

**UNCLASSIFIED**

PE NUMBER: 0207601F  
 PE TITLE: USAF Modeling and Simulation

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>	DATE <b>February 2008</b>
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<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>	<b>PE NUMBER AND TITLE</b> <b>0207601F USAF Modeling and Simulation</b>
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Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	22.609	22.814	28.981	27.712	30.505	31.096	31.726	Continuing	TBD
4567 M&S Foundations	4.278	6.256	6.298	6.377	6.399	6.523	6.655	Continuing	TBD
4991 Accelerated Acquisitions	4.272	5.107	5.113	5.234	5.315	5.419	5.528	Continuing	TBD
5004 New and Emerging Capabilities	0.969	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
5135 Warfighter Readiness	13.090	11.451	17.570	16.101	18.791	19.154	19.543	Continuing	TBD

**(U) A. Mission Description and Budget Item Justification**

The four United States Air Force (USAF) Modeling & Simulation (M&S) thrusts areas (Modeling and Simulation Foundations, Accelerated Acquisition, New and Emerging Warfighting Capabilities, and Warfighter Readiness) provide RDT&E funding for corporate M&S training, mission rehearsal, and system development. These thrusts support Department of Defense (DoD) training transformation & acquisition reform initiatives. The USAF M&S Program Element (PE) provides the capability that immerses warfighters in distributed, simulated environments to execute the Global War on Terror (GWOT) during joint mission rehearsal, training, and experimentation.

In support of the DoD Training Transformation initiative, USAF M&S develops and modernizes models and simulations that are the constructive backbone of USAF Distributed Mission Operations (DMO) -- Live, Virtual, Constructive (LVC) environment. DMO enables the joint, coalition, and interagency training required to prepare forces for combat by generating the air and space picture for the Joint Force Commander in combat exercises; training over 19,000 personnel per year in exercises (e.g., Ulchi-Focus Lens, Red & Blue Flags, Unified Endeavor, etc). DMO also provides the current operational environment that allows warfighters to interact with other tactical cockpit simulators as well as the High Demand/Low Density platforms, often unavailable for live training due to real-world operations. USAF M&S is also integral to inter-agency Homeland Defense exercises chartered to train combat units tasked to protect the Homeland, including the National Capital Region (exercise Amalgam Arrow); generates equipment and manpower efficiencies by using simulations which reduce fuel consumption, aircraft wear and tear, and manpower costs.

In support of DoD acquisition reform, the Air Force Integrated Collaborative Environment (AF-ICE) provides systems-of-systems test capability that will shorten the acquisition lifecycle, reduce developmental costs, and minimize risks associated with interoperability of new technology. AF-ICE enhances the acquisition process from concept development through test and evaluation using M&S to speed delivery of net-enabled warfighting capabilities.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

Exhibit R-2, RDT&E Budget Item Justification

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	23.670	23.044	29.223
(U) Current PBR/President's Budget	22.609	22.814	28.981
(U) Total Adjustments	-1.061	-0.230	
(U) Congressional Program Reductions		-0.065	
Congressional Rescissions		-0.165	
Congressional Increases			
Reprogrammings	-0.416		
SBIR/STTR Transfer	-0.645		
(U) <u>Significant Program Changes:</u>			

## Exhibit R-2a, RDT&amp;E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>			PROJECT NUMBER AND TITLE <b>4567 M&amp;S Foundations</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4567 M&S Foundations	4.278	6.256	6.298	6.377	6.399	6.523	6.655	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

M&S Foundations (MSF) focuses on integrating foundational capabilities needed to improve the usefulness, productivity, scalability and efficiency of M&S capabilities derived from Warfighter Readiness (WR), Accelerated Acquisitions (AA), and New and Emerging Warfighting Capabilities (NEWC). The efforts supporting the M&S Foundations thrust include both concept exploration and development.

MSF provides tools, standards and interfaces to be used by model developers and users to ensure efficiencies and model reuse. MSF provides the capability to rapidly and efficiently create realistic and accurate synthetic operational battlespaces to support the full spectrum of activities associated with mission preparation and acquisition of warfighting capabilities by providing appropriate authoritative data and component representations. With the capability generated via MSF, users will readily access available repositories of reusable, validated, and integrated synthetic components. Synthetic components include representations of operational battlespace entities such as friendly and enemy assets and representations of the natural environment that include the terrain, atmospheric and space weather effects, and energy and signal propagation effects. The rapid composition is based on a durable common architecture framework and common standards. MSF capability also supports efficient, cost-effective Verification, Validation and Accreditation activity across the training, test, experimentation, acquisition, planning and analysis communities.

