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RCS: DD-A&T(Q&A)823-391



## **Standard Missile-6 (SM-6)**

As of FY 2021 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## 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)  
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)

## Program Information

**Program Name**

Standard Missile-6 (SM-6)

**DoD Component**

Navy

## Responsible Office

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## References

**SAR Baseline (Production Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated March 26, 2010

**Approved APB**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated August 9, 2013



## Mission and Description

The STANDARD Missile-6 (SM-6) is a tri-mission capable (Anti-Air Warfare (AAW), Sea-Based Terminal Defense (SBT), and Anti-Surface Warfare (ASuW)) missile that provides for over-the-horizon engagements, enhanced capability at extended ranges and increased firepower with an active guidance section. Launched from AEGIS Cruisers and Destroyers, SM-6 provides timely, precise, accurate and lethal fire power against cruise missile threats and launch platforms in a fleet area defense role and is capable of successfully engaging manned and unmanned, fixed or rotary wing aircraft, and land attack or Anti-Ship Cruise Missiles (ASCM) in flight. SM-6 is an evolutionary acquisition program with requirements for future Block upgrades. Raytheon Missile Systems (RMS) is the sole source contractor for SM-6.

## Executive Summary

### Program Highlights Since Last Report

SM-6 Program is in full rate production for the SM-6 Block I and the more capable SM-6 Block IA variant.

Successful completion of all required SM-6 Block IA Follow On Test & Evaluation.

Commander Operational Test and Evaluation Force (COTF) determined SM-6 remains operationally effective and suitable.

FY 2021 PB reflects a funding profile for an authorized Multi-Year Procurement (MYP) beginning in FY 2019 and completing in FY 2023. Advance Procurement (AP) is captured in the funding phasing to address economic order quantity material requirements. MYP and AP were approved in the FY 2019 Defense Authorization Act.

FY 2021 PB includes an emergent requirement to increase the SM-6 Block IA procurement to 180 All Up Rounds (AURs) per year starting in FY 2024.

The FRP SM-6 Block I/IA MYP FY 2019 - FY 2023 Production contract was awarded on December 20, 2019.

The FRP SM-6 Block IA Engineering Change Proposal (ECP) MYP FY 2019 - FY 2023 contract was awarded December 27, 2019.

SM-6 Electronics Unit (EU) obsolescence upgrade funded via FY 2019 congressional add, then in PB 2020 in a cost share with MDA and, then in PB 2021 to address a revised Navy/MDA cost sharing agreement (no growth in total scope or cost).

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

### History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
July 2004	Milestone B Acquisition Decision Memorandum
September 2004	System Development and Demonstration (SD&D) contract awarded to Raytheon Missile Systems
August 2009	Milestone C Acquisition Decision Memorandum
September 2009	Letter contract to establish Not-to-Exceed prices for the LRIP contract FY 2009 Low Rate Initial Production (LRIP) SM-6 Block I awarded to Raytheon Missile Systems
January 2010	Land Based Testing completed
July 2010	LRIP SM-6 Block I (Lot 1) contract definitized with an FY 2010 (Lot 2) option awarded to Raytheon Missile Systems
January 2011	Developmental Testing (DT) Flight Testing completed
June 2011	LRIP FY 2011 (Lot 3) SM-6 Block I option awarded to Raytheon Missile Systems
October 2011	Operational Testing (OT) Flight Testing completed
May 2012	Un definitized Contract Action (UCA) for FY 2012 LRIP SM-6 Block I
March 2013	Navy Electronic Resources and Requirements Review Board (ER3B) memorandum authorizing increase in procurement profile from 1200 to 1800 missiles
July 2013	LRIP FY 2012 SM-6 Block I contract awarded
August 2013	Full Rate Production Acquisition Decision Memorandum
September 2013	Full Rate Production (FRP) FY 2013 SM-6 Block I contract
November 2013	Initial Operational Capability (IOC) achieved
June 2014	FRP FY 2014 SM-6 Block I contract
May 2015	FRP FY 2015 SM-6 Block I/IA contract
May 2015	UCA for FY 2015 SM-6 Block IA Engineering Change Proposal (ECP) LRIP
February 2016	FRP FY 2016 SM-6 Block I/IA contract
January 2017	LRIP FY 2015 / FY 2016 SM-6 Block IA ECP contract award
December 2017	Full Operational Capability (FOC) achieved
September 2018	FRP FY 2017 / FY 2018 SM-6 Block I/IA contract award
October 2018	FY 2019 National Defense Authorization Act (NDAA) authorized a Multi-Year Procurement (MYP) and Advanced Procurement (AP) beginning with the FY 2019 program year for the procurement of up to 625 missiles, completing in the FY 2023 program year
December 2018	Resource Management Decision included an emergent requirement to increase the SM-6 Block IA procurement from 125 to 180 All Up Rounds per year starting in FY 2024
December 2018	FRP FY 2017 / FY 2018 SM-6 Block IA ECP contract award
September 2019	FY 2020 PB reflects a funding profile for an authorized Multi-year Procurement (MYP) beginning in FY 2019 and completing in FY 2023 Advance Procurement (AP) is captured in the funding phasing to address economic order quantity material requirements. MYP and AP were approved in the FY 2019 Defense Authorization Act.
October 2019	SM-6 Block IA achieved IOC.



December 2019	FRP FY 2019 - FY 2023 MYP SM-6 Block IA ECP contract award
December 2019	FRP FY 2019 - FY 2023 MYP SM-6 Block I/IA contract award

## Threshold Breaches

### APB Breaches

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

### Explanation of Breach

The schedule breach was first reported in the December 2015 SAR. SM-6 successfully achieved FOC on December 27, 2017.

