OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
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LOGISTICS AND
MATERIEL READINESS

January 19, 2017

MEMORANDUM FOR ASSISTANT SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Life-Cycle Sustainment Plan Outline Version 2.0

Reference: (a) PDUSD(AT&L) Memorandum, "Document Streamlining – Life-Cycle Sustainment Plan (LCSP)," September 14, 2011

The Life-Cycle Sustainment Plan (LCSP) is the primary program management reference governing operations and support planning and execution from Milestone A to final disposal. The attached LCSP Version 2.0 outline revises the reference (a) version to reflect changes to statute, clarify previous guidance, expand the funding section to include cost estimates, Should Cost initiatives and Affordability considerations, and incorporate critical thinking questions. This revision is an evolution of the outline, not a revolution. The Version 2.0 continues to be a tool for programs to effectively and affordably satisfy life-cycle sustainment planning requirements. Program Managers must convey the information described under each of the outline's headings, in accordance with the authority set forth in 10 USC §2337 for the Secretary of Defense to establish guidelines, but are encouraged to tailor the pictures, tables, and figures to best portray the specifics of their program. The LCSP review and approval process is described in Department of Defense Instruction (DoDI) 5000.02, Enclosure 1, Table 2.

New programs and programs currently in the acquisition process will implement the LCSP Version 2.0 outline format to support decision reviews that are greater than nine months after the date of signature of this memo. LCSPs to support decision reviews within nine months following signature of this memo may use the 2011 LCSP outline format to support the upcoming decision review but must transition to the Version 2.0 outline format for subsequent decision reviews. Programs that have completed acquisition and are in sustainment are not required to transition their sustainment planning document to the revised outline format.

My point of contact for questions is Mr. Terry Emmert, Deputy Assistant Secretary of Defense for Materiel Readiness, at (703) 614-6327 or terence.g.emmert.civ@mail.mil.

Kristin K. French
Principal Deputy
Performing the Duties of the ASD(L&MR)

Attachment:
As stated

cc:
JCS-J4
Director, ARA
Director, CAPE
Director, DPAP
DASD(SE)

LIFE-CYCLE SUSTAINMENT PLAN

Sample Outline

January 19, 2017

Version 2.0

ATTACHMENT

LIFE-CYCLE SUSTAINMENT PLAN FORMAT

PROGRAM NAME – ACAT (LEVEL)

LIFE-CYCLE SUSTAINMENT PLAN

VERSION ___

SUPPORTING MILESTONE _

AND

[APPROPRIATE PHASE NAME]

[DATE]

****

OFFICE OF THE SECRETARY OF DEFENSE (OSD) APPROVAL

_____ _____

Assistant Secretary of Defense for Logistics and Materiel Readiness

Date

SUBMITTED BY

Name	Date
Product Support Manager	

REVIEW

Name	Date	Name	Date
Program Contracting Officer		Program Financial Manager	
Name	Date	Name	Date
Program Lead Engineer		Program Manager	

CONCURRENCE

Name	Date	Name	Date
Program Executive Officer or Equivalent		Sustainment Command Representative	
		Name	Date
		Program Executive Officer Integrated Warfare Systems (NAVSEA Programs)	

COMPONENT APPROVAL (ACAT IC)

Name	Date
DoD Component Acquisition Executive (CAE) or designated representative	

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Overview

The purpose of this annotated outline is to improve sustainment planning for Department of Defense (DoD) weapon systems. This may be achieved when programs make design decisions that achieve operational performance requirements and reduce demand for sustainment. The Life-Cycle Sustainment Plan (LCSP) serves a valuable purpose as a tool in coordinating the efforts, resources, and investment of the DoD Materiel Commands such that down time for fielded weapons systems is managed through deliberate productivity improvement steps that continually lower the cost of readiness. The LCSP and the Product Support Strategy support the conditions for the Services to analyze the decision space for how to control Operating and Support (O&S) cost. This annotated outline was structured as a framework to assist weapons programs in thinking through the set of planning factors that must be integrated to achieve the sustainment results quantified in user-specified requirements. An LCSP that logically integrates requirement, product support elements, funding, and risk management, establishes the groundwork for successful communication with Congressional, Office of the Secretary of Defense (OSD), and Component oversight staffs.

Critical Thinking Questions Boxes

To facilitate the critical thinking required to successfully plan for sustainment, the outline includes "Critical Thinking Questions" in many sections. These questions are designed to illustrate the types of thinking required on particular topics to ensure that the sustainment plan is comprehensive, cohesive, and actionable. Authors are not expected to explicitly answer these questions in their LCSP.

This annotated outline uses the terms "sustainment" and "product support" synonymously. The term "strategy" applies to the integration of the requirements, a product support package (an outcome to meet requirements and a means of achieving the requirement), resources, and funding. A "product support package" consists of all or a subset of the following product support elements:

- Product Support Management
- Supply Support
- Packaging, Handling, Storage, and Transportation
- Maintenance Planning and Management
- Design Interface
- Sustaining Engineering
- Technical Data
- Computer Resources
- Facilities and Infrastructure
- Manpower and Personnel
- Support Equipment
- Training and Training Support

Additionally, the product support package includes the agreements between program offices and government and contracted support providers.

The term "plan" applies to the elaboration of the strategy with the set of tasks and activities required to implement the strategy. This outline aims to capture the strategy and the set of planning tasks and activities to stimulate critical thinking for managers and teams responsible for sustainment planning. Program Managers (PMs) and Product Support Managers (PSMs) should use this annotated outline to structure only information relevant to the needs of their individual program at the current and subsequent stages of the weapon system life-cycle they are/will be managing. Programs should not treat this annotated outline as a checklist requiring pro forma

compliance. Programs should tailor the LCSP to address features unique to their programs. To this end, tailoring suggestions are provided for System of Systems programs.

In addition to ensuring program's product support strategy influences a system's design, the LCSP is the primary program management reference governing operations and support—from Milestone A to final disposal. The LCSP is not a static document. It evolves throughout the acquisition process with the maturity of the system and adjustments to the program's life-cycle product support strategy. To remain relevant and current, the LCSP is updated every five years or upon a major program change to the program (major upgrades or modifications, adjustments to program scope or structure, or a revision to the sustainment strategy).

The primary source for the LCSP is the program office. However, in developing or revising the LCSP, the program office must communicate and collaborate with stakeholders in the acquisition, contracting, sustainment, engineering, test and evaluation, and financial management communities. The program's logisticians and product support team, led by the PSM, must work closely with all functional areas to ensure the LCSP aligns with other critical program documents including the: Acquisition Strategy, Contracting Business Clearance, Systems Engineering and Program Protection Plans, Intellectual Property Strategy, Test Plans, and Funding Submissions etc.

Other key stakeholders include Product Support Integrators (PSIs) and Product Support Providers (PSPs). The LCSP should identify both the PSIs and PSPs, define their areas of responsibility, and provide meaningful detail as to statements of work (SOW), performance objectives, and performance incentives as documented in requests for proposal (RFPs), contracts, and performance-based agreements (PBAs) and/or Public-Private Partnerships (PPPs) with organic support providers.

To facilitate this integration and provide information in a standardized format, program managers are to use a sustainment quad chart to report the status of sustainment planning at Overarching Integrated Product Teams (OIPTs), and Defense Acquisition Board (DAB) reviews.[1] The sustainment quad chart is the primary vehicle for summarizing the program's product support planning to senior officials and outside stakeholders. As such, the LCSP must provide the strategy, rationale, and programmatic detail behind the summary information presented on the sustainment quad chart. Specific guidance on the sustainment quad chart is found in Appendix D of the O&S Cost Management Guidebook (February 2016).

The tables and figures in this outline are notional and provide fictitious information for illustration purposes. It is not intended to prescribe or constrain content or limit the program office's latitude in tailoring information. The column headings for tables depict the minimum information for the notional examples, but programs may tailor as necessary.

This outline is applicable DoD-wide and is intended to facilitate critical thinking about the product support planning and implementation across a system's life-cycle. In addition to the LCSP and its annexes, the program may include any additional Component-specific requirements in a separate LCSP Component Supplement. Additionally, for existing sustainment plans for programs that were fielded prior to 2011, there is no requirement to revise those plans into the format of this outline. It is critical the program manager/PSM have agreement with major stakeholders, including Service and OSD review and approval authorities, on the scope, tailoring, and timelines for approval of the LCSP. It is recommended that LCSP planning discussions with these stakeholders occur early in the acquisition process. As an example, the appropriate scope of the LCSP for an Acquisition Category (ACAT) 1D program that is a major modification of an existing program may depend on if the modification significantly alters the existing support infrastructure for the legacy system, or whether the existing infrastructure is adequate. The resulting scope decision could be an annex to the legacy system LCSP, a LCSP

[1] Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) memo "Strengthened Sustainment Governance for Acquisition Program Reviews," April 5, 2010

that includes both the legacy program and the modification program, or a stand-alone LCSP that covers only the modification. The decision on how to tailor the LCSP should be understood and agreed on prior to formalizing the document.

Program managers must project the timeline to obtain necessary stakeholder buy-in and approval of the sustainment strategy and completion of the LCSP to support program decision points. In order to minimize document development timeline and rework, it is recommended that parallel staffing processes, including the Electronic Coordination Tool currently being developed for ACAT 1D/1AM LCSPs, be considered.

Approval of ACAT 1D/1AM Major Defense Acquisition Program (MDAP) and Major Automated Information System (MAIS) programs by the Assistant Secretary of Defense for Logistics and Materiel Readiness (ASD(L&MR)) may include additional guidance in the form of an Approval Memorandum. This guidance may include required actions prior to the next milestone decision or LCSP update and expected content of the next update.

System of Systems programs are some of the most complicated weapons the Department buys and sustains. The complication often arises from the interdependency of the systems in a single entity (like a ship) where management of the individual systems is spread between multiple program offices. Each system may be its own MDAP or ACAT program outside of the System of Systems capability that is the subject of the LCSP. The LCSP outline that follows will provide additional information specific to System of Systems programs to assist with the description of the holistic sustainment planning of the system.

A well-structured product support strategy provides both effective and affordable logistical support. Conversely, a poor support strategy provides ineffective support, misallocates financial resources, and consumes management attention. Because of this, DoD Instruction (DoDI) 5000.02 requires that an LCSP be developed and provided as part of the program approval process.[2] The LCSP should document the program's product support strategy, the rationale behind that strategy, and how the strategy is to be implemented. This strategy should be affordable within planned affordability constraints, effective, and performance-based. The product support strategy should shape all sustainment efforts and is the foundation of a product support package that will achieve and sustain warfighter requirements. The structure of the LCSP provides the foundational elements that shape product support strategy.

[2] DoD Instruction 5000.02, "Operation of the Defense Acquisition System," January 7, 2015

1 Introduction

Provide a short, concise strategic overview of the program and the program sustainment strategy. Do not repeat information in other acquisition documents but cite as necessary. This provides the reader with both a familiarization with the program as well as a frame of reference for overall context.

To support the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) effort to streamline Acquisition Decision Memoranda (ADM), the ASD(L&MR) may occasionally direct subsequent updates of a program's LCSP to address specific topics. On those occasions, Section 1 will include those ASD(L&MR) directions. For example, if the current LCSP supports Milestone C, then the ASD(L&MR) may direct that the LCSP to support the Full Rate Production (FRP) decision will include a reevaluation of the depot strategy.

Joint Example

By direction of ASD(L&MR):

1. By the end of FY17, the Army shall provide to the ASD(L&MR) results of the reevaluation of depot analysis in advance of the FRP LCSP. Reevaluation will inform establishment of the dual Service depot strategy and three depot locations. FRP LCSP will later reflect the depot analysis reevaluation. Findings should include reevaluation of:
    a. Depot capacity to perform depot repair on each Service's (program name) fleets at each depot location.
    b. Cost analysis including the following details:
        i. Projected depot workload to realize a reasonable return on investment.
        ii. Cost of standing up depot capability.
2. Planned for FY18, the FRP LCSP will reflect: Updated Spruill Charts that reflect requirements and funding for the transition from Interim Contractor Support (ICS) to organic capability, based on updated depot maintenance workload and sourcing decisions.

Air Force Example

Per agreement with ASD(L&MR):

1. Within 90 days of ADM signature, the Air Force shall provide to ASD(L&MR) a summary of existing and programmed Depot capability and a plan to adjust that capability as needed, to include:
    a. all actions required to satisfy Title 10 requirements
    b. synchronization / leverage of the (name of leveraged program) program
    c. access of technical data sufficient to enable government-executed maintenance, and
    d. establishment of PPPs, as required, to support government-executed maintenance.
2. Not later than June 20XX, the Air Force shall update and submit to ASD(L&MR) for approval a revised LCSP to address the following:
    a. planning and execution of Supply Chain Management Strategies, to include organic supply and/or other Supply Chain arrangements (i.e. Breakout to Original Equipment Manufacturers, Performance Based Logistics (PBL) arrangements, etc.).
    b. progress in implementation of O&S Should-Cost Initiatives, including synergies with (name of leveraged program) program, competition/breakout of Contractor Logistics Support (CLS) efforts (e.g. O-level maintenance) and execution of incentive structure for Prime Contractor CLS/PBL efforts
    c. planning and execution of the Depot Maintenance capability to include data management; and
    d. associated revision to schedule, resource requirements, and funding.

Document the LCSP review process. Table 1-1 provides an example of an update record.

