PE NUMBER: 0604759F
PE TITLE: Major T&E Investment

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2005
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604759F Major T&E Investment

	Cost ($ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
	Total Program Element (PE) Cost	58.682	63.965	55.339	58.304	56.735	60.081	62.851	63.869	Continuing	TBD
4597	Air Force Test Investments	58.682	63.965	55.339	58.304	56.735	60.081	62.851	63.869	Continuing	TBD

In FY 2006, Project 4597, Air Force Test Investments, includes new start efforts

(U) A. Mission Description and Budget Item Justification

This PE provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC) (to include 46 Test Group at Holloman), Arnold Engineering Development Center (AEDC), Detachment 12 of the Space & Missile Center (Det 12, SMC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirements for improvement in missile seeker test capabilities such as the Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) project; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Processing Multi-Stage Improvement Program (DPMSIP). Test investment activities are also funded for activities supporting the Test and Evaluation (T&E) Board of Directors and for the Technology Insertion & Risk Reduction (TIRR), formerly the Test Technology Development (TTD) Program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment. The intent is to reduce the cost and risk associated with new technologies and methodologies using short term (1-3 years) limited funding studies prior to investing in larger projects. The first TIRR sub-project is Flight Safety System (FSS), which provides the interface standards and an initial ground processor operations station to support over-the-horizon long range operational test requirements of Unmanned Air Vehicles (UAVs). Additional TIRR subprojects are Enhanced Time Space Position Information (ETSPI) and Low Observable Instrumented Tow-Target (LOIT).

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process. Also, all projects have been reviewed through the Tri-Service Reliance process (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in Reliance Area Capability Summaries (RACS). Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth, but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition, from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

The 46TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation (DT&E) and operational test and evaluation (OT&E) of non-nuclear air armaments, Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. Advanced Airborne Instrumentation Integration (AAII) provides standardized airborne test instrumentation to enhance interoperability and commonality. C4I Advanced Simulation and Test Environment (CASTE) will provide

connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. Operational Facilities (OPFACs) for Link-16 Weapon-Platform Integration (formerly Link-16 Support) will provide a host platform simulator for C4I testing. Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) will measure, characterize, and reconstruct high fidelity multispectral target scenes that will be integrated into the Guided Weapon Evaluation Facility (GWEF). Weapon Integration Compatibility Support (WICS) will provide upgrades to support post System Development and Demonstration (SDD) of F/A-22 weapons integration and certification. Climatic Lab Upgrades will provide upgrades to instrumentation and climatic simulation equipment. Test Control & Visualization will upgrade telemetry systems and network infrastructure to handle higher data rates. Advanced GPS/Hybrid Simulation (AGHS) capability, under development at Holloman AFB, will support laboratory testing with the new GPS signal structure and provide digital modeling of modernized GPS equipment. Armament and Munitions Digital Modeling and Simulation will develop, verify, and validate a standard set of reusable models and simulations to support armament and munitions T&E. These projects ensure test center technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), Advanced Short Range Air-to-Air Missile (ASRAAM), AGM-130, Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc.. Over-Water Impact Scoring System (OWISS) is an FY06 new start program. C4ISR Modeling & Simulation, Command & Control Test Operations Center (C2TOC), Advanced Range Telemetry (ARTM), and Operational Ground Test (OGT) are FY07 new start programs.

AEDC, located at Arnold AFB, TN, provides pre-flight ground environmental test support for DoD aeropropulsion, flight systems, and space and missile programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missiles, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The Propulsion Wind Tunnel (PWT) Upgrades project improves long-term operation of tunnels 16T and 16S to meet transonic/supersonic test needs. The Improve Turbine Engine Structural Integrity project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue. Real-Time Display and Analysis System will provide upgraded displays and analysis systems to several key test facilities to help achieve a portion of AEDC's vision of integrating test/plant/utilities operations. The Enhance Turbine Engine Installation and Productivity (formerly JSF STOVL Engine Test Cells Upgrade) will modernize the sea level test cells (SL2 and SL3) transferred from Trenton NAS under BRAC and installed at AEDC. These cells will be upgraded for environmental and structural endurance testing of the Joint Strike Fighter (JSF) and other aircraft engines, F119/F120 derivatives. Propulsion Consolidation and Streamlining (PC&S) program invests in modernization of AEDC jet engine test capability by consolidating major industrial aeropropulsion test facilities, improving plant and test cell reliability, increasing test cell capability, and streamlining test processes. Von Karman Facility (VKF) Modernization is a new start program for FY07.

