

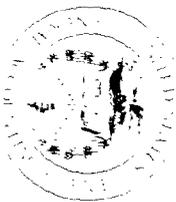
**GAO**

United States General Accounting Office  
Briefing Report to the Chairmen,  
Subcommittees on Defense, Senate and  
House Committees on Appropriations

September 1990

## **DEFENSE BUDGET**

# **Potential Reductions to the Army and Navy Missile Programs**



142443

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**National Security and  
International Affairs Division**

B-205940

September 27, 1990

The Honorable Daniel K. Inouye  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
United States Senate

The Honorable John P. Murtha  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
House of Representatives

As you requested, we reviewed the Army's justification for its fiscal year 1991 budget requests of \$2.7 billion for the following 13 missile systems: the Follow-On to Lance, the Tube-launched, Optically-tracked, Wire-guided (TOW) missile, the Hellfire, the Advanced Antitank Weapon System-Medium, the Patriot, the Air Defense Antitank System, the Non-Line-of-Sight missile, the Stinger, the Avenger, the Hawk, the Army Tactical Missile, the Multiple Launch Rocket System, and the Multiple Launch Rocket System-Terminal Guidance Warhead. We also reviewed the Marine Corps' \$10.1 million fiscal year 1991 budget request to procure TOW missiles and the Navy's \$42.1 million fiscal year 1991 budget request to procure Hellfire missiles. In addition, we examined selected segments of prior-year appropriations for some systems to determine whether unused funds could be rescinded.

We identified \$887.4 million in potential reductions to the fiscal year 1991 requests for 6 of the 13 missile systems we reviewed and \$326.8 million in potential rescissions from the fiscal year 1990 appropriations for 3 missile systems. These reductions result primarily from (1) requests for fiscal year 1991 procurement funds that could be deferred to future years, (2) questionable requirements, (3) reduced requirements, (4) less than anticipated costs, and (5) recalculated amounts using more current information. In addition, there may be potential to reduce the requests for two other missile systems under certain conditions. Table 1 shows the potential reductions for each missile system in Army procurement funds, unless otherwise noted. Details regarding the potential reductions are provided in appendix I.

**Table 1: Potential Reductions to Missile Programs**

Missile system	Dollars in millions		
	Fiscal year		Total
	1991	1990	
Follow-On to Lance	\$112.2	\$0	\$112.2 <sup>a</sup>
TOW	37.2	0	37.2
Hellfire	165.4	0	165.4 <sup>b</sup>
Advanced Antitank Weapon System-Medium	15.6	0	15.6
Patriot	285.2	92.4	377.6
Air Defense Antitank System	271.8	208.9	480.7
Non-Line-of-Sight missile	0	25.5	25.5 <sup>c</sup>
Stinger	<sup>d</sup>	0	<sup>d</sup>
Avenger	<sup>e</sup>	0	<sup>e</sup>
<b>Total</b>	<b>\$887.4</b>	<b>\$326.8</b>	<b>\$1,214.2</b>

<sup>a</sup>Research, development, test, and evaluation funds.

<sup>b</sup>Includes \$42.1 million in Navy funds.

<sup>c</sup>Includes \$8.6 million in research and development funds.

<sup>d</sup>Some contract savings may occur, but the Army cannot estimate the amount.

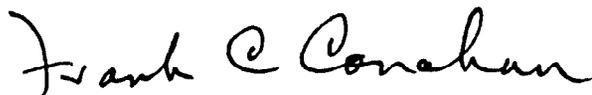
<sup>e</sup>A potential reduction of \$23.8 million is appropriate if multiyear contract authority is not granted for the Avenger.

As requested, we did not obtain written agency comments on this report. However, we discussed the contents with officials from the Office of the Secretary of Defense, the Departments of the Army and the Navy, and the Marine Corps, and we have incorporated their comments where appropriate. The officials generally agreed with the factual material presented in this report, but they generally disagreed with any funding reductions or obligational restrictions. In some instances, they believed that the funds could be used for other requirements; in other instances, they believed that the funding requested would contribute to defense readiness, more efficient acquisition, lower unit costs, or earlier system fielding. The objectives, scope, and methodology of our work are described in appendix II.

We are sending copies of the report to various congressional committees; the Secretaries of Defense, the Army, and the Navy; the Commandant of the Marine Corps; the Director, Office of Management and Budget; and other interested parties.

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This report was prepared under the direction of Richard Davis, Director, Army Issues, who may be reached on (202) 275-4141 if you or your staff have any questions. Other major contributors are listed in appendix III.