The O&S cost breach is due to an updated O&S estimate to adjust for a total quantity from 1,800 to 2,311 missiles and extending the fiscal year retired date from FY 2054 to FY 2058. The annual average cost per missile remains the same.

### Nunn-McCurdy Breaches

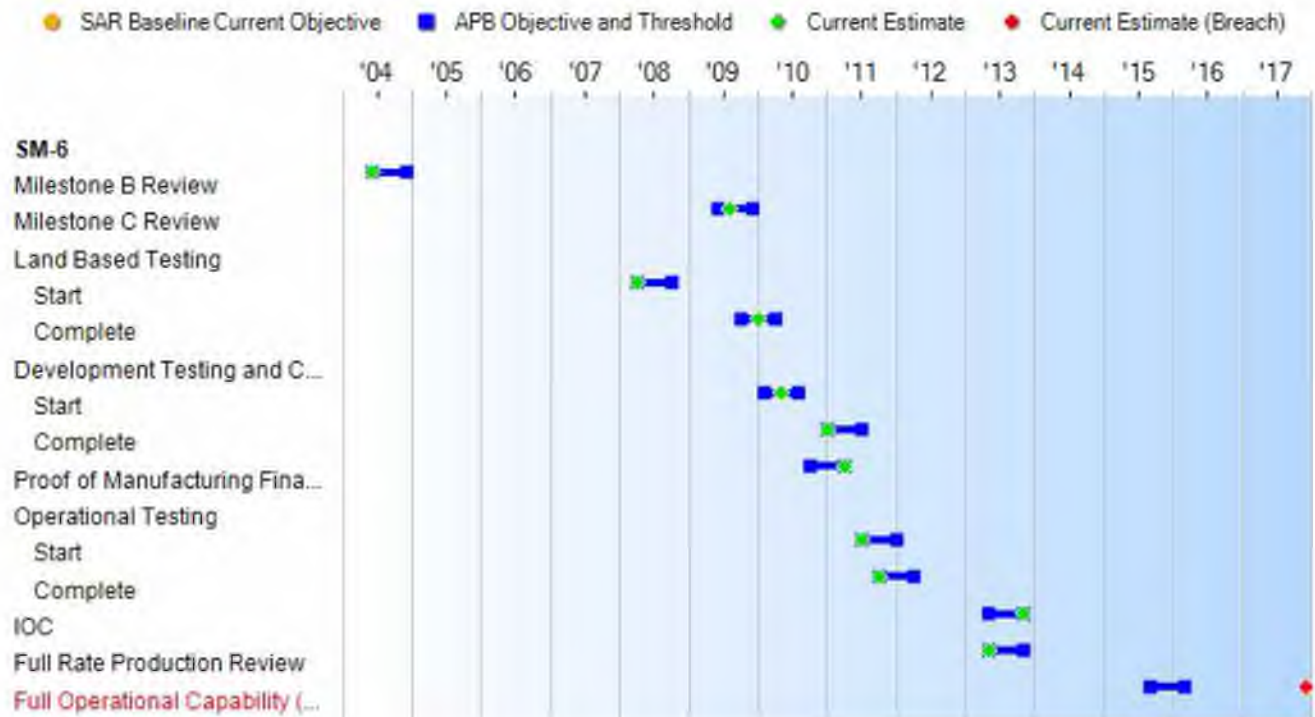
#### Current UCR Baseline

PAUC	None
APUC	None

#### Original UCR Baseline

PAUC	None
APUC	None

## Schedule



Schedule Events				
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate
Milestone B Review	Jun 2004	Jun 2004	Dec 2004	Jun 2004
Milestone C Review	Jun 2009	Jun 2009	Dec 2009	Aug 2009
Land Based Testing				
Start	Apr 2008	Apr 2008	Oct 2008	Apr 2008
Complete	Oct 2009	Oct 2009	Apr 2010	Jan 2010
Development Testing and Combined Development and Operational Testing				
Start	Feb 2010	Feb 2010	Aug 2010	May 2010
Complete	Apr 2010	Jan 2011	Jul 2011	Jan 2011
Proof of Manufacturing Final Review	Oct 2010	Oct 2010	Apr 2011	Apr 2011
Operational Testing				
Start	Aug 2010	Jul 2011	Jan 2012	Jul 2011
Complete	Sep 2010	Oct 2011	Apr 2012	Oct 2011
IOC	Mar 2011	May 2013	Nov 2013	Nov 2013
Full Rate Production Review	Jun 2011	May 2013	Nov 2013	May 2013
Full Operational Capability (FOC)	Sep 2015	Sep 2015	Mar 2016	<b>Dec 2017<sup>1</sup></b>

<sup>1</sup> APB Breach

### Change Explanations

None

### Notes

SM-6 successfully achieved FOC on December 27, 2017.

### Acronyms and Abbreviations

FFP - Firm Fixed Price  
MYP - Multi Year Procurement  
SYP - Single Year Procurement



## Performance

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

## Track to Budget

### General Notes

FY 2012 was the last year of SM-6 RDT&E funding related to the Baseline Program of Record as reported in the SAR.

The FY 2021 PB for SM-6 procurement (APPN 1507, PE 0204228N) includes Line Item 2234 and 6120. Both are shared with SM-2 through FY 2011. Both are shared with SM-6 Block IB starting in FY 2022 and continues to be shared with other Navy programs. All up rounds are reflected in Budget Line Item (BLI) 2234 P1-7. Initial Spares are included in BLI 6120 P1-35.

### RDT&E

Appn	BA	PE
Navy	1319 05	0604366N
Project	Name	
3092	Standard Missile 6 Program (Shared) (Sunk)	
<b>Notes:</b> FY 2012 is the last year of SM-6 RDT&E funding related to the Baseline Program of Record as reported in the SAR.		

