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## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-212



### **V-22 Osprey Joint Services Advanced Vertical Lift Aircraft (V-22)**

As of FY 2019 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Sensitivity Originator

No originator info Available at this time.

## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

V-22 Osprey Joint Services Advanced Vertical Lift Aircraft (V-22)

**DoD Component**

Navy

**Joint Participants**

United States Marine Corps; United States Navy; United States Special Operations Command; United States Air Force

## Responsible Office

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## References

**SAR Baseline (Production Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated September 28, 2005

**Approved APB**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated October 31, 2011



## Mission and Description

The V-22 Osprey Joint Services Advanced Vertical Lift Aircraft (V-22) Program was established by the DoD to develop, test, evaluate, procure, field and support a tilt rotor, Vertical/Short Takeoff and Landing aircraft for Joint Service application. The Navy was designated the Executive Agent with support from the United States Air Force (USAF) in the V-22 Joint Program Office located at the Naval Air Systems Command Headquarters, Naval Air Station Patuxent River, MD. The V-22 Program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the United States Marine Corps (USMC), the Carrier-On Board Delivery/fleet logistics needs of the Navy, and the special operations needs of the USAF and United States Special Operations Command (USSOCOM). The MV-22 variant replaces the CH-46E and CH-53D in the USMC. The CV-22 variant replaces the MH-53-J/M, but also provides a new capability and augments the MC-130 in the USAF/USSOCOM inventory for special operations infiltration, exfiltration, and resupply missions. The Navy CMV-22 will be replacing the C-2A in the Navy inventory. The V-22 is capable of flying over 2,100 nautical miles with a single refueling, giving the Services the advantage of a Vertical/Short Takeoff and Landing aircraft able to rapidly self-deploy to any location in the world.

### Block Descriptions:

V-22 capability is being increased and fielded over time via a Block upgrade acquisition strategy. MV-22 Block A provides a "Safe and Operational Test and Training Asset" configuration that supports developmental and operational flight tests, as well as fleet training. MV-22 Block B provides for correction of previously identified deficiencies and suitability improvements. MV-22 Block C provides mission enhancements, primarily in the areas of environmental control systems upgrades and mission systems improvements. Block 0/10 is a CV-unique configuration including radar and electronic countermeasures upgrades. Block 20 provides an enhanced CV-unique configuration with communications and aircraft system performance upgrades. The Navy CMV-22 is an MV-22 Block C configuration with enhancements including extended range fuel tanks, high frequency radio and a cabin intercom system.



## Executive Summary

### Executive Summary

The V-22 Program focus is on improving aircraft readiness, sustaining Fleet aircraft, establishing a third Multi-Year Procurement (MYP) contract, reducing operating costs, and expanding our business base, both domestically and internationally. Both the MV-22 and CV-22 continue to meet all KPPs.

As of January 5, 2018, 361 (308 MV/52 CV/1 GOJ MV) aircraft have been delivered. Production deliveries continue ahead of contract schedule. To support program affordability, the program is pursuing a third MYP contract for FY 2018-FY 2022. The Program Office is currently in negotiations with the Bell-Boeing Joint Project Office with an expected contract award in 3rd Quarter FY 2018, pending completion of negotiations and congressional notification. Lot 22 (FY 2018), the first year of the MYP3 contract, will include the first Navy variant designated CMV-22. An advance acquisition contract for long-lead components for Lot 23 (FY 2019) aircraft was awarded for \$19.7M to the Bell-Boeing Joint Project Office on December 7, 2017.

The program continues to pursue Foreign Military Sales partnerships. The Government of Japan (GOJ) approved the Letter of Offer and Acceptance on August 8, 2017 for Japan FMS Case JA-P-SCO to procure Phase III Non-Recurring Engineering, four V-22 aircraft, long lead components for four additional aircraft, and logistics elements at a cost of \$655,179,855. GOJ has committed to 17 total production aircraft, of which 13 are now fully funded on the MYP2 contract with the final four to be fully funded in the summer of 2018 and awarded on the MYP3 contract.

The V-22 Engine Production contract for V-22 AE1107 engines to support Lot 22-26 aircraft was awarded to Rolls Royce Corporation on September 21, 2017 for \$287.4M. This award represents a cost of \$2.00M (FY 2017\$) per engine, a 14.82% (FY 2017\$) cost reduction from the previous "per engine" contract cost despite 45.7% reduction in required quantities.

There are no significant software-related issues with this program at this time.

## Threshold Breaches

### APB Breaches

<b>Schedule</b>		<input type="checkbox"/>
<b>Performance</b>		<input type="checkbox"/>
<b>Cost</b>	RDT&E	<input checked="" type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input checked="" type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
<b>O&amp;S Cost</b>		<input type="checkbox"/>
<b>Unit Cost</b>	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

### Explanation of Breach

The Cost Breach for RDT&E was previously reported in the December 2016 SAR.

The Cost Breach for MILCON is attributed to an increase of \$126.2M due to the inadequacy of existing facilities to support the CMV-22 stand-up. A Program Deviation Report is in work.

### Nunn-McCurdy Breaches

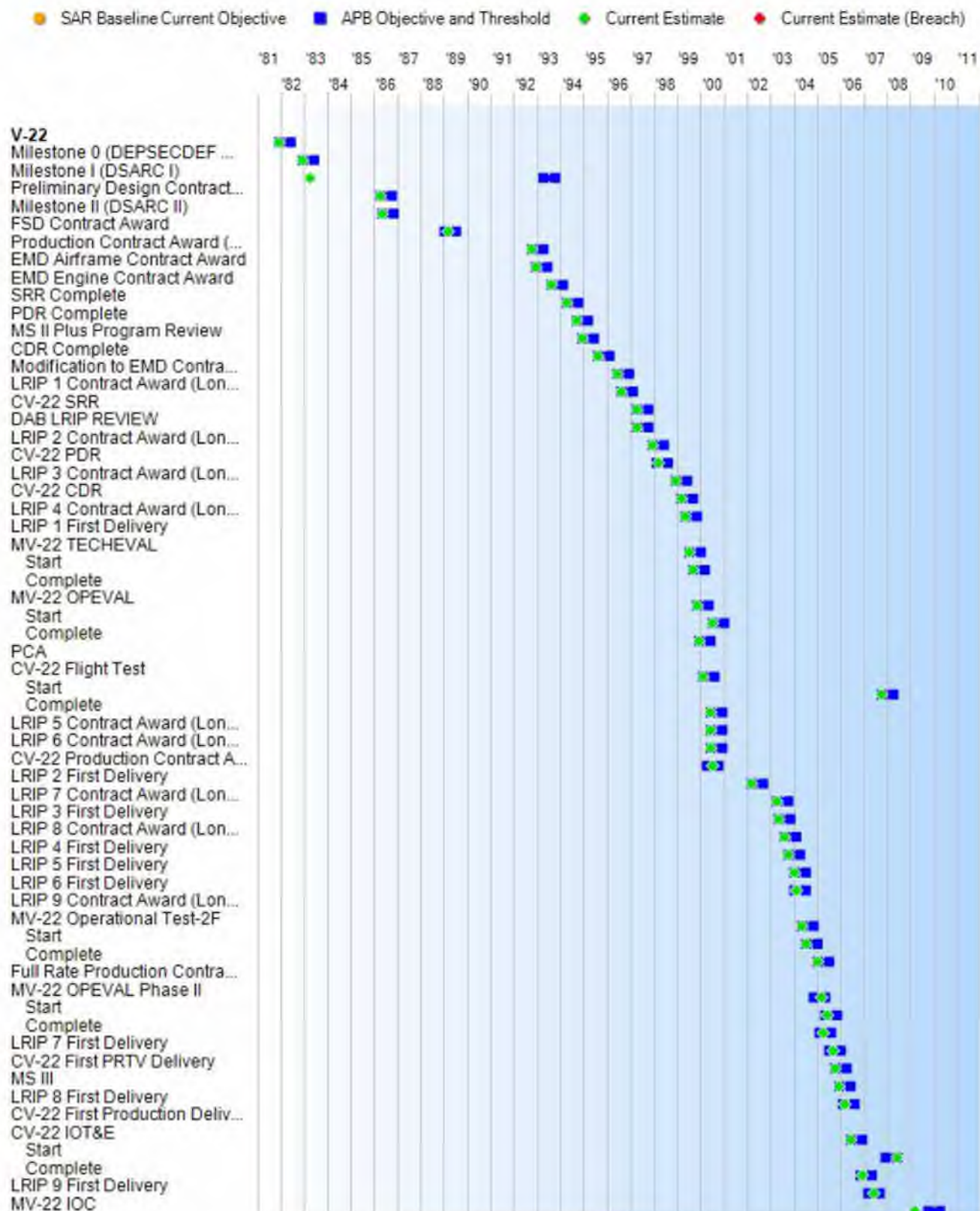
#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None

