Selected Acquisition Report (SAR)

VC-25B (VC-25B)

FY 2024 President's Budget

Defense Acquisition Visibility Environment (DAVE)

Table of Contents

Common Acronyms and Abbreviations

$B - Billions of Dollars
$K - Thousands of Dollars
$M - Millions of Dollars
ACAT - Acquisition Category
Acq O&M - Acquisition-Related Operations and Maintenance
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
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
FMS - Foreign Military Sales
FOC - Full Operational Capability
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
Inc - Increment
IOC - Initial Operational Capability
JROC - Joint Requirements Oversight Council
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
O&S - Operating and Support
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
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
U.S. - United States
UCR - Unit Cost Reporting
USD(A&S) - Under Secretary of Defense (Acquisition and Sustainment)
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

VC-25B (VC-25B)

DoD Component

Air Force

Responsible Office

Program Manager

Name: Col Kevin Massie
Date Assigned: July 16, 2018
Address: 2590 Loop Rd. West
Bldg. 558
Wright Patterson AFB, OH 45433
Phone: (937) 656-5342

Mission and Description

The VC-25B Program will replace the United States Air Force Presidential VC-25A fleet which faces capability gaps, rising maintenance costs, and parts obsolescence as it ages beyond 30 years. The VC-25B Program Office will deliver two new aircraft to meet the requirements for the President to execute the three roles of Head of State, Chief Executive, and Commander-in-Chief. The Boeing 747-8 aircraft will be uniquely modified to provide the President, staff, and guests with safe and reliable air transportation with an equivalent level of communications capability and security available in the White House.

The modifications to the 747-8 aircraft will include an electrical power upgrade, dual auxiliary power units that are usable in flight, a mission communication system, an executive interior, military avionics, a self-defense system, autonomous enplaning and deplaning, and autonomous baggage loading. In addition to the aircraft modifications, this effort will involve VC-25B aircraft design, modification, integration, test, evaluation, and certification; pre-operational support; design and delivery of key end-user items, such as test benches and ground support equipment; aircraft paint; and final aircraft delivery preparations.

Executive Summary

VC-25B

Program Highlights Since Last Report

In June 2022, Dr. LaPlante, USD(A&S) approved the schedule rebaseline of the VC-25B Acquisition Program Baseline to address the Boeing delay of 17 month for RAA< IOC, and FOC. The schedule delay was due to a combination of factors: interiors supplier transition, wiring design, fabrication, installation timelines, modification throughput limitations, and project execution rates. This rebaseline was informed by multiple schedule assessments, in partnership between the VC-25B Program Office (PO), DCMA, the test community, and OSD. In October 2022, Boeing provided the VC-25B PO their rebaselined IMS that detailed new Interiors and Auxiliary Power Unit (APU) work. Those updates reflect aircraft deliveries delayed 28 months (first aircraft) and 26 months (second aircraft) from the original contractual delivery date, consistent with the APB. Delays in VC-25B aircraft delivery dates will require extended operations of the VC-25A; the Air Force is funded and postured to sustain VC-25A operations through CY 2028.

Upcoming events for the program include Achieve Weight on Wheels (Ready) on Aircraft #2 March 2023, Achieve Blankets Ready All Zones for Aircraft #1 April 2023, Achieve Wires Ready All Zones for Aircraft #1 June 2023, and Achieve Power-on for Aircraft #1 October 2023.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	**Significant Development Description**
Jun - 2022	APB Rebaseline, Schedule, and Acq O&M funding approved by Dr. LaPlante, USD(A&S).
Jan - 2022	Achieved Decrib for Aircraft #2.
Oct - 2021	Achieved Weight on Wheels Aircraft #1.
Sep - 2021	Awarded Initial Spares Phase 1a (Long-Lead) Contract.
May - 2021	Submitted Program Deviation Report for schedule to the Defense Acquisition Executive (DAE).
Mar - 2021	Achieved Decrib for Aircraft #1.
Dec - 2020	Awarded Peculiar Support Equipment contract.
Sep - 2020	Awarded Initial Training Contract.
Jun - 2020	Commenced modification on Aircraft #2.
Apr - 2020	Awarded Technical Publications Contract.
Mar - 2020	Closed out Critical Design Review.
Feb - 2020	Commenced modification on Aircraft #1.
Jan - 2020	Conducted System Critical Design Review (CDR).
Dec - 2019	Conducted Modification Readiness Review (MRR).
Dec - 2019	Definitized Engineering & Manufacturing Development (EMD) Undefinitized Contract Action (UCA).

