

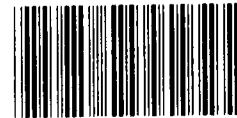
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Briefing Report to the Chairman
Subcommittee on Defense
Committee on Appropriations
House of Representatives

June 1986

ARMY BUDGET

Potential Reductions to M1 Tank and Bradley Fighting Vehicle Budgets



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

NATIONAL SECURITY AND
INTERNATIONAL AFFAIRS DIVISION

June 11, 1986

B-222085

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

Dear Mr. Chairman:

This responds to your January 28, 1986, request that we review the basis and justification for fiscal year 1987 budget estimates for selected budget lines in the Army's Procurement of Weapons and Tracked Combat Vehicles appropriation. As arranged with your office, we limited our review to the budget requests for M1 tanks and Bradley Fighting Vehicles. Our objectives, scope, and methodology are included in appendix I, and our findings are included in appendixes II and III.

We analyzed the estimates for the major cost elements of the M1 tank and Bradley Fighting Vehicle budgets. We identified \$130.1 million in the fiscal year 1987 request and \$62.8 million in fiscal year 1986 funds which we believe have a potential for reduction. These amounts are primarily the result of our recalculations of estimates using more current contract information and revised Office of the Secretary of Defense inflation indices.

In accordance with your wishes, we did not request official agency comments on a draft of this briefing report. However, we discussed its contents with Army officials and have incorporated their comments where appropriate.

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

B-222085

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

Sincerely yours,

A handwritten signature in cursive script that reads "Frank C. Conahan". The signature is written in dark ink and is positioned above the typed name.

Frank C. Conahan
Director

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Abbreviations

OSD	Office of the Secretary of Defense
TACOM	U.S. Army Tank-Automotive Command

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objectives were to evaluate the Army's fiscal year 1987 budget request for the Procurement of Weapons and Tracked Combat Vehicles appropriation and to identify potential adjustments where warranted. Also, we identified potential reductions in fiscal year 1986 funding. We determined how the Army estimated its funding requirements and identified current information that might change the estimates.

As agreed, we reviewed only the estimates for the fiscal year 1987 M1 Tank and the Bradley Fighting Vehicle budget lines. The estimate consisted of fiscal year 1986 advance procurement funds for the fiscal year 1987 program and the fiscal year 1987 budget request. Our review covered about 63 percent of the fiscal year 1987 budget request for the Weapons and Tracked Combat Vehicles appropriation. Within the M1 Tank budget line, we reviewed the requests for the basic vehicle, block II modifications, engine, transmission/final drive, fire control, gun, test sets, should-cost study, and contractor engineering, quality assurance, test, and logistics cost elements. These account for 86 percent of the estimated M1 tank costs. For the Bradley budget line, we reviewed the basic vehicle, fire control, transmission, turret drive, engine, peculiar support equipment, and contractor engineering cost elements. These account for 96 percent of the estimated Bradley costs.

The review was conducted at 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. Generally, our work was limited to documentation provided by TACOM cost analysis personnel. We did not verify or make a detailed review of information furnished by other installations or commands and, in some instances, by other personnel within TACOM. Our review was performed from November 1985 to April 1986 in accordance with generally accepted government auditing standards, except as noted above.

POTENTIAL REDUCTIONS TO THE M1 TANKFISCAL YEARS 1986 AND 1987 PROGRAMS

As shown in table II.1, we identified potential reductions of \$57.6 million in cost estimates for the major cost elements of the M1 Tank budget line. A total of \$12.6 million of the \$57.6 million potential reduction resulted from using revised Office of the Secretary of Defense (OSD) inflation estimates. The remainder was the result of revising cost estimates on the basis of events that occurred and information that became available between the time the estimates were prepared and the time of our review.