LCSP 1.0	Issued Sep 2010		ASD(L&MR)
Revision Number	**Date**	**Change and Rationale**	**Approved By**
1.1		Updated based on Critical Design Review (CDR) and Depot Source of Repair (DSOR)/Depot Maintenance Interservice (DMI) changes.	
2.0		Milestone C Low Rate Initial Production (LRIP)/production	
2.1		Annual reviews in April	
3.0		Full Rate Production Decision	
3.1		Initial Operating Capability (IOC) Support Review	
4.0		Five Year Review	

Table 1-1: LCSP Update Record

Considerations for system of systems programs: System of systems programs must describe the sphere of influence included in the LCSP. For parts of the weapons system that are not included in the LCSP, indicate where sustainment planning for that subsystem or component may be found, the responsible office and any relevant statute/regulation that assigns the responsible office. This may include Government Furnished Equipment that comes from another program office (e.g., a radar that is its own MDAP) or subsystems that are controlled by another component agency (e.g., nuclear propulsion).

2 Product Support Performance

The purpose of the Product Support Performance section of the LCSP is to provide an overview of the planned sustainment performance requirements, the observed sustainment performance of fielded end items, and how the Product Support Strategy, contracts, and other sections deliver these required sustainment outcomes.

Military Departments establish sustainment performance outcomes for their mission-essential systems and equipment. These desired outcomes are expressed as program requirements in the form of Key Performance Parameters (KPPs), Key System Attributes (KSAs), Additional Program Attributes (APAs) or other working level or Component-specific sustainment requirements in Joint Capabilities Integration and Development System (JCIDS) requirements documentation (i.e., Initial Capabilities Documents, Capability Development Documents, Capabilities Production Documents). These and other Component, OSD (e.g., supply chain attributes) or other requirements are detailed in Requests for Proposal (RFP), contracts or other documents and reporting systems.

2.1 Sustainment Performance Requirements

The LCSP must identify all explicit, implicit or derived sustainment requirements cited in all requirements or other program documentation (Table 2-1). These must be traceable to the program's execution planning documents (e.g., RFP, contract, program support agreement) in which a metric is used to manage sustainment performance. For programs with goals that are to improve as the program evolves, indicate the planned evaluation timeframe and list the planned value from reliability growth curves or other projects and the expected timeframe for achieving the threshold/objective.

For each sustainment requirement, identify which are KPP/KSA/APAs, their authoritative requirements document, threshold and objective values, the specific section in the RFP/contract where that requirement is specified, section of the Test and Evaluation Master Plan (TEMP) covering that metric, along with projected values at IOC, Full Operational Capability (FOC), and full fielding.

As a program progresses through its life-cycle, LCSP updates for programs in operation should incorporate and list sustainment requirements from modernization and upgrade programs and any other Service or OSD sustainment reporting metrics not contained in the original requirements or execution planning documents.

Requirement (KPP, KSA, Derived requirement)	Documentation	Threshold / Objective	RFP/ Contract[3]	TEMP	IOC FY XX	FOC FY YY	Full Fielding FY ZZ
Availability (KPP)	CDD: 6.2.6.1	66% / 82%	RFP (Jun 16, 2014)	TEMP: 3.2	100%	100%	72%
Reliability (KSA) Mission Reliability Logistics Reliability	Capabilities Production Document (CPD) MTBSA: 6.3.2.1 MTBF: 6.3.2.5	 46 hrs/ 61.6 hrs 3.5 hrs /4 hrs			 46 hrs 3.5 hrs	 46 hrs 3.5 hrs	 46 hrs 3.5 hrs
Maintainability (APA) Corrective Maintenance Maintenance Burden BIT Fault Detection Fault Isolation False Alarm	CPD Mct: 6.3.3.4 (Maintenance Ratio) MR 6.2.6.3 FD% FI% MFHBFA 6.3.3.4.2	 1 hr/ 0.5 hrs 9 / 7 98% 95% (single SRA) 30 flt hrs			 1 hr 9 98% 95% 30 flt hrs	 1 hr 9 98% 95% 30 flt hrs	 1 hr 9 98% 95% 30 flt hrs
O&S Cost KSA Avg Annual O&S Cost		$4.2M (TY) per unit per year					
Affordability Goal/Cap	CDD/CPD, Acquisition Strategy, APB	T=O $4.2M/year/ unit					$4.2M/year/ unit
Mobility	CPD Palletization	4 pallets per 3 ship formation 2 pallets per 2 ship formation			5 pallets	4 pallets	4 pallets
Transportability	CDD	Movement by CH-47	Spec XXX	US Army Soldier Systems (Natick) Assess-ment (July 2016) TEMP (Jul 2015, v2.3)	1	1	1
Commonality	CPD Support Equipment	<=2 new/none			2	2	2
Training	CPD Aircrew Training 14.3.1	60 hr crew differences tng / 40 hr			60 hr	N/A	N/A
Supply Chain Responsiveness /Customer Wait Time	SOW	15 Days (T)/ 5 Days (O)			15 Days	10 Days	5 Days

Table 2-1: Sustainment Performance Requirements

Include as-of date

[3] Applicable for all program execution planning documents (e.g., Analysis of Alternatives, Technology Development Phase, Engineering and Manufacturing Development [EMD] Phase [Pre-EMD Review/Milestone-B], Production [Milestone-C], ICS Post Milestone-C or Full-Rate Production Decision Review).

2.2 Sustainment Performance

Provide data for demonstrations and tests that include evaluation of sustainment elements, its source (e.g., Systems Engineering Plan [SEP], Service/Component, contract), the metric (from Table 2-1) or major feature that affects sustainment or sustainment cost (e.g., cost driver), its schedule, performance goal, estimated value at IOC, PSM impact assessment based on test results (Table 2-2).

Table 2-2 also should include any demonstration of metrics post-fielding associated with upgrades and/or program modifications and their associated reviews and performance goals.

Demonstrated (tested) Sustainment Performance						
Test	**Requirement (SOW, CDRL, DID, Service)**	**Metric/ Feature**	**Schedule**	**Performance Goal**	**Estimated Value/IOC Estimate**	**PSM Assessment**
Early User Test/ Limited User Test	AR 73-1	Low observable coating on external surfaces	1st Qtr CY2012 /3rd Qtr CY2015	Repair 1 sq ft area in 4 hours	IOT&E tested value: 7 hr / 5 hours projected at IOC	Marginal; achieved only 50% of performance at EUT; Risk #A325
Reliability Growth Test (RGT)	SEP CDRL A02	Intelligence, Surveillance, and Reconnaissance (ISR) system reliability of 46 hrs MTBSA	Development Test Eval 1st Qtr CY15	46 hrs	46 hrs	TBD
Initial Operational Test and Evalution (IOT&E)	TEMP	All metrics in Table 2-1 and 2-2	1st Qtr CY2017	See Tables 2-1 and 2-2	See Tables 2-1 and 2-2	TBD

Table 2-2: Sustainment Performance Assessment/Test Results

Include as-of date

Critical Thinking Questions for Product Support Performance:

- Do program requirements need to be revisited, based on the test results?
- Do the current test results change any sustainment plans?
- Are the metrics listed applicable to both the acquisition and sustainment phases?
- Are there lower level metrics that the program intends to track?

3 Product Support Strategy

The Military Services should begin product support planning as soon as the Milestone Decision Authority has determined that a Materiel Solution is needed to satisfy the capability requirement. This timing often precedes formal establishment of a program of record and staffing of a program office. Where sustainment is included (preponderance of cases) in such acquisition deliverables as the Analysis of Alternatives (AoA), Reliability, Availability, Maintainability, and Cost Rationale (RAM-C) Report, Concept of Operations/Operational Mode Summary/Mission Profile (CONOPS/OMS/MP), and requirement documents (draft CDD), PSMs should use the insights and critical thinking embodied therein as the logical basis for the sustainment plan. Antecedent systems often provide valuable lessons and performance benchmarks that new programs may use to establish performance improvement objectives and Should Cost initiatives.

Provide a depiction of the sustainment plan with consideration given to DoD enterprise solutions for weapon systems that are like or similar. This concept must be coordinated with the Services organic logistics enterprise. List roles and responsibilities for public and private product support providers consistent with the system's operational concept (Acquisition Strategy Operational View -1) to include the full spectrum of operations (peacetime, contingency, and surge) as well as the program's supply chain performance metrics. Address joint support, if planned, the roles and responsibilities of the major agencies, organizations, and contractors planned for the system's product support. List all supplemental support elements that will be present in the O&S Phase (e.g., training simulators, system integration labs, server farms, mock-ups) and whether they are a PSM's responsibility for support or supported via other means (e.g., memorandum of agreement).

Identify the mission critical subsystems and strategy to keep these subsystems operational. Mission critical systems are those systems whose failure would prevent the platform from continuing its mission and force the platform to wait for repair.

The decomposition of the sustainment requirement and the system architecture and allocation against the product support elements necessary to satisfy the requirement should be included in Figure 3-1 and Table 3-1. Ensure Figure 3-1 is consistent with the system metrics in Section 2 and the Product Support Arrangements in Section 3.3. More than one drawing may be needed to illustrate the major features affecting product support.

At Milestone A, data could be notional and only be at the first indentured level of the system's architecture. By post-Preliminary Design Review (PDR), Milestone B, and beyond, greater detail and data for systems, subsystems, or components should be included. Again, it is important to identify those system elements that are part of an enterprise support solution, either across a Component, or across the Department.

While data on the design, specific facilities, or providers may not be known early in the life-cycle, the program must provide sufficient detail to illustrate planning for data in the Intellectual Property Strategy and technical data rights provisions in its contracting actions, maintenance planning, and supply chain management.

Briefly discuss specific programmatic interdependencies with other programs. If a program is dependent on the outcome of other acquisition programs or must provide capabilities to other programs, describe the nature and degree of risk associated with those relationships as well as how it will be managed. This section directly relates to the Acquisition Strategy Sections 5.5 and 6.2. The program interdependencies described in the LCSP should thoroughly describe the relationship of the sustainment support requirements, to include but not limited to product support arrangement, memorandums of agreements, deployment schedules, risks mitigation and impacts to the sustainment support plan.

Considerations for system of systems programs: The complexity of system of systems maintenance may lend itself to a different depiction than the one provided in Table 3-1. Consider alternative formats for providing this information. Required information includes: maintenance concept, type of work to be accomplished at each maintenance level, expected or known provider of the maintenance, and sustainment provider/level for the

remaining integrated product support elements. For example, in a ship program this may include using the Ship Work Breakdown Structure (SWBS) and the notional planning from the OPNAVNOTE 4700.