AFFTC, located at Edwards AFB, CA, conducts and supports DT&E and OT&E of aircraft and aircraft systems, aerospace research vehicles, unmanned aerial vehicles, cruise missiles, parachute delivery/recovery/systems, and cargo handling systems. The Flight Simulation Modernization (FSM) project upgrades the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements. The Modeling and Simulation T&E Resources (MASTER) program is a joint development effort between the Air Force Flight Test Center (AFFTC) and Arnold Engineering Development Center (AEDC). The goal is for the two centers to integrate modeling and simulation (M&S) more closely to ground and open-air range flight test to reduce the cost and time of developmental testing. MASTER has been divided into five separate development efforts to meet this goal: the Consolidated Model and Data Repository; the development of a Configuration Management, Scheduling and Asset Tracking System; the Propulsion Data Validation and Analysis System; the Store Separation Simulation Capability and the Fluid Structural Interaction Capability project will provide the TEMS facility with subsystem models to build future simulations and the tools to validate

real-time modeling with ground tests and open-air range flight test. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry instrumentation, aircraft instrumentation suites, and ground support systems. It also provides a quick reaction capability for future weapon systems and enhancements required by AFFTC customers. The Advanced GPS Range Sensors (AGRS) project will provide increased Time, Space, Position Information (TSPI) accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade (ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control. AFFTC Real-Time and Post Flight System Upgrade (ARPSU) and AFFTC Time Space Position Information System Upgrade (ATSU) are new start programs for FY07.

Det 12, SMC, located at Kirtland AFB, NM, is the primary provider of launch capability, spaceflight, an on-orbit operations demonstrating transformation technologies and managing the Space Test Program, Rocket Systems Launch Program, and RDT&E Space and Missile Operations Program. Det 12, SMC has one FY06 new start program, Next Generation Satellite Telemetry, Tracking, & Control (Nxt Gen Sat TT&C) which will modernize the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. The program replaces obsolete satellite COTS based C2 hardware and software components. Integrate X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Nxt Gen Sat TT&C also replaces obsolete data recording and data trending systems.

This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

(U) B. Program Change Summary ($ in Millions)

		FY 2004	FY 2005	FY 2006	FY 2007
(U)	Previous President's Budget	60.992	58.933	56.551	59.963
(U)	Current PBR/President's Budget	58.682	63.965	55.339	58.304
(U)	Total Adjustments	-2.310	5.032		
(U)	Congressional Program Reductions				
	Congressional Rescissions		-0.568		
	Congressional Increases		5.600		
	Reprogrammings	-0.893			
	SBIR/STTR Transfer	-1.417			

(U) Significant Program Changes:

Congressional Action, FY05 plus up of $5.600: 3 Data Sensor System, $2.100; Instrumentation Loading, Integration, Analysis, and Documentation (ILIAD), $3.500 ($1.500 for AFFTC and $2.000 for 46 TW).

Exhibit R-2a, RDT&E Project Justification			DATE: February 2005
BUDGET ACTIVITY: 06 RDT&E Management Support	PE NUMBER AND TITLE: 0604759F Major T&E Investment	PROJECT NUMBER AND TITLE: 4597 Air Force Test Investments	