## Schedule





CV IOC  
GSD

Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone 0 (DEPSECDEF MEMO)	Dec 1981	Dec 1981	Jun 1982	Dec 1981
Milestone I (DSARC I)	Dec 1982	Dec 1982	Jun 1983	Dec 1982
Preliminary Design Contract Award	Apr 1993	Apr 1993	Oct 1993	Apr 1993
Milestone II (DSARC II)	Apr 1986	Apr 1986	Oct 1986	Apr 1986
FSD Contract Award	May 1986	May 1986	Nov 1986	May 1986
Production Contract Award (Long Lead AAC)	Jan 1989	Jan 1989	Jul 1989	Mar 1989
EMD Airframe Contract Award	Oct 1992	Oct 1992	Apr 1993	Oct 1992
EMD Engine Contract Award	Dec 1992	Dec 1992	Jun 1993	Dec 1992
SRR Complete	Aug 1993	Aug 1993	Feb 1994	Aug 1993
PDR Complete	Apr 1994	Apr 1994	Oct 1994	Apr 1994
MS II Plus Program Review	Sep 1994	Sep 1994	Mar 1995	Sep 1994
CDR Complete	Dec 1994	Dec 1994	Jun 1995	Dec 1994
Modification to EMD Contract to Include CV-22 Efforts	Aug 1995	Aug 1995	Feb 1996	Aug 1995
LRIP 1 Contract Award (Long lead \$)	Jun 1996	Jun 1996	Dec 1996	Jun 1996
CV-22 SRR	Aug 1996	Aug 1996	Feb 1997	Aug 1996
DAB LRIP REVIEW	Apr 1997	Apr 1997	Oct 1997	Apr 1997
LRIP 2 Contract Award (Long lead \$)	Apr 1997	Apr 1997	Oct 1997	Apr 1997
CV-22 PDR	Dec 1997	Dec 1997	Jun 1998	Dec 1997
LRIP 3 Contract Award (Long Lead \$)	Feb 1998	Feb 1998	Aug 1998	Mar 1998
CV-22 CDR	Dec 1998	Dec 1998	Jun 1999	Dec 1998
LRIP 4 Contract Award (Long Lead \$)	Mar 1999	Mar 1999	Sep 1999	Mar 1999
LRIP 1 First Delivery	May 1999	May 1999	Nov 1999	May 1999
MV-22 TECHEVAL				
Start	Jul 1999	Jul 1999	Jan 2000	Jul 1999
Complete	Sep 1999	Sep 1999	Mar 2000	Sep 1999
MV-22 OPEVAL				
Start	Nov 1999	Nov 1999	May 2000	Nov 1999
Complete	Jul 2000	Jul 2000	Jan 2001	Jul 2000
PCA	Dec 1999	Dec 1999	Jun 2000	Dec 1999
CV-22 Flight Test				
Start	Feb 2000	Feb 2000	Aug 2000	Feb 2000
Complete	Oct 2007	Oct 2007	Apr 2008	Oct 2007

LRIP 5 Contract Award (Long Lead \$)	Jun 2000	Jun 2000	Dec 2000	Jun 2000
LRIP 6 Contract Award (Long Lead \$)	Jun 2000	Jun 2000	Dec 2000	Jun 2000
CV-22 Production Contract Award (Long lead \$)	Jun 2000	Jun 2000	Dec 2000	Jun 2000
LRIP 2 First Delivery	Apr 2000	Apr 2000	Oct 2000	Jul 2000
LRIP 7 Contract Award (Long Lead \$)	Mar 2002	Mar 2002	Sep 2002	Mar 2002
LRIP 3 First Delivery	Apr 2003	Apr 2003	Oct 2003	Apr 2003
LRIP 8 Contract Award (Long Lead \$)	May 2003	May 2003	Nov 2003	May 2003
LRIP 4 First Delivery	Aug 2003	Aug 2003	Feb 2004	Aug 2003
LRIP 5 First Delivery	Oct 2003	Oct 2003	Apr 2004	Oct 2003
LRIP 6 First Delivery	Jan 2004	Jan 2004	Jul 2004	Jan 2004
LRIP 9 Contract Award (Long Lead \$)	Jan 2004	Jan 2004	Jul 2004	Feb 2004
<b>MV-22 Operational Test-2F</b>				
Start	May 2004	May 2004	Nov 2004	May 2004
Complete	Jul 2004	Jul 2004	Jan 2005	Jul 2004
Full Rate Production Contract Award (Long lead \$)	Jan 2005	Jan 2005	Jul 2005	Jan 2005
<b>MV-22 OPEVAL Phase II</b>				
Start	Nov 2004	Nov 2004	May 2005	Mar 2005
Complete	May 2005	May 2005	Nov 2005	Jun 2005
LRIP 7 First Delivery	Feb 2005	Feb 2005	Aug 2005	Apr 2005
CV-22 First PRTV Delivery	Jul 2005	Jul 2005	Jan 2006	Sep 2005
MS III	Oct 2005	Oct 2005	Apr 2006	Oct 2005
LRIP 8 First Delivery	Dec 2005	Dec 2005	Jun 2006	Dec 2005
CV-22 First Production Delivery	Feb 2006	Feb 2006	Aug 2006	Mar 2006
<b>CV-22 IOT&amp;E</b>				
Start	Jun 2006	Jun 2006	Dec 2006	Jun 2006
Complete	Dec 2007	Dec 2007	Jun 2008	Jun 2008
LRIP 9 First Delivery	Nov 2006	Nov 2006	May 2007	Dec 2006
MV-22 IOC	Mar 2007	Mar 2007	Sep 2007	Jun 2007
CV IOC	Oct 2009	Oct 2009	Apr 2010	Mar 2009
GSD	Dec 2010	Dec 2010	Jun 2011	Apr 2010

### Change Explanations

None



**Acronyms and Abbreviations**

AAC - Advanced Acquisition Contract  
CDR - Critical Design Review  
DEPSECDEF - Deputy Secretary of Defense  
DSARC - Defense Systems Acquisition Review Council  
FSD - Full Scale Development  
GSD - Government Support Date  
IOT&E - Initial Operational Test and Evaluation  
MS - Milestone  
OPEVAL - Operational Evaluation  
PCA - Physical Configuration Audit  
PDR - Preliminary Design Review  
PRTV - Production Representative Test Vehicle  
SRR - System Requirements Review  
TECHEVAL - Technical Evaluation

## Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Demonstrated Performance	Current Estimate
MV-22				
Interoperability				
Satisfy all top level IERs	Satisfy all top level IERs	Satisfy all top level IERs designated as critical	Satisfy all top level IERs designated as critical	Satisfy all top level IERs designated as critical
Cruise Speed (kts)				
270	270	240	255	285
Mission Radius (nm)				
Land Trooplift				
200X1	200X1	200X1	210x1	216X1
Land External				
110X1	110X1	50X1	69x1	51x1
Sea Trooplift				
110X2	110X2	50X2	53x2	90X2
Sea External				
110X1	110X1	50X1	89x1	84X1
Amphibious Pre-Assault/Raid Ops (nm)				
200X1	200X1	200X1	230x1	319x1
Payload				
Troops				
24	24	24	24	24
External Lift (lbs)				
15,000	15,000	10,000	10,000	12,500
Aerial Refuel Capable				
yes	yes	yes	yes	yes
Self-Deployment (nm)				
2100 w/no refuel	2100 w/no refuel	2100 w/1 refuel	2660 w/1 ariel refuel	2285 w/1 aerial refuel
Shipboard Compatible				
yes	yes	yes	yes	yes
V/STOL Capable				
yes	yes	yes	yes	yes
Reliability				



MFHBF (log)				
>=1.2	>=1.2	>=0.9	1.3	1.23
MFHBA				
17 Hrs	17 Hrs	17 Hrs	31.2	34.7
CV-22				
Interoperability				
Satisfy all top level IERs	Satisfy all top level IERs	Satisfy all top level IERs designated as critical	Satisfy all top level IERs designated as critical	Satisfy all top level IERs designated as critical
Cruise Speed (kts)				
270	270	230	264	261
Mission Radius (nm)				
750	750	500	538	549
Payload - Troops				
24	24	18	18	18
Aerial Refuel Capable				
yes	yes	yes	yes	yes
Self-Deployment (nm)				
2100 w/o aerial refuel	2100 w/o aerial refuel	2100 w/1 aerial refuel	2144 w/1 aerial refuel	2170 w/1 aerial refuel
Shipboard Compatible				
yes	yes	yes	yes	yes
Operational Environment				
100' TF/TA, Day/Night, VMC/IMC	100' TF/TA, Day/Night, VMC/IMC	300' TF/TA, Day/Night, VMC/IMC	100' TF/TA, Day/Night, VMC/IMC	100' TF/TA, Day/Night, VMC/IMC
Precision Navigation (diameter @ MAX Combat Radius)				
Locate LZ W/IN 1 Rotor	Locate LZ W/IN 1 Rotor	Locate LZ W/IN 2X Rotor	Locate LZ W/IN 2X Rotor	Locate LZ W/IN 2X Rotor
Operational Enviroment				
DECM				
SIRFC w/RF Jamming DIRCM	SIRFC w/RF Jamming DIRCM	SIRFC w/RWR, MW, CMDS	SIRFC w/RF, Jamming DIRCM	SIRFC w/RF, Jamming DIRCM
MMR (TF/TA)				
100 FT	100 FT	300 FT	100FT	100 FT
Reliability				
MFHBF (LOG)				
>=1.2	>=1.2	>=0.9	1.6	1.5
MFHBA				
15 Hrs	15 Hrs	15 Hrs	29.2	28.8

(Ch-2)

Classified Performance information is provided in the classified annex to this submission.

### Requirements Reference

CPD dated September 1, 2010

### Change Explanations

(Ch-1) The current performance estimates for MV-22 Self Deployment (nm) has been updated from 2280 to 2285 to reflect Lot 20 (current delivered production lot) aircraft. Aircraft specification alignment of the mission aerial refueling cruise speed assumptions associated with calculating performance values resulted in minor adjustments to performance predictions.