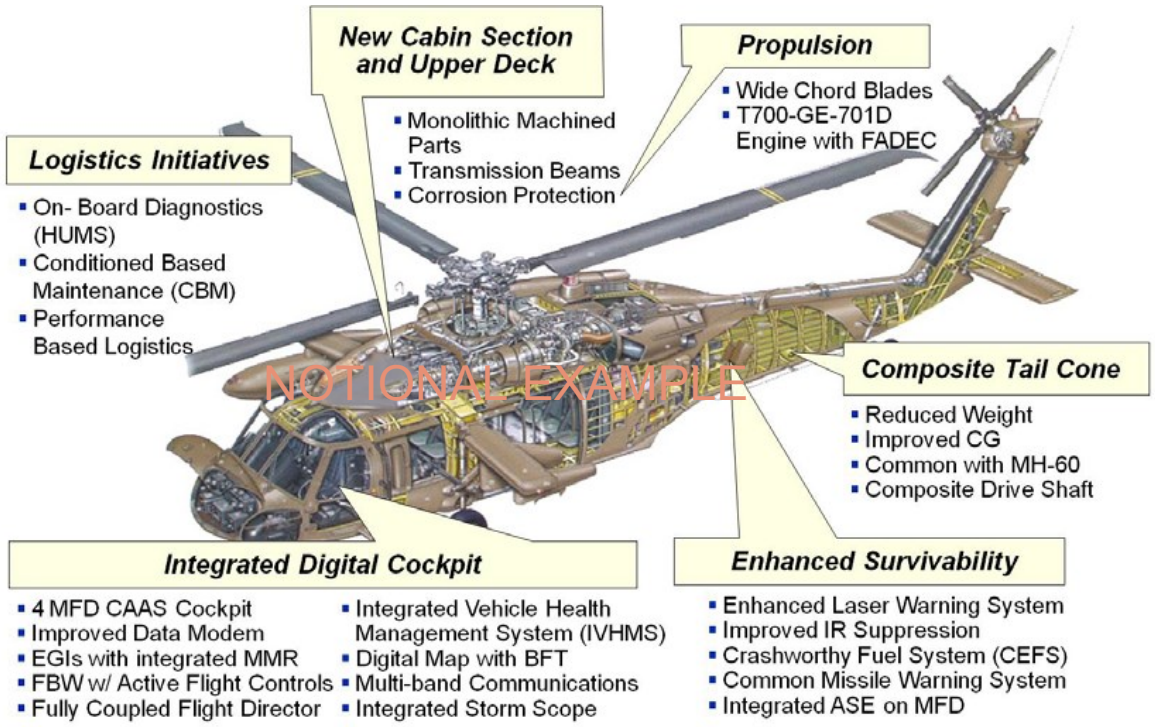


Figure 3-1: Sample Drawing of the Reference Design Concept

Include as-of date

Sub-sys***	Proprietary Intellectual Property	Data Rights	Function	Integrated Product Support Elements *																											
				Maintenance														Software Support		Transportation (PHS&T)		Config. Control**		Technical Data		Training	
				Level 1				Level 2				Level 3															
				O-1	O-2	O-3	CR	I-1	I-2	I-3	CR	Depot	CR	O	C	O	C	O	C	O	C	O	C	O	C	O	C
Airframe†	None	Unlimited	Servicing/Inspections	F	F	F												F									
			Corrosion Control/Treatment	F	F							NI								F		F		F			
		OMIT data	Repair	F	L			F	L	F		NI															
		OMIT data																									
Power Plants																											
Engine†	Partial	Negotiated License Rights	Servicing/Inspections	F	F	F		F	F	F		NI						F		F		F		F		F	
		OMIT data	Assemble/Disassemble	F	L			F	L	F																	
			Repair					F				NI															
APU†	Partial	Negotiated License Rights	Remove & Replace	F	F	F	F											A		TR	P-A		A		A		A
		OMIT data	Repair & Overhaul				A				P-A		A														
Avionics																											
ISR	Yes	Negotiated License Rights	Inspections	F	F	F							ISR					ISR		ISR		ISR		ISR		ISR	
		OMIT data	Functional test & adjustments				ISR	ISR	ISR	ISR	ISR		ISR														
			Repair				ISR	ISR		ISR	ISR		ISR					F		F		F		F		F	
Fire Control†	None	Government Purpose Rights	Inspections	F	F	F						TK															
		No expiration date	Functional test & adjustments					F	L	F		TK															
		OMIT data	Repair					F		F		TK															
		OMIT data	Diagnostics Software															A		TR	P-A		A		F		F
Other	In Work	Government Purpose Rights	Inspections	F	F	F						TK						F									
		No expiration date	Functional test & adjustments	F	L			F	L	F		TK															
			Repair					F		F		TK	P-TBD									P-TBD					
Life Support	TBD	Unlimited	Inspections					F	F	F								F		F		F		F		F	
			Functional test & adjustments	F	F							NI															
			Repair					F		F																	
Test Equipment																											
Avionics	Yes	Unlimited	Diagnostics Software									NI															
			Hardware					F	L									F		F		F		F		F	
Propulsion	Yes	Negotiated License Rights	Diagnostics Software																								
		OMIT data	Hardware					L					B					B		B		B		B		B	
Simulator																											

NOTIONAL EXAMPLE

Maint. Level Codes

- O-1: Ashore Squadrons & Aviation ships
- O-2: OCONUS Detachments
- O-3: Detachments aboard non-aviation ships
- I-1: Major CONUS Ashore & Aviation Ships AIMDs
- I-2: Minor CONUS Ashore Sites
- I-3: OCONUS AIMDs
- CR: Commercial Repair

Organizational Codes

- NI: NADEP North Island
- TK: Tinker – AMC Tinker
- ISR: ISR Contractor TBD
- A: Contractor A
- B: Contractor B
- TBD: Contractor TBD
- P: Organic/Commercial Partnership
- TR: TRANSCOM
- C: Contractor

* Can include other areas of consideration in addition to IPSEs

** Includes design and logistics management responsibilities

*** Expand as required to highlight major sustainment cost or availability drivers. Expand as program moves toward MS C.

† Core

F Full organic capabilities

L Limited capabilities

Table 3-1: Product Support Strategy for Reference Design Concept

Include as-of date

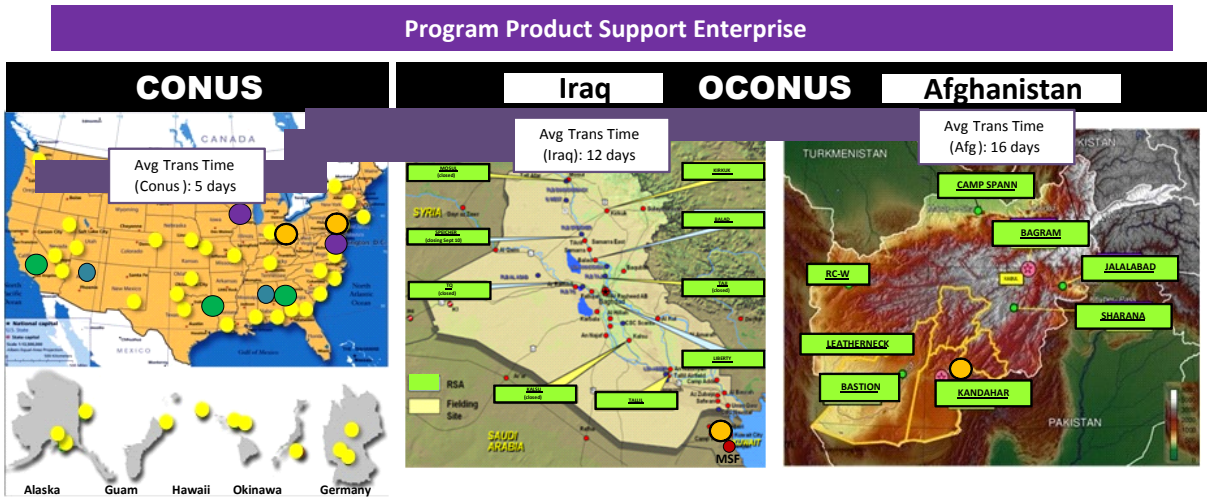
The Program Office should provide a depiction of the sustainment concept in Figure 3-2. Identify roles and responsibilities for product support providers consistent with the system's operational concept depicted in the Acquisition Strategy (Operational View (OV)-1).[4] The figure must list the program's planned supply chain performance metrics. Additionally, the figure must include joint support, if planned, and the roles and responsibilities of the major agencies, organization and contractors planned as part of the system's product support. Consideration should be given to DoD enterprise solutions for weapon systems, subsystems, or components that are alike, similar or already supported by a government supply chain.

The contents of Figure 3-2 must:

(1) Be consistent with metrics in Table 2-1, and
(2) Reflect the more detailed Product Support Arrangement List appearing in Section 3.3.

The program must develop a graphic (notional example in Figure 3-2) that illustrates the major elements of the system's Product Support Strategy, both government furnished and contractor delivered, that will be used across the entire spectrum of system operations, to include peacetime, contingency, wartime, and emergency surge scenarios as applicable (more than one graphic may be used if needed). The PSM must coordinate the Program's plans with the Services for organic logistics enterprise support for the availability and affordability requirement. The PSM must also use data on capabilities and limitations of the logistics enterprise to influence system reliability design trade decisions. Additionally, this figure in conjunction with Table 3-1 provides the product support functional breakdown necessary to develop effective contracted product support arrangements.

[4] This OV-1 should also be consistent with data in the Concept of Operations/Operational Mode Summary/Mission Profile (CONOPS/OMS/MP).



NOTIONAL EXAMPLE

Product Support Functional Area	Location/Proposed Location	Planned Sustainment Performance Metrics[1]	Planned Contracted Support [2]
Program Head Quarters (Product Support Management)	Quantico/Stafford, VA; Warren, MI	n/a	Mix contract and gov't
Test Facilities	Aberdeen, MD; Yuma, AZ; Huntsville, AL	Tests execution within 5 days of schedule	All gov't
Logistics Support	Albany, GA; Barstow, CA; Red River, TX, Multiple throughout CONUS and AOR	Configuration support turnaround time, backlog, fill rate	Mix contract and gov't
Maintenance Depots	Albany, GA; Barstow, CA; Red River, TX	Avg Repair cycle time, Reset Time	All gov't
DLA Support	Columbus, OH, Philadelphia, PA, DDRT, DDKS, DDKA	Avg Fill Rate: Days supply: ,	All gov't
Contingency Support Activity Afg / Iraq	Multiple throughout AOR	% ASL/PLL stocked, Zero bal w/ due out critical readiness drivers, days supply on hand,	All contract
Contingency Maintenance Depot	Kuwait	Throughput (vehicles/wk), Avg Repair cycle time (mission capability, battle damage), cost (per repair type, operation level)	All contract

Figure 3-2: Sustainment Concept

Include as-of date

3.1 Sustainment Strategy Considerations

3.1.1 Obsolescence Management

No later than Milestone B, address the program's implementation of obsolescence management planning to include Diminishing Manufacturing Sources and Material Shortages (DMSMS). Provide data for the management plan, known or predicted obsolete parts for all program system specifications, obsolete parts with suitable replacements, and actions to address obsolete parts without suitable replacements (Table 3-2).

Obsolescence Management Plan	Date	CDRL	# of Obsolete Parts in System Specifications	# of Suitable Replacements
Contractor "X" DMSMS Plan	May 2014	A006	36	35
Additional Information				
P/N 764161, Field Programmable Gate Array (FPGA)	Requires testing and certification for program protection/Supply Chain Risk Management (SCRM)			

Table 3-2: Obsolescence Management

Include as-of date

3.1.2 Competition in Sustainment

Provide information for planned competition in product support. Include all competition opportunities under consideration and note any small business opportunities; not all competition is open to small business opportunities. Data must be consistent with and inform the other program strategies (e.g., Competition described in the Acquisition Strategy, IP) and the LCSP (e.g., Figure 3-1 Reference Design Concept, Figure 3-2 Sustainment Concept). The following Table 3-3 is a notional format to illustrate competition information.

Competition Opportunity	Planned Start	Small Business Opportunity (Y/N)	Additional Info
ISR software	1Qtr FY23	Yes	Software source code is for integration middleware between the sensor (proprietary) and platform avionics
Auxiliary Power Unit (APU)	3Qtr FY25	N	Market research indicates multiple vendor support base.

Table 3-3: Competition

Include as-of date

3.1.3 Property Management

Provide a list of all systems[5] used to track all accountable property within the program, including operating material and supplies, general equipment and inventory, regardless of custody (e.g., government, industry, third party, FMS).

Provide a summary of the property management approach, including the governing guidance, agreements, their review cycle, and the use of the DoD Item Unique Item (IUID) Registry GFP Module., and use of the registry. Table 3-4 is an example format of required information.

[5] All systems includes formally approved Accountable Property System of Record or other suitable systems that maintain accountability records.

APSR/System	Governing Guidance (include DoD, Service & Local)	Property Management Agreement* Who/Type	Review Cycle	DoD IUID – Registry – GFP Module (Y/N) *
SECNAVIST 7320.10A Navy ERP	Contractor X	Contract A	Bi-Annual	
AR 700-131	Contractor Y	Contract B	Annual	
Air Force Standard Base Supply System, AFI 23-101	FMS Customer Z	CLSSA C	Bi-Annual	

Table 3-4: Property Management

Include as-of date

*If no or not applicable (N/A), provide explanation, e.g., no transferred government property

3.1.4 Cybersecurity

The Program Protection Plan is the program's primary document for managing a program's protection of their technology, components, and information throughout the system life cycle. The Program Protection Plan includes areas that directly impact sustainment including Cybersecurity Strategy, Anti-Tamper Plan, and Supply Chain Risk Management. This section of the LCSP is reserved for appropriate cybersecurity and related program protection planning details and to identify the PM responsible for the Program Protection Plan during system sustainment and disposal.

3.1.5 Other Sustainment Considerations

Sustainment planning and implementation do not occur in isolation do not occur in isolation and are affected by other functional areas. In this section, identify cross functional sustainment issues and risks that are design and/or cost drivers, especially as they impact the system's integrated product support elements. If addressed in another source, cite the document (e.g., Programmatic Environmental Safety and Occupational Health Evaluation [PESHE]), and provide a short summary. Examples include counterfeit management, designing for transportability, hazardous materials requiring special protective equipment and special handling for demilitarization and disposal, precious metals recovery, controlled item management (e.g., subsystems or components that are cyber critical, classified, export controlled, pilferable, require data wiping prior to demil/disposal), software sustainment, and technical data management to support cataloging and provisioning, standardization, interchangeability, and substitutability. Additionally, additive manufacturing is a rapidly developing capability that directly affects the DoD sustainment enterprise; 3D printing is one such capability but it's applicable to multiple systems and echelons of support. Identify only those additive manufacturing capabilities that are unique to the system's product support.

Counterfeit management is an additional consideration. Implementation of a counterfeit program is a program and Component level responsibility and its management after production start and across a system's life-cycle requires logistics planning and integration.

3.2 Sustainment Relationships

Identify relationships (industry, Service staff elements, other DoD Components, Primary Inventory Control Activity (PICA), Secondary Inventory Control Activity (SICA), international partnerships, etc.) for the product support strategy. List planned provisions to ensure product support providers remain viable throughout the life-cycle. The data can be a figure, table, or diagram but must include all product support stakeholders.

Considerations for System of Systems programs: Listed information should include sustainment relationships with Government Furnished Equipment (GFE) providers and other organizations with equipment that impacts the sustainment of the platform.

3.3 Product Support Arrangements

In this section, list all product support arrangements (contract, task order, agreement or non-contractual arrangement within the government) for systems, subsystems or components.

3.3.1 Contract Support Providers

List the current and planned sustainment contracts that comprise the product support package. The information listed in Table 3-5 must be consistent with the Acquisition and Intellectual Property Strategies and include:

- Name and Contract line Item Numbers (CLINs)
- Organization and points of contact
- Products and period of performance covered, including remaining actions to put the contract into place
- Responsibilities/authorities and functions
- Performance metrics and incentives
- Status of Cost and Software Data Reporting (CSDR) planning/reporting

Note: Include the associated costs for each contract in the cost section (Chapter 7 – Cost and Funding) broken out into appropriate logical segments (e.g., locations or types of site, functions, etc.). The costs must roll-up and be traceable to the procurement, Operations and Maintenance (O&M) and Operating and Support (O&S) data provided in the program's Life-Cycle Cost Estimate (LCCE), the system's affordability requirement, as well as Planning, Programming and Budgeting System (PPBS) documents.