Frank C. Conahan  
Assistant Comptroller General

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## Abbreviations

AAWS-M	Advanced Antitank Weapon System-Medium
ADATS	Air Defense Antitank System
NLOS	Non-Line-of-Sight
TOW	Tube-launched, Optically-tracked, Wire-guided



# Potential Reductions to Missile Programs

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We identified potential reductions of \$1,214.2 million from the Army's, the Navy's, and the Marine Corps' budgets for 7 of 13 selected missile systems: \$887.4 million from the fiscal year 1991 request and \$326.8 million from the fiscal year 1990 appropriations. In addition, there may be potential to reduce the fiscal year 1991 requests for two other missile systems under certain conditions.

The following sections provide a brief description of the nine missile systems and the results of our analysis of each system.

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## Follow-On to Lance

The Follow-On to Lance missile system was designed to be a mobile, surface-to-surface nuclear weapon system. It was intended to engage tanks and other arms of attacking Soviet and Warsaw Pact forces. The system included two missiles carried on a Multiple Launch Rocket System launcher.

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## Results of Analysis

The Army requested \$112.2 million in research, development, test, and evaluation funding for the Follow-On to Lance missile system for fiscal year 1991. The request could be denied because on May 3, 1990, the President announced that the Follow-On to Lance program had been canceled because of the diminished Soviet presence in Eastern Europe.

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## TOW

The TOW missile system is a heavy, antitank and assault weapon system consisting of a missile, a launcher, and ground support equipment. The missile is connected to its launcher by wire. After firing, the gunner keeps the sight's crosshairs on the target, and the launcher automatically transmits course corrections through the wire to the missile. TOW can be employed from a ground mount or from vehicles, including the Bradley Fighting Vehicle, the High-Mobility Multipurpose Wheeled Vehicle, and the Cobra Helicopter. The Army is currently producing and fielding the TOW-2A missiles, and it plans to begin producing TOW-2B missiles in late October 1990 using fiscal year 1990 appropriations.

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## Results of Analysis

For fiscal year 1991, the Army and the Marine Corps requested a total of \$229.6 million to buy 13,946 TOW missiles and related equipment and the Army requested \$45.4 million for TOW missile modifications, which included \$37.2 million for 3,488 retrofit kits designed to improve the lethality of TOW-2 missiles. The TOW project manager told us that the Army does not plan to buy the retrofit kits during fiscal year 1991.

Therefore, the Army's TOW modification request could be reduced by \$37.2 million.

The TOW project manager did not agree with the \$37.2 million reduction. The manager said that the requested funds could be used to improve the TOW missile's effectiveness and to modify the missile's sight. However, he agreed that (1) the modification to improve the missile's effectiveness would not improve the level of effectiveness to that planned in the original modification request and (2) funding was appropriated for the missile sight modification in fiscal year 1990; but the funds were reprogrammed for another use. This action casts some doubt on the priority of the missile sight modification.

Although we did not identify any specific budget reduction for procuring TOW missiles in fiscal year 1991, we noted that the TOW-2B's estimated unit price has increased by about 100 percent since the fiscal year 1990 budget request. The TOW project manager expects the unit price to decrease in later years when (1) the procurement quantity increases and (2) the Army procures more components directly from the vendors who produce the components. However, the Army has not reevaluated whether the TOW is affordable at that price in light of the present fiscal constraints. Also, recent and continuing developments in Europe and the Middle East have altered many of the basic assumptions on which U.S. security policy and military strategy have been based.

The project manager stated that there is an inadequate number of TOW missiles capable of defeating reactive armor. However, the Army currently does not plan to buy TOW missiles beyond fiscal year 1991. The Department of Defense is reevaluating this decision.

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## Hellfire

The Hellfire missile system is the main armament on the Army's Apache helicopter and the Marine Corps' Cobra helicopter. It is designed to defeat stationary or moving tanks with minimal exposure of the delivery helicopter to enemy fire. The missile is guided by laser energy reflected from a target that has been illuminated by a laser designator. The target can be illuminated by ground observers, the attack helicopters, or other helicopters.

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## Results of Analysis

The Army and the Navy requested \$165.4 million for fiscal year 1991 to buy Hellfire missiles and related support equipment—\$123.3 million for 3,002 Army missiles and \$42.1 million for 1,198 Navy missiles. The

entire \$165.4 million requested for the fiscal year 1991 Hellfire missiles and related support equipment could be deferred for the reasons discussed in a separate report that we are preparing for the Chairman, Subcommittee on Defense, Senate Committee on Appropriations, on the status of Hellfire missile system improvements.