Table II.1

Potential Reductions to the
Fiscal Year 1987 Budget
Estimates for 840 M1 Tanks

<u>Budget line item</u> <u>cost elements</u>	<u>Budget</u> <u>request</u>	<u>Potential</u> <u>reductions</u>	<u>Revised</u> <u>estimate</u>
	----- (millions) -----		
Basic vehicle ^a	\$ 933.7	\$24.8	\$ 908.9
Block II modifications	57.0	(0.2)	57.2
Engine	279.2	6.4	272.8
Transmission/ final drive	141.1	13.6	127.5
Fire control	151.6	0.2	151.4
Gun	88.3	0.8	87.5
Test sets	45.8	6.0	39.8
Contractor			
engineering	46.8	2.0	44.8
quality assurance	14.1	0.5	13.6
test	2.9	0.1	2.8
logistics	36.7	1.5	35.2
Should-cost studies	1.9	1.9	0
Other ^b	<u>144.1</u>	<u>-</u>	<u>144.1</u>
Total	<u>\$1,943.2</u>	<u>\$57.6</u>	<u>\$1,885.6</u>

^aAn element of the \$933.7 million basic vehicle budget for fiscal year 1987 is a classified program budgeted at \$118.6 million. TACOM officials, in cooperation with General Dynamics Land Systems representatives, prepared the estimate. We did not review the estimate and thus cannot comment on its reasonableness.

^bThis category consists of 15 cost elements that were not included in the scope of our analysis.

In addition, we identified a potential reduction of \$61.5 million to the fiscal year 1986 budget estimates: \$59.8 million for the basic vehicle and \$1.7 million for the engine.

M1 TANK BASIC VEHICLE

TACOM's fiscal year 1987 budget estimate of \$933.7 million was based on a level-priced (averaged) 4-year multiyear contract at a unit cost of \$1,111,500 for 840 tanks a year. Level pricing means that the unit prices for each year covered by the multiyear contract are added and the total is divided by the number of years. The resulting average unit price is then multiplied by the quantity to be produced in each year to determine the amount to be budgeted for that year. After the budget submission, the M1 program manager's office ruled out level pricing. It determined that funding levels in the early years would be lower if level pricing was not used and each annual buy of the multiyear contract was priced and budgeted separately. Based on single year funding, the unit cost of fiscal year 1987 was recomputed at \$1,093,147 each or \$918.3 million, which represents a potential budget reduction of \$15.4 million.

In addition to the potential reduction resulting from the decision not to use level pricing, the cost estimate for a classified program contained within the basic vehicle cost element was updated by TACOM officials. While we did not review the estimate, TACOM officials told us that the revised estimate was \$9.4 million lower than the amount included in the budget request. If the classified program is added to the other reductions, the total potential reduction is \$24.8 million.

Single year pricing also results in a potential reduction for fiscal year 1986 funding because the recomputed single year price for fiscal year 1986 is \$71,190 less than the level unit price. This represents a potential reduction of \$59.8 million for 840 tanks being purchased in fiscal year 1986.

The fiscal year 1987 budget is for 840 tanks. As directed by the Congress, the M1 program office has negotiated a firm price, multiyear contract that provides for 840 tanks in fiscal year 1986 and 720 tanks for each of the remaining 3 years with options for 120 additional tanks in the latter 3 years. If 720 tanks are procured in fiscal year 1987, that is, if the Congress does not approve the contract option, the 1987 budget estimate could be reduced by \$115.5 million rather than the \$24.8 million shown in table II.1. However, since the fiscal year 1986 procurement is part of the multiyear contract, the 1986 price would increase if the 1987 option is not exercised and the potential reduction for fiscal year 1986 would be \$31.8 million rather than \$59.8 million.

Although TACOM officials agreed with the potential reductions discussed above, they stated the funds would be needed for unanticipated requirements such as survivability testing and engineering change proposals.

M1 TANK BLOCK II MODIFICATIONS

TACOM's budget estimate for block II modifications was \$57 million. In reviewing the estimate, we discovered an error in TACOM's calculations. As a result of correcting the error, the estimate increased by \$0.2 million. TACOM officials agreed with our calculations.

M1 TANK ENGINE

The Army's estimate of \$279.2 million for engines in the fiscal year 1987 program is based on a contractor's multiyear proposal for fiscal years 1986-89. The proposal, however, uses a higher inflation rate than specified by OSD in budget guidelines provided to the Army. Applying the OSD rate, there is a potential to reduce the M1 tank engine request by \$6.4 million. Similarly, the fiscal year 1986 engine estimate could be reduced by \$1.7 million by applying the appropriate OSD rate. TACOM officials, however, believe the contractor's higher inflation rate is justified.

