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NAVAL AIR SYSTEMS COMMAND
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IN REPLY REFER TO

NAVAIRINST 4355.19E
AIR-4.0/5.0/6.0
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NAVAIR INSTRUCTION 4355.19E

From: Commander, Naval Air Systems Command

Subj: SYSTEMS ENGINEERING TECHNICAL REVIEW PROCESS

Ref: (a) NAVAIR Systems Engineering Technical Review Process
             Handbook, Ver. 1.0
        (b) DoD Directives 5000.01 of 12 May 2003
        (c) Interim DoD Instruction 5000.02 of 26 November 2013
        (d) Defense Acquisition Guidebook
        (e) SECNAVINST 5000.2E
        (f) NAVAIR memo of 20 Nov 12
        (g) Systems Engineering Plan Outline, Ver. 1.0 of Apr
             2011
        (h) NAVAIRINST 5000.24
        (i) NAVAIRINST 4130.1D
        (j) Naval Systems Engineering Guide of Oct 2004
        (k) Adapting Acquisition to Agile Software Development:
             A How-to Guide Version 2.0 of 19 Mar 2014
        (l) NAVAIRINST 3960.2D
        (m) NAVAIRINST 3910.1

Encl: (1) Systems Engineering Technical Review Timing
        (2) Systems Engineering Technical Review Entry Criteria

1. Purpose. To establish policy, guidance, process outline and
assign responsibilities for the planning and conduct of the
Systems Engineering Technical Review (SETR) process for Naval
Air Systems Command (NAVAIR) programs.

2. Cancellation. This instruction supersedes and cancels
NAVAIRINST 4355.19D.

    a. Guidance for software development methodologies,
including Agile and incremental software development.

    b. SETR tailoring constraints and guidance have been
removed for the use of the streamlined SETR checklists.

c. Reference (a) was revised and removed from instruction as an enclosure.

3. Scope and Applicability. This instruction applies to all NAVAIR, which includes NAVAIR Headquarters, Competencies, Program Executive Officers (PEOs), Program Managers AIR (PMA), subordinate commands and field activities involved with the design, development, test and evaluation (T&E), acquisition, in-service support, and disposal of Naval aviation systems and equipment. For Joint programs with Navy as the lead service, this instruction applies, but may be amended to accommodate partner interests.

4. Discussion

   a. SETR Process and Transformation

      (1) SETR events are an integral part of the Systems Engineering (SE) process and life-cycle management, and are consistent with existing and emerging commercial and industry standards. The SETR events are designed to enable an independent assessment of the emerging design against the overall objective of promoting a well-managed development effort leading to a system that meets programmatic requirements while providing the system performance required supporting mission needs. SETRs are conducted at key knowledge points in the development evolution by the Integrated Product Team, independent competency Subject Matter Experts (SMEs) and an independent SETR Technical Review Board (TRB) Chair. SETRs are characterized by the application of engineering rigor, interdisciplinary communications and competency subject matter expertise to assess the requirements traceability, product metrics and decision rationale of the maturing design. This assessment is aided by the use of the new streamlined checklists and methodology described in reference (a).

      (2) The ever increasing complexity of modern systems and the need for rapid development have become a major engineering challenge using conventional, document-centric assessment and analysis techniques. The use of Agile methodologies for rapid software development exacerbates the challenges associated with complex system design. The Release Backlog Review (RBR) is incorporated as a new SETR event to better manage the software design as it matures through numerous software releases

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associated with an Agile development method. For SETR
participants, it is very difficult to assimilate the vast amount
of data necessary to understand such complex designs in their
totality without the aid of integrated and collaborative
analyses methods. Emerging model-centric engineering
methodologies are better suited for understanding and assessing
the development of these highly complex systems.

(3) These model-centric engineering methodologies, used
to formalize the application of modeling to support the
development of the system, can also be used to support the
understanding and assessment of system development.
Architecture development, at both the mission and program level,
is beneficial for gap analysis and requirements generation.
Model-centric integrated tool-sets use models to represent the
problem-space and define the attributes of the system required
to support an integrated mission.

(4) These model-centric tool-sets enhance understanding
and support the accurate assessment of the maturing system.
These tool-sets can be used by SMEs to promote efficiency in
understanding and assessing system requirements, design,
analyses, verification and validation for the SETR events and
the overall systems engineering process. For more information
on the use of model-centric engineering tools see reference (a).

