

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Air Force										DATE: April 2013		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)					R-1 ITEM NOMENCLATURE PE 0401318F: CV-22							
COST (\$ in Millions)	All Prior Years	FY 2012	FY 2013 <sup>#</sup>	FY 2014 Base	FY 2014 OCO <sup>##</sup>	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	338.984	12.836	28.027	46.705	-	46.705	41.588	26.728	16.073	14.566	90.852	616.359
654103: CV-22	338.984	12.836	28.027	46.705	-	46.705	41.588	26.728	16.073	14.566	90.852	616.359
Quantity of RDT&E Articles	2	0	0	0		0	0	0	0	0		
MDAP/MAIS Code(s): 212												
<sup>#</sup> FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012												
<sup>##</sup> The FY 2014 OCO Request will be submitted at a later date												
Note												
In FY2014, Enhanced Self Deployment Capabilities has been expanded to include new start efforts for Area Navigation (Global Positioning System) [RNAV (GPS)].												
In FY2014, the Improved Inlet Solution project includes new start efforts.												
A. Mission Description and Budget Item Justification												
The CV-22 is a Special Operations Forces (SOF) variant of the 1st generation V-22 tilt-rotor, multi-mission aircraft. CV-22 RDT&E provides development, integration, testing and enhancement of critical capability to insert, extract, and re-supply special operation forces into politically or militarily denied areas. The CV-22 Block 10 configuration added terrain following radar, additional fuel tanks, additional radios, flare/chaff dispensers, radio frequency/infrared and defensive countermeasures, weapons, situational awareness improvements, and Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) to the V-22 Block B aircraft. Block 20 development includes, but is not limited to, improved communications, situational awareness, software, and other requirements specified in the V-22 Block C/20 Capabilities Production Document. A future capabilities increment is anticipated following Block 20 to enhance defensive systems and self-deployment capabilities such as Distributed Ice Protection, Engine Time-On-Wing, and RNAV (GPS) (Area Navigation Global Positioning System). CV-22 RDT&E also provides for a baseline CV-22 flight test aircraft for validation/verification of Block 20 and various software and reliability and maintainability mods through 2018. The V-22 Joint Program Office is developing improved operational safety, suitability, and effectiveness capabilities in block increments. Ongoing planning and associated activities will take place to prevent diminishing manufacturing resources and obsolescence issues, as required.												
USSOCOM and USAF jointly fund development projects to meet operational safety, suitability, and effectiveness mission needs. This includes designing, prototyping, integrating, testing and fielding proposed solutions to emerging warfighter issues. USSOCOM funds the development, integration and testing of SOF unique mission capability, while USAF funds interoperability, basic air vehicle enhancements, integration of Air Force and Navy maintenance and information systems used with the V-22, support for operational testing, and CV-22 implementation and testing of MV-22 Block B and Block C changes. USSOCOM and USAF jointly fund correction of deficiencies and Block 20 development. Block 20 increments 1 and 3 are developed with USAF funds and increment 2 is developed with USSOCOM funds.												
This program is in Budget Activity 5, System Development and Demonstration (SDD), because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.												

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B. Program Change Summary (\$ in Millions)		FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget		13.223	28.027	25.438	-	25.438
Current President's Budget		12.836	28.027	46.705	-	46.705
Total Adjustments		-0.387	0.000	21.267	-	21.267
• Congressional General Reductions		-	0.000			
• 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		-0.387	0.000			
• Other Adjustments		0.000	0.000	21.267	-	21.267
Change Summary Explanation						
Funding was increased \$19.288M in FY14 for the USAF share to initiate development of a joint V-22 Improved Inlet Solution to improve engine time-on-wing performance.						
FY14 funding was also increased \$1.979 million for Enhanced Self-deployment Capabilities.						
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2012	FY 2013	FY 2014
Title: CV-22 Block 20 RDT&E				12.836	23.027	17.417
Description: Develop, test, and evaluate additional capabilities for the CV-22 aircraft. The V-22 Joint Program Office is developing improved operational safety, suitability, and effectiveness. Block 20 development includes, but is not limited to, improved communications, software, and other requirements specified in the V-22 Block C/20 Capabilities Production Document.						
FY 2012 Accomplishments: RDT&E activities continued on Block 20 increments 1, 2, and 3. Completed line-of-sight communications developmental testing and kit proofing. Completed long-range communications System Requirements Review (SRR).						
FY 2013 Plans: RDT&E activities will continue on Block 20 increments 1, 2, and 3. Conduct Line-of-Sight Communications Functional Configuration Audit (FCA) and operational testing. Conduct Beyond-Line-of-Sight (BLOS) Communications risk reduction, electromagnetic interference testing and Preliminary Design Review (PDR). Complete Block 20 Increment 1 RDT&E effort.						
FY 2014 Plans:						