(Ch-2) The current performance estimate for CV-22 Self Deployment (nm) has been updated from 2165 to 2170 based on Lot 18 aircraft. Aircraft specification alignment of the mission aerial refueling cruise speed assumptions associated with calculating performance values resulted in minor adjustments to performance predictions.

### Acronyms and Abbreviations

CMDS - Counter-Measures Dispenser System  
 DECM - Defensive Electronic Countermeasure  
 DIRCM - Directed Infrared Countermeasures  
 Ft - Feet  
 Hrs - Hours  
 IERs - Information Exchange Requirements  
 kts - knots  
 lbs - Pounds  
 LOG - Logistics  
 LZ w/IN - Landing Zone Within  
 MAX - Maximum  
 MFHBA - Mean Flight Hours Between Aborts  
 MFHBF - Mean Flight Hours Between Failures  
 MW - Missile Warning  
 nm - nautical miles  
 SIRFC - Suite of Integrated Radio Frequency Countermeasures  
 TF/TA - Terrain Following/Terrain Avoidance  
 V/STOL - Vertical/Short Takeoff and Landing  
 VMC/IMC - Visual Meteorological Conditions/Instrument Meteorological Conditions  
 w/RF - with Radio Frequency  
 w/RWR - with Radar Warning Receiver



## Track to Budget

### RDT&E

Appn	BA	PE	
Navy	1319	05	0604262N
	<b>Project</b>	<b>Name</b>	
	1425	V-22	
	<b>Notes:</b> USMC MV-22 and USN CMV-22 Development and Test activities		
Air Force	3600	05	0401318F
	<b>Project</b>	<b>Name</b>	
	654103	CV-22	(Sunk)
	<b>Notes:</b> USAF CV-22 Development and Test activities		
Air Force	3600	07	0401318F
	<b>Project</b>	<b>Name</b>	
	676033	CV-22 Post Production Support	
Defense-Wide	0400	07	1160403BB
	<b>Project</b>	<b>Name</b>	
	SF200	CV-22 Development	(Shared)
	<b>Notes:</b> Special Operations Command Development and Test activities		
Defense-Wide	0400	07	1160404BB
	<b>Project</b>	<b>Name</b>	
	SF200	SO Tactical Systems (Automation)	(Sunk)
	<b>Notes:</b> 1985 Sunk (funded in prior years only)		
Defense-Wide	0400	07	1160421BB
	<b>Project</b>	<b>Name</b>	
	SF200	CV-22	(Sunk)
	<b>Notes:</b> Sunk 2013		

### Procurement

Appn	BA	PE	
Navy	1506	01	0206121M
	<b>Line Item</b>	<b>Name</b>	
	0164	MV-22	
Navy	1506	01	0204151N
	<b>Line Item</b>	<b>Name</b>	
	0164	CMV-22	
Navy	1506	06	0206121M
	<b>Line Item</b>	<b>Name</b>	

	0605		Spares and Repair Parts	(Shared)
Navy	1506	06	0204151N	
	<b>Line Item</b>		<b>Name</b>	
	0605		Spares and Repair Parts	(Shared)
Air Force	3010	06	0401318F	
	<b>Line Item</b>		<b>Name</b>	
	000999		Initial Spares/Repair Parts	(Shared)
Air Force	3010	04	0401318F	
	<b>Line Item</b>		<b>Name</b>	
	V022A0		CV-22 (MYP)	
Defense-Wide	0300	02	1160421BB	
	<b>Line Item</b>		<b>Name</b>	
	1000CV22		CV-22 Modification	(Shared)
	<b>Notes:</b> Does not include retrofit funding.			

**MILCON**

Appn	BA	PE		
Navy	1205	01	0203176N	
	<b>Project</b>		<b>Name</b>	
	02461018		CMV-22B Airfield Improvements	
	62688102		Hangar and Airfield Improvements for CMV-22B	
Navy	1205	01	0216496M	
	<b>Project</b>		<b>Name</b>	
	00318887		LHD Pad Conversion and MV-22 LZ Improvements	(Sunk)
	00318915		Self Storage Facility Replacement (MV-22)	(Sunk)
Navy	1205	01	0712876N	
	<b>Project</b>		<b>Name</b>	
	02461024		CMV-22B Maintenance Hangar	
Navy	1205	01	0901211N	
	<b>Project</b>		<b>Name</b>	
	64482044		Design Funds for CMV-22B MILCON Funding for Naval Base Coronado	(Shared)
Defense-Wide	0500	01	1140494BB	
	<b>Project</b>		<b>Name</b>	
	QFQE0530		Special Operations Command Simulator Facility	(Sunk)

**Notes**

Appropriation Account 0500 BA01 PE1140494BB Project Number was corrected from last years SAR (was AFSOC103).



## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2005 \$M			BY 2005 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	11446.5	11446.5	12591.2	12759.7 <sup>1</sup>	9891.7	9891.7	11552.1
Procurement	38562.8	38562.8	42419.1	38714.1	43099.3	43099.3	44298.2
Flyaway	--	--	--	31537.9	--	--	36316.9
Recurring	--	--	--	29983.9	--	--	34620.8
Non Recurring	--	--	--	1554.0	--	--	1696.1
Support	--	--	--	7176.2	--	--	7981.3
Other Support	--	--	--	5392.5	--	--	6031.3
Initial Spares	--	--	--	1783.7	--	--	1950.0
MILCON	241.1	241.1	265.2	302.1 <sup>1</sup>	262.4	262.4	389.1
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	50250.4	50250.4	N/A	51775.9	53253.4	53253.4	56239.4

<sup>1</sup> APB Breach

#### Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

For Procurement, Navy 1506, the correct 'To Complete' amount and quantity are provided below the description section of the APN-1 P-40 budget exhibit. For RDTE, Navy 1319, the correct 'To Complete' amount is provided below the Mission Description and Budget Item Justification section the RDT&E R-2 budget exhibit. This SAR reflects correct amounts/quantities.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	2	2	2
Procurement	456	456	460
Total	458	458	462

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	10380.6	208.2	183.9	177.6	116.5	140.0	150.9	194.4	11552.1
Procurement	36193.3	706.9	847.0	1145.8	1087.1	1256.1	1678.4	1383.6	44298.2
MILCON	98.2	60.1	77.8	93.0	0.0	60.0	0.0	0.0	389.1
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2019 Total	46672.1	975.2	1108.7	1416.4	1203.6	1456.1	1829.3	1578.0	56239.4
PB 2018 Total	46694.2	975.2	1091.7	945.9	1178.0	1378.1	1421.4	2465.9	56150.4
Delta	-22.1	0.0	17.0	470.5	25.6	78.0	407.9	-887.9	89.0

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	2	0	0	0	0	0	0	0	0	2
Production	0	391	6	7	10	9	11	15	11	460
PB 2019 Total	2	391	6	7	10	9	11	15	11	462
PB 2018 Total	2	391	6	7	7	9	11	12	17	462
Delta	0	0	0	0	3	0	0	3	-6	0



## Cost and Funding

### Annual Funding By Appropriation

Annual Funding							
1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1982	--	--	--	--	--	--	0.7
1983	--	--	--	--	--	--	34.4
1984	--	--	--	--	--	--	83.1
1985	--	--	--	--	--	--	169.5
1986	--	--	--	--	--	--	525.1
1987	--	--	--	--	--	--	421.7
1988	--	--	--	--	--	--	404.8
1989	--	--	--	--	--	--	269.9
1990	--	--	--	--	--	--	204.2
1991	--	--	--	--	--	--	212.2
1992	--	--	--	--	--	--	758.0
1993	--	--	--	--	--	--	713.3
1994	--	--	--	--	--	--	8.7
1995	--	--	--	--	--	--	451.8
1996	--	--	--	--	--	--	716.4
1997	--	--	--	--	--	--	605.5
1998	--	--	--	--	--	--	487.5
1999	--	--	--	--	--	--	335.8
2000	--	--	--	--	--	--	175.9
2001	--	--	--	--	--	--	217.9
2002	--	--	--	--	--	--	391.6
2003	--	--	--	--	--	--	387.4
2004	--	--	--	--	--	--	357.3
2005	--	--	--	--	--	--	246.9
2006	--	--	--	--	--	--	192.2
2007	--	--	--	--	--	--	251.6
2008	--	--	--	--	--	--	118.0
2009	--	--	--	--	--	--	65.7
2010	--	--	--	--	--	--	76.9
2011	--	--	--	--	--	--	40.3
2012	--	--	--	--	--	--	69.1
2013	--	--	--	--	--	--	44.0
2014	--	--	--	--	--	--	40.6
2015	--	--	--	--	--	--	49.7
2016	--	--	--	--	--	--	74.4

2017	--	--	--	--	--	--	149.1
2018	--	--	--	--	--	--	171.4
2019	--	--	--	--	--	--	143.1
2020	--	--	--	--	--	--	132.8
2021	--	--	--	--	--	--	91.5
2022	--	--	--	--	--	--	115.1
2023	--	--	--	--	--	--	117.4
2024	--	--	--	--	--	--	45.2
2025	--	--	--	--	--	--	27.1
2026	--	--	--	--	--	--	25.9
2027	--	--	--	--	--	--	29.5
2028	--	--	--	--	--	--	66.7
Subtotal	--	--	--	--	--	--	10316.9

