LIFE-CYCLE SUSTAINMENT PLAN

LOG 201

Base Year + 6

Version 4.0

PROGRAM NAME: STRIKE TALON

UCAS

ACAT LEVEL ID

LIFE-CYCLE SUSTAINMENT PLAN

VERSION 4.0

SUPPORTING MILESTONE C

AND

Engineering and Manufacturing

Development Phase

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DISCLAIMER

This Life Cycle Sustainment Plan (LCSP) is for use in LOG 201 and intended for academic purposes. Although following the published LCSP Outline, the intent is to provide teaching opportunities and is not meant as the “answer” in completing your Program’s LCSP. All programs are unique and have unique product support requirements.

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1. INTRODUCTION

1.1. BACKGROUND

The Strike Talon Unmanned Combat Aircraft System (UCAS) will provide persistent loiter, deep penetration, ground attack capability against high value targets to the Air Force and Navy; serving as a force multiplier for the Joint Force and Fleet Commander, enhancing short notice and long-range ground attack, and shortening the sensor-to-shooter kill chain.

The Strike Talon is a system containing electro optics (EO), infrared (IR), synthetic aperture radar (SAR), inverse SAR, ground moving target indicator (GMTI), electronic support measures (ESM) and maritime moving target indicator (MMTI) sensors. The Strike Talon employs both probe-and-drogue of the US Navy and boom-receptacle mechanisms of the USAF for autonomous air refueling. Air vehicle required capabilities are specified in Section 2, in table 2-1. The system is on schedule to achieve Initial Operating Capability in Base Year + 8.

1.2. PURPOSE

This document describes the plan for implementing the Strike Talon product support strategy. This plan, as the acquisition program matured, has been refined and updated. This is the plan for product support planning and execution. This approach ensures total Life Cycle Sustainment (LCS) for Strike Talon UCAS. This Life Cycle Sustainment Plan (LCSP):

- Provides an understanding of the Strike Talon UCAS and related product support considerations
- Provides a management tool for LCS production planning, control, and coordination of the program resources
- Provides a comprehensive product support program that ensures all support elements are in place prior to Fleet introduction
- Provides the foundation and execution details on how the Strike Talon shall be supported once fielded

1.3. SCOPE

The scope for the Strike Talon product support strategy includes the total weapon platform. This weapon platform includes the following systems:

- Air Vehicle
- Mission Control Station
- Communications Suite
- Support System

Each system has been evaluated based on the overall platform requirements (as specified in Section 2) and the Integrated Product Support Elements.

Under Total Life Cycle Systems Management (TLCSM), the PM is assigned total responsibility for development, production and support over the entire life-cycle of the system. This responsibility includes the full spectrum of product support functions. TLCSM encompasses, but is not limited to, the following:

- Recognizes the PM as the single point of accountability for accomplishing program product support objectives including sustainment
- Development and implementation of product support strategies
- Continuing reviews of sustainment strategies

DoD TLCSM policy is stated in DoDD 5000.1, E1.29.

The PSM, supporting the PM, has two primary objectives. First, the Strike Talon UCAS as designed, maintained, and modified, shall continuously strive to reduce the demand for product support. Second, product support must be effective and efficient.

Implementation of the TLCSM Strike Talon UCAS business approach means that all major materiel alternative considerations, and major acquisition functional decisions, demonstrate an understanding of the system design impacts on the operations and sustainment phase. Strike Talon UCAS promotes interoperability and commonality within the Navy/ USAF UCAS Family of Systems (FoS) to assist in the management of life-cycle costs.

Revision Number	Date	Change and Rationale	Approved By
1	Base Year + 2 2nd Qtr	Refined and updated product support strategy. Assessed and documented the Product Support Package status in Section 5	PSM
2	Base Year + 3 2nd Qtr	Reviewed feedback from ILA and incorporated changes into Product Support Package assessment in Section 5	PSM
3	Base Year + 6 3rd Qtr	Revised LCSP documenting changes and updates in the Strike Talon Product Support Strategy. Also incorporated feedback from ILA conducted Base Year + 6 1st Qtr	PSM

TABLE 1-1: LCSP UPDATE RECORD
As of Base Year + 6

2. PRODUCT SUPPORT PERFORMANCE

2.1. SUSTAINMENT PERFORMANCE REQUIREMENTS

Requirement (KPP, KSA, Derived requirement)	Documentation	Threshold / Objective	RFP/ Contract*	TES / TEMP	IOC	FOC	Full Fielding
Materiel Availability	Draft CDD, Paragraph 6.1.2, Table B and Paragraph 6.2.6	T - ≥ .75 at IOT&E / T ≥ .8 at IOC plus 2 years O - ≥ .9					
Materiel Reliability: MTBOMF	Draft CDD, Paragraph Table C	T - ≥ 40 Hrs O - ≥ 90 Hrs					
O & S Costs per Flying Hour	Draft CDD, Paragraph 15.2.3	T - ≤ $ 7.0 K O - ≤ $ 5.8 K					
Set-up Time (disassembly)	Draft CDD, Paragraph 6.3.1.2.2	T/O < 24 Hrs					
Mission Capable Timeline (assembly)	Draft CDD, Paragraph 6.3.1.2.3	T/O < 24 Hrs					
Prognostics and Health Management (PHM)	Draft CDD, Paragraph 6.3.1.10.1	Strike Talon shall have a PHM system. MFHBFA T - ≥ 300 Hrs O - ≥ 2000 Hrs					
Logistics Response Time	Draft CDD, Paragraph 6.2.6.1.1	T - LRT(Retail)<48hrs O - LRT (Retail) 24hrs T - LRT(Wholesale)<5 days O – LRT (Wholesale) 2 days					
Innovative logistics solutions	Draft CDD, Paragraph 13.5.2	Will consider (ex. PBL, DMSMS, CBM, TAV)					
Logistics Footprint (Transportation)	Draft CDD, Paragraph 13.7.1	1Squadron deployable ≤ 2 C-17					

TABLE 2-1: SUSTAINMENT PERFORMANCE REQUIREMENTS
As of Base Year + 6

Availability, or the probability that the System is capable of performing its specified function when called upon at a random point in time, is a Key Performance Parameter. It is measured in terms of the percentage of time a system can be expected to be in place and working (total uptime divided by uptime plus downtime) for continuous operating systems. The System availability is based on the availability of its Unmanned Aircraft (UA) and Mission Control Station (MCS) elements; Availability is inherent in delivering system availability. When there are enough elements available to meet the system on station duration and mission radius requirement, the Strike Talon UCAS System is considered available. Materiel Availability (MA) is a part of System Design for Operational Effectiveness (SDOE) and must be demonstrated during developmental (DT) and operational testing (OT).

Performance and Logistics metrics used during developmental test (DT) and operational assessments (OA) are stated below and also in the CPD and PBSS. These metrics address both single asset reliability (e.g. Mean Flight Hours Between Failure, Mean Time To Repair, Mean Flight Hour Between Operational Mission Failure) and total system reliability though the Effective Time on Station (ETOS) calculation. ETOS includes metrics such as, Mean Flight Hour Between Abort, Mean Logistics Delay Time and is an evaluation of total assets required to achieve the threshold on-station persistence. Further, KPP metrics are evaluation factors in the RFP.

Requirement	Lower Level Metric	Documentation	Standard or Level
Availability	Reliability Mean Logistics Delay Time Maintainability	CPD, Paragraph 6.1.2, Table B and Paragraph 6.2.6	Greater than or equal to .75 at IOTE&E; greater than or equal to .8 at IOC + 2 years (T) Greater than or equal to .9 (O) **Current measure: 80%**
Reliability	Mean Time Between Operational Mission Failure MTBOMF (hours)	CPD, Paragraph Table C	Mean Time Between Operational Mission Failure (MTBOMF) Greater than or equal to 40 hours (T) Greater than or equal to 90 hours (O) **Current measure: 42 Hrs**
Mean Logistics Delay Time	Logistics Response Time—Retail Logistics Response Time--Wholesale	CPD, Paragraph 6.2.6.1.1	LRT-Retail: <48 hours (T) <24 hours (O) LRT-Wholesale: <5 working days (T) <2 working days (O) **Current measure: 40.8 min (retail)**
Maintainability	Mean Corrective Maintenance Time Operational Mission Failure (MCMTOMF)	CPD, Table C	Mean Corrective Maintenance Time Operational Mission Failure (MCMTOMF) ≤ 3 hours (T) ≤ 2 hours (O) **Current measure: 2.2 Hrs**

TABLE 2-2: SUSTAINMENT PERFORMANCE METRIC BREAKDOWN
As of Base Year + 6

2.2. DEMONSTRATED (TESTED) SUSTAINMENT PERFORMANCE

Demonstrated (tested) Sustainment Performance As of Base Year +6					
Metric / Feature	**Contractual Requirements**	**Demonstration Schedule**	**Requirement / PS Elements Impacted**	**Performance Objective / PS Package Baseline Value**	**Estimated Value / IOC Estimate**
Reliability -- PHM System Components	Fault Detection Coverage Greater Than or Equal To 85%	Demonstrated during DT and OA Base Year + 5	Maintenance Mgt & Planning, Supply Support, Support Equip, Manpower & Personnel	Correctly detect faults within 99% confidence and isolate to 1 WRA/LRU 80% of the time	Fault Detection Coverage Greater Than or Equal To 85% with 99% confidence and isolate to 1 WRA/LRU 80% of the time

TABLE 2-3: SUSTAINMENT PERFORMANCE ASSESSMENT/ TEST RESULTS

3. PRODUCT SUPPORT STRATEGY

As a Joint USN/USAF system, the product support strategy takes advantage of the service's core competencies. This includes using existing product support activities, interoperability and commonality. These approaches help in meeting performance and affordability goals. The product support strategy incorporates a three level maintenance concept taking advantage of both organic and contractor competencies. Public Private Partnerships for depot level maintenance and repair for the airframe and engine are being developed.

