

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 07 Operational System Development	PE NUMBER AND TITLE 0205219F MQ-9 Development and Fielding
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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	0.000	63.862	43.557	37.717	37.227	19.737	20.140	Continuing	TBD
5246 MQ-9 Development and Fielding	0.000	63.862	43.557	37.717	37.227	19.737	20.140	Continuing	TBD

This program moved from PE 0305219F (MQ-1 Predator) in FY08.

(U) A. Mission Description and Budget Item Justification

The basic MQ-9 Reaper system consists of the aircraft, sensors, a control station, communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

The MQ-9 Reaper aircraft is a single-engine, turbo-prop remotely piloted aircraft designed to operate over-the-horizon at medium-to-high altitude for long endurance sorties. The aircraft is being designed primarily to prosecute critical emerging Time Sensitive Targets (TSTs) as a radar, Electro-optical/Infra-red(EO/IR), and laser designator-based attack asset with on-board hard-kill capability (hunter-killer) and also perform Intelligence, Surveillance, Reconnaissance and Target Acquisition (ISR TA) as a secondary role. In the hunter-killer role, the aircraft will employ fused multi-spectral sensors to automatically find, fix, and track ground targets (Automatic Target Cueing (ATC), Target Location Accuracy (TLA), Metric Sensor and other capabilities) and assess post-strike results. The MQ-9 will also explore and, if appropriate, develop and integrate Signals Intelligence (SIGINT) sensors capabilities. The MQ-9 is in continuing development and will field capability through incremental upgrades. The baseline development includes FY04 & FY05 Quick Reaction/ Interim Combat Capabilities (ICC) and a System Development & Demonstration (SDD) phase. The SDD effort began in FY05 and includes developing and testing the MQ-9's baseline capability and preliminary technical orders. Capabilities in development include increasing the aircraft's gross take-off weight; enhancing aircraft systems to include integrated redundant avionics, ice detection capability, navigation system upgrades, electrical system upgrades, sensor/stores management computer, MIL-STD-1760 advanced weapons data bus, advanced sensor and weapons payloads, and improved human-machine interface; integrating standard precision weapons (AGM-114 Hellfire missile and GBU-12/38/49 guided bombs); hardware and software upgrades to the ground control station for MQ-9 operations; completing airworthiness certification; weapons system certification and accreditation; and producing applicable training devices that emulate aircraft capabilities. Subsequent investments will continue to evolve the MQ-9's capabilities to meet new requirements (which may include SIGINT, communications, and other sensor and weapons), and address reliability and maintainability and safety issues.

The Ground Control Station (GCS) functions as the aircraft cockpit and can control the aircraft either within line-of-sight (LOS) or beyond LOS (BLOS) via a combination of satellite relay and terrestrial communications. The GCS is either mobile to support forward operating locations or fixed at a facility to support Remote Split Operations (RSO). The GCS has the capability to perform mission planning; provide a means for manual and/or autonomous control, and a GCS configuration to allow control of multiple aircraft and payloads; allow personnel to launch, recover, and monitor aircraft, payloads, and system communications status; secure data links to receive payload sensor data and command links; monitor threats to the aircraft; display common operation picture; and provide support functions. Additionally, a Launch and Recovery GCS (LRGCS) allows for servicing, systems checks, maintaining, launching, and recovering aircraft under LOS control for hand-off to a mobile

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or fixed facility GCS. The GCS will continue to evolve and upgrade its capabilities to keep pace with MQ-9 system capabilities and the missions they perform.

This program will participate in the development, testing, and implementation of various standards to pursue joint, Allied, and coalition interoperability. These include FAA, Congressional, or OSD mandated standards; as well as international standards, including NATO standardization agreements.

This program is in Budget Activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	0.000	61.069	49.866
(U) Current PBR/President's Budget	0.000	63.862	43.557
(U) Total Adjustments	0.000	2.793	
(U) Congressional Program Reductions			
Congressional Rescissions		-0.407	
Congressional Increases		3.200	
Reprogrammings			
SBIR/STTR Transfer			

(U) Significant Program Changes:

MQ-9 program efforts were included in PE 0305219F prior to FY08.

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07 Operational System Development		0205219F MQ-9 Development and Fielding					5246 MQ-9 Development and Fielding			
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	
5246 MQ-9 Development and Fielding	0.000	63.862	43.557	37.717	37.227	19.737	20.140	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

The basic MQ-9 Reaper system consists of the aircraft, sensors, a control station, communications equipment, weapon kits, support equipment, simulator and training devices, Readiness Spares Packages (RSP), technical data/training, and personnel required to operate, maintain, and sustain the system. The system is designed to be modular and open-ended: mission-specific equipment is employed in a 'plug-and-play' mission kit concept allowing specific aircraft and control station configurations to be tailored to fit mission needs.

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This program will participate in the development, testing, and implementation of various standards to pursue joint, Allied, and coalition interoperability. These include FAA, Congressional, or OSD mandated standards; as well as international standards, including NATO standardization agreements.

This program is in Budget Activity 7, Operational Systems Development, because it involves Air Force R&D to field a highly capable operational system and provide essential operational capabilities.

(U) B. Accomplishments/Planned Program (\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) MQ-9 System Development and Demonstration (SDD). Includes aircraft/GCS/Communication system improvements, development and integration of follow-on sensors, weapon and payload integration, test and training capability, technical data.		29.456	27.675
(U) EO/IR Development		0.625	0.655
(U) MQ-9 TLA Development		23.000	4.000
(U) Other Government Costs, including Developmental and Operational Test support, SATCOM, Urgent Services		5.181	3.827
(U) Operator Simulator		3.200	3.200
(U) SAR Upgrade		2.400	4.200
(U) Total Cost	0.000	63.862	43.557

(U) C. Other Program Funding Summary (\$ in Millions)	<u>FY 2007</u> <u>Actual</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>FY 2012</u> <u>Estimate</u>	<u>FY 2013</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) Other APPN									
(U) Aircraft Procurement, AF (PE 0205219F)		58.075	161.439	193.378	190.039	144.785	147.156	Continuing	TBD
(U) Aircraft Modification, AF (PE 0205219F)		20.439	24.590	30.203	31.536	31.024	31.532	Continuing	TBD

(U) **D. Acquisition Strategy**
 The MQ-9 Reaper system will be acquired sole-source with General Atomics-ASI as the prime contractor.