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1982	--	--	--	--	--	--	1.2
1983	--	--	--	--	--	--	56.7
1984	--	--	--	--	--	--	132.1
1985	--	--	--	--	--	--	261.3
1986	--	--	--	--	--	--	786.9
1987	--	--	--	--	--	--	613.8
1988	--	--	--	--	--	--	570.1
1989	--	--	--	--	--	--	364.7
1990	--	--	--	--	--	--	265.1
1991	--	--	--	--	--	--	266.0
1992	--	--	--	--	--	--	923.2
1993	--	--	--	--	--	--	849.1
1994	--	--	--	--	--	--	10.2
1995	--	--	--	--	--	--	517.9
1996	--	--	--	--	--	--	807.6
1997	--	--	--	--	--	--	674.3
1998	--	--	--	--	--	--	538.5
1999	--	--	--	--	--	--	366.6
2000	--	--	--	--	--	--	189.3
2001	--	--	--	--	--	--	231.3
2002	--	--	--	--	--	--	411.5
2003	--	--	--	--	--	--	401.2
2004	--	--	--	--	--	--	360.0
2005	--	--	--	--	--	--	242.4
2006	--	--	--	--	--	--	183.0
2007	--	--	--	--	--	--	233.8
2008	--	--	--	--	--	--	107.7
2009	--	--	--	--	--	--	59.2
2010	--	--	--	--	--	--	68.3
2011	--	--	--	--	--	--	34.9
2012	--	--	--	--	--	--	58.9
2013	--	--	--	--	--	--	37.1
2014	--	--	--	--	--	--	33.8
2015	--	--	--	--	--	--	40.9
2016	--	--	--	--	--	--	60.2
2017	--	--	--	--	--	--	118.6
2018	--	--	--	--	--	--	134.0
2019	--	--	--	--	--	--	109.8
2020	--	--	--	--	--	--	100.0
2021	--	--	--	--	--	--	67.5

2022	--	--	--	--	--	--	83.3
2023	--	--	--	--	--	--	83.3
2024	--	--	--	--	--	--	31.4
2025	--	--	--	--	--	--	18.5
2026	--	--	--	--	--	--	17.3
2027	--	--	--	--	--	--	19.3
2028	--	--	--	--	--	--	42.8
Subtotal	--	--	--	--	--	--	11584.6

Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1985	--	--	--	--	--	--	0.8
1986	--	--	--	--	--	--	2.3
1987	--	--	--	--	--	--	3.0
1988	--	--	--	--	--	--	--
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	--
1991	--	--	--	--	--	--	--
1992	--	--	--	--	--	--	--
1993	--	--	--	--	--	--	--
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	--
1996	--	--	--	--	--	--	--
1997	--	--	--	--	--	--	--
1998	--	--	--	--	--	--	--
1999	--	--	--	--	--	--	--
2000	--	--	--	--	--	--	--
2001	--	--	--	--	--	--	--
2002	--	--	--	--	--	--	145.5
2003	--	--	--	--	--	--	5.9
2004	--	--	--	--	--	--	52.7
2005	--	--	--	--	--	--	14.2
2006	--	--	--	--	--	--	30.5
2007	--	--	--	--	--	--	12.8
2008	--	--	--	--	--	--	22.0
2009	--	--	--	--	--	--	16.1
2010	--	--	--	--	--	--	15.5
2011	--	--	--	--	--	--	17.6
2012	--	--	--	--	--	--	9.6
2013	--	--	--	--	--	--	19.7
2014	--	--	--	--	--	--	44.9
2015	--	--	--	--	--	--	37.7
2016	--	--	--	--	--	--	26.8
2017	--	--	--	--	--	--	27.7
2018	--	--	--	--	--	--	22.5
2019	--	--	--	--	--	--	18.5
2020	--	--	--	--	--	--	16.6
2021	--	--	--	--	--	--	14.9
2022	--	--	--	--	--	--	15.2
2023	--	--	--	--	--	--	15.5
Subtotal	2	--	--	--	--	--	608.5



Annual Funding							
3600   RDT&E   Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1985	--	--	--	--	--	--	1.2
1986	--	--	--	--	--	--	3.5
1987	--	--	--	--	--	--	4.3
1988	--	--	--	--	--	--	--
1989	--	--	--	--	--	--	--
1990	--	--	--	--	--	--	--
1991	--	--	--	--	--	--	--
1992	--	--	--	--	--	--	--
1993	--	--	--	--	--	--	--
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	--
1996	--	--	--	--	--	--	--
1997	--	--	--	--	--	--	--
1998	--	--	--	--	--	--	--
1999	--	--	--	--	--	--	--
2000	--	--	--	--	--	--	--
2001	--	--	--	--	--	--	--
2002	--	--	--	--	--	--	153.0
2003	--	--	--	--	--	--	6.1
2004	--	--	--	--	--	--	53.3
2005	--	--	--	--	--	--	14.0
2006	--	--	--	--	--	--	29.2
2007	--	--	--	--	--	--	11.9
2008	--	--	--	--	--	--	20.1
2009	--	--	--	--	--	--	14.5
2010	--	--	--	--	--	--	13.8
2011	--	--	--	--	--	--	15.4
2012	--	--	--	--	--	--	8.3
2013	--	--	--	--	--	--	16.7
2014	--	--	--	--	--	--	37.5
2015	--	--	--	--	--	--	31.1
2016	--	--	--	--	--	--	21.8
2017	--	--	--	--	--	--	22.2
2018	--	--	--	--	--	--	17.7
2019	--	--	--	--	--	--	14.3
2020	--	--	--	--	--	--	12.6
2021	--	--	--	--	--	--	11.1
2022	--	--	--	--	--	--	11.1
2023	--	--	--	--	--	--	11.1
Subtotal	2	--	--	--	--	--	555.8

The FY 2002 Appropriation Act provided funding for two CV-22 Production Representative Test Vehicles.



Annual Funding							
0400   RDT&E   Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	36.1
1991	--	--	--	--	--	--	8.0
1992	--	--	--	--	--	--	15.0
1993	--	--	--	--	--	--	--
1994	--	--	--	--	--	--	14.7
1995	--	--	--	--	--	--	--
1996	--	--	--	--	--	--	--
1997	--	--	--	--	--	--	--
1998	--	--	--	--	--	--	--
1999	--	--	--	--	--	--	--
2000	--	--	--	--	--	--	33.5
2001	--	--	--	--	--	--	40.1
2002	--	--	--	--	--	--	104.1
2003	--	--	--	--	--	--	32.2
2004	--	--	--	--	--	--	68.4
2005	--	--	--	--	--	--	53.1
2006	--	--	--	--	--	--	23.7
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	21.9
2009	--	--	--	--	--	--	30.5
2010	--	--	--	--	--	--	12.2
2011	--	--	--	--	--	--	14.0
2012	--	--	--	--	--	--	10.8
2013	--	--	--	--	--	--	2.1
2014	--	--	--	--	--	--	2.8
2015	--	--	--	--	--	--	0.2
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	0.7
2018	--	--	--	--	--	--	14.3
2019	--	--	--	--	--	--	22.3
2020	--	--	--	--	--	--	28.2
2021	--	--	--	--	--	--	10.1
2022	--	--	--	--	--	--	9.7
2023	--	--	--	--	--	--	18.0
Subtotal	--	--	--	--	--	--	626.7

Annual Funding							
0400   RDT&E   Research, Development, Test, and Evaluation, Defense-Wide							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1990	--	--	--	--	--	--	46.9
1991	--	--	--	--	--	--	10.0
1992	--	--	--	--	--	--	18.2
1993	--	--	--	--	--	--	--
1994	--	--	--	--	--	--	17.2
1995	--	--	--	--	--	--	--
1996	--	--	--	--	--	--	--
1997	--	--	--	--	--	--	--
1998	--	--	--	--	--	--	--
1999	--	--	--	--	--	--	--
2000	--	--	--	--	--	--	36.0
2001	--	--	--	--	--	--	42.5
2002	--	--	--	--	--	--	109.3
2003	--	--	--	--	--	--	33.3
2004	--	--	--	--	--	--	69.1
2005	--	--	--	--	--	--	52.1
2006	--	--	--	--	--	--	22.6
2007	--	--	--	--	--	--	--
2008	--	--	--	--	--	--	20.0
2009	--	--	--	--	--	--	27.5
2010	--	--	--	--	--	--	10.8
2011	--	--	--	--	--	--	12.2
2012	--	--	--	--	--	--	9.3
2013	--	--	--	--	--	--	1.8
2014	--	--	--	--	--	--	2.3
2015	--	--	--	--	--	--	0.2
2016	--	--	--	--	--	--	--
2017	--	--	--	--	--	--	0.6
2018	--	--	--	--	--	--	11.3
2019	--	--	--	--	--	--	17.2
2020	--	--	--	--	--	--	21.4
2021	--	--	--	--	--	--	7.5
2022	--	--	--	--	--	--	7.1
2023	--	--	--	--	--	--	12.9
Subtotal	--	--	--	--	--	--	619.3

