1-81-03-0131

Description/Justification:

PIP 1-81-03-0137 - Modifies ICWAR ADP and provides software to support Phase III PIPs.

PIP 1-81-03-0134 - Modifies IPCP to allow for operator training on a daily basis without interruption and without disconnecting equipment.

PIP 1-81-03-0132 - Modification replaces ADP in IPCP with a micro-computer with increased memory (65K vs 16K per minute) to provide compatibility with Improved Assault Fire Unit (IAFU) concept of employment.

PIP 1-79-03-0119 - Modifies missiles to counter ECM threat throughout HAWKs fielded life with the UA Army.

PIP 1-82-03-0130 - Modifies INPI and IPCP to increase fire power.

PIP 1-81-03-0131 - Modification replaces analog computer in the INPI with a micro-computer to improve target detection and tracking in an ECM environment.

HAWK (Continued)

Scope of Program:

	FY 1981 & Prior Year		FY 1982 Current Year		FY 1983 Budget Year		FY 1984 Budget Year + 1		Future Years		Total Program	
	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt
<u>PIP 1-81-03-0137</u>												
MIPA							10.8		29.1			39.9
RDTE			12.3		12.4		9.1		4.2			38.0
OMA							.4		5.2			5.6

Basis for Cost Estimate: Engineering techniques.

Method of Implementation: Installation by contractor/government contract team and depot during rebuild.

PIP 1-81-03-0134

MIPA							2.6		3.6			6.2
RDTE			2.7		2.6		1.5		1.5			8.3
OMA							.3		1.2			1.5

Basis for Cost Estimate: Engineering techniques.

Method of Implementation: Installation by contractor/government contract team and Depot during rebuild.

PIP 1-81-03-0132

MIPA							22.2		22.2			44.4
RDTE			3.3		2.8		1.9		1.4			9.4
OMA							.2		2.9			3.1

Basis for Cost Estimates: Engineering techniques.

Method of Implementation: Installation by contractor/government contract team and Depot during rebuild.



HAWK (Continued)

Scope of Program (Continued)

	FY 1981 & Prior Year		FY 1982 Current Year		FY 1983 Budget Year		FY 1984 Budget Year + 1		Future Years		Total Program	
	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt
<u>PIP 1-79-03-0119</u>												
MIPA		24.8		25.6		0		40.8		0		91.2
RDTE		16.7		7.9		7.6		.6		0		32.8
OMA				1.4		0		0		10.0		11.4

Basis for Cost Estimate: Contractor proposal

Method of Implementation: Contractor plant

PIP 1-82-03-0130

MIPA								4.5		6.6		11.1
RDTE				7.3		6.8		6.0		3.4		23.5
OMA								.1		3.9		4.0

Basis for Cost Estimation: Engineering estimate.

Method of Implementation: Contractor team applied in field facility in Europe.

PIP 1-82-03-0131

MIPA								4.8		7.0		11.8
RDTE				3.9		3.2		3.2		2.0		12.3
OMA								.3		2.7		3.0

Basis for Cost Estimate: Engineering estimate.

Method of Implementation: Contractor team applied in field and by Depot during overhaul.

HAWK (Continued)

Development Status:

PIP 1-81-03-0137

Development Contract 2QFY82  
Initiate Testing 2QFY84  
Procurement Contract 2QFY85  
Initial Production Delivery 1QFY86  
Complete Installation 2QFY87

PIP 1-81-03-0134

Development Contract 2QFY82  
Initiate Testing 2QFY84  
Procurement Contract 2QFY85  
Initial Production Delivery 1QFY86  
Complete Installation 2QFY87

PIP 1-81-03-0132

Development Contract 2QFY82  
Initiate Testing 2QFY84  
Procurement Contract 2QFY85  
Initial Production Delivery 1QFY86  
Complete Installation 2QFY87

PIP 1-79-03-0119

Testing Completed 4QFY81  
Production Contract 2QFY82  
Initial Production Delivery 1QFY83  
Complete Installation 2QFY88

PIP 1-82-03-0130

Development Contract 2QFY82  
Initiate Testing 2QFY84  
Procurement Contract 2QFY85  
Initial Production Delivery 1QFY86  
Complete Installation 2QFY87

PIP 1-81-03-0131

Development Contract 2QFY82  
Initiate Testing 2QFY84  
Procurement Contract 2QFY85  
Initial Production Delivery 1QFY86  
Complete Installation 2QFY87

**MISSILE MODIFICATION**  
(\$ in Millions)

Appropriation: Missile Procurement, Army

Missile Type: TOW (BGM-71A, BGM-71C, BGM-71D, BTM-71A) (Heavy Antitank Guided Missile System).

Missile Modification Title:

TOW Missile System Improvements - PIP 1-79-03-3018

Description/Justification:

PIP 1-79-03-3018 - This modification provided improved five-inch warheads (FY 1981 program) and will provide improved six-inch (full caliber) warheads and guidance system hardening (FY1982 and later year program). Results in three tactical missile types: BGM-71A, BGM-71C, BGM-71D, capable of being used with modified launcher.