Air Force Director of Weather (AF/A3O-W) is designated as the DoD Air and Space Natural Environment Modeling and Simulation Executive Agent (ASNE MSEA). ASNE MSEA coordinates all aspects of DoD M&S related to representations of the air and space natural environment, ensuring air and space weather is properly represented in joint and service models, simulations, war games, and experiments. The ASNE MSEA part of this project primarily funds the following: Environmental Scenario Generator, Environmental Hypercube (pre-runtime physics-based weather effects), and Space Weather Analysis as required to support joint M&S program offices and activities like OSD Program, Analysis, and Evaluation; Air Force Studies and Analyses Agency; Joint Analysis System; Joint National Training Capability; Distributed Mission Operations & Training; One Semi-Automated Force; Navy Probability of Raid Annihilation Assessment; Terminal Fury; Unified Engagement; Hazard Prediction and Assessment Capability; and Joint Expeditionary Force Experiment. Primary customers are combatant commanders, service components, and various DoD organizations conducting simulations and exercises involving air, ground, sea, and space assets. ASNE MSEA develops authoritative natural environment scenarios necessary for robust "What-if" mission planning and rehearsal and for realistic training, analysis, and acquisition models and simulations. ASNE MSEA leads the development and execution of the DoD Integrated Natural Environment Authoritative Representation Process (INEARP) Concept of Operations.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>	PROJECT NUMBER AND TITLE <b>4567 M&amp;S Foundations</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MSF Concept exploration/model development/model transition	3.303	5.258	5.298
(U) Provide DoD M&S community with tools to search Air & Space Natural Environment scenarios; measure effects on weapon systems and subsystems and access tailored reusable databases	0.975	0.998	1.000
(U) Total Cost	4.278	6.256	6.298

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									

(U) **D. Acquisition Strategy**  
 OAS, Kirtland AFB, NM manages the acquisition and model development process for all M&S Foundation activities. All major contracts will be awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207601F USAF Modeling and Simulation</b>				<b>4567 M&amp;S Foundations</b>				
(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> Concept Exploration and Technology Support	Various	Office of Aerospace Studies, Kirtland, NM; ASC, Wright Patterson AFB, OH		3.303	Oct-06	5.258	Oct-07	5.298	Oct-08	Continuing	TBD	TBD
ASNE	Various	Various		0.975	Oct-06	0.998	Oct-07	1.000	Oct-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	4.278		6.256		6.298		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U)												
Subtotal			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	4.278		6.256		6.298		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
4567 M&S Foundations



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ASNE MSEA Schedule

U.S. AIR FORCE

KEY EVENTS	FY07				FY08				FY09				FY10				FY11				FY12				FY13				FY14			
	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+
<b>Services (Web and Desktop)</b>																																
ESG Technical Enhancements																																
Weather Data/Effects Servers Interfaces			▲	▲																												
Scenario Visualization			▲	▲								▲																				
<b>Tools (Operational Exercise &amp; Training Support)</b>																																
Air and Space Weather Server (Environmental Data Cube)			▲	▲																												
Hypercube Server																																
JLVC/AFMSTT Integration																																
<b>Environmental Data Resources</b>																																
Space Weather Analysis																																
System Impacts by Space			▲	▲																												
ECMWF ERA-40 data set			▲	▲																												
Resource Integration																																
Synthetic Satellite Imagery																																

Enhancements goals  
 Start  
 End

As of: 10 Jan 08

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Exhibit R-4a, RDT&E Schedule Detail

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BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4567 M&S Foundations

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b>Schedule Profile</b>			
(U) MSF concept refinement	1Q	1Q	1Q
(U) MSF development	1-4Q	1-4Q	1-4Q
(U) ASNE Services/Support (Web and Desktop)	1-4Q	1-4Q	1-4Q
(U) Tools (Operational exercise & Training support)	1-4Q	1-4Q	1-4Q
(U) Environmental Data Resources	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>			PROJECT NUMBER AND TITLE <b>4991 Accelerated Acquisitions</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
4991 Accelerated Acquisitions	4.272	5.107	5.113	5.234	5.315	5.419	5.528	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Accelerated Acquisition (AA) focuses on reducing the time and resources required to provide material solutions to the Warfighter. Examples include more efficient and coordinated processes for design, development, test and evaluation, maintainability and sustainment.

