#### **CLASSIFICATION:**

## **UNCLASSIFIED**

EXHIBIT R-2, RDT&E Budget Item Justification						DATE:	
-						Februa	ry 2004
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMEN	CLATURE		
RESEARCH DEVELOPMENT TEST & EVALUATION, NA	AVY / BA-5			0604262N, V-22	Ţ		1
COST (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Total PE Cost	387.421	402.483	304.164	113.252	42.592		
H1425, V-22A	387.421	402.483	304.164	113.252	42.592		
				l L			l

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

The V-22 Osprey is an ACAT-ID Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the strike rescue needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command (USSOCOM). The V-22 will replace the CH-46E and CH53A/D in the Marine Corps with the MV-22; supplement the H-60 in the Navy with the HV-22; and replace the MH-53J and MH-53M as well as augment the C-130 in the Air Force and USSOCOM with the CV-22. The V-22 will be capable of flying over 2100 nautical miles with a single refueling, giving the services the advantage of a Vertical/Short Take-off, and Landing (VSTOL) aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development (EMD) because it encompasses engineering and manufacturing development of new end-items prior to a production approval decision.

R-1 SHOPPING LIST - Item No.

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UNCLASSIFIED

Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2, page 1 of 9)

#### CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE:	
							Februa	ry 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEM	ENT NUMBER AND	NAME		PROJECT NUMBE	R AND NAME		
RDT&E, N / BA-5	0604262N, V-22A				H1425, V-22			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		387.421	402.483	304.164	113.252	42.592		
RDT&E Articles Qty								

#### A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

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EXHIBIT R-2a, RDT&E Project Justification			DATE:
			February 2004
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND N	AME
RDT&E, N / BA-5	0604262N, V-22A	H-1425, V-22	

#### **B. Accomplishments/Planned Program**

	FY 03	FY 04	FY 05
Contractor Activities	175.386	181.381	62.025
RDT&E Articles Quantity	0	0	0

Continue MV-22 development efforts by Bell-Boeing. Rolls-Royce continues to provide engine support and repair of repairables for MV-22 flight testing. Complete MV-22 software development efforts. Continue development in support of "Return to Flight" and MV-22 Block up-grades required to return the MV-22 to fleet operations in FY 04. Continue development of maintenance training equipment. Continue Weapons Repairable Assembly (WRA) and Test Program Set (TPS) development. Continue logistics, flight test, and flight test support, address correction of deficiencies, and provide funding for the V-22 Way Forward. Continue contracted development efforts on aircraft #8 and #10. Continue development of the Ground Collision Avoidance System (GCAS).

	FY 03	FY 04	FY 05
Field Activity Effort	90.632	80.187	61.256
RDT&E Articles Quantity	0	0	0

Continue in-house field activity support of Integrated Test Team (ITT), Integrated Product Teams (IPT), logistics and training activities, the manned flight simulator and numerous other efforts at over 12 activities. Continue development in support of "Return to Flight" and MV-22 Block up-grades required to return the MV-22 to fleet operations in FY 04. Continue field development efforts on aircraft #8, #10, and three LRIP aircraft. Provide R&D support in the areas of Reliability and Maintainability (R&M) data analysis, loads and dynamics, electromagnetic environmental effects, V-22 flight controls, survivability, subsystems, shipboard compatibility, propulsion, V-22 avionics, facilities, structures, communications, Small Business Innovative Research, etc. Continue logistics, flight test, and flight test support, and addressed correction of deficiencies.

	FY 03	FY 04	FY 05
CV-22 Block-0 Development	121.403	140.915	180.883
RDT&E Articles Quantity	0	0	0

Continue CV-22 Block-0 EMD development. Provide flight test support for CV-22 aircraft #7 and #9. Provide engineering and maintenance support for CV-22 flight testing. Fund fuel costs for test aircraft and/or engines. Provide R&D support in the areas of R&M data analysis, loads and dynamics, electromagnetic environmental effects, CV-22 flight controls, survivability, subsystems, shipboard compatibility, propulsion, CV-22 avionics, facilities, computer support, structures, communications, Small Business Innovative Research, etc. Continue logistics, flight test, and flight test support, and address correction of deficiencies. Support CV-22 Additional Test Asset (ATA) flight test infrastructure and contractor maintenance/logistics support for ATA.

