

**GAO**

Briefing Report to the Chairmen,  
Subcommittees on Defense, Senate and  
House Committees on Appropriations

August 1987

# ARMY BUDGET

## Potential Reductions to M1 Tank and Bradley Fighting Vehicle Budgets



133625

039629





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

National Security and  
International Affairs Division

B-222085

August 6, 1987

The Honorable John C. Stennis  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
United States Senate

The Honorable Bill Chappell, Jr.  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
House of Representatives

This responds to your requests that we review the basis and justification for the fiscal year 1988 budget estimates for selected budget lines in the Army's Procurement of Weapons and Tracked Combat Vehicles appropriation. We also reviewed the fiscal years 1986 and 1987 budgets to identify funding not yet used that could potentially be reduced. As arranged with your offices, we limited our review to the budget requests for M1 tanks and Bradley Fighting Vehicles. The results of our review are summarized below and discussed in more detail in appendixes I and II.

We identified potential reductions of \$198.1 million in the two programs--\$81.8 million for fiscal year 1988, \$84.7 million for fiscal year 1987, and \$31.6 million for fiscal year 1986. These amounts are primarily the result of our updating the Army's estimates using more current contract information.

There are additional potential reductions of \$159.8 million to the Bradley Fighting Vehicle budget if the Army decides not to improve the Bradley's survivability. These additional potential reductions to the Bradley budget lines for fiscal years 1987 and 1988 amount to \$74.8 million and \$85 million, respectively.

We discussed the contents of this briefing report with Army officials and have incorporated their comments, where appropriate. Department of the Army officials said that because they had originally reduced the quantities of vehicles requested due to dollar limitations, the potential reductions could be used to buy additional M1 tanks and

B-222085

Bradley Fighting Vehicles. As requested, we did not obtain official agency comments. Our objectives, scope, and methodology are described in appendix III.

As arranged with your offices, we are sending copies of this report to various congressional committees; the Secretaries of Defense and the Army; and the Director, Office of Management and Budget. Copies will be made available to others upon request.

Should you need additional information or have questions, please contact Mr. Thomas J. Brew, Associate Director, on (202) 275-4133.



Frank C. Conahan  
Assistant Comptroller General

C o n t e n t s

	Page
LETTER	1
APPENDIXES	
I Potential Reductions to the M1 Tank Budgets	4
II Potential Reductions to the Bradley Fighting Vehicle Budgets	8
III Objectives, Scope, and Methodology	12
TABLES	
I.1 Amounts Requested and Potential Reductions to the Fiscal Year 1988 Budget Estimates for 600 M1 Tanks	4
II.1 Amounts Requested and Potential Reductions to the Fiscal Year 1988 Budget Estimates for 586 Bradley Fighting Vehicles	8
II.2 Amounts Included in the Army's Budgets for Survivability Changes to the Bradley Fighting Vehicle	11

ABBREVIATIONS

TACOM U.S. Army Tank-Automotive Command

POTENTIAL REDUCTIONS TO THE M1 TANK BUDGETS

In its fiscal year 1988 budget request, the Army requested \$1,537.5 million for 600 M1 tanks. This included prior years funding of \$183 million. The Army also requested an additional \$37.5 million for M1 tank modifications. We reviewed the budget estimates for the major cost elements of the basic vehicle, engine, transmission, fire control, gun, test sets, and modifications. These seven cost categories account for 84 percent of the M1 tank costs. We identified potential reductions of \$63.4 million in the fiscal year 1988 request based on events that occurred and information that became available after the budget estimates were prepared, as shown in table I.1.

Table I.1: Amounts Requested and Potential Reductions to the Fiscal Year 1988 Budget Estimates for 600 M1 Tanks

<u>Budget lines</u>	<u>Budget request</u>	<u>Potential reduction</u>	<u>Revised estimate</u>
	----- (millions) -----		
M1 Tank			
Basic vehicle	\$ 778.6	\$15.2	\$ 763.4
Engine	208.9	20.6	188.3
Transmission	92.0	6.9	85.1
Fire control	105.3	5.3	100.0
Gun	46.0	6.7	39.3
Test sets	57.6	5.3	52.3
Other <sup>a</sup>	249.1	0	249.1
M1 Tank Modification	<u>37.5</u>	<u>3.4</u>	<u>34.1</u>
Total	<u>\$1,575.0</u>	<u>\$63.4</u>	<u>\$1,511.6</u>

<sup>a</sup>This category consists of 21 cost elements not included in our review.

We also identified potential fiscal year 1987 funding reductions of \$42.7 million for the M1 tank and \$6 million for M1 tank modifications, and fiscal year 1986 funding reductions of \$12.1 million for the M1 tank. Our analyses are based on the Army's acquisition strategy which calls for procuring 810 M1 tanks in fiscal year 1987 and 800 in fiscal year 1986.