Development Status:

<u>Event</u>	<u>PIP 1-79-03-3018</u>
Initial Engineering Effort	2QFY79
Hardware Contract Award	2QFY80
First Hardware Delivery	1QFY81
Start Installation	3QFY81
Complete Installation	4QFY86

<u>Scope of Program:</u>	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>	<u>FY 1984</u>	<u>Future Years</u>	<u>Total Program</u>
	<u>Amt (\$M)</u>	<u>Amt (\$M)</u>	<u>Amt (\$M)</u>	<u>Amt (\$M)</u>	<u>Amt (\$M)</u>	<u>Amt (\$M)</u>
<u>PIP 1-79-03-3018</u>					17.4	365.8
MIPA	99.6	124.3	58.4	66.1	-	33.3
RDTE	22.7	6.6	2.0	-	-	-
OMA	-	-	-	-	-	-

Basis for Cost Estimate: Analytical and engineering techniques.

Method of Implementation: Installation by contractor and/or Government contract teams.  
2-45 February 1982

Appropriation: Missile Procurement, Army

Missile Type: LANCE

Missile Modification Title:

LANCE System Readiness PIP 1-79-03-0810

Description/Justification:

This modification will improve the testing capability of the system electronic test set by addition of a new Circuit Card assembly.

Basis for Cost Estimate: Contractor data coupled with past Army experience in buying like equipment.

Method of Implementation: In the field by modification team.

Scope of Program: In addition to the \$1.5 million requested for MIPA in FY 83, \$.043 million in O&M, Army funds is programmed.

	FY 1981 & Prior Year		FY 1982 Current Year		FY 1983 Budget Year		FY 1984 Budget Year + 1		Future Years		Total Program	
	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt
<u>PIP 1-79-03-0810</u>												
MIPA		0		0		1.519		0		-		1.519
RDTE		0		0		0		0		-		0
OMA		0		0		.043		.032		-		.075

MISSILE MODIFICATIONS  
(\$ in Millions)

Appropriation: Missile Procurement, Army

Missile Modification Title: Modifications Less Than \$900,000.

Description/Justification:

PIP 1-80-03-0705 - This FAAR modification provides redesigned electrical circuitry for the Support Maintenance Test Set (SMTS) system reliability, reduce logistics costs and increase safety.

PIP 1-81-03-0313 - This CHAPARRAL modification provides for replacement of germanium transistors in the RT 524 radio with more heat resistant silicon transistors to reduce radio failures in high temperature environments.

Development Status:

<u>EVENT</u>	<u>PIP 1-80-03-0705</u>	<u>PIP 1-81-03-0313</u>
Initiate Engineering Effort	1st Qtr FY 83	1st Qtr FY 83
Production Contract Award	3rd Qtr FY 83	1st Qtr FY 83
First Hardware Delivery	4th Qtr FY 83	2nd Qtr FY 84
Start Installation	4th Qtr FY 84	4th Qtr FY 84
Complete Installation	4th Qtr FY 85	4th Qtr FY 84

Modifications Less Than \$900,000 (Continued)

scope of Program:

	FY 1980 & Prior Year		FY 1981 Current Year		FY 1982 Budget Year		FY 1983 Budget Year + 1		Future Years		Total Program	
	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt
<u>PIP 1-80-03-0705</u>								.300		.700		1.000
MIPA							.269			.006		.275
OMA												
<u>PIP 1-81-03-0313</u>								.300				.300
MIPA												

Basis for Cost Estimates: Project estimates and engineering techniques.

Method of Implementation: Improvements will be retrofitted by materiel work orders to be applied worldwide by Army depot teams.

MISSILE MODIFICATION  
(\$ in Millions)

Appropriation: Missile Procurement, Army

Missile Modification Title: Advance Rocket Control System

Description/Justification: Details of this program are of a classification precluding further description in this document.

<u>Scope of Program:</u>	FY 1981 & Prior Year		FY 1982 Current Year		FY 1983 Budget Year		FY 1984 Budget Year + 1		Future Years		Total Program	
	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt	Qty	Amt
MIPA								8.5		169.9		178.4
RDTE		21.2		0		27.9		54.0		32.2		135.3
OMA		0		0		0		0		0		0

MISSILE MODIFICATION  
(\$ in Millions)

Appropriation: Missile Procurement, Army

Missile Type: Air Defense Command & Control System, AN/TSQ-73

Missile Modification Title: C-MOS Computer Memory Improvement - PIP 1-79-03-1102

Description/Justification: PIP 1-79-03-1102 - Provides additional memory capacity to the AN/TSQ-73 computer by replacing existing core memory with a complementary metallic Oxide Silicon (CMOS) chip. Additional memory capacity is required for interoperability with PATRIOT, I-HAWK, and various NATO Command and Control Systems. The increase will be from 8000 to 32000+ bits.

Development Status:

<u>EVENT</u>	<u>PIP 1-79-03-1102</u>
Initiate Engineering Effort	2nd Qtr FY 81
Hardware Contract Award	2nd Qtr FY 82
First Hardware Delivery	2nd Qtr FY 84
Start Installation	1st Qtr FY 85
Complete Installation	3rd Qtr FY 85

<u>Scope of Program:</u>	<u>FY 1981 &amp; Prior Year</u>		<u>FY 1982 Current Year</u>		<u>FY 1983 Budget Year</u>		<u>FY 1984 Budget Year + 1</u>		<u>Future Years</u>		<u>Total Program</u>	
	<u>Qty</u>	<u>Amt</u>	<u>Qty</u>	<u>Amt</u>	<u>Qty</u>	<u>Amt</u>	<u>Qty</u>	<u>Amt</u>	<u>Qty</u>	<u>Amt</u>	<u>Qty</u>	<u>Amt</u>
<u>PIP 1-79-03-0119</u>												
MIPA							16	8.3			16	8.3
RUTE		1.3		.5		1.1				.5		2.9
OMA												

Basis for Cost Estimate: Prices of similar devices used in computers currently being manufactured.