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Exhibit R-2, RDTEN Budget Item Justification (Exhibit R-2, page 3 of 9)

#### **CLASSIFICATION:**

XHIBIT R-2a, RDT&E Project Justification				DATE:	
					February 2004
PROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME		PROJECT NUMBER AN	O NAME	
DT&E, N / BA-5	0604262N, V-22A		H1425, V-22		
C. PROGRAM CHANGE SUMMARY:					
Funding:	FY 2003	FY 2004	FY 2005		
Previous President's Budget (PB-04):	410.780	441.142	306.982		
Previous President's Budget (PB-05):	387.421	402.483			
Total Adjustments	-23.359	-38.659	-2.818		
Summary of Adjustments					
Congressional program reductions			0.000		
Congressional undistributed reducti	ons	-38.659			
Congressional rescissions			0.000		
SBIR/STTR Transfer	-9.604		0.000		
Reprogrammings	-13.755	i	0.000		
Reprioritization			-1.941		
Economic Assumptions			-0.877		
Congressional increases Subtotal	-23.359	-38.659	-2.818		
Schedule:					
Schedule updated to reflect revised program	n baseline.				
Technical:					
Not Applicable.					
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#### **CLASSIFICATION:**

EXHIBIT R-2a, RDT&	E Project Justification						1	DATE:							
									Februa	ry 2004					
APPROPRIATION/BUDGE	ET ACTIVITY	PROGRAM EL	EMENT NUMB	BER AND NAM	E	PROJECT NUM	IBER AND NA	NAME							
RDT&E, N /	BA-5	0604262N, V-2	2A			H1425, V-22									
D. OTHER PROGR	RAM FUNDING SUMMARY:														
									То	Total					
Line Item No. & N		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	<u>Complete</u>	Cost					
16400 / V-22															
V-22 APN-1		1,055.830	865.694	918.061	1,473.191	,	2,333.312	2,380.155	15,147.586	26,459.822					
V-22 APN-6 Sp	pares	12.464	56.454	118.639	120.505	0.901	0.997	0.979	288.209	599.148					
59000 / V-22															
V-22 APN-5		4.032	4.778	3.448	19.131	23.914	24.406	24.897	378.802	483.408					
Related RDT&	E:														
0401318F CV-	-22	11.449	67.159	16.735	56.800	15.600	10.100	7.500	Continuing	TBD					
1160404BB C	V-22	59.820	36.456	75.320	43.350	0.000	0.000	0.000	TBD	TBD					
i															

#### **E. ACQUISITION STRATEGY: \***

The MV-22 is currently in EMD under contract N00019-93-C-0006 awarded to Bell-Boeing on 22 Oct 92, and definitized in May 94. As a result of mishaps during and subsequent to MV-22 OPEVAL (Apr and Dec 00), the program was restructured employing a phased approach to return to flight and tactical introduction. The Contractor and Government defined deficient areas within the program/aircraft requiring correction prior to return to flight. A Block Upgrade approach has been planned, with required efforts being identified in Block "A", "B", and "C". Block "A" includes those efforts necessary to return the V-22 to safe and operational fleet operations. Block "B" includes those efforts necessary to improve the effectiveness and suitability of the aircraft. Block "C" includes mission enhancements like forward cabin redesign and a full IETMS upgrade. Non-recurring development activities are to be initiated and completed for all efforts identified to be in Block "A", "B", and "C". The Contractor will develop specific Statements of Work and Preliminary Specification Change Notices required to integrate the Block Upgrade efforts into the baseline EMD Program. A Systems Requirements Review, Initial Design Review, and Final Design Review will be held for each of the Block efforts so the design maturity can be reviewed and the Government can redirect activities as appropriate. The CV-22 EMD program is structured in Blocks to define an evolutionary approach to achieving full operational capability. Block "0" is the initial baseline CV-22 variant. Block "10" enhances mission capability with the addition of Directional Infrared Countermeasures. Additional Blocks are in planning to continue the growth process throughout the operational life of the weapon system.

