# Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-562

# Utility Helicopter Replacement Program (UH-1N Replacement)

As of FY 2020 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

## Table of Contents

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

## Program Information

| Program Name |
| --- |
| Utility Helicopter Replacement Program (UH-1N Replacement) |

| DoD Component |
| --- |
| Air Force |

## Responsible Office

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**Date Assigned:** October 13, 2015

## References

**SAR Baseline (Development Estimate)**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated September 11, 2018

**Approved APB**

Air Force Acquisition Executive (AFAE) Approved Acquisition Program Baseline (APB) dated September 11, 2018

## Mission and Description

The Utility Helicopter Replacement Program (UH-1N Replacement) Air Vehicle (AV) fleet supports vertical-lift needs of four Major Commands and the Air Force District of Washington. Air Force Global Strike Command assumes Lead Command responsibility for the UH-1N Replacement program.

The selected MH-139 will address vertical lift support mission requirements for Air Force Global Strike Command, Air Force District of Washington, Pacific Air Force, Air Force Materiel Command, and Air Education and Training Command.

The three primary missions will be Intercontinental Ballistic Missile (ICBM) convoy escort, ICBM Emergency Security Response, and Continuity of Operations/Government. The MH-139 will aid in deterrence of adversaries and allow for a rapid response to mitigate threats and deny hostile aims. The MH-139 will afford the commander one of the most agile capabilities available to them for defense and security of nuclear assets as well as transportation for senior Government officials and key personnel in the event of a national emergency or disaster. The MH-139 will provide effective 21st-century deterrence by providing an overwhelming and timely security response force to deny unauthorized access to nuclear facilities. This enables positive control and security of ICBM assets and facilities, strengthening the Air Force's strategic nuclear deterrence capabilities.

The United States Air Force (USAF) UH-1N Replacement Program addresses the need to replace the USAF's aging UH-1N Huey helicopters AVs and the training system with a new AV. The UH-1N Replacement Program will leverage an existing, airworthiness-certified baseline AV and associated Training System(s) through Non-Developmental Item integration to meet System Requirements Document requirements.

Due to capability gaps with the current system, expedited fielding of MH-139 AVs is highly desired. Filling these capability gaps of the UH-1N are especially critical to the nuclear security and passenger transport missions. The various USAF vertical lift missions will be met with tailored mission equipment that preserves a common helicopter system. As MH-139s field, the current UH-1N will be deactivated or realigned to support other DoD missions.

# Executive Summary

## Program Highlights Since Last Report

In the April 4, 2017 ADM, the Service Acquisition Executive (SAE) approved the overarching acquisition strategy. The SAE directed the UH-1N Replacement System Program Manager to pursue a competitive Full and Open Acquisition Strategy with a tradeoff source selection approach. The program was categorized with an ACAT IB designation in accordance with guidance from the DoD Deputy Chief Management Officer.

On September 11, 2018, the program conducted a successful Milestone Decision Review. The SAE approved entry into the acquisition process at pre-Milestone C and contract award for the Non Developmental Item integration phase of the program to include the initial four Air Vehicles (AV), associated training devices and support equipment. On September 24, 2018, the program awarded a contract to Boeing. The selected UH-1N Replacement AV is the MH-139.

The initial UH-1N Replacement Helicopter program ADM, signed September 11, 2018, approved four EMD aircraft as part of the Non-Developmental Item (NDI) integration phase activities. A follow-on ADM was signed on March 9, 2019, to purchase two UH-1N Replacement System Demonstration Test Articles (SDTA) for use during the NDI integration phase. This brings the total RDT&E aircraft procured from four to six. However, Total Aircraft Inventory will remain 84. The two SDTA will become part of the operational fleet and two planned aircraft production units will be removed in FY 2030.

The original FY 2019 budget request was submitted and subsequently approved by Congress prior to the milestone decision. As a result FY 2019 RDT&E was funded above need by $59M. The Air Force has submitted a reprograming request to Congress to move this money outside the program. Additionally, the program in the PB 2020 budget request includes sufficient RDT&E funding time phased to support the new contract. As a result the program currently has an RDT&E APB breach. Once the reprograming actions are completed the breach will be resolved and RDT&E will be 5% above the APB RDT&E Objective.

On October 30, 2018, the Program Office, along with Boeing conducted a Post Award Conference.

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** |
| September 2018 | UH-1N Replacement Contract Awarded |
| October 2018 | Post Award Conference |

## Threshold Breaches

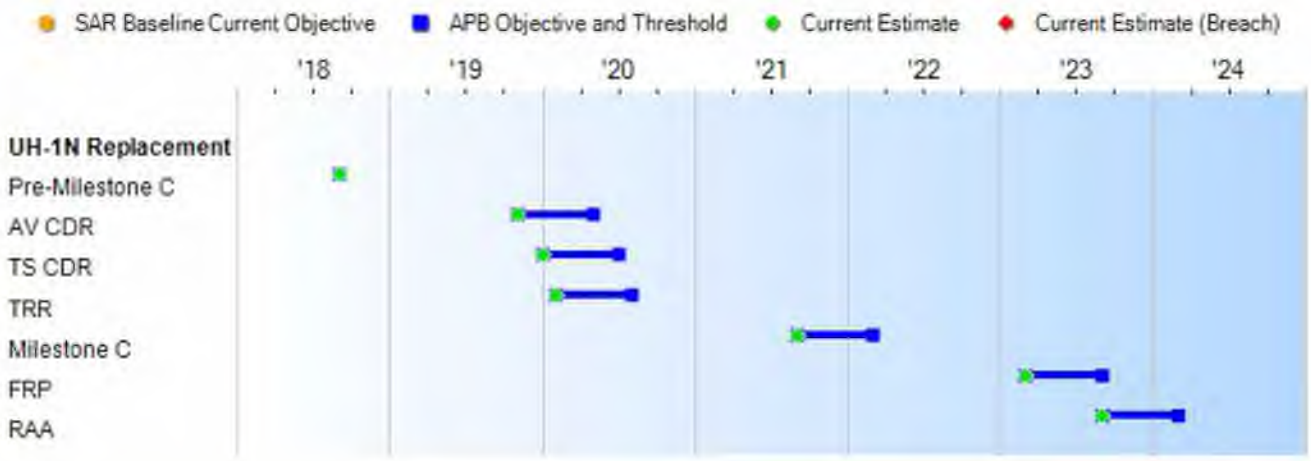
| APB Breaches | | |
|---|---|---|
| **Schedule** | | ☐ |
| **Performance** | | ☐ |
| **Cost** | RDT&E | ☑ |
| | Procurement | ☐ |
| | MILCON | ☐ |
| | Acq O&M | ☐ |
| **O&S Cost** | | ☐ |
| **Unit Cost** | PAUC | ☐ |
| | APUC | ☐ |

| Nunn-McCurdy Breaches | | |
|---|---|---|
| **Current UCR Baseline** | | |
| | PAUC | None |
| | APUC | None |
| **Original UCR Baseline** | | |
| | PAUC | None |
| | APUC | None |