M1 TANK TRANSMISSION/FINAL DRIVE

There is a potential reduction of \$13.6 million in the cost estimate for the M1 tank transmission/final drive. The Army selected a new contractor through competitive bidding and as a result of the new contractor's price, the fiscal year 1987 estimate of the final drive cost can be reduced by \$12.5 million. In addition, there is a potential reduction of \$1.1 million due to using revised inflation indices. TACOM officials agreed with our inflation calculations; however, they did not believe it prudent to consider the \$12.5 million to be unneeded funds because an option with the prior contractor may have to be exercised at the old price if the new contractor fails to perform.

M1 TANK FIRE CONTROL

TACOM's estimate for fire control was \$151.6 million. We recalculated the estimate using OSD's inflation indices and decreased the estimate by \$0.2 million. TACOM officials agreed with our calculations.

M1 TANK GUN

Using the OSD inflation indices, we recomputed the estimate for the gun and reduced TACOM's budgeted amount of \$88.3 million by \$0.8 million. TACOM officials agreed with our calculations.

M1 TANK TEST SETS

TACOM officials could not support their estimate of \$45.8 million for test sets. We found that the most recent contract prices had not been used, some requirements were not reflected in the estimate, and inflation had been incorrectly computed. We recalculated the estimate using the most recent contract data and the correct inflation indices. The result was a \$6 million reduction to the estimate. TACOM officials agreed with our calculations.

M1 TANK CONTRACTOR ENGINEERING,
QUALITY ASSURANCE, TEST, AND LOGISTICS

These four cost elements combined were estimated at \$100.5 million in the fiscal year 1987 budget. We recalculated the estimates using updated inflation indices and decreased their total to \$96.4 million, a reduction of \$4.1 million. TACOM officials agreed with our calculations.

M1 TANK SHOULD-COST STUDIES

Should-cost studies for the fiscal year 1987 program are budgeted at \$1.9 million. According to TACOM officials, no should-cost studies will be needed in fiscal years 1987-89 if a multiyear contract is signed for the basic vehicle in 1986. Therefore, because a multiyear contract is planned, the \$1.9 million is a potential for reduction from the fiscal year 1987 budget. According to Army representatives, there may, however, be a need for some should-cost studies.

POTENTIAL REDUCTIONS TO THE BRADLEY FIGHTINGVEHICLE FISCAL YEARS 1986 AND 1987 PROGRAMS

As shown in table III.1, we identified potential reductions of \$72.5 million in the fiscal year 1987 budget estimates for the major cost elements of the Bradley program. A total of \$18.9 million of the \$72.5 million potential reduction resulted from using the revised OSD inflation estimates. Unlike the M1 tank budget estimate, the Bradley estimate contained an amount for management reserve in four of the cost elements (basic vehicle, fire control, transmission, and turret drive). Bradley project office officials told us that including a management reserve for unknown contingencies has been a customary practice in the past. The amount, calculated at 6 percent of hardware costs, accounts for \$49.8 million of our potential reduction total. The remaining \$3.8 million was the result of revising cost estimates based on events that occurred and information that became available between the time the estimates were prepared and the time of our review.

Table III.1

Potential Reductions to the
Fiscal Year 1987 Budget Estimates
for 870 Bradley Fighting Vehicles

<u>Budget line item</u> <u>cost elements</u>	<u>Budget</u> <u>request</u>	<u>Potential</u> <u>reductions</u>	<u>Revised</u> <u>estimate</u>
	----- (millions) -----		
Basic vehicle	\$ 495.8	\$32.5	\$ 463.3
Fire control	303.7	22.1	281.6
Transmission	92.5	6.1	86.4
Turret drive	69.4	6.9	62.5
Engine	22.7	1.5	21.2
Peculiar support equipment	71.9	1.3	70.6
Contractor engineering	42.7	1.2	41.5
Other ^a	<u>48.3</u>	<u>0.9</u>	<u>47.4</u>
Total	<u>\$1,147.0</u>	<u>\$72.5</u>	<u>\$1,074.5</u>

^aThis category is made of up of five cost elements that were not included in the scope of our analysis. We did, however, recalculate inflation on these elements and identified \$0.9 million which we believe should be considered for reduction.

In addition, we identified a potential reduction of \$1.3 million to the fiscal year 1986 budget estimate for contractor engineering.