Strike Talon is designated as a CORE system therefore organic support is required for the depot level maintenance and repair. These CORE labor hours are designated for OC-ALC, OK (propulsion), Bonifay FL, FRC East on the east coast (airframe and aircraft systems) and NAS Whidbey Island WA at FRC North West (airframe and aircraft systems) in the west. These locations have established PPPs for other weapon systems. Additional PPPs will be introduced, in a performance based approach, for Strike Talon (see below for further details).

Intermediate level maintenance support will exist at Main Operating Bases (Oceana NAS (East), NAS LeMoore (West), Seymour Johnson AFB and Nellis AFB) and afloat. In addition, FRC Western Pacific at Atsugi Japan will provide additional Intermediate level capabilities for Strike Talon systems deployed to the Pacific Theater of Operations.

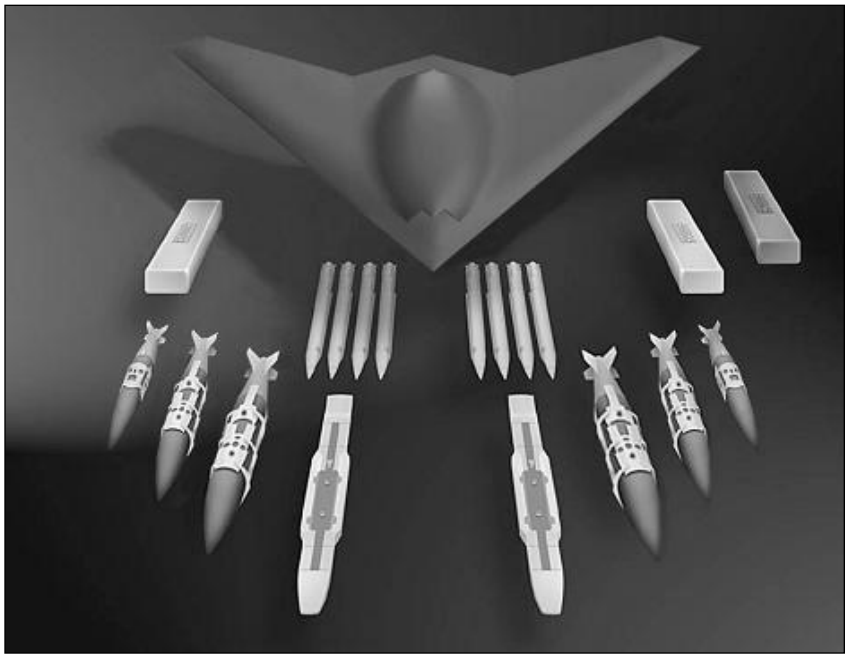


FIGURE 3-1: STRIKE TALON ILLUSTRATIONS

The current scope of the PBL will include a Public Private Partnership for Airframe depot level maintenance. It will also include a PPP for Depot Level Engine overhaul. A Commercial PBL, for the Prognostics and Health Management (PHM) is under study to evaluate which integrated product support elements and to what level (system, subsystem, and/or component) the PBL extends. Current support is through interim contractor support for depot level maintenance, supply support and configuration management.

Contractor Logistics Support (CLS), through an interim contract, is in place and will continue up to Full Operational Capability (FOC). The extent of the PBL will be determined through the final BCA to be delivered 2nd Qtr Base Year + 7 The PBL strategy recognizes the roles of the PM as the TLCSM for the entire spectrum of product support functions across the Strike Talon UCAS program. The PM, through the PSM, leveraged existing Fleet Introduction Team (FIT) organizations to increase the effectiveness of the Strike Talon UCAS user transition and training strategy. Table 3-1 (below) summarizes the product support strategy.

			Maintenance																					
Sub System	**Data Rights**	**Function**	**Level 1**				**Level 2**				**Level 3**		**Software Support/Maint**		**Supply Support**		**Transportation (PHS&T)**		**Supportability Analysis**		**Config Control**		**Training**	
			O-1	O-2	O-3	C	I-1	I-2	I-3	C	Depot	C	O	C	O	C	O	C	O	C	O	C	O	C
Airframe	Unlimited																							
		Servicing Inspections	o	o	o															UCAS	PSM	P	NAT	UCAS
		Corrosion Control	o	o	o						NW/ Bon			P	DLA/ WSS					UCAS	PSM	P	NAT	UCAS
		Repair	◦	◦			o	o			NW/ Bon	P		P	DLA/ WSS		TCOM	SCS		UCAS	PSM	P	NAT	UCAS
Power Plants	Unlimited																							
Engine																								
		Servicing Inspections	o	o	o										DLA/ WSS	E +				E +	PSM	E +	NAT	E +
		Repair					◦	◦			Tinker	E +			DLA/ WSS	E +	TCOM	SCS		E +	PSM	E +	NAT	E +
PHM		Repair	o	o	o		◦	◦				C				C		SCS		C	PSM	C	NAT	C

Maint. Level Codes	
O-1 CONUS Land based	I-1 CONUS Land based
O-2 OCONUS MOBs/ Afloat	I-2 OCONUS MOBs/ AIMD Afloat
O-3 OCONUS FOBs	o Full Organic Capabilities
	◦ Limited Capabilities

Organizational Codes		
Tinker - Tinker ALC - USAF AFMC	WSS - NAVSUP Weapon System Support	NAT - Naval Aviation Training Systems
A - Kildare	TCOM - TRANSCOM	PSM -- Product Support Manager
B - Slate	SCS - Supply Chain Solutions, Inc.	E+ - Engine Plus
C - Spacely	UCAS - UCAS Manufacturing	DLA - Defense Logistics Agency
P - Public/Private Partnership	NW - FRC NW Whidbey Island	Bon - FRC E Bonifay

TABLE 3-1: PRODUCT SUPPORT STRATEGY

The following figure depicts the sustainment concept for Strike Talon:

Product Support Functional Area	Location	Planned Sustainment Performance Metrics	Planned Contracted Support
Program Head Quarters (Product Support Management)	Patuxent Naval Air Station	N/A	Mix contract and government
Test Facilities	Patuxent Naval Air Station,	Execute test points within 5 days of schedule	Government
Logistics Support	OC-ALC, OK, NAVSUP WSS, Philadelphia PA	Logistics Response Time, Backorder rate	Mix contract and government
Maintenance Depots	OC-ALC, OK, NAS Whidbey Island FRC NW, WA Bonifay FRC East, FL	Logistics Response Time, Repair Cycle Time, Cost per repair	Government, PPP
DLA Support	DLA Aviation, Richmond, VA DLA Distribution Centers worldwide	Logistics Response Time, Backorder rate	Government
Contingency Support Activity	DLA Korea	Zero balance critical readiness drivers, % fill for mission essential spares	Mix contract and government
Contingency Maintenance Depot	FRC Western Pacific, Atsugi, Japan	Logistics Response Time, Repair Cycle Time, Cost per Repair	Mix contract and government

FIGURE 3-2: SUSTAINMENT CONCEPT
As of Base Year + 6

3.1. SUSTAINMENT STRATEGY CONSIDERATIONS

Consideration	Core Documents	Cost Driver	Product Support Element Impact/Control
CONOPS			
Carrier Operations	• OPLAN 5555, Para 3.7 • CPD	• Increased scheduled maintenance cycle; corrosion inspection and control	Design Interface; Supply Support; Technical Data; Higher Incidence of Failure Include cracking in fuselage, weakness in joints, frame as well as other internal and external areas exposed to sea spray/air **Control:** Training plans in place and first cadre of maintenance personnel (USN and USAF) scheduled for training Base Year + 7
Austere Forward Operating Bases	• OPLAN 1111, Para 3.2 • CPD	• Increased scheduled maintenance cycle;	Design Interface; Supply; Technical Data; Higher Incidence of Failure **Control:** Training plans in place and first cadre of maintenance personnel (USN and USAF) scheduled for training Base Year + 7
DESIGN FEATURE			
Air Refueling	• CPD	• Specialized test equipment at field and depot • Training	Design Interface; Maintenance; Training; Support Equipment Flight controls and weapon control/delivery system shielded **Control:** Use of common test equipment from other LO platforms. Training plans in place and first cadre of maintenance personnel (USN and USAF) scheduled for training Base Year + 7
FACILITIES/ MILCON			
Low Observable	• CPD • Facilities required to achieve IOC	• One shelter for each assigned or deployed asset • One repair hanger per 10 assigned aircraft • FOB upgrades required	Design Interface; Maintenance; Training; Support Equipment; Facilities. Low observables coatings require individual shelters and specialized operational and depot facilities **Control:** Shelters budgeted and on target. FOB facility upgrades budgeted and underway/ on schedule

TABLE 3-2 AFFORDABILITY AND SUSTAINMENT STRATEGY

3.2. SUSTAINMENT RELATIONSHIPS

Figure 3-3 (below) shows Product Support Relationships based on established capabilities and the requirements for Strike Talon. Refinement continues and these relationships will be updated in future versions of this plan.