Annual Funding							
1506   Procurement   Aircraft Procurement, Navy							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1989	--	--	--	--	--	231.4	231.4
1990	--	--	--	--	--	--	--
1991	--	--	--	--	--	--	--
1992	--	--	--	--	--	--	--
1993	--	--	--	--	--	--	--
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	--
1996	--	41.1	--	--	41.1	--	41.1
1997	5	552.1	--	25.0	577.1	132.2	709.3
1998	7	622.1	--	20.4	642.5	66.2	708.7
1999	7	561.4	--	18.0	579.4	104.1	683.5
2000	11	768.4	--	31.0	799.4	187.8	987.2
2001	9	753.1	--	99.2	852.3	157.9	1010.2
2002	9	660.6	--	21.6	682.2	204.6	886.8
2003	11	844.2	--	109.4	953.6	129.6	1083.2
2004	9	651.9	--	59.9	711.8	167.5	879.3
2005	8	584.4	--	115.8	700.2	321.8	1022.0
2006	12	868.2	--	146.4	1014.6	367.1	1381.7
2007	14	1129.2	--	222.8	1352.0	244.3	1596.3
2008	23	1651.9	--	153.8	1805.7	308.1	2113.8
2009	30	1855.8	--	70.6	1926.4	307.8	2234.2
2010	30	1847.9	--	81.6	1929.5	317.4	2246.9
2011	30	1855.6	--	30.5	1886.1	264.7	2150.8
2012	30	1921.3	--	25.8	1947.1	264.3	2211.4
2013	18	1289.9	--	27.4	1317.3	165.8	1483.1
2014	19	1219.2	--	35.9	1255.1	157.0	1412.1
2015	19	1332.5	--	19.2	1351.7	196.0	1547.7
2016	19	1341.8	--	0.3	1342.1	97.6	1439.7
2017	19	1374.7	--	--	1374.7	122.5	1497.2
2018	6	534.1	--	7.0	541.1	165.6	706.7
2019	7	696.6	--	5.6	702.2	144.8	847.0
2020	10	921.5	--	8.9	930.4	215.4	1145.8
2021	9	869.7	--	2.7	872.4	212.8	1085.2
2022	11	1043.9	--	2.4	1046.3	203.5	1249.8
2023	15	1427.9	--	44.0	1471.9	206.5	1678.4
2024	11	1095.4	--	34.8	1130.2	187.4	1317.6
2025	--	--	--	66.0	66.0	--	66.0
Subtotal	408	30316.4	--	1486.0	31802.4	5851.7	37654.1



Annual Funding 1506   Procurement   Aircraft Procurement, Navy							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1989	--	--	--	--	--	299.8	299.8
1990	--	--	--	--	--	--	--
1991	--	--	--	--	--	--	--
1992	--	--	--	--	--	--	--
1993	--	--	--	--	--	--	--
1994	--	--	--	--	--	--	--
1995	--	--	--	--	--	--	--
1996	--	45.8	--	--	45.8	--	45.8
1997	5	609.6	--	27.6	637.2	146.0	783.2
1998	7	679.0	--	22.3	701.3	72.3	773.6
1999	7	605.0	--	19.4	624.4	112.2	736.6
2000	11	817.2	--	33.0	850.2	199.8	1050.0
2001	9	791.5	--	104.3	895.8	166.0	1061.8
2002	9	685.6	--	22.4	708.0	212.4	920.4
2003	11	859.1	--	111.3	970.4	131.9	1102.3
2004	9	646.3	--	59.4	705.7	166.1	871.8
2005	8	563.5	--	111.7	675.2	310.3	985.5
2006	12	814.6	--	137.4	952.0	344.4	1296.4
2007	14	1035.3	--	204.3	1239.6	224.0	1463.6
2008	23	1492.2	--	138.9	1631.1	278.3	1909.4
2009	30	1653.4	--	62.9	1716.3	274.2	1990.5
2010	30	1612.6	--	71.2	1683.8	277.0	1960.8
2011	30	1587.9	--	26.1	1614.0	226.6	1840.6
2012	30	1621.2	--	21.8	1643.0	223.0	1866.0
2013	18	1076.9	--	22.9	1099.8	138.4	1238.2
2014	19	1005.1	--	29.6	1034.7	129.4	1164.1
2015	19	1082.9	--	15.6	1098.5	159.3	1257.8
2016	19	1071.0	--	0.2	1071.2	77.9	1149.1
2017	19	1078.7	--	--	1078.7	96.1	1174.8
2018	6	411.6	--	5.4	417.0	127.6	544.6
2019	7	526.7	--	4.2	530.9	109.5	640.4
2020	10	683.2	--	6.6	689.8	159.7	849.5
2021	9	632.1	--	2.0	634.1	154.7	788.8
2022	11	743.9	--	1.7	745.6	145.0	890.6
2023	15	997.6	--	30.7	1028.3	144.3	1172.6
2024	11	750.3	--	23.8	774.1	128.4	902.5
2025	--	--	--	44.3	44.3	--	44.3
Subtotal	408	26179.8	--	1361.0	27540.8	5234.6	32775.4

Cost Quantity Information		
1506   Procurement   Aircraft Procurement, Navy		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2005 \$M
1989	--	--
1990	--	--
1991	--	--
1992	--	--
1993	--	--
1994	--	--
1995	--	--
1996	--	--
1997	5	593.7
1998	7	675.2
1999	7	612.8
2000	11	800.2
2001	9	791.6
2002	9	722.8
2003	11	834.8
2004	9	670.4
2005	8	549.7
2006	12	803.9
2007	14	921.0
2008	23	1488.9
2009	30	1757.0
2010	30	1617.7
2011	30	1593.1
2012	30	1634.8
2013	18	1019.1
2014	19	1079.4
2015	19	1076.9
2016	19	1079.3
2017	19	1096.8
2018	6	405.9
2019	7	519.9
2020	10	689.0
2021	9	627.7
2022	11	737.3
2023	15	1009.2
2024	11	771.7
2025	--	--
Subtotal	408	26179.8

Annual Funding							
3010   Procurement   Aircraft Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	21.9	21.9
2000	--	--	--	19.5	19.5	21.3	40.8
2001	--	--	--	26.7	26.7	22.5	49.2
2002	--	--	--	--	--	--	--
2003	--	9.8	--	--	9.8	79.1	88.9
2004	2	147.6	--	--	147.6	42.0	189.6
2005	3	209.1	--	7.2	216.3	113.9	330.2
2006	2	136.6	--	18.6	155.2	94.1	249.3
2007	3	219.6	--	9.3	228.9	156.2	385.1
2008	10	659.4	--	7.0	666.4	272.4	938.8
2009	6	359.6	--	16.4	376.0	103.4	479.4
2010	5	314.3	--	18.8	333.1	238.0	571.1
2011	6	388.9	--	15.0	403.9	166.3	570.2
2012	5	332.1	--	4.0	336.1	62.6	398.7
2013	4	255.0	--	0.5	255.5	61.8	317.3
2014	4	258.2	--	3.2	261.4	36.0	297.4
2015	--	--	--	15.0	15.0	3.7	18.7
2016	1	64.1	--	0.1	64.2	3.0	67.2
2017	1	97.0	--	--	97.0	0.9	97.9
2018	--	--	--	--	--	0.2	0.2
2019	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--
2021	--	--	--	--	--	1.9	1.9
2022	--	--	--	--	--	6.3	6.3
Subtotal	52	3451.3	--	161.3	3612.6	1507.5	5120.1



Annual Funding							
3010   Procurement   Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	23.6	23.6
2000	--	--	--	20.7	20.7	22.6	43.3
2001	--	--	--	28.0	28.0	23.7	51.7
2002	--	--	--	--	--	--	--
2003	--	10.0	--	--	10.0	80.9	90.9
2004	2	147.0	--	--	147.0	41.8	188.8
2005	3	202.3	--	7.0	209.3	110.2	319.5
2006	2	128.7	--	17.5	146.2	88.8	235.0
2007	3	201.6	--	8.5	210.1	143.4	353.5
2008	10	595.8	--	6.3	602.1	246.2	848.3
2009	6	319.5	--	14.6	334.1	91.8	425.9
2010	5	274.0	--	16.4	290.4	207.5	497.9
2011	6	333.7	--	12.9	346.6	142.6	489.2
2012	5	280.7	--	3.4	284.1	52.9	337.0
2013	4	211.3	--	0.4	211.7	51.3	263.0
2014	4	211.1	--	2.6	213.7	29.4	243.1
2015	--	--	--	12.1	12.1	3.0	15.1
2016	1	50.9	--	0.1	51.0	2.4	53.4
2017	1	75.7	--	--	75.7	0.7	76.4
2018	--	--	--	--	--	0.2	0.2
2019	--	--	--	--	--	--	--
2020	--	--	--	--	--	--	--
2021	--	--	--	--	--	1.4	1.4
2022	--	--	--	--	--	4.5	4.5
Subtotal	52	3042.3	--	150.5	3192.8	1368.9	4561.7



Cost Quantity Information		
3010   Procurement   Aircraft Procurement, Air Force		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2005 \$M
1999	--	--
2000	--	--
2001	--	--
2002	--	--
2003	--	--
2004	2	142.0
2005	3	206.8
2006	2	130.2
2007	3	185.2
2008	10	584.3
2009	6	343.8
2010	5	274.6
2011	6	334.1
2012	5	275.4
2013	4	215.8
2014	4	223.5
2015	--	--
2016	1	50.9
2017	1	75.7
2018	--	--
2019	--	--
2020	--	--
2021	--	--
2022	--	--
Subtotal	52	3042.3