The information included in Table 3-5 characterizes the primary attributes of sustainment contracts and must reflect the requirements decomposition and work breakdown presented in Table 3-1. Data must include incentives and remedies (competition, incentive and award fees, etc.) designed to improve performance and reduce cost.

Product Support Related Contracts					
Name	**Organizations**	**Products/ Timeframe**	**Responsibilities/Authority and Functions**	**Metrics & Incentives**	**CSDR Status**
ISR Sustainment Contract **CLIN:** WWW **Type:** Firm Fixed Price (FFP)	NAVSUP Weapon System Support (WSS) Point of Contact Contractor A	**Products Covered**: • ISR Avionics • ISR Ground Stations **Time frame:** Jan 2015 to Dec 2018 4 yr. base with potential for 3 additional option years Date of signed BCA and signatory	**Responsibilities:** Integrate all design and product support efforts ISR equipment including configuration management. **Functions:** Sustainment Coverage includes • Maintenance beyond organizational level • Supply support • Publications • Training of organizational personnel • Transportation between contractor and 1st designation	**Metrics:** A_m target of 95% with min of 6% cost decrease each year • Contract extension if met	1921-5 being submitted per CSDR plan dated December 2014
XXX **CLIN:** WWW **Type:** FFP	NAVAIR TBD	**Products Covered**: • ZZZ **Timeframe:** Expect a 5 year contract • RFP to be issued Feb 2015 • Contract award expected Jan 2019	**Responsibilities:** XXX **Functions:** Sustainment Coverage includes • YYY • YYY	**Metrics:** XXX	CSDR/Earned Value Management (EVM) co-plan in draft with CAPE and PARCA

Table 3-5: Performance Based Arrangements in Contracts

Include an as-of date

3.3.2 Performance Agreements

List the planned or current agreements that are part of the product support package. Information provided must be consistent with the Acquisition Strategy and supported by the IP Strategy. Information presentation is tailorable and Table 3-6 provides an example of performance agreements information for a fielded system. Performance agreement related costs must be traceable to the procurement, O&M, and O&S data provided in the program's LCCE and the system's affordability requirement.

Performance Agreements with Organic Product Support Providers				
Organization	**System**	**Activity**	**Documentation**	**Metrics**
Corpus Christi Army Depot	1. T70-GE-701D 2. Chord Blade	1. 3000 hour Depot Overhaul 2. Chord Blade Repair	Memorandum of Agreement (MOA) with Headquarters Army Materiel Command (Estimated Completion Date (ECD): 3d Qtr. 2017)	1. Repair Cycle Time = 30 days 2. Repair Cycle Time = 14 days
Fleet Readiness Center (FRC) Southeast	Common Missile Warning System	1. Sensor Repair 2. Sensor Spares	MOA with AMC and FRC South East (ECD: 2018)	1. Repair Cycle Time = 14 days 2. 88% Army supply system spares
Defense Logistics Agency (DLA) Aviation	Common Missile Warning System	Field spares	TBD	85% spare parts stockage at field level
Letterkenny Army Depot	Enhanced Laser Warning System	1. Depot Level Reparable (DLR) Repair 2. Spares support	See PEO Memo, Next Gen Vertical Lift Support Agreement, June 23, 2014	1. Repair Cycle Time = 14 days; System NMCS >=91% 2. 92% spare stockage at field level

Table 3-6: Performance Agreements (Organic Support Providers)[6]

Include an as-of date

Critical Thinking Questions for Product Support Strategy:

- Is software associated with the system considered an integral component of that system, and software support and maintenance support device interoperability addressed throughout the program life-cycle?
- Has use of enterprise-wide commercial computer software licenses, when available, been considered when they reduce cost?
- Has adequate software supportability been planned to include adequate support equipment, maintenance software, technical data, personnel, resources, and facilities and procedures to facilitate modifying and installing software, and maintaining effective post-production software support?

[6] Early in the acquisition process, complete details will not be available but should reflect product support strategy planning. By CDR, the program should have sufficiently defined the PBAs to identify contract actions required to support the organic providers, their implementation schedule, and PPBS documentation.

4 Program Review Issues and Corrective Actions

The purpose of this section is to provide a single location to track and monitor information on the development of a system's product support as part of a program's standard review processes. These processes span a program's different functional areas, including programmatic (program management reviews), technical (System Requirements Review [SRR], PDR, CDR, Production Readiness Review [PRR]), test (Test Readiness Review [TRR]), and logistics (Independent Logistics Assessment [ILA]). As a statutory reporting requirement, an ILA executive summary is provided as a separate annex to the LCSP (see Section 10).

Provide a single location to track and monitor sustainment-related findings and corrective actions among design, programmatic, test and logistics reviews (Table 4-1). Provide data for reviews in which the product support team participates, the sustainment findings from the reviews, as well as corrective action and completion dates. The data can include entries for planned reviews. Data should include information from reviews accomplished for all subsystems, supporting systems (e.g., trainers, simulators) or system of systems that impact the system's product support. Entries on this table should be tied to the logistics-related events on the Product Support Schedule in Section 6 of the LCSP and Supportability Analysis in Section 9.

Review	Sustainment Findings/Actions	Open Sustainment Findings/Action
System Requirements Review	3	SRR 2014-2 BIT Fault isolation (FI) requirements were not identified
System Functional Review	1	SFR 2014-1 Functional requirements for portable maintenance aids for BIT FI not defined.
Preliminary Design Review	6	PDR 2014-1 Late delivery of preliminary FMECA's impacting delivery of Level of Repair Analysis (LORA) and MTA.
Critical Design Review	10	CDR 2014-05 LRU-3 logistics reliability is less than half of planned; 3 circuit cards contribute to 90% of failures; investigation into design or manufacturing issue (3Qtr 2015)
Production Readiness Review		PRR 2014-01 Bill of Material not established to support obsolescence management.

Table 4-1: Program Review Results

Include as-of date

Considerations for system of systems programs: Entries included in this table should be expanded to include any reviews of an associated system/subsystem that resides in the system or impacts the system's sustainment.

Critical Thinking Questions for the Program Review Issues and Corrective Actions:

- Have the reviews conducted to date resulted in changes to product support strategy?
- Was anything related to product support strategy discovered or learned during the reviews?
- Were any product support strategy assumptions confirmed during the reviews? Were risks raised or retired?

5 Influencing Design and Sustainment

The purpose of this section is to identify the statutory, Department regulatory and Component-level policy (regulations, instructions) requirements that affect a system's design and performance. This information is not a listing of the myriad requirements multiple organization echelons need to comply with but to identify those requirements that affect a system's product support strategy, planning, and implementation. Each program must evaluate these requirements individually for applicability, e.g., corrosion control requirements will not apply for a MAIS program's server system that resides in an environmentally controlled facility. Identified requirements, their associated analyses and documentation, and reviews must be integrated with other LCSP sections (e.g., product support strategy, supportability analysis, schedule) and must be consistent with the assumptions and methodologies that are used in those sections, as well as other acquisition documentation (e.g., O&S cost estimation and Cost Analysis Requirements Description [CARD]).

The information provided identifies the requirement (statute, regulation, instruction), if it is a design or sustainment consideration (can be both, e.g., corrosion, IUID, Condition Based Maintenance [CBM]), how, when, and where the requirement is documented, and its review. It is important that cited requirements are actionable (e.g., acquisition documentation, RFP, SOW, specification). Table 5-1 is an example that presents this data.

Requirement	Design Sustainment	Documentation	Review
Core Logistics Requirements 10 United States Code (USC) 2464 Core Logistics Capabilities Department of Defense Instruction (DoDI) 4151.20 OPNAVINST 4790.14B	Sustainment	• Core Logistics Analysis (CLA) • DSOR Analysis • LCSP Section 3	• 2366a, 2366b, Milestone A, B, C, Full Rate Production Decision Review (FRPDR) • System's ILA across its life-cycle.
Corrosion 10 USC 2228 Corrosion DoDI 5000.67 AR 750-59 Corrosion Prevention and Control for Army Materiel	Design Sustainment	• SEP, v2.15 • EMD RFP (Nov 2016); Corrosion Prevention and Control Plan CLIN A-007 • LCSP, Sec 7 (CARD • Milestone C SEP (v TBD) • Production RFP (TBD)	• 2366b, Milestone A, B, C, FRPDR • System ILA across its life-cycle
DMSMS FY14 National Defense Authorization Act (NDAA), Sec 803 AFMCI 23-103 Diminishing Manufacturing Sources and Material Shortages (DMSMS) Program	Sustainment	• LCSP, Milestone B (v2.5) • LCSP, Milestone C (TBD) • LCSP, FRPDR (TBD) LCSP, Section 3 • Industrial Base Analysis • EMD RFP, DMSMS Plan, CDRL A-09 • Prog Protection Plan (TBD)	• Milestone B, C, FRPDR • System's ILA across its life-cycle.
Transportability DoDI 4540.07 AR 70-47 Engineering for Transportability Program	Design	• SEP, v1.0 • Technology Maturation and Risk Reduction (TMRR) RFP (Nov 2017) • Milestone B SEP (v TBD) • TEMP (TBD)	• Milestone A, B, C • Operational Test and Evaluation (OT&E)
CBM Plus (CBM+) DoDI 4151.22 OPNAVINST 4790.16B Condition Based Maintenance and Condition Based Maintenance Plus Policy	Design	• SEP, v1.0 • TMRR RFP (Oct 2018) • LCSP, Section 3, 9	• Milestone B, C, FRPDR • System's ILA across its life-cycle.

Table 5-1: Design and Sustainment Requirement

Include as-of date

Critical Thinking Questions for Influencing Design and Sustainment:

- How do the analyses/plans in Table 5-1 impact product support strategy?
- Do the requirements in Table 5-1 create program cost drivers?

6 Integrated Schedule

Provide the product support schedule consistent with the program's integrated master schedule (Figure 6-1). Schedule items include but are not limited to:

- Significant program activities (i.e., activities which must be performed to produce, field, and sustain the system). Examples include: program and technical reviews (including ILAs), RFP release dates for sustainment related contracts, software releases (post-FRP), sustainment contracts, CLA/DSOR process, IOC, fielding plan, and Product Support Business Case Analysis (BCA).
- Major logistics and sustainment events for product support elements with specific emphasis on materiel and data development and deliveries.
- Major activation activities for sites in the supply chain required to support the system, to include maintenance (field, depot, overseas, ashore), supply, and training. Include events for contractor support (interim, long term, partnerships).
- Interdependencies and interactions with other weapon systems or subsystems that are part of the platform.

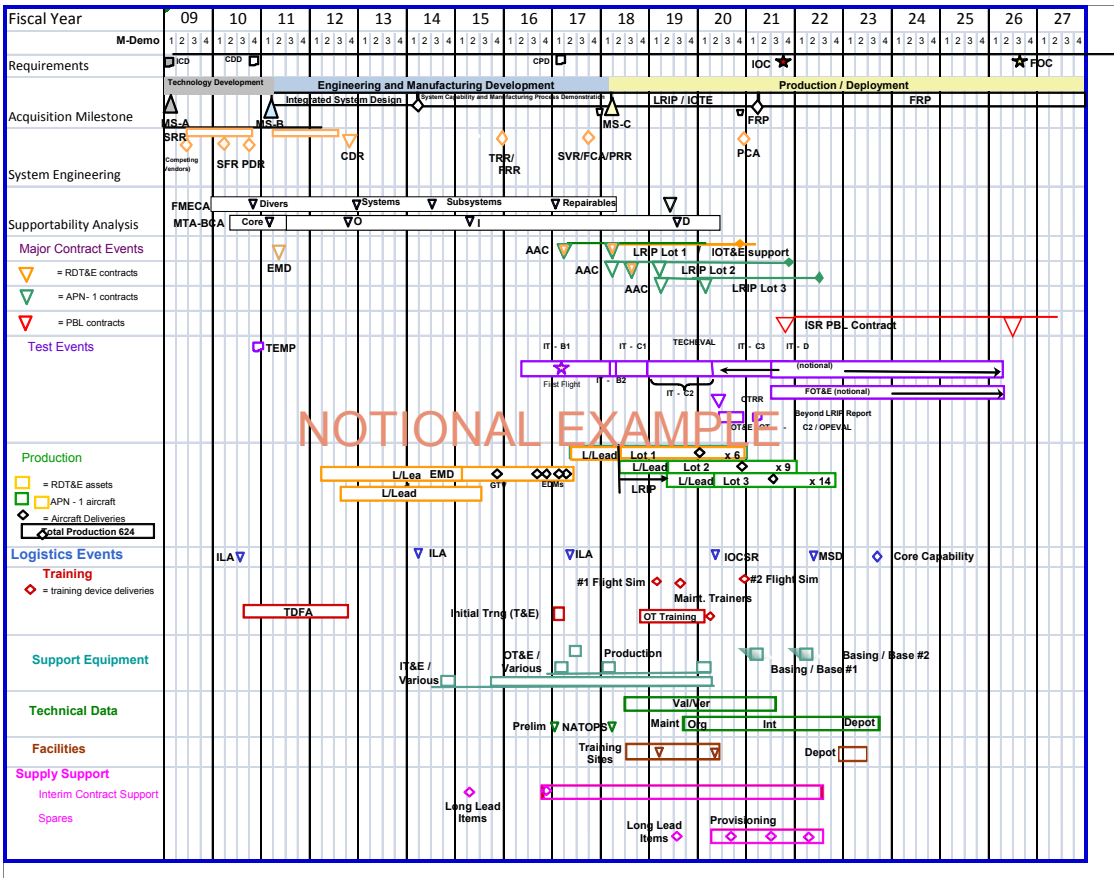


Figure 6-1: Product Support Schedule

Include as-of date

Critical Thinking Questions for the Integrated Schedule:

- Are all of the planned product support strategy analyses, demonstrations and tests reflected on the product support schedule?
- Are product support strategy events synchronized to support acquisition events and to influence decision points?