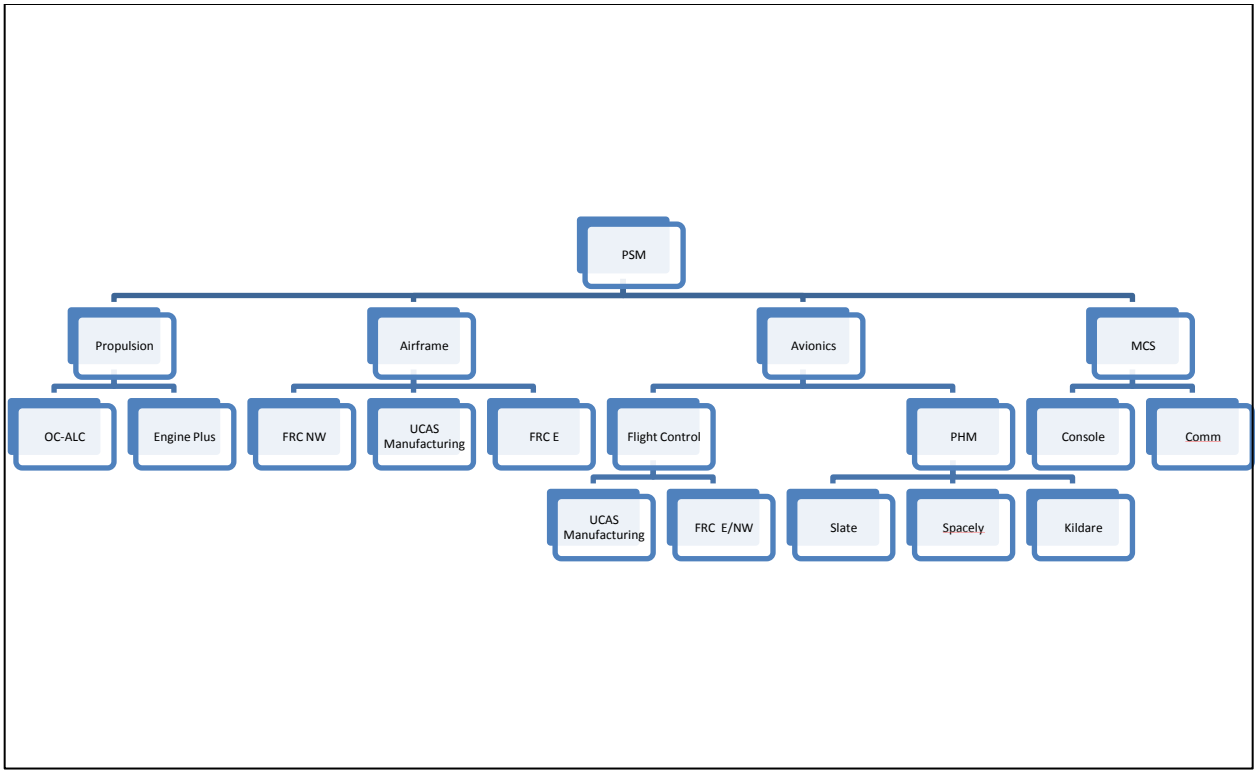


FIGURE 3-3: PRODUCT SUPPORT PROVIDERS
As of Base Year + 6

3.3. MAINTENANCE CONCEPT

The Strike Talon maintenance concept is defined as a result of a robust RLA conducted by the Navy, USAF and assisted by UCAS Manufacturing and Engine Plus . All three levels of maintenance are available to satisfy the RLA. Design of the PBL system considers which sector will perform the selected levels of maintenance - public sector or private. The current PBL planning includes Public Private Partnerships (PPP) for Depot Level Maintenance and Repair for airframe, flight control and engines.

3.4. MAINTENANCE PLANNING OBJECTIVES

Specific guidelines governing maintenance planning activities include:

- Strike Talon UCAS depot level maintenance planning satisfies all statutes and regulation pertaining to performance of depot level maintenance specifically, statutes governing performance of CORE logistics workload and performance of depot level maintenance by commercial entities
- Maintenance planning analysis uses, to the fullest extent practical, the Navy's Fleet Readiness Centers (FRC) structure and the OC-ALC engine repair facilities
- UCAS Manufacturing, Engine Plus and Spacely Aerospace Inc. determined and provided the necessary tools, support equipment, Logistics Product Data (LPD), technical documentation and skills to perform both on-equipment and off- equipment maintenance
- Strike Talon UCAS in-service supportability and readiness will be managed through a Logistics Management System (LMS) within the Support System (SS). The LMS will have electronic connectivity with the Mission Control Station (MCS) and operate within an Integrated Digital Environment (IDE)

3.5. MAINTENANCE PLANNING

UCAS Manufacturing, Engine Plus and Spacely Aerospace Inc. provided recommendations to the Navy and USAF for maintenance planning reducing life-cycle cost, maintenance man-hours and system down time for Strike Talon UCAS. They developed and provided a logistics product data (LPD) database with appropriate LPD levels assigned. The Product Support Team used the data in developing the initial Maintenance Plans, Failure Modes, Effects and Criticality Analysis (FMECA), Task Narrative, Provisioning Technical Documentation (PTD), Support Equipment Requirements Documents (SERD) and Training Requirements. Maintenance plans.

3.5.1. CONTINUOUS PROCESS IMPROVEMENT

Continuous Process Improvement (CPI) is included as a requirement in all Performance Based Arrangements (PBAs) with both contract and organic organizations. CPI is included through the following:

- Conditioned Based Maintenance Plus (CBM+)/PHM as designed
- Maintenance planning criteria
- PBL business and contracting strategy
- Performance metrics and incentives

3.5.2. INTEGRATED MAINTENANCE CONCEPT

UCAS Manufacturing, Engine Plus and Spacely Aerospace Inc. integrated depot and intermediate level (if applicable) periodic maintenance and inspections with lower level periodic maintenance and inspection cycles to minimize equipment down time. They also maximized integration to a depth that optimizes SOE and cost effectiveness.

3.5.3. CONDITION BASED MAINTENANCE PLUS

The Strike Talon Product Support Strategy includes the latest business practices to include CBM+ in the overarching maintenance planning methodology. The PC incorporated technology features such as PHM and analytical processes such as Reliability Centered Maintenance (RCM) to reduce maintenance requirements and increase safety and readiness for Strike Talon UCAS. The Prime Contractors (PCs) developed, and provided to the Government, a CBM+ Plan that identified its management, design and analytical processes for implementing a CBM+ strategy. The plan discusses the PC's processes for integrating PHM with CBM+ in a PBL environment, how it evaluates trade space, tests and evaluates CBM+ technologies, validates analytical processes and integrates CBM+ with supportability and product support activities over the system's life-cycle.

3.5.4. DEPOT LEVEL

This maintenance concept employs organic and contractor support for Depot Level maintenance in the form of performance based PPPs. Title 10 USC §2464 CORE requirements are identified and documented. Workloads for the Navy and USAF Depots are assigned and planned to be in place and operating NLT IOC plus 4 years (Base Year + 12). Tooling and infrastructure upgrades are on track and ahead of schedule. The Product Support IPT continues to track the progress for Depot Level Maintenance and PPP implementation through quarterly Depot Maintenance review meetings.

3.5.5. FLEET READINESS CENTERS (FRC)

The PSM, through the product support strategy and this plan, integrates the Strike Talon UCAS support with the FRC structure, where possible, consistent with the PBL strategy and as validated through the PBL BCA.

3.5.6. CRITICAL ITEM MANAGEMENT

The PSM established procedures to acquire and manage materiel designated as "critical" to the safety or success of the Strike Talon UCAS program. The Strike Talon UCAS PSM:

- Controls, maintains and manages Critical Application Items (CAI) and Critical Safety Items (CSI) using the USN Logistics Management Information System (LMIS) and the Critical Item IPT.
- Ensures development and product support contracts require the PCs identify CAI and CSI candidates and perform supportability analysis on all the candidates
- Identified CAIs and CSIs in the maintenance plan using Special Maintenance Item Codes “G”, “H or “J”
- Included, in the Strike Talon IUID Plan, instruction for CAI and CSI management

3.6. DESIGN INTERFACE PLANNING

The Strike Talon UCAS Logistics IPT developed a design interface strategy and Implementation Plan applied during EMD. The strategy and plan was developed in collaboration with the Engineering and Systems Engineering and Integration Team (SEIT) IPTs as part of the overall systems engineering strategy development and planning effort. As a result, supportability-related performance requirements received equal consideration in planning, design and development. These performance requirements, derived from the CPD and developed within the PBSS will be tracked within the Design Requirements Tracking Database using the Dynamic Object Oriented Requirements System. During the EMD phase, the supportability related requirements were further decomposed and allocated to the appropriate system/sub-system indenture levels of the Strike Talon UCAS. These allocated requirements were assessed during the design process. This process enabled the system development to remain on track and within budget.+

The Product Support IPT worked closely with the SEIT to assess supportability impacts of the emerging design and design alternatives. Based on engineering information obtained from the systems engineering process and the existing Strike Talon UCAS support structure, the Product Support IPT recommended support system alternatives, such as an incremental approach to incorporating carbon stress sensors into Strike Talon. Where multiple alternatives were feasible, each was evaluated through a variety of means such as trade studies, RLA, field visits, and Government interaction to determine the best approach for implementation.

3.7. MANPOWER, PERSONNEL, AND TRAINING

The MPT approach for the Strike Talon UCAS is part of an overall Human System Integration (HSI) focused effort designed to minimize manpower requirements and increase efficiency. Manpower & Personnel factors were used to balance system design and requirements and USN and USAF modeling and simulation identified authorizations and skills needed to support Strike Talon. Training and training support are consistent with assigned mission critical tasks. Specific MPT requirements reflect human performance contribution required to achieve optimum total system performance and mission success. Additional Strike Talon UCAS HSI-related information can be found in the Strike Talon UCAS SEP and in the Strike Talon UCAS HSI plan.

3.7.1. PERSONNEL PLANNING

The quantitative and qualitative manpower requirements for the Strike Talon UCAS were developed using the Training Planning Process Methodology (TRPPM) standard Navy manpower requirements determination processes and the USAF Logistics Composite Model (LCOM). Approved results are documented in Preliminary Squadron Manpower Documents (PSQMD). Strike Talon UCAS PSQMDs identify operational manpower requirements. As part of the Maritime Patrol and Reconnaissance Force (MPRF) Family of Systems (FoS), integration of manpower requirements with MPRF force structure allows for synergies since operators have common mission skill sets, training requirements and experience. 30% (20% nominal) of Strike Talon UCAS manpower is provided by P-8 and Tactical Support Center/Mobile Operations Control

Center Squadron (MOCCRON) force structure. Additional personnel authorizations and assets are provided from deactivating Global Hawk and Reaper USAF units. At this time 50% of USN and 70% of USAF authorizations are identified and being transferred to the Strike Talon program.

