

## UNCLASSIFIED

PE NUMBER: 0305114F

PE TITLE: Air Traffic Control/Approach/Landing System (ATCALs)

## Exhibit R-2, RDT&amp;E Budget Item Justification

DATE

February 2006

## BUDGET ACTIVITY

## 07 Operational System Development

## PE NUMBER AND TITLE

## 0305114F Air Traffic Control/Approach/Landing System (ATCALs)

Cost (\$ in Millions)	FY 2005 Actual	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	12.512	2.169	0.000	0.000	2.608	3.901	3.427	Continuing	TBD
3587 Air Traffic Control Systems	12.512	2.169	0.000	0.000	2.608	3.901	3.427	Continuing	TBD

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

This program funds research, development, and management of new air traffic control surveillance, positioning, and precision approach capabilities. This project includes the Mobile Approach Control System (MACS) which will replace non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for use by both the Air National Guard and active duty AF. This project funds the advance of Global Procedures Designer (GPD) formerly known as Air Force Terminal Instrument Procedures - Replacement (AFTERPS-R), which provides automated development of terminal flight instrument procedures. These procedures are specifically designed to accurately and precisely measure critical information necessary for pilots to fly designated flight paths that safely avoid obstacles and other hazards during a final approach to landing. Funding is also provided for the Transportable Transponder Landing System (TTLS) which provides a rapidly deployable, all weather, precision, terminal air traffic control capability under instrument flight rules (IFR) conditions. These efforts are key to ensuring Air Force Air Traffic Systems work collaboratively to safely and efficiently provide ATC services, as well as net-centric operations within the National Airspace System (NAS) and in host nations overseas. Over the next 15 years, the FAA plans to implement new or improved capabilities into the NAS in an evolutionary manner. This program will participate in the development, testing, and implementation of international standards (to include North Atlantic Treaty Organization (NATO) standardization agreements) to ensure joint, Allied, and coalition interoperability.

FY 2009 and beyond will see additional capabilities being planned to enable the concept of Free Flight throughout the NAS. Since the Air Force must provide the same level of air traffic service to the military and flying public, funds are required to conduct interoperability and architecture studies and analyses on a wide range of aviation concepts. Pre-planned product improvements (P3I) complement similar activities associated with other safety of flight and airspace access programs such as Communication, Navigation and Surveillance/Air Traffic Management (CNS/ATM) that predominantly focus on aircraft issues.

This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	9.783	0.000	0.000
(U) Current PBR/President's Budget	12.512	2.169	0.000
(U) Total Adjustments	2.729	2.169	
(U) Congressional Program Reductions			
Congressional Rescissions	-0.007	-0.031	
Congressional Increases		2.200	
Reprogrammings	3.000		
SBIR/STTR Transfer	-0.264		
(U) <b><u>Significant Program Changes:</u></b>			
- FY05: Reprogramming of \$3.0M for the Mobile Approach Control System (MACS).			
- FY06: Congressional add for \$2.2M for Transportable Transponder Landing System (TTLS)			

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

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07 Operational System Development

PE NUMBER AND TITLE

0305114F Air Traffic  
Control/Approach/Landing System  
(ATCALs)

PROJECT NUMBER AND TITLE

3587 Air Traffic Control Systems

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3587 Air Traffic Control Systems	12.512	2.169	0.000	0.000	2.608	3.901	3.427	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

This program funds research, development, and management of new air traffic control surveillance, positioning, and precision approach capabilities. This project includes the Mobile Approach Control System (MACS) which will replace non-standard, unsupportable, large footprint mobile radar approach systems with a common, easily-transportable system for use by both the Air National Guard and active duty AF. This project funds the advance of Global Procedures Designer (GPD) formerly known as Air Force Terminal Instrument Procedures - Replacement (AFTERPS-R), which provides automated development of terminal flight instrument procedures. These procedures are specifically designed to accurately and precisely measure critical information necessary for pilots to fly designated flight paths that safely avoid obstacles and other hazards during a final approach to landing. Funding is also provided for the Transportable Transponder Landing System (TTLS) which provides a rapidly deployable, all weather, precision, terminal air traffic control capability under instrument flight rules (IFR) conditions. These efforts are key to ensuring Air Force Air Traffic Systems work collaboratively to safely and efficiently provide ATC services, as well as net-centric operations within the National Airspace System (NAS) and in host nations overseas. Over the next 15 years, the FAA plans to implement new or improved capabilities into the NAS in an evolutionary manner. This program will participate in the development, testing, and implementation of international standards (to include North Atlantic Treaty Organization (NATO) standardization agreements) to ensure joint, Allied, and coalition interoperability.