### Procurement

Appn	BA	PE
Navy	1507 02	0204228N
Line Item	Name	
2234	STANDARD Missile (Shared)	
Notes:	Shared with SM-2 through FY 2011. Shared with SM-6 Block IB starting in FY 2022.	
Navy	1507 06	0204228N
Line Item	Name	
6120	Spares and Repair Parts (Shared)	
Notes:	Shared with SM-2 in Standard Missile Replenishment Spares line through FY 2011. Shared with SM-6 Block IB starting in FY 2022 and continues to be shared with other Navy programs.	

## Cost and Funding

### Cost Summary

Total Acquisition Cost						
Appropriation	BY 2004 \$M			BY 2004 \$M	TY \$M	
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective
RDT&E	861.6	834.5	918.0	834.7	963.2	933.4
Procurement	4419.5	6854.1	7539.5	7172.9	5634.0	9623.8
Flyaway	--	--	--	6296.1	--	--
Recurring	--	--	--	6135.2	--	--
Non Recurring	--	--	--	160.9	--	--
Support	--	--	--	876.8	--	--
Other Support	--	--	--	597.4	--	--
Initial Spares	--	--	--	279.4	--	--
MILCON	0.0	0.0	--	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	0.0	0.0	0.0
Total	5281.1	7688.6	N/A	8007.6	6597.2	10557.2

#### Cost Notes

No cost estimate for the program has been completed in the previous year.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	0	0	0
Procurement	1200	1800	2311
Total	1200	1800	2311

#### Quantity Notes

SM-6 received authorization to increase the procurement profile from 1200 missiles to 1800 missiles as documented in the Navy Electronic Resources and Requirements Review Board memorandum, dated March 18, 2013.

SM-6 received authorization for an emergent requirement to increase SM-6 Block IA procurement up to 180 All Up Rounds (AUR) per year starting in FY 2024 resulting in a total procurement quantity from 1800 to 2311 as documented in the RMD 700 dated December 7, 2018.



## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2021 President's Budget / December 2019 SAR (TY\$ M)									
Appropriation	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
RDT&E	933.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	933.4
Procurement	3967.7	515.0	550.0	571.0	481.1	801.9	729.0	2597.3	10213.0
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2021 Total	4901.1	515.0	550.0	571.0	481.1	801.9	729.0	2597.3	11146.4
PB 2020 Total	4901.1	515.2	550.9	587.9	481.1	802.8	905.6	2784.6	11529.2
Delta	0.0	-0.2	-0.9	-16.9	0.0	-0.9	-176.6	-187.3	-382.8

Quantity Summary										
FY 2021 President's Budget / December 2019 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	To Complete	Total
Development	0	0	0	0	0	0	0	0	0	0
Production	0	931	125	125	125	125	180	160	540	2311
PB 2021 Total	0	931	125	125	125	125	180	160	540	2311
PB 2020 Total	0	931	125	125	125	125	180	180	540	2331
Delta	0	0	0	0	0	0	0	-20	0	-20



## 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
2004	--	--	--	--	--	--	25.5
2005	--	--	--	--	--	--	83.8
2006	--	--	--	--	--	--	114.8
2007	--	--	--	--	--	--	150.0
2008	--	--	--	--	--	--	172.6
2009	--	--	--	--	--	--	195.4
2010	--	--	--	--	--	--	112.6
2011	--	--	--	--	--	--	61.0
2012	--	--	--	--	--	--	17.7
Subtotal	--	--	--	--	--	--	933.4

Annual Funding 1319   RDT&E   Research, Development, Test, and Evaluation, Navy							
Fiscal Year	Quantity	BY 2004 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2004	--	--	--	--	--	--	25.0
2005	--	--	--	--	--	--	80.0
2006	--	--	--	--	--	--	106.3
2007	--	--	--	--	--	--	135.6
2008	--	--	--	--	--	--	153.2
2009	--	--	--	--	--	--	171.3
2010	--	--	--	--	--	--	97.2
2011	--	--	--	--	--	--	51.4
2012	--	--	--	--	--	--	14.7
Subtotal	--	--	--	--	--	--	834.7

Annual Funding 1507   Procurement   Weapons 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
2009	19	92.4	--	17.6	110.0	12.4	122.4
2010	11	54.5	--	10.5	65.0	32.7	97.7
2011	59	210.5	--	--	210.5	32.5	243.0
2012	89	272.2	--	--	272.2	67.2	339.4
2013	89	264.6	--	--	264.6	54.4	319.0
2014	93	259.2	--	--	259.2	60.0	319.2
2015	95	361.8	--	--	361.8	57.5	419.3
2016	101	379.5	--	--	379.5	54.9	434.4
2017	125	448.7	--	--	448.7	47.5	496.2
2018	125	482.2	--	--	482.2	58.3	540.5
2019	125	571.3	--	--	571.3	65.3	636.6
2020	125	457.6	--	--	457.6	57.4	515.0
2021	125	430.4	--	50.0	480.4	69.6	550.0
2022	125	407.0	--	89.1	496.1	74.9	571.0
2023	125	360.7	--	44.0	404.7	76.4	481.1
2024	180	707.1	--	16.9	724.0	77.9	801.9
2025	160	649.5	--	--	649.5	79.5	729.0
2026	180	767.6	--	--	767.6	81.1	848.7
2027	180	782.9	--	--	782.9	82.7	865.6
2028	180	798.7	--	--	798.7	84.3	883.0
Subtotal	2311	8758.4	--	228.1	8986.5	1226.5	10213.0