7 Cost and Funding

Information in Section 7 of the LCSP should be developed in collaboration with the program's cost estimators and business financial manager.

7.1 O&S Cost

7.1.1 O&S Cost Estimate

The purpose of this section is to track the evolution of the O&S framing assumptions, cost estimates, and cost actuals as the program progresses through the life-cycle.

Through brief text and graphics, provide O&S cost data on the antecedent/legacy system(s) (if applicable) and the system. For antecedent system, provide the name and current O&S cost estimate/actuals. Identify major differences between the legacy system and the program (e.g., differences in manning, maintenance, unit quantity, expected service life). For the program, provide each major O&S cost estimate that has been performed. Include information to highlight any major changes from one estimate to the next; include both assumption and technical/programmatic changes. O&S cost data comparisons should be done in the program of record constant year dollars. Cost should be reported in accordance with the current Cost Assessment and Program Evalution (CAPE) O&S Cost Element Structure (currently dated March 2014). All O&S cost should be included, regardless of funding source or management control. This means that the O&S cost is not limited to certain budget accounts or to categories controlled by certain lines of authority. This likely includes costs outside of the program office's control.

Legacy system O&S cost data should be from authoritative Component data source(s), including the Naval Visibility and Management of Operating and Support Costs (VAMOSC) database, the Air Force Total Ownership Cost (AFTOC) database, and the Army's Operating and Support Management Information System (OSMIS). Current system data sources include the CAPE Independent Cost Estimate (ICE), Service ICE, Service Cost Position (SCP), and Program Office Estimate (POE). The O&S cost data for the system represents its O&S Will Cost. As the system matures and evolves through its development, fielding, and operation, update data to provide a comparison of how the O&S estimate has evolved over time, the date of the estimate, and planned updates.

The following figure (Figure 7-1) is a notional example for O&S data using a graph but it can be a description, table, or other format that is most appropriate for the program to display the required information.

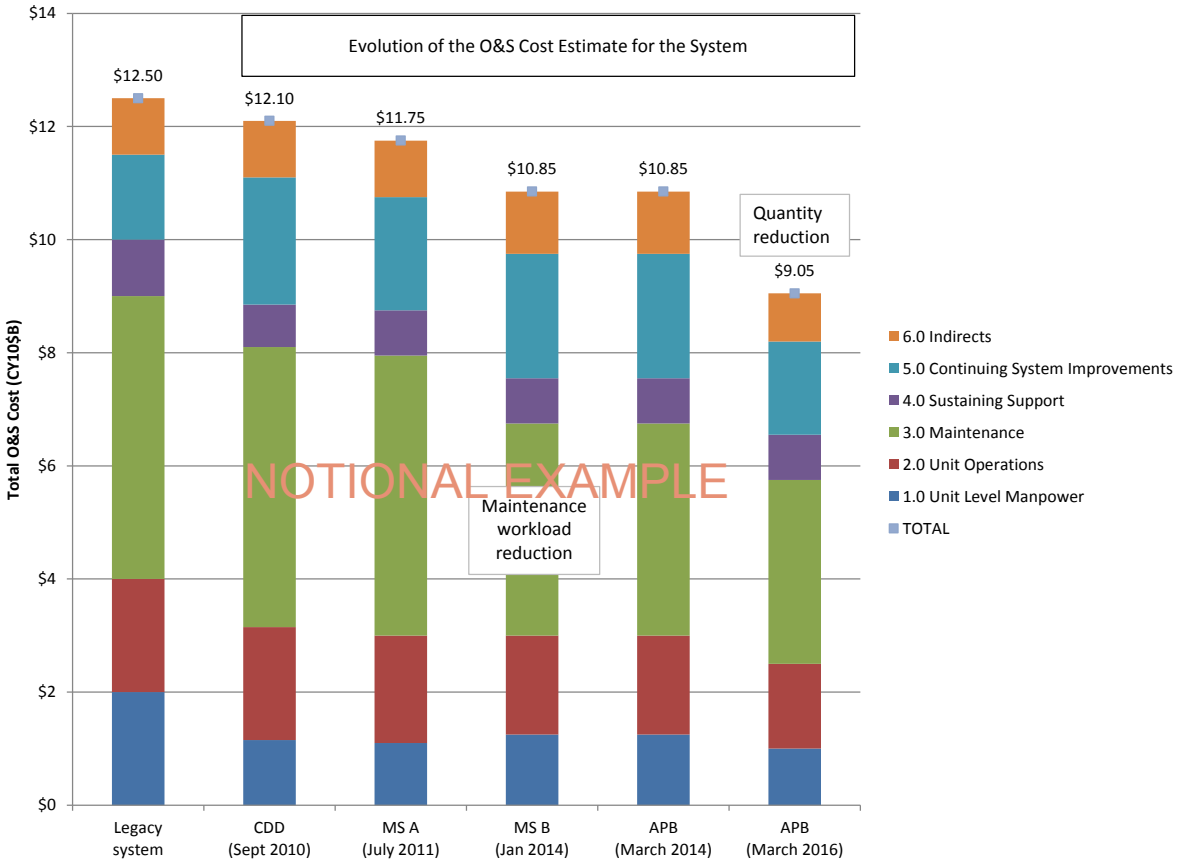


Figure 7-1: Evolution of the O&S Cost Estimate for the System

Include an as-of date

After Milestone C, this section should include a comparison of actual O&S cost to estimates. Provide data on major changes affecting O&S cost (e.g., assumptions that have changed – Operational Tempo [OPTEMPO] was planned for 500 flying hours per aircraft per year, actual usage has been 350), subsystems or components reliability, etc., and actions planned or implemented to address O&S cost growth.

7.1.2 Disposal Cost Estimate

The purpose of this section is to baseline the disposal costs of the antecedent/legacy system and compare the evolution of the Disposal cost estimate of the new system against that baseline.[7]

Provide data on the system's current disposal cost estimate (Figure 7-2), to include the estimate source (e.g., CAPE ICE, Service ICE, SCP, POE), the date of the estimate, the next planned update, major assumptions, and where complete estimate documentation is available. All disposal/demilitarization costs should be included, regardless of funding source or management. Provide a comparison of how the system's disposal estimate has evolved over time and show in the program of record constant year dollars. The following figure is an example using a graph but it can be a description, table, or other format.

[7] While disposal is not part of O&S cost, it is discussed in this section because disposal costs can often be substantial and design choices are the most effective means of controlling these long-term costs.

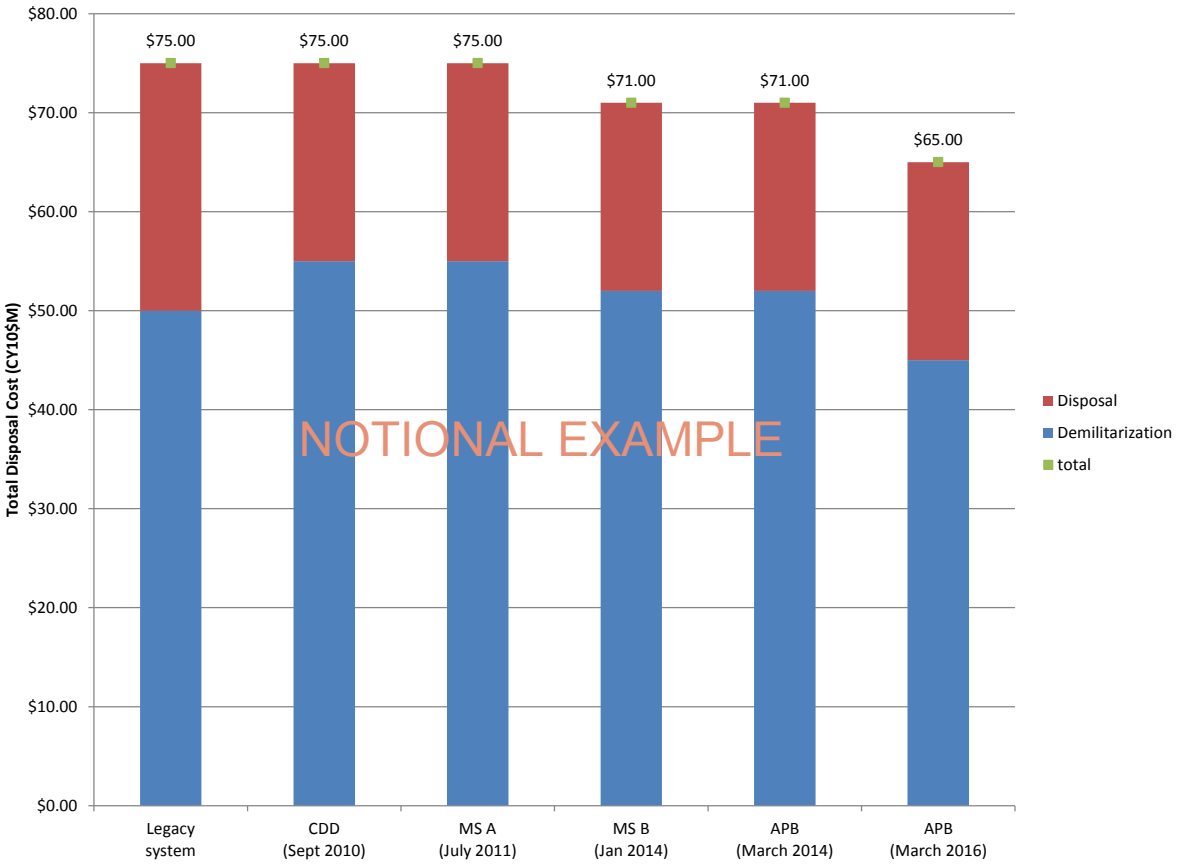


Figure 7-2: Disposal Cost Estimate

Include an as-of date

7.1.3 O&S and Disposal Cost Drivers

The purpose of this section is to identify the elements of the system that are the greatest contributors to the estimated O&S and disposal costs. Include specific variables driving O&S cost and the actionable Should Cost initiatives the program plans to use in controlling such costs (Section 7.1.4 O&S and Disposal Should Cost Initiatives). Should Cost initiatives specific to disposal cost should be included if disposal cost is expected to be a sizeable portion of the life-cycle cost.

Identify expected or known (post-Milestone C) O&S cost driving categories using the CAPE O&S cost elements. Figure 7-3 shows one way to portray this information. Once the most expensive CAPE O&S cost elements are determined, further analysis should be performed to decompose those cost elements into the specific labor and material costs that contribute to that element. Actionable O&S cost drivers early in the acquisition process often can be addressed through the system's design. After fielding, the reliability of a subsystem's components may be a cost driver and require re-design.

At Milestone A, cost driver analysis will likely take the form of comparison to legacy system costs. From Milestone B to Milestone C, cost driver analysis should be based on the system design and developmental testing. After Milestone C, cost driver analysis should be based on system actual costs, including initial operational testing and evaluation, as illustrated by the following figure. For more information on identifying cost drivers, see the February 2016 OSD Operating and Support Cost Management Guidebook.

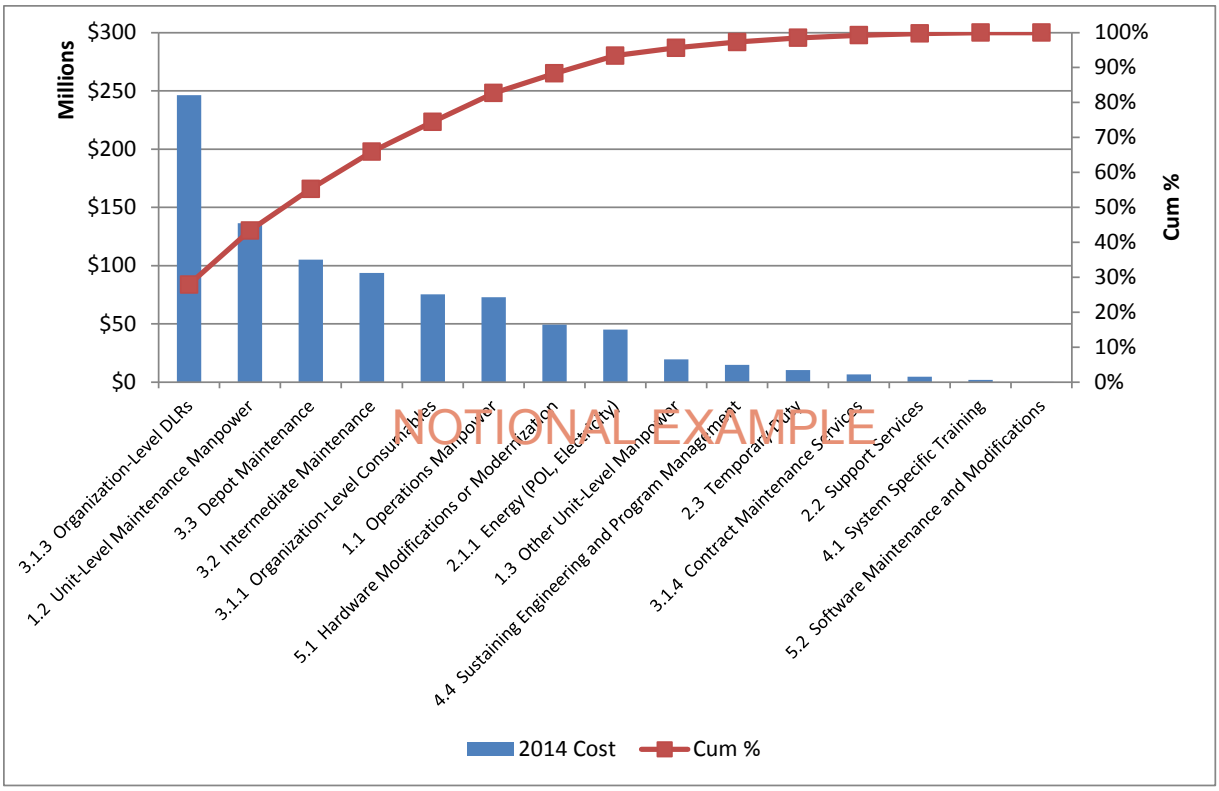


Figure 7-3: System Actual Costs, Including Initial Fielding

Include an as-of date

Critical Thinking Questions for O&S and Disposal Cost Drivers:

- How can the identified cost drivers be changed to reduce O&S cost?
- Are the most expensive categories something that can be influenced by design or non-materiel solutions?