AA's objective is to improve interoperability of weapon systems and platforms through more rigorous interoperability evaluation in a replicated battlefield environment. The AA thrust area includes the Air Force-Integrated Collaborative Environment (AF-ICE) which connects combat system engineering sites and replicates Joint Force Combat Systems to create a network testbed to assess network centric systems and Command, Control, Communication, Computers and Intelligence (C4I).

AA provides the capability to improve both Service and Joint system performance in a System-of-Systems environment. AF-ICE will use this network to build upon existing Service and Joint combat system engineering and test sites, such as C4I hardware in the loop and computer-program-in-the-loop engineering sites (including Design Activities, software support activities, test & evaluation facilities and training commands). AF-ICE will develop the concept of operations, business rules, and procedures to enable acquisition managers to effectively use the network. The AF-ICE initiative supports the Homeland Defense Testbed, Command & Control (C2) Constellation, Node Additions, and various other activities that use the network infrastructure located around the country.

In addition, the AF-ICE will coordinate activities involving Air Force engineering and test sites. AF-ICE will ensure that accurately represented C4I networks are established for system development and testing activities and will evaluate those systems for interoperability and integration into a joint environment.

This project is in Budget Activity 7 - Operational System Development because it enhances operational system developments.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continue communications architectures, links and operations support Air Force-Integrated Collaborative Environment (AF-ICE) activities	1.336	1.950	2.000
(U) Continue to expand existing Infrastructure to support AF-ICE activities to include the management, operations and test support along with contracted personnel to assist in DT/OT activities	1.447	1.700	1.758
(U) Provide event analysis support to product centers	0.589	0.750	0.850
(U) Develop and execute various simulations/stimulation environments for test events	0.900	0.707	0.505
(U) Total Cost	4.272	5.107	5.113

Exhibit R-2a, RDT&E Project Justification

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BUDGET ACTIVITY

07 Operational System Development

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0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

4991 Accelerated Acquisitions

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	

(U) Not applicable

(U) D. Acquisition Strategy

SAF/XC will provide oversight and GCIC will manage the acquisition and development process for the experimentation, integration, and site activation activities for AA. All major contracts will be awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207601F USAF Modeling and Simulation</b>				<b>4991 Accelerated Acquisitions</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
AF-ICE Core Development	Various	GCIC, Langley AFB, VA		1.336	Nov-06	1.950	Nov-07	2.000	Nov-08	Continuing	TBD	TBD
AF-ICE Architecture Infrastructure	Various	GCIC, Langley AFB, VA		1.780	Nov-06	1.700	Nov-07	1.758	Nov-08	Continuing	TBD	TBD
HLD Testbed/AF-ICE Activities Support	Various	GCIC, Langley AFB, VA				0.750	Nov-07	0.850	Nov-08	Continuing	TBD	TBD
AF-ICE Simulator/Stimulator Dev/Analysis/Support	Various	GCIC, Langley AFB, VA		1.156	Jan-07	0.707	Jan-08	0.505	Jan-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	4.272		5.107		5.113		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>											0.000	0.000
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>											0.000	0.000
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>											0.000	0.000
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	4.272		5.107		5.113		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
4991 Accelerated Acquisitions



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AF-ICE Schedule

KEY EVENTS	FY06				FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+	1	2	3	+
AF-ICE CORE development	▲																								▽							
Architecture infrastructure	▲																															
Domain infrastructure development & integration					▲				▼				▼																			
Industry infrastructure development & integration	▲																															
ICE Breakers (AF-ICE Events)	▲	▼	▼		▼	▼	▼		▼	▼	▼		▼	▼	▼		▼	▼	▼		▼	▼	▼		▼	▼	▼		▼	▼	▼	
Joint Service development & integration	▲																															

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**Exhibit R-4a, RDT&E Schedule Detail**