Annual Funding 1507   Procurement   Weapons Procurement, Navy							
Fiscal Year	Quantity	BY 2004 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2009	19	80.0	--	15.2	95.2	10.8	106.0
2010	11	46.4	--	8.9	55.3	27.9	83.2
2011	59	175.9	--	--	175.9	27.2	203.1
2012	89	224.1	--	--	224.1	55.3	279.4
2013	89	214.8	--	--	214.8	44.1	258.9
2014	93	207.5	--	--	207.5	48.0	255.5
2015	95	285.1	--	--	285.1	45.3	330.4
2016	101	293.7	--	--	293.7	42.5	336.2
2017	125	340.5	--	--	340.5	36.1	376.6
2018	125	357.9	--	--	357.9	43.2	401.1
2019	125	415.7	--	--	415.7	47.5	463.2
2020	125	326.5	--	--	326.5	40.9	367.4
2021	125	301.0	--	35.0	336.0	48.7	384.7
2022	125	279.1	--	61.1	340.2	51.3	391.5
2023	125	242.5	--	29.6	272.1	51.3	323.4
2024	180	466.0	--	11.1	477.1	51.4	528.5
2025	160	419.7	--	--	419.7	51.3	471.0
2026	180	486.3	--	--	486.3	51.3	537.6
2027	180	486.2	--	--	486.2	51.4	537.6
2028	180	486.3	--	--	486.3	51.3	537.6
Subtotal	2311	6135.2	--	160.9	6296.1	876.8	7172.9



FY 2021 PB reflects a funding profile for a authorized Multyear Procurement (MYP) beginning in FY 2019 and completing in FY 2023. Advance Procurement (AP) is captured in the funding phasing to address economic order quantity material requirements. MYP and AP were approved in the FY 2019 Defense Authorization Act.

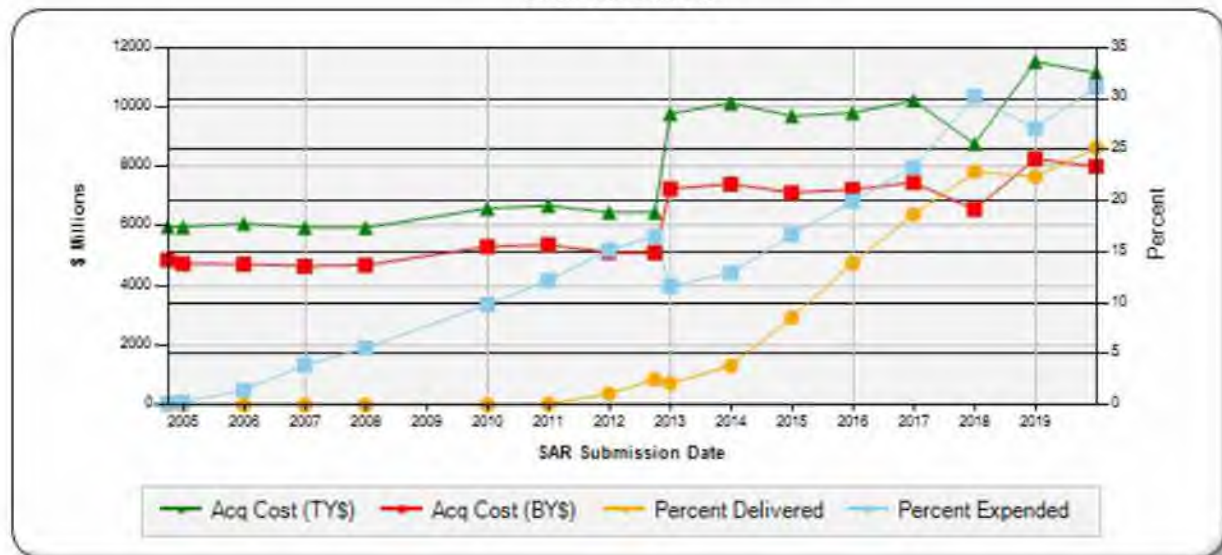
FY 2021 PB includes an emergent requirement to increase the SM-6 Block IA procurement up to 180 All Up Rounds (AUR) per year starting in FY 2024. The FY 2024 - FY 2028 resumes single year procurements for SM-6 Block IA AURs only after the MYP.

The FY 2021 PB, FY 2024 funding control is lower than the projected AUR Unit Price for a procurement of 180 SM-6 Block IAs. The FY 2021, FY 2025 funding control is lower than the projected AUR Unit Price for a procurement of 160 SM-6 Block IAs. The Total Procurement Cost reflected in FY 2026 through FY 2028 represents estimates at the projected AUR Unit Price.

