Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603860F: *Joint Precision Approach and Landing System*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	7.153	22.953	13.952	0.000	13.952	12.616	12.545	41.317	61.241	Continuing	Continuing
644652: *Joint Precision Approach and Landing*	7.153	22.953	13.952	0.000	13.952	12.616	12.545	41.317	61.241	Continuing	Continuing

A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The Air Force is responsible for developing the common system architecture for Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Description Document (CDD) for the JPALS Family of Systems and the Annex for Increment 1 (Sea-Based) in March 2007 and transferred lead service responsibility to the Navy. JPALS is the future precision approach and landing system for the Department of Defense (DoD). It will provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Land-Based JPALS will provide DoD civil interoperability with the Federal Aviation Administration's (FAA) Local Area Augmentation System (LAAS). JPALS is participating in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision approach and landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling U.S. forces to land on any JPALS equipped airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS will close capability gaps identified in the 2005 Precision Approach and Landing Capability Initial Capabilities Document (ICD). These gaps are interoperability for naval aircraft landing at shore-based airfields operated by other services, interoperability for Navy/Marine Corps and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet (CRAF) landing at DoD airfields. The 2005 JPALS Precision Approach and Landing ICD identified a family of systems (FoS) based on Global Positioning System (GPS) technology solutions for fixed base, tactical, and sea-based environments.

JPALS must provide needed guidance quality in the presence of GPS jamming. The JPALS architecture must be developed to integrate and synchronize with related Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centric operations. Finally, because a cornerstone of the JPALS implementation strategy is worldwide military and civil interoperability, JPALS must harmonize with US and international civil Global Navigation Satellite Systems.

FY11 efforts continue risk reduction activities related to incorporating JPALS capability in existing avionics and the evolutionary acquisition strategy in preparation for Milestone B, including completion of the technology readiness assessment with OSD participation, and a greater emphasis on aircraft integration activities. The degree of test activity will decline, with ramp-up scheduled in advance of the Engineering, and Manufacturing and Development (EMD) contract award in FY13.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*

This program is in budget activity 4, Advanced Component Development and Prototypes Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integration into the precision landing system architecture.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*

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B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	7.153	23.174	0.000	0.000	0.000
Current President's Budget	7.153	22.953	13.952	0.000	13.952
Total Adjustments	0.000	-0.221	13.952	0.000	13.952
• Congressional General Reductions		-0.221			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	13.952	0.000	13.952

Change Summary Explanation

FY10 funding increase required to support multiple aircraft integration studies, anti-jam and threat analysis, architecture trade studies and analysis, and related program management support

FY11 funding reduced for higher priority programs

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860F: *Joint Precision Approach and Landing System*	PROJECT 644652: *Joint Precision Approach and Landing*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
644652: *Joint Precision Approach and Landing*	7.153	22.953	13.952	0.000	13.952	12.616	12.545	41.317	61.241	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

Joint Precision Approach and Landing System (JPALS) is a joint effort among the USAF, Navy/USMC, and Army. The Air Force is responsible for developing the common system architecture for Land-Based increments. The Joint Requirements Oversight Council (JROC) approved the Capability Description Document (CDD) for the JPALS Family of Systems and the Annex for Increment 1 (Sea-Based) in March 2007 and transferred lead service responsibility to the Navy. JPALS is the future precision approach and landing system for the Department of Defense (DoD). It will provide a joint operational capability for U.S. forces to perform assigned missions within and from fixed-base, tactical, shipboard, and special operations environments under a wide range of meteorological conditions. Land-Based JPALS will provide DoD civil interoperability with the Federal Aviation Administration's (FAA) Local Area Augmentation System (LAAS). JPALS is participating in the development, testing, and implementation of international standards (to include North American Treaty Organization (NATO) standardization agreements) to ensure joint, allied, and coalition interoperability. When complete, this effort will replace aging shipboard and ground-based precision approach and landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Automated Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling U.S. forces to land on any JPALS equipped airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS will close capability gaps identified in the 2005 Precision Approach and Landing Capability Initial Capabilities Document (ICD). These gaps are interoperability for naval aircraft landing at shore-based airfields operated by other services, interoperability for Navy/Marine Corps and Army aircraft landing at civil airports, and for the Civil Reserve Air Fleet (CRAF) landing at DoD airfields. The 2005 JPALS Precision Approach and Landing ICD identified a family of systems (FoS) based on Global Positioning System (GPS) technology solutions for fixed base, tactical, and sea-based environments.