The deputy project manager expressed concern that readiness might be diminished and said that the Army would not have a production base for Hellfire missiles if the fiscal year 1991 request is deferred. In addition, a Hellfire program management official said that about \$9.9 million would be required if the production were terminated—\$4 million for equipment disposal and \$5.5 million for fiscal year 1992 government engineering. However, we believe that it is prudent to procure more capable missiles.

If the request is not deferred, the Army's Hellfire funding request could be reduced by \$29.8 million. The potential reduction is attributable primarily to a unit cost reduction in a recently awarded contract—the Army budgeted \$32,970 per missile in its fiscal year 1991 request but recently awarded a contract with an option to procure the missiles at a unit cost of \$24,983. After submitting the budget request and receiving the reduced price, the Hellfire Project Office recalculated its fiscal year 1991 budget estimate, and during the process added several items that had not been included in the original estimate. The Army's revised budget estimate remains at \$123.3 million; but, based on discussions with a program management official, it includes \$4.2 million for an unapproved program (dummy and training missiles for the OH-58D helicopter program) and \$25.6 million in support costs that will not be incurred during fiscal year 1991 (\$13.7 million for government engineering and \$11.9 million for test program sets). The official also said that if Hellfire production is funded in fiscal year 1991 but not during fiscal years 1992 and 1993, \$13.7 million will be required for government engineering for those years—\$8.2 million for fiscal year 1992 and \$5.5 million for fiscal year 1993.

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## Advanced Antitank Weapon System- Medium

The Army's Advanced Antitank Weapon System (AAWS-M) is designed to be a medium-range, one-person portable anti-armor system for use in rapid deployment operations, rough terrain, and air assault operations. It is intended to defeat tanks and other targets expected on the battlefield of the 1990s, and it will replace the Dragon weapon system in the Army and the Marine Corps inventories. The system will consist of a

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missile; an expendable container and launch tube, which houses the missile; and a reusable command and launch unit for target acquisition and surveillance.

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## Results of Analysis

The Army requested \$92.4 million for the AAWS-M in fiscal year 1991: (1) \$76.8 million in research, development, test, and evaluation funds to continue program development and (2) \$15.6 million advanced procurement funding for long-lead items.

The Army's \$15.6 million request for advanced procurement funds to support fiscal year 1992 AAWS-M production could be denied. According to its production schedule, the Army is planning to procure the long-lead items in June 1991 to support awarding the initial production contract in June 1992. However, the full-scale development contract stipulates that advanced materials must be procured a minimum of 6 months before the production contract is awarded or in this case, December 1991. Therefore, the Army's request is premature and can be deferred to fiscal year 1992.

AAWS-M program management officials and an Army Missile Command contracting official acknowledged that the contract requires a minimum of 6 months lead time. However, they believed that a June 1991 award (i.e., a 12-month lead time) would better protect the Army's production schedule, but did not have a specific listing of items that might require longer than the 6-month lead time.

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## Patriot

The Patriot is a surface-to-air missile capable of engaging multiple high-performance aircraft. The system consists of a radar, ground support equipment, missile launchers, and missiles. It is intended for use primarily against enemy aircraft flying at high-to-medium altitudes, and it is designed to protect ground forces and other high-value targets such as air bases in rear combat areas.

In the mid-1980s, a joint U.S. and Italian study team outlined air defense requirements for both countries. On the basis of the study, the countries negotiated a weapons agreement which, if fully implemented, will cost the United States \$496.5 million over a 2-year period (\$248.3 million for fiscal year 1990 and \$248.2 million for fiscal year 1991). The agreement involves exchanging U.S. Patriot ground support equipment for Italian-procured and operated air defense systems for four U.S. military bases

in Italy. In addition, the United States agreed to license Italy to produce up to 160 Patriot launchers and 1,280 Patriot missiles.

## Results of Analysis

The Army requested \$883.2 million for fiscal year 1991 to buy 817 Patriot missiles and ground support equipment. The request includes \$248.2 million to fund the second year of a \$496.5 million weapons agreement with Italy. The fiscal year 1991 request could be reduced by \$285.2 million as follows:

- \$248.2 million by deleting or deferring purchases to satisfy the weapons agreement with Italy,
- \$11.2 million by deleting funding for decoys the Army does not plan to buy, and
- \$25.8 million by funding engineering services in fiscal year 1991 at the fiscal year 1990 level.