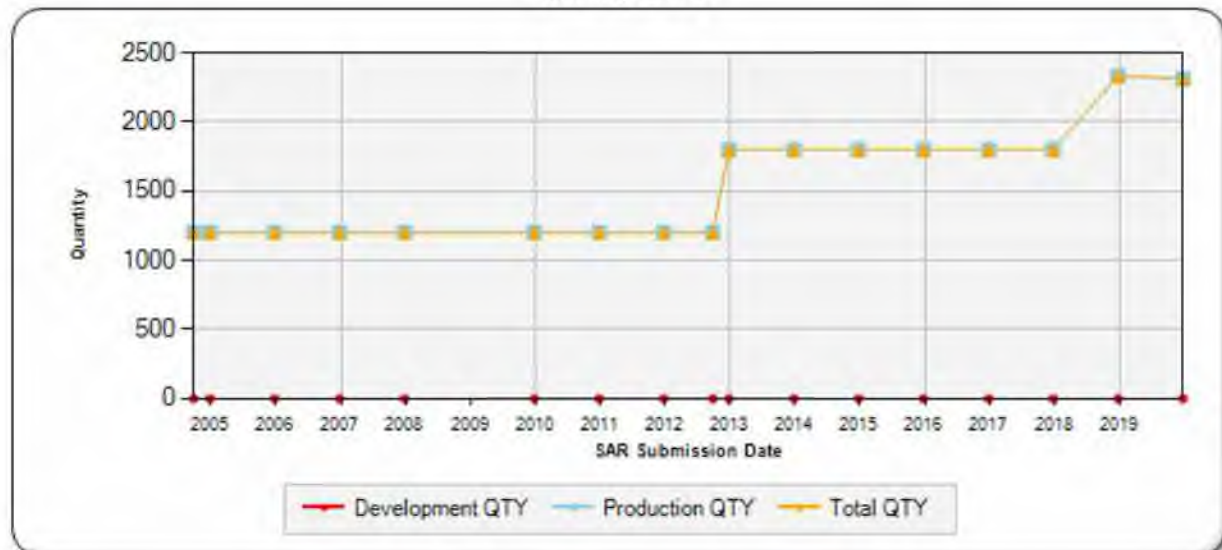
## Charts

### SM-6 first began SAR reporting in September 2004

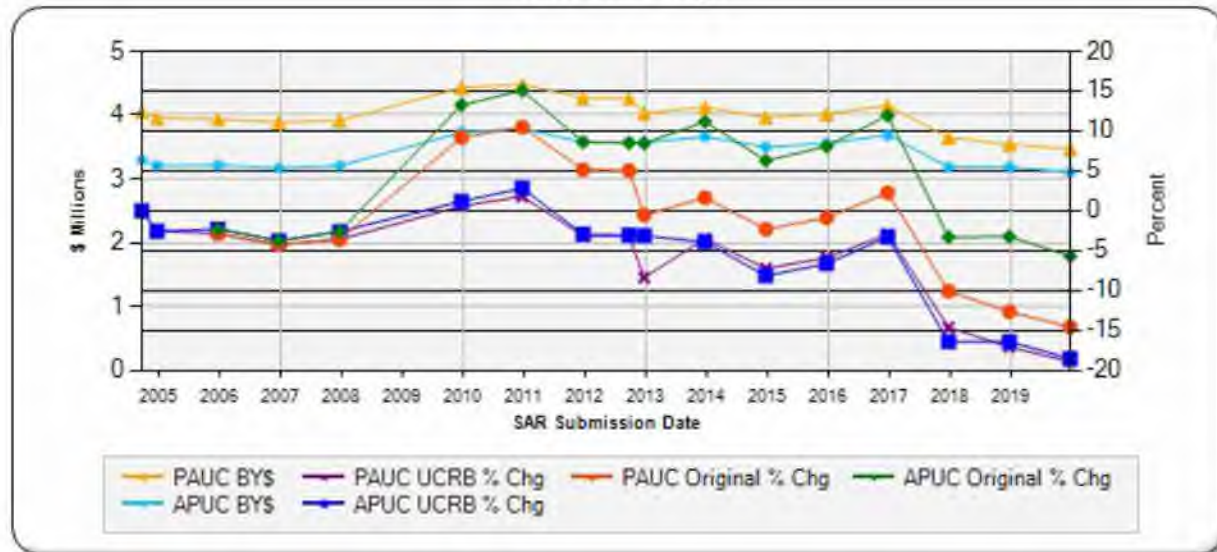
Program Acquisition Cost - SM-6  
Base Year 2004 \$M



Quantity - SM-6



Unit Cost - SM-6  
Base Year 2004 \$M



## Risks

### Significant Schedule and Technical Risks

Significant Schedule and Technical Risks	
FRP (August 2013)	
1.	The SM-6 Block I program coming out of development had a limitation of producing 4 missiles a month with a requirement to achieve a rate of 12 missiles a month by FRP.
2.	The ongoing occurrence of obsolescence throughout the missile. The SM-6 Block I program is incurring a high rate of obsolescence as a result of leveraging in-service assets from SM-2 and AMRAAM.
Milestone B (June 2004)	
1.	Technical Risk: Modification of the Advanced Medium Range Air to Air Missile (AMRAAM) Frequency Reference Unit (addition of semi-active) and development of a scaled-up antenna aperture based on the AMRAAM design. Additional technical risk is associated with integration of Non Developmental Items (NDI) AMRAAM components into the Standard Missile Extended Range airframe.
2.	Schedule Risk: Proper allocation of time to perform work scope, integration and test, and flight-testing has been and continues to be refined. Over 90% of all hardware items are currently in production (Standard Missile and AMRAAM), thus mitigating long lead material schedule risk.
Milestone C (August 2009)	
1.	SM-6 is leveraging from In-Service systems (SM-2, SM-3 and AMRAAM) and the legacy components are incurring increasing rates of obsolescence. SM-6 is forecasting increasing rates of obsolescence that will require additional funding to address these issues.
2.	SM-6 failed Electronic Attack scenarios (OT-5 and OT-15) during Operational Testing.
Current Estimate (December 2019)	
1.	Technical Risk: The program office has been funded to develop an Electronics Unit (EU) upgrade to address a production obsolescence issue.