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BUDGET ACTIVITY

**07 Operational System Development**

PE NUMBER AND TITLE

**0207601F USAF Modeling and Simulation**

PROJECT NUMBER AND TITLE

**4991 Accelerated Acquisitions**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <b><u>Schedule Profile</u></b>			
(U) AF-ICE CORE development	1-4Q	1-4Q	1-4Q
(U) Event planning, development, integration, and infrastructure support	1-4Q	1-4Q	1-4Q
(U) AF-ICE events	1-4Q	1-4Q	1-4Q
(U) Joint Service development & integration	1-4Q	1-4Q	1-4Q

**Exhibit R-2a, RDT&E Project Justification**

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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>			PROJECT NUMBER AND TITLE <b>5004 New and Emerging Capabilities</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5004 New and Emerging Capabilities	0.969	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

New and Emerging Warfighting Capabilities (NEWC) focuses on future capabilities and force structure. Examples include Science & Technology, analysis, concept exploration and futures wargaming.

In FY07, this Program Element (PE) contained the Congressional add that enabled the development of Synthetic Theater Operations Research Model (STORM). STORM will replace the current Air Force theater level campaign model, THUNDER, with enhanced capability to feed aerospace representations in the joint analysis effects and support Quadrennial Defense Reviews.

This program is in Budget Activity 7 - Operational System Development, Research Category because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

**(U) B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) STORM development	0.969	0.000	0.000
(U) Total Cost	0.969	0.000	0.000

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not Applicable									

**(U) D. Acquisition Strategy**

All major contracts for model development were awarded after full and open competition.

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**Exhibit R-3, RDT&E Project Cost Analysis**

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**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207601F USAF Modeling and Simulation</b>				<b>5004 New and Emerging Capabilities</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u> STORM Development	T&M	AFSAA, Rosslyn, VA		0.969	Feb-07	0.000				Continuing	TBD	TBD
Subtotal Product Development			0.000	0.969		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>										Continuing	TBD	TBD
Subtotal Support			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Test &amp; Evaluation</u>										Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Management</u>										Continuing	TBD	TBD
Subtotal Management			0.000	0.000		0.000		0.000		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.969		0.000		0.000		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
5004 New and Emerging Capabilities

STORM

	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Storm Development		<b>█</b>						

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Exhibit R-4a, RDT&E Schedule Detail

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PROJECT NUMBER AND TITLE

5004 New and Emerging Capabilities

(U) Schedule Profile

FY 2007

FY 2008

FY 2009

(U) STORM Development

1-4Q

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BUDGET ACTIVITY <b>07 Operational System Development</b>				PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>			PROJECT NUMBER AND TITLE <b>5135 Warfighter Readiness</b>		
Cost (\$ in Millions)	FY 2007 Actual	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	Cost to Complete	Total
5135 Warfighter Readiness	13.090	11.451	17.570	16.101	18.791	19.154	19.543	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

**(U) A. Mission Description and Budget Item Justification**

Warfighter Readiness (WR) focuses on putting the Warfighter in a simulated environment to improve warfighting decision-making, execution, skills and processes. Examples include operational training, mission rehearsal, operational decision-making, mission execution, concept development and wargaming.

WR includes the Air and Space Constructive Environment (ACE), which is the constructive back plane for live and virtual assets to work within for Distributed Mission Operations (DMO). DMO is the Air Force's contribution to the Joint National Training Concept (JNTC). WR's capabilities provided within the environment are the AF's contribution to the Joint Training Confederation's battle staff training environment used to support Combatant Commanders, Joint Task Force, and Component Commander staff readiness training. The capabilities support Joint/Service exercises including, but not limited to: Joint National Training Concept (JNTC), Yama Sakura, Reception, Staging, Onward-movement & Integration (RSO&I), Ulchi Focus Lens, Roving Sands, Austere Challenge, Flexible Leader, Blue Flag, Joint Expeditionary Force Experiment, and Red/Virtual Flag.

Other capabilities will provide for Intelligence, Surveillance, and Reconnaissance (ISR) training and exercise supported by using a virtual ISR system for command and staff level training. The simulation provides commanders, staffs and operators with a common training system for the employment, tasking, exploitation and dissemination of imagery. The environment also provides models simulating electronic combat, electronic warfare, targeting, ISR representation, and intelligence integral to the Air and Space Operations Center training.