In addition, \$92.4 million could be rescinded from the fiscal year 1990 appropriation because the Army does not plan to procure three Patriot fire units.

## Weapons Agreement Funding

The weapons agreement funding request for fiscal year 1991 could be deleted or deferred by \$248.2 million. The Congress appropriated fiscal year 1990 funds for the first year of the weapons agreement. In implementing the weapons agreement with Italy, the Army decided to buy the ground support equipment under the existing Patriot multiyear contract. Therefore, it included the equipment in a contract option that was scheduled to be exercised in November 1989; and it obtained funding approval beginning in fiscal year 1990. However, Italy was not prepared to sign the agreement in time for a November contract award. Citing conflicting budgetary demands and concerns with securing internal financial commitments, the Italian government delayed its final approval until April 1990. The Army exercised the contract option to procure the equipment on May 18, 1990.

According to a Department of Defense International Programs official, the Italian government will have to pass special legislation, outside its normal budgetary process, to fully fund its part of the agreement. As of September 4, 1990, the legislation had not been submitted for the Parliament's consideration. Since substantial Italian budgetary commitment to the agreement cannot occur until about 1 year later than the first U.S. commitment, the Army's fiscal year 1991 request could be deferred by 1 year to (1) permit the U.S. and Italian funding commitments to more

closely coincide and (2) minimize U.S. risk if Italy does not proceed with the agreement. In addition, the Congress may wish to deny the request based on previously reported classified information. If the requested fiscal year 1991 funding is appropriated, the Congress might want to restrict obligational authority until after the Italian government makes its budgetary commitment.

Project management officials believe that a 1-year deferral would cause a significant cost increase, but a deferral of 6 to 7 months would result in a much more modest increase.

#### Decoy Funding

The Army's \$11.2 million budget request for 72 anti-radiation missile decoys can be denied because in February 1990, the Army decided not to procure the decoys. Instead, the Army chose to complete development but defer production until its priority and funding needs are clearly defined.

Program management officials agreed that the Army is not planning to buy decoys during fiscal year 1991. These officials would like to use the funds for program shortfalls, but that is not the purpose for which the funds were justified.

#### Support Services

The fiscal year 1991 budget request for support services could be reduced by \$25.8 million. The Patriot fiscal year 1991 request includes \$126 million for contractor, integrated logistics, and software engineering services—\$25.8 million more than appropriated in fiscal year 1990 to support approximately the same amount of equipment. In addition, the amount requested for these support services in fiscal year 1990 is about the same as amounts requested in fiscal years 1989 and 1988.

Program management officials stated that the increase for support services is necessary to provide 3 years of support for the fiscal year 1991 hardware purchases. However, the fiscal year 1990 and earlier hardware purchases also had to be supported for 3 years. Therefore, we believe that the Army has not adequately justified the higher funding level.

#### Fiscal Year 1990 Excess

Our review indicated that \$92.4 million could be rescinded from the fiscal year 1990 appropriation because the Army does not plan to buy three Patriot fire units. The Department of Defense has withdrawn \$75 million of obligational authority and plans to request reprogramming for other uses. However, according to a Department of the Army budget official, as of July 1990, it had not obtained reprogramming

approval, nor had it identified a specific need for the funds. Regarding the remaining \$17.4 million, the Patriot project office wants to (1) use the funds to cover a \$9 million increase in the Italian fire unit cost caused by canceling the three units and (2) fund existing program shortfalls. However, on the basis of the project office's estimates, funds already appropriated or requested are sufficient to cover the cost of the agreement, including the contract price increase.

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## Air Defense Antitank System

The Air Defense Antitank System (ADATS) is a part of the Forward Area Air Defense System. It is intended to detect and engage low-flying, fixed-wing aircraft and helicopters well beyond the range of the Chaparral and Stinger missile systems. The system currently consists of a launcher with eight missiles mounted on a modified Bradley Fighting Vehicle chassis. The Army plans to later add an air defense gun, which it considers necessary for close ranges. The system is to be located in the forward area of the battlefield and is expected to operate during the day, at night, and in adverse weather.

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## Results of Analysis

The Army requested \$271.8 million for the ADATS in fiscal year 1991—\$235.6 million to procure 16 fire units and 220 missiles and \$36.2 million in advanced procurement funds. The entire \$271.8 million request could be denied because the Army recently canceled its fiscal year 1991 procurement plans.