Date	Significant Development Description
Apr - 2019	Ferried Aircraft #2 to the San Antonio modification facility.
Mar - 2019	Ferried Aircraft #1 to the San Antonio modification facility.
Dec - 2018	Closed out Preliminary Design Review (PDR).
Dec - 2018	Defense Acquisition Executive approved Acquisition Program Baseline.
Jul - 2018	Awarded EMD Undefinitized Contract Action (UCA).
Feb - 2018	POTUS and Boeing CEO informally agree to $3.9B FFP deal.
Sep - 2017	Awarded Preliminary Design Contract.
Aug - 2017	Purchased two (2) 747-8 commercial aircraft from Boeing.
Mar - 2017	JROC approved Capability Development Document (CDD).
Sep - 2016	DAE approved MS-B decision.

Schedule

VC-25B

Events	Milestone Baseline Objective	Current Baseline Objective/Threshold		Current Estimate/Actual	Deviation
Initiate Aircraft Modification	Jan 2020	Jan 2020	Jan 2021	Feb 2020	
Initiate DT&E (First Flight)	Aug 2021	Nov 2023	Nov 2024	Apr 2024	
Start IOT&E	Jun 2023	Apr 2026	Apr 2027	Aug 2026	
Achieve RAA for IOC	Dec 2023	Sep 2026	Sep 2027	Jan 2027	
Achieve RAA for FOC	Apr 2024	Feb 2027	Feb 2028	Apr 2027	

Schedule Note

Boeing's updated IMS (December 2022) for delivery of the two aircraft.

1. Aircraft modification began after the system design was determined stable by completing Critical Design Review and Modification Readiness Reviews. Modification commenced on February 25, 2020, within four weeks of the baseline objective date of January 2020.
2. The primary purpose of Developmental Test & Evaluation (DT&E) is to verify the system's design meets all technical specifications and contract requirements have been met. DT&E is sponsored by the Program Office and can be conducted by the Government, by the contractor, or by a mix of both. DT&E employs integrated testing methodologies to the maximum extent possible. Integrated testing is the collaborative planning and execution of test phases and events to provide shared data in support of independent analysis, evaluation, and reporting by all stakeholders.
3. Operational test is the field test, under realistic operational conditions, of any item (or key component) of the air vehicle, equipment, or support equipment for the purpose of determining the effectiveness and suitability of the system for use by the PAG and the evaluation of the results of such test. Initial Operational Test & Evaluation entrance criteria are as defined in the VC-25B Test and Evaluation Master Plan.
4. Required Assets Available (RAA) for Initial Operational Capability (IOC) is defined as the delivery, inspection, and acceptance of one fully Presidential Mission Ready (PMR) VC-25B to the Presidential Airlift Group (PAG), at Joint Base Andrews, to enable IOC, as defined in the Capability Development Document (CDD). This mission-ready asset will have the full complement of initial product support elements, including logistics, initial spares, peculiar support equipment, Mission Communication System and Flight Deck test benches, Technical Orders, maintenance systems, and initial aircrew/ maintenance training in place to ensure the VC-25B aircraft delivery is fully supportable.
5. RAA for Full Operational Capability (FOC) is defined as the delivery, inspection, and acceptance of the second fully PMR VC-25B to the PAG, at Joint Base Andrews, to enable FOC, as defined in the CDD. FOC is the demonstrated capability to fully provide world-wide transportation to conduct Presidential duties as Commander-in-Chief, Chief Executive, and Head of State. FOC will be achieved once two VC 25B aircraft are fielded, all required manpower is trained and in place, logistics and maintenance systems are mission ready, and facilities exist to house the VC-25B system.