	Cost ($ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
4597	Air Force Test Investments	58.682	63.965	55.339	58.304	56.735	60.081	62.851	63.869	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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accuracy and data link capabilities for pod and internal mount configurations. These objectives will be accomplished by integrating state of the art GPS and data transfer commercial-off-the-shelf (COTS) equipment, upgrading software to provide high accuracy kinematics GPS processing and near-real-time data processing, and utilizing the Enhanced Range Application Program (EnRAP) Central Test and Evaluation Investment Program (CTEIP) project to procure tri-service interoperable GPS and datalink equipment. DPMSIP will provide a common system for real-time data display, near-real-time analysis, and post-test analysis. DPMSIP will also be compliant with current modeling and simulation data interface standards. The Next Generation Instrumentation (NexGenInst) project will upgrade instrumentation systems on test and test support aircraft in addition to improving the ground support systems used to program and preflight these systems and the AFFTC modification program management capability. The AFFTC Range Systems Upgrade (ARSU) program will provide upgrades to the current open air range systems to support future range programs in four specific areas: range communications, range imaging/display, range safety/surveillance, and command/control. AFFTC Real-Time and Post Flight System Upgrade (ARPSU) and AFFTC Time Space Position Information System Upgrade (ATSU) are new start programs for FY07.

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(U)	**B. Accomplishments/Planned Program ($ in Millions)**	FY 2004	FY 2005	FY 2006	FY 2007
(U)	46 Test Wing, Air Armament Center				
(U)	Advanced GPS Hybrid Simulation (AGHS): Develops new GPS simulator with hybrid capability for both conventional Radio Frequency (RF) GPS receivers and new Digital Receiver Modules (DRM). Procures, receives, and installs hardware and software required to simulate the new GPS signal structure. Performs verification and validation efforts on new a simulator.	0.937	1.197		
(U)	Weapon Integration Compatibility Support (WICS): Provides F/A-22 flutter, loads, stability and control M&S as well as Eglin-Edwards, Eglin-AEDC, Eglin-Patuxent River NAS high-speed encrypted data links for near real-time data analysis.	2.889	3.136		
(U)	Armament and Munitions Digital Modeling and Simulation (AMD M&S): Develops and coordinates Modeling and Simulation Master Plan and Modeling and Simulation activities.	2.474	1.843	4.031	3.536
(U)	Advanced Airborne Instrumentation Integration (AAII): Acquires and integrates state-of-the-art airborne instrumentation such as Advanced Common Airborne Instrumentation System (CAIS) and Central Test & Evaluation Investment Program (CTEIP) developed ARTM. Acquires ground support equipment to support pre/post flight operations.	1.650	2.443	3.136	6.232
(U)	Scene Characterization and Reconstruction for Advanced Munitions (SCRAM): Acquires	4.260	5.164	3.921	

Exhibit R-2a, RDT&E Project Justification			DATE February 2005
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604759F Major T&E Investment	PROJECT NUMBER AND TITLE 4597 Air Force Test Investments	

	instrumentation to support scene characterization and reconstruction for Test & Evaluation (T&E) of Electro Opical/Infra Red, RF/MMW, and GPS seeker/sensors.				
(U)	Test Control & Visualization (TVC): Upgrades TM systems and network infrastructure to handle higher data rates. Acquires and integrates real-time computing servers, data recorders, and video displays.	1.558	1.926	2.941	1.469
(U)	C4I Advanced Simulation and Test Environment (CASTE): Acquires equipment, instrumentation, hardware, software, and connectivity for C4I testing.	1.396	2.060	2.451	0.881
(U)	OPFACs for Link 16 Weapon-Platform Integration (formerly Link-16 Support): Acquires platform simulators and related datalink equipment.	2.998	2.362	1.962	
(U)	Climatic Lab Upgrade: Upgrades instrumentation systems, climatic simulation equipment and facility equipment for environmental testing.	0.927	1.038		
(U)	Over Water Impact Scoring System (OWISS): Develops the capability necessary to test long-range precision strike munitions in an overwater environment.			5.110	5.832
(U)	C4ISR Modeling and Simulation: Acquires and develops comprehensive digital models and integrates real and synthetic environments to provide a realistic battlespace for testing C2 systems.				0.903
(U)	Command and Control Test Operations Center (C2TOC): Develops a Joint Air Operations Center level test capability to conduct functional, performance and load/stress testing on C2 Weapons Systems.				1.619
(U)	Advanced Range Telemetry System (ARTM): Improves and upgrades critical telemetry infrastructure for higher throughput rates. Improves quality of real-time data and more efficient utilization of the frequency spectrum.				2.906
(U)	Operational Ground Test Facility (OGT): Develops the capability to test munitions in a more operationally realistic hardware in the loop/simulated environment to include the addition of vibration, scene generators, and climatic simulations.				0.531
(U)	Holloman High Speed Test Track (HHSTT): Extends Maglev guideway foundation and girder. Demonstrate magnetic levitation of test sled at higher velocities on the extended guideway. (FY03 and FY04 Congressional Insert)	3.335			
(U)	3 Data Sensor System: Installs an operating laser and integrates software for ranging. Modifies software for range input/output. Improves tracking capabilities. (FY04/05 Congressional Insert)	0.953	2.100		
(U)	Instrumentation Loading, Integration, Analysis, and Decommutation (ILIAD): Develops enhanced capabilities to program, load, operational check, and troubleshoot airborne data acquisition systems installed on test and evaluation vehicles. Modernizes flight line ground support unit and engineering support unit hardware to current technological specification. Performs InterRange Instrumentation Group (IRIG) 106, Chapter 10 core upgrades as well as the Microsoft NET and Operating System upgrades. Provides improved and Range Commanders Council standardized enhancement and IRIG standard compliance to the components that decommutate, display, and process the data generated by the data acquisition system for preflight checkout, troubleshooting, and analysis. (FY05 Congressional		2.000		