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>
RDT&E activities will continue on Block 20 increments 2 and 3. Conduct long-range communications Critical Design Review (CDR). Initiate long-range communications developmental testing (DT).				
<b>Title:</b> Enhanced Self-deployment Capabilities  <b>Description:</b> Future capabilities increment to enhance self-deployment capabilities such as Distributed Ice Protection, Engine Time-On-Wing Improvement and Area Navigation (Global Positioning System) (RNAV(GPS)).  <b>FY 2012 Accomplishments:</b> N/A  <b>FY 2013 Plans:</b> Initiate Future Capabilities increment to enhance self-deployment capabilities such as Distributed Ice Protection and Engine Time-On-Wing Improvement. Conduct risk reduction analysis and assess industry's internal research and development (IRAD) of Improved Inlet Solution prototypes to improve Engine Time-On-Wing performance.  <b>FY 2014 Plans:</b> RDT&E activities will continue for Enhanced Self-deployment Capabilities such as Distributed Ice Protection and Engine Time-On-Wing Improvement. Conduct SRR on Distributed Ice Protection.  Initiate RDT&E activities for RNAV(GPS). Conduct risk reduction analysis and SRR for RNAV(GPS).		0.000	5.000	10.000
<b>Title:</b> Improved Inlet Solution  <b>Description:</b> Initiate Improved Inlet Solution (IIS) development to increase engine time on wing, resolve Air Force Special Operations Command #1 priority deficiency, and reduce Operations & Support cost.  Improved Inlet Solution is a joint V-22 effort being developed in conjunction with the Department of the Navy.  <b>FY 2012 Accomplishments:</b> N/A  <b>FY 2013 Plans:</b> N/A  <b>FY 2014 Plans:</b>		0.000	0.000	19.288

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C. Accomplishments/Planned Programs (\$ in Millions)										FY 2012	FY 2013	FY 2014
Conduct Improved Inlet Solution Preliminary Design Review (PDR). Improved Inlet Solution PDR is driven by the results from the risk reduction analysis for Engine Time-On-Wing Improvement.												
Accomplishments/Planned Programs Subtotals										12.836	28.027	46.705
D. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost	
• RDT&E,DW: BA07: PE 1160421BB: Special Operations, CV-22 Development	10.497	1.822	0.000		0.000	0.000	0.000	0.000	0.000	0.000	519.807	
• RDT&E, DW: BA07: PE 1160403BB: Special Operations, Aviation Systems	0.000	0.000	2.911		2.911	0.182	0.000	0.000	0.000	0.000	3.093	
• Proc,DW: BA02: Line Item #1000CV...: CV-22 Modification	118.002	139.147	98.927		98.927	19.828	14.203	7.783	6.726	0.000	1,713.207	
• APAF: BA04: Line Item #V022A0: CV-22 (MYP)	359.865	309.220	230.798		230.798	0.000	0.000	0.000	0.000	0.000	4,275.614	
• APAF: BA05: Line Item #V02200: CV-22 Mods	17.657	23.881	23.310		23.310	101.355	70.959	73.241	74.522	279.918	788.929	
• RDT&E,Navy: BA05: PE 0604262N: V-22A	71.938	54.412	43.084		43.084	69.816	60.659	53.319	53.002	68.500	9,399.461	
Remarks												
E. Acquisition Strategy												
The V-22 Joint Program Office (NAVAIRSYSCOM PMA-275) ensures that CV-22 changes are incorporated into the ongoing V-22 production line with minimal impact. The JPO is developing new capabilities for the V-22 in blocks. Block 0 and Block 10 have completed development, and Block 20 is currently underway. NAVAIRSYSCOM awarded a cost plus fixed fee contract with the prime contractor in Dec 2007 for Block 20 development and test. After Block 20 development and test, future development efforts beyond Block 20 will be conducted as pre-planned product improvements. Development activities for the V-22 program are performed by the prime contractor selected on a sole-source basis. Bell-Boeing is a strategic partnership between Bell Helicopter and Boeing Integrated Defense Systems. OSD re-designated the V-22 program from ACAT 1D to ACAT 1C on 7-24-2012.												