Performance

VC-25B

Performance Characteristics for this program are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation related to dissemination control.

Requirement Reference
Capability Development Document (CDD) For Presidential Aircraft Recapitalization dated March 24, 2017. Validated and signed by the Vice Chairman of the Joint Chiefs of Staff.

Acquisition Budget Estimate
VC-25B

Total Acquisition Cost

		Milestone APB	Current Baseline		Budget Estimate PB 2024		
Category	**Base Year**	**Objective (BY$M)**	**Objective (BY$M)**	**Threshold (BY$M)**	**BY$M**	**TY$M**	**Deviation**
RDT&E	2018	4,557.5	4,557.5	5,013.3	4,350.3	4,766.4	
Procurement	2018	51.0	50.7	55.8	21.5	23.1	
MILCON	2018	403.6	403.6	444	390	424.6	
Acq. O&M	2018	1.9	8.8	9.7	1.8	2.0	
Total		5,014.0	5,020.6	5,522.8	4,763.6	5,216.1	
PAUC	2018	2,507.0	2,510.3	2,761.3	2,381.8	2,608.1	
APUC	2018	--	--	--	--	--	

Budget Note

In FY 2022 the VC-25B relinquished $225M of RDT&E funding via the Omnibus. FY 2022 RDT&E execution suffered due to a mid-year contract loss ratio update, which greatly limits what the contractor can bill for a certain period. The FY 2024 PB has funded the needed payback and places the requirement in FY 2024 and FY 2025.
In early FY 2023 the prime contractor announced an update to the contract loss ratio, which greatly limits what the contractor can bill in FY 2023. Congress was notified prior to the passage of the appropriations bill, and the program was marked $345M. This funding will be needed in FY 2025-2027 to fully fund the EMD firm fixed price contract.

Additionally, the FY 2024 PB saw increases in FY 2025-2027 funding, and this was driven by the need to re-phase funds later in the program to a new schedule baseline. Total net effect of the budget positions shown in the December 2021 SAR and now is TY $M ($196M).

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	2	2
Procurement	0	0
O&M-Acquired	--	--

Unit Cost
VC-25B

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2018	**Current UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	5,020.6	4,763.6	
Quantity	2	2	
Unit Cost	2,510.300	2,381.800	-5.12%
Average Procurement Unit Cost			
Cost	50.7	21.5	
Quantity			
Unit Cost			

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Category ($M) Base Year:2018	**Original UCR Baseline**	**Current Estimate**	**% Change**
Program Acquisition Unit Cost			
Cost	5,014.0	4,763.6	
Quantity	2	2	
Unit Cost	2,507.000	2,381.800	-4.99%
Average Procurement Unit Cost			
Cost	51.0	21.5	
Quantity			
Unit Cost			

Cost Growth Details

Actions Taken or Proposed to Control Future Cost Growth:

89% of the total estimated development contract has already been awarded, utilizing a Firm Fixed Price contract structure.

Risks

Risk and Sensitivity Analysis

VC-25B

Risk and Sensitivity Analysis
Current Procurement Cost (December - 2022)
1. There are no known procurement risks at this time.
Original Baseline Estimate (December - 2018)
1. Contractor has pulled certification plan approvals with Federal Aviation Administration (FAA) early in process to reduce risk of certification delays later. Program Office, contractor, and suppliers are working proactive plans to reduce certification risk. 2. Addressed via Limitation of Government Obligations Clause updated on contract at Definitization, FY 2019 Above Threshold Reprogramming funding, and realignment in FY 2021 PB. (3) Program Office, Air Force, and Contractor are proactively engaging with Defense Counterintelligence Security Agency (DCSA) to track and prioritize Yankee White approval packages for VC-25B workforce.
Current Baseline Estimate (June - 2022)
1. Contractor has pulled certification plan approvals with Federal Aviation Administration (FAA) early in process to reduce risk of certification delays later. Program Office, contractor, and suppliers are working proactive plans to reduce certification risk. 2. Addressed via Limitation of Government Obligations Clause updated on contract at Definitization, FY 2019 Above Threshold Reprogramming funding, and realignment in FY 2021 PB. 3. Program Office, Air Force, and Contractor are proactively engaging with Defense Counterintelligence Security Agency (DCSA) to track and prioritize Yankee White approval packages for VC-25B workforce.

