SUSTAINMENT

ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

13 October 2022

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

SUBJECT: Life-Cycle Sustainment Plan Version 3.0

Reference: (a) PDUSD(AT&L) Memorandum, "Document Streamlining – Life-Cycle Sustainment Plan (LCSP)," September 14, 2011
(b) ASD(L&MR) Memorandum, "Life-Cycle Sustainment Plan Outline Version 2.0," January 19, 2017

The Life-Cycle Sustainment Plan (LCSP) is the primary program management document detailing product support planning and execution throughout the life of the system. Reference (a) introduced the LCSP Outline format, subsequently updated by Reference (b). This memo and the attached Outline Version 3.0 incorporates changes associated with the Adaptive Acquisition Framework (AAF) and complements the tenets (Emphasize sustainment, make data driven decisions and tailor product support) of DoDI 5000.91 "Product Support Management for the Adaptive Acquisition Framework". The new revision adds a section to highlight the Integrated Product Support (IPS) elements and their role in developing an effective plan to enable the execution of the product support package. It also updates the cost section to include the Spruill chart and status of product support funding. Finally, the document amplifies the importance of critical thinking, collaboration, teaming, and exceptional communicative skills to drive an enterprise approach for successful product support management.

Program Managers must convey the information necessary to meet requirements within 10 USC 4324 and DoDI 5000.91 and AAF Pathway specific DoDIs. ACAT 1D programs without an approved LCSP, or whose LCSP is not in the final coordination cycle, should develop their LCSP in accordance with this new Outline (Ver3.0). ACAT 1C programs and below without an approved LCSP, or whose LCSP is not in the final coordination cycle, should ensure that all minimum requirements per the DoDI 5000.91 are addressed prior to approval. For programs entering sustainment or legacy systems already in sustainment, the Services may substantially tailor this outline to emphasize IPS elements specific to supporting sustainment activities. Additionally, for programs that are in sustainment, there is no requirement to revise those plans into the format of this outline. However, PSMs should ensure that Product Support equities listed in Version 3.0 are fully addressed as soon as possible but no later than the next update.

My point of contact for questions is Ms. Lisa P. Smith, Deputy Assistant Secretary of Defense for Product Support at osd.pentagon.ousd-a-s.mbx.dasd-product-support@mail.mil.

Christopher J. Lowman

LIFE-CYCLE SUSTAINMENT PLAN

Sample Outline

October 13, 2022

Version 3.0

Record of Changes

Date	Version	Reason
19 January 2017	Version 2	Revised to reflect changes in statute, clarify guidance, expand the funding section to include cost estimates, Should Cost initiatives and Affordability considerations, and incorporate critical thinking questions.
13 October 2022	Version 3	Incorporated AAF Pathway specific information; brought outline in alignment with Department of Defense Instruction (DoDI) 5000.91 which added sections on cost, maintenance, Supply Chain and Enterprise Opportunities; added new section covering all the IPS elements within a product support package.

LIFE-CYCLE SUSTAINMENT PLAN FORMAT

PROGRAM NAME – ACAT (LEVEL)

LIFE-CYCLE SUSTAINMENT PLAN

VERSION ___

SUPPORTING ACQUISITION DECISION POINT/MILESTONE AND *[APPROPRIATE AAF PATHWAY AND PHASE NAME]*

[DATE]

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OFFICE OF THE SECRETARY OF DEFENSE (OSD) APPROVAL [1]

_____ _____

Assistant Secretary of Defense for Sustainment

Date

_____

[1] ACAT 1B and 1C and below replace with appropriate Milestone Decision Authority Signature and adjust signature page as appropriate

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 or Sustainment Executive	

COMPONENT APPROVAL

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

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Overview and Expectations of the Life-Cycle Sustainment Plan (LCSP)

Purpose: The purpose of this annotated outline is to assist the Product Support Manager (PSM) in developing a Life-Cycle Sustainment Plan (LCSP) that can improve sustainment planning for Department of Defense (DoD) weapon systems early in the life-cycle and to document updates to planning and execution as the design evolves and the system progresses through its life-cycle. This is achieved when programs engage in data-driven design decisions that emphasize sustainment and achieve approved operational performance requirements, reducing demand for sustainment, and lowering Operating and Support (O&S) costs. The LCSP is a "living document" serving a valuable purpose as a tool in planning, coordinating, and documenting efforts, resources, and investment of the DoD Materiel Commands.

A well-structured Product Support Strategy (PSS), documented in the LCSP, yields both effective and affordable product support throughout the weapon system life-cycle and minimizes O&S costs for the department. Conversely, a poorly conceived product support strategy provides ineffective support, misallocates financial resources, and consumes management attention and service level manpower and resources. Programs should focus on optimizing reliability and reducing down time of the system such that readiness of the fielded system is maximized and sustainment costs are minimized through rigorous design and process improvements.

This outline should be used to facilitate ideas, assist in identifying various product support considerations, and enable the services or components and their PSMs to develop an LCSP that can function as the primary program management reference. The LCSP should be used for governing operations and support planning and execution from program inception to disposal. It serves as the "detailed product support plan, including sustainment metrics, risks, costs, and analyses used to deliver the performance-based best value strategy covering the Integrated Product Support (IPS) elements."[2]

PSMs should work with their respective Agency or Service for any other requirements outside of this outline. The military services or components should specify what additional areas for sustainment are necessary for inclusion throughout the entire Adaptive Acquisition Framework**.**

Overview of Policy/Statutes that Guide LCSP Development: DoDI 5000.91 requires that an LCSP be developed for all covered systems. It is the principal document establishing the system's product support planning and sustainment, pursuant to § 4324, previously § 2337, of Title 10 U.S.C. The LCSP should document the program's PSS, rationale, and implementation details. In the spirit of tailor-in, the items listed in DoDI 5000.91 are the minimum required elements that must be addressed. A tailored LCSP may be used for all systems that are not a covered system as defined in § 4324 of Title 10 U.S.C. (non-covered systems), as approved by the LCSP signature authority.[3]

The PSS should be affordable within planned Acquisition Program Baseline (APB)[4] constraints and performance based. It should shape all sustainment efforts and is the foundation of a product support element package that achieves and sustains warfighter requirements in the most cost-effective manner. The LCSP structure provides the foundational elements that shape the PSS.

[2] DoD Instruction 5000.91, Product Support Management for the Adaptive Acquisition Framework, para 4.3a
[3] DoD Instruction 5000.91, Product Support Management for The Adaptive Acquisition Framework, para 4.3c
[4] See DoDI 5000.85, Major Capability Acquisition, para 3C.3b for more information on APB

Terms used in this Outline

- **Covered System:** A Major Defense Acquisition Program (MDAP) as defined in Title 10 United States Code (USC) 4201 (previously 2430) or an acquisition program or project that is carried out using the Middle Tier of Acquisition (MTA) acquisition pathway that meets the Acquisition Category (ACAT) I threshold.[5]
- **Non-covered System:** Any system not meeting the definition of a covered system; generally, ACAT II and below.
- **Sustainment:** While the two terms have distinct definitions, this annotated outline uses the terms "product support" and "sustainment" synonymously.[6]
- **Strategy:** 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.
- **Plan:** 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 in managers and teams responsible for sustainment planning.
- **Product Support:** The package of support functions required to field and maintain the readiness and operational capability of systems, subsystems, and components, including all functions related to system readiness.
- **Product Support Strategy (PSS):** The PSS is the overarching strategy to meet sustainment requirements. The PSM documents the initial PSS within the Acquisition Strategy (AS) at program inception, and then in the LCSP, at Milestone (MS) A or an equivalent decision event for covered systems, pursuant to DoDI 5000.91 para 4.3. It is not a one-time decision made early in the system life development and executed in the same form throughout the life-cycle. It is evolutionary, since the requirements, capabilities, competencies, operational mission, and material condition of defense systems change over time.
- **Life-Cycle Sustainment Plan (LCSP):** An LCSP is required by DoDI 5000.91 and documents the Program Manager's (PM) and PSMs plan(s) for formulating, implementing, and executing the product support strategy. The LCSP is the detailed product support plan, including sustainment metrics, risks, costs, and analyses used to deliver the performance-based best value strategy covering the IPS elements. The plan is synopsized in the overall AS of a program and describes the approach and resources necessary to develop and integrate sustainment requirements into the system design, development, Test and Evaluation (T&E), fielding, and operations. It also details the development of a product support package (including any support contracts) and how they contribute to the warfighter's mission requirements by achieving and maintaining the Sustainment Key Performance Parameter (KPP), Key System Attributes (KSA), Additional Performance Attributes (APA) and Other System Attributes (OSA).
- **Integrated Product Support (IPS) Elements:** Product support is scoped by the IPS Elements, which provide a structured and integrated framework for managing product support. The twelve IPS elements are:

    (1) Product support management
    (2) Design Interface (DI)
    (3) Sustaining engineering
    (4) Maintenance planning and management
    (5) Supply support
    (6) Support equipment
    (7) Technical data
    (8) Training and training support
    (9) IT systems continuous support
    (10) Facilities and infrastructure
    (11) Packaging, handling, storage, and transportation
    (12) Manpower and personnel

Updating the LCSP

In addition to ensuring the program's product support strategy influences the system's design, the LCSP is the primary program management reference governing O&S phase planning and execution from program inception to disposal. The LCSP is a living document and 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

[5] DAU Glossary

[6] Title 10 U.S.C. § 4324 and DoD Dictionary of Military and Associated Terms

LCSP for Major Capability Acquisition (MCA) pathway programs should be updated at major decision points in the program's life-cycle.

Update the LCSP:

- At each milestone and the Full Rate Production (FRP) decision (DoDI 5000.91 para 7.1c)
- Prior to each change in the PSS (DoDI 5000.91 para 7.1c)
- Following approval or revalidation of the Product Support Business Case Analysis (PSBCA) and before Sustainment Reviews (SR) (DoDI 5000.91 para 4.3d)
- Every five years (DoDI 5000.91 para 7.1c)
- For major upgrades or modifications (Recommended)

For programs using other Adaptive Acquisition Framework (AAF) pathways, consult DoDI 5000.91 and the pathway DoDI for details.

For programs entering sustainment or legacy systems already in sustainment, the services or components may substantially tailor this outline to emphasize IPS elements specific to supporting sustainment activities and remove portions of the outline more aligned to a program's early acquisition process.

Additionally, for programs that are in sustainment, there is no requirement to revise those plans into the format of this outline. However, PSMs should ensure that Product Support equities listed in this template are fully addressed as soon as possible but no later than the next update. ACAT ID programs without an approved LCSP, or whose LCSP is not in the final coordination cycle, should develop their LCSP in accordance with this new Outline (Version 3.0). ACAT IC programs and below without an approved LCSP, or whose LCSP is not in the final coordination cycle, should ensure that all minimum requirements per DoDI 5000.91 are addressed prior to approval.

Program Applicability and Requirements for the LCSP

Program Managers (PMs) and PSMs should use this annotated outline to structure 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. This annotated outline is not a checklist requiring pro forma compliance. In accordance with the tenets of DoDI 5000.91, in coordination with their service, PSMs should tailor product support to address features unique to their programs.

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 (or annex).

Pathway-specific considerations

Urgent Capability Acquisition (UCA): DoDI 5000.81 and DoDI 5000.91 require planning for Operation and Sustainment (O&S) to begin during pre-development; a preliminary plan for supportability to be documented in the AS; and a supportability strategy for the O&S phase. If used, an LCSP should follow the "streamlined, highly-tailored strategy consistent with the urgency of the need" (DoDI 5000.81). Development of an LCSP facilitates a smooth transition from the UCA pathway to a program of record when that is the disposition decision.

Middle Tier of Acquisition (MTA): Title 10 U.S.C. § 4324 requires an LCSP for MTA programs meeting the covered system funding threshold, and DoDI 5000.91 requires a tailored LCSP for non-covered MTA systems. The PSM will begin LCSP development and implementation during Rapid Prototyping resulting in an approved LCSP prior to transition to Rapid Fielding and for initiation of Rapid Fielding (if prototyping does not apply). "PMs, with the support of the PSM, will develop and implement sustainment programs addressing each of the IPS elements to deliver affordable readiness" (DoDI 5000.80).

Software Acquisition Pathway: DoDI 5000.91 directs LCSPs for both (a) software stand-alone programs; and (b) software pathway programs combined with the MTA or MCA pathway, which should document the Software PSS as an annex[7] or in the main body of the system LCSP. The LCSP should reflect the Acquisition Strategy to "rapidly and iteratively acquire, develop, deliver, and sustain software capabilities to meet users' needs" and software sustainment (including transition to sustainment) over the life-cycle of the program and treats software

[7] Components may develop their own outlines for Stand Alone Software Pathway LCSPs. An example is the tailored software sustainment plan developed by the Air Force.

development as a continuing evolution of capability rather than discrete ‘acquisition’ and ‘sustainment’ phases.” (DoDI 5000.87)

Defense Business Systems (DBS): If an LCSP is not used, Product Support considerations should be documented in the Capability Support Plan (CSP) described in DoDI 5000.75, paragraph 4B.2j, including the governance structure, plan for periodic program reviews, and other requirements and will be continuously maintained throughout the capability life-cycle.

Acquisition of Services (AoS): If an LCSP is not used, product support considerations should be documented in the Acquisition Plan (see DoDI 5000.74, Section 4.4), and Product Support Arrangements (PSA) should also be documented in the supported system’s LCSP, Section 4.11, Sustainment Arrangements.

Major Capability Acquisition (MCA): DoD Instruction 5000.85 establishes categories for all acquisition programs. Procedures, requirements, and approvals vary by the acquisition category (ACAT). An LCSP is required for covered systems pursuant to Title 10 U.S.C. § 4324 and for non-covered systems pursuant to DoDI 5000.91.

Requirements by ACAT Level

ACAT ID: Title 10 U.S.C. § 4324 and DoDI 5000.91 require an LCSP for all ACAT ID programs. An ACAT ID LCSP may include additional guidance in the form of an Acquisition Decision Memorandum (ADM) or equivalent. This guidance may include required actions prior to the next milestone decision or LCSP update and expected content changes to the APB. The Assistant Secretary of Defense for Sustainment (ASD(S)) will be the LCSP approval authority for ACAT ID and special interest programs.

ACAT IB and IC: Title 10 U.S.C. § 4324 and DoDI 5000.91 require an LCSP for all ACAT IB/IC programs. The DoD Component Acquisition Executive (CAE) will be the approval authority for all ACAT IB or IC programs, unless delegated to a designated official.

ACATs II and III: The DoD CAE will be the approval authority for all ACAT II & III programs, unless delegated to a designated official. DoDI 5000.91 allows a tailored LCSP to be used for all systems that are not covered systems, as approved by the LCSP signature authority.

Required content for the LCSP is identified in Tables 0-1 and 0-2

Approvals: Approval of ACAT ID by the Assistant Secretary of Defense for Sustainment (ASD(S)) may include additional guidance in the form of an Acquisition Decision Memo (ADM) or equivalent. This guidance may include required actions prior to the next milestone decision or LCSP update and expected content changes to the APB.

- **Adherence to Outline:** Recommended for all covered systems (ACAT I or any MTA programs that meet the thresholds); mandatory when ASD(S) is signature authority
- **Approvals:** ASD(S) or CAE in accordance with DoDI 5000.91
- **LCSP Content Requirements per DoDI 5000.91:**
  1) A comprehensive PSS
  2) Performance goals, including:
     a. Sustainment key performance parameters (KPPs)
     b. Key system attributes
     c. Other appropriate metrics
  3) An approved life-cycle cost estimate for the system
  4) Results of the PSBCA
  5) Affordability constraints and key cost factors that could affect the system’s O&S costs and proposed mitigation plans
  6) Sustainment risks, Supply Chain Risk Management (SCRM), and Diminishing Manufacturing Sources and Material Shortage (DMSMS) risk management and proposed mitigation plans
  7) Engineering and design considerations, including DMSMS resilience that support cost-effective sustainment for the system
  8) A technical data and Intellectual Property (IP) management plan for product support
  9) Major maintenance and overhaul requirements for the system’s life-cycle
  10) A plan to leverage enterprise opportunities across programs and DoD Components

Note: OSD only approves ACAT ID or special interest program LCSPs. All other Service-approved LCSPs should be uploaded into the Acquisition Information Repository (AIR) for documentation purposes.

Non-Covered Systems

- **Adherence to Outline:** At the discretion of the Service lead
- **Approvals:** CAE or designated signatory authority
- **Tailoring:** A tailored LCSP may be used for all systems that are not a covered system as defined in § 4324 of Title 10 U.S.C. as approved by the LCSP signature authority.[8] A tailored LCSP should include at a minimum:
  1) Actions for achieving supportability and sustainment requirements
  2) Methods to identify individuals responsible for sustainment planning
  3) Required elements of sustainment planning
  4) Timing of sustainment planning activities in the acquisition process
  5) Measures and metrics to assess compliance with the LCSP
  6) Actions to continuously monitor Product Support Integrators (PSIs) and/or Product Support Providers (PSPs) performance and ensure compliance with the LCSP
  7) The content and implementation status of the product support solution (including any sustainment contracts) to achieve and maintain the product support
  8) Description of IP (e.g., technical data and software deliverables and associated license rights) necessary to enable cost-effective product support
  9) Identification of PSPs and PSIs
  10) Results of the PS BCA
  11) Core depot analysis (see Section 4.11 of DoDI 5000.91)
  12) Predictive analysis and modeling tools to improve materiel availability (A_M) and reliability, increase operational availability (A_O), and reduce O&S costs
  13) A bed-down plan defining system quantity by year until system retirement and disposal

Consideration in how to use this outline

Facilitating Critical Thinking: Early in the system development or procurement life-cycle, the programs analyze product support requirements and then document in the LCSP the decision space available to reduce O&S cost. This annotated outline is structured as a framework to assist programs in thinking through the 12 IPS element planning factors that are integrated to achieve the sustainment results quantified in approved Joint Capabilities Integration and Development System (JCIDS) or equivalent user-specified requirements (e.g., Key Performance Parameters (KPPs), Key System Attributes (KSAs) and Additional Performance Attributes (APAs)). The result is an LCSP that logically integrates the 12 IPS elements, funding, and risk management; and it establishes the foundation for successfully meeting warfighter requirements, and communicating with congressional, Office of the Secretary of Defense (OSD), and Component oversight staffs at each decision point or milestone.