WR also includes the Air Force Modeling & Simulation Training Toolkit (AFMSTT) modernization. AFMSTT provides: the Air Warfare Simulation System (AWSIM) which interfaces to Command, Control, Communications, Computers, and Intelligence (C4I) to Theater Battle Management Core System (TBMCS) and the Graphical Input Aggregate Control (GIAC), the Logistics Simulation (LOGSIM), the Intelligence Management Controller Node (IMCN), the AWSIM Analysis Tool (AAT), and the Air Force Synthetic Environment for Reconnaissance and Surveillance (AFSERS). AFMSTT's capabilities require modernization to support Air Force Title X requirements.

In addition, project 5135 supports the Requirements Integration (RI) (formerly known as Joint Model Transition) which supports the development and upgrade of models selected through a board process. The selection process allows the board to influence the direction of model development and integration for the modeling and simulation community. Emphasis is placed on standardization, integration, capabilities improvement, joint applicability and acceptance.

This program is in Budget Activity 7 - Operational System Development because it provides RDT&E funding for major USAF Modeling and Simulation efforts.

Exhibit R-2a, RDT&E Project Justification

DATE

February 2008

BUDGET ACTIVITY <b>07 Operational System Development</b>	PE NUMBER AND TITLE <b>0207601F USAF Modeling and Simulation</b>	PROJECT NUMBER AND TITLE <b>5135 Warfighter Readiness</b>
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(U) <b><u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AFMSTT Modernization	8.044	8.003	11.089
(U) Distributed Mission Operations Integration (DMOI)	4.546	3.000	6.000
(U) Perform RI cost-benefit analysis, develop and integrate models, simulations and interface standards	0.500	0.448	0.481
(U) Total Cost	13.090	11.451	17.570

(U) <b><u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Not applicable									

(U) **D. Acquisition Strategy**  
 Electronic Systems Center (ESC) at Hanscom AFB, MA will manage full and open acquisition and model development process for all WR activities.

UNCLASSIFIED

**Exhibit R-3, RDT&E Project Cost Analysis**

DATE

**February 2008**

BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT NUMBER AND TITLE				
<b>07 Operational System Development</b>				<b>0207601F USAF Modeling and Simulation</b>				<b>5135 Warfighter Readiness</b>				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
AFMSTT	Various	ESC, Hanscom AFB, MA		8.044	Dec-06	8.003	Dec-07	11.089	Dec-08	Continuing	TBD	TBD
DMOI	Various	ESC, Hanscom AFB, MA		4.546	Dec-06	3.000	Dec-07	6.000	Dec-08	Continuing	TBD	TBD
RI	Various	General Services Administration (GSA) and Office of Aerospace Studies (OAS), Kirtland AFB, NM		0.500	Dec-06	0.448	Dec-07	0.481	Dec-08	Continuing	TBD	TBD
Subtotal Product Development			0.000	13.090		11.451		17.570		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
Subtotal Support			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Test &amp; Evaluation</u>												
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) <u>Management</u>												
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:												
(U) Total Cost			0.000	13.090		11.451		17.570		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2008

BUDGET ACTIVITY  
07 Operational System Development

PE NUMBER AND TITLE  
0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE  
5135 Warfighter Readiness

Exhibit R-4: Warfighter Readiness (WR)

	FY06				FY07				FY08				FY09				FY10				FY11				FY12				FY13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AFMSTT Modernization			★				★				★				★					☆				☆				☆				☆
DMO Integration		★				★				★				★						☆				☆				☆				☆
JMT			★				★				★				☆					☆				☆								
GIAC		★				★				★				★						☆				☆				☆				☆

Development Milestone: 

As of: 9 Jan 08

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2008

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0207601F USAF Modeling and Simulation

PROJECT NUMBER AND TITLE

5135 Warfighter Readiness

(U) <u>Schedule Profile</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) AFMSTT Modernization	1-4Q	1-4Q	1-4Q
(U) DMOI Development	1-4Q	1-4Q	1-4Q
(U) JMT/GIAC/RI - perform cost-benefit analysis, develop and integrate models, simulations and interface standards according to Modeling & Simulation Strategic Plan (MSSP) and architecture	1-4Q	1-4Q	1-4Q