**Explanation of Breach**

The original FY 2019 budget request was submitted and subsequently approved by Congress prior to the milestone decision. As a result FY 2019 RDT&E was funded above need by $59M. The Air Force has submitted a reprograming request to Congress to move this money outside the program. Additionally, the program in the PB 2020 budget request includes sufficient RDT&E funding time phased to support the new contract. As a result the program currently has an RDT&E APB breach. Once the reprograming actions are completed the breach will be resolved and RDT&E will be 5% above the APB RDT&E Objective.

## Schedule




| Schedule Events | | | | |
|---|---|---|---|---|
| Events | SAR Baseline Development Estimate | Current APB Development Objective/Threshold | | Current Estimate |
| Pre-Milestone C | Sep 2018 | Sep 2018 | Sep 2018 | Sep 2018 |
| AV CDR | Nov 2019 | Nov 2019 | May 2020 | Nov 2019 |
| TS CDR | Jan 2020 | Jan 2020 | Jul 2020 | Jan 2020 |
| TRR | Feb 2020 | Feb 2020 | Aug 2020 | Feb 2020 |
| Milestone C | Sep 2021 | Sep 2021 | Mar 2022 | Sep 2021 |
| FRP | Mar 2023 | Mar 2023 | Sep 2023 | Mar 2023 |
| RAA | Sep 2023 | Sep 2023 | Mar 2024 | Sep 2023 |

### Change Explanations

None

### Notes

1/ TS CDR is contingent upon successful AV CDR.

2/ A successful TRR allows DT to begin; signaling program maturity and ability to meet further schedule milestones.

3/ The RAA is being used as the surrogate for IOC. A summary of requirements for RAA include: 7 mission aircraft, trained crews and maintainers, facilities, one Operational Flight Trainer at operational base, Interim Contract Support and support equipment, and validated technical orders.

## Acronyms and Abbreviations

AV - Air Vehicle
CDR - Critical Design Review
DT - Developmental Test
RAA - Required Assets Available
TRR - Test Readiness Review
TS - Training System

## Performance

| Performance Characteristics | | | | |
|---|---|---|---|---|
| **SAR Baseline Development Estimate** | **Current APB Development Objective/Threshold** | | **Demonstrated Performance** | **Current Estimate** |
| **Carrying Capacity (KPP-1)** | | | | |
| Capable of carrying nine combat equipped troops (2475 lbs) and equipment (719 lbs) (3194 lbs of the total ICBM, ESR, SCL) IAW ICBM ESR mission profile. | Capable of carrying nine combat equipped troops (2475 lbs) and equipment (719 lbs) (3194 lbs of the total ICBM, ESR, SCL) IAW ICBM ESR mission profile. | (T=O) Capable of carrying nine combat equipped troops (2475 lbs) and equipment (719 lbs) (3194 lbs of the total ICBM, ESR, SCL) IAW ICBM ESR mission profile. | TBD | Capable of carrying nine combat equipped troops (2475 lbs) and equipment (719 lbs) (3194 lbs of the total ICBM, ESR, SCL) IAW ICBM ESR mission profile. |
| **Airspeed (KPP-2)** | | | | |
| Using no more than maximum continuous power, the UH-1N Replacement must be capable of maintaining 135 KTAS for the en-route portion of the ICBM ESR mission profile with 3194 lbs of the ICBM ESR SCL on a High Hot Day IAW ICBM ESR mission profile | Using no more than maximum continuous power, the UH-1N Replacement must be capable of maintaining 135 KTAS for the en-route portion of the ICBM ESR mission profile with 3194 lbs of the ICBM ESR SCL on a High Hot Day IAW ICBM ESR mission profile | (T=O) Using no more than maximum continuous power, the UH -1N Replacement must be capable of maintaining 135 KTAS for the en-route portion of the ICBM ESR mission profile with 3194 lbs of the ICBM ESR SCL on a High Hot Day IAW ICBM ESR mission profile | TBD | Using no more than maximum continuous power, the UH-1N Replacement must be capable of maintaining 135 KTAS for the en-route portion of the ICBM ESR mission profile with 3194 lbs of the ICBM ESR SCL on a High Hot Day IAW ICBM ESR mission profile |
| **Unrefueled Endurance (KPP-3)** | | | | |
| 4.0 hours unrefueled flight performing in the ICBM convoy escort mission profile with SCL plus an additional 45 nm flight to the refueling location with sufficient usable fuel reserves to continue fight for 20 minutes. IAW convoy escort mission profile. Additional flight time provides enough gas for return flight home if necessary for additional security compliment. | 4.0 hours unrefueled flight performing in the ICBM convoy escort mission profile with SCL plus an additional 45 nm flight to the refueling location with sufficient usable fuel reserves to continue fight for 20 minutes. IAW convoy escort mission profile. Additional flight time provides enough gas for return flight home if necessary for additional security compliment. | 3.0 hours unrefueled flight performing in the ICBM convoy escort mission profile with SCL plus an additional 45 nm flight to the refueling location with sufficient usable fuel reserves to continue fight for 20 minutes IAW convoy escort mission profile. | TBD | 4.0 hours unrefueled flight performing in the ICBM convoy escort mission profile with SCL plus an additional 45 nm flight to the refueling location with sufficient usable fuel reserves to continue fight for 20 minutes. IAW convoy escort mission profile. Additional flight time provides enough gas for return flight home if necessary for additional security compliment. |