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	Insert)					
(U)	Air Force Flight Test Center					
(U)	Flight Simulation Modernization (FSM): Fabricates second and third console sets (Joint Strike Fighter). Provides multiple simulation networking hardware and linking software. Provides capability to simulate flight of two-ship configuration in Performance and Flying Qualities (P&FQ) testing, and capability to upgrade simulation to link live and simulated avionics and Electronic Warfare software and hardware into simulation environment. Provides capability for separable simulations in a secure (Secret and higher) facility over a secure network.	0.175				
(U)	Modeling and Simulation Test and Evaluation Resource (MASTER): Develops on-line comparisons of predictions with flight trajectories and the resolution of anomalies between predictions and flight. Documents the result of F/A-22 simulation and re-usable code validation. Develops 4th Generation information distribution interface and automated model-based fault detection and diagnostic capability for ground and flight test. Enhances capabilities of fluid-structural technology to ground and flight test requirements will also be provided. Develops the facility management, configuration management and data management capabilities providing control of pre-test, test, and post test operations. Develops the initial operational capability enabling collaboration between AFFTC and AEDC engineers. Develops and validates enhanced capabilities of Fluid-Structural Technology to Ground and Flight Test requirements at the AFFTC. Executes code validation plan and places validated codes and data in MASTER repository as well as the documented results of simulations and re-usable code validation. Develops unclassified and classified capable information systems to provide configuration, data and facility management. Develops, stores, and transitions models in the MASTER repository to support current and future test programs. Enhances the 4th Generation Propulsion Analysis System's information distribution interfaces and automated model-based fault detection and diagnostic capabilities for ground and flight test. Validates towed device cable model using flight data.	2.427	3.127	0.443		
(U)	Advanced Range Telemetry (ARTM) Integration. Integrate ARTM-developed Multi-h Continuous Phase Modulation (CPM) technology (Tier 1/Tier 2 modulation) into telemetry ground stations. Migrate airborne telemetry users from S-band to L-band (Tier 0, Tier 1, and Tier 2 modulation technology, as required by user). Refurbish old and integrate new antennas based on integration roadmap to support high-data rate users. Integrate high-data rate receivers and high-data rate telemetry communication systems for ground stations based on implementation roadmap. Integrate ARTM-developed technology and upgrade the telemetry support infrastructure to improve spectral efficiency, link reliability, and spectrum utilization. Upgrade data communication and integrate high data rate recorders for test support ground stations based on roadmap.	4.988	3.602	3.748		
(U)	Advanced GPS Range Sensors (AGRS): Produces the first iteration of the Modular Affordable GPS IMU Receiver (MAGIR I) that integrates a miniature Inertial Measurement Unit (IMU) into a compact	1.468	1.346	0.982	5.143	