Significant Schedule Risks

Significant Schedule Risks
Current Estimate (December - 2022)
1. In October 2022, Boeing provided the program office a rebaselined IMS that detailed new Interiors and APU work. Those updates reflect aircraft deliveries to be delayed 28 months (first delivery) and 26 months (second delivery), consistent with the APB.
Other (August - 2022)
1. Boeing Manpower Limitations: Modification manpower limitations due to a competitive labor market for aviation structural mechanics and high Yankee White rejection rates for touch labor. 2. Interiors Supplier Transition: Lack of engineering data and conformance concerns from previous supplier's designs have led to certification issues. Boeing and GTI tentatively agreed to supplier IMS. Boeing and Interiors Supplier working split FAA Supplemental Type Certification (STC) Plan resources and timing (potential schedule driver). 3. Test Execution Rates: Boeing IMS contains aggressive flight and ground test rates and limited schedule for maintenance and re-fly. Test plans will likely not be 100% complete by first flight thus increasing risk to test execution rates. 4. Wiring Design, Manufacturing, and Install: Delays in wire design impacting fabrication and installation. Slow execution due to change capture, volume, and error-checks. Key logical & physical design milestone on hold pending correction of errors identified by automated tools; Boeing working incremental release of bundles from hold based upon remaining risk level in design.
Other (December - 2021)
1. Certification Delays: The contractor may struggle to obtain Federal Aviation Administration certification in a timely manner. 2. EMD Funds Phasing: Schedule delays that will require re-phasing of funding FY 2024-2027 for the $3.9B FFP contract and product support efforts yet to be put on contract.

Technologies and Systems Engineering

Significant Technical Risks
Current Estimate (December - 2022)

1. Aircraft Test Schedule Execution Rates - Given the test team has planned for a challenging test schedule, if enablers are not put in place or the aircraft is not test ready without sufficient program capacity/efficiency to absorb non-standard work then there is risk that the program will not meet commitments. Aggressive flight/ground test rates and lack of re-fly/maintenance scheduling.
2. APU Inlet Certification Testing and Production – Issues found during the pre-production verification activities of the inlet fabrication are putting the schedule of all inlets sets at risk driving cost overruns and late certification activities.
3. APU Qualification & Cert Test & Declare – Approximately 20 fire tests are required for certification. There is a risk of failing the fire tests impacting the schedule for potential redesign, retest, or waiver.
4. Buckets 3-4 Fabrication Flows - If the overall level of change does not decline and fabrication flows for racks, panels and shelves are not reduced, then deliveries will not support Program critical path installation dates. Late installation dates will impact downstream critical path events and ultimately associated milestones.
5. Interiors Transition to New Supplier- The transition of interiors work scope to new supplier requires a new SSOW and contract path. If the transition is not implemented effectively then there are potential impacts to the aircraft build schedule and program costs.
6. MCS LRU Data Required for Certification - If the LRU equipment data required by the Boeing ODA for certification of the Mission Communications System (MCS) is not available, then a redesign of the MCS installations and/or LRUs would be required.
7. Mechanics Staffing - By August 2021, high turnover of structures mechanics with insufficient hiring led to significant staffing shortfall during structures mod milestones of Decrib, Weight on Wheels and Wires Ready. This created a backlog of Jobs Behind Schedule (JBS) and, in turn, a higher number of mechanics were required to recover JBS and achieve milestone dates. Additionally, higher than planned rework amplified the risk. To mitigate similar risk for Electrician staffing, we have hired ahead of plan and placed electricians on other site programs until wiring begins.
8. Seats Integration Certification - Current configuration of seating has a large certification risk, both for cabin configuration and for HIC. The seats will need to be tested for this regulation and will need a design solution to mitigate the HIC risk.
9. Smoke Penetration and Halon Retention Risk Reduction - VC-25B modifications have significantly changed the physical interfaces between cargo compartment and passenger cabin; preventing smoke from penetrating into occupied areas requires all physical interfaces to be identified and closed out as much as practicable. If smoke penetration testing fails during flight testing, then late changes to resolve smoke leakage paths will delay the flight-testing schedule.
10. VC-25B Comprehensive Stringer Visual Reinspection – Twenty-Eight (28) Door surrounding stringers have confirmed cracks at splice locations. In addition, to the door surrounding stringers with cracks, the team discovered six (6) stringers with suspect cracks. This drove engineering to release a coordination sheet for additional visual re-inspections at previously repaired and unrepaired stringers.

