

ARMY RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

February 2002

BUDGET ACTIVITY
6 - Management support

PE NUMBER AND TITLE
0604258A - TARGET SYSTEMS DEVELOPMENT

COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	14961	25003	10772	14157	12925	11350	10882	Continuing	Continuing
238 AERIAL TARGETS	2810	6312	5638	7998	7676	6734	6356	Continuing	Continuing
459 GROUND TARGETS	12151	18691	5134	6159	5249	4616	4526	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program funds aerial and ground target hardware and software development, maintenance, and upgrades. The overall objective is to allow validation of weapon system accuracy and reliability by developing aerial and ground targets essential for test and evaluation (T&E). These targets are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under Reliance for providing rotary wing, mobile ground, and assigned legacy targets for test and evaluation. The Army executes development of some Service-peculiar target requirements in support of quality assurance, lot acceptance, and training and continues development of Service-peculiar and ongoing target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

This program line supports the Legacy to Objective transition path of the Transformation Campaign Plan (TCP).

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<u>B. Program Change Summary</u>	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2002 PB)	15252	25212	13684
Appropriated Value	10346	25212	0
Adjustments to Appropriated Value	0	0	0
a. Congressional General Reductions	0	-209	0
b. SBIR / STTR	-291	0	0
c. Omnibus or Other Above Threshold Reductions	0	0	0
d. Above Threshold Reprogramming	5000	0	0
d. Below Threshold Reprogramming	0	0	0
e. Rescissions	-94	0	0
Adjustments to Budget Years Since FY2002 PB	0	0	-2912
Current Budget Submit (FY 2003 PB)	14961	25003	10772

Change Summary Explanation: Funding: FY 2001/2002: funding increase in Ground Targets (D459) to procure Ukrainian Tanks/Armored Vehicles for the purpose of replicating Threat Target Sets as part of the Department of the Army's Testing Program (FY 2001 +5000).
 FY 2003: Funds realigned in support of higher priority programs(-2912).

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COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
238 AERIAL TARGETS	2810	6312	5638	7998	7676	6734	6356	Continuing	Continuing

A. Mission Description and Budget Item Justification: Supports Army Transformation by providing for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high-performance, multi-spectral aerial targets and development of virtual target computer models of aerial targets. Modern weapons require test, evaluation, and training using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed-wing targets; full-scale, miniature and subscale targets; tactical ballistic targets; virtual targets; ancillary devices; and remote control systems. These products are required to adequately stress weapon systems undergoing test and evaluation. To stress systems under test, aerial targets must have flight characteristics, signatures, and other performance factors that emulate the modern threat. This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the management of target research, development, test and evaluation process; execution of the validation process to ensure that surrogate targets adequately represent the threat; development and acquisition of surrogate and acquired targets; and continuing maintenance, storage, and development/enhancements/update via engineering services of the developed and acquired threat targets to ensure availability for the Test and Evaluation (T&E) customer. The US Army is the Reliance lead for rotary wing targets and the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing target.

FY 2001 Accomplishments:

- 270 Continued management and sustainment of Army Rotary Wing target program (e.g., QAH-1, QUH-1, QH-50, and Hokum-X with drone kits), including updates for obsolescence, maintenance, and safety to support T&E programs such as Stinger, and Medium Extended Air Defense System (MEADS).
- 701 Provided RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, JLENS, MEADS, HUMRAAM, and classified programs for Army and Tri-Service customers.
- 636 Continued redesign and testing of the Target Tracking and Control System (TTCS). Developed and tested system test set compliant with upgraded TTCS design. Continued to support current TTCS to maintain operations until all TTCSs are upgraded. Continued management of the Targets Management Initiative, which develops and integrates a set of Common Digital Architecture control equipment into aerial targets, improving performance and reducing operating costs.

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FY 2001 Accomplishments: (Continued)

- 1203 Continued development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Included resolution of Lance Missile Target performance shortfalls and recertification for use; development of Tandem Tow Target under cooperative initiative with British, Australian, and Canadian Governments (The Technical Cooperative Program) with delivery of two test articles.

Total 2810

FY 2002 Planned Program

- 480 Continue management and sustainment of Army Rotary Wing Target program (e.g., QAH-1, QUH-1, QH-50, and HOKUM-X with drone kits), including updates for obsolescence, maintenance, and safety to support T&E programs such as Comanche, Stinger, and Medium Extended Air Defense System (MEADS).
- 889 Provides RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, JLENS, MEADS, HUMRAAM, and classified programs for Army and Tri-Service customers.
- 2487 Complete redesign and testing of upgraded TTCS to new design. Complete testing of upgraded test set. Investigate integration of BQM -34 target control capability into updated TTCS design. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of Targets Management Initiative developing and integrating a set of Common Digital Architecture control equipment into aerial targets, improving performance and reducing operating costs.
- 992 Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Includes completion of development and testing of Tandem Tow Target under cooperative initiative with British, Australian, and Canadian Governments (The Technical Cooperative Program) with delivery of three test articles.
- 811 Develop additional Distributed Interactive Simulation (DIS) and Higher Level Architecture (HLA) compliant aerial virtual targets (e.g. Chinook and tactical UAV) to support modeling and simulation for T&E (e.g. pre-test simulation, post-test analysis, hardware-in-the-loop (HWIL) testing, and simulation of scenarios which are too costly or difficult to field test). Update existing models with added/improved infrared, radar, and visual characteristics. These models will be used by the Virtual Proving Ground and multiple weapon systems' T&E (e.g. Comanche, Patriot, Future Combat Systems, Joint Strike Fighter, and MEADS), and these models will be on-line and available to all T&E users.
- 653 Initiates six-year Integrated Avionics Program that integrates CTEIP Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost.