(5) The products resulting from a SETR event include
independent capability assessment, technical baseline
assessment, risk assessments, risk mitigation options, NAVAIR
4355/4 (Rev. 10/2014), Request for Action (RFA) forms, SETR
minutes and the TRB Chair Report. The SETR event produces a TRB
Chair Report based on an integrated technical (e.g., logistics,
engineering, T&E) assessment of the system in development. The
assessment provides the PEOs and PMAs with sound analytical
basis for the system's acquisition and confidence that the
system will satisfy its mission level capability requirements.

    b. Referenced SETR Related Policy and Guidance

        (1) Department of Defense (DoD) Acquisition Program.
References (b) and (c) provide policies and principles
applicable to all DoD acquisition programs. These references
are consistent in requiring application of disciplined SE for
all acquisition programs and specifically require SETR process

and events throughout the life-cycle of the program. Reference (d) is a comprehensive guide to be used for best practices, lessons learned and expectations.

(2) Department of the Navy (DON) Acquisition Programs. Reference (e) established a Navy (two (2) pass/ six (6) gate) review process to improve governance and insight into the development, establishment and execution of DON acquisition programs.

(3) SE Responsibility. Reference (c) enclosure (3) establishes policy directing each PEO, or equivalent, to institute a "lead or chief systems engineer" role on its staff that is responsible to the PEO for the application of SE across the PEO's portfolio of programs. The Systems Engineer (Chief Engineer, Assistant PEO Engineering (APEO(E)), Assistant Program Manager (PM) Systems Engineering, Lead Engineer), per reference (f), is responsible for the review of assigned program SE plans and processes, and to oversee its implementation.

(4) SE Plan (SEP). Reference (c) enclosure (3) also establishes policy directing programs to prepare a SEP for each Milestone Review and the Development Request for Change Proposal (RFP) Release Decision Point. Per reference (g), the program SEP describes the overall technical approach, including key technical risks, processes, resources, metrics and applicable performance incentives. It also details the timing, conduct and entry criteria of technical reviews.

(5) NAVAIR SE Processes. References (a), (g), (h), (i) and (j) provide policy and guidance related to SE processes for use in support of the acquisition of NAVAIR systems.

(6) SETR Timing. Enclosure (1) is a visual representation of the event-driven SETR timing against the acquisition timeline per references (c) and (d).

(7) SETR Checklists. Reference (a) provides guidance related to SETR checklists, checklist tailoring and checklist completion. SETR checklists include entry criteria for each review, as delineated in enclosure (2).

(8) Agile Software Development. Reference (k) provides guidance related to adapting the acquisition process when utilizing Agile software development.

5. Policy

a. SETR Process. The application of the SE process shall include the conduct of SETR and audit events intended to produce an independent assessment of a program's technical health. The SETRs and audits are event-driven and occur at logical transition points during the system acquisition life-cycle.

(1) This technical health assessment encompasses program execution progress, design maturity, technical risk, programmatic risk and readiness to proceed to the next phase. The SETR or audit event provides the PM with the opportunity to validate contract progress reports, factor results into program schedule, evaluate and manage performance trades within cost and schedule constraints while preserving mission capability, adjust program priorities and provide programmatic direction as necessary. In effect, the SETR assessment is a key element of the PM's judgment of program implementation within established cost and schedule constraints.

(2) The SETR process is tailorable in scope such that it can be "right-sized" and effectively applied to a major weapons system or to a subsystem. Tailoring should be in accordance with system complexity, level of program risk and event-driven such that SETRs and audits are conducted when the development effort meets the prescribed SETR entry criteria, enclosure (2). Key products of the review include the SETR checklist, NAVAIR 4355/4 and TRB Chair Closure Memo.

b. SETR Planning and the SEP. The Systems Engineer shall be responsible for the SE planning activity in the SEP. The SE planning in the SEP should be accomplished in coordination with the PM, the APEO(E), the Assistant PM for T&E (APMT&E), the Product Support Manager (PSM) and the Assistant PM for Logistics (APML). The program SEP is a product of this activity per reference (c). The program SEP documents the tailored application of SE. As such, the SEP does not contain language directing contractors to accomplish specific work in a contractually binding environment. Therefore, elements of the SEP and this instruction should be translated into the Statement

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of Work (SOW) and established in Contract Data Requirements
Lists (CDRLs) to support the execution of the SETR process and
events. As a standalone citation within the RFP, the SEP and
this instruction only provides background information of NAVAIR
applicable processes and can be useful guidance for the
development of the contractor System Engineering Management Plan
(SEMP).