JPALS must provide needed guidance quality in the presence of GPS jamming. The JPALS architecture must be developed to integrate and synchronize with related Communication, Navigation, and Surveillance/Air Traffic Management (CNS/ATM), GPS modernization initiatives, and net-centric operations. Finally, because a cornerstone of the JPALS implementation strategy is worldwide military and civil interoperability, JPALS must harmonize with US and international civil Global Navigation Satellite Systems.

FY11 efforts continue risk reduction activities related to incorporating JPALS capability in existing avionics and the evolutionary acquisition strategy in preparation for Milestone B, including completion of the technology readiness assessment with OSD participation, and a greater emphasis on aircraft integration activities. The degree of test activity will decline, with ramp-up scheduled in advance of the Engineering, and Manufacturing and Development (EMD) contract award in FY13.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*	**PROJECT** 644652: *Joint Precision Approach and Landing*

This program is in budget activity 4, Advanced Component Development and Prototypes Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integration into the precision landing system architecture.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*	**PROJECT** 644652: *Joint Precision Approach and Landing*

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*	**PROJECT** 644652: *Joint Precision Approach and Landing*

.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Perform technology studies, and research and development activities to support the acquisition of JPALS fixed, mobile, and airborne capabilities. *FY 2009 Accomplishments:* In FY 2009: JPALS funding was used to complete technology development efforts necessary to mature critical technologies to a technology readiness level of 6. Acquisition planning activities were initiated to develop an RFP, acquisition strategy and source selection plan. Laboratory and field testing was performed to evaluate threat mitigation and to demonstrate off the shelf components that could be used in the development of JPALS systems. *FY 2010 Plans:* In FY 2010: JPALS funding will support risk reduction efforts in the areas of threat mitigation, ground and airborne JPALS architecture development, and aircraft integration studies. *FY 2011 Base Plans:* In FY 2011: Efforts will continue on the areas initiated in FY 2010, with increased focus on integration with lead platform aircraft. *FY 2011 OCO Plans:* In FY 2011 OCO: Not applicable	7.153	22.953	13.952	0.000	13.952
Accomplishments/Planned Programs Subtotals	7.153	22.953	13.952	0.000	13.952

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860F: *Joint Precision Approach and Landing System*	PROJECT 644652: *Joint Precision Approach and Landing*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (11213): *Activity Not Provided*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Increment 2 Engineering, and Manufacturing Development (EMD) contracts for development of Fixed-Base and Tactical JPALS systems will be competitively awarded.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860F: *Joint Precision Approach and Landing System*	PROJECT 644652: *Joint Precision Approach and Landing*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti-Jam and Threat Analysis	TM	AFRL Wright Patterson AFB, AES: California, MD	0.395	2.100	Mar 2010	0.500		0.000		0.500	0.000	2.995	0.000
Architecture Trade Studies and Analysis	TM	AES California, MD, Honeywell: Albuquerque, NM	1.595	9.400	Mar 2010	1.125		0.000		1.125	0.000	12.120	0.000
Aircraft Requirements and Integration Studies	TM	Honeywell Albuquerque, NM, BAE: Wayne, NJ	0.100	1.500	Mar 2010	4.400		0.000		4.400	0.000	6.000	0.000
		Subtotal	2.090	13.000		6.025		0.000		6.025	0.000	21.115	0.000

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JPALS Responsible Test Organization (RTO)	TM	46th Test Wing Eglin AFB, FL	0.030	0.600	Oct 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Other T&E	TM	Jacobs Technology Lincoln, MA	0.125	0.125	Oct 2009	0.125	Oct 2010	0.000		0.125	0.000	0.375	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860F: *Joint Precision Approach and Landing System*	PROJECT 644652: *Joint Precision Approach and Landing*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.155	0.725		0.125		0.000		0.125			

Remarks

"Other T&E" will be supported thru the ETASS contract.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Professional Acquisition Support Services (PASS), Quantech Services; Specialized Cost Services (SCS), Tecolote; Engineering & Technical Advisory Support Services (ETASS), Jacobs Technology; and Fed...	TM	Quantech Services Bedford, MA, Jacobs Technology: Lincoln, MA, T...	4.908	9.228	Oct 2009	7.802	Oct 2010	0.000		7.802	Continuing	Continuing	Continuing
		Subtotal	4.908	9.228		7.802		0.000		7.802			