These potential reductions are explained in greater detail below by budget line category and fiscal year.

M1 TANK BASIC VEHICLE

The Army's fiscal year 1988 basic vehicle budget estimate of \$778.6 million was based on a ceiling price negotiated with the prime contractor, General Dynamics Land Systems. We reviewed \$685.1 million of the \$778.6 million program budget. We excluded a \$93.5 million classified element because of its sensitivity and the short time we had to complete our work.

We believe the fiscal year 1988 basic vehicle request could be reduced by \$15.2 million based on price information from a multiyear contract negotiated after the budget estimate was prepared. Using the multiyear contract amount, we believe the funding for fiscal years 1986 and 1987 can also be reduced by \$2.1 million and \$1.1 million, respectively. Officials of the U.S. Army Tank-Automotive Command (TACOM) agreed with our position.

M1 TANK ENGINE

The Army's fiscal year 1988 budget estimate of \$208.9 million for 600 tank engines is based on a ceiling price in a then-proposed multiyear contract with AVCO Lycoming Division, the engine manufacturer. On March 31, 1987, the Army signed a multiyear contract covering fiscal years 1986-90. Based on that contract price, we believe the estimate should be revised to about \$188.3 million in fiscal year 1988, a \$20.6 million reduction from the estimate.

The lower than estimated multiyear contract price also reduces fiscal year 1987 funding requirements by \$18.5 million. However, fiscal year 1986 funding needs have increased by \$1.5 million for 10 additional engines to meet the updated fiscal year 1986 M1 tank acquisition strategy.

TACOM officials agreed with our revised calculations of the M1 tank engine costs, but stated that they plan to use the fiscal year 1987 and 1988 savings to purchase an improved track for the M1 tank.

M1 TANK TRANSMISSION

The Army's fiscal year 1988 budget estimate of \$92 million for transmissions was based on the 1986 contract price. The M1 tank project office increased the estimate by a 4.2 percent rate penalty to compensate for reducing the quantity purchased from 720 to 600 units. We believe the estimate can be reduced by \$5,333 per transmission using a more recent unit price negotiated for fiscal year 1987. We also believe the 4.2 percent rate penalty should not be added because, in addition to the 600 units, the Army plans to buy 174 units as spares, making the total procurement quantity 774

units with an option to purchase 294 additional units. The result of these actions is an estimate of \$85.1 million and a potential reduction of \$6.9 million for fiscal year 1988--\$3.2 million from the updated contract price and \$3.7 million from eliminating the rate penalty.

Applying the 1987 contract price to recompute the need for fiscal year 1987 funding results in a potential reduction of \$7.6 million. TACOM officials agreed with both fiscal years 1988 and 1987 potential reductions.

#### M1 TANK FIRE CONTROL

The Army requested \$105.3 million for M1 tank fire control components in fiscal year 1988. An Army contracting officer, who was negotiating a contract with one of the four suppliers, provided us with the most recent price offer from the contractor. Based on that price, we believe the fire control estimate can be reduced by \$4.7 million. Also, we believe there is an additional potential reduction of \$600,000 based on recent prices negotiated with another contractor, increasing the total potential reduction for the fiscal year 1988 fire control estimate to \$5.3 million.

TACOM officials agreed with the \$600,000 potential reduction but did not agree with the \$4.7 million potential reduction. They believed the estimated contract ceiling price should be used rather than the more recent contractor's proposal because the price could change before the contract is signed. However, the contracting officer negotiating the contract told us the final price would not be higher, and would likely be lower than the contractor-proposed price he provided. Therefore, we believe the amount should be considered for potential reduction.

#### M1 TANK GUN

The Army requested \$46 million for the 120-millimeter tank gun in fiscal year 1988. The budget estimate was based on fiscal year 1985 costs, the most recent figures available at the time TACOM prepared the estimate. In April 1987 we obtained fiscal year 1986 costs from the Watervliet Arsenal, which produces the gun, and recalculated the estimate. The result was an estimate of \$39.3 million for fiscal year 1988, \$6.7 million less than the Army's request. We also used the 1986 costs to recompute the estimates for fiscal years 1986 and 1987 and identified potential reductions of \$9.9 million and \$11.8 million, respectively. TACOM officials agreed with our position.

M1 TANK TEST SETS

The Army requested \$57.6 million for M1 tank test sets in the fiscal year 1988 budget. TACOM officials have since reduced their estimate to \$57.1 million. We analyzed 11 of 27 test programs and identified an additional \$4.8 million in potential reductions. The \$4.8 million is the estimated cost of developing Diagnostic Printed Circuit Boards, a program that TACOM engineers now believe is not affordable and should be terminated. Therefore, the total amount for potential reduction in fiscal year 1988 is \$5.3 million. TACOM also updated and reduced the number of test sets funded in fiscal years 1986 and 1987, resulting in reductions of \$1.6 million and \$3.7 million, respectively. TACOM officials agreed with our position.