Communication and Stakeholder Collaboration: The PSM is responsible for developing, updating, and implementing a detailed LCSP across all product support elements for the life of the program. In order to ensure all areas of support are sufficiently addressed, the PSM should establish a cross-functional product support team to provide input and recommendations into the way in which sustainment should be addressed. In the development and revising of the LCSP, it is imperative that the PM and PSM communicate and collaborate with stakeholders in the program management, engineering and technical management, business/financial management and cost estimating, contracting, T&E, and sustainment communities. The program's logisticians within the PSM team works closely with all functional areas to ensure the LCSP aligns with other critical program documents including the: AS, Contracting Business Clearance, Systems Engineering Plan (SEP), (including the Reliability, Availability, Maintainability, and Cost (RAM-C) Rationale Report), Programmatic Environment, Safety, and Occupational Health Evaluation (PESHE), Program Protection Plan, Intellectual Property Strategy, Test and Evaluation Master Plan (TEMP), and Budget Submissions, etc.

Note: The PSM is responsible for adjudicating all comments from the cross-functional product support team in accordance with service policy.

It is critical the PM and PSM have agreement with major stakeholders, including user communities, Service Lead and OSD element review and approval authorities, on scope, tailoring, and timelines for approval of the LCSP content. LCSP planning discussions with stakeholders should occur early in the acquisition process and continue as significant design changes occur. For example, the appropriate LCSP scope for an ACAT 1D program that is a major modification of an existing program may depend on if the modification significantly alters the existing

[8] DoD Instruction 5000.91, Product Support Management for The Adaptive Acquisition Framework, Section 2

(legacy) support infrastructure, or whether the existing infrastructure is adequate. The resulting scope decision could be an annex to the legacy system LCSP that includes both the legacy and modification program, or a stand-alone LCSP that covers only the modification. The decision on how to tailor the LCSP throughout the life-cycle should be understood and agreed to by the PSM and PM prior to formalizing the document.

The LCSP should also identify the PSIs and PSPs, define their areas of responsibility, and provide meaningful inputs into Statements of Work (SOW), performance objectives and incentives as documented in Requests for Proposals (RFP), contracts, and performance-based PSAs and/or Public-Private Partnerships (PPPs) with organic support providers.

Use of the Outline, including tables and figures: 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 to document the most effective support strategy that achieves the best life-cycle support for the Department.

Assessing Timelines for Approval of the LCSP: Program managers project the timeline to obtain necessary stakeholder buy-in and approval of the product support strategy and completion of the LCSP to support program decision points. To minimize document development timeline and rework, it is recommended that parallel staffing processes between organizations be considered. As a practical matter, PSMs should be engaged with their systems engineering and sustainment teams as the LCSP is developed. This management practice could involve recurring reviews, resulting in more robust coverage of IPS element development and a much more comprehensive LCSP.

Measures and Metrics: To facilitate this integration and provide information in a standardized format, PMs should use the sustainment quad chart to report the status of sustainment planning at Overarching Integrated Product Teams (OIPTs) and Defense Acquisition Board (DAB) reviews.[9] 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 should provide the strategy, rationale, and programmatic detail behind the summary information presented on the sustainment quad chart. Specific guidance can be found in Appendix C of the PSM Guidebook (May 2022).

Note for System of Systems: System of systems programs (e.g., Nuclear Command Control Communications (NC3)) are some of the most complicated weapon systems the Department acquires 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 across multiple program offices managed by different Program Executive Offices (PEOs) or components. 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 provides additional information specific to system of systems programs to assist with the description of the holistic sustainment planning of the system. In accordance with the tenets of DoDI 5000.91, PSMs should tailor product support to address features unique to their programs.

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

Mapping LCSP Requirements for Covered and Non-Covered Systems to the DoD LCSP Outline Version 3.0

Tables 0-1 and 0-2 help PMs and PSMs identify where in the DoD LCSP Outline can be found the minimum required contents from DoDI 5000.91 for covered and non-covered systems.

Table 0-1: Covered Systems

DoDI 5000.91 Requirement		Where Located in the LCSP Outline*
4.3b(1)	Comprehensive Product Support Strategy	2. Product Support Strategy
4.3b(2)	Performance Goals (KPPs, KSAs, Metrics)	3. Product Support Performance
4.3b(3)	Approved Life-Cycle Cost Estimate	9. Program Funding and Life-Cycle Cost Estimate
4.3b(4)	Results of PSBCA	11. LCSP Annexes (PSBCA)
4.3b(5)	Affordability constraints, O&S cost factors, mitigations	9.4 O&S Cost Affordability Constraints
4.3b(6)	Sustainment risks, SCRM, DMSMS risks and mitigations	4.12 Product Support Risk, Issue, or Opportunity Management
4.3b(7)	Engineering & design considerations including DMSMS resilience	4.4 Design Interface and Sustaining Engineering 4.12.1 Obsolescence Risk Management 4.12.2 Supply Chain Risk Management
4.3b(8)	Tech Data and IP Mgt Plan	4.5 Technical Data 11. LCSP Annexes (Technical Data and Intellectual Property Plan)
4.3b(9)	Major maintenance and overhaul requirements	4.3 Maintenance Planning and Management
4.3b(10)	Plan to leverage enterprise opportunities across DoD/programs	4.10 Facilities and Infrastructure including Leveraging Enterprise Opportunities Across Programs and DoD Components

***Note*: Not all-inclusive. Where paragraphs within a parent paragraph also apply, only the parent paragraph is indicated.**

Table 0-2: Non-Covered Systems

DoDI 5000.91 Requirement		Where Located in the LCSP Outline*
4.3c(1)	Actions for achieving supportability and sustainment requirements	2. Product Support Strategy 3. Product Support Performance 4.4.1 Supportability Analysis
4.3c(2)	Identify individuals responsible for sustainment planning	4.11 Sustainment Relationships 10. Management
4.3c(3)	Required elements of sustainment planning	2. Product Support Strategy
4.3c(4)	Timing of sustainment planning activities in the acquisition process	8. Integrated Schedule
4.3c(5)	Measures and metrics to assess compliance with the LCSP	3. Product Support Performance 11. LCSP Annexes (Independent Logistics Assessment (ILA) and Corrective Action Plan)
4.3c(6)	Actions to continuously monitor PSI/PSP performance	3.3 Monitoring Sustainment Performance 4.11 Sustainment Relationships
4.3c(7)	PSS content and implementation, including sustainment contracts	2. Product Support Strategy 4.11.2 Contract PSI/PSPs
4.3c(8)	Description of IP (e.g., technical data and SW) needed for cost-effective PS	4.5 Technical Data 4.6.2 Software Sustainment and Software/System Operability 11. LCSP Annexes (Technical Data and Intellectual Property Plan)
4.3c(9)	Identification of PSPs and PSIs	4.11 Sustainment Relationships
4.3c(10)	Results of PSBCA	11. LCSP Annexes (PSBCA)
4.3c(11)	Core depot analysis	4.3 Maintenance Planning and Management 11. LCSP Annexes (Core Logistics Analysis)
4.3c(12)	Predictive analysis and modeling tools to improve A_m/A_o/O&S costs	4.4.1 Supportability Analysis 4.4.2 Design Analysis
4.3c(13)	Bed-down plan defining system quantity by year until retirement/disposal	8. Integrated Schedule 11. LCSP Annexes (System Disposal Plan)

***Note*: Not all-inclusive. Where paragraphs within a parent paragraph also apply, only the parent paragraph is indicated.**

Critical Thinking Questions Boxes

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

1 Introduction

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

If a prior Acquisition Decision Memorandum (ADM) provided direction to the program – summarize in this section. To support the Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) effort to streamline ADMs, the ASD(S) may occasionally direct subsequent updates of a program's LCSP to address specific topics. On those occasions, Section 1 will include those ASD(S) directions. For example, if the current LCSP supports MS C, then the ASD(S) may direct that the LCSP to support the Full Rate Production (FRP) decision includes a reevaluation of the depot strategy.

Joint Example

By direction of ASD(S):

1. By the end of FYXX the Army shall provide to the ASD(S) results of the reevaluation of depot analysis in advance of the FRP LCSP. Reevaluation informs establishment of the dual Service depot strategy and three depot locations. FRP LCSP later reflects 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 FYXX the FRP LCSP reflects: 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(S):

1. Within 90 days of ADM signature, the Air Force shall provide to ASD(S) 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)
    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(S) 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., Status of provisioning and cataloging efforts, breakout to Original Equipment Manufacturers, Performance Based Logistics (PBL) arrangements, etc.)
    b. Progress in implementation of O&S cost reduction 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 major changes to the LCSP and rationale for the update.

Table 1-1: LCSP Update Record

Revision Number	Date	Change and Rationale	Approved By
LCSP 1.0	Issued 20XX	Baseline Document	ASD(S)
1.1		Updated in accordance with MS B ADM based on Critical Design Review (CDR) and Depot Source of Repair (DSOR)/Depot Maintenance Interservice (DMI) changes	
2.0		MS C Low-Rate Initial Production (LRIP)	
3.0		Full Rate Production Decision	
4.0		Post Initial Operational Capability (IOC) Sustainment Review	
5.0		Sustainment Review #1-X	

Considerations for System of Systems programs: For system of systems programs describe the scope of effort included in the LCSP. For weapons system subsystems or components not included in the LCSP, indicate where sustainment planning for that subsystem or component may be found, the responsible office and any relevant statute, policy, or guidance that assigns the responsible office. This may include Government Furnished Equipment (GFE) 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., National Nuclear Security Agency, nuclear propulsion or warhead).

2 Product Support Strategy (PSS)

A PSS is an overarching strategy to meet sustainment requirements throughout the life-cycle. It encompasses how defense system sustainment is accomplished. It is not a one-time decision made early in the system life development and executed in the same form throughout the life-cycle. It is evolutionary, since the requirements, capabilities, competencies, operational mission, and material condition of defense systems change over time. The PSM should be cognizant of the baseline conditions and assumptions when assessing and selecting the appropriate strategy, monitoring its performance, and when revising the strategy as circumstances change.[10]

The Military Services or Component should begin product support planning as soon as the MS 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 AS, Analysis of Alternatives (AoA), SEP, RAM-C Rationale Report, Concept of Operations/Operational Mode Summary/Mission Profile (CONOPS/OMS/MP), and requirement documents (Initial Capabilities Document (ICD) or Capability Development Document (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 cost reduction initiatives.

This section provides a high-level depiction of the PSS with consideration given to DoD enterprise solutions for weapon systems that are alike or similar. Coordinate this concept with the Service's or Component's organic product support enterprise. List roles and responsibilities for public and private product support providers consistent with the system's operational concept (Acquisition Strategy Operational View (OV)-1)[11] to include the full spectrum of operations (peacetime, contingency, and surge) as well as the program's supply chain and maintenance performance metrics. Legacy system data is also analyzed to determine what technical data, computer software and rights the DoD has previously negotiated or has access to, in order to inform what data is required to establish a particular product support scenario. 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 present in the O&S Phase (e.g., training simulators, system integration labs, software development labs and whether they are a PSM's responsibility for support or supported via other means (e.g., Memorandum of Agreement (MOA)).

Identify the mission critical subsystems and strategy to keep these subsystems operational (include Work Breakdown Structure (WBS), as needed). Mission critical systems are those systems whose failure would prevent the platform from continuing its mission and force the platform to wait for repair. Ensure mission critical failure definitions are consistent with the CONOPS/OMS/MP and reliability assumptions in the RAM-C Rationale Report.

In Figures 2-1 through 2-3, include the decomposition of the sustainment requirement and the system architecture and allocation against the product support elements necessary to satisfy the requirement. Ensure the figures are consistent with the system requirements and metrics in Section 3 and the PSAs in Section 4.11. More than one drawing may be needed to illustrate the major features affecting product support.

At MS A, or equivalent early life-cycle phases of other AAF pathways, data could be notional and only at the first indentured level of the system's architecture. By post-Preliminary Design Review (PDR), MS B or equivalent, and beyond, include greater detail and data for systems, subsystems, or components sustainment requirements. 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 should have sufficient detail to illustrate planning for data in the Intellectual Property Strategy, and technical data and computer software license rights provisions in its contracting actions, maintenance planning, and supply chain management. It is important to apply special attention to those data element requirements necessary for organic hardware and software sustainment, specifically government-purpose data rights. (An example of how to display this information is shown in Figure 2-2.)

[10] Product Support Manager Guidebook
[11] Acquisition Strategy Outline of 20 APR 2011

Briefly discuss specific programmatic interdependencies with other programs. If a program is dependent on the outcome of other acquisition programs, or is providing capabilities to other programs, describe the nature and degree of risk associated with those relationships and how it will be managed. (An example is a program such as Aegis, which is its own program but is also installed on a platform.) This section directly relates to the program AS.[12] The program interdependencies described in the LCSP should cover the relationship of the sustainment support requirements, including but not limited to, product support arrangement, memorandums of agreement, deployment schedules, risks mitigation, and impacts to the sustainment support plan.

Considerations for System of Systems programs: The complexity of system of subsystem programs may lend itself to a different depiction than the ones provided in Figure 2-1 and Figure 2-2. Consider alternative formats, including system models or derivative products, to provide this information. Required information includes a high level roll up of the maintenance concept, type of work to be accomplished at each maintenance level, existing government capabilities, expected or known provider of the maintenance, and sustainment provider/level for the remaining IPS elements. For example, in a ship program this may include using the Ship WBS and the notional planning from the OPNAVNOTE 4700. While this data is in a tabular format, additional details may be provided in Section 4.3, Maintenance Planning and Management.

Figure 2-1: Sample Drawing of the Reference Design Concept

Include as-of date

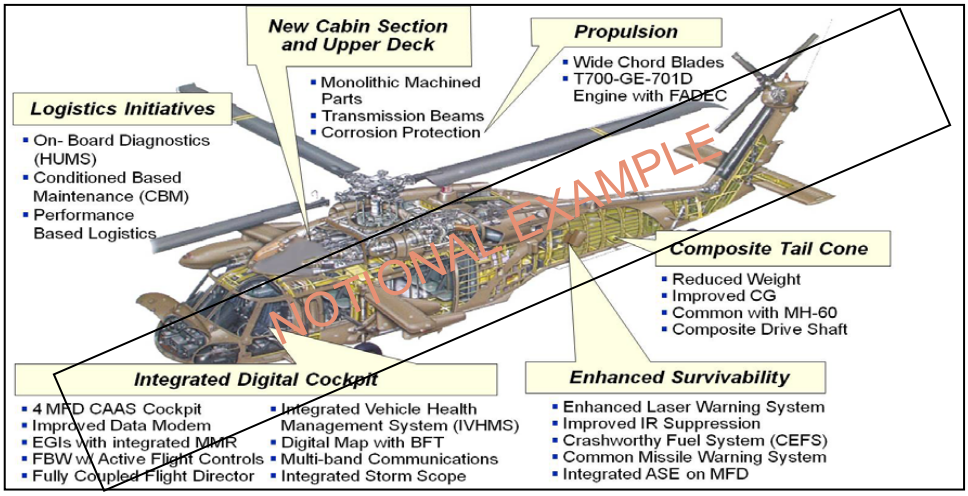


Figure 2-2 and its individual entries are non-exhaustive examples of PS and IP planning scenarios for a program entering a new development effort. The (notional) program is a combination of commercial and non-commercial products, using both developed exclusively at private expense using mixed funding (Government and private). The figure demonstrates the “how to” process. More detail is provided in the DoD IP Cadre Life Cycle Product Support Planning: IP as a Key Enabler Toolkit, including the conduct of product support analysis, which informs:

1) Understanding components and sub-component PS activity, and who and where the activity will be conducted based on analogous (like system) operational data (columns 1, 2, and 3)
2) Determining development funding (i.e., whether development is funded by the OEM or by the Government) and commerciality at the sub-component level (based on market intelligence and research and prior contracts) (columns 6 and 7)
3) Determining the type of data required (Contract Data Requirement List (CDRLs) and Data Item Description (DIDs)) to conduct the PS activities and intended uses for the data (columns 4, 5, and 8–10)
4) Determining the standard rights for the data (based on development funding and commerciality) and considerations for negotiating license rights (columns 9 and 11)