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Exhibit R-3, RDT&E Project Cost Analysis

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(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & 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>												
MQ-9 System Development and Demonstration	SS/CPIF/C PFF	GA-ASI, Rancho Bernardo CA				29.456	Jan-08	27.675	Jan-09	Continuing	TBD	TBD
EO/IR Development	CPFF	Raytheon, McKinney TX				0.625	Feb-08	0.655	Feb-09	Continuing	TBD	TBD
Operator Simulator Development	CPFF	677 AESG, Wright-Patters on AFB OH				3.200	Feb-08	3.200	Feb-09	Continuing	TBD	TBD
SAR Upgrade	CPFF	GA-RSG, San Diego, CA				2.400	Mar-08	4.200	Feb-09	0.000	6.600	6.600
MQ-9 TLA	Various	Raytheon, McKinney TX				23.000	Jan-08	4.000	Apr-09	Continuing	TBD	TBD
Subtotal Product Development			0.000	0.000		58.681		39.730		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
Program Support	Various	Various				5.181	Feb-08	3.827	Feb-09	Continuing	TBD	TBD
Subtotal Test & Evaluation			0.000	0.000		5.181		3.827		Continuing	TBD	TBD
Remarks:												
(U) Total Cost			0.000	0.000		63.862		43.557		Continuing	TBD	TBD

Exhibit R-4, RDT&E Schedule Profile

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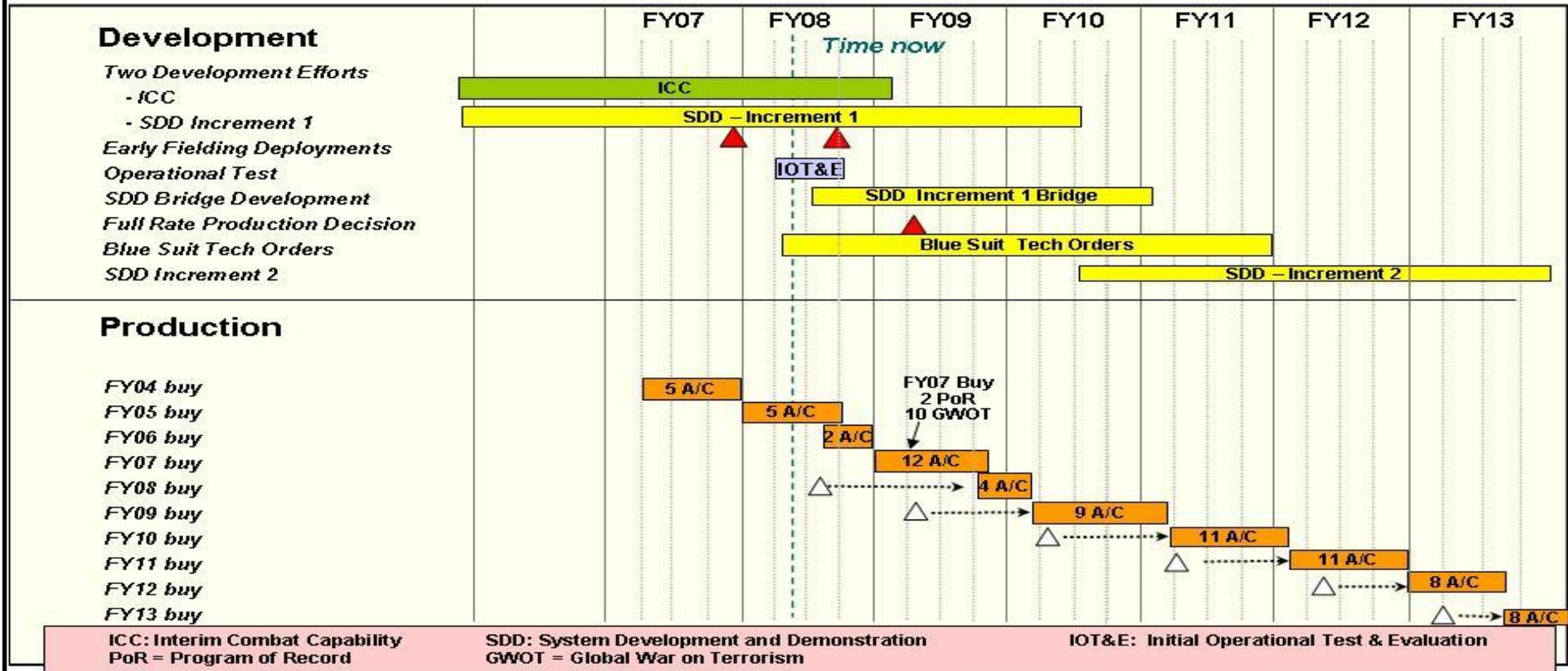
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MQ-9 Reaper Program Schedule



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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2008
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) <u>Schedule Profile</u>			
(U) MQ-9 ICC Complete			1Q
(U) IOT&E		2-4Q	
(U) MQ-9 Milestone C (FRP)			2Q
(U) SDD Inc 1 Bridge (e.g. TLA, PDDL, Differential GPS)		3Q	
(U) Blue Suit Tech Order Development Start		2Q	