Low Rate Initial Production

VC-25B

There is no LRIP for this program.

Contracts & Efforts

Contract Data	
Contract Number	FA8625-16-C-6599
Effort Number	
Modification Number	
Award Date	01/29/2016
Definitization Date	12/26/2019
Order Number	
CAGE Code/CAGE Legal Name	The Boeing Company
Contract Title	VC-25B Program
Contract Address	Seattle, WA
Contracting Office	
Supported Phase	Development
Contract Strategy	
Contract Type	Firm-Fixed-Price
Modification Date	
Work Start Date	
Technical Data Rights	
Work Completed	

Contracts/Effort Price, Quantity, and Performance (TY$M)		
Initial Target Price	Current Target Price	
$28.5	$4,175	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contractor EAC	PM EAC	
$4,175	$4,175	
Initial Quantity	Current Quantity	Delivered Quantity
2	2	2

Deliveries and Expenditures

VC-25B

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	2	2	2	100.00%
Production	0	0	0	
Total Program Quantity Delivered	2	2	2	100.00%

Expended and Appropriated (TY $M)

Years Appropriated to date: 13

Total Years Appropriated Funding (Current Baseline): 18

Percent Years Appropriated: 72.22%

Then-Year Funding Appropriated as Percentage of Total Acquisition Estimate: 71.50%

Then-Year Funding Expended as Percentage of Total Acquisition Estimate: 58.40%

Total Acquisition Cost: $5,216.1

Deliveries and Expenditures Note

Based on the latest program schedule, acquisition costs will be incurred through FY 2027. Deliveries associated with contract award of Green Aircraft purchase in August 2017, and September 2017 respectively.

Operating and Support Costs

VC-25B

O&S Cost Breakdown:

Category (BY2018$ Million)	VC-25B
Unit-Level Manpower	$1,605.0
Unit Operations	$351.9
Maintenance	$1,479.6
Sustaining Support	$2,143.7
Continued System Improvements	$856.7
Other	$632.3
Total	$7,069.3

O&S Cost Estimate Source: FY 2022 VC-25B Program Office Estimate dated May 9, 2022

Total Program O&S Cost Compared with Baseline					
	Current Baseline				
Base Year: 2018	Objective (BY$M)	Threshold (BY$M)	Current Estimate (BY$M)	Current Estimate (TY$M)	Deviation
Total O&S	$7,640.6	$8,404.7	$7,069.3	$12,999.7	

Note: Source of the estimate is the FY 2022 Program Office Estimate (POE). The FY 2022 POE was built to the June 2022, APB Rebaseline schedule objective dates.