1

[12] Acquisition Strategy Outline of 20 APR 2011; Sections 5.6 and 6.2

Figure 2-2: Product Support Strategy for Reference Design Concept

Include as-of date

Sub-System (WBS Level)		PS Activity	Who Conducts the Activity and Where?	PS Deliverable (Include in a CDRL)	Possible DID Examples	Commercial (C) Non-Comm (NC)	Dev Funding	Tech Data & CS Category	Standard Rights	Data Use Case	Critical Thinking Review Examples
Engine	Hardware	Servicing, Inspection, Assemble, Disassemble	Field Maintenance Mechanic, Field Maintenance, (Conduct troubleshooting,). Will use existing DoD TPS.	PSA (FMECA, MTA data for Gov't to conduct LORA)	DI-SESS-82018, DI-HFAC-81399, DI-SESS-82371, DI-PSSS-81873, DI-SESS-81539B, (S1000D, MIL-STD-3031, MIL-DTL-87929F, MIL-STD-40051-2D(1), MIL-HDBK-1222G)	C	Private	OMIT	UR	Field Maintenance Mechanic – servicing & inspection	Note 1: Consider negotiating narrower license rights than unrestricted to reduce costs.
				Training, TM: 10-13&P, LPD and LSA				OMIT (portions related to hardware)	UR	Technical and Training Manuals	*See Note 1
								CSD (portions related to software)	CL		Note 2: Review commercial license and ensure that license rights are adequate for government needs
		Overhaul, Disassemble, Repair, Reassemble	Hardware Repair – Depot (requires DMWRs and unique Depot TPS for engine hardware – depot does not have existing capability – will not be provided to third parties.	DMWR	DI-MISC-81538, (MIL-STD-40051, S1000D, MIL-STD-3031, MIL-DTL-87929F, MIL-DTL-81218C NOT 2, MIL-HBDK-1222G), DI-IPSC-81428, DI-IPSC-81443, DI-IPSC-81756, DI-ILSS-80872 *Ex. 1			DMPD (in some portions of the DMWR)	LR	Hardware Repair – Depot (requires DMWRs and unique Depot TPS for engine hardware. Depot does not have existing capability. Will not be provided to third parties)	Contractor may argue that some maintenance data is also manufacturing process data; so means beyond standard rights may be necessary if depot uses support contractors. Standard Rights may suit Gov't needs because DMWR data is for depot use (if the data will only be used by Gov't employees). Consider also requesting data in escrow accounts in case the OEM discontinues this effort so the DoD can continue to conduct this activity or re-compete with another OEM
								OMIT/FFF	UR		*See Note 1
	Embedded Software	Field Maintenance: conduct engine diagnostics and troubleshooting using software tools.	Field operator and field mechanic TM work packages	Field operator and field mechanic TM work packages (CSD portions)	DI-IPSC-81428, DI-SESS-81539B	C	Private	CSD	CL	Field Maintenance: conduct engine diagnostics, prognostics, and troubleshooting using software tools.	*See Note 2
		Update Software, install software patches	Field operator and field mechanic will partner with OEM to receive software updates and test them using OEM APS.	Software Executable and Software Patches (associated with Tier 3 Help Desk Support)	DI-SESS-81539B, DI-IPSC-81444, DI-IPSC-81429			Software	CL	Will partner with OEM to receive software updates and test them using OEM APS. (Will not be provided to third parties)	*See Note 2
Avionics	Fire Suppression System (Fire Control)	Inspections, Functional tests & adjustments, Repair via replace	Field Maintenance, Operator & Maintenance Mechanic	TM Work Packages (WPs), Training WPs, Provisioning updates	*See Ex. 1	NC	Mixed	OMIT/FFF	UR	Data required for new procedures or tasks, all critical task troubleshooting and resolution procedures, computer software documentation).	*See Note 1
		Existing DoD APS diagnostics for Software	Maintenance Mechanic	CSD (software operation and maintenance procedures, troubleshooting)	DI-IPSC-81428			CSD	UR	Data required for software troubleshooting and resolution at the field mechanic.	*See Note 1
	Embedded Software	Fault codes, troubleshooting, Functional tests & adjustments, On-System Built-in Test (BIT)	Field maintenance, Field operator & field mechanic, DoD TPS (hardware), Repair to higher assembly (SW APS and helpdesk). Software support - OEM provides SW patches and updates via PPP and level III helpdesk.	Field operator and field mechanic TM work packages (CSD portions)	DI-SESS-81539B, DI-IPSC-81444, DI-IPSC-81429	NC	Private	CSD	UR		*See Note 1
				Software Executable and Software Patches (associated with Tier 3 Help Desk Support)				Software	RR	Repair to higher assembly (SW APS and helpdesk) Software support - OEM provides executables and patches via PPP and Tier III help desk support.	Government should negotiate license rights that will allow use by Government personnel and (if applicable) contractor support

CL: Commercial License, the license customarily provided to the public
CSD: Computer Software Documentation
DMPD: Detailed Manufacturing or Process Data
DMWR: Depot Maintenance Work Requirements
FFF: Form, Fit, and Function (data)

PPSS: Post Product Software Support
RR: Restricted Rights
TM: Technical Manual
UR: Unlimited Rights (Noncommercial TD or CS) or Unrestricted Rights (for commercial technical data)

LR: Limited Rights for noncommercial TD or the equivalent of limited rights for commercial TD; no manufacturing permitted even within the Government
Mixed: Developed with mixed funding (Government and private)
OMIT: Data necessary for operation, maintenance, installation, or training (other than detailed manufacturing or process data)
PPP: Public Private Partnership
Private: Developed Exclusively at Private Expense

*Note: DFARS data rights categories and DFARS clauses are only applicable for FAR-based contracts. Otherwise, license rights are governed by the specific IP terms of the OTA or other Non-FAR based contracts, arrangements, or agreements.

The Program Office should provide a graphical depiction of the sustainment concept in Figure 2-3, Product Support Enterprise. Identify roles and responsibilities for product support providers consistent with the system's operational concept depicted in the AS (Operational View (OV)-1).[13] The figure should list the program's planned maintenance management and supply chain performance metrics. Additionally, the figure should 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. Give consideration to DoD enterprise solutions for weapon systems, subsystems, or components that are alike, similar, or already supported by a Government supply chain.

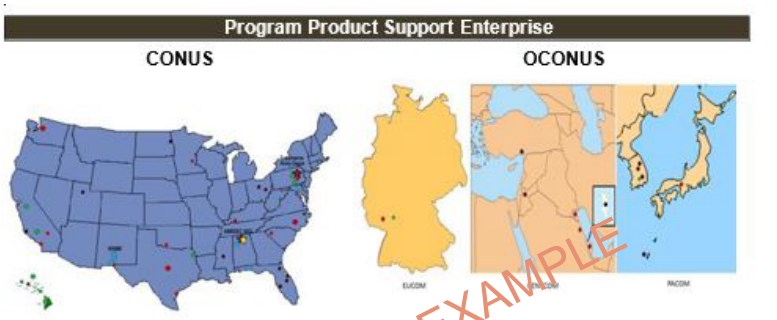
The contents of Figure 2-3 should:

(1) Be consistent with requirements/metrics in Table 3-1, and
(2) Reflect the more detailed Product Support Arrangements appearing in Section 4-11

Additionally, the program should ensure Figure 2-3 illustrates the major elements of the system's Product Support Strategy, both Government furnished, and contractor delivered, 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). The PSM should coordinate the program's plans with the Services or Component for organic product support, or enterprise support, for the availability and affordability requirement. The PSM should also use data on capabilities and limitations of the product support enterprise to influence system reliability and human-centered design trade decisions early in the life-cycle. This figure, in conjunction with Figure 2-2, provides the product support functional breakdown necessary to develop effective contracted PSAs.

Figure 2-3: Product Support Enterprise

Include as-of date



Product Support Functional Area	Location	Planned Sustainment Performance Metrics	Planned Contractor Support
XXXX PM (PSM)	☆ Redstone Arsenal, Huntsville, AL	CDD-U requirements: Availability: A_O, A_M; Materiel Reliability (R_M); Diagnostics; Maintenance Ratio; Training, and Ownership Costs;	Mixed U.S. Government and Systems Engineering and Technical Assistance contractor support
Test Facilities	Redstone Test Center, Huntsville, AL, Ft. Bliss, TX; Eglin AFB, FL; APG, MD	Maintenance: Mean Down Time (MDT), MTTR; Transportability; Climatic Testing; Supportability; Maintainability; Reliability	U.S. Government
Logistics Support	TYAD, LEAD, CCDC, Defense Logistics Agency, DMEA	Not-Mission Capable Supply (NMCS) Logistics Response Time (LRT)/Customer Wait Time (CWT)	Mixed U.S. Government and contractor support
Maintenance Depots	★ TYAD and LEAD;	Depot Repair Cycle Time (RCT), MDT, LRT/CWT,	Mixed U.S. Government and contractor support
Defense Logistics Agency (DLA) Support	DLA Distribution Tobyhanna, Barstow, Red River, Susquehanna, San Joaquin	Availability of NSNs in stock	U.S. Government
Contingency Support Depot	TYAD FRAs, throughout AOR	RCT, MDT, LRT, CWT, NMCM – , NMCS	U.S. Government

[13] This OV-1 (from AS Template of 20 April 2011) should also be consistent with data in the Concept of Operations/Operational Mode Summary/Mission Profile (CONOPS/OMS/MP).
[14] JCIDS Manual Appendix C, Enclosure B, para 2.5.6

Critical Thinking Questions for Product Support Strategy:

- Have DoD enterprise considerations been documented as part of the PSBCA, even if not adopted (with brief rationale)?
- Do the data and rights identified in Figure 2-2 align to the program's Product Support Strategy?
- Does Figure 2-2 include all current and planned Product Support Functional Areas (e.g., depots/workloads that are planned but have not been activated)?
- Does the strategy address both hardware and software sustainment?
  Does the strategy address digital engineering and digital product support (e.g., digital thread, digital twins, modeling and simulation, digital engineering ecosystems)?

3 Product Support Performance

This section provides an overview of the planned sustainment performance requirements in accordance with the APB, the observed sustainment performance of fielded end items, how the PSS, contract deliverables, and organic support providers deliver these required sustainment outcomes and how the PS team measures achievement of the performance goals.

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 KPPs, KSAs, APAs, OSAs,[14] or other working level or Component-specific sustainment requirements in JCIDS documentation (i.e., ICDs, CDDs, and CDD updates, or legacy Capability Production Documents). These, together with Component, OSD (e.g., supply chain attributes), or other requirements are detailed in RFPs, contracts or other documents and reporting systems.

3.1 Performance Requirements Impacting Sustainment

The LCSP should identify all explicit, implicit, or derived sustainment requirements cited in all requirements or other program documentation (Notional example provided in Table 3-1). These need to be traceable to the program's execution planning documents in which a metric is used to manage sustainment performance. Examples include RFP, contract, CDRLs and associated rights, or specially negotiated license rights and product support arrangements, (also identified in Table 4-6, PBAs in Contracts or Table 4-7, Performance Agreements (Organic Support Providers). For performance metric improvement initiatives, 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/OSAs, their authoritative requirements document, threshold and objective values, and the specific section in the RFP/contract where that requirement is specified. Also note the section of the TEMP covering that metric, along with projected values at IOC, Full Operational Capability (FOC), and 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.

Collect and report sustainment data (Table 3-1) in the Defense Acquisition Visibility Environment (DAVE) during acquisition, and transition into reporting from Service authoritative databases via Advana Executive Analytics. This supports tracking of sustainment data across the full life-cycle.

Table 3-1: Sustainment Performance Requirements

Include as-of date

Requirement (KPP, KSA, APA, Derived requirement)	Documentation	Threshold / Objective	RFP/ Contract [15]	TEMP	IOC FY XX	FOC FY YY	Full Fielding FY ZZ
Availability (KPP)							
Operational Availability (A_O)	CDD 6.2.6.1	68%/72%	RFP - PWS 4.5.1	TEMP 3.2	68%	70%	72%
Materiel Availability (A_M)	CDD 6.2.6.2	64%/68%			64%	66%	68%
Reliability (KSA)							
Mission Reliability	CDD Update 6.3.2.1 Mean Time Between	46 hrs/61.6 hrs	RFP - PWS 3.7	TEMP 3.3.2	46 hrs	46 hrs	46 hrs

[14] JCIDS Manual Appendix C, Enclosure B, para 2.5.6

[15] Applicable for all program execution planning documents (e.g., Analysis of Alternatives, Technology Maturation and Risk Reduction 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).

	System Aborts (MTBSA)						
Logistics Reliability	CDD Update 6.3.2.5 Meantime Between Failure (MTBF)	3.5 hrs/4 hrs			3.5 hrs	3.5 hrs	3.5 hrs
Maintainability (KSA)							
Corrective Maintenance	CDD Update 6.3.3.4 (MCMT)	1 hr/0.5 hr	RFP – PWS 3.8	TEMP 3.3.2	1 hr	1 hr	1 hr
Maintenance Burden	CDD Update 6.2.6.3 (Maintenance Ratio)	9/7			9	9	9
Built in Test (BIT) Fault Detection (FD)	CDD Update 6.2.6.4.1 (FD%)	98%			98%	98%	98%
BIT Fault Isolation (FI)	CDD Update 6.2.6.4.2 (FI%)	95% single Shop Replaceable Unit (SRU)			95%	95%	95%
BIT False Alarm (FA)	CDD Update 6.2.6.4.3(FFHBFA)	30 flight hrs			30 flight hrs	30 flight hrs	30 flight hrs
O&S Cost (KSA)							
Avg Annual O&S Cost	ADM 3.4.1	$4.2M (TY) per unit/yr	N/A	N/A	$4.1M	$4.2M	$4.2M
Total O&S Cost	CDD 7.1	$2.1B (TY)	N/A	N/A	$2.0B	$2.1B	$2.2B
Other Metrics							
Affordability Goal/Cap	Acquisition Strategy 5.6, APB	T=O, $4.2M/yr	N/A	N/A	$4.1M	$4.2M	$4.2M
Supply Chain Responsiveness	MAJCOM MOA/PSA	15 days/5 days	N/A	N/A	15 days	10 days	9 days
Mobility	CDD 6.1.1, Palletization	4 pallets per 3-ship formation / 3 pallets per 3-ship formation	RFP – PWS 3.9.1	TEMP 3.7	5 pallets	4 pallets	4 pallets
Transportability	CDD 6.1.4, Support Package	Movement by C-17	System Spec 4.3	TEMP 3.7.1	1	1	1
Commonality	CDD 6.2.5 Support Equipment	< 2 Peculiar SE	RFP – PWS 5.2	N/A	2	2	2
Training	CDD 14.3.1, Aircrew Training	Differences training, 60 hrs/40 hrs	RFP – PWS 5.7	N/A	60 hr	50 hr	50 hr
Human Systems Integration (HSI)	AoA, CDD Update 5.3, Human Factors Engineering (HFE) domain, System Usability Score (SUS) scale	Usability (design characteristic, SUS), 90%/100%	RFP – PWS 4.1.2	TEMP 4.6, User assessment, Log Demo	70%	90%	90%
		Situational Awareness (design characteristic), 95%/100%			95%	98%	98%

3.2 Performance Demonstrations and Tests that Impact Sustainment

Provide data for demonstrations and tests that include evaluation of sustainment elements, its source (e.g., SEP, Service/Component, contract), metrics from Table 3-1, or major feature that affects sustainment performance or cost (e.g., cost driver), its schedule, estimated value at IOC, and that risks have been adequately mitigated. The PSM should also provide an impact assessment based on test results.

Table 3-2 includes any demonstration of metrics post-fielding associated with upgrades and/or program modifications and their associated reviews and performance goals.

Table 3-2: Sustainment Performance Assessment/Test Results

Include as-of date

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 CY20XX/3rd Qtr CY20XX	Repair 1 sq ft area in 4 hours	Initial Operational Test & Evaluation (IOT&E) tested value: 7 hr/5 hours projected at IOC	Marginal; achieved only 50% of performance at EUT; Risk #A325
Human Factors Engineering (Usability)	SEP Contract Data Requirements List (CDRL) A03 TEMP	End to End Mission Performance Usability (designed attributes to schedule)		95%		
Training Effectiveness	SEP CDRL A04 TEMP	End-to-End Mission Performance (Critical and non-critical Job Tasks included in Instructional Material)		95%		
Manpower	SEP CDRL A05 TEMP	End-to-End Mission Performance Manpower Levels		<150		
Reliability Growth Test (RGT)	SEP CDRL A02	Intelligence, Surveillance, and Reconnaissance (ISR) system reliability of 46 hrs MTBSA	Development Test Eval 1st Qtr CY20XX	46 hrs	46 hrs	To be determined (TBD)
DOT&E IOT&E	TEMP	All metrics in Table 3-1 and 3-2	1st Qtr CY20XX	See Tables 3-1 and 3-2	See Tables 3-1 and 3-2	TBD

Critical Thinking Questions for Product Support Performance:

- Do program requirements or the product support package need to be revisited, based on the test results? Update the LCSP as necessary.
- Do the current test results change any sustainment plans? If so, update the LCSP.
- Are there important lower-level metrics that the program intends to track? (For example, software-related performance metrics, such as installation down time or Software Assurance (SwA) Rating).
- Have you assessed whether test driven changes impact cost? If it does, ensure the cost estimate incorporates the impacts.
- Has a Human Systems Integration (HSI) analysis been performed addressing operator, maintainer and support personnel? (Ref: MIL-HDBK-46855A). Are HSI requirements consistent with the Program's HSI Plan and the SEP?

3.3 Monitoring Sustainment Performance

Provide data on processes and tools used or planned for use to monitor system performance (sustainment metrics) of the product support package. Include the tool, responsible IPT/office, the metrics or data monitored, any feedback process, and review timeframes. This section demonstrates that the program has a monitoring plan and capability that can trigger corrective action in the event one or more product support elements are at risk of degrading sustainment performance. This data is also useful for the PSM in linking resources to readiness and to support evidence-based decisions throughout the program life-cycle (such as technical reviews, audits, sustainment reviews, milestone decisions). Table 3-3 is a notional presentation of this type of data.