3.7.2. TRAINING MANPOWER REQUIREMENTS

A total systems approach was applied to the design, development, implementation, and conduct of the Strike Talon UCAS training program. Specific Strike Talon UCAS training and training manpower requirements were identified during EMD and documented in the Strike Talon UCAS Navy Training Systems Plan (NTSP).

3.8. TRAINING CONCEPT

The Training System (TS), as identified through analyses conducted during EMD, is designed to provide qualified and proficient Fleet system operators and maintainers. The specific operator training requirements and courses of instruction flow out of the Front End Analysis (FEA) process and operator training tracks are developed for; Flight Systems Operator (FSO), Mission Systems Operator (MSO), and Mission Commander (MC). Under an organic/Contracted Operations Support (COS) hybrid manning concept, the COS personnel will receive training at the Strike Talon UCAS training facilities with their military counterparts. This will ensure all Strike Talon UCAS operators are trained to the same standards.

The TS includes all hardware, software, courseware, technical and training documentation, and manuals necessary to train Fleet experienced instructors, operators, and support personnel to full mission-ready proficiency.

The MPT IPT (government and contractor) conducts task analyses, reviews tasks criteria, develops media selection models, and allocates learning tasks to training media that provides efficient and affordable training. The objective of the MPT IPT is to satisfy all Strike Talon UCAS aircrew training and Training and Readiness (T&R) requirements, using a combination of simulators and classroom environment, thus eliminating dependency on the operational system for training and T&R event completion, to the greatest extent practical.

3.8.1. TRAINING MEDIA AND DELIVERY METHOD

The TS includes formal schoolhouse instructor-led and Computer Aided Instruction (CAI), as well as informal Web-Based Training (WBT) and Computer Based Training (CBT), a Learning Management Information System (LMIS), deployable training, embedded training, and all training devices necessary to provide the most effective and efficient training system.

All COI is being developed using the Sharable Content Object Reference Model (SCORM), where applicable. All CAI and Interactive Courseware training material will be SCORM compliant and conform to the technical standards to run in the intended environment: classroom, automated electronic classroom, or learning resource center, Navy e-learning, or desktop (Navy Marine Corps Intranet ashore or Information Technology for the 21st Century afloat).

3.8.2. INITIAL TRAINING

UCAS Manufacturing developed and conducted initial training for personnel to support Operation Test (OT) and for ramping up the initial cadres for LRIP aircraft delivery. UCAS Manufacturing also delivered engineering drawings, test plans and reports, and evaluations of the need for unique support. UCAS Manufacturing also provided Initial Cadre training for mission crew instructors in support of the Strike Talon UCAS. Strike Talon UCAS initial training is being provided at the UCAS Manufacturing Training Facility in Scottsdale, AZ.

3.8.3. OPERATOR TRAINING

Operator training courses consist of FSO, MSO, and Mission Commander Courses, and are being provided by UCAS Manufacturing.

3.8.4. MAINTENANCE TRAINING

Maintenance manning will be an organic/CLS hybrid. Specific maintenance training requirements, from the FEA process, identified two specific training tracks: Strike Talon UCAS Airframes Mechanic and Strike Talon UCAS Avionics Technician. The Product Support BCA helped determine the Strike Talon UCAS maintenance training facility requirements. The primary location for initial cadre training is the UCAS Manufacturing Training Facility in Scottsdale, AZ.

3.9. SUPPLY SUPPORT

3.9.1. INTERIM SUPPLY SUPPORT

The Prime Contractors, as a contractual function of Availability and readiness, will accomplish supply support through IOC.

3.9.2. INVENTORY CONTROL

The Prime Contractors will maintain a log of Government and contractor material for the operational test and fielding of LRIP systems during the Production and Deployment (P&D) phase. Documentation will be prepared showing the status and location of material at the completion of the operational test and fielding of the LRIP assets (Base Year + 8). The storage, requisitioning, and replenishment of Strike Talon UCAS material will be identified and separated within the GFE controlled area.

3.9.3. SPARES AND REPAIR PARTS FOR OPERATIONAL TEST AND LRIP FIELDING

The Prime Contractors provided provisioning technical data and spare part authorizations are established and budgets approved. Long lead materials are already requisitioned or delivered (72%). Adjustments to stocking levels will be completed based on the data collection, by the Prime Contractors, during operational test and the initial fielding of LRIP systems. The range and depth must be sufficient to preclude any test schedule disruptions.

3.9.4. PROVISIONING TECHNICAL DOCUMENTATION

Provisioning Technical Documentation (PTD) data rights were acquired to complete initial system provisioning. Additional CLINs are included in contracts assuring PTD access as exit criteria for all PBL contracts to ensure the Navy's ability to support the system in the event of Product Support Integrator (PSI) failure.

3.9.5. PROVISIONING PARTS LIST

During the Production and Deployment phase, the Prime Contractors will update and provide a Provisioning Parts List (PPL) to the bit and piece part level for systems, equipment and Peculiar Support Equipment (PSE), excluding COTS and MCOTS items. Additionally, in consonance with the latest support philosophy of NAVSUP WSS, Philadelphia, the Prime Contractors will contractually impose upon subcontractors the requirement to furnish a 100% bit and piece part configuration data package, again, excluding COTS and MCOTS items.

3.9.6. DESIGN CHANGE NOTICES (DCN)

The Prime Contractors will submit DCNs to the NAVSUP WSS - Philadelphia within 60 days after approval of each engineering change that modifies, add, deletes or supersedes spares or repair parts.

3.9.7. POST-MATERIAL SUPPORT DATE (MSD) SUPPLY SOURCE OF SUPPORT

Post-MSD, supply support is expected to be provided under a PBL contract. As part of the Prime Contractor's RFP process, potential vendors will also be tasked to identify innovative supply support approaches. Under the PBL approach, the PSI will be incentivized to meet performance metrics agreed to, or derived from, the user/warfighter PBA such as Availability, reliability, repair turn around and CONUS/OCONUS delivery times (see Section 9 of this document).

3.9.8. DIMINISHING MANUFACTURING SOURCES AND MATERIAL SHORTAGES (DMSMS) MANAGEMENT STRATEGY

The Strike Talon UCAS approach to DMSMS identification and resolution is to create and maintain a proactive means to identify and assess the short and long-term impacts of potential obsolescence, and to ensure where a contractor provides product support, such as PBL; the PC is required to initiate and maintain a proactive DMSMS and obsolescence program. Strike Talon UCAS program efforts are directed toward addressing prospective DMSMS situations from the initial phases of development through the life of the program. This includes identifying current and potential DMSMS items early in the system/equipment design phase and effecting associated design tradeoffs to minimize life cycle vulnerability. Information shall be shared between the government, its agents, and the contractors. The Strike Talon UCAS DMSMS Manager maintains overall responsibility of the Strike Talon UCAS DMSMS plan.

The DMSMS Management Team (DMT) determines the best business case solution for obsolescence issues and makes recommendations to the Product Support IPT. The DMT is comprised of multiple disciplines necessary to support obsolescence, including the program office, contracting office, engineering, logistics, FRCs, OC-ALC, Prime Contractors and NAVSUP WSS, Philadelphia.

3.10. SUPPORT EQUIPMENT

This section describes the acquisition process for providing Support Equipment (SE), including tools, calibration and testing, as required for the Strike Talon UCAS, which will operate primarily from fixed-sites at various world-wide locations. SE identified and/or designed is required to operate in the same environment as listed in the overall specification.

3.10.1. SCOPE AND OBJECTIVES

The PC recommended SE for the program and prepared and submitted the Support Equipment Recommendation Data (SERD). NAWCAD Lakehurst reviewed and approved required SERDs. , Support equipment, identified during EMD, has been allocated to operational test sites at Nellis AFB, NV and Oceana NAS. Additional assets are in procurement with delivery scheduled through FOC. The PC is responsible for the nonrecurring engineering required for all Strike Talon UCAS PSE and to ensure at least one set of PSE is available for OT and initial fielding of LRIP systems. GFE, including CSE, is being provided by NAWCADLK. Support Equipment requirements and delivery is on schedule.

3.10.2. SUPPORT EQUIPMENT IDENTIFICATION

The PC identified PSE, Common Support Equipment (CSE), facility equipment, and hand tools to maintain the Strike Talon UCAS in its operational environment. All items are traceable to Logistics Product Data (LPD) and data resulting from the Supportability Analysis. Requirements are documented in a SE Candidate List (SECL) submitted to NAWCADLKE. Peculiar Support Equipment (PSE) cost data is included in SE LPD data. BIT is in use to eliminate stand-alone PSE.

3.10.3. SUPPORT EQUIPMENT IUID

The PC and NAVAIRLKE Support Equipment Program Office (SEPO) will ensure that SE identified as tangible items are tracked via unique identifiers in accordance with DoD guidance DFARS 252.211-7003 and STD-130 series titled “Identification Marking of U.S. Military Property”.