Method of Implementation: Field installation by depot team.

2-50 February 1982



MISSILE PROCUREMENT, ARMY

Section 12

Multiyear Procurement

Criteria for Selection

Acquisition Strategy Comparative Summary

Funding Plan

Impact of Inflation on Funding and Savings

Savings and Cost Avoidance

Impact on Industrial Base

EXHIBIT NO. 1

CRITERIA FOR SELECTION

MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)

1. Benefit to the Government - The Multiyear Procurement Plan for MLRS includes a Five Year Multiyear Contract (FY 83-87) with two severable options for procurement in FY 88 and FY 89. The plan shows a savings of \$101 million resulting from advanced purchase of materials in economic lots, \$27 million from program stability, and \$65 million in cost growth avoidance for the system prime and his subcontractors. The resulting total savings/cost avoidance of \$193 million on a procurement quantity of 334,356 rockets represents a quantifiable savings and cost avoidance of 11.5 per cent on a contract of \$1.684 billion. The Multiyear Procurement Plan also provides for Vought Corporation, the MLRS prime contractor, to bid the Multiyear Program while there are still sufficient time and quantities to develop a second source. If Vought's multiyear proposal does not reflect the highly advantageous unit costs which were projected by both Boeing and Vought during the highly competitive Validation Phase, the Army would be able to release a competitively structured Request for Proposal (RFP) to potential second sources. While the benefit to the Government of the threat of a second source is not precisely quantifiable, the Project Manager has included a savings of 5 per cent of the contract value in his estimate. However, creeping cost growth has traditionally been a problem in annual contracts with no second source threat. A cost growth of 10 per cent in the contract would raise the cost of this program another 188 million dollars. The total savings/cost avoidance the Government of the MLRS Multiyear Plan would then be \$381 million over the period of the plan, or 22.6 per cent of the procurement cost covered by the Multiyear Plan.

2. Stability of Requirement - Risk - Low - The total program requirement for MLRS rockets projected in 1977 at the Defense Systems Acquisition Review Council I (DSARC I) was 362,832 rockets. Since then, Army Acquisition Objective (AAO) for MLRS has consistently exceeded these quantities and currently stands at

However, taking into account the total force mix and continuing total affordability issues, the Army has programmed 362,832 rockets without change since DSARC I. This proposed multiyear plan would purchase 334,356 rockets, thus filling out the Army's planned program up to 362,832 rockets. The decision to accelerate the development deployment of MLRS was made at DSARC I, based on the

The demonstrated performance of the MLRS during the Validation Phase has confirmed the management decision to accelerate

the program. As a result of the successful Validation Phase the US requirement for MLRS has become even more stable. In addition to the US requirement, the Allied requirement for MLRS, and probable Foreign Military Sales, has solidified as a result of the Validation Phase testing. The inclusion of vertical options in the Multiyear Plan assures the capability of meeting any additional US requirements, as well as foreign needs.

3. Funding Stability - Risk - Low - The criticality of the need for the MLRS system has resulted in a high priority for MLRS on the Army requirements list. The MLRS program is fully programmed for in the approved FYDP and extended planning annexes at the levels necessary to support this multiyear contract. MLRS is being considered for addition to the Army's stable programs listing because there is a strong consensus in the Army for its need and because it has been managed in an efficient and orderly business manner. The Multiyear contract will be firm-fixed price so that the funding requirement will be stabilized and it will be a firm policy of the Army Missile Command to hold contract changes to an absolute minimum. The risk on the annual contracting approach is rated as moderate to high because the threat of competition will be lost and because annual renegotiation is likely to result in increasingly higher negotiated costs each year.

4. Stable Configuration - Risk - Low - The relative simplicity of the MLRS design, the large degree of previously applied technology and the successful testing during Validation and, thus far in the Maturation, Phases indicate few, if any, changes to the system configuration. In Validation Phase Development Test/Operational Test (DT/OT) Testing, MLRS has already demonstrated most of its Decision Coordinating Paper (DCP) required performance objectives and sufficient design maturity to justify a decision by the Secretary of Defense to award four years worth of production contracts to Vought. The concurrent maturation design phase is to refine the configuration of the validation phase system and to fire sufficient rockets in an operational environment to obtain the statistical confidence necessary to refine the rocket ballistic algorithm and fully qualify the production line. A fully audited and flight qualified Technical Data Package (TDP) will be under Government control prior to award of the multiyear contract and it will be the basis for the contract.