7.1.4 O&S and Disposal Should Cost Initiatives

The purpose of the section is to identify O&S and disposal Should Cost initiatives and track the status of those initiatives.

Using the identified cost drivers (Section 7.1.3), list the program's O&S and disposal Should Cost Initiatives (Table 7-1). Identify the initiative, rationale for selection, investment dollars required, appropriation type to resource the investment (e.g., Research, Development, Test, and Evaluation [RDT&E], procurement, and O&M), expected O&S savings/avoidance, expected timeframe for the savings/avoidance, and current status of the initiative. At Milestone A, Should Cost initiatives will likely be based on legacy system cost drivers or problem areas. At Milestone B, Should Cost initiatives should begin to factor in attributes of the system design. By Milestone C, Should Cost initiatives should focus on known or anticipated issues identified through test and actual performance data of the system. For more information on establishing O&S Should Cost initiatives, please reference the February 2016 OSD Operating and Support Cost Management Guidebook.

Initiative Name*	Investment $ Required/Investment Type	Expected O&S Savings/Avoidance	Planned Start of Savings or Avoidance	Current Status
Reduce depot maintenance time by 10% by increasing reliability	$3M RDT&E (TY$)	$10M (CY10$)/system over the life-cycle	FY2025	Funding requested in PB2019

Table 7-1: O&S and Disposal Should Cost Initiatives

Include an as-of date

* Listed Should Cost initiatives should be limited to those within control of the program office. Do not include Should Cost Initiatives for subsystems that are the purview of other programs in order to avoid double counting.

7.2 O&S Affordability Constraints

The purpose of this section is to identify the established O&S affordability constraints (target/goal/cap) for the program and to provide the status of meeting the constraint.

Include a record of the proposed and established O&S cost affordability constraints for the program (notional example provide in Table 7-2). For LCSP updates after Milestone C, provide the status of expenditures against the approved O&S Affordability Cap. Include the definition of the metric used to describe the constraint (average $/unit/year, average $/year, $/flying hour/year, $/steady state year, etc.) and the type of dollars (constant year XX, then year, etc.) the constraint is expressed in. Include a synopsis of the affordability analysis and/or reference the affordability analysis documentation.

ADD METRIC and $ Type	Proposed O&S Goal	Approved O&S Goal	Proposed O&S Cap	Approved O&S Cap	Actual O&S Cost Performance
MS A					
MS B					
MS C					
MS C + 5 years					
MS C + 10 years					
MS C + 15 years					

Table 7-2: O&S Cost Affordability Constraints

Include an as-of date

If additional metrics will be used by the program to track the affordability constraints, define those additional metrics in this section and provide information on how the data will be collected and used.

Provide a comparison of the current O&S cost estimate to the established (or proposed) affordability constraint (notional example provided in Table 7-3). A positive delta (calculated by constraint minus current O&S cost estimate) indicates affordability, while a negative delta indicates that that system is not affordable in the O&S phase.

Current Affordability Constraint (BY10$M/system/year)	Current O&S Cost Estimate (BY10$M/system/year)	DELTA (BY10$M/system/year)	Affordability Result
$55M	$49.25M	$5.75M	Affordable

Table 7-3: O&S Cost Affordability Constraints (Comparison)

Include an as-of date

If the comparison indicates that the system is unaffordable in O&S, include the program's plan to reduce O&S cost to meet the affordability constraint.

Critical Thinking Questions for O&S Affordability Constraints:

- If the program is unaffordable in O&S, what can be done within the program to reduce cost?
- Do you understand the priority of this program/system to the Component?

7.3 O&S and Disposal Budgets

The purpose of this section is to link the O&S resources required (per the cost estimate) to the actual/expected budget levels and to highlight and address any shortfalls.

Provide information on the system's O&S requirements and funding levels in the most recent budget cycle (notional examples provided in Table 7-4, Table 7-5, and Table 7-6). For the system, include the total of each appropriation in both Then Year and Constant Year dollars. Also, provide a comparison to the total actual dollars spent on the legacy system for each appropriation in Constant Year dollars. Different levels of information are appropriate depending on the phase of the life-cycle.

O&S funding requirements shown must tie to the most recent O&S cost estimate shown in Section 7.1 of the LCSP. At Milestone B and beyond, the program should provide details of O&S requirements and funds controlled by the program office.

- Milestone A: O&S and Disposal cost requirements by appropriation

Total O&S and Disposal Funding by Appropriation

required TY$M	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY17-21	To Comp	Prog Total	Program Total (CY$XX)	Legacy Total (CY$XX)
O&S RDT&E		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	308.0	196.0	250.3
O&S PROCUREMENT		0.6	0.6	1.3	2.8	4.2	6.1	9.9	24.1	590.5	616.0	509.0	505.9
Non-PMO-funded O&M		2.4	3.3	4.6	11.7	6.6	9.1	39.4	96.5	2,361.9	2,464.2	2134.0	2367.1
PMO-funded O&M		0.5	0.9	1.6	3.9	7.0	9.0	14.5	36.0	295.2	332.6	192.0	451
MILPERS		3.0	3.3	4.9	12.0	15.2	25.3	29.4	86.8	2,596.8	2,689.9	2258.6	2689.4
TOTAL O&S (without Indirects)	-	**6.9**	**8.8**	**12.8**	**31.9**	**45.1**	**67.6**	**98.1**	**255.5**	**6,139.7**	**6,410.8**	**5289.6**	**6263.7**
DISPOSAL (specify appn)										50.0	50.0	32.6	47.8
CUMULATIVE QUANTITIES[2]					2	5	9	15	31	49	**80**	80	100

Note 1: Requirement Source:
Note 2: Quantity based on number of systems in service as of the end of the FY. Provide explanation if total sustainment quantity is less than the acqusition total.
Note 3: Indirect costs are omitted from this table. Total Indirects cost requirement is $XX (CYXX$), $XX (TY$).

Table 7-4: Total O&S and Disposal Funding by Appropriation (MS A Example)

Include as-of date

- Milestone B: O&S and Disposal cost requirements and Program Management Office (PMO) funded budget by appropriation

Total O&S and Disposal Funding by Appropriation													
TY$M	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY17-21	To Comp	Prog Total	Program Total (CY$XX)	Legacy Total (CY$XX)
O&S RDT&E requirement		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**	196	250.3
O&S PROCUREMENT requirement		0.6	0.8	1.1	2.9	4.2	6.1	9.9	24.1	590.5	**616.0**	509	505.9
Non-PMO-funded O&M requirement		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**	2134	2367.1
PMO-funded O&M requirement		0.5	0.9	1.6	3.9	7.0	9.0	14.5	36.0	295.2	332.6	192	451
Prior Budget $ (PB16)		0.3	0.4	0.6	3.9	5.0	7.6	15.0	32.1		32.8		
Current Budget$ (POM17)		0.3	0.5	1.6	3.9	5.0	7.9	15.0	33.4		34.2		
MILPERS		3.0	3.3	4.9	12.0	15.2	25.3	29.4	86.8	2,596.8	2,689.9	2258.6	2689.4
TOTAL O&S (without Indirects)		6.9	8.8	12.8	31.9	45.1	67.6	98.1	255.5	6,139.6	6,410.7	**5289.6**	**6263.7**
DISPOSAL (specify appn)										50.0	50.0	32.6	47.8
CUMULATIVE QUANTITIES[2]					2	5	9	15	31	49	**80**	**80**	**100**
Note 1: Requirement Source:													
Note 2: Quantity based on number of systems in service as of the end of the FY. Provide explanation if total sustainment quantity is less than the acqusition total.													
Note 3: Indirect costs are omitted from the table. Total Indirects cost requirement is $XX (CYXX$), $XX (TY$).													

Table 7-5: Total O&S and Disposal Funding by Appropriation (MS B Example)

Include as-of date

- Milestone C and beyond: O&S and Disposal cost requirements and O&S budgets by appropriation

Total O&S and Disposal Funding by Appropriation													
TY$M	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY17-21	To Comp	Prog Total	Program Total (CY$XX)	Legacy Total (CY$XX)
O&S RDT&E requirement		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	308.0	196.0	250.3
Prior Budget $ (PB16)		0.2	0.5	0.6	1.5	2.1	3.0	4.9	12.1				
Current Budget $ (POM17)		0.3	0.4	0.6	1.5	2.0	2.5	4.0	10.6				
O&S PROCUREMENT requirement		0.6	0.8	1.1	2.9	4.2	6.1	9.9	24.2	590.5	616.1	509.0	505.9
Prior Budget $ (PB16)		0.6	0.8	0.5	3.0	4.2	6.1	9.9	23.7				
Current Budget $ (POM17)		0.6	8.0	1.1	2.7	4.2	6.1	9.9	24.0				
Non-PMO-funded O&M requirement		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2361.9	2464.1	2134.0	2367.1
Prior Budget $ (PB16)		2.4	3.0	4.0	12.1	16.6	24.2	39.4	97.2				
Current Budget $ (POM17)		2.4	3.1	4.6	11.7	16.6	24.2	39.4	96.5				
PMO-funded O&M requirement		0.5	0.9	1.6	3.9	7.0	9.0	14.5	36.0	295.2	332.6	192.0	451.0
Prior Budget $ (PB16)		0.3	0.4	0.6	3.9	5.0	7.6	15.0	32.1				
Current Budget $ (POM17)		0.3	0.5	1.6	3.9	5.0	7.9	15.0	33.4				
MILPERS requirement		3.0	3.3	4.9	12.0	15.2	25.3	29.4	86.8	2596.8	2689.9	2258.6	2689.4
Prior Budget $ (PB16)		3.0	3.3	4.9	12.0	15.2	25.3	29.4	86.8				
Current Budget $ (POM17)		3.0	3.3	4.9	12.0	15.2	25.3	29.4	86.8				
TOTAL O&S (without Indirects) requirement		**6.8**	**8.7**	**12.8**	**32.0**	**45.1**	**67.6**	**98.1**	**255.6**	**6139.6**	**6410.7**	**5289.6**	**6263.7**
Prior Budget $ (PB16)	-	6.1	8.0	11.6	32.4	43.1	66.2	98.6	251.9				
Current Budget $ (POM17)	-	6.6	15.3	12.8	31.8	43.0	66.0	97.7	251.3				
DISPOSAL (specify appn) requirement										50	50	32.6	47.8
CUMULATIVE QUANTITIES[2]					2	5	9	15	31	49	80	**80**	**100**
Note 1: Requirement Source:													
Note 2: Quantity based on number of systems in service as of the end of the FY. Provide explanation if total sustainment quantity is less than the acqusition total.													
Note 3: Indirect costs are omitted from the table. Total Indirects cost requirement is $XX (CYXX$), $XX (TY$).													

Table 7-6: Total O&S and Disposal Funding by Appropriation (MS C and Beyond Example)

Include as-of date

The previous Tables (Table 7-4, Table 7-5, Table 7-6) are examples to portray O&S budget information. Programs may display the required information in the format most relevant/useful to themselves. Definitions for the categories in the chart are:

- O&S RDT&E: RDT&E appropriated funding required during the O&S phase of the life-cycle.
- O&S Procurement: Procurement appropriated funding required during the O&S phase of the life-cycle.
- Non-Program Management Office (PMO)-funded O&M: O&M appropriated funding required by the Fleet (non-program office funded) during the O&S phase of the life-cycle.
- PMO-funded O&M: O&M appropriated funding controlled by the program office during the O&S phase of the life-cycle.
- Military Personnel (MILPERS): funding appropriated for the military personnel associated with the system.

In O&S cost estimates, all costs are included regardless of funding source or management control. The same is true for the budget summaries depicted in Table 7-4, Table 7-5, and Table 7-6. In addition to the budget information provided above, include a breakout of costs/budgets attributed to specific funding sources and management control. This may be descriptive or tabular. The fidelity of the estimates and sources will mature as the system progresses through acquisition and should be included in each LCSP iteration.

Include an impact statement of any shortfalls and describe steps taken to mitigate any risk.

Critical Thinking Questions for O&S and Disposal Budgets:

- Have all required funds been budgeted for?
- What plan does the program have if required funds are not provided?
- What specific impacts will result from any budget shortfalls? Can these impacts be tied to the system's sustainment requirements (KPP/KSA)?

