

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

June 2001

BUDGET ACTIVITY
6 - MANAGEMENT SUPPORT

PE NUMBER AND TITLE
0604258A - Target Systems Development

COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	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	12950	15252	25212	0	0	0	0	0	0	0
238 AERIAL TARGETS	6250	2889	6365	0	0	0	0	0	0	0
459 GROUND TARGETS	6700	12363	18847	0	0	0	0	0	0	0

A. Mission Description and Budget Item Justification:

PLEASE NOTE: This administration has not addressed FY2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

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.

The FY 2002 funding continues the management and sustainment of the Army Rotary Wing Target program and the MQM-107 program, completes the redesign and testing of the upgraded Target Tracking and Control System, completes the development and testing of the Tandem Tow Target, resumes development of aerial virtual targets and develops additional ground virtual targets, initiates a six-year Integrated Avionics Program, continues the Mobile Ground Target Primary Operating Center function, completes fabrication and deployment of the Next Mobile Ground Target Surrogate, completes deployment of the BMP3-S, begins development of a Russian Transporter Erector Launcher Surrogate, and acquires up to seven T80U's per OSD guidance.

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 2000	FY 2001	FY 2002	FY 2003
Previous President's Budget (FY2001 PB)	13298	13346	15101	0
Appropriated Value	13397	10346	0	
Adjustments to Appropriated Value	0	0	0	
a. Congressional General Reductions	0	0	0	
b. SBIR / STTR	-348	0	0	
c. Omnibus or Other Above Threshold Reductions	-54	0	0	
d. Above Threshold Reprogramming	0	5000	0	
d. Below Threshold Reprogramming	0	0	0	
e. Rescissions	-45	-94	0	
Adjustments to Budget Years Since FY2001 PB	0	0	10111	
Current Budget Submit (FY 2002/2003 PB)	12950	15252	25212	0

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 and FY 2002 +10000).

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238 AERIAL TARGETS	6250	2889	6365	0	0	0	0	0	0	0

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. These computer models are compatible with Distributed Interactive Simulation (DIS) and will be Higher Level Architecture (HLA) compliant. 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, which 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.

The FY02 funding continues the management and sustainment of the Army Rotary Wing Target program and the MQM-107 program, completes the redesign and testing of the upgraded Target Tracking and Control System, completes the development and testing of the Tandem Tow Target, resumes development of aerial virtual targets, and initiates a six-year Integrated Avionics program.

FY 2000 Accomplishments

- 1161 Managed the Army Rotary Wing target program (e.g., QAH-1, QUH-1, QH-50, etc.), including updates for obsolescence, maintenance, and safety to support T&E programs such as Stinger and Medium Extended Air Defense System (MEADS). Continued maintenance and storage of Hokum-X Rotary Wing Target (Canadian Cooperative Program) and completed integration of UDS into the Hokum-X target.
- 1457 Continued enhancement of the MQM-107 Target system, including updating obsolete parts to maintain producibility and supportability, manage fabrication and improve airframe maneuverability to meet the aerodynamic performance and payload capability needed by the Army and Tri-Service customers.
- 183 Continued management of Universal Drone System (UDS) and update of system for obsolescence, maintenance and safety.

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FY 2000 Accomplishments (Continued)

- 1939 Continued redesign and began testing of redesigned Target Tracking and Control System (TTCS). Continued to support current TTCS to maintain operations until upgraded systems are available. Began integration of Common Drone Control Avionics into aerial targets (integrates Targets Management Initiative developed Common Digital Architecture, which will improve performance and reduce operating costs). Delivered two Updated TTCS test articles.
- 985 Continued development, enhancement, maintenance and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Includes management of Targets Management Initiative to develop enhanced infrared augmentation for the Remotely Piloted Vehicle Target for Stinger. Includes development of Cruise Missile Towed Target for Patriot (12 test articles).
- 288 Continued development of aerial virtual targets (e.g., UH-60, BQM-34, EXDRONE) to support test and evaluation. Target models will be utilized in Virtual Proving Ground and other weapon systems T&E and M&S activities.
- 237 Suspended (due to change in customers' programs) design and development of Unmanned Aerial Vehicle Surrogate (UAV-S) Target to support Stinger (FY01-02 baselining and FY04-06 T&E) and Medium Extended Air Defense System (MEADS) T&E.

Total 6250

FY 2001 Planned Program

- 367 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 Stinger and Medium Extended Air Defense System (MEADS).
- 749 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, HUMRAM, etc. Army and Tri-Service customers.
- 543 Continue redesign and testing of the Target Tracking and Control System (TTCS). Develop and test system test set compliance with upgraded TTCS design. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue 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.
- 1151 Continue development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets and ancillary devices. Includes resolution of Lance Missile Target performance shortfalls and re-certification for use; development of Tandem Tow Target under cooperative initiative with British, Australian, and Canadian Governments (The Technical Cooperative Program). Delivers two test articles.
- 79 Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR).