5. Cost Confidence - Risk - Low - The MLRS record on system cost is clearly represented in the Selected Acquisition Report (SAR) which shows the currently proposed total system cost below the original program estimate, despite the addition of 57 more launchers to the Program. The System Baseline Cost Estimate (BCE) was completely updated at DSARC III and validated to level one by the Army and OSD Cost Analysis Improvement Groups. As data points, the Army has the Design to Unit Production Cost (DTUPC) unit cost proposals made by both Vought and Boeing for each fiscal year of the production run submitted in the validation phase competition. (The values are extremely close and, therefore, mutually confirming.) The Government also had an independent study of the prime contractor DTUPC's done during the validation phase competition and the study validated the contractor estimates. In addition, during the validation phase competition, the prime contractor proposed on and was awarded four years worth of production contracts. Three years of these are currently in force and are within cost. There are two principal reasons even above these, however, for cost confidence. First, Vought will be proposing with the clear understanding that they must be consistent with their validation phase DTUPC projections or the Army

will reconsider developing second source rather than a Multiyear contract with Vought. Second, to completely insure costs are accurate and under control, the multiyear contract will be firm-fixed price and all projected savings as well as the decision to award the full multiyear to Vought or to develop a second source will be made based on Vought's firm proposal for the multiyear--rather than on Government cost estimates. The risk on the annual contracting approach is rated as moderate to high because the threat of competition will be lost and because annual renegotiation is likely to result in increasingly higher negotiated costs each year.

6. Degree of Confidence in Contractor Capability - Vought has consistently met its contract performance requirements from the inception of this program while maintaining a strong commitment to cost control and staying on schedule. The validation phase of the program was completed on schedule, met all contract performance criteria and was completed within the project budget. The three current production contracts are all in excellent cost and schedule position. The familiarity of the contractor with the free flight rocket system over the lifetime of the LANCE missile system which it produced was the basis for the contractor's initial work on MLRS. Its demonstrated performance throughout the Validation Phase, and thus far in the Maturation R&D Phase, and the concurrent low rate production, increase that degree of confidence. The \$50 million investment made by Vought and its two principal subcontractors to collocate is a positive factor in considering the contractor's capability. The very obvious effort and investment required and subsequently made to automate the production facility, including the extensive use of consultation with automation experts from outside their corporation, indicates a degree of commitment by the contractor to successfully produce the weapons system desired by the Army at a competitive price.

EXHIBIT NO. 2

ACQUISITION STRATEGY COMPARATIVE SUMMARY (U)

	ANNUAL CONTRACTS Rockets/Launchers	MYP ALT
Number Units	334,356/149	334,356/149**
Total Contract Price	1877.1***	1683.7
Cancellation Ceiling	0	****
\$ Savings/Cost Avoidance	0	193.4
\$ Savings/Cost Avoidance	0	11.5X
<u>Risk Related Factors*</u>	<u>RISK</u>	<u>RISK 1</u>
Requirements Stability	Low	Low
Funding Stability	Moderate/High	Low
Configuration Stability	Low	Low
Cost Confidence	Moderate/High	Low

NOTE: \*An explanation of the risk assessment for each factor is included in the exhibit which addresses the "Criteria for Selection" (Exhibit 1).

\*\*Option will be structured for possible additional 60 POMCUS/War Reserve Units.

EXHIBIT NO. 2 (Continued)

ACQUISITION STRATEGY COMPARATIVE SUMMARY (U)

\*\*\*Cost growth in a sole source annual environment is included at 5%. If actual cost growth was greater, cost avoidance would be higher by \$18 million for each additional per cent of cost growth and add 1.0% to the savings/cost avoidance achieved.

\*\*\*\*The program budget for advanced materials is equal to the termination/cancellation liability value for the advanced materials ordered in each fiscal year. Therefore, the cancellation ceiling is funded in the budget and is a floating value equal to the budget less accumulated billings.

## EXHIBIT NO. 3

## FUNDING PLAN (TOTAL PROGRAM) (U)

ANNUAL PROPOSAL	PRIOR	1982	1983	1984	1985	1986	1987	TO COMPLETE	TOTAL
QUANTITY	3714	2496	23,640	36,000	50,472	72,000	72,000	102,510	362,832
FUNDING	175.6	180.5	368.9	471.6	515.6	660.6	594.2	952.9	3919.9
NET REQUEST									
ADVANCE FUNDING									
FY84-89									
ADVANCE FUNDING NOT APPLICABLE TO BASELINE MLRS ANNUAL PROGRAM									
TOTAL BUDGET REQUEST	175.6	180.5	368.9	471.6	515.6	660.6	594.2	952.9	3919.9
MULTIYEAR PROPOSAL									
QUANTITY	3714	2496	23,640	36,000	50,472	72,000	72,000	102,510	362,832
AMOUNT	175.6	180.5	368.9	494.2*	525.9*	574.2	555.8	851.4	3726.5
LESS ADVANCE FUNDING				(32.6)	(23.9)	(56.6)	(61.8)	(110.0)	(284.9)
ADVANCE FUNDING			+53.2	+104.9*	+126.8*				284.9
1984			+32.6						
1985			+10.0	+13.9					
1986			+10.6	+18.9	+27.1				
1987				+31.0	+30.8				
1988				+41.1	+29.4				
1989					+39.5				
TOTAL BUDGET REQUEST	175.6	180.5	422.1	566.5	628.8	517.6	494.0	741.4	3726.5
PROPOSED SAVINGS/ COST AVOIDANCE			-53.2	-94.9	-113.2	+143.0	+100.2	+211.5	+193.4

EXHIBIT NO. 3 (Continued)

FUNDING PLAN (TOTAL PROGRAM) (U) (Continued)

TOTAL PROGRAM OUTLAYS	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	TOTAL
ANNUAL	3.6	67.8	297.5	468.4	568.7	606.2	588.3	404.7	153.6	46.9	18.6	3.0	3227.3
MULTIYEAR	9.4	104.2	372.5	539.3	528.2	508.7	480.9	317.8	119.5	36.9	14.2	2.3	3033.9
DIFFERENCE	-5.8	-36.4	-75.0	-70.9	+40.5	+97.5	+107.4	+86.9	+34.1	+10.0	+4.4	+7	+193.4

\*Subsequent to submission of the President's Budget, it was determined that \$33.1 million in FY 84 and \$32.0 million in FY 85 were erroneously included in the Procurement vice Advance Procurement line item. The total Annual Funded Requests remain the same. Advance Procurement offsets in following years must be adjusted accordingly. The total cost and savings/cost avoidance remain unchanged from the President's Budget.