Annual Funding							
0300   Procurement   Procurement, Defense-Wide							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	4.0	4.0
2000	--	--	--	--	--	2.0	2.0
2001	--	--	--	--	--	6.8	6.8
2002	--	--	--	--	--	15.9	15.9
2003	--	5.0	--	--	5.0	36.9	41.9
2004	--	41.9	--	--	41.9	35.5	77.4
2005	--	54.5	--	0.2	54.7	58.6	113.3
2006	--	40.7	--	1.9	42.6	55.0	97.6
2007	--	113.9	--	--	113.9	79.9	193.8
2008	--	177.5	--	2.1	179.6	138.7	318.3
2009	--	85.4	--	11.6	97.0	29.7	126.7
2010	--	56.1	--	7.1	63.2	31.7	94.9
2011	--	57.3	--	9.1	66.4	37.2	103.6
2012	--	57.1	--	8.5	65.6	34.0	99.6
2013	--	59.1	--	3.8	62.9	30.3	93.2
2014	--	61.6	--	4.5	66.1	25.9	92.0
2015	--	--	--	--	--	--	--
2016	--	18.0	--	--	18.0	--	18.0
2017	--	25.0	--	--	25.0	--	25.0
Subtotal	--	853.1	--	48.8	901.9	622.1	1524.0

Annual Funding							
0300   Procurement   Procurement, Defense-Wide							
Fiscal Year	Quantity	BY 2005 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
1999	--	--	--	--	--	4.3	4.3
2000	--	--	--	--	--	2.1	2.1
2001	--	--	--	--	--	7.2	7.2
2002	--	--	--	--	--	16.5	16.5
2003	--	5.1	--	--	5.1	37.6	42.7
2004	--	41.5	--	--	41.5	35.2	76.7
2005	--	52.5	--	0.2	52.7	56.5	109.2
2006	--	38.2	--	1.8	40.0	51.7	91.7
2007	--	104.8	--	--	104.8	73.6	178.4
2008	--	160.9	--	1.9	162.8	125.6	288.4
2009	--	76.4	--	10.4	86.8	26.5	113.3
2010	--	49.3	--	6.2	55.5	27.9	83.4
2011	--	49.6	--	7.9	57.5	32.1	89.6
2012	--	48.6	--	7.2	55.8	28.9	84.7
2013	--	49.7	--	3.2	52.9	25.4	78.3
2014	--	51.1	--	3.7	54.8	21.6	76.4
2015	--	--	--	--	--	--	--
2016	--	14.4	--	--	14.4	--	14.4
2017	--	19.7	--	--	19.7	--	19.7
Subtotal	--	761.8	--	42.5	804.3	572.7	1377.0

Cost Quantity Information		
0300   Procurement   Procurement, Defense-Wide		
Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned With Quantity) BY 2005 \$M
1999	--	--
2000	--	--
2001	--	--
2002	--	--
2003	--	--
2004	--	40.0
2005	--	56.4
2006	--	38.2
2007	--	46.2
2008	--	215.0
2009	--	79.6
2010	--	49.4
2011	--	49.7
2012	--	49.9
2013	--	50.3
2014	--	53.0
2015	--	--
2016	--	14.4
2017	--	19.7
Subtotal	--	761.8



Annual Funding 1205   MILCON   Military Construction, Navy and Marine Corps		
Fiscal Year	TY \$M	
	Total Program	
2003	0.8	
2004	10.9	
2005	14.5	
2006	22.4	
2007	--	
2008	--	
2009	--	
2010	7.2	
2011	--	
2012	6.2	
2013	--	
2014	--	
2015	--	
2016	--	
2017	--	
2018	26.5	
2019	77.8	
2020	93.0	
2021	--	
2022	60.0	
Subtotal	319.3	

Annual Funding 1205   MILCON   Military Construction, Navy and Marine Corps		
Fiscal Year	BY 2005 \$M	
	Total Program	
2003		0.8
2004		10.8
2005		13.9
2006		21.0
2007		--
2008		--
2009		--
2010		6.2
2011		--
2012		5.2
2013		--
2014		--
2015		--
2016		--
2017		--
2018		20.0
2019		57.4
2020		67.3
2021		--
2022		41.7
Subtotal		244.3

Annual Funding 0500   MILCON   Military Construction, Defense-Wide	
Fiscal Year	TY \$M
	Total Program
2000	0.2
2001	0.3
2002	8.5
2003	1.9
2004	--
2005	--
2006	1.8
2007	1.9
2008	0.7
2009	8.3
2010	--
2011	--
2012	6.3
2013	--
2014	--
2015	--
2016	--
2017	6.3
2018	33.6
Subtotal	69.8

Annual Funding 0500   MILCON   Military Construction, Defense-Wide	
Fiscal Year	BY 2005 \$M
	Total Program
2000	0.2
2001	0.3
2002	8.8
2003	1.9
2004	--
2005	--
2006	1.7
2007	1.7
2008	0.6
2009	7.3
2010	--
2011	--
2012	5.3
2013	--
2014	--
2015	--
2016	--
2017	4.8
2018	25.2
Subtotal	57.8



**Low Rate Initial Production**

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	4/25/1997	5/6/2002
Approved Quantity	25	58
Reference	LRIP ADM	Program Restructure ADM
Start Year	1997	1997
End Year	2001	2009

The Current Total LRIP Quantity is more than 10% of the total production quantity due to a program restructure with the May 2002 ADM which authorized additional LRIP aircraft. Lots 1-9 were LRIP aircraft.

## Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Japan	8/8/2017	4	655.2	FMS Case JA-P-SCO: Procurement of Phase III Non-Recurring Engineering, four V-22 aircraft, long lead components for four additional aircraft, and logistics elements.
Japan	6/9/2016	4	661.1	FMS Case JA-P-SCS: Procurement of four V-22 aircraft, long lead parts for four aircraft completion of Non-Recurring Engineering test and integration of Japan configuration into the MV-22 aircraft and MV-22 containerized flight training device.
Japan	6/12/2015	5	556.0	FMS Case JA-P-SCH: Procurement of five V-22 aircraft, unique Japan communications equipment, development, and associated logistics support for long lead requirements.
Japan	8/22/2014		1.0	FMS Case JA-P-FXQ: Studies and Analysis of the V-22 Program to refine requirements for future aircraft procurement and conduct site assessments in Japan.
Israel	11/21/2013		1.3	FMS Case IS-P-GOY-A1: Studies and Analysis of the V-22 Program to refine requirements for future aircraft procurement and conduct site assessments in Israel.

### Notes

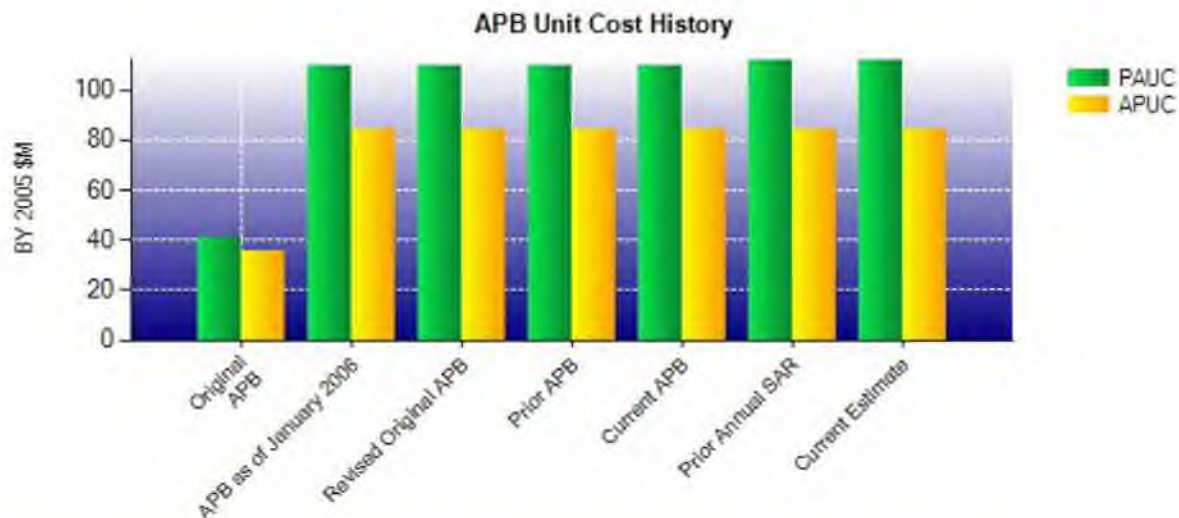
## Nuclear Costs

None

## Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2005 \$M	BY 2005 \$M	% Change
	Current UCR Baseline (Oct 2011 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	50250.4	51775.9	
Quantity	458	462	
Unit Cost	109.717	112.069	+2.14
Average Procurement Unit Cost			
Cost	38562.8	38714.1	
Quantity	456	460	
Unit Cost	84.568	84.161	-0.48
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2005 \$M	BY 2005 \$M	% Change
	Revised Original UCR Baseline (Sep 2005 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	50250.4	51775.9	
Quantity	458	462	
Unit Cost	109.717	112.069	+2.14
Average Procurement Unit Cost			
Cost	38562.8	38714.1	
Quantity	456	460	
Unit Cost	84.568	84.161	-0.48





APB Unit Cost History					
Item	Date	BY 2005 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Feb 1988	41.101	35.309	34.657	30.541
APB as of January 2006	Sep 2005	109.717	84.568	116.274	94.516
Revised Original APB	Sep 2005	109.717	84.568	116.274	94.516
Prior APB	Feb 2008	109.717	84.568	116.274	94.516
Current APB	Oct 2011	109.717	84.568	116.274	94.516
Prior Annual SAR	Dec 2016	111.729	84.136	121.538	96.550
Current Estimate	Dec 2017	112.069	84.161	121.730	96.300

### SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
40.180	-12.793	50.391	-4.762	8.157	30.121	0.000	4.980	76.094	116.274

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
116.274	-1.271	-0.370	4.691	3.048	-1.624	0.000	0.982	5.456	121.730

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
36.641	-12.349	47.964	-4.862	5.134	16.986	0.000	5.002	57.875	94.516

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
94.516	-1.262	-0.182	4.711	0.467	-2.936	0.000	0.986	1.784	96.300

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone I	Dec 1982	Dec 1982	Dec 1982	Dec 1982
Milestone II	May 1985	Apr 1986	Apr 1986	Apr 1986
Milestone III	Jul 1989	N/A	Oct 2005	Oct 2005
IOC	Dec 1991	N/A	Mar 2007	Jun 2007
Total Cost (TY \$M)	24467.0	29662.3	53253.4	56239.4
Total Quantity	609	919	458	462
PAUC	40.176	32.277	116.274	121.730



**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	9891.7	43099.3	262.4	53253.4
Previous Changes				
Economic	+2.9	-515.2	+0.1	-512.2
Quantity	--	+294.6	--	+294.6
Schedule	--	+2495.4	--	+2495.4
Engineering	+901.4	+214.6	+112.1	+1228.1
Estimating	+678.7	-1383.1	-111.7	-816.1
Other	--	--	--	--
Support	--	+207.2	--	+207.2
Subtotal	+1583.0	+1313.5	+0.5	+2897.0
Current Changes				
Economic	-8.2	-65.5	-1.4	-75.1
Quantity	--	--	--	--
Schedule	--	-328.2	--	-328.2
Engineering	+27.0	--	+153.0	+180.0
Estimating	+58.6	+32.6	-25.4	+65.8
Other	--	--	--	--
Support	--	+246.5	--	+246.5
Subtotal	+77.4	-114.6	+126.2	+89.0
Total Changes	+1660.4	+1198.9	+126.7	+2986.0
CE - Cost Variance	11552.1	44298.2	389.1	56239.4
CE - Cost & Funding	11552.1	44298.2	389.1	56239.4

Summary BY 2005 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	11446.5	38562.8	241.1	50250.4
Previous Changes				
Economic	--	--	--	--
Quantity	--	+235.4	--	+235.4
Schedule	--	+1261.7	--	+1261.7
Engineering	+677.2	+158.2	+81.8	+917.2
Estimating	+581.0	-1572.8	-111.4	-1103.2
Other	--	--	--	--
Support	--	+57.2	--	+57.2
Subtotal	+1258.2	+139.7	-29.6	+1368.3
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	-198.3	--	-198.3
Engineering	+19.5	--	+109.0	+128.5
Estimating	+35.5	+24.4	-18.4	+41.5
Other	--	--	--	--
Support	--	+185.5	--	+185.5
Subtotal	+55.0	+11.6	+90.6	+157.2
Total Changes	+1313.2	+151.3	+61.0	+1525.5
CE - Cost Variance	12759.7	38714.1	302.1	51775.9
CE - Cost & Funding	12759.7	38714.1	302.1	51775.9

Previous Estimate: December 2016



RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-8.2
Addition of Defensive Weapon Systems (DoD). (Engineering)		+19.5	+27.0
Adjustment for current and prior escalation. (Estimating)		+1.6	+1.9
Revised estimate for Digital Interoperability (Navy). (Estimating)		+6.5	+8.6
Revised estimate for Multi-Spectral Sensor / Helmet Mounted Display and Swashplate Actuator (Navy). (Estimating)		+44.3	+62.1
Revised estimate to account for Navy project reprioritization (Navy). (Estimating)		-22.6	-30.2
Revised estimate to reflect actuals (Navy). (Estimating)		-4.1	-5.1
Revised estimate to reflect actuals (Air Force). (Estimating)		-0.8	-1.0
Revised estimate to reflect actuals (DoD). (Estimating)		-11.8	-14.9
Revised estimate for Follow-On Test and Evaluation (FOT&E) (Navy). (Estimating)		+34.3	+55.1
Revised estimate for FOT&E (Air Force). (Estimating)		-15.1	-22.2
Revised estimate for FOT&E (DoD). (Estimating)		+3.2	+4.3
RDT&E Subtotal		+55.0	+77.4
Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-65.5
Adjustment for current and prior escalation. (Estimating)		+12.1	+15.7
Adjustment for current and prior escalation. (Support)		+2.2	+2.3
Acceleration of the procurement buy profile from FY 2024- FY 2025 to FY 2020 and FY 2023 (Navy). (Schedule)		0.0	-33.8
Additional schedule variance due to the acceleration of the procurement buy profile from FY 2024- FY2025 to FY 2020 and FY 2023 (Navy). (Schedule)		-198.3	-294.4
Revised estimate for miscellaneous adjustments (Government Furnished Equipment, Engine, and Estimating Change Order) (Navy). (Estimating)		+3.9	+5.2
Additional funding for Ancillary (Navy). (Estimating)		+3.7	+4.9
Additional funding for Non-Recurring Engineering (Navy). (Estimating)		+2.5	+3.6
Additional funding for Airframe due to incorporating in late Overseas Contingency Operation Aircraft for Air Force (Navy). (Estimating)		+1.1	+1.5
Revised estimate to reflect actuals (Navy). (Estimating)		+1.0	+1.6
Revised estimate to reflect actuals (Air Force). (Estimating)		+0.1	+0.1
Increase in Other Support due to revised estimate of Support Equipment, Peculiar Training Equipment, Technical Publications, and Production Engineering Support (Navy). (Support)		+159.3	+211.2
Increase in Initial Spares to reflect actuals and to update remaining spares requirements based on current projections (Navy). (Support)		+18.1	+24.9
Increase in Initial Spares to update remaining spares requirements based on current projections (Air Force). (Support)		+5.9	+8.1
Procurement Subtotal		+11.6	-114.6
MILCON		\$M	

Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-1.4
Addition of CMV-22B Maintenance Hangar (Navy). (Engineering)	+67.3	+93.0
Addition of Hangar and Airfield Improvements for CMV-22B (Navy). (Engineering)	+41.7	+60.0
Adjustment for current and prior escalation. (Estimating)	+0.4	+0.6
Revised estimate for CMV-22B Airfield Improvements (Navy). (Estimating)	-11.8	-15.9
Revised estimate for MV-22 Self Storage Facility Replacement (Navy). (Estimating)	-7.0	-10.1
MILCON Subtotal	+90.6	+126.2



## Contracts

Contract Identification	
<b>Appropriation:</b>	RDT&E
<b>Contract Name:</b>	Japan NRE
<b>Contractor:</b>	Bell-Boeing JPO
<b>Contractor Location:</b>	401 Tiltrotor Drive Amarillo, TX 79111
<b>Contract Number:</b>	N00019-12-G-0006/112
<b>Contract Type:</b>	Cost Plus Incentive Fee (CPIF)
<b>Award Date:</b>	September 15, 2015
<b>Definitization Date:</b>	September 15, 2015

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
20.9	N/A	N/A	177.8	N/A	N/A	154.3	163.3

Target Price Change Explanation
The difference between the Initial Contract Price Target and the Current Contract Price Target is due to incorporation of Non-Recurring Engineering for additional engineering changes for the Japan configuration of the V-22 aircraft.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	+9.5	-6.4
Previous Cumulative Variances	+4.2	+3.6
Net Change	+5.3	-10.0

Cost and Schedule Variance Explanations
The favorable net change in the cost variance is due to less engineering support required than originally budgeted, in addition to reduced material costs and a favorable rate adjustment.
The unfavorable net change in the schedule variance is due to delays in the receipt of materials associated with several systems required to complete the non-recurring engineering.

**Contract Identification**

**Appropriation:** RDT&E  
**Contract Name:** Navy Variant NRE  
**Contractor:** Bell-Boeing  
**Contractor Location:** 401 Tiltrotor Drive  
 Amarillo, TX 79111  
**Contract Number:** N00019-12-G-0006/130  
**Contract Type:** Cost Plus Fixed Fee (CPFF)  
**Award Date:** March 31, 2016  
**Definitization Date:** March 31, 2016

**Contract Price**

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
152.5	N/A	1	152.5	N/A	1	137.3	138.7

**Contract Variance**

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	-1.7	-7.1
Previous Cumulative Variances	+1.4	-4.8
Net Change	-3.1	-2.3

**Cost and Schedule Variance Explanations**

The unfavorable net change in the cost variance is due to additional supplier support required for qualification testing and additional tooling coordination efforts which were higher than originally budgeted.

The unfavorable net change in the schedule variance is due to delays in receipt of material from several suppliers, as well as engineering and support tasks completed late to the baseline schedule.



**Contract Identification**

**Appropriation:** Acq O&M  
**Contract Name:** Mission Care Engine Sustainment (FY17-FY19)  
**Contractor:** Rolls Royce Corporation  
**Contractor Location:** 2355 S. Tibbs Avenue  
 Indianapolis, IN 46206  
**Contract Number:** N00019-15-D-0019/1  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** December 20, 2016  
**Definitization Date:** December 20, 2016

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
407.8	N/A	N/A	407.8	N/A	N/A	407.8	407.8

**Cost and Schedule Variance Explanations**

Cost and Schedule Variance reporting is not required on this (FFP) contract.