| | | | | |
|---|---|---|---|---|
| **Mission Range (KPP-4)** | | | | |
| Un-refueled range of 515 nm at cruise airspeed with sufficient useable fuel reserves to continue flight for 20 minutes under Hot Day conditions performing the COOP/Transport SCL IAW NCR 3A mission profile. Additional range provides increased distance capability desired for alternate locations for the NCR mission. | Un-refueled range of 515 nm at cruise airspeed with sufficient useable fuel reserves to continue flight for 20 minutes under Hot Day conditions performing the COOP/Transport SCL IAW NCR 3A mission profile. Additional range provides increased distance capability desired for alternate locations for the NCR mission. | Un-refueled range of 225 nm at cruise airspeed with sufficient useable fuel reserves to continue flight for 20 minutes under Hot Day conditions performing the COOP/Transport SCL IAW NCR 3A mission profile. | TBD | Un-refueled range of 515 nm at cruise airspeed with sufficient useable fuel reserves to continue flight for 20 minutes under Hot Day conditions performing the COOP/Transport SCL IAW NCR 3A mission profile. Additional range provides increased distance capability desired for alternate locations for the NCR mission. |
| **Force Protection - Floor (KPP-5)** | | | | |
| Cockpit and cabin floor shall be able to provide ballistic protection at zero degrees obliquity against small arms fire up to 12.7x99 M33 ball at 500 meter range at V50 probability of penetration. If armor is used, it must be removable and accounted for in basic aircraft weight. | Cockpit and cabin floor shall be able to provide ballistic protection at zero degrees obliquity against small arms fire up to 12.7x99 M33 ball at 500 meter range at V50 probability of penetration. If armor is used, it must be removable and accounted for in basic aircraft weight. | Cockpit and cabin floor shall be able to provide ballistic protection at zero degrees obliquity against small arms fire up to 7.62x39mm M43 Type PS ball at 100-meter range at V50 probability of penetration. If armor is used, it must be removable and accounted for in basic aircraft weight. | TBD | Cockpit and cabin floor shall be able to provide ballistic protection at zero degrees obliquity against small arms fire up to 12.7x99 M33 ball at 500 meter range at V50 probability of penetration. If armor is used, it must be removable and accounted for in basic aircraft weight. |
| **System Survivability - Flight Damage (KPP-7)** | | | | |
| 95 percent probability to withstand flight critical damage for 30 minutes imposed by a single hit at all azimuths and elevation angles within the bottom hemisphere while the aircraft is in a level flight attitude from a 7.62x39mm M1943 BZ API projectile at 50-meter slant range and 12.7x108mm B32 API projectile at 250-meters slant range. | 95 percent probability to withstand flight critical damage for 30 minutes imposed by a single hit at all azimuths and elevation angles within the bottom hemisphere while the aircraft is in a level flight attitude from a 7.62x39mm M1943 BZ API projectile at 50-meter slant range and 12.7x108mm B32 API projectile at 250-meters slant range. | 95 percent probability to withstand flight critical damage for 30 minutes imposed by a single hit at all azimuths and elevation angles within the bottom hemisphere while the aircraft is in a level flight attitude from a 7.62x39mm M1943 BZ Armor Piercing Incendiary (API) projectile at 100-meter slant range and 12.7x108mm B32 API projectile at 500-meters slant angle. IAW DoDI 8510.01, The airframe shall be capable of cybersecurity evaluation for MX equipment, flight | TBD | 95 percent probability to withstand flight critical damage for 30 minutes imposed by a single hit at all azimuths and elevation angles within the bottom hemisphere while the aircraft is in a level flight attitude from a 7.62x39mm M1943 BZ API projectile at 50-meter slant range and 12.7x108mm B32 API projectile at 250-meters slant range. |

| | | | | |
|---|---|---|---|---|
| | | planning equipment and ground based computer hardware and software with physical access control to systems and data ports. The system monitors and controls for system data exchanges at external boundaries with mechanics for preventing the deployment of malicious code being installed to prevent airframe system compromise. If a cyber system is compromised, the aircraft should be able to perform its primary mission IAW profiles list in Appendix A of the CPD. | | |
| **Sustainment (KPP-8)** | | | | |
| Operational Availability (Mission Capability) rate of 83% (Mission Capable hours / Possessed hours). Materiel Availability rate of 76% (MC hours / TAI hours) | Operational Availability (Mission Capability) rate of 83% (Mission Capable hours / Possessed hours). Materiel Availability rate of 76% (MC hours / TAI hours) | (T=O) Operational Availability (Mission Capability) rate of 83% (Mission Capable hours / Possessed hours). Materiel Availability rate of 76% (MC hours / TAI hours) | TBD | Operational Availability (Mission Capability) rate of 83% (Mission Capable hours / Possessed hours). Materiel Availability rate of 76% (MC hours / TAI hours) |
| **Training (KPP-10)** | | | | |
| The goal of UH-1N replacement Training System is to efficiently train aircrews to enable the aircraft to function as designed to support assigned missions throughout its life cycle. The airframe itself will not require any specific operational performance characteristics; aircrew will operate and train on aircraft as it normally performs. The full training system compliment should include an ATS consisting of training devices, courseware, | The goal of UH-1N replacement Training System is to efficiently train aircrews to enable the aircraft to function as designed to support assigned missions throughout its life cycle. The airframe itself will not require any specific operational performance characteristics; aircrew will operate and train on aircraft as it normally performs. The full training system compliment should include an ATS consisting of training devices, courseware, | (T=O) The goal of UH-1N replacement Training System is to efficiently train aircrews to enable the aircraft to function as designed to support assigned missions throughout its life cycle. The airframe itself will not require any specific operational performance characteristics; aircrew will operate and train on aircraft as it normally performs. The full training system compliment should include an ATS consisting of training devices, courseware, Type 1 Training, spare parts, support equipment and technical data. These | TBD | The goal of UH-1N replacement Training System is to efficiently train aircrews to enable the aircraft to function as designed to support assigned missions throughout its life cycle. The airframe itself will not require any specific operational performance characteristics; aircrew will operate and train on aircraft as it normally performs. The full training system compliment should include an ATS consisting of training devices, courseware, |

| | | | | |
|---|---|---|---|---|
| Type 1 Training, spare parts, support equipment and technical data. These devices must replicate the performance of the airframe and provide full spectrum training capability. | Type 1 Training, spare parts, support equipment and technical data. These devices must replicate the performance of the airframe and provide full spectrum training capability. | devices must replicate the performance of the airframe and provide full spectrum training capability. | | Type 1 Training, spare parts, support equipment and technical data. These devices must replicate the performance of the airframe and provide full spectrum training capability. |
| **Energy (KPP-11)** | | | | |
| Average burn rate across both SCL profiles will not exceed 150 GPH. | Average burn rate across both SCL profiles will not exceed 150 GPH. | Average burn rate across both SCL profiles will not exceed 185 GPH. | TBD | Average burn rate across both SCL profiles will not exceed 150 GPH. |

## Requirements Reference

UH-1N Replacement CDD dated June 22, 2016

## Change Explanations

None

## Notes

The J-6 determined the NR KPP was not applicable as documented in the UH-1N Replacement CPD dated June 22, 2016.