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	GPS internal mount instrumentation unit. Upgrades and delivers high-accuracy kinematic GPS TSPI processing software. Initiates low cost commercial spectrum datalink effort. Provides AFFTC inputs to the Range Instrumentation System Program Office (RISPO) for GPS and datalink equipment to be developed under their Enhanced Range Applications Program (EnRAP). Integrates the second iteration of the MAGIR I into next generation software receiver GPS instrumentation. Purchases Enhanced Range Applications Program (EnRAP) equipment. Integrate low cost GPS/IMU and low cost real-time GPS. Delivers user interface for TSPI processing software upgrades.				
(U)	Data Processing Multi-Stage Improvement Program (DPMSIP): Deployed the first telemetry processor upgrade to support higher data rates and large data formats. Develops second telemetry processor upgrade kit to improve data transfer between systems. Develops a PC based common display system. Developed the first control room display upgrade kit. Develops additional standard post-test analysis software to support avionics flight-testing. Deploys common display system at three mission control centers.	2.027	3.787	3.056	
(U)	Next Generation Test Instrumentation: Integrates new measurement technology into multiple aircraft and support labs. Provides enhancements and improvements to the Internet based Instrumentation Management Information Systems to improve modification cost accounting and program management. Expands the capabilities of ILIAD to program multiple vendor hardware suites and preflight test articles and airframes. Develops airborne instrumentation components to address new sensor interfaces. Purchases instrumentation components to upgrade obsolete and unreliable instrumentation components. Replaces obsolete data systems (ATIS, Metraplex) and unreliable data recorders on Test aircraft, support fleet, and Test Pilot School aircraft.	2.087	1.897	2.585	2.628
(U)	AFFTC Range System Upgrade (ARSU). Expand the range digital voice communication system to meet increasing customer requirements. Implement range data command and control system to automate the setup, configuration, monitoring and reconfiguration of networks and widely dispersed end equipment supporting data, telemetry, voice, video and other real-time and non-real time data thereby increasing the number and quality of missions supported.		3.568	0.584	0.200
(U)	Instrumentation Loading, Integration, Analysis, and Decommutation (ILIAD): Develops enhanced capabilities to program, load, operational check, and troubleshoot airborne data acquisition systems installed on test and evaluation vehicles. Modernizes flight line ground support unit and engineering support unit hardware to current technological specification. Performs InterRange Instrumentation Group (IRIG) 106, Chapter 10 core upgrades as well as the Microsoft NET and Operating System upgrades. Provides improved and Range Commanders Council standardized enhancement and IRIG standard compliance to the components that decommutate, display, and process the data generated by the data acquisition system for preflight checkout, troubleshooting, and analysis. (FY03 and FY04 Congressional Insert)	3.240	1.500		

Exhibit R-2a, RDT&E Project Justification			DATE February 2005
BUDGET ACTIVITY 06 RDT&E Management Support	PE NUMBER AND TITLE 0604759F Major T&E Investment	PROJECT NUMBER AND TITLE 4597 Air Force Test Investments	