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This program is in budget activity 7, Operational System Development, because it upgrades currently fielded systems.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Develop MACS Airport Surveillance Radar (ASR) and Ops Shelter	2.273		
(U) Develop MACS Precision Approach Radar (PAR)	1.004		
(U) Perform study for GPD Release C	4.009		
(U) Perform Engineering Support for all ATCALs projects	1.538		
(U) Perform MACS Test & Evaluation Support	1.279		
(U) Perform Transportable Transponder Landing System (TTLS) Demonstrations	2.409	2.169	
(U) Total Cost	12.512	2.169	0.000

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</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) AF RDT&E									
(U) Other APPN									
(U) OPAF - BA 5 (PE 35114F) Weapon System Code CO2900	15.698	3.765						0.000	19.463
(U) OPAF - BA 3 (PE 0305114F) Weapon System Code 833010	2.778	39.623	6.241	0.998	0.991	1.016	1.031	Continuing	TBD
(U) OPAF, BA 3, (PE 0305137F) Weapon System Code 833020	40.330	54.630	53.761	54.887	55.452	57.386	57.808	Continuing	TBD
(U) OPAF, BA 5, (PE 0305137F) Weapon System Code 86190A Initial Spares	3.285	4.685	5.415	5.433	5.546	5.786	5.869	Continuing	TBD
(U) OPAF - BA 3 (PE 0305114F) Weapon System Code 86190A Initial Spares	0.000	1.788	1.938	0.000	0.000	0.000	0.000	0.000	3.726

(U) D. Acquisition Strategy

Award multiple, competitive contract vehicles emphasizing off-the-shelf technology and maximizing the use of non-developmental items (NDIs).

## UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis										DATE February 2006		
BUDGET ACTIVITY 07 Operational System Development				PE NUMBER AND TITLE 0305114F Air Traffic Control/Approach/Landing System (ATCALs)				PROJECT NUMBER AND TITLE 3587 Air Traffic Control Systems				
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2005 Cost	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development												
Global Procedures Designer (GPD)	C/FFP	MacDonald Dettwiler; Vancouver, BC	4.774	3.524	Nov-04					0.000	8.298	8.298
MACS Airport Surveillance Radar (ASR) and Operational Shelter Development Engineering Support	C/FFP	ITT Gilfillan; Van Nuys, CA	34.281	0.935	May-05					0.000	35.216	TBD
	C/FFP	Mitre Corp; Bedford, MA	3.801	1.538	Nov-04					0.000	5.339	5.339
Various	Multiple	Multiple	3.003	0.144	Jul-05					0.000	3.147	3.147
MACS Precision Approach Radar (PAR) Development	C/FFP	ITT Gilfillan; Van Nuys, CA	3.392	0.244	Jul-05					0.000	3.636	TBD
Transportable Transponder Landing System (TTLS)	C/FFP	Adv Nav & Positioning Corp; Hood River, OR		2.409	May-05	2.169	May-06				4.578	TBD
Subtotal Product Development Remarks:			49.251	8.794		2.169		0.000		0.000	60.214	TBD
(U) Support												
Various	C/FFP/T& M	Multiple	3.238	0.892	Oct-04					0.000	4.130	4.130
Subtotal Support Remarks:			3.238	0.892		0.000		0.000		0.000	4.130	4.130
(U) Test & Evaluation												
Test & Evaluation for MACS & GDP	MIPR	46th Test Wing, Eglin AFB FL	2.697	1.233	Dec-04					0.000	3.930	3.930
Other Test Requirements	MIPR	Multiple	0.452	0.046	Oct-04						0.498	0.498
Subtotal Test & Evaluation Remarks:			3.149	1.279		0.000		0.000		0.000	4.428	4.428
(U) Management												
Cost Estimating Support	C/T&M	MCR Federal Inc; McLean, VA	0.750	0.062	May-05					0.000	0.812	0.812
Program Management Support	C/T&M	ManTech Inc; Bedford, MA	2.574	1.485	Dec-04					0.000	4.059	4.059
Subtotal Management Remarks:			3.324	1.547		0.000		0.000		0.000	4.871	4.871
Project 3587 R-1 Shopping List - Item No. 184-6 of 184-9 Exhibit R-3 (PE 0305114F)												