NOTE: If an Agile methodology for software development is used,
the SEP should be updated to reflect de-scoping of the software
portion of the SETRs post Preliminary Design Review (PDR). In
addition, a series of RBRs should be added to the program
schedule.

    c. SETR Process Tailoring. As part of the SETR planning,
the Systems Engineer shall tailor the application of SETR
processes for programs in coordination with the cognizant
APEO(E). Process tailoring provides an opportunity to optimize
program execution in the context of cost, schedule and
performance. This is particularly important to programs that
are smaller, less complex and with less risk. Such programs
often include Abbreviated Acquisition Programs and other non-
Acquisition Category programs including rapid development,
Commercial Off-the-Shelf, or technology insertion acquisitions.
Tailoring allows for adjustment of the number of reviews, amount
of formal documentation and focuses the process on risk areas
that are more critical to program success. Tailoring is not an
invitation to simply skip steps or to eliminate the process. As
such, a program risk assessment is useful in gaining
understanding of related risk, complexity and number of program
unknowns. Programs with greater risk and complexity are
candidates for more rigorous application of the SETR process.
Tailoring takes the form of deletion (removal of reviews and
elements not applicable), alteration (modifying and combining
reviews and elements to more explicitly reflect the application
to a particular effort) or addition (adding reviews and elements
to satisfy program requirements). Tailoring shall be performed
in breadth and depth of SETR process as applied to any
particular program. Tailoring in breadth defines the number and
type of SETR events and audits. Tailoring in depth defines the
activity and elements associated with individual SETR or audit
events, which is frequently accomplished by tailoring the SETR
checklist and tailoring the substantiating evidence required to
demonstrate design maturity and contractual compliance. The

breadth and depth of the SETR process tailoring varies from program to program in relationship to complexity, uncertainty, urgency and risk tolerance by the PM. SETR tailoring, to include SETR and audit events with entry criteria and required documentation shall be documented in the program's SEP and per reference (c) requirements.

    d. <u>SETR Events and Audits</u>. The tailored SETR events and audits shall be conducted per the approved program SEP on all programs. Smaller programs that may not have a program SEP are not exempt from the policy of conducting SETR events, or tailoring SETR events according to size, risk and complexity of the program. The following list is a standard set of SETR events and audits that may be tailored for each program:

    (1) Initial Technical Review.

    (2) Alternative Systems Review.

    (3) System Requirements Review (SRR) I.

    (4) SRR II.

    (5) System Functional Review.

    (6) Software Specification Review.

    (7) Preliminary Design Review (PDR) I*.

    (8) PDR II * or PDR*.

    (9) RBR.

    (10) Critical Design Review.

    (11) Integration Readiness Review.

    (12) Test Readiness Review.

    (13) Flight Readiness Review.

    (14) Functional Configuration Audit**.

    (15) System Verification Review.

(16) Production Readiness Review.

(17) Physical Configuration Audit**.

(18) In-Service Review.

Note: See reference (a) for guidance on the intent of each review.

* Single set of entry criteria for all PDRs is provided.
** For FCAs and PCAs, additional guidance can be found in reference (i) and the program Configuration Management (CM) Plan (CMP).

(19) For acquisition programs with multiple software increments, an SSR, CDR and IRR should be conducted for each increment. These incremental SSRs, CDRs and IRRs will be highly tailored versions of the system SSR, CDR and IRR, focusing on the software development aspects of the program. If an Agile methodology is used for software development, an RBR should be conducted for each release (release is defined as a software version resulting from multiple sprints), thus replacing the conduct of incremental SSR, CDR and IRR. RBR or incremental reviews are not intended to be used in lieu of overall program SSR, PDR, CDR and IRR. However, under certain circumstances they may, if documented in the approved program SEP and remain in accordance with reference (c). In addition to SETR events and audits, programs conduct Technology Readiness Assessments (TRAs), Integrated Baseline Reviews and Operational Test Readiness Reviews (OTRRs). Research and Engineering personnel do not normally chair these reviews, but do provide technical elements and support. TRAs and OTRRs are conducted per references (l) and (m) respectively. The program SEP should identify the technical elements to conduct the respective SETR event. The methodology for assessing entrance criteria includes the use of the SETR Checklist.

e. SETR Entry Criteria. The Systems Engineer shall be responsible for assessing the status of SETR entry criteria. Each SETR event has a set of associated SETR Entry Criteria per enclosure (2). An assessment of entry criteria is used to judge program readiness and maturity to proceed with the SETR event.

f. <u>SETR Checklist Tailoring and Completion</u>. The Systems Engineer shall be responsible for tailoring and completing the appropriate SETR Checklist. The SETR Checklists are available from the SE Department Head (AIR-4.1), as described in reference (a). The SETR Checklist is designed to guide an assessment of the program's technical readiness to conduct the SETR event. The SETR checklists reside within the software tool which is used to facilitate SME communication and provides a mechanism for scoring against entry criteria. The tailoring of the SETR Checklist shall be approved by the designated TRB Chair. The Systems Engineer is responsible for providing the final assessment to the TRB Chair, TRB members and designated competency representatives prior to the review. Based on the completed SETR Checklist, the TRB Chair determines readiness to conduct the SETR event.