According to the deputy project manager, the cancellation was caused by unacceptable performance in operational testing. During these tests, the ADATS did not meet the required criteria for availability—demonstrating 38 percent versus the requirement of 55 percent. Also, the system's reliability performance is currently far below goals with preliminary operational test results showing failure about every 7 hours compared to a reliability goal of 38 hours between failures. We attended some technical tests and the majority of operational tests performed between January and May 1990 and are preparing a separate report on the results.<sup>1</sup>

In addition, \$208.9 million could be rescinded from the fiscal year 1990 appropriation because none of the fiscal year 1990 funds for ADATS have been obligated and the Army no longer plans to procure ADATS in fiscal

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<sup>1</sup>The Fiscal Year 1989 Defense Authorization Act required us to evaluate the performance of ADATS during operational tests.

year 1990. The budget included \$167.2 million in procurement, \$31.7 million in advanced procurement funds, and \$10 million in spares.

On August 24, 1990, the Army decided to conduct additional development work on ADATS during fiscal years 1991 and 1992. The Army estimates that \$92 million will be required in research and development funding for fiscal year 1991. Since this decision was made after we completed our fieldwork, we did not evaluate the Army's revised plan.

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## Non-Line-of-Sight Missile

The Non-Line-of-Sight (NLOS) missile is a component of the Forward Area Air Defense System. It is intended to protect ground troops and vehicles against enemy helicopters in the forward area of the battlefield; but it will operate from concealed positions, out of direct enemy view. The system consists of the missile and launcher and gunner station. Upon launch, the gunner locates targets through a video display, which portrays the missile seeker's view as the missile cruises at low altitudes. These images pass through a fiber optic link to the gunner's console. The system will be deployed on a derivative of the Multiple Launch Rocket System vehicle or on the High Mobility Multipurpose Wheeled Vehicle.

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## Results of Analysis

The Army requested \$99.1 million in research and development funds for fiscal year 1991 to continue full-scale development of the NLOS missile. We did not identify potential reductions to this request. However, \$25.5 million included in the fiscal year 1990 appropriations could be rescinded because the Army does not plan to use the funds for the NLOS.

The fiscal year 1991 request included amounts for conducting live fire tests and for production related funds which should not be required during fiscal year 1991. However, the Army recently restructured the program because production was delayed for 3 years. The current baseline cost estimate shows that the funds will be needed for the restructured program even though some of the funding will not be used for the tasks requested.

The Army's fiscal year 1990 appropriations include \$25.5 million, which the Army does not plan to use for the NLOS system—\$8.6 million in the research and development appropriation and \$16.9 million in the advanced procurement appropriation. These amounts have not been reprogrammed and are therefore available for rescission.

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The Army's fiscal year 1990 research and development appropriation can be reduced by \$8.6 million because, according to a Department of Army budget official, the Army has withheld \$8.6 million, and it does not intend to use the funding for the NLOS. In addition, the Army budget official said that the Department of Defense has withdrawn the entire \$32.5 million fiscal year 1990 advanced procurement appropriation for the NLOS. The Department of Defense has obtained approval to reprogram \$15.6 million, but as of September 1990, \$16.9 million still remains. The remaining \$16.9 million is therefore available for rescission.

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## Stinger

Stinger is a portable guided missile system used to defend against low-flying enemy airplanes and helicopters. It is stored in a disposable launch tube and launched by using a reusable gripstock. The current system includes a reprogrammable microprocessor to counter more advanced threats.

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## Results of Analysis

The Army requested \$252.4 million for fiscal year 1991 to buy 6,922 Stinger missiles and related support equipment. If all Stinger missiles are purchased from one source, some contract savings should occur; but the Army could not estimate those savings.

According to Army and Department of Defense officials, current Army planning indicates that fiscal year 1991 will be the last year for Stinger procurement. Therefore, contract savings could occur if the Army awarded the entire missile quantity to one contractor, rather than splitting between the prime contractor and the second source.

Stinger procurement officials agreed that some savings should occur, but they could not estimate the amount of those savings. However, they said the administrative lead time for awarding contracts would not permit changing the acquisition strategy without causing a break in production, which could cost more than realized through contract savings. In addition, project management officials believe that production should be continued because the inventories are well short of the acquisition objective. Therefore, they are asking that Army planning reinstate Stinger production after fiscal year 1991. However, at this time, the Army is currently planning to stop production after fiscal year 1991.