Table 3-3: Sustainment Performance Monitoring

Include as-of date

Tool	OPR/IPT	Metrics/Data Monitored	Feedback Mechanism	Review Timeframes
Sustainment Quad Chart	PSM	A_O, A_M, Reliability, Maintainability, Mean Down Time (MDT), O&S cost and other applicable metrics as required by the program service lead	Automatic updates to PEO and Deputy Assistant Secretary of Defense for Materiel Readiness (DASD(MR)) via DAVE/Advana Metrics feed from NALDA GCSS	Quarterly
Sustainment Reviews or ILAs[16]	PSM	The SRs focus on statutory sustainment elements and track O&S cost growth. SRs satisfy the requirement for ILAs after a program has achieved initial operational capability (IOC)	Feedback from operators and PSI and PSPs Summary reports forwarded to DASD(MR)	For covered systems, Sustainment Reviews (SR) are required 5 years after IOC and every five years thereafter.[17]

[16] USD(A&S) "Implementation of Sustainment Reviews" memo signed June 2, 2021; The LCSP should be updated before the Sustainment Review addressing the 10 listed elements in Title 10 U.S.C. § 4323(b)
[17] Title 10 U.S.C. § 4323 (formerly § 2441) and Title 10 U.S.C. § 4325

Failure Reporting, Analysis, and Corrective Action System (FRACAS)	Sustaining Engineering IPT	Ao, Am, Reliability, Maintainability, O&S cost driver metrics including but not limited to: • XXX • XXX • XXX	Naval Aviation Logistics Command Management Information System (NALCOMIS)/Naval Aviation Logistics Data Analysis (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 (DRs)[18]	PSM Chief Engineer	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

Critical Thinking Questions Sustainment Performance Modeling:

- Is the PSM ensuring relevant trades address the linkage between requirements, design, human factors, and product support, through coordination with acquisition and engineering team leads?
- Is the outcome of these sustainment trades included in contractual language along with sufficient technical data rights?
- Is there a sustainment monitoring plan and capability that triggers corrective action response to adverse or degraded performance metrics or O&S cost growth? Are these metrics reviewed on a recurring basis?

[18] For each type of deficiency report that is relevant to the LCSP, there should be a reference link added. See DAU Article: "Product Quality Deficiency Reporting (PQDR)" *https://www.dau.edu/acquipedia/pages/ArticleContent.aspx?itemid=454*

4 Sustainment Strategy and the Product Support Package

This section provides details on all aspects of the product support package including statutory and regulatory requirements that drive design and sustainment, the stakeholder relationships executing the PSS and any risks associated with execution of the PSS.

A product support package consists of all or a subset of the twelve IPS elements and additionally, it includes a listing of the agreements between program offices and government and contracted support providers to successfully accomplish Life-Cycle support activities. The twelve IPS elements are: 1) Product Support Management; 2) Design Interface; 3) Sustaining Engineering; 4) Maintenance Planning and Management; 5) Supply Support; 6) Support Equipment; 7) Technical Data; 8) Training and Training Support; 9) IT Systems Continuous Support; 10) Facilities and Infrastructure; 11) Packaging, Handling, Storage, and Transportation; and 12) Manpower and Personnel.[19]

***Note**: In documenting the product support package, address the IPS element of **Product Support Management** throughout the LCSP, including sections on the PS Strategy, PS Performance Goals, Sustainment Relationships, Risk Management, Funding, and Management, etc. This section of the LCSP describes the "enterprise level of integration of all twelve IPS elements throughout the life-cycle."[20] Address the planning and implementation of the remaining IPS elements in paragraphs 4.1 through 4.10.*

Critical Thinking Questions for documenting Product Support Enablers throughout this section:

- Are you working with the PM and contracting team to incentivize supportability through contract requirements (SSP, RFP, CDRLs, SOW, DFARs clauses)?
- Are you tailoring the contract deliverables to meet the specific sustainment needs of the system?
- Do your contract deliverables provide enough data to successfully complete design and supportability analysis? Are there systems in place to validate this information?

***Note**: The PSM should list the applicable CDRLs for each IPS element to illustrate how the planning within each element is supported by the appropriate data. For more information on CDRLs see the DoD IP Cadre Life-Cycle Product Support Planning: IP as a Key Enabler Toolkit or the DAU CDRL/DID Blog Post.*

4.1 Supply Support

The PSM should describe the approach to identify, plan for, resource, and implement management actions to acquire repair parts, spares, and all classes of supply to ensure the best equipment/ capability is affordable and available to support the warfighter/maintainer when needed.

***Note**: DoD Components are required to obtain National Stock Numbers (NSN) and catalog each item in accordance with DoD Instruction 4140.01, DoD Supply Chain Materiel Management Policy, and DoD Manual 4100.39, Federal Logistics Information System Procedures. Additionally, DoD Components are required to perform all configuration management and technical data management responsibilities in accordance with DoD Instruction 4140.69, Engineering Support Instructions for Items Supplied by Defense Logistics Agency. DoD Components are required to conduct provisioning in accordance with DoD Instruction 4140.01, DoD Manual 4100.39, and DoD Manual 4140.01, Volume 2, DoD Supply Chain Materiel Management Procedures: Demand and Supply Planning.*

[19] DoD Guidebook, IPS Elements
[20] DoD PSM Guidebook, para A.1

4.2 Packaging, Handling, Storage & Transportation (PHS&T) Planning

Provide a brief description of the PHS&T program and status of the PHS&T plan. Include how to identify, plan, resource, and PHS&T requirements to maximize availability and usability of the materiel, including support items whenever they are needed for training or mission success. See more information in the DAU description for this IPS Element. [21]

Note: Ensure item specific PHS&T technical data has been obtained to develop military packaging requirements conforming to the format of MIL-STD-2073-1 for use by the Services' inventory control points in contract actions for spares procurements and repairs, organic or interservice repair actions during the operations and sustainment phase. [22]

Critical Thinking Questions for documenting PHS&T Requirements

- Have you determined packaging and containerization requirements and identify possible impacts to system design?
- Have you determined shelf life and handling requirements and potential impact to life-cycle cost and system design?
- Have you considered the impacts of short and long term storage on material condition and availability? Or the impact on system readiness and affordability?

4.3 Maintenance Planning and Management

4.3.1 Maintenance Concept

In this section the PSM should include a brief description of the maintenance concept for the system or platform and include a graphical representation such as in Figure 4-1, where it is useful displaying operational and maintenance cycles over the life of an item.

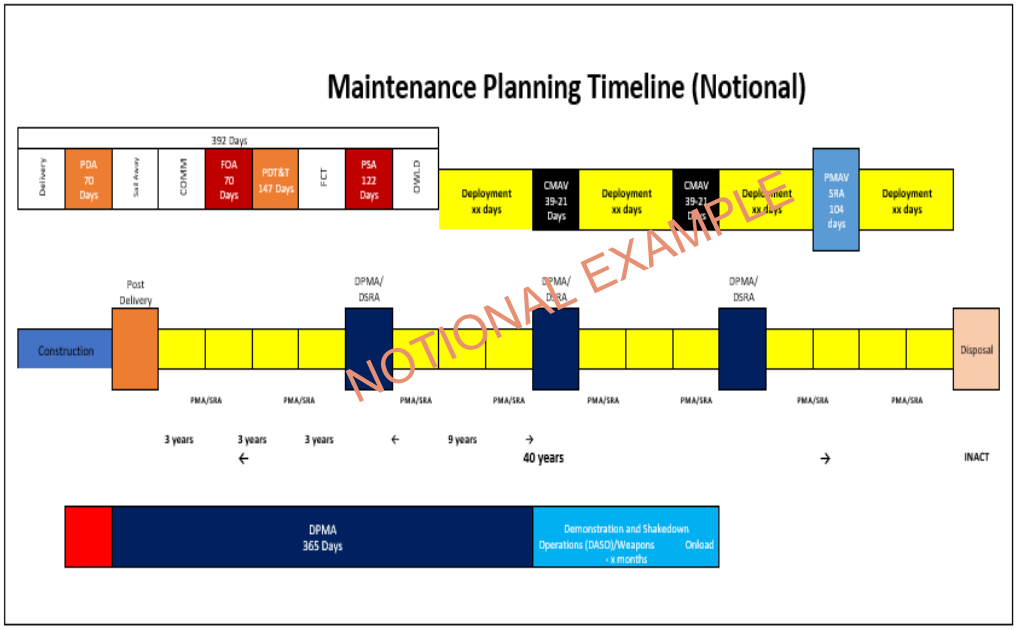
This section is not intended to duplicate information in Section 2, but to elaborate on the overall maintenance concept and overhaul requirements. For example, describe the maintenance approach (e.g., preventive, predictive, prognostic; use of Maintenance Steering Group-3 or equivalent processes); levels of maintenance for the platform and major sub-systems; Condition Based Maintenance (CBM)+ concept and architecture; scheduled maintenance (including calendar or operating hours/cycles-based); and other factors relevant to maintenance, repair, and overhaul. For additional information see the IPS Element Guidebook section on Maintenance Planning and Management.

Note: Maintenance data is included in several areas in the Executive Analytics section of Advana, specifically Organic Industrial Base Health, and Sustainment. These databases are fed by authoritative Service data sources. The data in Advana feeds into the program sustainment reviews.

[21] IPS Element Guidebook Description

[22] See more information on PHS&T in the IPS Element Guidebook

Figure 4-1: Notional Example of a Maintenance Planning Timeline



***Note*: This graphic depicts a sample timeline for a surface ship. Please insert a timeline applicable to the program. If a graphic is not appropriate, provide a simple narrative to describe the timeline.**

4.3.2 Depot Activation Planning

DoD requires programs to establish depot maintenance capabilities at IOC+4 (Title 10 U.S.C. § 2464 and DoDD 4151.18, para 3.2.2) for core weapon systems. Briefly note the planned depot maintenance capabilities and locations, and when the Service plans to activate them. These activations should support the maintenance concept depicted in Figure 4-1 and Figure 2-2.

Critical Thinking Question for documenting Maintenance Planning and Management

- Has the PSM considered software maintenance, including documentation of perfective/corrective maintenance?

4.4 Design Interface and Sustaining Engineering

This section should align with the activities and events required to incrementally develop and inform logistics products (e.g., maintenance and repair manuals and maintainability demonstrations and test events) in order to identify design flaws to make necessary improvements that meet operational (user) objectives, through the lens of actual users. Likewise, design interface and sustaining engineering identified in the SEP should also align with the product support strategy, so the product support community can reference important engagement points as the weapon system design matures. The PSM team is encouraged to interface with the engineering team often, reviewing draft Failure Modes, Effects, and Criticality Analysis (FMECA), RAM, reliability growth planning, and other DI documentation such as FRACAS, Fault Tree Analysis (FTA), Maintenance Task Analysis, and Level of Repair Analysis (LORA). This process ensures a common understanding of failure modes, and the impacts to the technical manuals, training, manpower and skillsets.

4.4.1 Supportability Analysis

List the analytic methods and tools that the Supportability Analysis Engineers and PSM team use to define the product support package. The program uses engineering design data to inform the product support analyses. This will help ensure that the system is designed for supportability and materiel availability and is able to be achieved affordably. The PSM's role is to assess FMECAs and other design output during Technology Maturation and Risk

Reduction (TMRR) and Engineering and Manufacturing Development (EMD) and collaborate with the system engineering team on resulting design changes for sustainment impacts.

Early in the acquisition process, the emphasis is on the design trades in preparation for each of the design reviews necessary to achieve Life-Cycle sustainment requirements. Understanding and emphasizing the importance of addressing these factors early in system design and acquisition will maximize system performance benefits and return on investment. As the program progresses into production, this section focuses more heavily on system reliability and integrating the product support elements to create the most affordable product support solution. Once a system is fielded and enters into actual sustainment support, the focus is on adjusting product support near real time, based on warfighter operational needs.

Provide data in Table 4-1 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 4-1: Product Support Analytical Methods and Tools

Include as-of date

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	Development Test (DT), Operational Test & Evaluation (OT&E)
Maintenance Task Analysis	XXX	YYY proprietary software Power Log	Draft Maintenance Procedures	MS C, OT&E
Level of Repair Analysis considering both cost and materiel availability impact	XXX	Computerized Optimization Model for Predicting and Analyzing Support Structures (COMPASS) (Updated to include A_M)	Repair vs Discard and level of repair decision	MS C, Post IOC Independent Logistics Assessment (ILA)/SR
Beyond Economical Repair (BER)	XXX	DoD FMR Volume 11B and applicable service guidance	To determine is a part should not be restored to serviceable condition based on cost, time to repair, readiness	Post IOC, FRP
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/SR
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 Cost Analysis Strategy Assessment (CASA)	XXX PSBCA	MS C, Post IOC ILA/SR
DSOR	XXX	Depot Maintenance Action Group (DMAG) Depot Maintenance Inter Service Agreement (DMISA)	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	MS C, OT&E

Notes:

- Reference MIL-HDBK-502, Product Support Analysis covers a variety of PS activities
- For pathway programs such as MTA that use Phases rather than Milestones, use equivalent method for decision reviews
- 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
- This table should demonstrate that the program is building its product support package on a foundation of sound data and analytical decision support capabilities

4.4.1.1 Supportability Trades

Provide data in Table 4-2 for planned or completed supportability trade studies since the last LCSP update. Supportability analysis can be stand-alone trade analysis or part of a system or subsystems analytical trade process.[23]

- Trade name and date completed
- Lead IPT
- Options analyzed
- Criteria used to evaluate costs and benefits

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

- Results
- Impact on the weapon system design and/or product support strategy and package, and/or customer requirements

Table 4-2: Completed Supportability Trades

Include as-of date

Supportability Trades				
Trade	**IPT**	**Options Analyzed**	**Results**	**Impact**
Engine level of repair 2QTR FYXX	Engine IPT	**Alternatives:** • Two or three levels of repair • Centralized 2nd level of repair or at every major site • Commercial or organic at 2nd or 3rd level **Criteria:** • A_M and A_O • Program costs and O&S cost	• Three levels of maintenance with 2nd level being performed commercially at three 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 digital TDP needed for competition
Landing gear repair (Public Private Partnership) 3QTR FYXX	PS IPT	Contractor X and Fleet Readiness Center (FRC) East	TBD	TBD

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 and systems engineering process provide an initial assessment of the system's sustainment requirements and affordability. Trades prior to MS B (or equivalent) and later can influence the Product Support Arrangement, both commercial and organic, and drive an update to the LCSP and PSBCA. Later, including during sustainment, trades can be used to examine alternatives to control sustainment costs or achieve materiel availability at a lower cost (suggest explaining how).

For additional information please see article on Affordable System Operational Effectiveness at https://www.dau.edu/acquipedia/pages/articledetails.aspx#!553.

Examples of trade-off opportunities:

- Technical Performance vs. Maintainability vs. Cost
- Technical Performance vs. Process Efficiency vs. Cost
- Reliability vs. Maintenance vs. Cost
- Operational Tempo (OPTEMPO) vs. Maintenance vs. Cost

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 PSAs (commercial/organic)?
- Is the supportability trade space analysis considering all human performance contributions to drive down performance risks?
- Do the supportability trades reference back to the RAM-C report, Trade Studies Section?
- Do the supportability trades take advantage of an authoritative source of truth and use of digital twins, models and simulations in a digital ecosystem?

4.4.2 Design Analysis

Provide sustainment Life-Cycle objectives as they relate to the program's key design considerations documented in the program's SEP (V4.0), Table 2-5.1, with the key subsystems for each consideration, major sustainment issues identified, planned reviews/updates, and any impacts or comments as shown in Table 4-3.

Table 4-3: Sustainment in Key Design Considerations

Include as-of date

Design Consideration	Key Subsystems	Sustainment Issues	Planned Reviews/ Updates	Impact/Comments
At Sea Operations	• Ejection seat	• Humidity degrades effectiveness	• PDR	• New life limited components
Sustained High G	• Higher stress on propulsion system	• Reduced reliability	• PDR	• Increased quantity of spare parts required
Desert Operations	• Environments • Hydraulic	• Filters • Contamination	• System Requirements Review (SRR) • SRR	• Increase filter changes; filter demand • Increased inspection cycle
Chemical, Biological, Radiological, Nuclear (CBRN) Survivability	• Airframe • Propulsion • Environment al Control System (ECS)	• Available decon wash products effect on composite panels • Decon wash product effect on F104 • ECS CBRN filtering system	• SRR • SRR • PDR • DT • OT&E	• Assess all DoD chem decon wash products or development of new product • Assess all DoD chem decon wash products or development of new product • Filter system access; contamination reporting (BIT, visual); decon procedures
Corrosion Prevention and Control (CPC)	• Airframe • ECS			• Component approved CPC Plan; Estimated Completion Date (ECD): 1Qtr/FYxx

Environmental Safety and Occupational Health (ESOH)	• Backup power	• Hydrazine		• 1a Specialized Facilities /Military Construction (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
Item Unique Identification (IUID)				• Component approved IUID Implementation Plan; ECD: 3Qtr/FYXX

***Note*: Corrosion Planning – PSMs should consider corrosion planning, document it in the Program Corrosion Prevention Control Plan and provide as an annex to the LCSP. Please see the Corrosion Planning and Control Guidebook (2022) for more details.**

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

For each of the major or critical subsystems, provide the following details from the systems engineering FMECA. The following table provides a sample format 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
- Describe failure mode(s), impact(s), and associated configuration item(s) driving changes to the baseline product support package
- Identify recommended action(s) on product support strategy or design

Table 4-4: FMECA Summary

Include as-of date

System/IPT Lead	Schedule	Failure Mode Description	Recommended Action
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. FYxx to 4th Qtr. FYxx	• 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 unnecessary removals taking into account the new failure modes.
ISR systems IPT Lead	3rd Qtr. FYXX to 4th Qtr. FYXX	• 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

***Note*: Commercial off the Shelf/Government off the Shelf (COTS/GOTS) – Although having limited or no design input, the PSM should require and use the FMECA/FTA to analyze the as-designed system to support the LORA, provisioning, and sparing activities.**

Critical Thinking Questions FMECA:

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

4.4.4 Reliability

Identify the top system and subsystem reliability drivers and issues that affect O&S cost, including allocations and current estimates. Table 4-5 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. See also the Reliability Growth Plan section in the Program SEP paragraph 3.2.3.2.