## Risks

### Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Baseline Estimate (August 2013)	
1.	OSD CAPE ICE memorandum dated May 2013 shows a comparison of the ICE and Navy Service Cost Position with SDD at \$0 delta; Procurement at \$341M delta or 5.2% difference; O&S at (\$18M) or -3.9% difference; and Total program cost at \$323M delta out of \$8.1B or 4.1% difference. Cost Risk: CAPE suggested that the program's new Acquisition Program Baseline (APB) be established in line with a more realistic maximum SM-6 annual procurement profile reflecting the current budget environment. USD (AT&L) accepted this recommendation. Two programmatic changes have occurred since Milestone B approval: the Navy increased its total production quantity from 1,200 to 1,800, but reduced the maximum annual procurement quantity in every budget cycle, resulting in an SM-6 procurement profile that extends out an additional eight years. Despite these changes, the average procurement unit cost (APUC) has remained within 3.4% of the estimate APUC figure at Milestone C.
Original Baseline Estimate (July 2004)	
1.	OSD CAPE ICE Memorandum dated June 2004 shows a comparison of the ICE and Navy Service Cost Position with Development at (\$6M) delta or -0.7% difference; Procurement at \$527M delta or 14% difference; O&S at \$13M delta or 4% difference; and Total program cost at \$534M delta out of \$5.5B estimate or 11% difference. The 14% difference in the procurement phase cost estimates is driven by differences in the theoretical first unit production costs (T1s), the associated SDD to production step down factors, and learning rates. Schedule Risk: Both the CAPE and the Navy estimates indicate that the current 48-month planned for the SDD phase of the SM-6 program is overly optimistic. Missile programs of this type have an average SDD phase duration of 58-months. The current SM-6 program SDD schedule does not allow for failure during the testing and evaluation phase.
Revised Original Estimate (N/A)	
None	
Current Procurement Cost (December 2019)	
1.	All areas are on track without any major issues. The program continues to monitor obsolescence issues and is currently mitigating the risk by leveraging STANDARD Missile resources to achieve efficiencies. The program continues to execute within the Current Acquisition Program Baseline unit cost metrics.

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	7/12/2004	4/5/2012
<b>Approved Quantity</b>	120	178
<b>Reference</b>	Milestone B ADM	LRIP Lot 4 ADM
<b>Start Year</b>	2009	2009
<b>End Year</b>	2011	2012

### Notes

The SM-6 program received authorization to enter into a fourth year of LRIP as documented in the ADM dated April 5, 2012. This ADM authorized the increase in the total LRIP quantity from 120 (10 percent) to 178 (15 percent) based on a procurement profile of 1200 missiles, and deferred the FRP decision to FY 2013.

The SM-6 program received authorization to increase the procurement profile from 1200 missiles to 1800 missiles as documented in the Navy Electronic Resources and Requirements Review Board memorandum, dated March 18, 2013.

The SM-6 program built up 25 non-LRIP rounds to be test fired during the System Development and Demonstration phase of the program. All 25 missiles were expended prior to IOC.

**Foreign Military Sales**

None

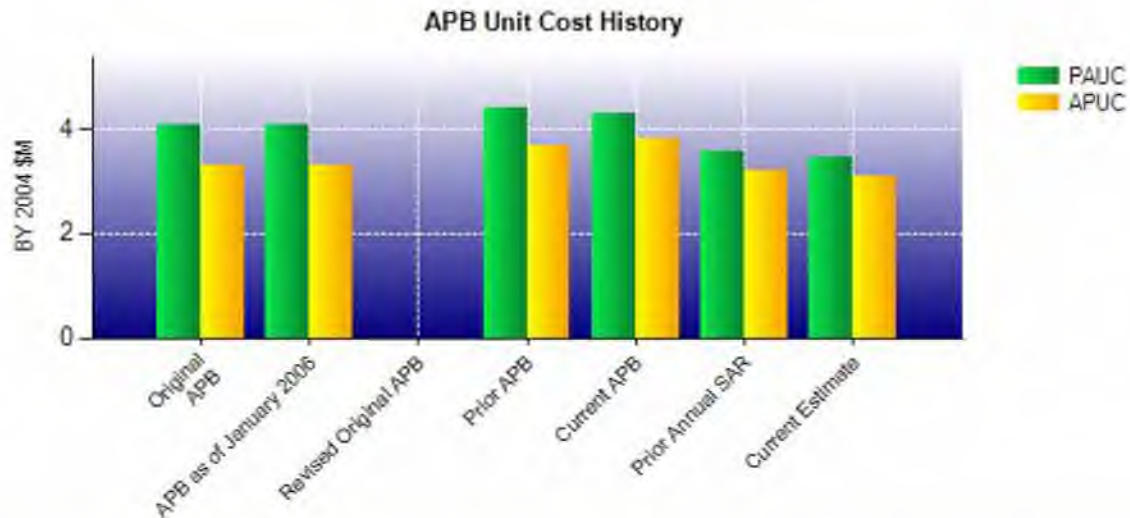
**Nuclear Costs**

None



## Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2004 \$M	BY 2004 \$M	% Change
	Current UCR Baseline (Aug 2013 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	7688.6	8007.6	
Quantity	1800	2311	
Unit Cost	4.271	3.465	-18.87
Average Procurement Unit Cost			
Cost	6854.1	7172.9	
Quantity	1800	2311	
Unit Cost	3.808	3.104	-18.49
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2004 \$M	BY 2004 \$M	% Change
	Original UCR Baseline (Jul 2004 APB)	Current Estimate (Dec 2019 SAR)	
Program Acquisition Unit Cost			
Cost	4866.3	8007.6	
Quantity	1200	2311	
Unit Cost	4.055	3.465	-14.55
Average Procurement Unit Cost			
Cost	3949.6	7172.9	
Quantity	1200	2311	
Unit Cost	3.291	3.104	-5.68



APB Unit Cost History					
Item	Date	BY 2004 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Jul 2004	4.055	3.291	4.986	4.163
APB as of January 2006	Jul 2004	4.055	3.291	4.986	4.163
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Mar 2010	4.401	3.683	5.498	4.695
Current APB	Aug 2013	4.271	3.808	5.865	5.347
Prior Annual SAR	Dec 2018	3.543	3.185	4.946	4.546
Current Estimate	Dec 2019	3.465	3.104	4.823	4.419

### 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	
4.986	0.114	0.000	-0.046	0.000	0.153	0.000	0.291	0.512	5.498

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
5.498	-0.028	-0.489	0.123	0.000	-0.488	0.000	0.207	-0.675	4.823

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	
4.163	0.085	0.000	-0.046	0.000	0.202	0.000	0.291	0.532	4.695