#### F. MAJOR PERFORMERS: \*\*

#### CLASSIFICATION:

Exhibit R-3 Cost Analysis (pag	o 1)							DATE:		February 200	14						
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APPROPRIATION/BUDGET ACTIV	IY	PROGRAM				PROJECT NU	MREK AND N	IAME									
RDT&E, N / BA-5		0604262N,	V-22A			H1425, V-22											
Cost Categories	Contract	Performing	Total		FY 03		FY 04		FY 05								
	Method	Activity &	PY s	FY 03	Award	FY 04	Award	FY 05	Award	Cost to	Total	Target Value					
	& Type	Location	Cost	Cost	Date	Cost	Date	Cost	Date	Complete	Cost	of Contract					
MV-22 Hardware Dev Airframe	SS CPAF	Bell-Boeing, PaxRiver, MD	3,234.581	151.940	01/03	166.148	01/04	43.325	11/04	39.490	3,635.484	3,635.484					
MV-22 Hardware Dev Propulsion	C/CPIF	Rolls Royce, Indianapolis,	N 174.000	3.920	01/03	4.817	01/04	3.308	11/04	4.246	190.291	190.291					
CV-22 Hardware Dev Airframe	SS CPAF	Bell-Boeing, PaxRiver, MD	540.314	104.836	01/03	109.023	01/04	146.451	11/04	53.037	953.661	953.661					
CV-22 Hardware Dev Propulsion	C/CPIF	Rolls Royce, Indianapolis,	N 10.869	0.432	01/03	0.695	01/04	0.909	11/04	0.700	13.605	13.605					
MV-22 Support Equipment Dev	Various	NAWCAD, Lakehurst	26.568	8.045	01/03	9.542	01/04	6.652	11/04 3.56		54.372	54.372					
CV-22 Support Equipment Dev	Various	NAWCAD, Lakehurst	4.400	1.696	01/03	13.563	01/04	7.640	11/04	0.050	27.349	27.349					
MV-22 Training Development	Various	Various	7.093	5.679	01/03	3.900	01/04				16.672	16.672					
Subtotal Product Development			3,997.825	276.548		307.688		208.285		101.088	4,891.434						

Remarks:

MV-22 Integrated Logistics Support	Various	Various	13.206	4.406	01/03	7.300	01/04	4.411	11/04	2.080	31.403	
CV-22 Integrated Logistics Support	Various	Various	4.381	1.381	01/03	1.664	01/04	1.369	11/04	1.325	10.120	
MV-22 Govt Engineering Spt	WX	NAWCAD, Pax River	1,071.817	8.232	01/03	5.376	11/03	2.523	11/04	11.135	1,099.083	
CV-22 Govt Engineering Spt	WX	NAWCAD, Pax River	13.121	2.463	01/03	2.041	11/03	1.489	11/04	0.702	19.816	
MV-22 Technical Data	C/CPIF	Bell-Boeing, Pax River, MD	41.633	19.526	01/03	10.415	01/04	15.391	11/04	15.044	102.009	102.009
CV-22 Technical Data	WX	NATEC	1.968	0.197	01/03	4.070	01/04	8.004	11/04		14.239	
Subtotal Support			1,146.126	36.205		30.866		33.187		30.286	1,276.670	

Remarks:

#### CLASSIFICATION:

								DATE:				
Exhibit R-3 Cost Analysis (pag										February 200	)4	
APPROPRIATION/BUDGET ACTIV	/ITY	PROGRAM E		- <del></del>	· · · · · · · · · · · · · · · · · · ·	PROJECT NU	IMBER AND N	NAME				
RDT&E, N / BA-5	1.	0604262N, V		1		H1425, V-22	1		ı	_	1	1
Cost Categories	Contract Method	Performing	Total		FY 03	FY 04	FY 04	FY 05	FY 05	0	T-4-1	T 1/-l-
	l l	Activity & Location	PY s Cost		Award Date	Cost	Award Date	Cost	Award Date	Cost to Complete	Total Cost	Target Valu of Contract
MV-22 Developmental Test & Eval	WX	NAWCAD, Pax River, MD	866.220	27.029	01/03	13.142		12.120		Complete	918.511	or Contract
CV-22 Developmental Test & Eval	MIPR	Edwards AFB, CA	2.558		01/03	7.309		13.511	11/04	9.360	39.679	
MV-22 Operational Test & Eval	_	NAWCAD, Pax River, MD	23.924	0.264	01/03	3.936		6.452	11/04	0.000	34.576	
MV-22 Live Fire Test & Eval	WX	NAWCWD, China Lake, CA	1.567	0.069	01/03	0.000		0.000			1.636	
WIV 22 LIVET HE TEST & EVAL	VVX	TV/VVOVD, Offina Lake, O/K	1.007	0.003	01/00	0.000	11/00	0.000	11/04		1.000	
Subtotal T&E			894.269	34.303		24.387		32.083		9.360	994.402	
Remarks:												
MV-22 Contract Eng & Tech Svcs	Various	Various	983.564	15.746	01/03	17.428	11/03	15.777	11/04	2.452	1,034.967	1,034.967
CV-22 Contract Eng & Tech Svcs	Various	Various				0.960	11/03				0.960	0.960
MV-22 Management Support Svcs	Various	Various	102.676	14.861	01/03	14.169	11/03	9.079	11/04	7.988	148.773	148.773
CV-22 Management Support Svcs	Various	Various	8.521	2.773	01/03	1.076	11/03	0.982	11/04	0.601	13.953	13.953
MV-22 Studies & Analyses	Various	Various				2.056	11/03	1.588	11/04	1.890	5.534	5.534
MV-22 Program Management Spt	WX	NAWCAD, Pax River	35.463	5.297	01/03	2.546	11/03	1.954	11/04	1.275	46.535	
CV-22 Program Management Spt	WX	NAWCAD, Pax River	8.962	0.413	01/03	0.213	11/03	0.228	11/04	0.128	9.944	
MV-22 Travel	WX	NAWCAD, Pax River	7.691	1.004	01/03	0.794	11/03	0.701	11/04	0.676	10.866	
CV-22 Travel	WX	NAWCAD, Pax River	3.554	0.271	01/03	0.300	11/03	0.300	11/04	0.100	4.525	
Subtotal Management			1,150.431	40.365		39.542		30.609		15.110	1,276.057	
Remarks:												
Total Cost			7,188.651	387.421		402.483		304.164		155.844	8,438.563	
Remarks:												