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Exhibit R-3, RDT&E Project Cost Analysis

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07 Operational System Development

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(U) Total Cost

58.962

12.512

2.169

0.000

0.000

73.643

TBD

Project 3587

R-1 Shopping List - Item No. 184-7 of 184-9

Exhibit R-3 (PE 0305114F)

UNCLASSIFIED

## Exhibit R-4, RDT&amp;E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

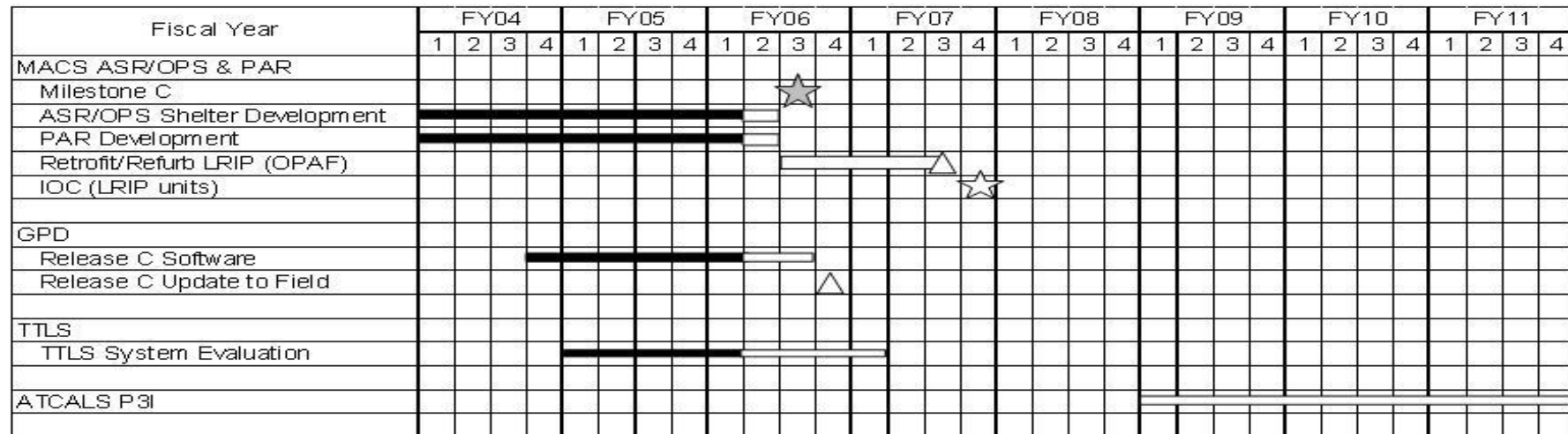
07 Operational System Development

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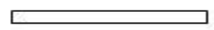
As of Jan 2006



IOC (LRIP Units)



Milestone C



Planned Ongoing Activity



Ongoing Activity that is Complete



Completed Event



Planned Task(s)

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## Exhibit R-4a, RDT&amp;E Schedule Detail

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(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) Complete MACS ASR operations shelter development

2Q

(U) Complete MACS PAR development

2Q

(U) MACS MS C

3Q

(U) MACS IOC

4Q

(U) Complete GPD Release C software development/testing

3Q

(U) Field GPD Release C

4Q

(U) Begin TTLS system evaluation

1Q

(U) Complete TTLS system evaluation

1Q