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<b><u>F. Performance Metrics</u></b> <p>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.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Air Force												DATE: April 2013			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 5: System Development & Demonstration (SDD)						R-1 ITEM NOMENCLATURE PE 0401318F: CV-22				PROJECT 654103: CV-22					
Product Development (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
2 Production Representative Test Vehicles	SS/CPAF	Bell Boeing:Amarillo, TX	161.859	0.000		0.000		0.000		-		0.000	0.000	161.859	
Block 10 Development	SS/CPAF	Bell Boeing:Amarillo, TX	44.025	0.000		0.000		0.000		-		0.000	0.000	44.025	
Block 10 Development Tech Support	Various	Various:Various,	11.886	0.000		0.000		0.000		-		0.000	0.000	11.886	
Situational Awareness Hazard Avoidance Federated Terminal	C/CPAF	Manufacturing Technology Inc:Fort Walton Beach, FL	5.000	0.000		0.000		0.000		-		0.000	0.000	5.000	
Block 20 Development	SS/CPFF	Bell Boeing:Amarillo, TX	45.719	6.319	Mar 2012	14.132	Dec 2012	6.031	Dec 2013	-		6.031	4.715	76.916	198.150
Enhanced Self-deployment Capability	Various	Various:Various,	0.000	0.000		5.000	Aug 2013	10.000	Mar 2014	-		10.000	0.000	15.000	0.000
Improved Inlet Solution	SS/CPFF	Bell Boeing:Various,	0.000	0.000		0.000		19.288	Dec 2013	-		19.288	24.940	44.228	
Future Capabilities	TBD	TBD:TBD,	0.000	0.000		0.000		0.000		-		0.000	94.902	94.902	
Subtotal			268.489	6.319		19.132		35.319		0.000		35.319	124.557	453.816	
Remarks															
The Block 20 Development effort target value of contract differs from the total cost because the target contract value includes some test related funding and USSOCOM MFP-11 funding for Special Operations Forces (SOF) peculiar development efforts.															
Support (\$ in Millions)				FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Interim Contractor Support	SS/CPAF	Bell Boeing:Amarillo, TX	26.889	0.000		0.000		0.000		-		0.000	0.000	26.889	
Contractor Logistics Support for Test Aircraft	Various	Various:Various,	9.795	0.567	Mar 2012	3.345	Dec 2012	3.420	Dec 2013	-		3.420	0.000	17.127	0.000
Subtotal			36.684	0.567		3.345		3.420		0.000		3.420	0.000	44.016	

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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013</b>		<b>FY 2014 Base</b>		<b>FY 2014 OCO</b>		<b>FY 2014 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>All Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test & Evaluation	SS/CPFF	Bell Boeing:Amarillo, TX	26.119	4.000	Mar 2012	4.387	Apr 2013	5.593	Feb 2014	-		5.593	45.985	86.084	0.000
Test & Evaluation Technical Support	MIPR	Various:Various,	5.573	1.950	Mar 2012	1.163	Dec 2012	2.373	Dec 2013	-		2.373	19.265	30.324	0.000
<b>Subtotal</b>			31.692	5.950		5.550		7.966		0.000		7.966	65.250	116.408	0.000

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013</b>		<b>FY 2014 Base</b>		<b>FY 2014 OCO</b>		<b>FY 2014 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>All Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Management Services (Support)	MIPR	Various:Various,	2.119	0.000		0.000		0.000		-		0.000	0.000	2.119	
<b>Subtotal</b>			2.119	0.000		0.000		0.000		0.000		0.000	0.000	2.119	

			<b>All Prior Years</b>	<b>FY 2012</b>		<b>FY 2013</b>		<b>FY 2014 Base</b>		<b>FY 2014 OCO</b>		<b>FY 2014 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			338.984	12.836		28.027		46.705		0.000		46.705	189.807	616.359	

<b>Remarks</b>															

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Exhibit R-4, RDT&E Schedule Profile: PB 2014 Air Force