The fiscal year 1987 budget requesting 870 Bradleys represents a significant increase over the quantities approved in prior years and may be difficult to obtain because of production problems. For example, as of April 1, 1986, 104 of the 600 vehicles for the fiscal year 1984 program were being stored because fire control components were not available and the contractor was already 2 months behind in delivery of components for the fiscal year 1985 program of 655 vehicles. The fiscal year 1986 program is for 716 vehicles. While program officials expressed optimism concerning the resolution of the contractor's production problems, past experience would indicate potential problems in meeting delivery schedules.

BRADLEY BASIC VEHICLE

TACOM's fiscal year 1987 budget estimate for the basic vehicle is \$495.8 million. That amount includes \$23.8 million for management reserve calculated at 6 percent of hardware costs. We believe \$32.5 million, the \$23.8 million management reserve plus an \$8.7 million reduction due to a recalculation of inflation, should be considered for potential reduction. TACOM officials agreed with our calculation of inflation and agreed that the amount for the management reserve was arbitrary, but they stated that a management reserve was needed to cover unknown costs.

BRADLEY FIRE CONTROL

The fiscal year 1987 budget estimate for fire control is \$303.7 million. It includes \$16.9 million for a management reserve and \$5.2 million more for inflation than required using OSD's inflation factors. We believe the total of \$22.1 million should be considered for potential reduction. TACOM officials agreed with our calculations but believe that a management reserve is needed.

BRADLEY TRANSMISSION

Contracting for the Bradley transmission will most likely switch from multiyear to single year for the fiscal year 1986 buy. Using the fiscal year 1986 cost estimate, TACOM officials estimated the fiscal year 1987 cost to be \$92.5 million, but the factor they used to estimate the increased cost of single year contracting was incorrect due to a mathematical error. We recalculated the estimate using the correct factor, and the result was an increase of \$0.7 million. TACOM officials agreed

with our calculation. In addition, the estimate contains \$5.2 million for a management reserve and a \$1.6 million excess due to using outdated inflation indices. We believe the net amount of \$6.1 million should be considered for potential reduction. TACOM officials agreed with our calculation but believe that a management reserve is needed.

BRADLEY TURRET DRIVE

The cost estimate for the fiscal year 1987 turret drive buy is \$69.4 million and was based on a 1985 multiyear contract. We updated the estimate with more recent contract information and reduced the estimate by \$3 million. In addition, the estimate contains \$3.9 million for a management reserve. We believe the total \$6.9 million should be considered for reduction. TACOM officials agreed with our calculations but believe that a management reserve is needed.

BRADLEY ENGINE

The fiscal year 1987 estimate for the engine is \$22.7 million and is based on a 1985 contract price. TACOM officials added an extra 5 percent, \$1.1 million, to the estimate based on their judgment that the cost might increase above inflation. We believe that the 5-percent addition is not supported and that the \$1.1 million should be considered for reduction. The estimate also includes \$0.4 million excess due to using outdated inflation indices. The total to be considered for potential reduction is \$1.5 million. TACOM officials agreed with our calculations but they believe the \$1.1 million will be needed.

BRADLEY PECULIAR SUPPORT EQUIPMENT

TACOM officials budgeted \$71.9 million for support equipment in fiscal year 1987. We recalculated the estimate at \$70.6 million using the appropriate inflation indices. We believe the \$1.3 million should be considered for potential reduction. TACOM officials agreed with our calculations.

BRADLEY CONTRACTOR ENGINEERING

Mobility planning was required and funded in the fiscal year 1985 Bradley program, but TACOM officials told us that it would no longer be required as a separate contract item in the fiscal year 1986 and 1987 programs. The budget estimates for fiscal years 1986 and 1987 contain \$1.3 million and \$0.4 million, respectively, for mobility planning as an element of contractor engineering. We believe those amounts should be considered for potential reduction. TACOM officials believe that some unknown portion of the amounts will be needed to fund

mobility planning as a part of the basic vehicle contract. In addition, the fiscal year 1987 estimate contains an excess of \$0.8 million because outdated inflation indices were used. TACOM officials agreed with our calculations. Therefore, the total to be considered for potential reduction in fiscal year 1987 is \$1.2 million and \$1.3 million in fiscal year 1986 funds.

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