6. <u>Action</u>. The following responsibilities are assigned relative to the planning and conduct of the SETR process and the reporting of SETR results as indicated below:

a. <u>AIR-4.1</u> shall designate qualified SETR TRB Chairs for each SETR event in coordination with the cognizant APEO(E). For FCAs and PCAs, additional guidance can be found in reference (i) and the program CMP.

b. <u>The designated SETR TRB Chair</u> shall establish a TRB consisting of independent members from the associated competencies and technical authorities. Specific guidance concerning Chairs (and Co-chairs, if applicable) is included in reference (a).

c. <u>Research and Engineering Department Heads</u> shall provide TRB representatives, analysts, and other SMEs, as required by the TRB Chair, to update cost estimates, support a Schedule Risk Assessment, and evaluate objective evidence within their technical authority as part of each SETR event.

d. <u>Director, Integrated Systems Evaluation Experimentation and Test Department (AIR-5.1), Naval Test Wing Commanders, and Air Test and Evaluation Squadron Commanding Officers</u> shall provide TRB representatives and SMEs, when required by the TRB Chair, to make technical assessments as part of each SETR event.

e. <u>Acquisition, Logistics and Industrial Operations Group and Corporate Operations and Total Force Group</u> shall provide TRB representatives and SMEs, as required by the TRB Chair, to make technical and risk assessments as part of each SETR event.

f. <u>Program Systems Engineer, with assistance of the APMT&E and PSM/APML</u> shall:

(1) Ensure the performing activity provides the supporting data and appropriate stakeholders for participation in the SETR event.

(2) Develop, coordinate and execute individual SETR event arrangements in cooperation with the performing activity.

(3) Ensure the preparation of appropriate material is coordinated across the IPTs (to include the SETR checklists).

(4) Organize and supervise the documentation of RFAs in support of the TRB Chair.

(5) Support the PMA to ensure program acquisition plans and strategies provide for the conduct of the SETR process and the events are considered in the milestone decision-making process. This planning is to be coordinated with the PMA, the cognizant APEO(E), the cognizant Assistant Program Executive Officer for Logistics, and the cognizant Assistant Program Executive Officer for Test and Evaluation.

(6) Support the PMA to ensure each program has a SEP and ensure the SETR process, including SETR event, are adequately addressed in that plan and related contract(s).

(7) Support the PMA to ensure the program contract(s), SOWs, CDRLs, master schedule include provisions for the SETR process and identified events, and the required documentation and data to support each Technical Review.

(8) Ensure consistency between the System Design Specification, SEP, CMP, SOW and other RFP documentation with the delivered contractor documentation (SEMP, CMP, etc.).

7. <u>Records Management</u>. Records created as a result of this instruction, regardless of media and format, shall be managed

per SECNAV Manual 5210.1, Department of the Navy Records Management Manual.

8. <u>Review</u>. This instruction will be reviewed by AIR-4.1, AIR-5.1 and the Logistics Management Integration Department (AIR-6.6) annually, recommendations or cancellation will be provided to the Commander.

9. <u>Reports</u>. The reporting requirements contained in paragraph 4a(5) are exempt from reports controlled per SECNAV Manual 5214.1, part IV, paragraph 7k.