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.695	-0.029	-0.103	0.123	0.000	-0.474	0.000	0.207	-0.276	4.419

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Jun 2004	Jun 2004	Jun 2004
Milestone C	N/A	Sep 2008	Jun 2009	Aug 2009
IOC	N/A	Sep 2010	Mar 2011	Nov 2013
Total Cost (TY \$M)	N/A	5983.3	6597.2	11146.4
Total Quantity	N/A	1200	1200	2311
PAUC	N/A	4.986	5.498	4.823



**Cost Variance**

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	963.2	5634.0	--	6597.2
Previous Changes				
Economic	+1.2	-78.6	--	-77.4
Quantity	--	+5071.6	--	+5071.6
Schedule	--	+286.0	--	+286.0
Engineering	--	--	--	--
Estimating	-31.0	-845.4	--	-876.4
Other	--	--	--	--
Support	--	+528.2	--	+528.2
Subtotal	-29.8	+4961.8	--	+4932.0
Current Changes				
Economic	--	+12.1	--	+12.1
Quantity	--	-93.8	--	-93.8
Schedule	--	-1.2	--	-1.2
Engineering	--	--	--	--
Estimating	--	-250.8	--	-250.8
Other	--	--	--	--
Support	--	-49.1	--	-49.1
Subtotal	--	-382.8	--	-382.8
Total Changes	-29.8	+4579.0	--	+4549.2
Current Estimate	933.4	10213.0	--	11146.4



Summary BY 2004 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	861.6	4419.5	--	5281.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	+3285.8	--	+3285.8
Schedule	--	+39.0	--	+39.0
Engineering	--	--	--	--
Estimating	-26.9	-642.6	--	-669.5
Other	--	--	--	--
Support	--	+323.0	--	+323.0
Subtotal	-26.9	+3005.2	--	+2978.3
Current Changes				
Economic	--	--	--	--
Quantity	--	-57.1	--	-57.1
Schedule	--	-3.6	--	-3.6
Engineering	--	--	--	--
Estimating	--	-158.2	--	-158.2
Other	--	--	--	--
Support	--	-32.9	--	-32.9
Subtotal	--	-251.8	--	-251.8
Total Changes	-26.9	+2753.4	--	+2726.5
Current Estimate	834.7	7172.9	--	8007.6

Previous Estimate: December 2018

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	+12.1
Total Quantity variance resulting from a decrease of 20 All Up Round (AUR) missiles from 2,331 to 2,311. (Subtotal)		-50.0	-82.1
Quantity variance resulting from a decrease of 20 AUR missiles from 2,331 to 2,311 due to due change in SM-6 Block IA Guidance Section procurement quantity allocation with another advanced capability program. (Quantity)		(-57.1)	(-93.8)
Allocation to Schedule resulting from Quantity change. (Schedule) (QR)		(-3.6)	(-5.9)
Allocation to Estimating resulting from Quantity change. (Estimating) (QR)		(+10.7)	(+17.6)
Stretch-out of procurement buy profile due to change in SM-6 Block IA Guidance Section procurement quantity allocation with another advanced capability program. (Schedule)		0.0	+4.7
Revised estimate for SM-6 Block I/IA canister hardware based on pre-settlement MYP canister contract increase in unit pricing. (Estimating)		+31.3	+47.2
Revised estimate for SM-6 Block I/IA AUR unit cost in FY 2025 through FY 2028 based on FY 2019 to FY 2023 MYP settlement unit pricing. (Estimating)		-198.6	-313.4
Adjustment for current and prior escalation. (Estimating)		-1.6	-2.2
Adjustment for current and prior escalation. (Support)		-0.2	-0.2
Decrease in Other Support due to decrease in SM-6 Block IA procurement quantity. (Support)		-32.7	-49.2
Decrease in Initial Spares requirements estimated as a percent of AUR hardware. (Support)		0.0	+0.3
Procurement Subtotal		-251.8	-382.8

(QR) Quantity Related

## Contracts

### Contract Identification

**Appropriation:** Procurement  
**Contract Name:** SM-6 FRP  
**Contractor:** RMS Missile Systems (RMS)  
**Contractor Location:** 1151 Hermans Road  
 Tucson, AZ 85756  
**Contract Number:** N00024-13-C-5407/0  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** January 31, 2013  
**Definitization Date:** September 26, 2013

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
276.8	N/A	89	564.8	N/A	182	564.8	564.8

### Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to contract modification P00014 which awarded the FY 2014 contract option on June 25, 2014.

### Cost and Schedule Variance Explanations

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

### Notes

On January 31, 2013, Raytheon Missile Systems was awarded a contract for Long Lead Material for the FY 2013 FRP contract. The base contract (FY 2013) was definitized on September 26, 2013. The FY 2014 contract option was awarded on June 25, 2014.



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** SM-6 FRP 15/16  
**Contractor:** Raytheon  
**Contractor Location:** 1151 East Hermans Road  
 Tucson, AZ 85756  
**Contract Number:** N00024-15-C-5408/1  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** May 29, 2015  
**Definitization Date:** May 29, 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
259.1	N/A	93	515.0	N/A	101	515.0	515.0

**Target Price Change Explanation**

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the Initial Contract Price Target reflects the FY 2015 basic contract awarded on May 30, 2015 and the Current Contract Price Target reflects the FY 2016 contract option awarded on February 26, 2016.