NOTE: FY 83 contains both annual and multiyear contract awards. Subsequent exhibits provide data for Multiyear vs Annual contract/program values within FY 83.



EXHIBIT NO. 3 (Continued)  
FUNDING PLAN (MULTIYEAR CONTRACT) (U)

ANNUAL PROPOSAL	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>TO COMPLETE</u>	<u>TOTAL</u>
END ITEM QUANTITY	1374	36,000	50,472	72,000	72,000	102,510	334,356
FUNDING	26.4	254.8	272.2	422.0	349.5	552.2	1877.1
NET REQUEST ADVANCE FUNDING FY 84-89							
	ADVANCE FUNDING NOT APPLICABLE TO BASELINE MLRS ANNUAL PROGRAM						
TOTAL REQUEST	26.4	254.8	272.2	422.0	349.5	552.2	1877.1
MULTIYEAR PROPOSAL							
END ITEM QUANTITY	1374	36,000	50,472	72,000	72,000	102,510	344,356
AMOUNT	26.4	277.4*	282.5*	335.6	311.1	450.7	1683.7
LESS ADVANCE FUNDING		(32.6)	(23.9)	(56.6)	(61.8)	(110.0)	(284.9)
ADVANCE FUNDING	<u>+53.2</u>	<u>+104.9*</u>	<u>+126.8*</u>				284.9
1984	+32.6						
1985	+10.0	+13.9					
1986	+10.6	+18.9	+27.1				
1987		+31.0	+30.8				
1988		+41.1	+29.4				
1989			+39.5				
TOTAL BUDGET REQUEST	79.6	349.7	385.4	279.0	249.3	340.7	1683.7
PROPOSED SAVINGS/ COST AVOIDANCE	-53.2	-94.9	-113.2	+143.0	+100.2	+211.5	+193.4

See (\*) Footnote at bottom of second page, Exhibit 3.

EXHIBIT NO. 3 (Continued)

FUNDING PLAN (MULTIYEAR CONTRACT) (U) (Continued)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>TOTAL</u>
TOTAL PROGRAM OUTLAYS													
ANNUAL	2.9	40.9	162.7	257.5	340.6	363.3	342.6	236.5	90.2	27.3	10.8	1.8	1877.1
MULTIYEAR	8.8	77.5	237.7	328.4	300.4	265.8	234.7	149.8	56.0	17.1	6.6	.9	1683.7
DIFFERENCE	-5.9	-36.6	-75.0	-70.9	+40.2	+97.5	+107.9	+86.7	+34.2	+10.2	+4.2	+0.9	+193.4

EXHIBIT NO. 4

IMPACT OF INFLATION ON FUNDING AND SAVINGS (U)

(\$ IN MILLIONS)

	<u>TOTAL MULTIYEAR CONTRACT</u>	<u>TOTAL PROGRAM COST</u>	<u>TOTAL SAVINGS</u>
+ 2X	1717.4	3094.6	197.3
+ 1X	1700.6	3064.2	195.3
BUDGET	1683.7	3033.9	193.4
- 1X	1666.8	3003.4	191.5
- 2X	1650.0	2973.2	189.5

Assumes Base Year FY 83 for development of composite index.

INCLOSURE 1 TO EXHIBIT NO. 4

INFLATION ADJUSTMENTS (U)

TOA (\$ IN MILLIONS)

	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>	<u>TOTAL</u>
<b>MULTIYEAR PLAN</b>								
<b>CONTRACT</b>								
+ 2%	81.2	356.7	393.1	284.6	254.3	240.4	107.1	1717.4
+ 1%	80.4	353.2	389.3	281.8	251.8	238.0	106.1	1700.6
<b>BUDGET</b>	79.6	349.7	385.4	279.0	249.3	235.7	105.0	1683.7
- 1%	78.8	346.2	381.5	276.2	246.8	233.3	104.0	1666.8
- 2%	78.0	342.7	377.7	273.4	244.3	231.0	102.9	1650.0
<b>TOTAL PROGRAM</b>								
+ 2%	87.3	577.8	641.4	528.0	503.9	521.8	234.4	3094.6
+ 1%	86.5	572.2	635.0	522.8	498.9	516.7	232.1	3064.2
<b>BUDGET</b>	85.6	566.5	628.8	517.6	494.0	511.6	229.8	3033.9
- 1%	84.7	560.8	622.5	512.4	489.0	506.5	227.5	3003.4
- 2%	83.9	555.2	616.2	507.2	484.1	501.4	225.2	2973.2
<b>ANNUAL PLAN</b>								
<b>CONTRACT</b>								
+ 2%	26.9	249.7	277.6	430.4	356.5	382.1	191.4	1914.6
+ 1%	26.7	247.2	274.9	426.2	353.0	378.3	189.5	1895.8
<b>BUDGET</b>	26.4	244.8	272.2	422.0	349.5	374.6	187.6	1877.1
- 1%	26.1	242.4	269.5	417.8	346.0	370.9	185.7	1858.4
- 2%	25.9	239.9	266.8	413.6	342.5	367.1	183.8	1839.6
<b>TOTAL PROGRAM</b>								
+ 2%	33.0	470.8	525.9	673.8	606.1	663.5	318.6	3291.7
+ 1%	32.7	466.2	520.8	667.2	600.1	657.0	315.5	3259.5
<b>BUDGET</b>	32.4	461.6	515.6	660.6	594.2	650.5	312.4	3227.3
- 1%	32.1	457.0	510.4	654.0	588.3	644.0	309.3	3195.1
- 2%	31.8	452.4	505.3	647.4	582.3	637.5	306.2	3162.9