M1 TANK MODIFICATION

The Army requested \$37.5 million for M1 tank modifications in fiscal year 1988. TACOM officials could not support their budget estimate of \$3.4 million for fiscal year 1988 or \$6 million in unused fiscal year 1987 funding for one of the modifications--the Engine Diagnostic Module Program. A TACOM official told us that this program has not started and is not likely to be started. We believe those amounts should be considered for potential reduction. TACOM officials agreed with our position.

POTENTIAL REDUCTIONS TO THE  
BRADLEY FIGHTING VEHICLE BUDGETS

In its fiscal year 1988 budget request, the Army requested \$716.4 million for Bradley Fighting Vehicles. This included prior years funding of \$17 million. The Army also requested an additional \$37.1 million for Bradley advance procurement. We reviewed TACOM's documentation supporting the acquisition of 586 vehicles with the budgeted amount.<sup>1</sup> We reviewed the budget requests for the basic vehicle, fire control, transmission, turret drive, engine, peculiar support equipment, and contractor engineering. These seven cost categories account for 94 percent of the fiscal year 1988 budget request for the Bradley Fighting Vehicle.

As shown in table II.1, we identified potential reductions of \$18.4 million in the fiscal year 1988 budget request based on events that occurred and information that became available after the estimates were prepared.

Table II.1: Amounts Requested and Potential Reductions to the Fiscal Year 1988 Budget Estimates for 586 Bradley Fighting Vehicles

<u>Budget lines</u>	<u>Budget request</u>	<u>Potential reductions</u>	<u>Revised estimate</u>
	----- (millions) -----		
Bradley Fighting Vehicle			
Basic vehicle	\$324.0	\$ 8.6	\$315.4
Fire control	172.3	5.6	166.7
Transmission	47.8	0	47.8
Turret drive	36.7	0	36.7
Engine	15.3	0.5	14.8
Peculiar support equipment	34.8	2.1	32.7
Contractor engineering	41.5	0	41.5
Other <sup>a</sup>	44.0	0	44.0
Bradley Advance Procurement	<u>37.1</u>	<u>1.6</u>	<u>35.5</u>
Total	<u>\$753.5</u>	<u>\$18.4</u>	<u>\$735.1</u>

<sup>a</sup>This category consists of six cost elements not included in our review.

<sup>1</sup>The Army's fiscal year 1988 budget shows a quantity of 616 Bradley Fighting Vehicles. According to TACOM officials, that number is incorrect and should be 586 vehicles.

BRADLEY ADVANCE PROCUREMENT

The Army requested \$37.1 million for the fiscal year 1988 Bradley Advance Procurement budget line. We believe the estimate can be revised based on more current price information and the Army's adjustments to procurement quantities, resulting in a potential reduction of \$1.6 million. TACOM officials agreed with our position.

BRADLEY SURVIVABILITY CHANGES

The Army has not decided whether to include a number of planned survivability changes in the Bradley program but has budgeted for the changes as shown in table II.2.

Table II.2: Amounts Included in the Army's Budgets for Survivability Changes to the Bradley Fighting Vehicle

<u>Budget line</u>	<u>Fiscal years</u>		<u>Total</u>
	<u>1987</u> <u>budget</u>	<u>1988</u> <u>budget</u> <u>request</u>	
	----- (millions) -----		
Bradley Fighting Vehicle			
Basic vehicle	\$63.1	\$49.5	\$112.6
Engine	0	0.9	0.9
Contractor engineering	7.5	7.5	15.0
Special tooling	4.2	0	4.2
Bradley Modifications	<u>0</u>	<u>27.1</u>	<u>27.1</u>
Total	<u>\$74.8</u>	<u>\$85.0</u>	<u>\$159.8</u>

If the Army decides not to make the survivability changes, the amounts shown in table II.2 are available for potential reduction.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to evaluate the Army's fiscal year 1988 budget request for the Procurement of Weapons and Tracked Combat Vehicles appropriation and identify potential adjustments. We also reviewed the budgets for fiscal years 1986 and 1987 to identify potential adjustments. We determined how the Army estimated its funding requirements and identified current information that might change the estimates.

Due to time constraints, we limited our review to the M1 Tank, M1 Tank Modifications, Bradley Fighting Vehicle, and Bradley Advance Procurement budget lines. These budget lines account for 70 percent of the Army's fiscal year 1988 budget request for the Weapons and Tracked Combat Vehicles appropriation. We reviewed the major cost elements of these budget lines, accounting for 87 percent of their total.