DATE: April 2013

## APPROPRIATION/BUDGET ACTIVITY

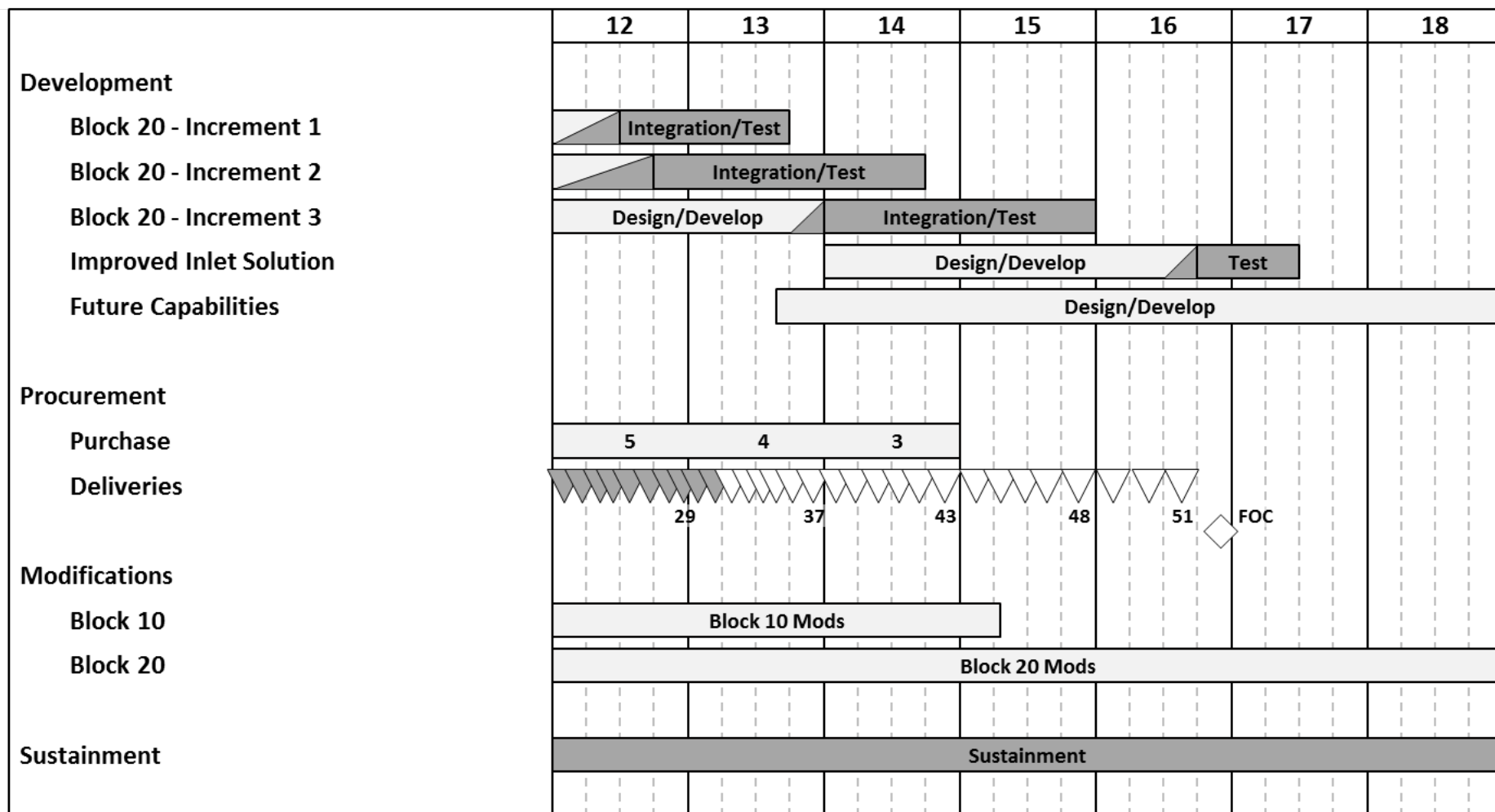
3600: Research, Development, Test & Evaluation, Air Force  
BA 5: System Development & Demonstration (SDD)

## R-1 ITEM NOMENCLATURE

PE 0401318F: CV-22

## PROJECT

654103: CV-22





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**Exhibit R-4A, RDT&E Schedule Details:** PB 2014 Air Force

**DATE:** April 2013

**APPROPRIATION/BUDGET ACTIVITY**

3600: *Research, Development, Test & Evaluation, Air Force*  
BA 5: *System Development & Demonstration (SDD)*

**R-1 ITEM NOMENCLATURE**

PE 0401318F: CV-22

**PROJECT**

654103: CV-22

## Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Block 20 Increment 1 Development, Testing and Evaluation	1	2012	3	2013
-- Line-of-site Comm development and design reviews	1	2012	2	2012
-- Line-of-site Comm ground and flight tests	1	2012	3	2013
Block 20 Increment 2 Development, Testing and Evaluation	1	2012	3	2014
-- Situational awareness and avionics upgrades design reviews	1	2012	3	2012
-- Situational awareness/avionics upgrades ground & flight tests	1	2012	3	2014
Block 20 Increment 3 Development, Testing and Evaluation	1	2012	4	2015
-- Long range comm upgrades development and design reviews	1	2012	4	2013
-- Long range comm upgrades ground and flight tests	3	2013	4	2015
Future Capabilities Development	3	2013	4	2018
Improved Inlet Solution (IIS)	1	2014	2	2017
-- IIS development and design reviews	1	2014	3	2016
-- IIS ground and flight tests	2	2016	2	2017