Operating and Support Costs - Disposal and Unitized Costs

VC-25B

Annual Unitized O&S Cost Definition and Calculation Relative to Total O&S Cost:

Sum of steady state (FY 2027-2056) Base Year FY 2018 costs divided by years in estimate and quantity per year (2)

Sustainment Factors	System Name: VC-25B	Antecedent System Name: VC-25A
Quantity to Sustain	2	2
Unit of Measure	Aircraft	Aircraft
Unit Expected Service Life	30	37

Base Year:2018

Annual Unitized O&S Cost by Category Base Year $ Unit:($M)	System Name: VC-25B	Antecedent System Name: VC-25A
Unit-Level Manpower	$26.4	$16.3
Unit Operations	$5.9	$6.2
Maintenance	$24.6	$34.9
Sustaining Support	$35.7	$24.4
Continued System Improvements	$14.3	$18.4
Other	$10.4	$7.0
Total O&S	$117.3	$107.2

Disposal/Demilitarization Cost Estimate

(BY2018$M)	System Name: VC-25B	Antecedent System Name: VC-25A
Total Disposal	$0.3	

Cost Estimate Source - Disposal	
Type:	Program Office Estimate
Approval Authority and Date:	05/09/2022
Note:	
None	
Disposal Cost Note:	
Not Applicable	
Additional O&S Estimate Assumptions:	
30-year service life, 467 Flight Hours per year per aircraft, manpower requirements defined by CY 2017 Manpower Estimate Report (MER)	

Sustainment Strategy:
The VC-25B Program plans to leverage existing VC-25A sustainment and maintenance concepts. The PO conducted an independent BCA of the LCSP to identify the sustainment strategy that achieves the optimal balance between capabilities and affordability. The BCA is a documented and objective value analysis that explores costs, and benefits, of various sustainment options. The BCA also assessed the potential for future sustainment competition opportunities. At this time, Boeing is the only source capable of providing all aspects of initial sustainment without introducing unacceptable schedule risk to the program and performance risk to initial VC-25B operations. Because of this, the PO will award the 5-year initial sustainment contract to Boeing. This award directly coincides with the informal agreement, dated 20 February 2018, between President Donald Trump and Boeing CEO, Mr. Dennis Muilenburg, as well as the approved VC-25B acquisition strategy. This contract will be effective prior to fielding the first VC-25B aircraft. This will assure support through the first D-level / Heavy Maintenance cycle of both VC-25B aircraft. The sustainment contract(s) will provide sustainment services covering organizational, intermediate, and D-Level maintenance. After this initial 5-year period, the VC-25B program office will accomplish additional market research to explore competition for sustainment contracts for subsequent periods. Organizational-level (O-level) maintenance will be performed on-equipment (directly on aircraft or support equipment) on the flight line. This level includes day-to-day maintenance, repair, inspection, testing, servicing, and calibration. At the O-level, the VC-25B aircraft will be maintained primarily by AF VC-25B 16 personnel from the Presidential Logistics Squadron (PLS), and supplemented by Contractor personnel for maintenance beyond the capabilities of the PLS. Intermediate level (I-level) maintenance will be performed off-equipment (on removed component parts or equipment) in the back-shops. I-Level primarily consists of testing and repair or replacement of component parts. Additionally, I-level maintenance for items such as batteries, wheels and tires, cabinets, and fabrication branch functions (e.g., sheet metal, paint touch-up) will be performed by the 89th Airlift Wing (AW) Operational Support Aircraft/Very Important Persons Special Airlift Mission Contractors. D-level maintenance, also referred to as Heavy Maintenance (HM), will be performed on or off equipment at a major repair facility. The VC-25B aircraft will be facing a normally scheduled HM cycle within the first three years of sustainment activities. HM for the VC-25B fleet is expected to be accomplished as part of the aforementioned to-be-negotiated sustainment contract. Additional sustainment activities include a Contractor Operated and Maintained Base Supply (COMBS), engineering support services, quick-reaction depot field team support, on-site field service representatives providing technical support, and limited Line Replaceable Unit test/troubleshooting and return to service capabilities. Any required base-level back-shop maintenance support not provided by the 89 AW will be included in the sustainment contract required.

Antecedent Estimate Assumptions:
Antecedent costs are based on the full scope of actuals from the AF Total Ownership Cost (AFTOC) database (FY 1999-2020) where possible and derived from CAFDEX data for years/scope not represented in AFTOC.