***Note*: Mitigation efforts may differ by phase in the system development effort. Examples in Table 4-5 illustrate how this may be displayed.**

Table 4-5: Reliability and Maintainability Issues Impacting Product Support

Include as-of date

Subsystem Configuration Item (e.g., LRU, SRU, Weapon Replaceable Assembly (WRA))	Reliability Allocation	Current Reliability Estimate	O&S Cost Impacts	Mitigation efforts
ISR systems High Power Amplifier	6,000 hrs. Mean Time Between Removals (MTBR)	3,500 hrs. MTBR	$18M/yr (CYxx$) 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)	TMMR: Evaluate potential design changes to improve reliability EMD: Identify corrective actions for ISR HPA failures occurring during development testing prior to MS-C Production: Perform trade study to determine Life-Cycle cost impacts of buying more spares versus an engineering change to improve the reliability O&S: Assess ability to acquire more spares considering DMSMS issues or perform a tech refresh or engineering change to address reliability and DMSMS issues

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?
- Is the PSM working with the PM and Contracting Officer to incentivize the OEM design team to influence sustainment against the systems engineering design process?

4.5 Technical Data

Summarize the program's efforts regarding technical data and Intellectual Property requirements during the system life-cycle (from initial RFP, and all follow-on contracts, arrangements, or agreements[24], as well as during sustainment) and reference technical data as applicable per Title 10 U.S.C. § 4324 and described in Figure 2-2. Provide a synopsis of the technical data and Intellectual Management Plan (full plan provided as an annex) and any details within the contract that may impact product support, such as priced options, CDRL package status, etc. (Include the Product Support and Intellectual Property Template within the Annex.)

Critical Thinking Questions for Technical Data:

- Has the PSM identified the appropriate artifacts (tools, models, CDRLs/DIDs, etc.) to ensure data-driven requirements are identified and used for integration of Model-Based Systems Engineering (MBSE) and Digital Product Support?
- Has the PSM identified the required data rights required and documented them in the RFP and Section L of the Source Selection Plan (SSP)?
- Has the PSM invoked the required DFARS clauses to support data rights and data assertions?
- Has the PSM documented in the RFP/SOW that the government will require appropriate level of technical data from subcontractors that the prime selects and that the prime should propose accordingly?

4.6 Information Technology (IT) Systems Continuous Support

4.6.1 Cybersecurity

Summarize the portion of the Program Protection Plan (PPP) that is relevant to Product Support. The PPP is guided by DoDI 5200.39 and 5200.44 and is the program's primary document for managing a program's protection of their technology, components, and information throughout the system Life-Cycle. The PPP includes areas that directly impact sustainment including Cybersecurity Strategy, Anti-Tamper Plan, and Supply Chain Risk Management (see Paragraph 4.12.2). Use this section of the LCSP to identify the PM responsible for the PPP during system sustainment and disposal.

[24] In accordance with DoDI 5000.91 and DoDI 5010.44, Section 4.1, an IP Strategy must be reviewed and approved prior to each RFP, re-procurement effort, modification or update, over the program life-cycle.

4.6.2 Software Sustainment and Software/System Operability

Summarize the software support plan, if applicable to the system. Address Application Programming Interfaces (APIs) that will be available for data exchange with future external systems to support new systemic capabilities. Address how enterprise software factory resources can be leveraged to support evolutionary development of new capability in sustainment. For example, utilize Software Assurance (SwA) assessment analysis tools or cyber posture assessments to assess software considerations.

4.6.3 Digital Product Support

Summarize the aspects of the program's digital engineering strategy and implementation plan, consistent with the SEP (Appendix E of SEP Outline V4.0), that relate to executing the Product Support Strategy, including how digital product definition data (e.g., 3D models) and other elements of the system's digital Authoritative Source of Truth (ASoT) that are going to be managed (e.g., utilizing a Product Life-cycle Management (PLM) system).

Describe the products (e.g., models) and processes (e.g., simulations, analyses) that will be used to implement the Product Support Strategy. Some examples include:

- Model-based Human Engineering Design Approach Document (HEDAD)-Maintenance to evaluate Design Interface for the primary system and support equipment
- Models for Supportability Analysis (Product Support Analysis) activities such as FMECA, Maintenance Task Analysis, and Level of Repair Analysis (LORA)
- Digital Twin/Digital Thread for tracking of defects (e.g., corrosion, fatigue cracks), discovery of new failure modes, fleet structural defects (e.g., corrosion and crack trending)
- Model-based CBM+ implementation; model-based technical data (e.g., maintenance manuals, depot work instructions)
- Model-based provisioning and cataloging; model-based DMSMS solutions and alternate part sourcing; and model-based simulation for operator and maintenance training[25]

Describe the Digital Engineering ecosystem (e.g., IT, accessibility, connectivity) and infrastructure (e.g., hardware and software) that will be in place to implement the Product Support Strategy. Establish mandatory ecosystem requirements for the products, models, and enterprise needed for execution of the SEP DE Implementation Plan.

[25] For additional examples see ACQuipedia article "Digital Product Support,"

Critical Thinking Questions for IT Systems Continuous Support

- Have you considered how you are going to properly resource and acquire facilities, hardware, software, firmware, documentation, the manpower and personnel necessary for planning and management of mission critical computer hardware and software systems?
- Do you plan to procure the software development environment along with the software source code? Have you considered obtaining IP rights for the software and source code delivery?
- Does the program's Digital Engineering Implementation Plan include details on the Product Life-cycle Management (PLM) or equivalent capability needed to manage technical data and logistics product data and related program artifacts (i.e., RAM Analysis, supportability analysis, etc.)?

4.7 Manpower and Personnel

Summarize the process used to develop the estimate for personnel required to operate and maintain the system.[26]

Critical Thinking Questions for the Manpower domain:

- **Understanding the user popul**ation – Were artifacts/practical examples of context of use, task analysis, operational environment descriptions developed (i.e., a manpower analysis) to inform domain requirements?
- Are manpower/hardware resources required to develop, perform, and validate PSA?
- Are human performance requirements and metrics established through a Top-Down Function Analysis (TDFA) based on mission scenarios that challenge total system performance and workload assigned to the user?

Critical Thinking Questions for the Personnel domain:

- Understanding the user population – Were artifacts/practical examples of context of use, task analysis, operational environment descriptions developed (i.e., a target audience description) to inform personnel domain requirements?
- Are human performance requirements and metrics established through a Top Down Function Analysis (TDFA) based on mission scenarios that challenge total system performance and workload assigned to the user?

[26] See DoDD 1100.4 "Guidance for Manpower Management" and DoDI 1100.22 "Guidance for determining workforce mix" for further information in identifying the criteria related for this IPS Element.

4.8 Training and Training Support

Summarize the activities in place to develop and resource required training systems, (such as classrooms, maintenance trainers, or simulators) to support operations and maintenance of the system. Consider the sustainment requirements for maintenance of the equipment.

4.9 Support Equipment

PSMs should identify resources and management actions to acquire and support the equipment (mobile or fixed) required to sustain the operation and maintenance of the system. Briefly describe the program's strategy to acquire support equipment, including efforts to maximize use of the enterprise (common) support equipment available for the system. Consider the sustainment requirements for maintenance of the equipment.

4.10 Facilities and Infrastructure (Including Leveraging Enterprise Opportunities Across Programs and DoD Components)

Describe any enterprise opportunities to use existing or planned Infrastructure for storage, transportation, maintenance, and repair capabilities. This should include any commercial or organic infrastructure and repair facilities and supply chains that previously have been established either for the antecedent system or other weapons systems in the inventory, regardless of Service sponsor. Commercial opportunities should also be considered to leverage capabilities and infrastructures that other programs (both DoD and commercial) may have established. Use of commercial capabilities should be reviewed to ensure that using this capability would not impact statutory requirements for Core (Title 10 U.S.C. § 2464) or 50/50 (Title 10 U.S.C. § 2466) or any other statutory requirements. Where described elsewhere in the LCSP, cite by reference. Please see the PSM Guidebook for examples of leveraging opportunities.

4.11 Sustainment Relationships

Identify relationships (industry, Service staff elements, other DoD Components, Interagency, 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 displayed in a figure or table but should include all product support stakeholders.

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

Critical Thinking Question for Product Support Sustainment Relationships

- For SoS dependencies, have you included all pertinent information? As an example: system name, cognizant PM office, and date of approved program office data interchange (DA Form 5661 or equivalent)
- Have you considered the user community as members of the stakeholder community?
- Have you ensured product support requirements have been included in the MOU or MOAs associated with outside entities who provide a system to be integrated in the SoS?

4.11.1 Product Support Arrangements

List all product support stakeholders within the Government or industry for systems, subsystems, or components.

4.11.2 Contract PSI/PSPs

List the current and planned sustainment contracts that comprise the product support package. The information listed in Table 4-6 should be consistent with the AS and IP strategies, and should include:

- Contract Name and applicable 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, if applicable to the program per DoDI 5000.73 and DoDM 5000.04.

The notional information included in Table 4-6 characterizes the primary attributes of sustainment contracts and should reflect the requirements decomposition and work breakdown presented in Figure 2-2. Include whether the contract was competed, incentives, and other contract features to improve performance and reduce cost.

Table 4-6: Performance Based Arrangements in Contracts

Include as-of date

Product Support Related Contracts					
Name	**Organizations**	**Products/ Timeframe**	**Responsibilities/Authority and Functions**	**Metrics & Incentives**	**CSDR Status**
ISR Sustainment Contract **Contract Number:** **CLIN:** WWW **Type:** Firm Fixed Price (FFP)	Naval Supply Systems Command (NAVSUP) Weapon System Support (WSS) Point of Contact Contractor A	**Products**: • ISR Avionics • ISR Ground Stations **Timeframe:** Jan 20XX to Dec 20XX Four years' base with potential for three additional option years Date of signed PSBCA	**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 personnel • Transportation	**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 **Contract Number:** **CLIN:** WWW **Type:** FFP	Naval Air Systems Command (NAVAIR) TBD	**Products** • ZZ **Timeframe:** Expect a five-year contract • RFP to be issued Feb 20XX • Contract award expected Jan 20XX	**Responsibilities:** XXX **Functions:** Sustainment Coverage includes • YYY • YYY	**Metrics:** XXX	CSDR/Earned Value Management (EVM) co-plan in draft with Cost Assessment and Program Evaluation (CAPE) and PARCA

4.11.3 Organic PSIs/PSPs

List the planned or current agreements that are part of the product support package. Information provided should be consistent with the Acquisition Strategy and supported by the Intellectual Property Strategy. Tailor the information as needed. Table 4-7 provides an example of performance agreements information for a fielded system. Performance agreement related costs should be traceable to the Research, Development, Test and Evaluation (RDT&E), procurement, MILCON, Production, and O&M data provided in the program's Life-Cycle Cost Estimate (LCCE) and the system's affordability requirement.

Table 4-7: Performance Agreements (Organic Support Providers)[27]

Include as-of date

Performance Agreements with Organic Product Support Providers				
Organization	**System**	**Activity**	**Documentation**	**Metrics**
Corpus Christi Army Depot	1. T700-GE-701D 2. Main Rotor Blade	1. 3000 hour Depot Overhaul 2. Main Rotor Blade Repair	MOA with Headquarters Army Materiel Command (Estimated Completion Date (ECD): 3d Qtr. 20XX)	1. Repair Cycle Time = 30 days 2. Repair Cycle Time = 14 days
FRC Southeast	Common Missile Warning System	1. Sensor Repair 2. Sensor Spares	MOA with AMC and FRC South East (ECD: 20XX)	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, 20XX	1. Repair Cycle Time = 14 days; System Not Mission Capable Supply (NMCS) >=91% 2. 92% spare stockage at field level

4.12 Product Support Risk, Issue or Opportunity 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, where applicable)[28]. Include the risk rating, driver, impact if realized, mitigation plan, and status. Table 4-8 may be used an example for data presentation.

Sustainment risk management should 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., life-cycle cost risks, cybersecurity risks, software quality/reliability and technical debt, manning risks, schedule risks, security/IA, DMSMS, changing design baseline, requirements creep, immature sustainment technologies, or DT/OT&E results).

[27] 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 performance-based PSAs to identify contract actions required to support the organic providers, their implementation schedule, and Planning, Programming, Budgeting and Execution System (PPBES) documentation.

[28] 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.

Table 4-8: Risk Issue or Opportunity Summary

Include as-of date

Risk, Issue or Opportunity	R/I/O (#)	Rating	Driver	Impact	Mitigation Plan	Resources/Status
Auxiliary Power Unit (APU) Reliability	R (524)	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 review of LUT failure modes, assessment of root causes, and identification of potential corrective actions to eliminate the failure modes. Update the FMECA with any newly identified failure mode(s).	Funded, in process, tracking against revised reliability growth curve. IOT&E scheduled for May 20xx
Funding Shortfall	R (101)	Red	Shortfall in Initial Spares Funding			

4.12.1 Obsolescence Risk Management

No later than MS B or equivalent phase, describe the program's overarching DMSMS management goals (e.g., to proactively manage for DMSMS over an extended planning horizon to minimize DMSMS issues in accordance with DoDI 4245.15 and DoDI 5000.91, which may adversely impact production, supply or readiness) and describe the program's key DMSMS management processes used to achieve these goals.

No later than FRP, describe the supply support activities management processes used to continue management and oversight of DMSMS. Address providing hardware obsolescence identification and remediation in support of non-major weapon systems, software obsolescence remediation, continuity of PM Program Protection efforts to ensure legitimacy/traceability of new electronic components inserted into platforms during obsolescence-driven redesigns executed in Sustainment. (Use Table 4-9 as an example on how to show DMSMS status).

***Note*: Consider software obsolescence in this section as well.**

Table 4-9: Obsolescence Management

Include as-of date

System or Subsystem Name	Number of Bill of Materials (BOMs)	Number of Items Not Monitored	Number of Items Monitored	Number of Items Discontinued/ Announced to be Discontinued	Number of Items Predicted to be Discontinued and Timeline	Monitored Items w/out Resolution and Status
RADAR Suite	50	5000	3500	2	50	Provide a brief description of any major obsolescence issues without a resolution identified or in place

4.12.2 Supply Chain Risk Management

SCRM is the process for managing risk by identifying, assessing, and mitigating threats, vulnerabilities, and disruptions to the DoD supply chain from beginning to end to ensure mission effectiveness. Successful SCRM maintains the integrity of products, services, people, and technologies, and ensures the undisrupted flow of product, materiel, information, and finances across the life-cycle of a weapon or support system. DoD SCRM encompasses all sub-sets of SCRM, such as cybersecurity, software assurance, obsolescence, counterfeit parts, foreign ownership of sub-tier vendors, and other categories of risk that affect the supply chain.[29]

Describe the program's SCRM approach, including integration into the program's overall risk management process; cybersecurity, anti-tamper, and counterfeit prevention; contract deliverables and Government plans, including the Program Protection Plan; use of supply chain illumination tools/capabilities and Industrial Base risk assessments, etc. Describe the program approach to conducting supplier due diligence (i.e., initiating secure supply chain assessments as a viable Comparison of Alternatives to identify supplier networks, corporate inter-relationships, etc.

Consider Supply Chain Resiliency. Describe how the program's supply chain is designed to withstand and quickly recover from disruptions in the supply chain, including factors such as supplier quality issues, environmental, geo-political, economic, technological, materiel (such as foreign ownership), financial, regulatory, and operational. If an operational system, include a brief discussion on how the supply chain strategy accounts for the concept of "contested logistics" (e.g., "logistics under attack").

4.12.3 Manufacturing Risk

Manufacturing risk should be identified and managed through the system's life-cycle. Manufacturing Readiness Level (MRL) criteria are DoD's best practice to conduct these assessments (Refer to www.dodmrl.org). MRL criteria include potential sustainment considerations and risks: industrial base capabilities, supply chain, supplier quality, DMSMS/obsolescence, special handling, and special tooling/test/inspection equipment, and needed workforce skills. Later in the life-cycle, sustainment activities may include (e.g., manufacturing operations, re-manufacturing, system upgrades, production line restart, and depot activation). MRLs provide a proven risk assessment tool.

Critical Thinking Question for Risk Management

- Are risks identified during the ILA captured as part of the Risk Management program?
- Are sustainment risks included in the overall Program risk register?

[29] DoDI 4140.01 - SCRM

5 Other Sustainment Considerations

5.1 Competition in Sustainment

Provide information for planned competition in product support. Include all competition opportunities under consideration and note any small business opportunities. Data needs to be consistent with and inform the other program strategies (e.g., competition described in the AS and IP strategy) and the LCSP (e.g., Figure 2-1 Reference Design Concept, Figure 2-3 Product Support Enterprise). The following table is a notional format to illustrate competition information.

Table 5-1: Competition

Include as-of date

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

Critical Thinking Question for Competition in Sustainment

- Is there opportunity to support small business considerations when developing the product support strategy for the procurement of the system or item?

5.2 Property Management

Provide a list of all systems[30] 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, Foreign Military Sales (FMS)).

Document Financial Improvement and Audit Remediation (FIAR) approach, if applicable. See the updated PSM Guidebook for more information.

Provide a summary of the property management approach, including the governing guidance, agreements, their review cycle, and the use of the DoD IUID Registry Government Furnished Property (GFP) Module, and use of the registry. Table 5-2 is an example format for this type of information.