Remarks

All management contracts awarded competitively except MITRE

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603860F: *Joint Precision Approach and Landing System*	PROJECT 644652: *Joint Precision Approach and Landing*	

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.153	22.953		13.952		0.000		13.952			

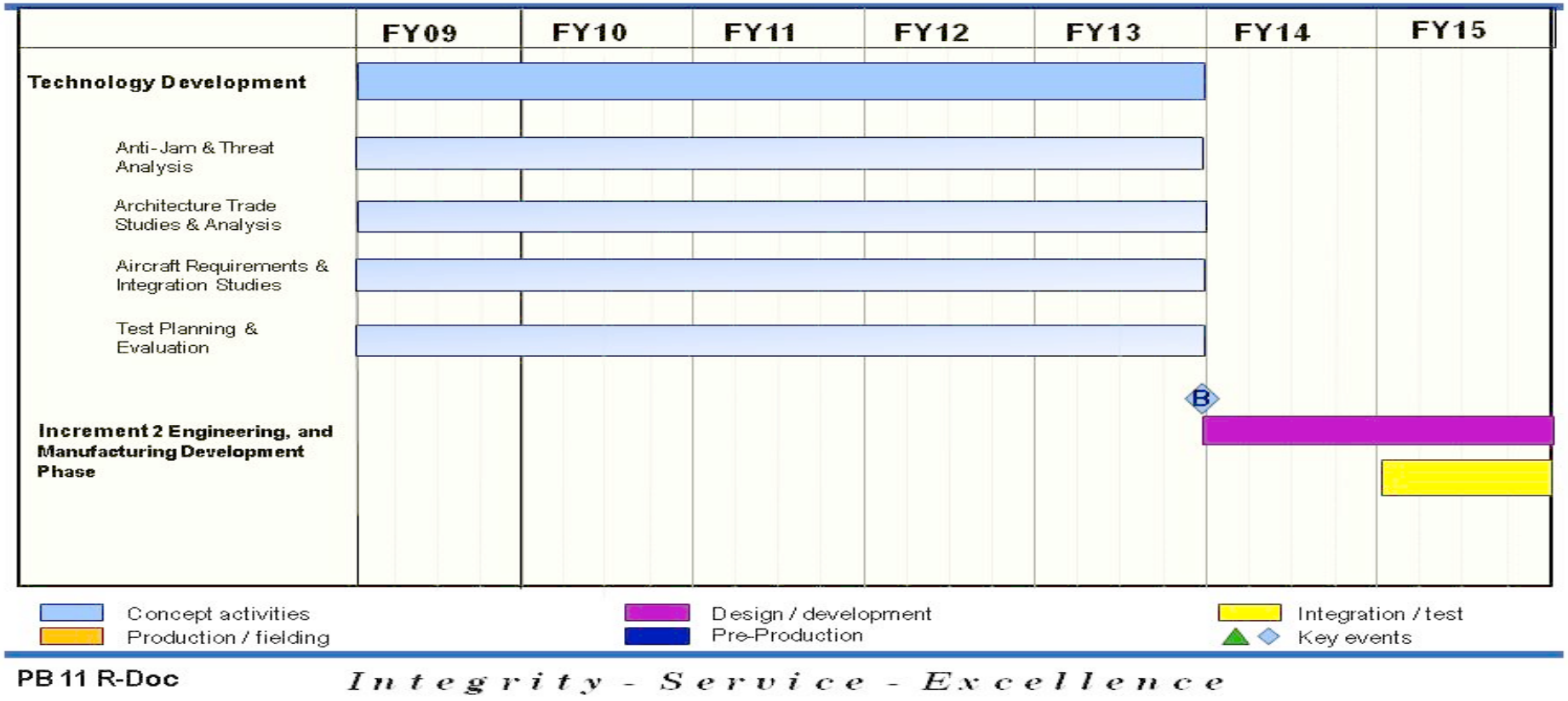
Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*	**PROJECT** 644652: *Joint Precision Approach and Landing*

Year of the Air Force Family

Joint Precision Approach and Landing System (JPALS)



PB 11 R-Doc

Integrity - Service - Excellence

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603860F: *Joint Precision Approach and Landing System*	**PROJECT** 644652: *Joint Precision Approach and Landing*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Anti-Jam & Threat Analysis	1	2009	4	2011
Architecture Trade Studies & Analysis	1	2009	4	2011
Aircraft Requirements & Integration Studies	1	2009	4	2011
Test Planning & Evaluation	1	2009	4	2011