8 Management

The program's product support organizational structure and Integrated Product Teams (IPTs) change through the acquisition process and Operations and Support Phase. Manpower data should be consistent with data in the program's CARD.

8.1 Organization

8.1.1 Government Program Office Organization

Provide data on the program office organization product support function. Include an as-of date and the following information:

- PSM and staff organization and alignment in the program office
- Functional offices (e.g., Test and Evaluation [T&E], Engineering, Financial Management) responsible for LCSP review and signature
- Core, matrix, and contractor support personnel
- Contracting support, Contracting Officer's Representative (COR)/Administrative Contracting Officer (ACO)

If the Product Support Manager is not currently certified as Level III under the Defense Acquisition Workforce Improvement Act, summarize the specific actions and timeframe for certification. Additionally, outline roles, responsibilities, and reporting relationship(s) relative to all logistics, sustainment or materiel commands for product support package implementation.

Provide information on how the product support related staff will evolve as the program matures. For Components that have an organizational transfer of the program from an acquisition program office to a sustainment program office, provide information on the timing, process and shift in PSM duties, to include transfer of the manning and responsibilities from one organization to another. As an example, a ship program may need to discuss the interfaces with Participating Acquisition Resource Managers (PARMs), NAVSEA08, NAVSEA04, and/or SSP and the plan for transferring responsibilities with the sustainment organization (NAVSEA 21).

8.1.2 Product Support Team

Provide data for all IPTs and working groups for sustainment or integration of sustainment. The following table (Table 8-1) is a notional presentation for presentation of this data.

Product Support IPTs are expected to include appropriate Service and DoD Agency (e.g., DLA, Defense Information System Agency [DISA], Joint Federated Assurance Center [JFAC]) representation for all equities and requirements (e.g., maintenance, contracts, supply chain, transportation, constraints, and risks) to inform LCSP development.

Include all relevant stakeholders (including other program offices and organizations) for sustainment IPTs.

Name	POC	Stakeholders (by Function or Organization)	Role, Responsibility, and Authority	Products & Metrics
PS IPT	PSM	- Program Office • Deputy Program Manager (DPM) • Sys Eng. Lead • Financial Lead • SW Lead • Site Rep. • Reliability and Maintainability (R&M) Lead - PSIs (List) - Prod Spt IPT Leads (List) - Sustainment command Representative(s) - DoD Agency Representative(s) - Key Subcontractor or Suppliers • Engine • XXX **Size**: YYY	Role: IPT Purpose Responsibilities: Integrate all product support efforts • Team Member Responsibilities • Cost, Performance, Schedule Goals • Scope, Boundaries of IPT Responsibilities Schedule and frequency of meetings Date of signed IPT charter and signatory	Products: • LCSP/LCSP Updates • Integrated Master Plan (IMP)/Integrated Master Scheduled (IMS) Inputs • Specifications • Acquisition Strategy input Metrics: • Cost ○ Program Product Support Element costs ○ Operating Target (OPTAR) • Schedule • Sustainment ○ A_M ○ Log Foot Print
XXX IPT	XXX	- Program Office • Sys Eng. Lead • Test Manager • Logistics Manager • R&M Deputy • Site Rep. - PSI X Lead - Key Subcontractor or Suppliers **Size:** YYY	Role: IPT Purpose Responsibilities: Integrate all technical efforts • Team Member Responsibilities • Cost, Performance, Schedule Goals • Scope, Boundaries of IPT Responsibilities Schedule and frequency of meetings Date of signed IPT charter and signatory	Products: • Specification input • LCSP input • EMP input Metrics: • Performance Measure 1 • Performance Measure 2

Table 8-1: Integrated Product Teams (IPTs)

Include an as-of date

Critical Thinking Questions for Management:

- Is the PSM positioned at the right level of the management structure and staffed to influence decisions?
- When and how should the PSM's team be involved in design decisions for sustainment considerations?

8.2 Sustainment Risk Management

Identify sustainment risks identified as part of a program's risk management processes and plans (consistent and integrated with the development contractor's risk system[8]). Include the risk rating, driver, impact if realized, mitigation plan, and current status. The following table (Table 8-2) is an example for data presentation.

Sustainment risk management must be part of the program's overall risk management program and not an isolated process. Sustainment specific risks that could adversely impact the product support package vary (e.g., changing design baseline, requirements creep, immature sustainment technologies for new critical technologies, and DT/OT&E results).

Risk	Rating	Driver	Impact	Mitigation Plan	Status
APU Reliability	Yellow	Lower than expected reliability values from Limited User Test (LUT)	If reliability values do not meet thresholds by IOC, then overall system availability will not be achieved and O&S cost will increase	Institute a reliability growth plan incorporating results from FMECA review	In process, tracking against revised reliability growth curve. IOT&E scheduled for May 2019

Table 8-2: Risk Summary

Include an as-of date

[8] In general, the same tool should be used. If the contractor's tool is acceptable, then this merely requires Government-direct, networked access to that tool.

9 Supportability Analysis

This section lists the analytic methods and tools that the Supportability Analysis Engineers and PSM team use to define the product support package. The program must closely align the engineering design with the product support elements to ensure that materiel availability can be achieved affordably. The CONOPS may indicate a new operating environment for a commercial common system with resultant degradation in reliability. The PSM's role is to assess Failure Modes, Effects, and Criticality Analysis (FMECA) and other design output and support subsequent design changes for sustainment impacts.

Early in the acquisition process, the emphasis of this section is on the design trades in preparation for each of the design reviews necessary to achieve the sustainment requirements, and in preparation for the Pre-EMD Review. As the program progresses into production, this section focuses more heavily on integrating the product support elements to provide the most affordable product support. During sustainment, the focus is on adjusting product support based on the operational needs.

9.1 Design Interface

This section must match the Systems Engineering Plan (SEP), so the logistics community can reference one document for the FMECA, and ensure a common understanding of failure modes. Once the initial FMECA is complete, the table provides a means to communicate changes as the design evolves. Ultimately, the FMECA triggers the Program to make timely adjustments to the product support package.

9.1.1 Design Analysis

Provide data of the program's Key Design Considerations in the program's SEP, the key subsystems for each consideration, major sustainment issues identified, planned reviews/updates, and any impacts or comments (Table 9-1).

Design Consideration	Key Subsystems	Sustainment Issues	Planned Reviews/ Updates	Impact/Comments
At Sea Operations	1. Ejection seat	1. Humidity degrades effectiveness	1. PDR	1. New life limited components
Sustained High G	2. Higher stress on propulsion system	2. Reduced reliability	2. PDR	2. Increased quantity of spare parts required
Desert Operations	3. Environmental 4. Hydraulic	3. Filters 4. Contamination	3. SRR 4. SRR	3. Increase filter changes; filter demand 4. Increased inspection cycle
CBRN Survivability	5. Airframe 6. Propulsion 7. ECS	5. Available decon wash products effect on composite panels 6. Decon wash product effect on F104 7. ECS CBRN filtering system	5. SRR 6. SRR 7. PDR 8. DT 9. OT&E	5. Assess all DoD chem decon wash products or development of new product 6. Assess all DoD chem decon wash products or development of new product 7. Filter system access; contamination reporting (BIT, visual); decon procedures 8. TBD 9. TBD
Corrosion Prevention and Control	1. Airframe 2. ECS			Component approved CPCP Plan; ECD: 1Qtr/FY16
Environmental Safety and Occupational Health (ESOH)	1. Backup power	1. Hydrazine		1a Specialized Facilities /MILCON 1b Training 1c Supply Support: ESOH approval/bed down planning
Authorization To Operate	All operating systems	O&M funding of tech refresh	Full Rate Production Decision (FRPD) and five year post-IOC ILA review	Tech refresh of servers and operating systems must address DoDD 4630.5 and DoDI 4630.8
IUID				Component approved IUID Implementation Plan; ECD: 3Qtr/FY16

Table 9-1: Sustainment in Key Design Considerations

Include an as-of date

9.1.2 Failure Modes, Effects, and Criticality Analysis (FMECA)

For each of the major or critical subsystems, provide the following details from the systems engineering FMECA. Table 9-2 provides a sample table for this information.

- Systems (break into subsystems as needed to highlight subsystems with reliability drivers or with reliability issues) and identify the responsible IPT Lead
- Schedule, including planned updates

- List subsystems and/or modes driving changes to baseline product support package
- Impact on product support strategy or product support package baseline change

System	Schedule	Issues/Likelihood	Impact / comments
Airframe IPT Lead	Complete Update after IOT&E	• New failure modes uncovered due to projected corrosion issues around engine inlets and on wing spar. • Fuel tanks moved • Ejection seat initiator fails in high humidity environment	• Update LORA to determine impact to organizational scheduled maintenance. Ensure there are sufficient doors and panels to allow accessibility to critical areas. Ensure panels, doors, etc. are interchangeable between aircraft and designs meet support event frequencies in terms of access and its 3-dimensional access plane. • Verify fuel tanks not adding stress to bulk heads during operations resulting from high "G" operations • Add desiccant and indicator, move to left side of seat for easier access.
Propulsion IPT Lead	3rd Qtr. 06 to 4th Qtr. 07	• New failure mode uncovered for oil pump lubrication at 9.0 G load	• Redesign with redundant oil passages. Now no longer commercial-common pump. Unique part number and increased cost.
Avionics General IPT Lead	Complete	• New failure modes uncovered which current health monitoring system cannot predict.	• Design out diagnostic ambiguity groups that cause false alarm rates taking into account the new failure modes.
ISR systems IPT Lead	3rd Qtr. 06 to 4th Qtr. 07	• ISR design behind schedule due to efforts to understand unexpected failure mode in optical sensor	• Will delay development of publications and Test Equipment. The potential severity may require development of new prognostics capabilities
Fire Control IPT Lead			
Avionics Test Equipment IPT Lead			

Table 9-2: FMECA Summary

Include an as-of date

Critical Thinking Questions FMECA:

- Is the PSM assessing failure modes identified by the FMECA to determine impact on maintenance planning, supply support, supportability, diagnostics, or cost?

9.1.3 Reliability

Identify the top system and subsystem reliability drivers and issues that affect O&S cost, including allocations and current estimates. Table 9-3 is an example that presents this data. Identify impacts to maintenance procedures, repair capabilities, spares, manpower, and training, and mitigation actions, including potential actions if the allocation is not achieved.

Subsystem Configuration Item (e.g., LRU, SRU, WRA)	Reliability Allocation	Current Reliability Estimate	O&S Cost Impacts	Mitigation efforts
ISR systems High Power Amplifier	6,000 hrs. MTBR	3,500 hrs. MTBR	$18M/yr (CY16$) Initial provisioning plan based on 6,000 hrs. MTBR. With a HPA unit cost estimate of $150K, annual O&S cost increase is $1.2M/ operating unit/year (full fielding of 15 units: $18m/yr)	• Buy additional spares and add additional I level repair capabilities at larger sites. • Decision required at CDR

Table 9-3: Reliability Growth Plan Issues

Include an as-of date

Critical Thinking Questions for Reliability

- Is the PSM part of maintainability demonstration and reliability growth planning, implementation, and evaluation?
- Is the PSM evaluating estimates of current failure and removal rates against allocated values for impacts to corrective/preventive maintenance and provisioning?

9.1.4 Supportability Trades

Provide data for planned or completed supportability trade studies since the last LCSP update (Table 9-4). Supportability analysis can be stand-alone trade analysis or part of a system or subsystems analytical trade process.[9]

- Trade name and date completed
- Lead IPT
- Options analyzed
- Criteria used to evaluate costs and benefits
- Results
- Impact – on the weapon system design and/or product support strategy and package, customer requirements

[9] Includes business case or other economic analysis that consider sustainment costs and outcome value.

Supportability Trades				
Trade	**IPT**	**Options Analyzed**	**Results**	**Impact**
Engine level of repair 5/20/17	Engine IPT	**Alternatives:** – 2 level or 3 levels of repair – Centralized 2nd level of repair or at every major site – Commercial or organic 2nd or 3rd level **Criteria:** – A_M and A_O – Program costs and O&S cost	– 3 levels of maintenance with 2nd level being performed commercially at 3 central sites for hot sections – 3rd level performed by industry	– Competitive 2nd and 3rd level performance based contract in place by IOC to cover all sustainment functions, (e.g. design, maintenance, supply, transportation, etc.). – Complete drawing set needed for competition
Landing gear repair (Public Private Partnership) 3QTR 17	PS IPT	Contractor X and FRC East	TBD	TBD

Table 9-4: Completed Supportability Trades

Include an as-of date

When documenting trade studies, the PM should have considered the integrated linkages between requirements, design and the product support strategy to ensure an affordable design and effective product support package. The trades early in the acquisition process provide an initial assessment of the system's sustainment requirements and affordability. Trades prior to Milestone B and later can influence the Product Support Arrangement, both commercial and organic. Later, including during sustainment, trades can be used to examine alternatives to control sustainment costs or achieve materiel availablility at a lower cost.

Commercial off the Shelf/Government off the Shelf (COTS/GOTS): Though limited design input, the PSM should require and use the FMECA/Fault Tree Analysis (FTA) to analyze the as-designed system to support the LORA, provisioning, and sparing activities.

Critical Thinking Questions Supportability Trades:

- Is the PSM ensuring relevant trades address the linkage between requirements, design and product support?
- Is the PSM assessing trade outcomes for changes to product support arrangements (commercial/organic)?