3.10.4. SUPPORT EQUIPMENT SELECTION PROCESS

To reduce proliferation SE development selection was prioritized as follows:

- CSE available through the Government supply system (68% of requirement)
- PSE available through the Government supply system (13 % of requirement)
- COTS equipment (7 % of requirement)
- MCOTS equipment (2 % of requirement)
- Development of new PSE (10 % of requirement)

3.11. TECHNICAL DATA

This section describes the Strike Talon UCAS Technical Data program for engineering data and technical manuals supporting the Strike Talon UCAS and SE. Technical data accuracy and detail currently meets requirements to support all applicable levels of maintenance and operation. The technical data allows maximum on-site maintenance by providing the data needed to accomplish troubleshooting, fault isolation, and repairs authorized for each level of maintenance. The Government retains the right to procure data as needed. The Technical Data Package (TDP), for new and modified equipment is being used to accomplish the following:

- Engineering Investigations (EI)/analyses of equipment deficiencies
- Depot rework processes/fabrication of items
- Spares and repair parts procurement
- Maintaning the configuration baseline
- Source data for Technical Manuals/Interactive Electronic Technical Manuals (IETM)

IETMs/ETMs and Maintenance Requirements Cards (MRCs) are authored in Extensible Markup Language (XML) and distributed and presented in Information Strike Force (ISF)/NMCI approved format and Viewer in accordance with NAVAIRINST 4120.11, MIL-STD-3001 and ASD S1000D. The IETM/ETMs contain Maintenance Procedures, Principles of Operation, Removal and Installation (R&I), Testing and Troubleshooting, and Illustrated Parts Breakdown (IPB). The NATOPS and Pilot Checklists were developed in accordance with MIL-DTL-85025 series respectively.

3.11.1. INTERIM SUPPORT

During operational testing and the initial system deployments through LRIP, engineering data and IETMs will be developed and delivered to personnel. On-site PC personnel will support the technical data program by:

- Supplementing any existing drafts of the Maintenance Procedures, Principles of Operation, R&I Procedures, Testing and Troubleshooting, and IPB
- Assisting the technicians in troubleshooting, fault detection, and fault isolating the Strike Talon UCAS avionics sub-system
- Providing feedback to the Technical Manual Program by way of Technical Manual Evaluation Records (TMER) and Technical Publications Deficiency Reports (TPDR) on any potential problems uncovered

3.11.2. COMMERCIAL DOCUMENTATION

Commercial documentation is required to maintain the aircraft during the operational test, production and initial fielding. The PC will maintain a listing of all commercial documentation used during the operational test. The PC will include on this list such internal documents as manufacturing operation sheets and drawings, Overhaul Requirement Instructions, and engineering instructions and be made accessible to the Government. All COTS documentation applicable to the Strike Talon UCAS and SE will be included in the IETMs/ETMs.

3.11.3. TECHNICAL DATA PACKAGE

The PC will provide the Government access to the TDP which will include new and modified product and developmental design drawings and associated lists, engineering data that includes equipment specifications, interface specifications, procedures, descriptions, peculiar support and test equipment, process sheets, and safety, test, and software documentation. The TDP will be accessible and ISF/NMCI compliant software.

3.11.4. CONTRACTOR DATA AND DATA RIGHTS

Contracts include separately priced options to acquire data rights to enable various logistics support strategies, such as CORE, organic, or PBL/CLS. Contracts also include data rights clauses for specific acquisition of unlimited and limited data rights, clauses for the update and maintenance of data packages (as required) and submission of recommended spares breakout candidates list. The PC has minimized the use of proprietary and vendor-unique elements and address how they will provide data and information to the Government to support third-party development and competitive alternatives.

3.11.5. CONTRACTOR USE AND CERTIFICATION OF DATA

Certification of technical data conformity is invoked contractually.

3.12. TECHNICAL MANUALS

Technical manuals, which include IETMs/ETMs, NATOPS, checklists, and MRCs, are developed in an ISF/NMCI compliant software, in compliance with DoN digital data policy and NAVAIRINST 4120.11, for the Strike Talon UCAS unique end items and SE to support Government test and evaluation including OPEVAL and Fleet operations. IETMs are prepared to ASD S1000D requirements; ETMs are prepared to MIL- STD-3001, and NATOPS manuals and checklist are prepared to MIL-DTL-85025 series requirements. In-Process Reviews (IPR) will be conducted during the Operational Test and fielding to assure requirements are being met and deficiencies identified. The technical manuals were validated and verified during the EMD phase using a production representative aircraft and control station, lab equipment or assets (to include government personnel from the USN and USAF operational commands) to ensure their applicability and readiness for Fleet introduction.

3.12.1. TECHNICAL MANUAL REQUIREMENTS

Technical manuals were developed and delivered in accordance with the TMCR. The Technical Data LEM is responsible for the development and coordination of the TMCR. IETM will be utilized for the Strike Talon UCAS in accordance with DoN digital data policies. The IETMs can be used on Government approved Portable Electronic Display Devices (PEDD) and NMCI configured computers. The NAVAIR Common IETM Viewer will be used for IETM/ETM display and has been provided to the PC by NAVAIR. The IETM functionality requirements were identified by a Functionality Matrix provided in the TMCR. IETMs are prepared in accordance with NAVAIR business rules, as applicable. Project specific business rules are established and will be updated during the IETM development process. Technical content of Strike Talon UCAS technical manuals are traceable to decisions and guidance provided in maintenance plans, RLAs,

and other applicable Strike Talon UCAS documents. Information contained in the IETM database is directly traceable to the LPD database.

3.12.2. FUTURE IETM INTERFACES, ENHANCEMENTS, AND DEVELOPMENTS

The nature of technical data and associated applications and interfaces is a dynamic environment. Future IETM enhancements and potential interfaces to Automated Maintenance Environment or other related applications will be considered and addressed.

3.13. COMPUTER RESOURCES SUPPORT CONCEPT

The Computer Resource Support Concept for the Strike Talon UCAS program includes a joint government and contractor team approach for the development, configuration management, quality, testing and life-cycle management of computer hardware and software.

The Computer Resources Logistics Element Manager (LEM) identified and provided recommendations for Strike Talon UCAS computer resources (i.e. facilities, hardware, software, documentation, contractual services, manpower, personnel, and supplies needed to operate and support embedded computer systems) using the LPD process. The Computer Resources LEM developed a Computer Resource Support Management Plan (CRSMP) with detailed information and data regarding Computer Resources support.

The Computer Resources LEM participates in the Strike Talon UCAS System Safety Working Group (SSWG) to address and resolve software and computer system issues.

3.13.1. INFORMATION SUPPORT PLAN

Under the ISP Acquisition Streamlining Pilot Program, the initial Strike Talon UCAS ISP emphasizes the functional design and the architecture operational views. In addition the ISP:

- Identifies compliance with DoD information policy, goals and net-centric concepts
- Identifies and resolves implementation issues related to Strike Talon UCAS IT and Naval Strategic Software information infrastructure support and information interface requirements infrastructure
- Provides recommended solutions to any identified deficiencies to implement resolution(s) prior to weapon systems' need dates and milestones

3.13.2. OPEN SYSTEM ARCHITECTURE

The Strike Talon UCAS Systems Engineering approach uses, to the maximum extent, open system architecture for technical refreshes and reduce/eliminate proprietary technical solutions. This approach enhances the integration efforts between all areas of the system and allows future systems to leverage the development activities from the Strike Talon program. The incremental approach also mitigates technical risks by mandating a Technology Readiness Level (TRL) while allowing the introduction of new technologies, thus mitigating obsolescence. Technological Risk is mitigated by execution of the OSD approved NAVAIR Technology Readiness Assessment review process for identifying Critical Technology Elements (CTE) and assessing their TRL prior to MS B. An overarching TRA was performed prior to receipt of the EMD RFP proposals. Upon receipt of the proposals an updated review was conducted to ensure that all CTEs were assessed prior to the MS and to ensure that an immature solution was not selected during source selection. The Strike Talon UCAS program involves all the systems engineering disciplines and functional relationships outlined in the TRA. As part of the COTS acquisition strategy approach, technology selected was assessed as a TRL of 6 or greater prior to MS B. CTEs which did not meet TRL 6 will be part of future capability increments if they address objective requirements for the program, or alternate capabilities will be selected.

3.13.3. SOFTWARE SUPPORT ACTIVITY

In order to manage and provide oversight of the Computer Resource and related software activities, a Strike Talon UCAS Software Acquisition Management Plan (SAMP) has been developed to incorporate best commercial practices and is format compliant with Software Engineering Institute Capability Maturity Model Integration and a modified IEEE 1062-1998, IEEE Recommended Practice for Software Acquisition. The SAMP defines the activities and processes implemented by the software acquisition team supporting the Strike Talon UCAS program to ensure that all software acquisition program goals in regards to schedule, cost, and technical performance are met.

An initial CRSMP developed by the Strike Talon UCAS program will continue to evolve as more detailed computer and software related data/documentation become available.

The Support System (SS) contains a Logistics Management System (LMS) which is the core method of analyzing logistics information and PHM data. This system is also used for managing and communicating maintenance and supply data within and among Strike Talon MOBs. The LMS includes hardware and software to accomplish product support to interface with the Automated Maintenance Environment.

The Strike Talon UCAS conducted a preliminary need assessment for a support organization to perform future software support activities and continues to evaluate and assess as the Strike Talon UCAS program matures.

3.13.4. COMMERCIAL SOFTWARE

The use of COTS and GOTS software is being used to the maximum extent practical. This section will be updated as more detailed information becomes available.

3.14. PACKAGING, HANDLING, STORAGE AND TRANSPORTATION

This section identifies the requirements, management, and planning necessary for Strike Talon UCAS Packaging, Handling, Storage, and Transportation (PHS&T). As part of the Product Support IPT, NAVSUP WSS, Philadelphia serves as the overall coordinator for PHS&T.

3.14.1. OBJECTIVES

The objectives of PHS&T are to plan for the protection and transportation of the Strike Talon UCAS, spares, repair parts, and execute all PHS&T requirements in a cost- effective manner. Items entering the military distribution system are required to be preserved, packaged, and packed in accordance with MIL-STD-2073-1 including marking in accordance with MIL-STD-129. Items designated for immediate use are required to be commercially packaged in accordance with ASTM D 3951.

Material Safety Data Sheets (MSDS), for all hazardous materials, and Special Packaging Instructions are required. Also, Performance Oriented Packaging test reports for any hazardous materials, NAVSUP- WSS managed D-Level repairable (excluding radioactive materials and compressed gas) shall be provided. Warehousing and proper storage of material is required.