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

Table 5-2: Property Management

Include as-of date

APSR/System	Governing Guidance (include DoD, Service & Local)	Property Management Agreement* Who/Type	Review Cycle	DoD IUID – Registry – GFP Module (Y/N) *
Navy Enterprise Resource Planning (ERP)	SECNAVINST 5200.42	Contract A	Bi-Annual	Y
AR 735-5, Property Accountability	Contractor Y	Contract B	Annual	
DPAS	DODI 5000.64			
Air Force ILS-S, AFI 23-101	FMS Customer Z	Cooperative Logistics Supply Support Arrangement (CLSSA) C	Bi-Annual	

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

5.3 Cross-Functional Sustainment Considerations

Sustainment planning and implementation 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 IPS elements. If addressed in another source, cite the document (e.g., PESHE), and provide a short summary.

Pursuant to § 4252 (formerly § 2366b) of Title 10 U.S.C., the PSM will ensure that corrosion prevention and control is incorporated into Life-Cycle sustainment planning and will evaluate sustainment costs, including the costs related to corrosion prevention, throughout the program's Life-Cycle.

Additionally, Additive (Advanced) Manufacturing (AM) is a rapidly developing capability that directly affects the DoD sustainment enterprise; 3D printing is one such capability but it is applicable to multiple systems and echelons of support. To support increased use and sharing of digital data across DoD, approved 3D models should be entered into the Joint Additive Manufacturing Model Exchange (JAMMEX). JAMMEX provides an interoperable data-sharing tool and repository provided by DLA to make approved AM data accessible by the OSD, Military departments, defense agencies, and DoD field activities with AM requirements.

Human Systems Integration is another example of cross-functional activities that impact sustainment and highlight risks that are design and/or cost drivers, especially as they impact the system's IPS elements.

Table 5-3: Cross-Functional Sustainment Considerations

Include as of date

Cross-Functional Sustainment Issues	Document	Impact or Risk to Product Support Elements
Corrosion Control	Corrosion Control Plan	
Artificial Intelligence or Machine Learning		
Standardization, Interchangeability used serviceable material, and substitutability	SOW	
Additive (Advanced) Manufacturing		
Data Analytics Maintenance data		
Design for Transportability	PHS&T Plan	
Human Systems Engineering	DoDI 5000.95 HSIP	
HAZMAT requiring special equipment or handling	PHS&T Plan	
Controlled Item Management	IUID Plan	

6 Influencing Design and Sustainment

Use Table 6-1 to identify the statutory, department regulatory, and component-level policy (regulations, instructions, etc.) requirements that affect a system's design and performance. This information is not simply a listing of the myriad requirements needed to ensure compliance with multiple organizational echelons. It identifies those requirements related to a system's product support strategy, planning, and implementation, and ensures contract performance work statement and deliverables are accurate.

Each program should evaluate and tailor these requirements individually for applicability. For example, corrosion control requirements won't be applicable for a Defense Business System (DBS) software program's server system that resides in an environmentally controlled facility. However, the timeframe between configuration updates may be critical to the warfighter and require emphasis. The identified requirements and the associated analyses and documentation should be integrated into appropriate LCSP sections (e.g., product support strategy, supportability analysis, schedule) and be consistent with the assumptions and methodologies in other sections. It should also be correlated with important acquisition documentation (e.g., SEP, TEMP, O&S cost estimation and Cost Analysis Requirements Description (CARD)).

The information provided identifies the requirement (statute, regulation, instruction), how, when, and where the requirement is documented (plan and contract), and its review cycle. It is important that cited requirements are actionable (e.g., acquisition documentation, RFP, SOW, specification). See Table 6-1, below, for an example that presents this data.

Table 6-1: Design and Sustainment Requirements

Include as-of date

Requirement	Documentation	Review
Core Logistics Capability Requirements/DSOR Analysis Title 10 U.S.C. § 2464 Core Logistics Capabilities Department of Defense Instruction (DoDI) 4151.20 DoDI 4151.24 OPNAVINST 4790.14B	• Core Logistics Determination • Core Logistics Analysis (CLA) • DSOR Analysis • LCSP Annex	• § 4251 (formerly Title 10 U.S.C. § 2366a, § 4252 (formerly Title 10 U.S.C. § 2366b), MS A, B, C, Full Rate Production Decision Review (FRPDR) • System's ILA/SR across its life-cycle. • DSOR assignments complete no later than 90 days after CDR
HSI	• DODI 5000.95 • HSIP • Training Systems Plan (TSPs) • RFP/SOW • HEDAD-M/DI-HFAC-80747 CDRL • RSHE • SEP • LCSP • TEMP	• System's ILA/SR across the life-cycle • See DoDI 5000.02[31] for Design reviews prescribed by the AAF pathway of choice for the program may include but is not limited to: ○ SETR events • Post-IOC reviews
Manpower Analysis and Estimate Reporting Title 10 U.S.C. § 2434	• CARD • ICE • POE • O&S cost estimate	• System's ILA/SR across the life-cycle • See DoDI 5000.02[32] for Design reviews prescribed by the AAF pathway of choice for the program • MS A, B, C, FRPDR • OT&E

[31] https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/500002p.pdf
[32] https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/500002p.pdf

Corrosion Title 10 U.S.C. § 2228 Corrosion DoDI 5000.67 AR 750-59 Corrosion Prevention and Control for Army Materiel	• SEP • EMD RFP (Nov 20XX; Corrosion Prevention and Control Plan CLIN A-007 • LCSP, Sec 7 (CARD • MS C SEP (v TBD) • Production RFP (TBD)	• § 4252 (formerly Title 10 U.S.C. § 2366b) , MS A, B, C, FRPDR • System ILA/SR across its life-cycle
DMSMS DoDI 4245.15 FY14 National Defense Authorization Act (NDAA), § 803 AFMCI 20-105 DMSMS Program	• SEP • LCSP, MS B (v2.5) • LCSP, MS C (TBD) • LCSP, FRPDR (TBD) LCSP, Section 3 • Industrial Base Analysis • EMD RFP, DMSMS Plan, CDRL A-09 • Prog Protection Plan (TBD)	• System Engineering Technical Reviews (SETR) • MS B, C, FRPDR • System's ILA/SR across its life-cycle.
Part Management DoDI 5000.88 DoDI 4120.24 DoDM 4120.24	• SEP • RFP SOW for TMRR, EMD, and production phases • Parts Management Plan	• MS A, B, C, and system Engineering Technical Reviews
Reliability and Maintainability Title 10 U.S.C. § 2443 (Renumbered 4328) DoDI 5000.88	• Acquisition Strategy, Section 7.5.10 • SEP • RAM-C Outline Guide • LCSP • TEMP	• MS A, B, and C • Technical Reviews as applicable for each AAF pathway • Mandatory RFP requirements for MDAP and Majors (ACAT I and II)
Transportability DoDI 4540.07 AR 70-47 Engineering for Transportability Program	• SEP • TMRR RFP (Nov 20XX) • MS B SEP (v TBD) • TEMP (TBD)	• MS A, B, C • OT&E
CBM Plus (CBM+) DoDI 4151.22 OPNAVINST 4790.16B Condition Based Maintenance and Condition Based Maintenance Plus Policy	• SEP • TMRR RFP (Oct 20XX) • LCSP	• MS B, C, FRPDR • System's ILA/SR across its life-cycle.
System Safety/ESOH	• SEP • System Safety Program Plan, • Hazardous Materials Management Plan/Report[33], • Functional, Preliminary and O&S Hazard Analysis, • System of Systems Hazard Analysis, • DoDI 5000.88, MIL-STD-882	• Various, as early as possible in the life-cycle and updated as needed

Critical Thinking Questions for Influencing Design and Sustainment:

- How do the analyses/plans in Table 6-1 impact the product support strategy?
- Do the requirements create program cost drivers?

[33] Per National Aerospace Standard 411 and 411-1

7 Program and Design Reviews

This section provides a single location to track and monitor information on the development of a system's product support package as part of a program's standard review processes. These processes span a program's different functional areas to include:

- Program: Independent Technical Risk Assessments (ITRA), Milestone Reviews
- Technical: System Requirements Review (SRR), PDR, CDR, Production Readiness Review (PRR)
- Test: Test Readiness Review (TRR)
- 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 11)

Record and monitor sustainment-related findings and corrective actions among design, programmatic, test and product support reviews or equivalent reviews in a non-MCA AAF pathway. 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. Identify any other 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
- Entry/Exit Criteria
- Sustainment Focus/Findings
- Open Sustainment Actions

Entry and Exit Criteria 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. Tie entries on this table to the product support-related events on the Product Support Schedule in Section 8 of the LCSP.

Table 7-1: Program and Design Review Results

Include as-of date

Review	Sustainment Participants	Entry/Exit Criteria	Sustainment Focus/Findings	Open Sustainment Actions
System Requirements Review/Date	• PSM • Supportability Analysis IPT Lead • Chief Eng		• Fire Control System prognostics capability • Airframe access panel locations for corrosion control	SRR 20XX- BIT Fault isolation (FI) requirements were not identified; Diagnostics 95% FI to single Line Replaceable Unit (LRU)
System Functional Review/Date				SFR 20XX-1 Functional requirements for portable maintenance aids for BIT FI not defined.
Preliminary Design Review/Date				PDR 20XX-1 Late delivery of preliminary FMECA's impacting delivery of Level of Repair Analysis (LORA) and Maintenance Task Analysis.
Critical Design Review/Date		IMP Criteria X.XX		CDR 20XX05 LRU-3 logistics reliability is less than half of planned; three circuit cards contribute to 90% of failures; investigation

				into design or manufacturing issue (3Qtr 2015)
Production Readiness Review/Date				PRR 20XX-01 Bill of Material not established to support obsolescence management.
Sustainment Reviews				
Independent Logistics Assessment				

Considerations for System of Systems programs: Expand entries in this table 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 the product support strategy or product support package?
- Was anything related to product support strategy discovered or learned during the reviews? If so, what action(s) need to be taken?
- Were any product support strategy assumptions confirmed or disproven during the reviews? Were new risks, issues, or opportunities raised or risks retired?

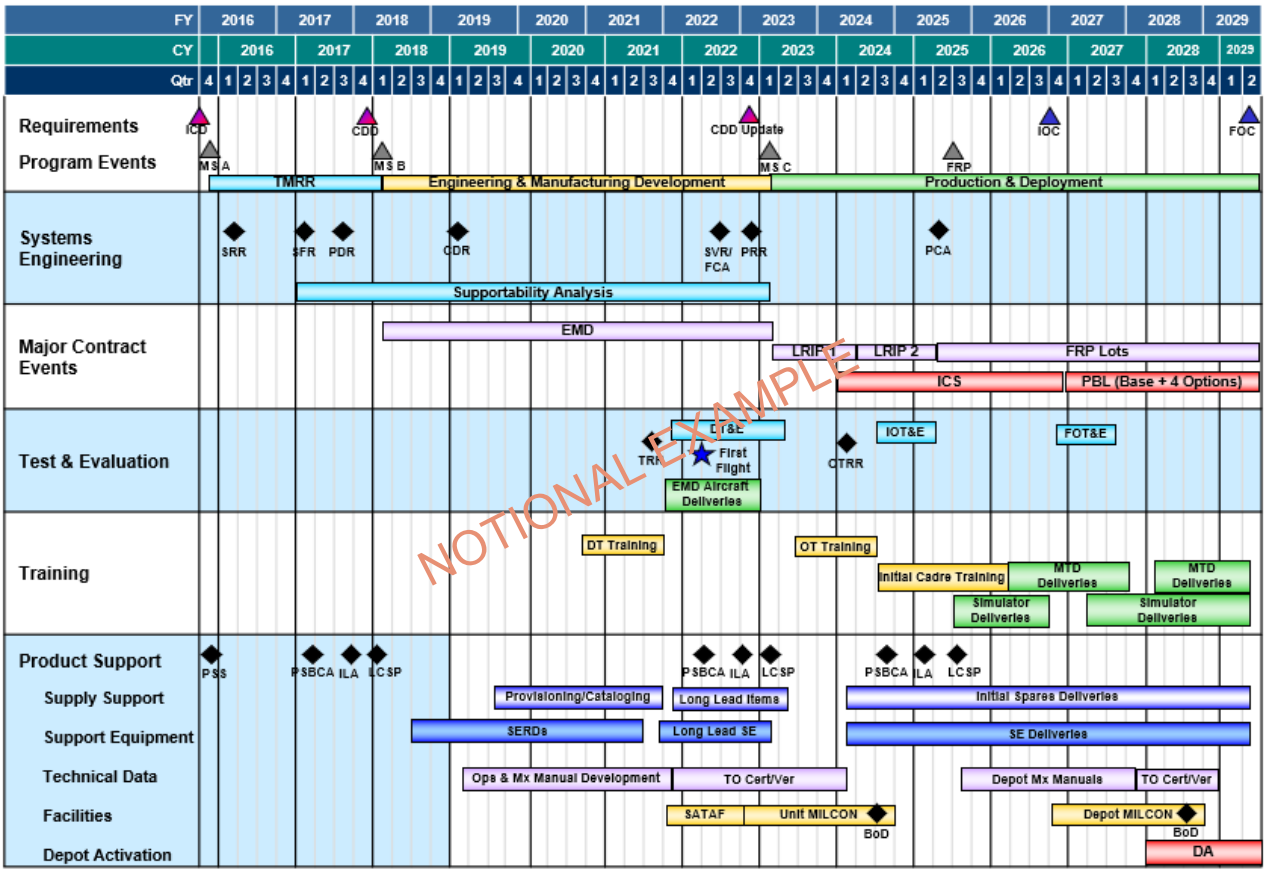
8 Integrated Schedule

Provide the product support key events and activity schedule consistent with the program's Integrated Master Schedule (IMS) to ensure senior leader view and awareness. The generation of the IMS should be jointly developed and maintained by Prime contractor (as applicable) and PSM team. Events and activities in the schedule should be in alignment with the methodology contained within the LCCE. Schedule items include:

- Significant program activities (i.e., activities to design, develop, produce, test, field, and sustain the system), such as program and technical reviews (including SRR, SFR, PDR, CDR, TRR, FCA/SVR and PCA) or equivalent activities; may also include ILAs, RFP release dates for sustainment related contracts, significant life-cycle related technical verification events, software development milestones and agile process releases (post-FRP), sustainment contracts, CLA/DSOR process, IOC, fielding plan, and LCSP, and critical appendices (e.g., the PSBCA)
- Major product support events for product support elements with specific emphasis on intellectual property, appropriate data rights, data development, reliability, corrosion, materiel support, and contract deliverables
- Major site activation activities for the weapon system and related supply support, maintenance, and training systems; include events for contractor support (interim, long term, hybrid partnerships)
- Interdependencies and interactions with other weapon systems or subsystems of the platform
- Bed-down plan defining system quantity by year until retirement/disposal (Note: Required for non-covered systems; recommended for all systems)

Figure 8-1: Notional 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 and operations reflected on the product support schedule?
- Are product support strategy events synchronized to support acquisition, systems engineering, and test events to highlight life-cycle sustainment issues and influence senior leader decision points?
- Are the prime contractor deliverables sufficiently incentivized to influence product support elements on equal terms with scheduled design, test, and delivery milestones?
- Are Government-only product support activities documented in the programs IMS (particularly if not covered in the Contractor's monthly IMS)?
- Does the time phasing of events in the IMS correlate to the program budget?

9 Program Funding and Life-Cycle Cost Estimate

Work in collaboration with the program's cost estimators and business financial manager to develop this section of the LCSP.

9.1 Program Funding

This section links the total program resources required (per the cost estimate) to the actual/expected budget levels and to highlight and address any shortfalls. This section covers all program appropriations including RDT&E, Procurement, O&M, and Military Construction (MILCON).

Table 9-1 below provides some general guidance for each appropriation, the period for obligating funds (applied to and executed on contract or other product support arrangement), the period of expenditure and some examples of product support requirements typically funded with that respective appropriation. This is a general guide and each Component may have some additional appropriations that are also applicable and need to be included if they are resourced for executing the Product Support Strategy.

Table 9-1: Military Appropriations[34]

Research Development Test and Evaluation (RDT&E) (2 years obligational authority, 5 years expenditure)
O&S RDT&E: RDT&E appropriated funding required during the O&S phase of the life-cycle.
- Initial Product Support Package Design and Development in synchronization with the overall program Development.
- Could include most of the integrated Product Support Elements such as Design Interface, Maintenance Planning, Training for Test at each milestone as applicable, Developmental publications, Simulators and Training system design, Test and Evaluation, Support Equipment Design and Test Support, Test support spares and repair etc.
- Future improvements as part of upgrades to the system
Procurement (3 years obligational authority, 7 years expenditure except for Ships which are 5 years obligational authority 10 years expenditure)
O&S Procurement: Procurement appropriated funding required during the O&S phase of the life-cycle.
- Initial non-recurring and recurring production of the product support package such as Initial Spare and Repair parts, Technical Publications, Support Equipment (Field and Depot), Maintenance Training, Trainers, Simulators
- Interim Contractor Support
- Modernization and Upgrades to the system
Operations and Maintenance (One year obligational authority, 3 years expenditure)
Program Management Office (PMO)-funded O&M: O&M appropriated funding required by the program office during the O&S phase of the life-cycle.
- Funding for program office personnel and extended team to provide analysis services such as DMSMS planning
Non-PMO-funded O&M: O&M appropriated funding controlled by the Fleet (non-program office funded) during the O&S phase of the life-cycle.
- Post Production Software and Support
- Repair and Maintenance (Labor and Materials)
- Minor improvements as part of repairs
- Parts and Supplies
Military Construction (MILCON) (5 years obligational authority; 10 years expenditure)
- Facilities and Infrastructure (Maintenance Facilities Forward Sites and Depots, Hangars, Docks)
- Base Realignment and Closure
Military Personnel (MILPERS)
- Funding appropriated for the military personnel associated with the system

Identify and provide the most recently approved program Spruill Chart[35] that shows the program cost and funding requirements and the documentation of those requirements (e.g., a Milestone Decision Authority (MDA) endorsed cost estimate), and the current budget documentation (e.g., program objective memorandum, President's Budget).