## Acronyms and Abbreviations

API - Armor Piercing Incendiary
ATS - Aircrew Training System
COOP - Continuation of Operations
DoDI - Department of Defense Instruction
ESR - Emergency Security Response
GPH - Gallons Per Hour
IAW - In Accordance With
ICBM - Inter-Continental Ballistic Missile
KTAS - Knots True Airspeed
lbs - Pounds
MC - Mission Capability
mm - Millimeter
MX - Maintenance
NCR - National Capital Region
nm - Nautical Miles
NR - Net Ready
O - Objective
OV - Operational View
SCL - Standard Configuration Load
SV - Standard View
T - Threshold
TAI - Total Aircraft Inventory
V50 - Velocity - 50%

## Track to Budget

**RDT&E**

| Appn | BA | PE |
|---|---|---|
| Air Force | 3600 | 07 | 0102110F |

| Project | Name |
|---|---|
| 672021 | UH-1N Replacement |

**Procurement**

| Appn | BA | PE |
|---|---|---|
| Air Force | 3010 | 04 | 0102110F |

| Line Item | Name |
|---|---|
| H0106O | UH-1N Replacement |

| Appn | BA | PE |
|---|---|---|
| Air Force | 3010 | 06 | 0102110F |

| Line Item | Name |
|---|---|
| H0106O | UH-1N Replacement |

**MILCON**

| Appn | BA | PE |
|---|---|---|
| Air Force | 3300 | 01 | 0102110F |

| Project | Name |
|---|---|
| CRN000 | UH-1N Recap |

# Cost and Funding

## Cost Summary

| Total Acquisition Cost | | | | | | | |
|---|---|---|---|---|---|---|---|
| Appropriation | BY 2018 $M | | | BY 2018 $M | TY $M | | |
| | SAR Baseline Development Estimate | Current APB Development Objective/Threshold | | Current Estimate | SAR Baseline Development Estimate | Current APB Development Objective | Current Estimate |
| RDT&E | 569.4 | 569.4 | 626.3 | 660.6[1] | 589.9 | 589.9 | 686.3 |
| Procurement | 2422.5 | 2422.5 | 2664.8 | 2382.6 | 2923.9 | 2923.9 | 2875.4 |
| Flyaway | -- | -- | -- | 1578.6 | -- | -- | 1913.3 |
| Recurring | -- | -- | -- | 1578.6 | -- | -- | 1913.3 |
| Non Recurring | -- | -- | -- | 0.0 | -- | -- | 0.0 |
| Support | -- | -- | -- | 804.0 | -- | -- | 962.1 |
| Other Support | -- | -- | -- | 638.7 | -- | -- | 758.9 |
| Initial Spares | -- | -- | -- | 165.3 | -- | -- | 203.2 |
| MILCON | 316.9 | 316.9 | 348.6 | 236.7 | 355.7 | 355.7 | 263.3 |
| Acq O&M | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 3308.8 | 3308.8 | N/A | 3279.9 | 3869.5 | 3869.5 | 3825.0 |

[1] *APB Breach*

### Current APB Cost Estimate Reference

SCP dated September 04, 2018

### Cost Notes

If an Independent Cost Estimate, Component Cost Estimate, or Program Office Estimate has been completed for the program in the previous year, list any program risks identified in the estimates, the potential impacts of the risks on program cost, and approaches to mitigate the risks. The Service Cost Position (SCP), dated September 4, 2018, is the official cost position. The SCP's construct was based on analogous systems for determining the real weapon system costs. Schedule and associated cost risk was added to the SCP to cover the aggressive integration, test, and production schedule.

The actual UH-1N Replacement weapon system price is based on a firm fixed Priced (FFP) contract; therefore, cost risk is considered low. FFP Contract Line Item Numbers (CLINs) include Integration/test, Low Rate Initial Production (LRIP) (Lots 1 and 2), and Full Rate Production (FRP) Lot 1. FRP Lots 2 through 8 are FFP not-to-exceed CLINs.

| Total Quantity | | | |
|---|---|---|---|
| Quantity | SAR Baseline Development Estimate | Current APB Development | Current Estimate |
| RDT&E | 4 | 4 | 6 |
| Procurement | 80 | 80 | 78 |
| Total | 84 | 84 | 84 |

**Quantity Notes**

Two additional SDTA will be purchased with 3600 RDT&E FY 2020 funding for $30M.

# Cost and Funding

## Funding Summary

| Appropriation Summary<br>FY 2020 President's Budget / December 2018 SAR (TY$ M) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Appropriation | Prior | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total |
| RDT&E | 191.7 | 258.0 | 171.0 | 44.5 | 16.4 | 4.3 | 0.4 | 0.0 | 686.3 |
| Procurement | 1.6 | 0.0 | 0.0 | 212.0 | 287.6 | 325.5 | 424.6 | 1624.1 | 2875.4 |
| MILCON | 62.0 | 66.0 | 46.0 | 40.0 | 0.0 | 0.0 | 0.0 | 49.3 | 263.3 |
| Acq O&M | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| PB 2020 Total | 255.3 | 324.0 | 217.0 | 296.5 | 304.0 | 329.8 | 425.0 | 1673.4 | 3825.0 |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- |