EXHIBIT NO. 5

SAVINGS AND COST AVOIDANCE (U)

	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>	<u>TOTAL</u>
QUANTITY (Rocket/Launcher)	1374/0	36,000/76	50,472/44	72,000/29	72,000/0	72,000/0	30,510/0	334,356/149
ANNUAL CONTRACT*	26.4	254.8	272.2	422.0	349.5	374.6	177.6	1877.1
MULTIYEAR CONTRACT	<u>79.6</u>	<u>349.7</u>	<u>385.4</u>	<u>279.0</u>	<u>249.3</u>	<u>235.7</u>	<u>105.0</u>	<u>1683.7</u>
DIFFERENCE	-53.2	-94.9	-113.2	+143.0	+100.2	+138.9	+72.6	+193.4

\$ IN MILLIONS

SOURCE OF SAVINGS	
Inflation	*
Vendor Procurement	99
Manufacturing	27
Design/Engineering	-
Tool Design	-
Support Equipment	2
Other	65**

\* Escalation is considered in the other categories.

\*\*Cost Growth in a sole source annual environment included at 5%. If actual cost growth were greater, cost avoidance would be higher by 18 million each additional per cent of cost growth. Examples are as follows:

- o Savings/Cost Avoidance - Base estimate of savings - \$193.4 million
- o Savings/Cost Avoidance - 5% Additional Cost Growth - \$287.0 million
- o Savings/Cost Avoidance - 10% Additional Cost Growth - \$381.0 million
- o Savings/Cost Avoidance - 15% Additional Cost Growth - \$475.0 million

EXHIBIT NO. 5 (Continued)

SAVINGS AND COST AVOIDANCE (RATIONALE) (U)

Vendor Procurement - Based on Vought studies conducted with their vendors and suppliers, advance procurement of materials in economic lot sizes is expected to yield a savings of 99 million dollars in the total cost of purchasing the remaining rockets and launchers programmed for MLRS. Initial Vought planning indicates that savings are available on motor cases, warhead skins, rocket and launcher structures and connectors and various other materials. These savings are largely available because suppliers are able to operate at more efficient production rates and line up volume economic purchases of their raw materials.

Manufacturing - Vought and its major suppliers have invested 50 million dollars to establish a highly automated, modern facility at Camden, Arkansas. The proposed multiyear contract plan will cause these contractors to operate the final assembly areas at the maximum efficient two shift capability of the facility. With the multiyear contract in place, the contractors will be able to smooth out operations in supporting production areas to their most efficient levels. In addition, stabilization of the work at Camden should provide the major contractors with a base of production at Camden from which to expand to additional programs/operations which will share overhead costs and, thereby reduce total system costs. The Army estimates the potential savings here at 1.5 per cent of the projected contract value or 27 million dollars.

Design Engineering - The MLRS system design has had unit cost pressure on it since the earliest program stages. The Design to Unit Cost Program and the Validation Phase competition succeeded in reducing rocket unit cost by approximately 25 per cent. The system design is being validated and the Technical Data Package and production line are being qualified in the current test program phase. The Army, therefore, believes most of the potential savings in the design have already been realized. Nevertheless, a value engineering provision is planned for the Multiyear Contract and individual cost saving design changes will be evaluated to compare the potential savings against the cost of qualifying the change and revising the tooling to accommodate it.

Tool Design - The competitive pressure in the development plan competition caused Vought and their major suppliers to design and invest 50 million dollars in a highly automated production system which minimizes touch labor requirements in manufacturing and final assembly process. The multiyear contract, as proposed, will utilize these tools and manufacturing systems at the most efficient two shift rate of the facility. Therefore, no additional savings are projected in the multiyear itself. However, a value engineering provision is planned for the multiyear and individual cost savings for tooling changes in Government owned tools will be evaluated to compare the potential savings against the cost of changing the tooling and requalifying the hardware.

Support Equipment - A savings of approximately two million dollars is projected by purchasing 20 million dollars worth of support equipment as part of the multiyear contract. The savings in this area are expected to accrue from reduced shared overhead costs with the basic system, planning fabrication to the extent feasible at times when resources are available from basic hardware areas, and economic ordering of materials along with launcher system hardware.

Other - Competitive Threat of Second Source - Although considerable pressure has already been created on the hardware unit prices, the Army believes that Vought will reduce their profit and overhead and operating expense proposals in an attempt to win this multiyear contract and avoid a second source competition. Because of the previous competition, the Army is estimating this savings at 5 per cent, compared to what would be seen on annual sole source contracts. If cost growth in an annual contract were projected at more than 5 per cent, then the cost avoidance attributable to the multiyear would be greatly increased as illustrated at the bottom of the first page of Exhibit 5.