Identify the life-cycle product support requirements for all appropriations (RDT&E, Procurement, O&M, MILCON, Military Personnel (MILPERS), and any other appropriations unique to that Component and Program). Choose one of the tables below based on the MS or major review (Tables 9-2, 9-3, or 9-4) to identify the program's sustainment funding requirements. Ensure funding is traceable to the "Investment (RDT&E, and Procurement) Program Funding and Quantities" Chart in Section 8 of the program's AS, and is an MDA endorsed cost estimate,

[34] DoD Financial Management Regulation (FMR)
[35] CAPE Cost Estimating Guidebook

per DoDI 5000.91. The fidelity of the estimates and sources will mature as the system progresses through acquisition and should be included in each LCSP iteration.

Table 9-2: Total O&S and Disposal Funding by Appropriation (MS A Example)

Include as-of date

Total Operating & Support Funding by Appropriation			Total Required O&S[1] (BYXX$M):				Established Affordability Goal/Cap:			$X.XM/Unit/Yr (BYXX$)	
			Total Required Disposal (BYXX$M):				Current Estimate vs. Goal/Cap:			$X.XM/Unit/Yr (BYXX$)	
($ in Millions / Then Year)	Prior	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY25-29	To Comp	Prog Total
O&S RDT&E											
Required[1] $		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**
O&S PROCUREMENT											
Required[1] $		0.6	0.8	1.1	2.9	4.2	6.1	9.9	24.1	590.5	**616.0**
Non-PMO-funded O&M											
Required[1] $		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**
PMO-funded O&M											
Required[1] $		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**
MILPERS											
Required[1] $		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**
TOTAL O&S											
Required[1] $	-	6.1	8.3	11.4	29.2	41.6	60.5	98.6	241.2	5,904.8	6,160.4
DISPOSAL (specify appn)											
Required[1] $										50.0	50.0
CUMULATIVE QUANTITIES[2]											
Sustainment Qty (PB16)					2	5	9	15	31	49	**80**
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.											

Table 9-3: Total O&S and Disposal Funding by Appropriation (MS B Example)

Include as-of date

Total Operating & Support Funding by Appropriation			Total Required O&S[1] (BYXX$M):				Established Affordability Goal/Cap:			$X.XM/Unit/Yr (BYXX$)	
			Total Required Disposal (BYXX$M):				Current Estimate vs. Goal/Cap:			$X.XM/Unit/Yr (BYXX$)	
($ in Millions / Then Year)	Prior	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY25-29	To Comp	Prog Total
O&S RDT&E											
Required[1] $		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**
O&S PROCUREMENT											
Required[1] $		0.6	0.8	1.1	2.9	4.2	6.1	9.9	24.1	590.5	**616.0**
Non-PMO-funded O&M											
Required[1] $		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**
PMO-funded O&M											
Prior $ (PB15)		0.3	0.4	0.5	1.3	1.9	2.8	4.6	11.1		11.8
Current $ (PB16)		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1		12.8
Delta $ (Current - Prior)		-	-	0.1	0.1	0.2	0.3	0.4	1.0		1.0
Required[1] $		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**
Delta $ (Current-Required)	-	-	-	-	-	-	-	-	-	(295.2)	(295.2)
MILPERS											
Required[1] $		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**
TOTAL O&S											
Required[1] $	-	6.1	8.3	11.4	29.2	41.6	60.5	98.6	241.2	5,904.8	6,160.4
DISPOSAL (specify appn)											
Required[1] $										50.0	50.0
CUMULATIVE QUANTITIES[2]											
Sustainment Qty (PB16)					2	5	9	15	31	49	**80**
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.											

Table 9-4: Total O&S and Disposal Funding by Appropriation (MS C Example)

Include as-of date

Total Operating & Support Funding by Appropriation			Total Required O&S[1] (BYXX$M):				Established Affordability Goal/Cap:			$X.XM/Unit/Yr (BYXX$)	
			Total Required Disposal (BYXX$M):				Current Estimate vs. Goal/Cap:			$X.XM/Unit/Yr (BYXX$)	
($ in Millions / Then Year)	Prior	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY25-29	To Comp	Prog Total
O&S RDT&E											
Prior $ (PB15)		-	-	-	-	-	-	-	-		-
Current $ (PB16)		-	-	-	-	-	-	-	-		-
Delta $ (Current - Prior)		-	-	-	-	-	-	-	-		-
Required[1] $		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**
Delta $ (Current - Required)	-	(0.3)	(0.4)	(0.6)	(1.5)	(2.1)	(3.0)	(4.9)	(12.1)	(295.2)	(308.0)
O&S PROCUREMENT											
Prior $ (PB15)		-	0.2	0.3	1.1	1.5	2.8	4.6	10.2		10.5
Current $ (PB16)		-	0.2	0.3	1.2	1.7	3.0	4.9	11.1		11.4
Delta $ (Current - Prior)		-	-	0.0	0.1	0.2	0.3	0.4	0.9		0.9
Required[1] $		0.6	0.8	1.1	2.8	4.2	6.1	9.9	24.1	590.5	**616.0**
Delta $ (Current-Required)	-	(0.6)	(0.6)	(0.8)	(1.7)	(2.5)	(3.0)	(4.9)	(13.0)	(590.5)	(604.7)
Non-PMO-funded O&M											
Prior $ (PB15)		3.4	4.3	5.4	13.5	19.3	27.5	45.7	111.4		119.1
Current $ (PB16)		3.4	4.3	5.9	14.9	21.2	30.3	49.3	121.6		129.2
Delta $ (Current - Prior)		-	-	0.5	1.4	1.9	2.8	3.6	10.2		10.2
Required[1] $		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**
Delta $ (Current-Required)	-	0.9	1.0	1.4	3.2	4.6	6.1	9.9	25.1	(2,361.9)	(2,334.9)
PMO-funded O&M											
Prior $ (PB15)		0.3	0.4	0.5	1.3	1.9	2.8	4.6	11.1		11.8
Current $ (PB16)		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1		12.8
Delta $ (Current - Prior)		-	-	0.1	0.1	0.2	0.3	0.4	1.0		1.0
Required[1] $		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1	295.2	**308.0**
Delta $ (Current-Required)	-	-	-	-	-	-	-	-	-	(295.2)	(295.2)
MILPERS											
Prior $ (PB15)		0.3	0.4	0.5	1.3	1.9	2.8	4.6	11.1		11.8
Current $ (PB16)		0.3	0.4	0.6	1.5	2.1	3.0	4.9	12.1		12.8
Delta $ (Current - Prior)		-	-	0.1	0.1	0.2	0.3	0.4	1.0		1.0
Required[1] $		2.4	3.3	4.6	11.7	16.6	24.2	39.4	96.5	2,361.9	**2,464.2**
Delta $ (Current-Required)	-	(2.1)	(2.9)	(4.0)	(10.2)	(14.6)	(21.2)	(34.5)	(84.4)	(2,361.9)	(2,451.4)
MILCON											
Prior $ (PB15)		-	-	-	-	-	1.4	5.4	152.9		6.8
Current $ (PB16)		-	-	-	-	-	0.9	5.0	139.8		5.9
Delta $ (Current - Prior)		-	-	-	-	-	(0.5)	(0.4)	(13.1)		(0.9)
Required[1] $		-	-	-	-	-	1.9	5.8	166.0	768.0	775.7
Delta $ (Current-Required)		-	-	-	-	-	(1.0)	(0.8)	(26.2)	(768.0)	(769.8)
TOTAL O&S											
Prior $ (PB15)	-	4.0	5.4	6.8	17.2	24.6	35.8	59.4	143.7		153.1
Current $ (PB16)	-	4.0	5.4	7.4	18.9	27.0	39.3	64.1	156.8		166.2
Delta $ (Current - Prior)	-	-	-	0.7	1.7	2.5	3.6	4.7	13.1		13.1
Required[1] $	-	6.1	8.3	11.4	29.2	41.6	60.5	98.6	241.2	5,904.8	6,160.4
Delta $ (Current - Required)	-	(2.1)	(2.9)	(4.0)	(10.2)	(14.6)	(21.2)	(34.5)	(84.4)	(5,904.8)	(5,994.3)
DISPOSAL (specify appn)											
Required[1] $										50.0	50.0
CUMULATIVE QUANTITIES[2]											
Sustainment Qty (PB16)					2	5	9	15	31	49	**80**
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.											

Use Table 9-5 as an example for updates after MS C, during budget and funding cycles, as the system is tested (i.e., IOT&E), fielded, operated, or updated to reflect data-driven changes or modifications (i.e., design changes, engineering change proposals) to the product support strategy.

Table 9-5: Total O&S and Disposal Funding by Appropriation (Sustainment)[36]

Include as-of date

Sustainment Cost & Funding	Cost Per Operating Hour (FY22) Goal: Cost Per Operating Hour (FY22) Actual:				Cost Per System/Per Year (FY22) Goal: Cost Per System/Per Year (FY22) Actual:		
($ in Millions / Then Year)	**FY23**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**FY24-28**
Unit Operations (O&M)							
Prior $ (PB23)	44.2	45.1	37.9	12.4	5.3	3.2	103.9
Current $ (POM 24)	43.1	45.6	38.3	12.5	5.4	3.2	105.0
Delta $ (Current - Prior)	(1.1)	0.5	0.4	0.1	0.1	-	1.1
Required[1] $	44.2	45.6	46.0	15.0	6.5	4.0	117.1
Delta $ (Current - Required)	(1.1)	-	(7.7)	(2.5)	(1.1)	(0.8)	(12.1)
Maintenance (O&M)							
Prior $ (PB23)	150.4	200.2	304.8	618.6	627.6	360.1	2,111.3
Current $ (POM 24)	148.2	203.1	309.2	522.9	530.5	538.1	2,103.8
Delta $ (Current - Prior)	(2.2)	2.9	4.4	(95.7)	(97.1)	178.0	(7.6)
Required[1] $	150.4	203.1	312.3	528.1	535.8	543.5	2,122.8
Delta $ (Current - Required)	(2.2)	-	(3.1)	(5.2)	(5.3)	(5.4)	(19.0)
Program Engineering (O&M)							
Prior $ (PB23)	1.3	1.6	-	2.1	2.3	3.0	9.0
Current $ (POM 24)	1.4	1.7	-	2.0	2.1	3.0	8.8
Delta $ (Current - Prior)	0.1	0.1	-	(0.1)	(0.2)	-	(0.2)
Required[1] $	1.4	1.7	-	2.0	2.1	3.0	8.8
Delta $ (Current - Required)	-	-	-	-	-	-	-
Airframe/Propulsion (O&M)							
Prior $ (PB23)	8.3	10.4	26.5	37.8	55.0	91.4	221.1
Current $ (POM 24)	8.3	11.4	29.2	41.6	60.5	98.6	241.2
Delta $ (Current - Prior)	-	1.0	2.7	3.8	5.5	7.2	20.1
Required[1] $	8.3	11.4	29.2	41.6	60.5	98.6	241.2
Delta $ (Current - Required)	-	-	-	-	-	-	-
TOTAL O&M							
Prior $ (PB23)	204.2	257.3	369.2	670.9	690.2	457.7	2,445.3
Current $ (POM 24)	201.0	261.8	376.6	579.0	598.5	642.9	2,458.8
Delta $ (Current - Prior)	(3.2)	4.5	7.4	(91.9)	(91.7)	185.2	13.5
Required[1] $	204.3	261.8	387.4	586.7	604.9	649.1	2,489.9
Delta $ (Current - Required)	(3.3)	-	(10.8)	(7.7)	(6.4)	(6.2)	(31.1)
Initial Spares (Procurement)							
Prior $ (PB23)	1.3	1.6	-	2.1	2.3	3.0	9.0
Current $ (POM 24)	1.4	1.7	-	2.0	2.1	3.0	8.8
Delta $ (Current - Prior)	0.1	0.1	-	(0.1)	(0.2)	-	(0.2)
Required[1] $	1.4	1.7	-	2.0	2.1	3.0	8.8
Delta $ (Current - Required)	-	-	-	-	-	-	-
Unit Level Manpower (MILPERS)							
Prior $ (PB23)	1.3	1.6	-	2.1	2.3	3.0	9.0
Current $ (POM 24)	1.4	1.7	-	2.0	2.1	3.0	8.8
Delta $ (Current - Prior)	0.1	0.1	-	(0.1)	(0.2)	-	(0.2)
Required[1] $	1.4	1.7	-	2.0	2.1	3.0	8.8
Delta $ (Current - Required)	-	-	-	-	-	-	-

Note 1. Requirement Source: *[e.g., OSD CAPE ICE, July 2017]*
Note 2. O&M requirement assumes *[e.g., a service life to 2035; i, petro/oil/lube, spare/repair parts, depot mx, sustaining engineering & software mx.]*
This line *does not* include $8.3M (FY20-24) of Acquisition-related O&M for program office expenses, nor does it include O&M-funded disposal costs.

[36] See Appendix L of MIL-STD 881F

Critical Thinking Questions for O&S and Disposal Budgets:

- Does the rolled-up cost include the associated costs for each contract broken out into appropriate logical segments (e.g., locations or types of site, functions, etc.). The costs should be rolled-up and be traceable to the RDT&E, Procurement, MILCON, Production, and O&M, data provided in the program's Life-Cycle Cost Estimate (LCCE).
- Are there opportunities to identify cost reduction initiatives in support of the system's affordability requirement.

In Table 9-6, provide amplifying information on the current shortfalls to sustainment activities that may impact successful execution of the PSS. Include an impact statement of any shortfalls and describe steps taken to mitigate any risk. Impacts to shortfalls along with program risk mitigation should be included in Table 4-8, Risk, Issue or Opportunity Summary, if it reaches that level.

Table 9-6: Sustainment Funding Shortfalls

Include as-of date

APPN	Sustainment Product	Funding Shortfall	Action to Mitigate Shortfalls
RDT&E	MS B Sustainment PSBCA	$1.5M	Supportability Analysis MIPR to AMCOM (FYXX, $0.9M three man-year effort); A&AS program office logistics A&AS (FYs XX-XX; three personnel)
Procurement	Initial Spares Buy (FYs2X/2X	$16.3M, $4.4M Unfunded	
Procurement	Depot Stand-Up	FYXX: $18.4M	
MILCON	Training Facilities	FYXX: $13.3M; FYXX: $4.3M; FYXX: $20.6M	

Provide comprehensive sustainment requirements planning activities that are traceable to current cost estimates and funding documentation.

***Note*: Follow the guidance in OSD CAPE's "Inflation and Escalation Best Practices for Cost Analysis: Analyst Handbook" regarding use of Then-Year Dollars (TY$), Constant-Year Dollars (CY$), and Constant Prices (CP$).**

Critical Thinking Questions for Highlighting Budget Shortfalls:

- What risk management 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/APA) and operational impact to the warfighter?
- Are the initial spares requests (during production) and depot activation lines funded to meet readiness requirements? Document risks, issues, and mitigation elsewhere in LCSP if there are significant funding gaps for these areas.

9.2 Development and Evolution of the System O&S Cost Estimate

9.2.1 O&S Cost Estimate

This section tracks the evolution of the O&S framing assumptions, cost estimates and cost actuals as the program progresses through the life-cycle.

Through brief narrative 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.[37] Report cost in accordance with the current Cost Assessment and Program Evaluation (CAPE) O&S Cost Element Structure (September 2020). Include all O&S cost, regardless of funding source or management control (e.g., funds from other Services). The O&S cost is not limited to certain budget accounts, or to categories controlled by certain lines of authority. The O&S cost likely includes costs outside of the program office's control.

Ensure historical O&S cost data is sourced from authoritative Component data, including the Naval Visibility and Management of Operating and Support Costs (VAMOSC) database, the Air Force Total Ownership Cost (AFTOC) database, OSD CAPE Enterprise VAMOSC database (EVAMOSC), and the Army's Operating and Support Management Information System (OSMIS). Ensure maintenance data reporting from the authoritative Component data source(s) includes sustainment metrics (A_o, A_m, MC) that support automated sustainment metrics reporting, via the Advana platform, as directed by the Secretary of Defense.

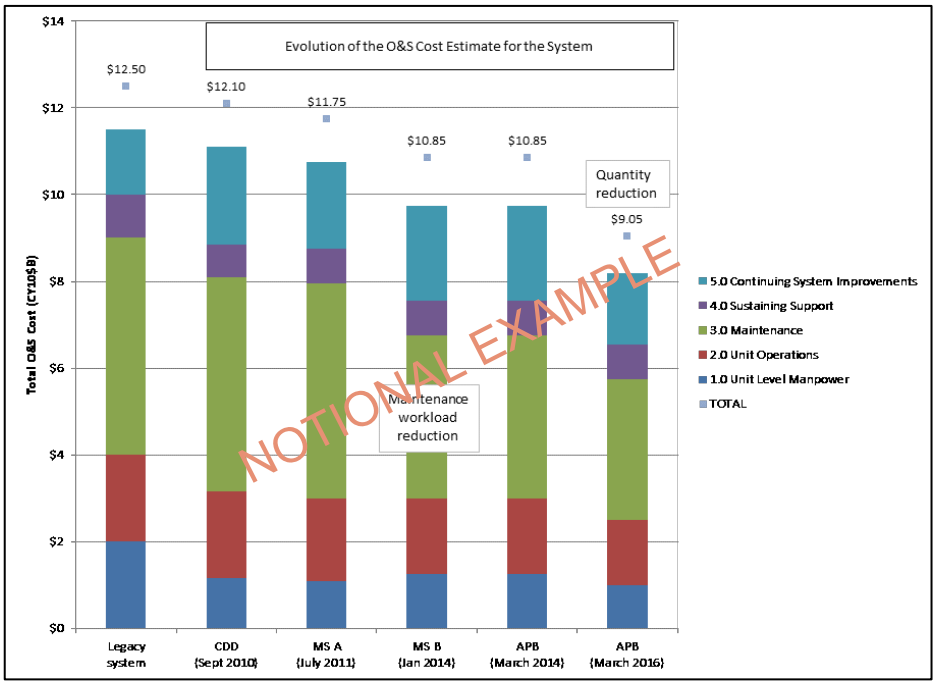
Current system data sources include the CAPE Independent Cost Estimate (ICE), Service ICE, Service Cost Position (SCP), and Program Office Estimate (POE). The O&S cost data for the system represents its O&S Will Cost. As the system matures and evolves through its development, fielding, and operation, update data to provide a comparison of how the O&S estimate has evolved over time, the date of the estimate, and planned updates. Identify the system and assumptions used to forecast the O&S estimate.