10. <u>Forms</u>. NAVAIR 4355/4 (Rev. 10/2014), Request for Action Form can be downloaded from Navy Forms Online at https://navalforms.documentservices.dla.mil/web/public/home
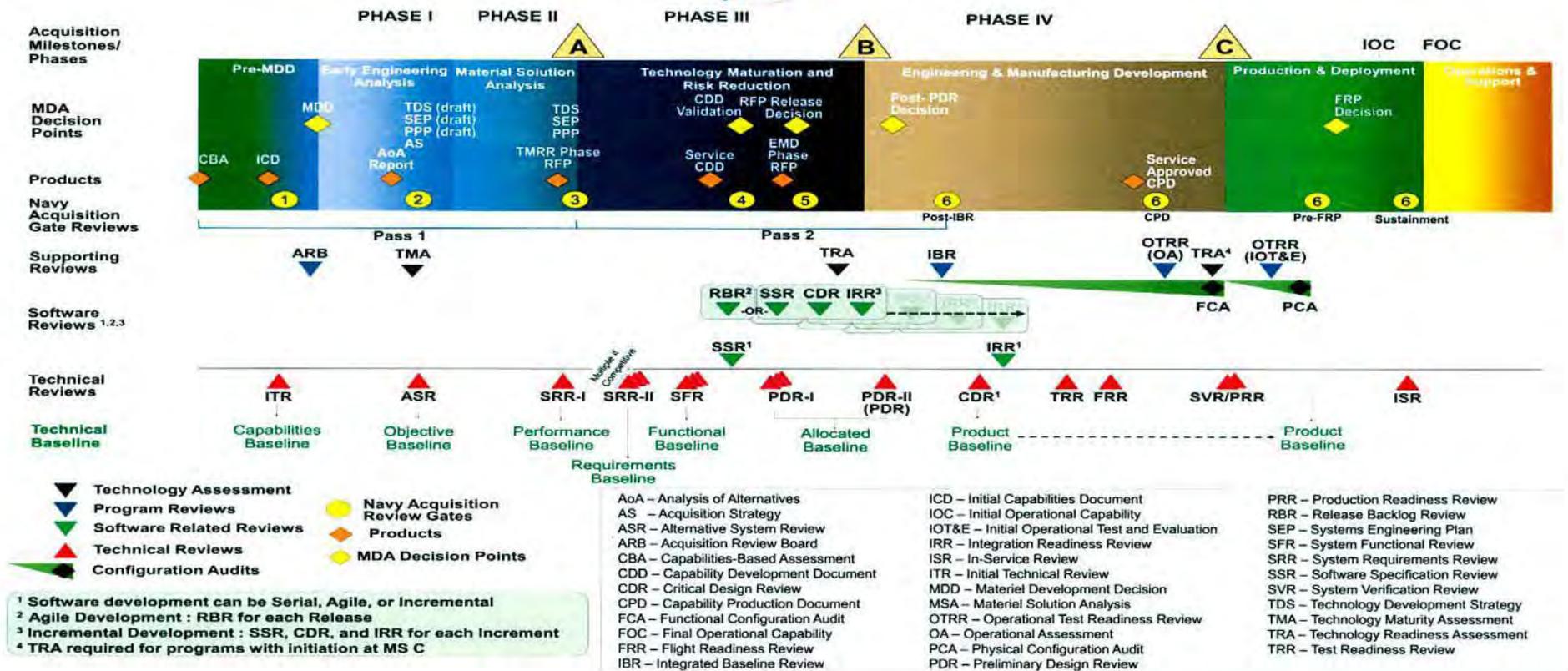
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SYSTEMS ENGINEERING TECHNICAL REVIEW TIMING

Systems Engineering Technical Review Timing

NAV AIR

| Acquisition Milestones/ Phases | | PHASE I | PHASE II | | PHASE III | | PHASE IV | | | IOC | FOC |

Legend:
- ▼ Technology Assessment
- ▼ Program Reviews
- ▼ Software Related Reviews
- ▲ Technical Reviews
- ◢ Configuration Audits
- ● Navy Acquisition Review Gates
- ◆ Products
- ◆ MDA Decision Points

[1] Software development can be Serial, Agile, or Incremental
[2] Agile Development : RBR for each Release
[3] Incremental Development : SSR, CDR, and IRR for each Increment
[4] TRA required for programs with initiation at MS C

AoA – Analysis of Alternatives	ICD – Initial Capabilities Document	PRR – Production Readiness Review
AS – Acquisition Strategy	IOC – Initial Operational Capability	RBR – Release Backlog Review
ASR – Alternative System Review	IOT&E – Initial Operational Test and Evaluation	SEP – Systems Engineering Plan
ARB – Acquisition Review Board	IRR – Integration Readiness Review	SFR – System Functional Review
CBA – Capabilities-Based Assessment	ISR – In-Service Review	SRR – System Requirements Review
CDD – Capability Development Document	ITR – Initial Technical Review	SSR – Software Specification Review
CDR – Critical Design Review	MDD – Materiel Development Decision	SVR – System Verification Review
CPD – Capability Production Document	MSA – Materiel Solution Analysis	TDS – Technology Development Strategy
FCA – Functional Configuration Audit	OTRR – Operational Test Readiness Review	TMA – Technology Maturity Assessment
FOC – Final Operational Capability	OA – Operational Assessment	TRA – Technology Readiness Assessment
FRR – Flight Readiness Review	PCA – Physical Configuration Audit	TRR – Test Readiness Review
IBR – Integrated Baseline Review	PDR – Preliminary Design Review	