**Funding Notes**

The original FY 2019 budget request was submitted and subsequently approved by Congress prior to the milestone decision. As a result FY 2019 RDT&E was funded above need by $59M. The Air Force has submitted a reprograming request to Congress to move this money outside the program. Additionally, the program in the PB 2020 budget request includes sufficient RDT&E funding time phased to support the new contract. As a result the program currently has an RDT&E APB breach. Once the reprograming actions are completed the breach will be resolved and RDT&E will be 5% above the APB RDT&E Objective.

| Quantity Summary<br>FY 2020 President's Budget / December 2018 SAR (TY$ M) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Quantity | Undistributed | Prior | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | To Complete | Total |
| Development | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| Production | 0 | 0 | 0 | 0 | 8 | 8 | 8 | 11 | 43 | 78 |
| PB 2020 Total | 6 | 0 | 0 | 0 | 8 | 8 | 8 | 11 | 43 | 84 |
| | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

## Cost and Funding

## Annual Funding By Appropriation

| Annual Funding<br>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 |
| 2017 | -- | -- | -- | -- | -- | -- | 3.4 |
| 2018 | -- | -- | -- | -- | -- | -- | 188.3 |
| 2019 | -- | -- | -- | -- | -- | -- | 258.0 |
| 2020 | -- | -- | -- | -- | -- | -- | 171.0 |
| 2021 | -- | -- | -- | -- | -- | -- | 44.5 |
| 2022 | -- | -- | -- | -- | -- | -- | 16.4 |
| 2023 | -- | -- | -- | -- | -- | -- | 4.3 |
| 2024 | -- | -- | -- | -- | -- | -- | 0.4 |
| Subtotal | 6 | -- | -- | -- | -- | -- | 686.3 |

| Annual Funding<br>3600 \| RDT&E \| Research, Development, Test, and Evaluation, Air Force | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fiscal Year | Quantity | BY 2018 $M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2017 | -- | -- | -- | -- | -- | -- | 3.4 |
| 2018 | -- | -- | -- | -- | -- | -- | 185.5 |
| 2019 | -- | -- | -- | -- | -- | -- | 249.3 |
| 2020 | -- | -- | -- | -- | -- | -- | 162.0 |
| 2021 | -- | -- | -- | -- | -- | -- | 41.3 |
| 2022 | -- | -- | -- | -- | -- | -- | 14.9 |
| 2023 | -- | -- | -- | -- | -- | -- | 3.8 |
| 2024 | -- | -- | -- | -- | -- | -- | 0.4 |
| Subtotal | 6 | -- | -- | -- | -- | -- | 660.6 |

The original UH-1N Replacement Helicopter program ADM, signed September 11, 2018, approved four EMD aircraft as part of the Non-Developmental Item (NDI) integration phase activitives. A follow-on ADM was signed on March 9, 2019, to purchase two UH-1N Replacement System Demonstration Test Articles (SDTA) for use during the NDI integration phase. This brings the total RDT&E aircraft procured from four to six.

| Annual Funding<br>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 |
| 2016 | -- | -- | -- | -- | -- | 1.6 | 1.6 |
| 2017 | -- | -- | -- | -- | -- | -- | -- |
| 2018 | -- | -- | -- | -- | -- | -- | -- |
| 2019 | -- | -- | -- | -- | -- | -- | -- |
| 2020 | -- | -- | -- | -- | -- | -- | -- |
| 2021 | 8 | 141.4 | -- | -- | 141.4 | 70.6 | 212.0 |
| 2022 | 8 | 181.5 | -- | -- | 181.5 | 106.1 | 287.6 |
| 2023 | 8 | 200.9 | -- | -- | 200.9 | 124.6 | 325.5 |
| 2024 | 11 | 253.5 | -- | -- | 253.5 | 171.1 | 424.6 |
| 2025 | 8 | 193.6 | -- | -- | 193.6 | 158.2 | 351.8 |
| 2026 | 8 | 197.7 | -- | -- | 197.7 | 113.7 | 311.4 |
| 2027 | 8 | 197.8 | -- | -- | 197.8 | 74.9 | 272.7 |
| 2028 | 8 | 199.7 | -- | -- | 199.7 | 22.5 | 222.2 |
| 2029 | 8 | 208.4 | -- | -- | 208.4 | 50.1 | 258.5 |
| 2030 | 3 | 138.8 | -- | -- | 138.8 | 68.7 | 207.5 |
| Subtotal | 78 | 1913.3 | -- | -- | 1913.3 | 962.1 | 2875.4 |

| Annual Funding<br>3010 \| Procurement \| Aircraft Procurement, Air Force | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fiscal Year | Quantity | BY 2018 $M | | | | | |
| | | End Item Recurring Flyaway | Non End Item Recurring Flyaway | Non Recurring Flyaway | Total Flyaway | Total Support | Total Program |
| 2016 | -- | -- | -- | -- | -- | 1.6 | 1.6 |
| 2017 | -- | -- | -- | -- | -- | -- | -- |
| 2018 | -- | -- | -- | -- | -- | -- | -- |
| 2019 | -- | -- | -- | -- | -- | -- | -- |
| 2020 | -- | -- | -- | -- | -- | -- | -- |
| 2021 | 8 | 127.3 | -- | -- | 127.3 | 63.6 | 190.9 |
| 2022 | 8 | 160.3 | -- | -- | 160.3 | 93.6 | 253.9 |
| 2023 | 8 | 173.9 | -- | -- | 173.9 | 107.9 | 281.8 |
| 2024 | 11 | 215.1 | -- | -- | 215.1 | 145.2 | 360.3 |
| 2025 | 8 | 161.1 | -- | -- | 161.1 | 131.6 | 292.7 |
| 2026 | 8 | 161.3 | -- | -- | 161.3 | 92.7 | 254.0 |
| 2027 | 8 | 158.2 | -- | -- | 158.2 | 59.9 | 218.1 |
| 2028 | 8 | 156.6 | -- | -- | 156.6 | 17.6 | 174.2 |
| 2029 | 8 | 160.2 | -- | -- | 160.2 | 38.5 | 198.7 |
| 2030 | 3 | 104.6 | -- | -- | 104.6 | 51.8 | 156.4 |
| Subtotal | 78 | 1578.6 | -- | -- | 1578.6 | 804.0 | 2382.6 |

FY 2020 PB accelerated aircraft buys, adding three aircraft in FY 2024. Subsequently, three aircraft were taken out of the last lot buy in FY 2030.