The review was conducted at the Headquarters, Department of the Army, Washington, D.C., and the U.S. Army Tank-Automotive Command (TACOM), Warren, Michigan. We interviewed Army officials and reviewed and analyzed various budget documents, contract information, cost estimates, and other documents relevant to the Army's budget request.

We performed our review from January to May 1987, in accordance with generally accepted government auditing standards.

(393189)

We also identified potential funding reductions of \$36 million for fiscal year 1987 and \$19.5 million for fiscal year 1986 for the Bradley Fighting Vehicle budget lines based on revised cost estimates. TACOM officials agreed that the funds are available, however, they believe they should be retained within the program to provide flexibility in the event contract prices are higher than estimated.

All of the potential reductions are described in greater detail below. Also described below are additional potential reductions related to Bradley survivability changes which the Army has not yet decided to make.

#### BRADLEY BASIC VEHICLE

TACOM's fiscal year 1988 budget estimate of \$324 million for the basic vehicle was based primarily on fiscal year 1986 contract prices. We believe this estimate can be revised based on a contractor proposal for fiscal year 1987. The revised estimate of \$315.4 million results in a potential reduction of \$8.6 million. TACOM officials believe \$1.4 million of the \$8.6 million potential reduction will be needed for an expected increase in the cost of attaching armor to the vehicle. The TACOM officials agreed with the remaining \$7.2 million potential reduction.

We believe the fiscal year 1987 funding of \$385.6 million can potentially be reduced by \$28.6 million based on the fiscal year 1987 contract proposal. TACOM officials, however, believe that the reduction can only be about \$4.5 million. They said the remaining \$24.1 million is needed--\$13.1 million for high survivability risk factor, \$9 million for management and contingent liability reserves, and \$2 million for expected contract changes. However, since the budgeted amount exceeds the best estimate of costs by \$28.6 million, we believe that amount should be considered for potential reduction.

We also identified potential reductions of \$1.3 million in fiscal year 1986 funds based on eliminating \$600,000 set-aside for mobilization planning that is no longer needed and \$700,000 that exceeds contract price estimates. TACOM officials agreed with our position on the \$600,000 for mobilization planning, but said the \$700,000 may be needed to cover unexpected costs.

#### BRADLEY FIRE CONTROL

TACOM estimates that \$172.3 million will be needed for fiscal year 1988 Bradley fire control contracts. We learned, however, that a more current estimate was available for one of the 10 components that make up the fire control and that 6 of the components had not

been adjusted for inflation in accordance with Department of Defense guidelines. As a result, we believe the estimate for the Bradley fire control can be reduced by \$5.6 million--\$1.3 million due to a more recent estimate for the fire control component and \$4.3 million due to the revised inflation estimate. TACOM officials agreed with \$1.3 million of the total \$5.6 million potential reduction for fiscal year 1988. They stated that the remaining \$4.3 million is needed to cover expected contract cost overruns.

In addition, we identified \$4.6 million in fiscal year 1987 and \$9.3 million in fiscal year 1986 for Bradley fire control that exceed the contract price estimates and should be considered for reduction. TACOM officials believe these funds should remain available to cover additional contract costs in the event actual costs exceed the target price estimates.

#### BRADLEY ENGINE

TACOM's estimate of \$15.3 million to purchase engines for Bradley Fighting Vehicles in fiscal year 1988 was based on engineering estimates prepared in October 1986. We believe the estimate can be revised to \$14.8 million based on fiscal year 1987 contract prices, resulting in a potential reduction of \$500,000 in the fiscal year 1988 request. TACOM officials agreed with our calculations but said the potential excess may be needed to cover increases in contract costs.

In addition, we believe there is a potential for reduction of \$600,000 in fiscal year 1987 funding based on the fiscal year 1987 contract prices. TACOM officials agreed with our position.

#### BRADLEY PECULIAR SUPPORT EQUIPMENT

TACOM's fiscal year 1988 budget estimate of \$34.8 million for Bradley peculiar support equipment can be revised to \$32.7 million based on more current contract data and corrections in inflation adjustments, a reduction of \$2.1 million. TACOM officials agreed with our calculations and stated they plan to use the \$2.1 million to fund costs associated with revised fielding requirements.

After reviewing documents provided by TACOM in support of the \$34.8 million request, we were unable to find support for \$2.2 million in fiscal year 1987 funding. TACOM officials agreed that they could not provide support for the \$2.2 million. We also identified \$8.9 million in the fiscal year 1986 budget that is being funded with fiscal year 1985 funds. We believe those amounts should be considered for potential reduction. TACOM officials agreed with our position.

---

Requests for copies of GAO reports should be sent to:

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

Telephone 202-275-6241

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

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

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

---

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

Official Business  
Penalty for Private Use \$300

Address Correction Requested

---

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