SYSTEMS ENGINEERING TECHNICAL REVIEW ENTRY CRITERIA

Initial Technical Review (ITR) Entry Criteria

Criteria ITR	Rationale
1. System Requirements, Traceability, and Design: The Initial Capabilities Document (ICD), Analysis of Alternatives (AoA) Plan, Supportability Objectives, preliminary Integrated Architecture and Best Material Approach(es) are made available	Establishes high level capabilities in a capability baseline: External documentation necessary to provide the context and scope of the conceptual program
2. Test, Evaluation and Certification of Product: No Test, Evaluation or certification criteria required for ITR	Establishes verification and validation planning
3. Project Management and Execution (Planning, Assessment and Control): The program cost estimate Cost Analysis Requirements Document ((CARD) or CARD-like document) has been prepared, including documented assumptions (including cost, schedule, and performance impacts) that relate to the CARD-like document.	Provides programmatic process control and metrics to assess program progress: Required to keep the cost estimates' assumptions in context and allows for risk quantification; these assumptions will be critical to understanding the CARD-like document and its relevance to understanding costs

Alternate Systems Review (ASR) Entry Criteria

Criteria ASR	Rationale
1. System Requirements, Traceability, and Design	Establishes objectives of the draft Capability Development Document (CDD) and in an objective baseline
a. High level Operational Mode Summary/Mission Profile (OMS/MP) documented in an Operational View (OV) OV-1 for each proposed mission area and drafts of the OV-2, 4 and 5	Defines preferred system(s) concepts in the anticipated operational environment
b. Preferred System Concept(s) including Up-to-date AoA, warfare Analysis findings and recommendations, Modeling and Simulation (M&S) results and Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities impacts and considerations	Determines whether the user's needs, advanced technologies, and new concepts can be resolved to a solution suitable for the Technology Maturation and Risk Reduction (TMRR) phase
c. System requirements document including interoperability and system distributed services requirements	Defines relationships between user requirements, systems, and subsystems; genesis of system baselines
2. Test, Evaluation and Certification of Product: No Test, Evaluation or Certification criteria required for ASR	Establishes verification and validation planning
3. Project Management, and Execution (Planning, Assessment, and Control)	Provides programmatic process control and metrics to assess program progress
a. Draft Systems Engineering Plan (SEP) is complete	SEP required for Milestone (MS) A

Enclosure (2)

Criteria ASR	Rationale
b. Risk Management Plan complete; completed risk identification and analysis that accounts for the evolving external environment; mitigation plans align with planned work effort in TMRR	Required to inform further decisions on programmatic and technical risks
c. Draft Program Protection Plan (PPP) is complete	PPP required for MS A
d. Updated cost data is available	Further defines cost estimates based on the outcome of the trade studies and preferred system(s)
e. A program schedule has been drafted	Allows for assessment that system requirements and program resources (funding, schedule, staffing, and processes) form a satisfactory basis for program execution
f. TMRR acquisition phase plans have been developed	Plan leading to the next acquisition phase addressing critical components' evolution

Systems Requirements Review (SRR) I (SRR-I) Entry Criteria

Criteria SRR-I	Rationale
1. System Requirements, Traceability, and Design	Establishes performance, tailorable, and non-tailorable design requirements traced to draft CDD and establishes the performance baseline
a. Department of Defense (DoD) Policy, guidance, threshold design and certification standards, and public law are represented in the performance baseline	Defines overarching and non-tailorable requirements
b. Measures of Performance (MOP), Measures of Effectiveness (MOE) and Measures of Suitability (MOS) have been defined and Key Performance Parameters (KPP) and Key System Attributes (KSA) thresholds are achievable and support TMRR or Engineering and Manufacturing Development (EMD) contract award	Defines Performance attributes of a system considered critical to the development of an effective military capability; defines system level performance parameters; defines measures designed to correspond to accomplishment of mission objectives and achievement of desired results
c. Initial Integrated Architecture (Operational and Systems Views) reflects the approved OMS/MP, including tactical situations and operational situations	Defines system conceptual design in the anticipated operational environment and defines system interactions in the anticipated operational environment