3.14.2. CONTAINERS

The Government is providing reusable shipping containers to the PC for shipment of material where cost effective. New specialized reusable shipping and storage containers shall be developed for items that cannot be adequately protected by conventional packaging or existing multi-application reusable containers.

3.15. FACILITIES AND INFRASTRUCTURE

The PC identified plans for implementation to support the Strike Talon UCAS at each designated test and evaluation, operational (land-based), training, deployment, depot, and maintenance sites. The facility requirements have been identified. Additional infrastructure modifications are being completed on USN Carriers and at FOBs. Shelters required for Low Observable maintenance are under contract and deliveries are beginning.

The primary thrust of the facilities engineering effort was to screen all facilities requirements identified through the design studies, design reviews and SA, in order to provide subsequent recommendations to eliminate and/or minimize the requirements for new and/or modified facilities.

3.15.1. FACILITIES REQUIREMENTS DOCUMENT

The PC developed a Facilities Requirements Document (FRD) which defined the Strike Talon UCAS facility characteristics and identified the facilities required to operate and maintain the Strike Talon UCAS at a typical test and evaluation, operational (land- based), training, deployment, and maintenance site. The FRD requirements are traceable to the LPD processes and maintenance plans. Initial surveys indicated the need for Carrier and FOB modifications to accommodate the low-observable requirements for Strike Talon.

3.15.2. SITE SURVEYS

Using the FRD as baseline criteria, the PC, along with government representatives, started the survey/evaluation process for future Strike Talon UCAS sites for their capability to support and maintain the Strike Talon UCAS.. These surveys also have identified requirements for modified facilities specifically for low observable maintenance. 80% of site surveys are complete with additional MOBs and FOBs scheduled for visits.

3.15.3. SITE EVALUATION REPORT

The PC prepares site evaluation reports for each site survey conducted. These reports document the results of on-site evaluations, detail site-specific facilities requirements, identify site facilities and related deficiencies, and provide recommendations for corrections of deficiencies.

3.15.4. FACILITY FUNDING REQUIREMENTS

The Logistics Requirements and Funding Summary (LRFS) lists the Strike Talon UCAS facilities funding requirements. The Strike Talon UCAS program continues to minimize new construction/modification of facilities and to maximize the use of existing facilities.

4. Product Support Arrangements

4.1. Contracts

This section identifies the current Product Support Contracts.

Product Support Related Contracts				
Name	**Organizations**	**Products / Timeframe**	**Responsibilities/Authority and Functions**	**Metrics & Incentives**
Airframe and Flight Control	UCAS Manufacturing	Airframe and Flight Controls / Base Year + 8	Depot Level Maintenance and Repair PPP (FRC E/NW)	System availability (Ai) 95% (T) 99% (O). Incentive: Award term (1 year increments) for meeting threshold 12 of 12 months of each fiscal year.
Propulsion	Engines Plus	Strike Talon Engines/ Base Year + 8	Depot Level Overhaul and Repair. PPP with OC- ALC (deliver technical support and spares)	Power by the Hour Performance based Contract. "Time on Wing" (T) 650 operating hours per month. "Time on Wing" (O) 685 operating hours. Incentive: Cost avoidance increases contractor margin. Contractor incentive fees linked to meeting threshold 12 of 12 months of each fiscal year
PHM	Spacely	Prognostics Health and Management System Base Year + 8	Repair and overhaul of PHM Sub-system and all components	Availability of PHM system (inherent) = 90 % (threshold). Ai > 90% (objective) with availability ceiling of 95%. Incentive: incentive payments based on availability per 0.5% incremental increases.

TABLE 4-1: PERFORMANCE BASED ARRANGEMENTS IMPLEMENTED IN CONTRACTS
AS OF BASE YEAR + 6

4.2. PERFORMANCE ARRANGEMENTS

Performance Based Arrangements with Organic Product Support Providers				
Name	**Organizations**	**Products / Schedule**	**Responsibilities/Authority and Functions**	**Performance Metrics**
Propulsion	OC-ALC	Strike Talon Engines/ Base Year + 8	Depot Level Overhaul and Repair. PPP with Engine Plus (deliver technical support and spares)	Power by the Hour Performance based MOA. "Time on Wing" (T) 650 operating hours per month. "Time on Wing" (O) 685 operating hours. Incentive: Operational funds saved redirected to facility improvements and capacity expansion. Contractor incentive fees linked to meeting threshold 12 of 12 months of each fiscal year

TABLE 4-2: PERFORMANCE BASED ARRANGEMENTS (ORGANIC SUPPORT PROVIDERS)
AS OF BASE YEAR + 6

5. Product Support Package Status

5.1. Program Review Issues and Corrective Actions

Review	Finding	Corrective Action/Planned Completion Date
Logistics Assessment Base Year + 5 4th Qtr	Facilities site surveys planning 80% complete, slightly behind schedule (expected 85%). Personnel authorization identification and implementation lagging schedule. 50% of USN authorizations approved for Strike Talon Program. Expected 70% according to plan.	Site survey schedule updated and expected to align with plan by Base Year + 7 4th Qtr. Personnel authorization allocation -- discussion with Naval Personnel Command. Additional authorizations expected by Base Year + 7 2nd Qtr.

TABLE 5-1: PROGRAM REVIEW RESULTS
AS OF BASE YEAR + 6

5.2. Product Support Package Assessment

Product Support Element	Assessment	Discussion/Issues	Corrective Action/ECD
Product Support Management		Budget (O&S) concerns - fuel costs exceeding forecasts. Cost Per Flying Hour (CPFH) estimate in sustainment exceeding budget.	"Should cost" review of all O&S areas has reduced delta but costs still exceeding target.
Design Interface		Corrosion Control detection systems enhanced.	Facilities MODS planned and under contract for FOB support / ECD: Base Year + 8
Maintenance Planning and Management		Corrosion Control detection systems enhanced.	Corrosion detection enhanced as part of PHM system/ ECD: Base Year + 8
Manpower & Personnel		50 % of USN and 70% of USAF manpower authorizations identified for transfer to Strike Talon.	M&P IPT working directly with Service Manpower and Personnel centers identifying authorizations for transfer to Strike Talon/ ECD: Base Year + 8
Supply Support		Obsolescence issues reduced by 85% through aggressive sourcing through Prime Contractors and Market Research	
Support Equipment		Flight Load component for PHM peculiar support equipment requirement reduced to only 12% of projected requirement	Lakehurst NAS continues search for additional common support equipment assets to replace peculiar items. PSE to CSE ratio for program achieved
Sustaining Engineering		No current issues	
Training & Training Support		Additional training tasks and data provided by UCAS Manufacturing. LO maintenance incorporated in initial training of USN and USAF maintainers	Curriculum from existing systems will be used to upgrade Strike Talon maintenance personnel training. ECD: Base Year + 8

Product Support Element	Assessment	Discussion/Issues	Corrective Action/ECD
Technical Data		Plan for procuring data for Depot use in place	
PHS&T		Moving MCS to FOBs requires strategic lift assets. Timing and availability of critical strategic lift, for delivery of deployable components, may be limited in more stringent Operation Plans	PHS&T IPT working with Service and TRANSCOM in deliberate planning process to assure strategic lift assets are available. ECD: Base Year + 8
Facilities and Infrastructure		Shelters and facilities on carriers and FOBs for Low Observable maintenance. Additional Site Surveys required (behind plan)	Modifications for carrier operations and FOBs on going. ECD: Base Year + 8
Computer Resources		PHM Radar Integrity component software not yet tested for integration with DoD systems. Data from overall PHM system needs integration into USN and USAF maintenance systems.	Software Integration Labs are scheduled to evaluate integration and security within the PHM and with DoD systems. ECD: Base Year + 8