Figure 9-1 is a notional example for O&S data using a graph. This information also could take the form of a description, table, or other format most appropriate for the program and decision authority.

[37] Follow the guidance in OSD CAPE's "Inflation and Escalation Best Practices for Cost Analysis: Analyst Handbook" regarding use of Then-Year Dollars (TY$), Constant-Year Dollars (CY$), and Constant Prices (CP$)."

Figure 9-1: Evolution of the O&S Cost Estimate for the System

Include as-of date



After MS 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 – OPTEMPO was planned for 500 flying hours per aircraft per year, actual usage has been 350), subsystems or components reliability, DMSMS, etc., and actions planned or implemented to address O&S cost growth.

9.2.2 Disposal Cost Estimate

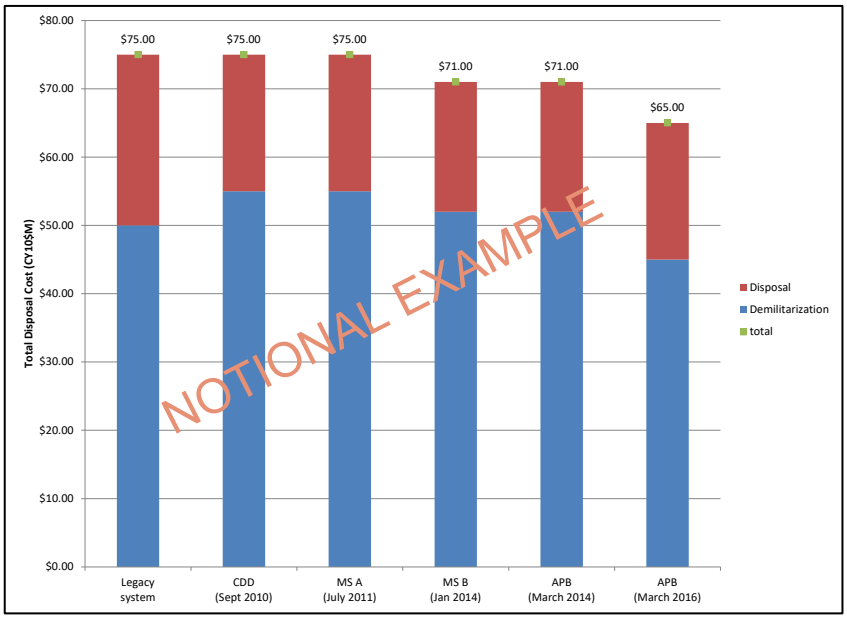
The purpose of this section is to baseline the disposal costs of the legacy system and compare the evolution of the disposal cost estimate of the new system against that baseline.[38]

Provide data on the system's current disposal cost estimate (Figure 9-2), 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. Include all disposal and demilitarization costs, 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. Figure 9-2 is an example using a graph, but it can be a description, table, or other format.

[38] 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 9-2: Evolution of the Disposal Cost Estimate

Include as-of date



9.2.3 O&S and Disposal Cost Drivers

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 cost reduction initiatives the program plans to use in controlling such costs. Include cost reduction initiatives specific to disposal cost, if disposal cost is expected to be a sizeable portion of the life-cycle cost.

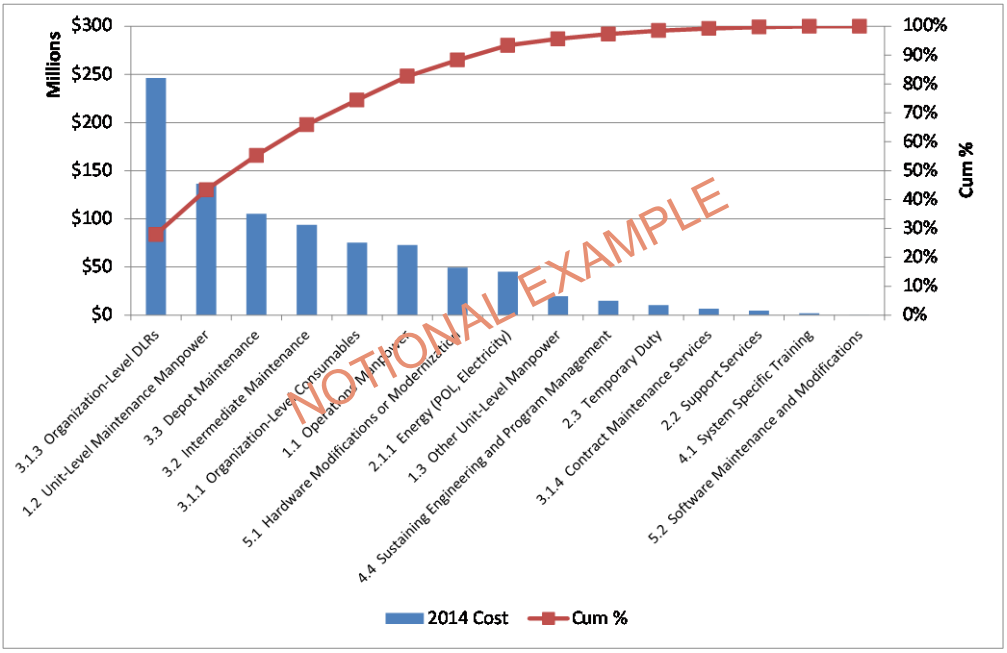
Identify expected or known (post-MS C or equivalent) O&S cost driving categories using the CAPE O&S cost elements. Figure 9-3 shows one way to portray this information. Once the most expensive CAPE O&S cost elements are determined, perform further analysis to decompose those cost elements into the specific 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 MS A or equivalent, cost driver analysis may take the form of comparison to legacy system costs. From MS B to MS C or equivalent, cost driver analysis should be based on the system design and developmental testing. After MS C, cost driver analysis should be based on system actual costs, including initial operational testing and evaluation, as illustrated by Figure 9-3. For more information on identifying cost drivers, see the February 2016 OSD Operating and Support Cost Management Guidebook.

***Note**: The definition of a legacy(predecessor) or antecedent is equivalent to the replaced system. See the OSD Operating and Support Management Guidebook Appendix B.*

Figure 9-3: O&S Cost Drivers by CAPE Category

Include as-of date



9.3 O&S and Disposal Cost Reduction Initiatives (Should Cost)[39]

Within this document, should cost and cost reduction initiatives are used synonymously. Identify O&S cost reduction initiatives and track the status of those initiatives. Using the identified cost drivers, list the program's O&S and cost reduction initiatives as shown in Table 9-7. Identify the initiative, rationale for selection, investment dollars required, appropriation type to resource the investment (e.g., RDT&E) and/or procurement) and O&M, expected O&S savings/avoidance, expected timeframe for the savings/avoidance, and status of the initiative.

At MS A (or equivalent), cost reduction initiatives may likely be based on legacy system cost drivers or problem areas. At MS B (or equivalent), cost reduction initiatives should begin to factor in attributes of the system design. By MS C (or equivalent), cost reduction 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 Cost initiatives, please reference the February 2016 OSD Operating and Support Cost Management Guidebook.

Table 9-7: O&S and Disposal Cost Reduction Initiatives

Include as-of date

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
Reduce maintenance manpower for the system				

Notional Example

[39] See DoDI 5000.85

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

9.4 O&S Cost Affordability Constraints

The purpose of this section is to identify the established O&S cost 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 9-8). For LCSP updates after MS C (or equivalent), provide the status of expenditures against the approved O&S Cost 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.

Table 9-8: O&S Cost Affordability Constraints

Include as-of date

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					

If additional metrics are necessary to 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 9-9). A positive delta (calculated by constraint minus current O&S cost estimate) indicates affordability, while a negative delta indicates the system is not affordable in the O&S phase.

Table 9-9: O&S Cost Affordability Constraints (Comparison)

Include as-of date

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

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 Cost Affordability Constraints:

- If the program is estimated to be unaffordable in O&S, what can be done within the program to reduce cost?
- What costs are within the Program Office's control and which are controlled by other stakeholders or outside factors?
- Have relevant function area SMEs been involved in all prior coordination activities to understand additional trade-off opportunities for cost mitigation?

10 Management

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

10.1 Program Organizational Structure

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
- Core, matrix, and contractor support personnel: Contracting support – Procuring Contracting Officer (PCO), Contracting Officer's Representative (COR), Administrative Contracting Officer (ACO)

If the PSM is not currently certified as Advanced Tier (or Level III under the pre-2022 construct) of the Defense Acquisition Workforce Improvement Act, summarize the specific actions and timeframe required to obtain certification. Additionally, outline roles, responsibilities, and reporting relationship(s) relative to all product support, sustainment, or materiel commands for product support package implementation.

Provide information on how the product support related staff evolves 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), Naval Sea Systems Command (NAVSEA) Codes and/or SSP and the plan for transferring responsibilities with the sustainment organization within NAVSEA21.

10.2 Product Support Team

Provide data for all IPTs and working groups for sustainment or integration of sustainment. The following table is a notional presentation of this data.

Product Support IPTs should include appropriate Service and DoD Agency (e.g., DLA, Defense Information System Agency (DISA)) 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.

Table 10-1: Integrated Product Teams (IPTs)

Include as-of date

Name	POC	Stakeholders (by Function or Organization)	Role, Responsibility, and Authority	Products & Metrics
PS IPT	PSM	- Program Office • PSM • 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)/IMS Inputs • Specifications • Acquisition Strategy input • Corrosion Prevention Plan Metrics: • Cost ○ Program IPS Element costs ○ Operating Target (OPTAR) • Schedule • Sustainment ○ A_M ○ Log Foot Print
HSI IPT	HSI	- Program Office • PSM or Logistics Manager • Deputy Program Manager (DPM) • Sys Eng. Lead • Financial Lead • SW Lead • Site Rep. • Reliability and Maintainability (R&M) Lead • HSI Lead/SME **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 • IMP/IMS Inputs • HSI Plan updates • SEP updates • Acquisition Strategy input • Models (MBSE/MBPS) Metrics: • HSI domains by IPS Element • Cost ○ Program IPS Element costs ○ Operating Target (OPTAR) • Schedule • Sustainment ○ A_O ○ 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

Critical Thinking Questions for Management:

- Is the PSM positioned at the right level of the overall program management structure, and empowered/resourced to influence and execute decisions? Are there sufficient personnel with required experience to successfully develop the PSS?
- When and how should the PSM's team be involved in design decisions for sustainment considerations?

11 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(S) approval. Follow Service-specific guidance for any programs below ACAT ID. 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 5000.91)
- Independent Logistics Assessment and Corrective Action Plan (DoDI 5000.91)
- System Disposal Plan (DoDI 4160.28; DoDM 4160.21; DoDM 4160.28)
- Preservation and Storage of Unique Tooling (Public Law 110-417, Title 7, Subtitle B, § 815; DFARS 207.106 [S-73])
- Core Logistics Analysis (DoDI 5000.91; DoDI 4151.20) and DSOR Assignments (DoDI 4151.24)
- Replaced System Sustainment Plan (RSSP) (Title 10 U.S.C. § 4321, formerly § 2437)
- Technical Data and Intellectual Property Plan (DoDI 5010.44) – to be added no later than FRP/FD decision (or equivalent)
- Corrosion Prevention and Control Plan (Title 10 U.S.C. § 2228; DoDI 5000.67)
- Diminishing Manufacturing Sources and Material Shortages (DMSMS) Plan (DoDI 4245.15)
- Programmatic Environment Safety and Occupational Health Evaluation (PESHE) and National Environmental Policy Act (NEPA)/Executive Order (E.O.) 12114 Compliance Schedule (Title 42 U.S.C. § 4321 (National Environmental Policy) and (Executive Order 12114)
- Human Systems Integration Plan (HSIP) (DoDI 5000.95)

ASD(S) 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.

11.1 Component Required Annexes

Components may require, review, and approve additional requirements or procedures to be maintained as annexes to a system LCSP. However, those annexes that exceed procedures specified in DoDI 5000.91 will not be included for review and signature of ACAT ID LCSPs.

12 Acronyms

ACRONYM	MEANING
AAF	Adaptive Acquisition Framework
ACAT	Acquisition Category
ACO	Administrative Contracting Officer
ADM	Acquisition Decision Memorandum
AFTOC	Air Force Total Ownership Cost
A_m	Material Availability
AM	Additive (Advanced) Manufacturing
AMC	Army Materiel Command
A_o	Operational Availability
AoA	Analysis of Alternatives
APA	Additional Performance Attributes
APB	Acquisition Program Baseline
APU	Auxiliary Power Unit
AS	Acquisition Strategy
ASD(S)	Assistant Secretary of Defense for Sustainment
BIT	Built-in Test
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
CDD	Capability Development Document
CDR	Critical Design Review
CDRL	Contract Data Requirements List
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
CPC	Corrosion Prevention and Control
COR	Contracting Officer's Representative
COTS	Commercial Off The Shelf
CSDR	Cost and Software Data Reporting
CY$	Constant Year Dollars
DAB	Defense Acquisition Board
DAVE	Defense Acquisition Visibility Environment
DASD(MR)	Deputy Assistant Secretary of Defense for Materiel Readiness
DID	Data Item Description
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
EMD	Engineering and Manufacturing Development
ERP	Enterprise Resource Planning
ESOH	Environment, Safety, and Occupational Health
EVAMOSC	Enterprise Visibility and Management of Operating and Support Costs
EVM	Earned Value Management
FIAR	Financial Improvement and Audit Remediation
FFP	Firm Fixed Price
FMECA	Failure Modes, Effects, and Criticality Analysis
FMS	Foreign Military Sales
FOC	Full Operational Capability
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
GFE	Government Furnished Equipment
GFP	Government Furnished Property
GOTS	Government off the Shelf
ICD	Initial Capabilities Document
ICE	Independent Cost Estimate
ICS	Interim Contractor Support
ILA	Independent Logistics Assessment
IMP	Integrated Master Plan
IMS	Integrated Master Schedule
IOC	Initial Operational Capability
IOT&E	Initial Operational Test and Evaluation
IP	Intellectual Property
IPT	Integrated Product Team
IPS	Integrated Product Support
ITRA	Independent Technical Risk Assessments
IUID	Item Unique Identification
ISR	Intelligence, Surveillance, and Reconnaissance
JAMMEX	Joint Additive Manufacturing Model Exchange
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
MCA	Major Capability Acquisition
MDAP	Major Defense Acquisition Program
MDT	Maintenance Down Time
MILCON	Military Construction
MOA	Memorandum of Agreement
MP	Mission Profile
MRL	Manufacturing Readiness Level
MS	Milestone
MTA	Middle Tier of Acquisition
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
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NAVSUP WSS	Naval Supply Systems Command Weapon System Support
NDAA	National Defense Authorization Act
NMCS	Not Mission Capable Supply
NSN	National Stock Number
O&M	Operations and Maintenance
O&S	Operating and Support (Life-Cycle Cost Category)
O&S	Operations and Support (Life-Cycle Phase)
O&S	Operations and Sustainment (Adaptive Acquisition Framework phase/activity)
OIPT	Overarching Integrated Product Team
OMS	Operational Mode Summary
OPTAR	Operating Target
OPTEMPO	Operational Tempo
OSA	Other System Attributes
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
PBL	Performance Based Logistics
PCO	Procuring Contracting Officer
PDR	Preliminary Design Review
PEO	Program Executive Office
PESHE	Programmatic Environment, Safety. and Occupational Health Evaluation
PHM	Prognostics and Health Management
PICA	Primary Inventory Control Activity
PHS&T	Packaging, Handling, Storage, and Transportation
PM	Program Manager
POE	Program Office Estimate
PPBES	Planning, Programming, Budgeting and Execution System
PPP	Public-Private Partnership
PPP	Program Protection Plan
PRR	Production Readiness Review
PS	Product Support
PSBCA	Product Support Business Case Analysis
PSI	Product Support Integrator
PSM	Product Support Manager
PSP	Product Support Provider or Product Support Package
R&M	Reliability and Maintainability
RAM-C	Reliability, Availability, Maintainability, and Cost Rationale
RCM	Reliability Centered Maintenance
RDT&E	Research, Development, Test, and Evaluation
RGT	Reliability Growth Test
RFP	Request for Proposal
RSSP	Replaced System Sustainment Plan
SAE	Service Acquisition Executive
SCP	Service Cost Position
SCRM	Supply Chain Risk Management
SEP	Systems Engineering Plan
SICA	Secondary Inventory Control Activity
SSP	Source Selection Plan
SOW	Statement of Work
SR	Sustainment Reviews
SRR	System Requirements Review

SRU	Shop Replaceable Unit
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(A&S)	Under Secretary of Defense for Acquisition and Sustainment
USC	United States Code
VAMOSC	Visibility and Management of Operating and Support Costs
WBS	Work Breakdown Structure
WRA	Weapon Replaceable Assembly
WUC	Work Unit Code