Enclosure (2)

Criteria SRR-I	Rationale
d. Performance baseline drafted and ready for approval	Ensures that performance requirements as captured in the specification correctly captures derived and correlated system requirements that are required to support the mission requirements, has well-understood verification criteria and processes, and is achievable through available technologies resulting from the Material Solution Analysis acquisition phase; bounds the design and establishes system constraints and description; provides competency buy-in of specification to ensure it meets user needs;
e. System technical interfaces (including external interfaces) have been defined	Defines system level logical and physical interfaces
f. Requirements traceability from the CDD to the performance baseline has been documented	Ensures that user needs from the applicable user requirements documents are reflected in top-level design documentation
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Initial Strategic Test Planning for the TMRR phase has been initiated	Required for MS A
b. Draft verification criteria and methodology are documented	Required to plan the scope of verification for the test program
c. The M&S Plan is complete	Defines M&S integration into development program; defines outline of M&S during later phases of development

Criteria SRR-I	Rationale
d. Engineering data requirements needed from testing are finalized and documented	Substantiates coordinated Airworthiness Qualification Plan (AQP) or Engineering Data Requirement Agreement Plan (EDRAP) requirements with Technical Area Experts (TAE) in order to facilitate airworthiness qualification and flight clearance planning; coordinated with contractors to ensure that flight clearance artifacts are on contract
e. Certifying Agencies have been identified and certification requirements have been defined	Ensures the draft certification standards and applicable public law has been correctly and completely represented in the specification
f. System level requirements show compliance with performance, safety, security and Cybersecurity	Required for MS A Clinger-Cohen Act(CCA) compliance; provides technical assessment of system performance risk to program
3. Project Management and Execution (Planning, Assessment and Control)	Provides programmatic process control and metrics to assess program progress
a. The SEP is complete	SEP required for MS A;
b. The risk management plan is up to date and process is operating	Defines development and tracking of technical and programmatic risks
c. The software development strategy is complete	Defines software maturity plan
d. The acquisition strategy for TMRR is complete and candidate Critical Technology Elements (CTE) are identified	Provides input to Statement of Work (SOW) for maturation work necessary in TMRR phase
e. The PPP is complete	The PPP is required for MS A and includes the Cybersecurity strategy

Criteria SRR-I	Rationale
f. The Life Cycle Sustainment Plan is complete	Provides core logistics, sustainment, and workload estimates for Integrated Product Support (IPS)
g. CARD and/or cost estimates are up to date	Updated cost estimates based on program performance baseline; provides single basis for consistent cost estimating
h. The Integrated Master Schedule (IMS) with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing and processes) form a satisfactory basis for program execution
i. Integrated information dissemination processes and tools are available and up to date	Defines methods and implementation of integrated data exchange
j. Program Configuration Management (CM) Plan (CMP) has been approved	CM Policies and procedures are required to be in place to ensure stability and the consistency of the Design, Development, Manufacturing and production requirements and specifications of the Configuration Item (CI) during the entire acquisition life cycle of the project per reference (h)
k. Program execution risks (programmatic and technical) are identified and mitigation plans in place	Assesses the ability to achieve the performance specified in the performance baseline within the program budget and schedule
l. Section L and Section M of the Request for Proposal are complete	Section L requests information that will provide technical basis to support Section M Source Selection criteria

Criteria SRR-I	Rationale
m. The State of Objectives and SOW has been completed and approved	Represents all tasking and deliverables required to develop and certify the system as specified in the performance baseline
n. Contracts Data Requirements List (CDRL) and data requirements are approved	Defines data needs to support airworthiness and program execution
o. Methodology for evaluating Life Cycle Cost (LCC) and Total Ownership Cost (TOC) has been established and approved	Documents methodology to evaluate LCC and TOC to ensure program affordability

SRR-II Entry Criteria

Criteria SRR-II	Rationale
1. System Requirements, Traceability and Design	Establishes performance, tailorable, and non-tailorable design requirements traced to CDD and establishes the requirements baseline that demonstrates contractor understanding of the system and subsystem requirements
a. DoD Policy, guidance, threshold design and certification standards, and public law are represented in the requirements baseline	Defines overarching and non-tailorable and agreed upon tailored requirements
b. MOP, MOE and MOS have been updated and KPP and KSA thresholds and associated TPM are achievable	Defines performance attributes of a system considered critical to the development of an effective military capability; defines system level performance parameters; defines measures designed to correspond to accomplishment of mission objectives and achievement of desired results
c. Initial Integrated Architecture (Operational and Systems Views) updated to reflect the approved OMS/MP, including Tactical Situations and Operational Situations	Defines system initial design in the anticipated operational environment