Total 2889

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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, HUMRAM, etc. Army and Tri-Service customers.
 - 2487 Complete redesign and testing of upgraded TTCS to new design. Integrate and test 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). Delivers three test articles.
 - 864 Resume development of aerial virtual targets, (e.g., POTA-TOW, QUH-1, 1/5 scale HIND-D, and LANCE) to support test and evaluation. Target models will be utilized in Virtual Proving Ground and other weapon systems (i.e., Comanche, Patriot, Stinger, Hellfire, Longbow Apache) T&E and M&S activities and made available online to over 300 DoD users through the Virtual Targets Center.
 - 653 Initiates six-year Integrated Avionics Program which integrates CTEIP Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost.
- Total 6365

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COST (In Thousands)	FY 2000 Actual	FY 2001 Estimate	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	6700	12363	18847	0	0	0	0	0	0	0

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 computer models are compatible with Distributed Interactive Simulation (DIS) and will be higher level architecture (HLA) compliant. 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 ground targets for test and evaluation.

The FY 2002 funding continues the Mobile Ground Target Primary Operating Center operations, develops additional ground virtual targets, completes fabrication and deployment of the Next Mobile Ground Target Surrogate, completes deployment of the BMP3-S, begins development of a Russian Transporter Erector Launcher Surrogate, and acquires up to seven T80U's per OSD guidance.

FY 2000 Accomplishments

- 1550 Managed and provided oversight for Primary Operating Centers operation, storage, maintenance, and configuration management for the repair of existing ground target assets to include the acquisition of new material and spare parts.
- 1499 Developed additional virtual ground targets (e.g., Straight Flush, Russian BMP-1, 2S-6, etc.) to support test and evaluation. Updated current models to add/improve infrared (IR) characteristics and improved visual representation. Target models were utilized in Virtual Proving Ground and other weapon systems T&E and Modeling & Simulation (M&S) activities and made available on-line through the Virtual Targets Center.
- 1965 Began development of the Next Mobile Ground Target Surrogate Russian Smerch (Multiple Rocket Launcher (MRL)).
- 878 Began development of family of New Generation Army Targetry System (NGATS) programs to include: initiation of Digital Multi-Purpose Range Complex (DMPRC) acquisition (for First Digitized Division, the 4th ID at Fort Hood); prototyping and testing of All Targetry Scoring System (ATSS) to include Doppler Scoring Subsystem; and requirements analysis and program planning for Tank Thermal Target and Evasive Targetry.

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FY 2000 Accomplishments (Continued)

- 808 Continued fabrication and began deployment into the operational fleet, of ten (10) Infantry Fighting Vehicle Russian Name BMP3-S Ground Target Surrogates to maintain up-to-date threat representative targets that are required to support Comanche and BAT T&E in the FY 2000 and FY 2002 timeframe.

Total 6700

FY 2001 Planned Program

- 2267 As directed, provide approximately one third of the funding to manage and provide oversight for five (5) Primary Operating Centers 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.
- 2216 Develop additional virtual ground targets (e.g., Russian Names SA-8, T-55, T-90, BRM Lynx, etc.) to support test and evaluation. Update current models, add/improve Infrared (IR) characteristics and improve visual representation. Target models will be utilized in Virtual Proving Ground and other weapon systems (i.e., Comanche, Patriot, Stinger, Hellfire, Longbow Apache) T&E and Modeling & Simulation (M&S) activities and made available online to over 300 DoD users through the Virtual Targets Center.
- 1942 Complete initial development and begin testing of the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) and begin fabrication of units for deployment into the operational fleet to maintain up-to-date threat representative targets to support T&E testing (e.g., Comanche, BAT, etc.). Delivers two (2) test articles.
- 742 Complete fabrication of 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.
- 4984 As directed, acquire up to three T-80 UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicles fleet to be used for T&E by programs such as Comanche, BAT P3I, Land/Air Warrior, Apache and others
- 212 Small Business Innovative Research/Small Business Technology Transfer Program (SBIR/STTR).

Total 12363

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FY 2002 Planned Program

- 2335 As directed, provide approximately one third of the funding to manage and provide oversight for five (5) Primary Operating Centers 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.
- 2304 Develop additional virtual ground targets (e.g., Russian Names URAL-375G, BM21 MRL, SA-17, 2S-19, etc.) to support test and evaluation. Update current models, add/improve IR characteristics and improve visual representation. Target models will be utilized in Comanche, Joint Strike Fighter and other weapon systems T&E and M&S activities, and made available on-line to over 300 DoD users through the Virtual Targets Center.
- 1723 Complete fabrication and deployment of the Next Mobile Ground Target Surrogate (Russian Smerch Multiple Rocket Launcher) units for deployment into the operational fleet to maintain up-to-date threat representative targets to support T&E testing (e.g., Comanche, BAT, etc.). Delivers four (4) articles.
- 343 Complete deployment of 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 the Russian Transporter Erector Launcher Surrogate to support T&E (e.g., Comanche, BAT, etc.). Delivers three (3) test articles.
- 10073 As directed, acquire up to seven T80UD main battle tanks from the government of the Ukraine, to be placed in the Mobile Ground Targets vehicles fleet to be used for T&E programs such as Comanche, BAT P3I, Land/Air Warrior, Apache, and others.

Total 18847