Additionally, an amended ADM was signed on March 9, 2019, authorizing two RDT&E SDTA aircraft which will be procured in FY 2020 in RDT&E. Therefore, to keep the program of record at 84, two production unit aircraft were removed in FY 2030.

| Annual Funding<br>3300 \| MILCON \| Military Construction, Air Force | |
|---|---|
| Fiscal Year | TY $M<br>Total Program |
| 2018 | 62.0 |
| 2019 | 66.0 |
| 2020 | 46.0 |
| 2021 | 40.0 |
| 2022 | -- |
| 2023 | -- |
| 2024 | -- |
| 2025 | -- |
| 2026 | -- |
| 2027 | 6.2 |
| 2028 | 43.1 |
| Subtotal | 263.3 |

| Annual Funding<br>3300 \| MILCON \| Military Construction, Air Force | |
|---|---|
| Fiscal Year | BY 2018 $M |
| | Total Program |
| 2018 | 58.9 |
| 2019 | 61.5 |
| 2020 | 42.0 |
| 2021 | 35.8 |
| 2022 | -- |
| 2023 | -- |
| 2024 | -- |
| 2025 | -- |
| 2026 | -- |
| 2027 | 4.9 |
| 2028 | 33.6 |
| Subtotal | 236.7 |

FY 2024 has a Air Force District of Washington $84M MILCON requirement that was not funded in the FY 2020 PB.

## Low Rate Initial Production

| Item | Initial LRIP Decision | Current Total LRIP |
|---|---|---|
| **Approval Date** | 9/11/2018 | 9/11/2018 |
| **Approved Quantity** | 16 | 16 |
| **Reference** | Pre-Milestone C ADM | Pre-Milestone C ADM |
| **Start Year** | 2021 | 2021 |
| **End Year** | 2022 | 2022 |

The Current Total LRIP Quantity is more than 10% of the total production quantity based on the program's low technical risk and to enable rapid fielding of a critical capability.

## Foreign Military Sales

None

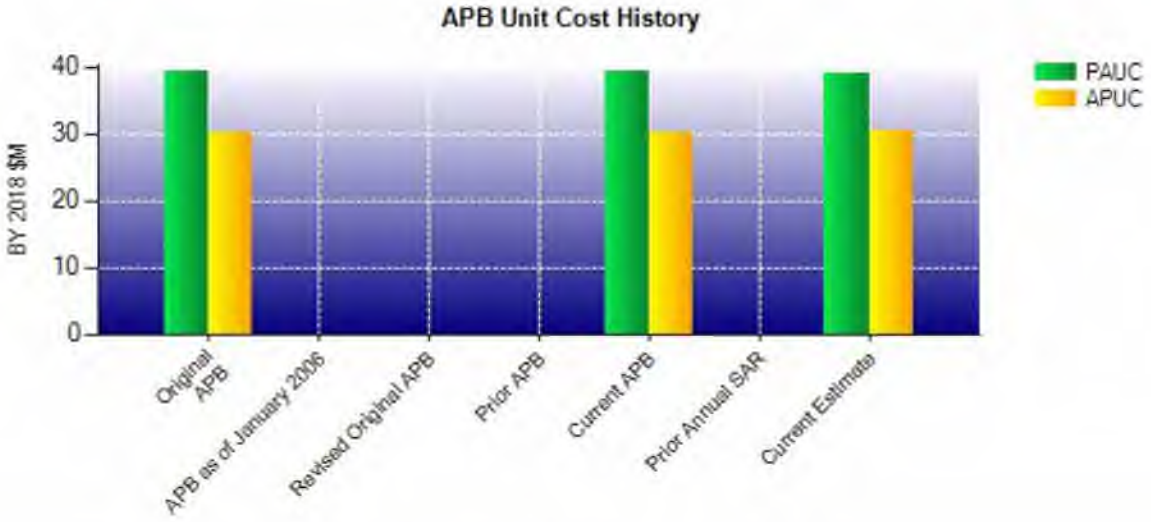
## Nuclear Costs

None

## Unit Cost

| Current UCR Baseline and Current Estimate (Base-Year Dollars) | | | |
|---|---|---|---|
| Item | BY 2018 $M<br>Current UCR Baseline (Sep 2018 APB) | BY 2018 $M<br>Current Estimate (Dec 2018 SAR) | % Change |
| Program Acquisition Unit Cost | | | |
| Cost | 3308.8 | 3279.9 | |
| Quantity | 84 | 84 | |
| Unit Cost | 39.390 | 39.046 | -0.87 |
| Average Procurement Unit Cost | | | |
| Cost | 2422.5 | 2382.6 | |
| Quantity | 80 | 78 | |
| Unit Cost | 30.281 | 30.546 | +0.88 |

| Original UCR Baseline and Current Estimate (Base-Year Dollars) | | | |
|---|---|---|---|
| Item | BY 2018 $M<br>Original UCR Baseline (Sep 2018 APB) | BY 2018 $M<br>Current Estimate (Dec 2018 SAR) | % Change |
| Program Acquisition Unit Cost | | | |
| Cost | 3308.8 | 3279.9 | |
| Quantity | 84 | 84 | |
| Unit Cost | 39.390 | 39.046 | -0.87 |
| Average Procurement Unit Cost | | | |
| Cost | 2422.5 | 2382.6 | |
| Quantity | 80 | 78 | |
| Unit Cost | 30.281 | 30.546 | +0.88 |




| APB Unit Cost History | | | | | |
|---|---|---|---|---|---|
| Item | Date | BY 2018 $M | | TY $M | |
| | | PAUC | APUC | PAUC | APUC |
| Original APB | Sep 2018 | 39.390 | 30.281 | 46.065 | 36.549 |
| APB as of January 2006 | N/A | N/A | N/A | N/A | N/A |
| Revised Original APB | N/A | N/A | N/A | N/A | N/A |
| Prior APB | N/A | N/A | N/A | N/A | N/A |
| Current APB | Sep 2018 | 39.390 | 30.281 | 46.065 | 36.549 |
| Prior Annual SAR | N/A | N/A | N/A | N/A | N/A |
| Current Estimate | Dec 2018 | 39.046 | 30.546 | 45.536 | 36.864 |