EXHIBIT NO. 6

IMPACT ON INDUSTRIAL BASE (U)

**Improved Competition** - The MLRS system was competed in the Validation Phase between Boeing and Vought, each of whom was supported by a team of subcontractors. During that competition, the expected unit cost of the MLRS rocket (which comprises over 90 per cent of the projected acquisition cost) was reduced by approximately 25 per cent by both competitors and the performance thresholds for the system were demonstrated in competitive firing of prototype systems.

The success of this competition was, in large measure, a result of both contractors pulling out all stops in an effort to win a 3-plus billion dollar production run. Some of the measures taken are listed below:

1. Created separate divisions to offload high corporate overhead.
2. Located in low cost labor areas.
3. Collocated with motor subcontractors to reduce transportation costs.
4. Adopted automated production systems to minimize labor.
5. Invested corporate funds.
6. Used deferred methods of amortizing their investments vice accelerated methods.
7. Negotiated fixed price contracts with subcontractors.
8. Agreed to low profit percentages and Fixed Price Incentive contracts with low price ceilings.
9. Took ceilings on their development contracts and invested corporate money in the development.

The Army feels that, with much pressure already created on the unit price, a large additional unit cost reduction is highly unlikely even in a further competition. Therefore, a multiyear contract bid under the threat of establishing a second source has several advantages:

1. It forces the proposer to bid low in order to avoid the second source competition.
2. It avoids cost growth by signing him up Firm Fixed Price.



3. It demonstrates to industry that after having competed all out initially to win a production program, the Government will give them a chance at cementing the production run via a good multiyear proposal before they are re-exposed to competition. This will enhance the willingness of companies to draw down to their bottom line in development phase competitions like MLRS.

4. It allows us to make our final decision to go to a second source or not, based on a firm proposal from the contractor rather than Government cost estimates.

Enhanced Investment - During the competitive validation phase of MLRS, Vought and its supporting vendors committed to invest 50 million dollars in capital facilities and tools to establish a production facility at Camden, Arkansas. They have now established these facilities and are in the process of initial production operations. Also, Vought has devised its overhead structure to amortize this investment over the entire production run of 362,832 rockets rather than on some other accelerated basis. These two investments by Vought are of considerable value to the Government.

The completion of MLRS via a long term commitment in a multiyear contract will cement these plans at Vought and encourage further investment by Vought and its vendors. However, equally significant, it will provide a signal to industry that near term investments and risks, when the project is managed well, can result in a long term business commitment from the Government. Some positive examples like this one should greatly enhance industrial willingness to make such investments.

Improvement on Vendor Skill Levels - A chronic problem in industry has been the repeated expansion and contraction of business in a manner that forces cycles during releasing and hiring and requalifying vendor production personnel. The result has often been uneven in personnel and product quality. A multiyear contract with Vought will allow them to make long term commitments with vendors, including small business vendors, which will enable those companies to maintain an even workload and thereby retain a qualified, experienced staff. This should show benefits in improved quality and more efficient operations. MLRS project representatives expect to see some evidence of this in the Vought and subcontractor proposals for the multiyear.

Use of Multiyear Contractors (Vendors) - The use of a Firm Fixed Price Multiyear contract with Vought will result in a dollar of profit for Vought for each dollar it is able to save in operating costs and, conversely, a lost dollar of profit for each dollar of inefficiency. This will provide them with maximum incentive to improve the efficiency of their operation and those of their vendors. On a case by case basis, this end may be best served by (1) using multiyear subcontracts to establish the same sort of stable long term business environment for its vendors as it has in its multiyear or (2) running yearly competitions to reduce costs.

Vought's initial planning in this area is to use multiyear contracts for items such as motor production, center core booster parts, etc., where the item is generally peculiar to MLRS configurations and industrial base and efficiency are best

served by a long term business commitment; where materials are not necessarily peculiar and readily available on the marketplace, such as rivets and raw stock materials, Vought plans competitive procurement.

where leadtimes are long or industrial capacity is scarce, Vought is also considering multiyear subcontracts as a method of enhancing its position in ordering sequences.

The detailed plans for this are only now being worked out by Vought. However, the Government will be requesting a complete make/buy Plan as a part of the Vought multiyear proposal and a detailed explanation of their plans in this area will be required for evaluation by the Government.

Training Program - Training programs both at Vought and its vendor suppliers include off line courses in such areas as welding, riveting, numerically controlled machine operation, automatic transfer line operation and quality acceptance procedures. However, strong emphasis is placed on on-the-job (OJT) training in the actual work environment. This can only be accomplished by skilled workers who have gained sufficient level of expertise to properly instruct incoming personnel. The stabilized work load offered by the multiyear contract commitment in the proposed contract will enable Vought and its vendors to retain the highly skilled individuals required for these OJT programs. The firm fixed price nature of the contracts will create a dollar of profit for the contractors for each dollar they save in operating costs. This will provide great incentive to the contractors to upgrade the skill and performance levels of the workers necessary to increase efficiency and productivity; all of which will enhance the total industrial readiness of the firms involved.