9.1.5 Technical Reviews

Provide data on sustainment integration in system analyses and reviews (Table 9-5) – for example AoA, requirements, technical, and design. Identify applicable and relevant information for each activity – participants, sustainment focus, criteria for the sustainment focus area(s), etc.

- Technical Review/Schedule
- Sustainment /Product Support Community participants
- Sustainment-related focus areas
- Entry and Exit Criteria

Review	Sustainment Participants	Sustainment Focus	Criteria
PDR 2nd Quarter 2016	• PSM • Supportability Analysis IPT Lead • Chief Eng.	• Fire Control System prognostics capability • Airframe access panel locations for corrosion control	• Diagnostics 95% FI to single LRU
CDR 4th Quarter 2018	• PSM • Supportability Analysis IPT Lead • xxx	• XXX • XXX • XXX	•

Table 9-5: Technical Reviews

Include an as-of date

9.2 Product Support Element Determination

Provide data for the supportability analysis methods and tools used to define and inform the elements that comprise the product support package, the planned implementation schedule, applicable tool used for the analysis, the output, and updates or reviews (Table 9-6).

Notes:

1. A separate schedule may be appropriate in cases when subsystems are not in sync with the basic design. Include a separate schedule if the tool has to be developed, integrated with other tools, refined, or updated.
2. The table must include the tool being used, timeframe, and list of the required changes.
3. This section demonstrates that the program is building its product support package on a foundation of sound data and analytical decision support capabilities.

Product Support Analytical Support Methods and Tools				
Process/Analysis	**Schedule**	**Tool**	**Output Product**	**Review/Update**
Maintainability Analysis and Prediction	XXX	MIL-HDBK-472 Maintainability Prediction Techniques supported by NALDA data for analogous systems	Maintenance Concept	DT, OT&E
Maintenance Task Analysis	XXX	YYY proprietary software Power Log	Draft Maintenance Procedures	MS C, OT&E
Repair Level Analysis considering both cost and materiel availability impact	XXX	COMPASS (updated to include A_M)	Repair vs Discard and level of repair decision	MS C, Post IOC ILA
Reliability Centered Maintenance (RCM) – including its natural fall outs or related analyses	XXX	– SAE JA 1011, RCM Evaluation – SAE JA 1012, RCM Guide – S4000M, Scheduled Maint. Analysis	– Corrosion Control Maintenance Procedures – CBM+ – Prognostics & Health Management (PHM)	MS C, Post IOC ILA
Training System Requirements Analysis (TSRA)	XXX	SCORM	Training Programs of Instruction	MS C
Sources for Sustainment (e.g., Warranty Cost Benefit Analysis (CBA), business case or other economic analysis that consider costs and outcome value)	XXX	Clockworks CASA	XXX BCA	MS C, Post IOC ILA
DSOR	XXX	Deputy's Management Action Group (DMAG)	Xxx	MS-B, MS-C
Sparing	XXX	Arrows COMPASS	Spares Allowance list Sparing to Availability	MS C
Manpower	XXX	Logistics Composite Model (LCOM) Manpower Authorization Criteria	Manning recommendations	MS C
Tools and Test Equipment Analysis		Power Log CASA COMPASS	Support Equipment Recommendation Data TMDE Requirements	MS C, OT&E
Transportability Analysis		XXX	Transportability Plan & Procedures for Transportability	OT&E

Table 9-6: Product Support Analytical Methods and Tools

Include an as-of date

9.3 Sustaining Engineering

Provide data on processes and tools used or planned for use to monitor system performance (sustainment metrics), the product support package, the responsible office, the metrics or data monitored, any feedback process, and review timeframes (Table 9-7).

These demonstrate that the program has a monitoring plan and capability that can trigger corrective action in the event one or more product support element is at risk of degrading sustainment performance. This data is also useful for the PSM in linking resources to readiness. The following table is a notional presentation of the data.

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 cost	Automatic updates to PEO and DASD(MR) via DAMIR. Metrics feed from NALDA GCSS	Quarterly
Post IOC Review	PSM	Logistics Assessment Elements	Feedback from operators and PSI and PSPs Summary reports forwarded to DASD(MR)	Even Years
Failure Reporting, Analysis, and Corrective Action System (FRACAS)	Sustaining Engineering IPT	Ao, Am, R MDT_O, MDT_M, O&S cost driver metrics including but not limited to: • XXX • XXX • XXX	NALCOMIS/NALDA data analyzed and compared to baseline values and supportability analysis tools used to update product support elements as needed	• Critical systems effecting costs or A_M as needed • 25% of Work Unit Codes (WUCs) assessed every year
Deficiency Reports	PSM Chief Engineer	Deficiency Report (DR) Processing Time	During acquisition phases, the PSM and CE will monitor; after fielding, the PSM and CE will collaborate with the using command -4 staff to monitor	• All DRs assessed in less than 14 days

Table 9-7: Sustainment Performance Monitoring

Include an as-of date

Critical Thinking Questions Sustaining Engineering:

- Is the PSM ensuring relevant trades address the linkage between requirements, design and product support?
- Is there a sustainment monitoring plan and capability that triggers corrective action response to adverse or degraded performance metrics or O&S cost growth?

10 LCSP Annexes

The Component-level LCSP approval authority approves the individual LCSP annexes. The Program Office should provide executive summaries in ACAT I LCSPs that require ASD(L&MR) approval. Provide executive summaries as an annex for the following topics, and include rationale when one or more topic is not included with an estimated completion date as appropriate. Ensure the point of contact for the annex and how to access the collection of data, information, and analyses is included in the summary.

- Product Support Business Case Analysis (DoDI 5000.02)
- Independent Logistics Assessment and Corrective Action Plan (DoDI 5000.02)
- System Disposal Plan (DoDI 5000.02; DoDI 4160.28; DoDM 4160.21; DoDM 4160.28)
- Preservation and Storage of Unique Tooling (DoDI 5000.02; DFARS 207.106 [S-73])
- Core Logistics Analysis (DoDI 5000.02)
- Replaced System Sustainment Plan (RSS) (DoDI 5000.02)
- Intellectual Property Strategy (DoDI 5000.02) – to be added no later than FRP/FD decision

ASD(L&MR) signature on the LCSP does not signify approval of materials included as an annex. Approval for information included in the annexes resides at the Component level. Documents included as an annex should include appropriate approval and signatures prior to inclusion in the LCSP.

Component Required Annexes

Components may require, review, and approve additional requirements or procedures to be maintained as annexes to a system LCSP. These will not exceed procedures specified in DoDI 5000.02 (see Paragraph 4c) and will not be included for review and signature of ACAT I LCSPs.

11 Acronym List

Acronym	Meaning
ACAT	Acquisition Category
ACO	Administrative Contracting Officer
ADM	Acquisition Decision Memorandum
AFTOC	Air Force Total Ownership Cost
AMC	Army Materiel Command
AoA	Analysis of Alternatives
APA	Additional Program Attributes
APU	Auxiliary Power Unit
AS	Acquisition Strategy
ASD(L&MR)	Assistant Secretary of Defense for Logistics and Materiel Readiness
BCA	Business Case Analysis
BFT	Blue Force Tracking
BIT	Built-in Test
CAAS	Common Avionics Architecture System
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CASA	Cost Analysis Strategy Assessment
CBA	Cost Benefit Analysis
CBM	Condition Based Maintenance
CBM+	Condition Based Maintenance Plus
CBRN	Chemical, Biological, Radiological and Nuclear
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CEFS	Crashworthy Fuel System
CG	Center of Gravity
CLA	Core Logistics Analysis
CLIN	Contract Line Item Number
CLS	Contractor Logistics Support
CLSSA	Cooperative Logistics Supply Support Arrangement
COMPASS	Computerized Optimization Model for Predicting and Analyzing Support Structures
CONOPS	Concept of Operations
CONUS	Continental United States
CPCP	Corrosion Prevention and Control Planning
COR	Contracting Officer's Representative
COTS	Commercial Off The Shelf
CPD	Capabilities Production Document
CR	Commercial Repair
CSDR	Cost and Software Data Reporting
CY	Constant Year
CY$	Constant Year Dollars
DAB	Defense Acquisition Board
DAMIR	Defense Acquisition Management Information Retrieval
DASD(MR)	Deputy Assistant Secretary of Defense for Materiel Readiness
DISA	Defense Information System Agency
DLA	Defense Logistics Agency
DLR	Depot Level Repairable
DMAG	Deputy's Management Action Group
DMI	Depot Maintenance Interservice
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoDD	Department of Defense Directive
DPM	Deputy Program Manager
DR	Deficiency Report

DSOR	Depot Source of Repair
DT	Development Test
ECD	Estimated Completion Date
ECS	Environmental Control System
EGI	Embedded Global Positioning System Inertial Navigation Systems
EMD	Engineering and Manufacturing Development
ERP	Enterprise Resource Planning
ESOH	Environmental Safety and Occupational Health
EV	Earned Value
EVM	Earned Value Management
FADEC	Full Authority Digital Engine Control
FBW	Fly By Wire
FFP	Firm Fixed Price
FMECA	Failure Modes, Effects, and Criticality Analysis
FMS	Foreign Military Sales
FOC	Full Operating Capability
FPGA	Field Programmable Gate Array
FRACAS	Failure Reporting, Analysis, and Corrective Action System
FRC	Fleet Readiness Center
FRP	Full Rate Production
FRPD	Full Rate Production Decision
FRPDR	Full Rate Production Decision Review
FTA	Fault Tree Analysis
FY	Fiscal Year
GFE	Government Furnished Equipment
GFM	Government Furnished Material
GFP	Government Furnished Property
GOTS	Government Off The Shelf
HUMS	Health and Usage Monitoring System
ICE	Independent Cost Estimate
ICS	Interim Contractor Support
ILA	Independent Logistics Assessment
IMP	Integrated Master Plan
IMS	Integrated Master Schedule
IOC	Initial Operating Capability
IOT&E	Initial Operational Test and Evaluation
IP	Intellectual Property
IPT	Integrated Product Team
IR	Infrared
IUID	Item Unique Identification
ISR	Intelligence, Surveillance, and Reconnaissance
IVHMS	Integrated Vehicle Health Management System
JFAC	Joint Federated Assurance Center
JCIDS	Joint Capabilities Integration and Development System
KSA	Key System Attribute
KPP	Key Performance Parameter
LCCE	Life-Cycle Cost Estimate
LCOM	Logistics Composite Model
LCSP	Life-Cycle Sustainment Plan
LORA	Level of Repair Analysis
LRIP	Low Rate Initial Production
LRU	Line Replaceable Unit
LUT	Limited User Test
MAIS	Major Automated Information System
MDAP	Major Defense Acquisition Program
MDT	Maintenance Down Time
MFD	Multi-Functional Display
MILCON	Military Construction
MILPERS	Military Personnel

MMR	Multi-Mode Radar
MOA	Memorandum of Agreement
MP	Mission Profile
MR	Maintenance Ratio
MS	Milestone
MTBF	Meantime Between Failure
MTBR	Meantime Between Removals
MTBSA	Meantime Between System Aborts
N/A	Not Applicable
NALCOMIS	Naval Aviation Logistics Command Management Information System
NALDA	Naval Aviation Logistics Data Analysis
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NAVSUP WSS	Naval Supply Systems Command Weapon System Support
NDAA	National Defense Authorization Act
NMCR	Not Mission Capable Repair
NMCS	Not Mission Capable Supply
O&M	Operations and Maintenance
O&S	Operating and Support
OCONUS	Outside the Continental United States
OIPT	Overarching Integrated Product Team
OMS	Operational Mode Summary
OPTAR	Operating Target
OPTEMPO	Operational Tempo
OSD	Office of the Secretary of Defense
OSMIS	Operating and Support Management Information System
OT&E	Operational Test and Evaluation
OV	Operational View
PARCA	Performance Assessments and Root Cause Analyses
PARM	Participating Acquisition Resource Manager
PBA	Performance Based Agreement
PBL	Performance Based Logistics
PDR	Preliminary Design Review
PEO	Program Executive Office
PESHE	Programmatic Environmental Safety and Occupational Health Evaluation
PHM	Prognostics and Health Management
PICA	Primary Inventory Control Activity
PM	Program Manager
PMO	Program Management Office
PO	Program Office
POE	Program Office Estimate
PPBS	Planning, Programming, and Budgeting System
PPP	Public-Private Partnership
PRR	Production Readiness Review
PS	Product Support
PSI	Product Support Integrator
PSM	Product Support Manager
PSP	Product Support Provider
R&M	Reliability and Maintainability
RAM-C	Reliability, Maintainability, Availability and Cost Rationale
RCM	Reliability Centered Maintenance
RDT&E	Research, Development, Test, and Evaluation
RGT	Reliability Growth Test
RFP	Request for Proposal
SAE	Service Acquisition Executive
SCP	Service Cost Position
SCRM	Supply Chain Risk Management
SEP	Systems Engineering Plan

SICA	Secondary Inventory Control Activity
SOW	Statement of Work
SRA	Shop Replaceable Assembly
SRR	System Requirements Review
SRU	Shop Replaceable Unit
SWBS	Ship Work Breakdown Structure
T&E	Test and Evaluation
TBD	To Be Determined
TEMP	Test and Evaluation Master Plan
TMRR	Technology Maturation and Risk Reduction
TRR	Test Readiness Review
TSRA	Training System Requirements Analysis
TY$	Then Year Dollars
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USC	United States Code
VAMOSC	Naval Visibility and Management of Operating and Support Costs
WRA	Weapon Replaceable Assembly
WUC	Work Unit Code