## SAR Unit Cost History

| Current SAR Baseline to Current Estimate (TY $M) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PAUC Development Estimate | Changes | | | | | | | | PAUC Current Estimate |
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 46.065 | 0.171 | -0.324 | -0.117 | 0.000 | -0.155 | 0.000 | -0.104 | -0.529 | 45.536 |

| Current SAR Baseline to Current Estimate (TY $M) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Initial APUC Development Estimate | Changes | | | | | | | | APUC Current Estimate |
| | Econ | Qty | Sch | Eng | Est | Oth | Spt | Total | |
| 36.549 | 0.146 | 0.208 | -0.126 | 0.000 | 0.199 | 0.000 | -0.112 | 0.315 | 36.864 |

| 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 | N/A | N/A | N/A |
| Milestone C | N/A | Sep 2018 | N/A | Sep 2018 |
| IOC | N/A | Sep 2023 | N/A | Sep 2023 |
| Total Cost (TY $M) | N/A | 3869.5 | N/A | 3825.0 |
| Total Quantity | N/A | 84 | N/A | 84 |
| PAUC | N/A | 46.065 | N/A | 45.536 |

## Cost Variance

| Summary TY $M | | | | |
|---|---|---|---|---|
| Item | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Development Estimate) | 589.9 | 2923.9 | 355.7 | 3869.5 |
| Previous Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | -- | -- | -- |
| Schedule | -- | -- | -- | -- |
| Engineering | -- | -- | -- | -- |
| Estimating | -- | -- | -- | -- |
| Other | -- | -- | -- | -- |
| Support | -- | -- | -- | -- |
| Subtotal | -- | -- | -- | -- |
| Current Changes | | | | |
| Economic | +1.8 | +11.4 | +1.2 | +14.4 |
| Quantity | +29.5 | -56.9 | -- | -27.4 |
| Schedule | -- | -9.8 | -- | -9.8 |
| Engineering | -- | -- | -- | -- |
| Estimating | +65.1 | +15.5 | -93.6 | -13.0 |
| Other | -- | -- | -- | -- |
| Support | -- | -8.7 | -- | -8.7 |
| Subtotal | +96.4 | -48.5 | -92.4 | -44.5 |
| Total Changes | +96.4 | -48.5 | -92.4 | -44.5 |
| CE - Cost Variance | 686.3 | 2875.4 | 263.3 | 3825.0 |
| CE - Cost & Funding | 686.3 | 2875.4 | 263.3 | 3825.0 |

| Summary BY 2018 $M | | | | |
|---|---|---|---|---|
| Item | RDT&E | Procurement | MILCON | Total |
| SAR Baseline (Development Estimate) | 569.4 | 2422.5 | 316.9 | 3308.8 |
| Previous Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | -- | -- | -- | -- |
| Schedule | -- | -- | -- | -- |
| Engineering | -- | -- | -- | -- |
| Estimating | -- | -- | -- | -- |
| Other | -- | -- | -- | -- |
| Support | -- | -- | -- | -- |
| Subtotal | -- | -- | -- | -- |
| Current Changes | | | | |
| Economic | -- | -- | -- | -- |
| Quantity | +27.9 | -42.9 | -- | -15.0 |
| Schedule | -- | -- | -- | -- |
| Engineering | -- | -- | -- | -- |
| Estimating | +63.3 | +10.3 | -80.2 | -6.6 |
| Other | -- | -- | -- | -- |
| Support | -- | -7.3 | -- | -7.3 |
| Subtotal | +91.2 | -39.9 | -80.2 | -28.9 |
| Total Changes | +91.2 | -39.9 | -80.2 | -28.9 |
| CE - Cost Variance | 660.6 | 2382.6 | 236.7 | 3279.9 |
| CE - Cost & Funding | 660.6 | 2382.6 | 236.7 | 3279.9 |

Previous Estimate: September 2018

| RDT&E | $M | |
|---|---|---|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | +1.8 |
| Quantity variance due to the increase of two System Demonstration Test Articles authorized by amended Acquisition Decision Memorandum dated March 9, 2019. (Quantity) | +27.9 | +29.5 |
| Adjustment for current and prior escalation. (Estimating) | -0.9 | -0.9 |
| Revised estimate to reflect prior year actuals. (Estimating) | -2.2 | -2.2 |
| Revised estimate due to a change in Acquisition Strategy which caused contract award delay from FY 2017 to FY 2018 resulting in Above Threshold Reprogramming. (Estimating) | +82.2 | +83.5 |
| Revised estimate for Small Business Innovative Research in FY 2018. (Estimating) | -3.7 | -3.8 |
| Revised estimate to align to the FY 2019 Budget Authority House Appropriation Committee-D mark due to program delay. (Estimating) | -29.0 | -30.0 |
| Revised estimate to align with UH-1N Replacement SCP. (Estimating) | +17.4 | +19.0 |
| Revised estimate to align with FY 2020 PB. (Estimating) | -0.5 | -0.5 |
| RDT&E Subtotal | +91.2 | +96.4 |

| Procurement | $M | |
|---|---|---|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | +11.4 |
| Quantity variance resulting from a decrease of two aircraft from 80 to 78. (Quantity) | -42.9 | -56.9 |
| Acceleration of procurement buy profile in FY 2024 from eight to 11 and a decrease of five aircraft in FY 2030. (Schedule) | 0.0 | -9.8 |
| Revised estimate to align with FY 2020 PB which resulted in program acceleration. (Estimating) (QR) | +10.3 | +15.5 |
| Decrease in Initial Spares to align with FY 2020 PB. (Support) | -5.7 | -6.5 |
| Decrease in Other Support to align with the FY 2020 PB. (Support) | -1.6 | -2.2 |
| Procurement Subtotal | -39.9 | -48.5 |

(QR) Quantity Related

| MILCON | $M | |
|---|---|---|
| Current Change Explanations | Base Year | Then Year |
| Revised escalation indices. (Economic) | N/A | +1.2 |
| Adjustment for current and prior escalation. (Estimating) | -0.4 | -0.4 |
| Requirement funded in another program element. (Estimating) | -19.1 | -19.7 |
| Revised estimate to align with FY 2020 PB. (Estimating) | -60.7 | -73.5 |
| MILCON Subtotal | -80.2 | -92.4 |

# Contracts

## Contract Identification

**Appropriation:** RDT&E
**Contract Name:** UH-1N Replacement
**Contractor:** The Boeing Company
**Contractor Location:** Route 291 and Stewart Ave.
Ridley Park, PA 19078-1099
**Contract Number:** FA8739-18-C-5030
**Contract Type:** Firm Fixed Price (FFP)
**Award Date:** September 24, 2018
**Definitization Date:** September 24, 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 |
| 375.5 | N/A | N/A | 392.5 | N/A | N/A | 392.5 | 392.5 |

## Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the exercise of options for: Training Courseware (CLIN 0121) and the Full Up System Level Asset (CLIN 0113).