**Notes**

The V-22 Mission Care contract provides for sustainment of V-22 aircraft engines from FY 2017 through FY 2019. This is a Commercial Federal Acquisition Regulation Part 12 contract.

Last year's SAR reflected an incorrect Estimated Price at Completion (\$148.1M, which included only the base year). The information above was corrected to reflect the total contract (\$407.8M).

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** V-22 MYP2 YR 5 (FY17 Lot 21)  
**Contractor:** Bell-Boeing JPO  
**Contractor Location:** 401 Tiltrotor Drive  
Amarillo, TX 79111  
**Contract Number:** N00019-12-C-2001/21  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** December 15, 2016  
**Definitization Date:** December 15, 2016

**Contract Price**

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1838.9	1935.9	16	1839.1	1935.9	16	1532.0	1613.3

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to incorporation of Engineering Change Proposals into the production line.

**Contract Variance**

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	+2.8	+5.1
Previous Cumulative Variances	0.0	0.0
Net Change	+2.8	+5.1

**Cost and Schedule Variance Explanations**

The favorable cumulative cost variance is due to manufacturing labor efficiencies, lower than budgeted material costs, as well as a favorable rate adjustment.

The favorable cumulative schedule variance is due to receipt of parts and assemblies for the manufacturing line ahead of the baseline schedule.

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** V-22 AE1107C Engine Production  
**Contractor:** Rolls-Royce Corporation  
**Contractor Location:** 2355 South Tibbs Avenue  
 Indianapolis, IL 46241  
**Contract Number:** N00019-17-C-0081/1  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** September 21, 2017  
**Definitization Date:** September 21, 2017

**Contract Price**

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
287.4	N/A	131	287.4	N/A	131	287.4	287.4

**Cost and Schedule Variance Explanations**

Cost and Schedule Variance reporting is not required on this (FFP) contract.

**Notes**

This is the first time this contract is being reported.



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** V-22 MYP2 Year 4 (FY16 Lot 20)  
**Contractor:** Bell-Boeing  
**Contractor Location:** 401 Tilt Rotor Drive  
 Amarillo, TX 79111  
**Contract Number:** N00019-12-C-2001/20  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** October 26, 2015  
**Definitization Date:** October 26, 2015

**Contract Price**

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1246.4	1312.0	19	1570.2	1649.4	24	1260.4	1254.7

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to procurement of five additional aircraft for Japan FMS, as well as additional required Engineering Change Proposals incorporated into the contract.

**Contract Variance**

Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (12/31/2017)	+10.3	-64.2
Previous Cumulative Variances	-1.1	-56.2
Net Change	+11.4	-8.0

**Cost and Schedule Variance Explanations**

The favorable net change in the cost variance is due to manufacturing labor efficiencies, lower than budgeted material costs, as well as a favorable rate adjustment.

The unfavorable net change in the schedule variance is due to numerous parts late to the baseline production schedule; however, there were no impacts to the final aircraft delivery schedule.



**Contract Identification**

**Appropriation:** Acq O&M  
**Contract Name:** JPBL 1 Year 10  
**Contractor:** Bell-Boeing JPO  
**Contractor Location:** 401 Tiltrotor Drive  
Amarillo, TX 79111  
**Contract Number:** N00019-09-D-0008/10  
**Contract Type:** Cost Plus Fixed Fee (CPFF)  
**Award Date:** December 01, 2017  
**Definitization Date:** December 01, 2017

**Contract Price**

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
135.8	N/A	N/A	135.8	N/A	N/A	135.8	135.8

**Cost and Schedule Variance Explanations**

Cost and Schedule Variance reporting is not required on this (CPFF) contract.

**General Contract Variance Explanation**

Cost and schedule variances are not reported for this contract, because earned value management reporting has not yet commenced. The delivery order was awarded on December 1, 2017 and data submission will begin in March 2018.

**Notes**

This is the first time this contract is being reported.

This contract replaces JPBL 1 Year 9 from last year's SAR, which is 99.9% complete.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	2	2	2	100.00%
Production	361	361	460	78.48%
Total Program Quantity Delivered	363	363	462	78.57%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	56239.4	Years Appropriated	37
Expended to Date	43948.8	Percent Years Appropriated	78.72%
Percent Expended	78.15%	Appropriated to Date	47647.3
Total Funding Years	47	Percent Appropriated	84.72%

The above data is current as of February 12, 2018.

## Operating and Support Cost

### Cost Estimate Details

Date of Estimate:	February 02, 2018
Source of Estimate:	POE
Quantity to Sustain:	454
Unit of Measure:	Aircraft
Service Life per Unit:	25.00 Years
Fiscal Years in Service:	FY 2001 - FY 2054

The O&S cost estimate does not include the 2 developmental aircraft, 4 HX-21 aircraft, and 2 test aircraft.

	MV-22	Navy CMV-22	CV-22
Aircraft Service Life (hrs)	10,000	10,000	10,000
Aircraft Attrition Rate	0.6%	1.0%	0.6%
Aircraft Pipeline Rate	13.3%	10.0%	8%
Total Aircraft Inventory (TAI)	360	48	54
Primary Authorized Aircraft (PAA)	276	36	50
Flight Hour per Month	35	35	36
Flight Hours per Year	420	420	432
Total Aircraft Operating Years	7,843	947	1,109

### Sustainment Strategy

The V-22 Program Office is executing a Joint Sustainment Strategy that provides the product support elements for the Marine Corps MV-22, Air Force CV-22 fleets and Navy CMV-22. The sustainment strategy addresses all three levels of maintenance (Organizational, Intermediate and Depot). The cornerstones of the Joint Sustainment Strategy are the Performance Based Agreements (PBA) between the Program Office and the war fighters. The PBAs clearly define the war fighter's product support requirements to be achieved through the execution of the V-22 Joint Sustainment Strategy. The Joint Sustainment Strategy is executed via a myriad of processes and organizations to include DoD organic activities and commercial contractors. Multiple Performance Based Logistics contracts are used to support the V-22 Program.

The V-22 Program Common Configuration - Readiness and Modernization (CC-RAM) effort, introduced in August 2017, provides for the modification of Block B aircraft to a Block C configuration for up to 129 aircraft, funded with APN-5. This



common configuration concept will decrease non-mission capable rates by simplifying and streamlining supply and maintenance, increasing aircraft availability and fleet readiness. CC-RAM also significantly reduces the number of different aircraft configurations fielded and maintained, thus improving Life Cycle Support costs for the V-22 platform.

#### Antecedent Information

The V-22s antecedent aircraft are the CH-46E Sea Knight, CH-53D Sea Stallion, MH-53J/M Pave Low, and the C-2A Greyhound aircraft.

The CH-46E Sea Knight's O&S costs were used as the basis for the V-22 antecedent aircraft costs. The largest number of V-22s being procured (360 MV-22s) are being used to replace the CH-46E aircraft. The antecedent cost is based on the CH-46E's 3-year average (1999-2001) O&S cost data extracted from Naval Visibility and Management of Operating and Support Costs (VAMOSC) database for the 229 aircraft reported on during that time. Years 1999-2001 were used for the average because those years were the most stable and highest quantity per year resulting in the best representation for O&S costs. The antecedent aircraft began phasing out of the inventory in the following years. Since VAMOSC does not capture Indirect Support costs, the CH-46E Indirect Support cost is calculated by multiplying the CH-46E Unit-Level Manpower by the ratio of V-22 Indirect Support to V-22 Unit-Level Manpower. The data was normalized to BY 2005 \$M.

Annual O&S Costs BY2005 \$M			
Cost Element	V-22		CH-46E (Antecedent)
	Average Annual Cost Per Aircraft		Average Annual Cost Per Aircraft
Unit-Level Manpower	1.413		0.449
Unit Operations	0.285		0.058
Maintenance	4.749		1.227
Sustaining Support	0.388		0.038
Continuing System Improvements	0.612		0.182
Indirect Support	0.673		0.220
Other	--		--
Total	8.120		2.174

Item	Total O&S Cost \$M			
	V-22			CH-46E (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	75022.5	82524.8	80381.9	20782.3
Then Year	121543.7	N/A	120662.6	N/A

Disposal Cost is included in the Operating and Support Cost of the current APB objective and threshold for this program.

#### Equation to Translate Annual Cost to Total Cost

Total O&S Cost / (MV-22 USMC operating years + CMV-22 Navy operating years + CV-22 operating years) = Average Annual O&S Cost per Aircraft; therefore \$80.381B / (7,843 + 947 + 1,109) = \$8.120M.



O&S Cost Variance		
Category	BY 2005 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	80545.0	
Programmatic/Planning Factors	-1531.2	Flying hour adjustment in FY2023 to account for budgeted hours
Cost Estimating Methodology	0.0	
Cost Data Update	1841.5	Adjustment of Flying Hour Program estimate due to increased consumable and repairable prices (+\$1,645). Increased fuel consumption (+\$196).
Labor Rate	-288.3	Incorporation of FY 2018 Labor Rates
Energy Rate	-178.4	Incorporation of FY 2018 Fuel Rates
Technical Input	-6.7	Manpower decrease
Other	0.0	
Total Changes	-163.1	
Current Estimate	80381.9	

#### Disposal Estimate Details

**Date of Estimate:** February 02, 2018  
**Source of Estimate:** POE  
**Disposal/Demilitarization Total Cost (BY 2005 \$M):** Total costs for disposal of all Aircraft are 98.4