TABLE 5-2: PRODUCT SUPPORT PACKAGE ASSESSMENT

AS OF BASE YEAR + 6

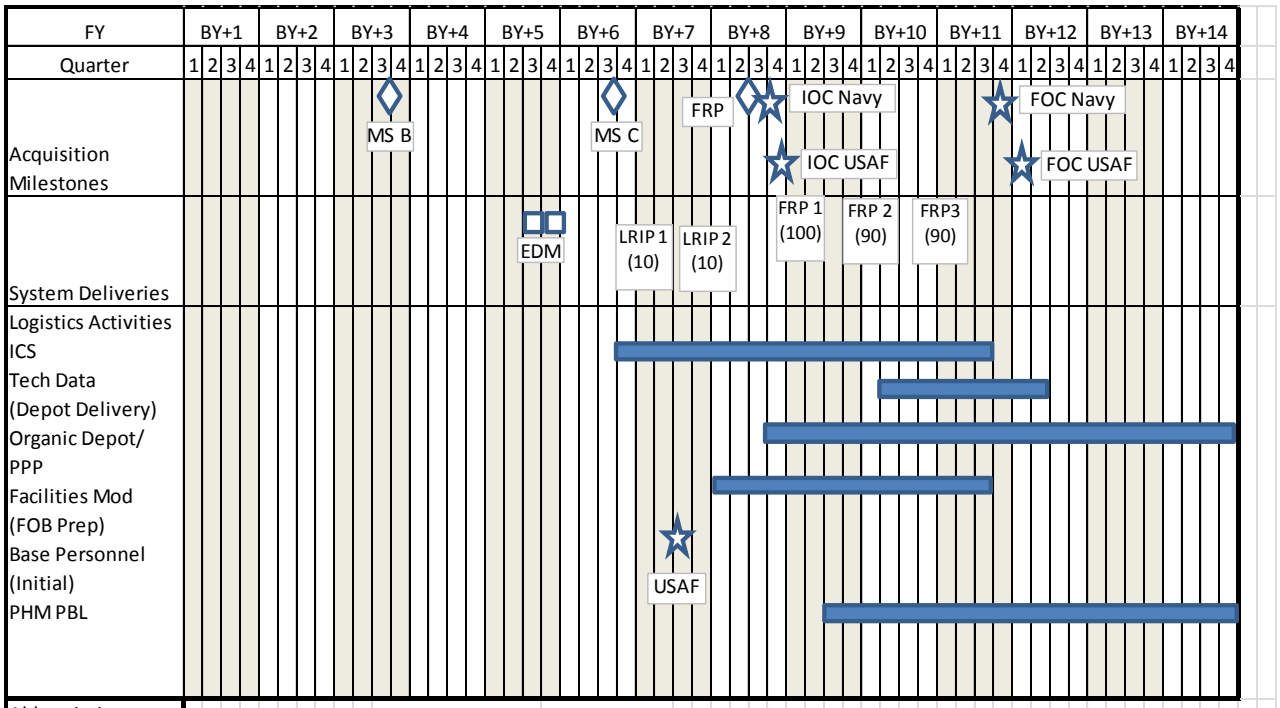
6. REGULATORY/STATUTORY REQUIREMENTS THAT INFLUENCE SUSTAINMENT

6.1. PERFORMANCE

Requirement	Documentation	OPR	Start Date / Implementation Date	CLIN	Review Cycle	Affected Performance Metric
Core Logistics Analysis	10 USC 2464	OPNAV/N4 & HQ AFMC/A4	MS-A -- Base Year/ Post-MS C		Milestone B & FRPDR	Availability & O&S Cost
Public-Private Partnership	10 USC 2474	OPNAV/N4 & HQ AFMC/A4	MS-B, Post IOC		MS-C; Every 5 years after IOC	Availability KPP Reliability KSA
CBM +	DODI 4151.22 (Dec 07)	PSM/Contractor	RFP, Initial fielding			Availability KPP
Affordability	AT&L Better Buying Power Memo, Nov 13, 2012	PM/PSM	RFP, MS A			Availability & O&S Cost
DMSMS		PSM/Contractor	RFP, MS B		On-going through production	Availability KPP
Counterfeit		PSM/Contractor	RFP, MS B			Availability KPP

TABLE 6-1: SUSTAINMENT ALIGNMENT OF REGULATORY REQUIREMENTS

7. Integrated Schedule



Abbreviations:					
BY	Base Year	E&MD	Eng. & Mfg. Development Phase	MS	Milestone
CA	Contract Award	FRP	Full Rate Production	PDR	Preliminary Design Review
CDR	Critical Design Review	IOC	Initial Operational Capability	P-CDR A	Post CDR Assessment
DT	Developmental Test & Eval.	IOT&E	Initial Operational Test & Eval.	RFP	Request for Proposal
EDM	Engineering Development Model	LRIP	Low Rate Initial Production	SFR	System Functional Review

FIGURE 7-1: PRODUCT SUPPORT SCHEDULE

As of Base Year + 6

8. FUNDING

($ in Millions / Then Year)	Prior Base Years	Base Year + 6	Base Year + 7	Base Year + 8	Base Year + 9	Base Year + 10	Base Year + 11	Base Year + 12	Base Years + 6 - + 12	Program Total
RDT&E										
Prior $ (PB Base Year + 3)	106.4	6.7	8.3	17.2	7.1	0.0	0.0	0.0	24.3	145.7
Current $ (PB Base Year + 4)	108.0	5.0	4.2	16.0	6.5	3.2	1.3	0.0	27.0	144.2
Delta $ (Current - Prior)	1.6	(1.7)	(4.1)	(1.2)	(0.6)	3.2	1.3	0.0	2.7	(1.5)
Required $	108.0	6.5	7.9	16.0	6.5	3.2	1.3	0.0	27.0	149.4
Delta $ (Current - Required)	0.0	(1.5) [1]	(3.7)	0.0	0.0	0.0	0.0	0.0	0.0	(5.2)
PROCUREMENT										
Prior $ (PB Base Year + 3)	0.0	128.3	133.2	145.2	133.5	138.0	112.0	0.0	528.7	1,007.2
Current $ (PB Base Year + 4)	0.0	89.6[2]	135.2	141.1	152.3[3]	155.4	121.0	93.0	662.8	1,032.6
Delta $ (Current - Prior)	0.0	(38.7)	2.0	(4.1)	18.8	17.4	9.0	93.0	134.1	25.4
Required $	0.0	94.0	134.2	141.1	152.3	155.4	121.0	93.0	662.8	1036.0
Delta $ (Current - Required)	0.0	(4.4)[4]	1.0	0.0	0.0	0.0	0.0	0.0	0.0	(3.4)
MILCON										
Prior $ (PB Base Year + 3)	0.0	0.0	1.3	1.6	0.0	2.1	2.3	0.0	6.0	22.6
Current $ (PB Base Year + 4)	0.0	0.0	1.4	1.7	0.0	2.0	2.1	3.0	8.8	22.8
Delta $ (Current - Prior)	0.0	0.0	0.1	0.1	0.0	(0.1)	(0.2)	3.0	2.8	0.2
Required $	0.0	0.0	1.4	1.7	0.0	2.0	2.1	3.0	8.8	22.8
Delta $ (Current - Required)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
WEAPON SYSTEM O&M[1]										
Prior $ (PB Base Year + 3)	0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	12.0	100.0
Current $ (PB Base Year + 4)	0.0	0.0	0.0	0.0	0.0	0.0	11.0	15.0	26.0	101.0
Delta $ (Current - Prior)	0.0	0.0	0.0	0.0	0.0	0.0	(1.0)	15.0	14.0	1.0
Required $	0.0	3.8	3.5	4.0	4.3	4.6	5.2	5.0	23.1	70.4
Delta $ (Current - Required)	0.0	(3.8)	(3.5)	(4.0)	(4.3)[5]	(4.6)	5.8	10.0	2.9	30.6
TOTAL										
Prior $ (PB Base Year + 3)	106.4	135.0	142.8	164.0	140.6	140.1	126.3	0.0	571.0	1275.5
Current $ (PB Base Year + 4)	108.0	94.6	140.8	158.8	158.8	160.6	135.4	111.0	724.6	1300.6
Delta $ (Current - Prior)	1.6	(40.4)	(2.0)	(5.2)	18.2	20.5	9.1	111.0	153.6	25.1
Required $	108.0	104.3	147.0	162.8	163.1	165.2	129.6	101.0	721.7	1278.6
Delta $ (Current - Required)	0.0	(9.7)	(6.2)	(4.0)	(4.3)	(4.6)	5.8	10.0	2.9	22.0
QUANTITIES[2]										
Prior (PB Base Year + 3)	2	8	15	35	85	95	62	0	298	300
Current (PB Base Year + 4)	2	8	15	38	85	95	62	0	298	300
Delta $ (Current - Prior)	0	0	0	0	0	0	0	0	0	0
Required Qty	2	8	15	38	85	95	62	0	298	300
Delta Qty (Current - Required)	0	0	0	0	0	0	0	0	0	0