## Cost and Schedule Variance Explanations

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

## Deliveries and Expenditures

| Deliveries | | | | |
|---|---|---|---|---|
| Delivered to Date | Planned to Date | Actual to Date | Total Quantity | Percent Delivered |
| Development | 4 | 0 | 6 | 0.00% |
| Production | 80 | 0 | 78 | 0.00% |
| Total Program Quantity Delivered | 84 | 0 | 84 | 0.00% |

### Expended and Appropriated (TY $M)

| | | | |
|---|---|---|---|
| Total Acquisition Cost | 3825.0 | Years Appropriated | 4 |
| Expended to Date | 7.2 | Percent Years Appropriated | 26.67% |
| Percent Expended | 0.19% | Appropriated to Date | 579.3 |
| Total Funding Years | 15 | Percent Appropriated | 15.15% |

The above data is current as of March 11, 2019.

### Notes

The original UH-1N Replacement Helicopter program ADM, signed September 11, 2018, approved four EMD aircraft as part of the Non-Developmental Item (NDI) integration phase activities. A follow-on ADM was signed on March 9, 2019, to purchase two UH-1N Replacement System Demonstration Test Articles (SDTA) for use during the NDI integration phase. This brings the total RDT&E aircraft procured from four to six.

# Operating and Support Cost

## Cost Estimate Details

| | |
|---|---|
| **Date of Estimate:** | August 30, 2018 |
| **Source of Estimate:** | SCP |
| **Quantity to Sustain:** | 84 |
| **Unit of Measure:** | Aircraft |
| **Service Life per Unit:** | 30.00 Years |
| **Fiscal Years in Service:** | FY 2021 - FY 2062 |

On March 9, 2019, an amended ADM was signed to authorize two System Demonstration Test Article (SDTA) aircraft. The two SDTA will become part of the operational fleet. The production quantity has been adjusted from 80 to 78. Total Aircraft Inventory (TAI) will remain 84 aircraft.

## Sustainment Strategy

The Product Support Strategy consists of a 2-level maintenance concept (organizational and depot). During pre-operational support, the contractor will provide all levels of maintenance and material support. Field Service representatives will assist the USAF in transitioning to Contractor Logistics Support organizational maintenance. Spares and support equipment will be delivered 60 days prior to UH-1N Replacement fielding. The training system consists of training devices, courseware, technical data, spares, and support equipment necessary to meet aircrew and maintenance training systems requirements. UH-1N Replacement will ensure combat capability we develop, acquire, and deliver to the warfighter is affordable and supportable throughout its life cycle.

- Primary Aerospace Vehicle Inventory (PAI): 66

- Mission Capability Goal: 83%

- Materiel Availability Goal: 76%

- Mean Time Between Failure – Mission Impacting: > 20 hours

- Service Life: 8,000 hour life

## Antecedent Information

The antecedent is the UH-1N

(As of October 1, 2018)

- PAI: 51

- Mission Capability Rate: 84%

- Materiel Availability Rate: 75%

- Mean Time Between Failure – Mission Impacting: 28 hours

| Annual O&S Costs BY2018 $M | | |
|---|---|---|
| **Cost Element** | **UH-1N Replacement Average Annual Cost Per Aircraft** | **UH-1N (Antecedent) Aircraft** |
| Unit-Level Manpower | 1.873 | 1.220 |
| Unit Operations | 0.284 | 0.290 |
| Maintenance | 2.174 | 1.710 |
| Sustaining Support | 0.440 | 0.100 |
| Continuing System Improvements | 0.526 | 0.280 |
| Indirect Support | 0.659 | 0.160 |
| Other | -- | -- |
| Total | 5.956 | 3.760 |

UH-1N Replacement assumes full funding of program requirements (unconstrained); whereas the UH-1N reflects a 9 year (2009-2017) average annual actual cost per 63 Total Aircraft Inventory (TAI) reported in the Air Force Total Ownership Cost (AFTOC) system (constrained). The comparison is not adjusted for any capability differences, cost savings, or efficiencies that may exist between the two systems.

| Item | Total O&S Cost $M | | | |
|---|---|---|---|---|
| | UH-1N Replacement | | | UH-1N (Antecedent) |
| | Current Development APB Objective/Threshold | | Current Estimate | |
| **Base Year** | 15250.1 | 16775.1 | 15250.1 | N/A |
| **Then Year** | 25481.0 | N/A | 25481.0 | N/A |

**Equation to Translate Annual Cost to Total Cost**

The UH-1N Replacement O&S annual unitized cost of $5.96M (BY 2018 $) is calculated based on a steady state total O&S costs beginning in FY 2033 and ending in FY 2052 totaling $10,004.9M divided by steady state TAI fleet of 84 aircraft per year beginning in FY 2033 and ending in FY 2052 totaling 1680. $10,004.9M/1680 = $5.96M per an aircraft per year.

Total O&S costs includes ramp up (FY 2020-2032), steady state (FY 2033-FY2052), and ramp down (FY 2053-2062) years.

| O&S Cost Variance | | |
|---|---|---|
| **Category** | **BY 2018 $M** | **Change Explanations** |
| Prior SAR Total O&S Estimates - Sep 2018 SAR | 15250.1 | |
| Programmatic/Planning Factors | 0.0 | |

| | |
|---|---|
| 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 | 0.0 |
| Current Estimate | 15250.1 |

## Disposal Estimate Details

| | |
|---|---|
| **Date of Estimate:** | August 28, 2018 |
| **Source of Estimate:** | SCP |
| **Disposal/Demilitarization Total Cost (BY 2018 $M):** | 18.6 |

TY$M: $49.5 (Total Cost)