Progress Payment Changes - A substantial amount of the savings presently projected by Vought and their vendors results from economic lot size procurements of such materials/subcomponents as motor cases, warhead skins, launcher cables and connectors and rocket and pod structures. In today's interest environment, this is feasible for these contractors only if progress payments cover 100 per cent of the advance materials purchased. With interest rates at 18-25 per cent, the necessity to borrow even 10 per cent of the proposed advance purchases for several years would substantially erode the savings available from these economic buys and discourage them. Since approximately 65 per cent of the cost of MLRS hardware is tied up in purchased components and materials, similar progress payment provisions are likely to be required in Vought vendor subcontracts.

Increased Production Capacity - The ability to make economic buys will enhance the industrial efficiency of the vendors and having the materials on hand at Vought will greatly shorten the leadtime necessary for them to expand production rates in the event of a sudden increased Army need.

First, economic savings projected on these buys is possible because the vendors are able to operate existing capacity at its most efficient levels, thereby reducing the price to us while enhancing their profits. The large business base represented by this contract should provide these vendors with the incentive and the funds to expand operations and increase their overall production capabilities.

Second, at Vought, the proposed contract provides for purchase of the rockets at the designed, most efficient rate of the facility, i.e., 6,000 rockets per month on a 2 shift, 8 hour, five day week. However, the facility has a surge capability well above this rate on a 3 shift, 7 day week. With the advance materials on hand at Vought for future buys, in a mobilization situation Vought could begin producing at surge rates much more rapidly than if the materials had to be ordered. This would greatly assist our immediate mobilization readiness and buy time for vendors to gear up to higher rates and begin feeding the Vought line at the higher rates.

MISSILE PROCUREMENT, ARMY

Appendix

Consultants, Studies and Analyses, and Management Support Contracts

Exhibit PB-21, Special Analysis

Narrative Justification

2-70. February 1982

FY 1983 PRESIDENT'S BUDGET  
 PD-21, SPECIAL ANALYSIS  
 CONSULTANTS, STUDIES AND ANALYSES  
 AND MANAGEMENT SUPPORT CONTRACTS  
 (DOLLARS IN HUNDREDS)

APPROPRIATION: MISSILE PROCUREMENT, ARMY

DATE: 01/25/82

	FY 1981	FY 1982	FY 1983
A. EXPERTS AND CONSULTANTS	-	-	-
1. PERSONNEL APPOINTMENTS	-	-	-
A. EXPERTS	-	-	-
B. CONSULTANTS	-	-	-
(1) FEDERAL ADVISORY COMMITTEE MEMBERS	-	-	-
(2) ALL OTHER APPOINTED CONSULTANTS	-	-	-
2. CONTRACT CONSULTANTS	-	-	-
B. CONTRACT STUDIES & ANALYSES	-	-	-
1. CONSULTING SERVICES	-	-	-
2. OTHER	-	-	-
C. PROFESSIONAL AND MANAGEMENT SERVICES BY CONTRACT	3,358	7,150	-
1. PROGRAM MANAGEMENT SUPPORT	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
2. POLICY REVIEW AND DEVELOPMENT	3,358	7,150	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	(3,358)	(7,150)	-
3. SPECIFICATION DEVELOPMENT	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
4. SYSTEMS ENGINEERING	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-

APPROPRIATION: MISSILE PROCUREMENT, ARMY

DATE: 01/25/82

	FY 1981	FY 1982	FY 1983
5. TECHNOLOGY SHARING/ UTILIZATION	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
6. LOGISTIC SUPPORT SERVICES	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
7. TECHNICAL DATA COLLECTION	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
8. PUBLIC RELATIONS AND ADVERTISING	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
9. OTHER PROFESSIONAL AND MANAGEMENT SERVICES BY CONTRACT	-	-	-
A. CONSULTING SERVICES	-	-	-
B. OTHER	-	-	-
D. CONTRACT ENGINEERING TECHNICAL SERVICES (CETS)	-	-	-
1. CONTRACT PLANT SERVICES	-	-	-
2. CONTRACT FIELD SERVICES	-	-	-
3. FIELD SERVICE REPRESENTATIVES	-	-	-
<b>TOTAL</b>	<b>3,380</b>	<b>7,150</b>	-

APPROPRIATION: MISSILE PROCUREMENT, ARMY

DATE: 01/25/62

	FY 1961	FY 1962	FY 1963
E. SUMMARY			
1. PERSONAL SERVICES CONTRACTS	-	-	-
2. CONTRACT CONSULTING SERVICES	-	-	-
3. OTHER CONTRACT SERVICES	3.350	7.150	-
4. PERSONNEL APPOINTMENTS	-	-	-
TOTAL	<u>3.350</u>	<u>7.150</u>	<u>-</u>

MISSILE PROCUREMENT, ARMY

NARRATIVE JUSTIFICATION

CONSULTANTS, STUDIES AND ANALYSES AND MANAGEMENT SUPPORT CONTRACTS

1. The funds reported in Management and Professional Services provide support in the Patriot Air Defense Systems Program. The efforts provide an independent means of validating and verifying software, a cost effective means of determining weapon system effectiveness, and modification and maintenance of a computer simulation model.
2. Without these contract services, there would be no independent means of determining the suitability of software prior to its incorporation into the system and the weapon's effectiveness would have to be measured in a "real world" environment.
3. "Real world" measurement was considered and rejected due to the prohibitive cost. Even if funds were available, the lack of equipment to perform the exercise would prohibit the procedures.



END

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