TABLE 8-1: PRODUCT SUPPORT FUNDING SUMMARY
As of Base Year + 6

9. MANAGEMENT

9.1. ORGANIZATION

9.1.1. GOVERNMENT PROGRAM OFFICE ORGANIZATION

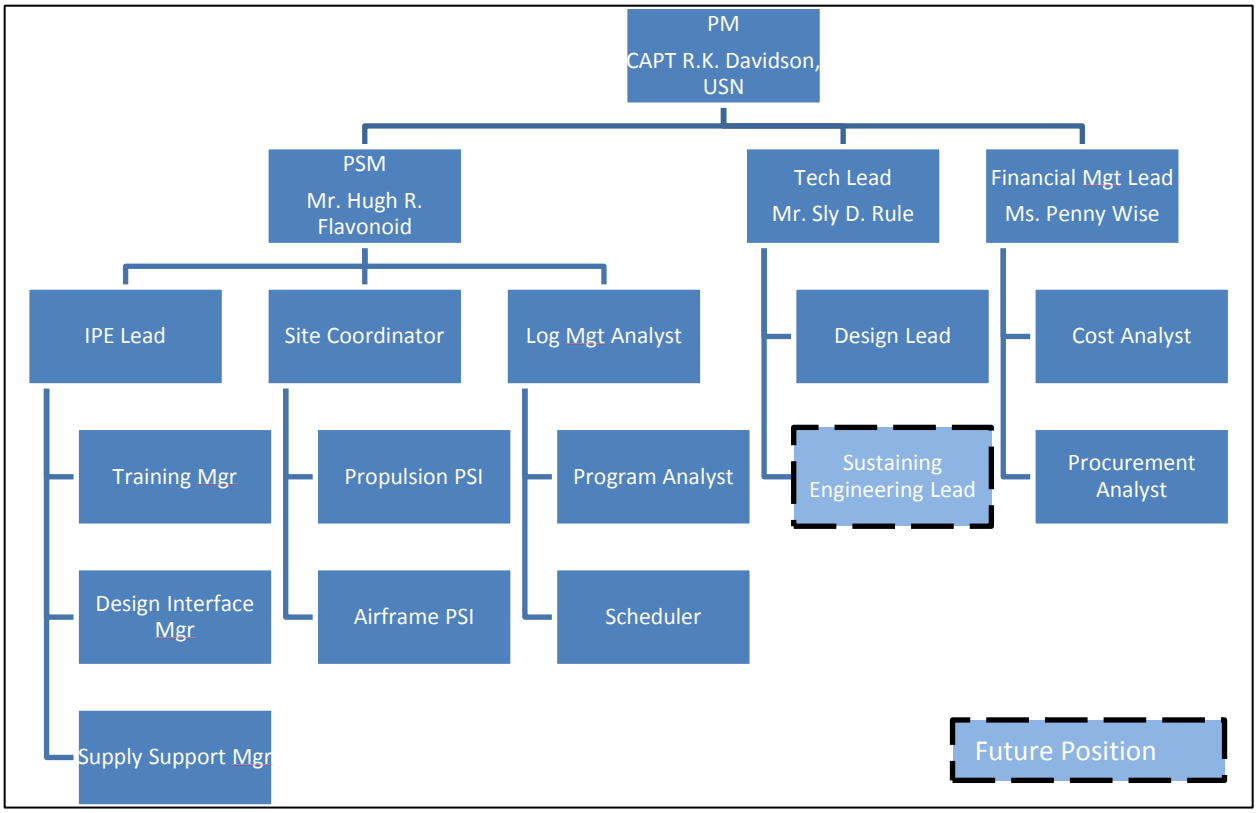


FIGURE 9-1: PROGRAM OFFICE ORGANIZATION
As of Base Year + 6

9.1.2. PROGRAM OFFICE PRODUCT SUPPORT STAFFING LEVELS

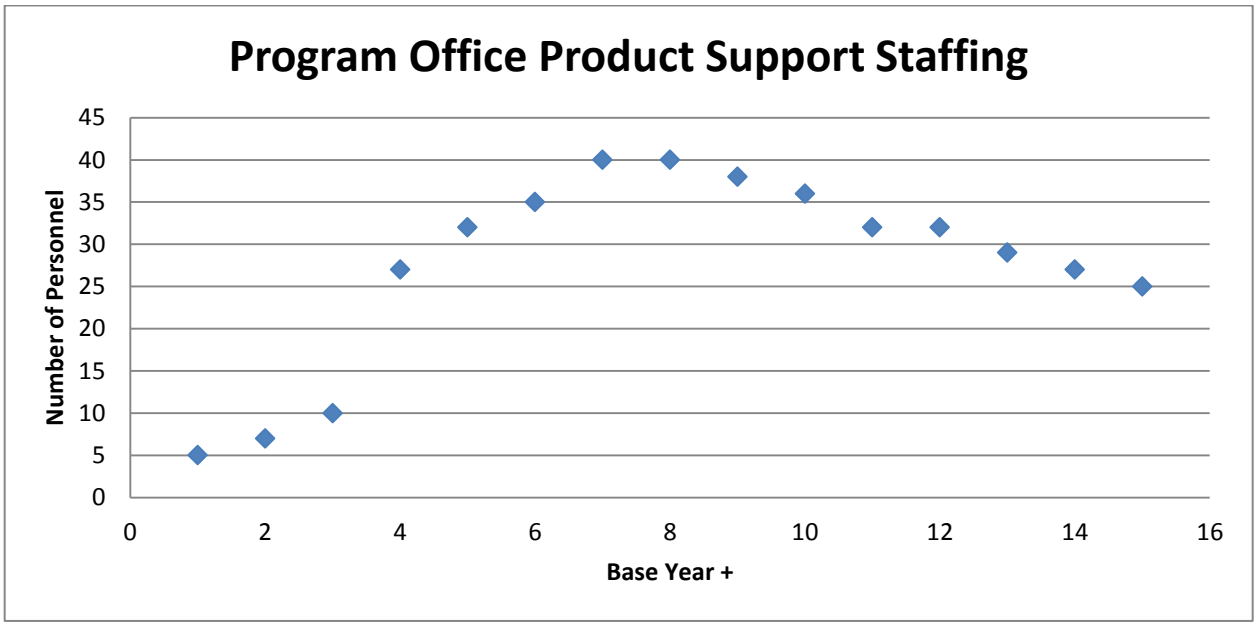


FIGURE 9-2: PROGRAM PRODUCT SUPPORT STAFFING
As of Base Year + 6

9.1.3. CONTRACTOR (S) PROGRAM OFFICE ORGANIZATION

9.1.4. PRODUCT SUPPORT TEAM ORGANIZATION

Team Name	POC	Team Membership (by Function or Organization)	Team Role, Responsibility, and Authority	Products & Metrics
PS IPT	PSM Hugh R. Flavonoid 703-555-2222	- Program Office • Deputy PM • Sys Eng Lead • Financial Lead • SW Lead • Site Rep. • R&M Lead - PSIs (List) - Prod Spt IPT Leads - Service Representative(s) - DoD Agency Representative(s) - Key Subcontractor or Suppliers • Engine Plus • UCAS Manufacturing • Slate • Spacely • Kildare **Size**: 32 members	Role: Coordinate, Integrate and Employ Strike Talon PSS IPT Purpose: Resolve issues with other functional areas with regard to product support Responsibilities: Integrate all product support efforts • Team Member Responsibilities • Cost, Performance, Schedule Goals • Scope, Boundaries of IPT Responsibilities Quarterly meetings with provision for short notice meetings for critical, time sensitive decisions Date of signed IPT charter and signatory: Base Year + 2 Qtr 2 Revised Base Year + 5 Qtr 2	Products: • LCSP/LCSP Updates • IMP/IMS Inputs • Specifications • AS input Metrics: • Cost ○ Program Product Support Element costs ○ OPTAR • Schedule • Sustainment ○ A_M ○ Log Foot Print

TABLE 9-1: IPT TEAM DETAILS
As of Base Year + 6

9.2. MANAGEMENT APPROACH

9.2.1. PRODUCT SUPPORT MANAGER (PSM) ROLES AND RESPONSIBILITIES

9.2.2. SUSTAINMENT RISK MANAGEMENT

Risk	Rating	Driver	Mitigation Plan	Status
Spares non-availability, Failure to meet Availability KPP	Low Risk	Extensive use of COTS in PHM subsystem. Incorporation of mature subsystems in two PHM sub systems	Aggressive market research and CLIN in procurement contracts for acquisition of technical data at pre-negotiated prices for sole source components	Some replacement components identified. Additional components undergoing verification and validation. ECPs under development for replacement components
Increased maintenance repair times, Failure to meet Availability KPP	Medium Risk	Cutting edge technology in PHM system for Carbon Stress subsystem. Subsystem capabilities not meeting effectiveness targets for fault detection. Cost prohibitive.	Incorporate additional training and maintenance tasks for organizational and depot level personnel.	Tasks being identified using similar structured systems (including commercial aircraft). Incorporation in technical documentation and training learning objectives expected by deliver of first test aircraft in Base Year + 5

TABLE 9-2: RISK SUMMARY AS OF BASE YEAR + 6

10. SUPPORTABILITY ANALYSIS

10.1. DESIGN INTERFACE

10.1.1. DESIGN ANALYSIS

System	Schedule	Issues/Likelihood	Impact / comments
Airframe IPT Lead	TBD		
Propulsion IPT Lead	TBD		
Avionics – General IPT Lead	TBD		
ISR systems IPT Lead	TBD		
Fire Control IPT Lead	TBD		
Avionics Test Equipment IPT Lead	TBD		
PHM IPT Lead	Base Year + 2 through Base Year + 4	Component Maturity	Some components should not be included in first system increment due to immature technology. System capability not fully developed

TABLE 10-1: FMECA SUMMARY
As of Base Year +6

System	Planned/ De-rated Values (failures per operating hour)	Estimate at IOC	Confidence Level	Mitigation efforts
PHM	TBD			

TABLE 10-2: RELIABILITY GROWTH PLAN ISSUES
As of Base Year + 6

Completed Supportability Trades				
Trade	IPT	Options Analyzed	Results	Impact
TBD				

TABLE 10-3: COMPLETED SUPPORTABILITY TRADES
As of Base Year + 6

Planned Supportability Trades				
Trade	**IPT**	**Options Analyzed**	**Results**	**Impact**
TBD				
Post MS C Supportability Trades				
Trade	**IPT**	**Options Analyzed**	**Results**	**Impact**
PHM Carbon Stress component for enhanced ECPs on ELUP, HMS, VMS systems of PHM	PHM Product Support	• Evolutionary acquisition of Carbon Stress component in increment 2 of Strike Talon; • Excluding Carbon Stress sensors from PHM	• Evolutionary approach accepted for increment 2 of PHM (design and tech development contract RFP released).	Delay in implanting Carbon Stress sensors, increased maintenance workload (additional training and tools)

TABLE 10-4: PLANNED SUPPORTABILITY TRADES
As of Base Year + 6

10.1.2. TECHNICAL REVIEWS

Review	Sustainment Participants	Sustainment Focus	Criteria
AOTR 1st Qtr Base Year + 7	• PSM • Supportability Analysis IPT Lead	• Integrated production planning • Operational test and deployability	**Entry** • TEMP **Exit:** • Test criteria for operational testing • Updated schedule
OTRR 1st Qtr Base Year + 8	• PSM • Supportability Analysis IPT Lead	• Meeting CPD criteria for effectiveness, suitability and survivability in operational environment	**Entry** • TEMP and satisfactory AOTR and DT results **Exit:** • CPD performance thresholds for effectiveness, suitability and survivability in prep for IOT&E

TABLE 10-5: TECHNICAL REVIEWS
As of Base Year +6

10.2. PRODUCT SUPPORT ELEMENT DETERMINATION

Product Support Analytical Support Methods and Tools				
Process/Analyst	**Schedule**	**Tool**	**Output Product**	**Update Timeframe**
TBD				

TABLE 10-6: PRODUCT SUPPORT ANALYTICAL METHODS AND TOOLS
As of Base Year + 6

10.3. SUSTAINING ENGINEERING

Sustainment Performance Data Collection and Reporting				
Tool	**OPR/IPT**	**Metrics/Data Monitored**	**Feedback Mechanism**	**Review Timeframes**
Sustainment Quad Chart	PSM	A_O, A_M, R MDT_O, MDT_M, O&S costs	Automatic updates to PEO and DASD (MR) via DAMIR.	Quarterly starting 1st Qtr Base Year + 4

TABLE 10-7: SUSTAINMENT PERFORMANCE MONITORING

11. Additional Sustainment Planning Factors

TBD

12. LCSP Annexes

TBD