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## Avenger

The Avenger is a part of the Forward Area Air Defense System. It is a transportable surface-to-air missile and gun weapon system mounted on the High-Mobility Multipurpose Wheeled Vehicle. Each vehicle includes (1) a .50-caliber machine gun and (2) eight Stinger missiles with a standard vehicle-mounted launcher and associated equipment. The Avenger, which fires all versions of the Stinger missile, is to defend convoys, command posts, bridges and so forth, against low-flying, fixed-wing aircraft and helicopters.

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## Results of Analysis

The Army requested \$123.1 million for Avenger in fiscal year 1991—\$97.4 million for 88 fire units and \$25.7 million to provide advanced materials for later procurements under a multiyear contract. The Army also requested congressional authorization to award an Avenger multi-year contract.

We analyzed the proposed multiyear contract<sup>2</sup> and concluded the following:

- The Army does not have a reliable cost estimate for the proposed multi-year contract. Both the contractor and Stinger project officials stated that the annual and multiyear contract estimates for the proposed procurement, made in late 1988 and based on data generated for the initial production contract awarded in 1987, were too low. The contractor's May 1990 proposal for additional quantities supports their statements that prices have increased.
- Funding for the Avenger has been stable to date and the latest Five-Year Defense Program includes funding for the multiyear contract. However, the Department of Defense is reevaluating its requirements in view of recent world events and support for the Avenger could change. In addition, recent contractor proposals and revised estimates indicate higher unit prices than those estimated by the Army and included in the budget. Thus, the amounts provided in the budget may not be enough to procure the number of units planned.
- Since the Avenger has not been integrated with other Forward Area Air Defense System components, design stability has not been established and it is uncertain how the total system will operate.

If the multiyear contract authority is not approved, the Army's fiscal year 1991 budget request could be reduced by a net \$23.8 million—a

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<sup>2</sup>Procurement: Assessment of DOD's Multiyear Contract Candidates for Fiscal Year 1991 (GAO/NSIAD-90-270BR, Aug. 31, 1990).

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reduction of the \$25.7 million advanced materials request offset by a \$1.9 million cost increase for an annual contract. As of June 1990, the project office estimated that a fiscal year 1991 annual contract would cost \$1.9 million more than the multiyear.

# Objectives, Scope, and Methodology

This review is one of a series that examines defense budget issues. Our objectives for this review were to (1) review DOD's fiscal year 1991 budget requests for selected Army missile systems to determine whether the missile programs should be funded in the amounts requested and (2) examine selected segments of prior-year appropriations for some systems to determine whether unused funds could be rescinded.

At the U.S. Army Missile Command, Huntsville, Alabama, we examined selected aspects of the budget justifications for procurement and research and development funding for 13 Army missile systems: the Follow-On to Lance, the TOW, the Hellfire, the AAWs-M, the Patriot, the ADATS, the NLOS missile, the Stinger, the Avenger, the Hawk, the Army Tactical Missile, the Multiple Launch Rocket System, and the Multiple Launch Rocket System-Terminal Guidance Warhead. We also examined the Navy's request for the Hellfire and the Marine Corps' request for TOW.

In evaluating the budget requests, we examined (1) production plans, delivery plans, improvement plans, and effectiveness analyses to determine whether planned production is warranted; (2) test reports and missile delivery status to evaluate the effect of production problems on missile delivery; and (3) the requirements for selected missiles and support equipment. In addition, we reviewed selected aspects of missile costs by (1) examining the services' methodology in arriving at those costs, (2) determining the most recently experienced costs, and (3) examining recently awarded contracts. Also, for selected systems, we reviewed the status of obligations for previously appropriated funds and the plans to obligate these funds. However, we did not examine each of these aspects for all weapon systems. Rather, we tailored our review of each system to those items that appeared to have the most potential for reduction, and we identified potential reductions for missile systems.

In many instances we relied on testimonial evidence because it was the only evidence available. However, when practicable, we corroborated this evidence with other sources or verified the evidence a second time with the same source.

As requested, we did not obtain agency comments on this report. However, we discussed its contents with officials from the Office of the Secretary of Defense; the Departments of the Army and the Navy; the Marine Corps; and the U.S. Army Missile Command and we have incorporated their comments where appropriate.

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**Appendix II**  
**Objectives, Scope, and Methodology**

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We conducted our review from October 1989 through July 1990 in accordance with generally accepted government auditing standards.

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# Major Contributors to This Report

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