#### CLASSIFICATION:

EXHIBIT R4, Schedule	Profile	Э																								DATE	:						
APPROPRIATION/BUDGE	T ACTIV	/ITV								PROG	DAM		IENIT N		D ANI	NIAM						February 2004 PROJECT NUMBER AND NAME											
RDT&E, N /	BA-									06042				IOIVIDE	-IV AINL	/ IN/AIVII	_					H-1425, V-22											
RDTGE, IT		<u> </u>								00042	0211,	V ZZI										11 172	_O, V Z										
Fiscal Year			2002				20	03			20	004			20	05			20	006			20	07			20	80			200	)9	
	1	2	3	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
Program Milestones	F	rogra	am Re	evie	ws													MS-III					MV-22	IOC				C\	/-22 IO 4Q FY0	C 8			
																		$\triangle$					$\triangle$						$\triangle$				
Engineering Milestones				В	lk A -	CDR			Blk B -	PDR	ВІ	k B - C	DR												BII	BII k C - C	C - P DR -T	DR - 1 BD	BD				
									$\triangle$			$\triangle$					_									Δ	$\triangle$						
Test & Evaluation (T&E) Milestones		Res	ume F	ligh	nt Test							MV-2	2 OT-	IF 2 OTF	₹R					CV- 3Q/	22 IOT 06 - 10	&E 1/07											
				1										$\triangle$	OPEV	AL Pha	ise II																
																				CV-22 4Q/02	Flight	Test 6											
Contract Milestones							Defin	itize L	ot V/VI																								
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<sup>\*</sup> Not required for Budget Activities 1, 2, 3, and 6

### **CLASSIFICATION:**

Exhibit R-4a, Schedule Detail							DATE: <b>February 2004</b>		
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT PROJECT NU					MBER AND NAME			
RDT&BA-5	0604262N, V-22A				H1425, V-22				
			EV 2004	EV 2005		EV 2007	EV 2000	EV 2000	
Schedule Profile	FY 2002 2Q - 3Q	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	
Program Reviews Definitize Lot V/VI	2Q - 3Q	3Q							
Resume Flight Test	3Q	ડપ							
Block-A Critical Design Review (CDR)	4Q								
Block-B Preliminary Design Review (PDR)	40	4Q							
Block-B Critical Design Review (CDR)		т <b>ч</b>	3Q						
MV-22 Operational Testing - IIF			3Q						
Block-C Preliminary Design Review (PDR)							2Q - TBD		
MV-22 Operational Test Readiness Review (OTRR)				1Q					
MV-22 Initial Operational Capability (IOC)						2Q			
MV-22 Milestone III					1Q				
MV-22 Operational Evaluation (OPEVAL) Phase II				2Q - 3Q					
CV-22 Flight Test	4Q/02 - 3Q/06								
Block-C Critical Design Review (CDR)							TBD		
CV-22 Initial Operational Test & Evaluation (IOT&E)					3Q-4Q	1Q			
CV-22 Initial Operation Capability (IOC)							4Q		