(U)	Advanced Range Communications System (ARCS): Procures the next generation digital voice communication system to support AFFTC Flight Test Range customers. Provides an enhanced digital voice capability with special emphasis placed on software controls, supportability and commonality for AFFTC customers. (FY04 Congressional Insert)	1.620			
(U)	B-52 Flight Test Instrumentation: Upgrades current flight data recorders to solid state technology. Builds pallets to integrate the solid state recorders to the B-52. Establishes a long term digital data archive for the flight data. Upgrades decom hardware/software to support flight test activities. (FY04 Congressional Insert)	1.620			
(U)	AFFTC RT & Post Flight System Upgrade (ARPSU): Upgrades the TM processing to handle new data formats and increased data rates. Upgrades the data distribution network that transfers data from multiple data sources into the control rooms. Implements solutions for bi-directional TM (being developed under CTEIP programs) into the control rooms which increases the speed and capacity of the data analysis systems.				2.606
(U)	AFFTC TSPI System Upgrade (ATSU): Acquires and implements Digital High speed Video Systems (DHVS), automated TSPI architecture, continuous wave radars, and upgrade with off the shelf GPS related packages.				2.803
(U)	Arnold Engineering Development Center				
(U)	Propulsion Wind Tunnel (PWT) Upgrades: Finalizes installation and checkout of electric motor upgrades. Finalizes installation and checkout of plant control systems. Acquires planning of flow quality improvements.	2.450			
(U)	Improve Turbine Engine Structural Integrity (ITESI): Develops the Non-Intrusive Stress Measurement System (NSMS) software and hardware systems. Validates and fabricates final software of the second NSMS. Procures a dynamic data system. Provides the NSMS optical system. Improves C, J, and SL cells on-line dynamic data monitoring/processing bandwidth capability. Develops inlet flow distortion generator for High Cycle Fatigue (HCF) studies.	2.439	2.577	3.728	
(U)	Enhanced Turbine Engine Installation and Productivity (ETEIP) (formerly JSF STOVL Engine Test Cells Upgrade): Designs, procures, and fabricates efforts for sea level (SL3) upgrades for JSF, F/A-22, F-15, F-16, F-18, and other programs. Designs environmental systems (steam, sand, corrosion). Installs and checks out SL3 Thrust Stand, Inlet, and Service Systems. Designs and fabricates thrust stand and designs electrical distribution system for SL2.	2.189	1.335	2.576	
(U)	Real Time Display and Analysis System (RDAS): Designs, procures, installs, checks out and turns over the J2 Test Unit Supervisory Systems (TUSS), 4T Test Article Control System, SL2 TUSS, C1 TUSS, 4T Pretest System, 4T Operations Center, and partial SL3 TUSS. Installs and checks out the 4T Test System. Integrates checkout and turnover of the 4T Data Acquisition Processing Systems (DAPS). Designs and procures activities for the 4T Plant Automation effort.	2.509	2.845	3.060	2.523

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(U)	Propulsion Consolidation and Streamlining (PC&S): Improves plant and test cell reliability, increasing test cell capability, and streamlining test processes of the jet engine test facility.	4.916	12.462	9.929	10.156
(U)	VKF Plant Modernization: Provides pressurized air support for hypersonic wind tunnel and turbine engine test requirements.				3.385
(U)	Other Projects				
(U)	Next Generation Satellite TT&C (Nxt Gen Sat TT&C): Modernizes the Kirtland AFB to Schriever AFB communication link to provide greater throughput and a sustainable baseline. Replaces obsolete satellite COTS based C2 hardware and software components. Integrates X-Band and Unified S-Band antenna support capabilities, commercial and NASA resources. Replaces obsolete data recording and data trending systems.			0.446	4.301
(U)	T&E Board of Directors Support: Coordinates tri-service investment efforts. Coordinates joint Reliance documents.	0.150	0.150	0.150	0.150
(U)	Technology Insertion & Risk Reduction (TIRR): Flight Safety System (FSS) subproject develops ground processor station for Over-the-Horizon UAV operations, range safety interface and display software/hardware. Enhanced Time Space Position Information (ETSPI) subproject develops a low-cost miniature instrumentation package that provides accurate position, pitch and heading, in real-time, on air-to-ground weapons throughout its flight path. Low Observable Instrumented Tow-Target (LOIT) subproject involves development, signature evaluation, and instrumentation of a low observable tow target. Joint Tactical Radio System (JTRS) project started and planned to work into a CTEIP follow-on.	1.000	0.500	0.500	0.500
(U)					
(U)	Total Cost	58.682	63.965	55.339	58.304

(U) C. Other Program Funding Summary ($ in Millions)

	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U) Other APPN										

Related RDT&E: PE 0604256F, Threat Simulator Development; PE 0604940D, Central Test and Evaluation Investment Program; PE 0605804D, Development Test and Evaluation; PE 0603941D, Test and Evaluation Science and Technology; PE 0605807F, Test and Evaluation Support; PE 0605978F, Facilities Sustainment - T&E Support; and PE 0605976F, Facility Restoration and Modernization.

(U) D. Acquisition Strategy

This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.