Total 6312

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FY 2003 Planned Program

- 418 Continue management and sustainment of Army Rotary Wing Target program (e.g., QAH-1, QUH-1, QH-50, and Hokum-X with drone kits), including updates for obsolescence, maintenance, and safety to support T&E programs such as Comanche, Stinger, and Medium Extended Air Defense System (MEADS).
- 886 Provides RDT&E portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, JLENS, MEADS, HUMRAAM, and classified programs for Army and Tri-Service customers.
- 2892 Continue upgrade of up to three TTCSs to new design. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of the Targets Management Initiative completing development and integration of a set of Common Digital Architecture control equipment into aerial targets, improving performance and reducing operating costs.
- 730 Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Includes initiation of development of Low Cost Towed Target with delivery of three test articles.
- 712 Continues six-year Integrated Avionics Program that integrates CTEIP Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost.

Total 5638

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BUDGET ACTIVITY 6 - Management support	PE NUMBER AND TITLE 0604258A - TARGET SYSTEMS DEVELOPMENT	PROJECT 459
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COST (In Thousands)	FY 2001 Actual	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
459 GROUND TARGETS	12151	18691	5134	6159	5249	4616	4526	Continuing	Continuing

A. Mission Description and Budget Item Justification: This program funds Army efforts to support test and evaluation (T&E) of advanced weapon systems and supports Army Transformation by developing surrogates, acquiring foreign equipment and developing virtual target computer models of ground vehicle targets. These products are required to adequately stress weapon systems undergoing test and evaluation. This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the centralized management of the ground target research, development, test and evaluation process; execution of the validation process; acquisition of foreign equipment; and continuing maintenance, storage, and development/enhancement/update via engineering services of developed and acquired targets to ensure availability for test and evaluation customers. Project also manages use of current assets and operates centralized spare parts program. The US Army is the Tri-Service lead for providing mobile ground targets for test and evaluation.

FY 2001 Accomplishments:

- 2006 Provided funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of greater than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts.
- 2153 Developed additional virtual ground targets (e.g. T-72M, BMP-1, LAV-3, German Roland, 4 classified) to support test and evaluation. Updated current models, added/improved infrared (IR) characteristics and improved visual representation. Target models will be utilized in Virtual Proving Ground and other weapon systems (e.g. Comanche, Hellfire, Longbow Apache, and Future Combat Systems) T&E and modeling and simulation (M&S) activities and are available online to over 300 users through the Virtual Targets Center.
- 2641 Completed initial development and began testing of the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) and began fabrication of units for deployment into the operational fleet to maintain up-to-date threat representative targets to support T&E (e.g., Comanche, BAT). Delivered two test articles.
- 357 Completed fabrication of surrogate Infantry Fighting Vehicle (Russian name BMP3-S) for the operational fleet and update system configuration to maintain up-to-date threat representative targets that are required to support Comanche and BAT T&E in the FY 2002 timeframe.
- 4994 Began activity to acquire up to three T-80UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicle fleet for use by T&E programs such as Comanche, BAT P3I, Land/Air Warrior, Apache, and others.

Total 12151

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FY 2002 Planned Program

- 2335 Provide funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of greater than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts.
- 2148 Develop additional (Distributed Interactive Simulation (DIS) and higher level architecture (HLA) compliant) ground virtual targets (e.g. T-80, Smerch, and 3 classified) to support modeling and simulation for T&E (e.g. pre-test simulation, post-test analysis, HWIL testing, and simulation of scenarios which are too costly or difficult to field test). Update existing models with added/improved infrared, radar, and visual characteristics. The Virtual Proving Ground and multiple weapon systems' T&E (e.g. Comanche, Longbow Apache, Future Combat Systems, and Joint Strike Fighter) will use these models, and these models will be on-line and available to all T&E users.
- 1723 Complete fabrication of and deploy the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) units into the operational fleet to maintain up-to-date threat representative targets to support T&E (e.g., Comanche, BAT). Delivers four articles.
- 343 Complete deployment of surrogate Infantry Fighting Vehicle (Russian name BMP3-S) into the operational fleet and update system configuration to maintain up-to-date threat representative targets that are required to support Comanche and BAT T&E in the FY 2002 timeframe.
- 2069 Begin development of a very low cost (< 10% of cost of the actual MBT) Russian Main Battle Tank (MBT) Surrogate, which will emulate the visual, infrared, and radio frequency signatures, to support T&E (e.g., Comanche, BAT, Apache). Delivers two test articles.
- 10073 Acquire up to seven T-80UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicle fleet for use by T&E programs such as Comanche, BAT P3I, Land/Air Warrior, Apache, and others.

Total 18691

FY 2003 Planned Program

- 2667 Provide funding to help manage and provide oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of greater than 300 Mobile Ground Target vehicles, including acquisition of new material and spare parts.
- 1307 Update and maintain the library of more than 1000 Virtual Target computer models to support modeling and simulation for T&E (e.g. pre-test simulation, post-test analysis, HWIL testing, and simulation scenarios which are too costly or difficult to field test). The models are provided on-line to the T&E modeling and simulation community (over 300 registered users representing over 100 agencies) through an Internet based model exchange to facilitate re-use of existing models. This activity supports the Virtual Proving Ground and multiple weapon systems' T&E (e.g. Comanche, Longbow Apache, Future Combat Systems, and Joint Strike Fighter).

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459**FY 2003 Planned Program (Continued)**

- 1160 Complete initial development, and begin testing and validation of a very low cost Russian MBT Surrogate, which will emulate the visual, infrared, and radio frequency signatures, to support T&E (e.g., Comanche, BAT, Apache).

Total 5134