**Cost and Schedule Variance Explanations**

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



**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** SM-6 FRP 17/18  
**Contractor:** Raytheon  
**Contractor Location:** 1151 East Hermans Road  
 Tucson, AZ 85756  
 Tucson, AZ 85756  
**Contract Number:** N00024-17-C-5409/1  
**Contract Type:** Firm Fixed Price (FFP)  
**Award Date:** September 28, 2018  
**Definitization Date:** September 28, 2018

Contract Price								
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)		
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager	
564.5	N/A	250	564.5	N/A	250	564.5	564.5	

**Cost and Schedule Variance Explanations**

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

**Contract Identification**

**Appropriation:** Procurement  
**Contract Name:** SM-6 MYP FY19 - 23  
**Contractor:** Raytheon Missile Systems  
**Contractor Location:** 1151 East Hermans Road  
 Tucson, AZ 85756  
**Contract Number:** N00024-20-C-5405  
**Contract Type:** Fixed Price Incentive(Firm Target) (FPIF)  
**Award Date:** December 20, 2019  
**Definitization Date:** December 20, 2019

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
1073.7	1110.4	625	1073.7	1110.4	625	1110.4	1110.4

**Cost and Schedule Variance Explanations**

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

**General Contract Variance Explanation**

Cost and schedule variances are not reported for this contract, because earned value management reporting has not yet commenced due a contract award on December 20, 2019. An Integrated Baseline Review (IBR) will be conducted in June 2020.

**Notes**

The FRP SM-6 Block I/IA MYP FY 2019 to FY 2023 contract was awarded on December 20, 2019. An Integrated Baseline Review (IBR) will be conducted in June 2020. Cost and Schedule contract performance reporting has not commenced.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	0	--
Production	582	582	2311	25.18%
Total Program Quantity Delivered	582	582	2311	25.18%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	11146.4	Years Appropriated	17
Expended to Date	3473.9	Percent Years Appropriated	68.00%
Percent Expended	31.17%	Appropriated to Date	5416.1
Total Funding Years	25	Percent Appropriated	48.59%

The above data is current as of February 10, 2020.



## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	February 10, 2020
<b>Source of Estimate:</b>	POE
<b>Quantity to Sustain:</b>	2311
<b>Unit of Measure:</b>	Missile
<b>Service Life per Unit:</b>	30.00 Years
<b>Fiscal Years in Service:</b>	FY 2013 - FY 2058

Since the SM-6 is a wooden round (a concept that pictures a weapon as being completely reliable and, while deployed on board a ship, having an infinite shelf life while at the same time requiring no special handling, storage, surveillance, or maintenance by ships force personnel), Personnel Costs are unnecessary for missile operation.

The average annual cost per missile assumes 2311 All Up Rounds over a 30 year life cycle. The program received additional funding for an emergent requirement to procure up to 180 SM-6 Block IA missiles per year starts in FY 2024. The program expects the average annual cost per missile to remain unchanged with this new requirement.

Unit Level Consumption includes Range and Target Costs, as well as Post Flight Analysis.

Intermediate Maintenance consists of Intermediate Level Maintenance facility costs.

Depot Maintenance includes Depot Maintenance and Refurbishment.

Sustaining Support includes Sustaining Investment and Software Maintenance.

Indirect Costs includes Installation and Personnel Support.

### Sustainment Strategy

SM-6 will leverage the proven and mature STANDARD Missile product support infrastructure. No unique storage, transportation, handling facilities, or launching systems will be required. The All Up Round will be considered a "wooden round" on board ship, with no Operational Level Maintenance (O-Level) required. In the future, a shipboard portable Maintenance Built-In-Test (MBIT) capability will allow a team to come aboard and test or install new software into the SM-6 round.

### Antecedent Information

For reporting purposes, SM-2 is the antecedent by definition of the closest analogous system to SM-6. The SM-6 program meets a different threat set and demonstrates enhanced capabilities in comparison to the SM-2 program.

SM-2 Cost/Missile/Year based on average quantity serviced in FY 2015, converted to BY 2004\$. SM-2 BLK IIIA/IIIB FY 2015 PB is the basis for the SM-2 average annual cost per missile.



Annual O&S Costs BY2004 \$K		
Cost Element	SM-6 Average Annual Cost Per Missile	SM-2 (Antecedent) Average Annual Cost Per Missile
Unit-Level Manpower	0.000	0.000
Unit Operations	3.000	1.500
Maintenance	3.200	5.000
Sustaining Support	2.100	1.200
Continuing System Improvements	0.000	0.000
Indirect Support	0.200	0.500
Other	0.000	0.000
Total	8.500	8.200

Item	Total O&S Cost \$M			
	SM-6			SM-2 (Antecedent)
	Current Production APB Objective/Threshold	Current Estimate		
Base Year	443.0	487.3	500.5 <sup>1</sup>	N/A
Then Year	863.9	N/A	1014.9	N/A

<sup>1</sup> APB O&S Cost Breach

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

Average Annual Missile O&S Cost = Total O&S Cost / number of missiles / number of operational missile years.

Total O&S Cost = \$500.5M (BY04\$)

Number of missiles = 2311

Number of operational years = 30 year life cycle

Differences in Annual Cost per Missile and Total O&S Cost are due to rounding issues.

The program received additional funding for an emergent requirement to procure 180 SM-6 Block IA missiles per year starts in FY 2024. The program expects the average annual cost per missile to remain unchanged. An Independent Logistics Assessment (ILA) was completed on October 30, 2017.

O&S Cost Variance		
Category	BY 2004 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2018 SAR	460.3	
Programmatic/Planning Factors	40.2	Updated O&S estimate to adjust for a total quantity from 1800 to 2311 missiles and extending the fiscal year retired date from FY 2054 to FY 2058.
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	

Energy Rate	0.0
Technical Input	0.0
Other	0.0
Total Changes	40.2
Current Estimate	500.5

**Disposal Estimate Details**

**Date of Estimate:**

**Source of Estimate:**

**Disposal/Demilitarization Total Cost (BY 2004 \$M):**

The Army is responsible for demilitarization of all DoD missile systems at the end of the missile service life, including the STANDARD missile. Disposal costs are not identified at this time.