Enclosure (2)

Criteria SRR-II	Rationale
d. The Contractor System Specification has been expanded to the requirements baseline	Ensures that performance requirements as captured in the specification correctly captures derived and correlated requirements, has well-understood verification criteria and processes, and is achievable through available technologies resulting from the Material Solution Analysis (MSA) acquisition phase; bounds the design and establishes system constraints and descriptions; ensures that contractor understands lower level specification requirements; defines contractor requirements baseline and ensures that contractor understands system physical architecture
e. System technical interfaces (including external interfaces) have been updated	Ensures that contractor understands lower level interface requirements; defines contractor requirements baseline
f. Requirements traceability from the CDD to the requirements baseline has been documented	Ensures that user needs from the applicable user requirements documents are reflected in lower-level specifications; defines contractor requirements baseline
2. Test, Evaluation, and Certification of Product	Establishes verification and validation planning
a. Initial Strategic Test Planning has been updated for the TMRR Phase	Required for Development RFP Release Decision

Enclosure (2)

Criteria SRR-II	Rationale
b. Draft test plans to support the TMRR or EMD Phase have been initiated	Provides initial look at verification planning
c. Draft Verification and Validation (V&V) Methodologies have been defined	Demonstrates traceability of verification criteria to requirement
d. Airworthiness criteria changes have been defined in accordance with current Naval Air Systems Command (NAVAIR) and DoD policy and reflected in the requirements baseline.	Expected airworthiness certification strategy or requirements are coordinated with TAE and contractors to ensure that flight clearance artifacts are on contract; substantiates coordinated AQP or EDRAP requirements with TAEs in order to facilitate flight clearance planning
e. Certifying agencies have been identified and certification requirements have been updated	Ensures the CDD, DoD Directives, statutory and regulatory guidance, threshold design and certification standards, and applicable public law has been correctly and completely represented in the specification
3. Project Management and Execution (Planning, Assessment and Control)	Provides programmatic process control and metrics to assess program progress
a. The SEP has been updated and the Software Development Plan (SDP) and the Systems Engineering Management Plan (SEMP) are complete	SEP required for MS B; SDP required to determine alignment of vendor processes with specification requirements.
b. The Risk Management process is operating across the program, including contractor and government activities	Essential for identification and tracking of technical and programmatic risks which is critical to program success
c. The software development strategy is complete and up to date	Defines software maturity plan

Criteria SRR-II	Rationale
d. Critical Safety Item (CSI) and Critical Application Item (CAI) identification process has been developed	Provides long-leading planning data for support of CSI
e. Systems and subsystems have been assessed to ensure that CTEs have been identified and evaluated	Provides indication of system critical technology maturity
f. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
g. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
h. CARD and/or cost estimates have been updated	Updated cost estimates based on program performance baseline; provides single basis for consistent cost estimating
i. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing, and processes) form a satisfactory basis for program execution
j. Integrated information dissemination processes and tools are available and up to date	Defines methods and implementation of integrated data exchange
k. The Configuration Management process is operating across the program, including government and contractor activities	Required to maintain baseline integrity
l. Program execution risks (programmatic and technical) are identified and mitigation plans in place	Assesses the ability to achieve the performance specified in the performance baseline within the program budget and schedule
m. CDRL and data requirements have been updated	Defines data needs to support airworthiness and program execution

Criteria SRR-II	Rationale
n. The manufacturing and production strategy has been defined	Defines manufacturing planning

Systems Functional Review (SFR) Entry Criteria

Criteria SFR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and design requirements traced to CDD and establishes functional baseline and that there is program-wide understanding of the system's intended operation
a. DoD Policy, guidance, threshold design and certification standards, and public law are represented in the functional baseline	Defines overarching functional and design requirements
b. Use Case Analysis identifies complete system functionality (nominal and off-nominal), derived from the OMS/MP and has been assigned to the functional baseline	Required to support functional decomposition; defines system design and detailed architecture in the anticipated operational environment
c. The System Design has been decomposed to the functional baseline	Allows assessment of functional decomposition from system specification; defines a mature functional baseline; ensures that the system architecture is feasible and credible before design work commences; required for initial allocation of requirements to functions
d. System technical interfaces (including external interfaces) have been updated	Defines and documents coordination boundaries across IPTs developing each subsystem; provides long-lead IPS product definition
e. Requirements traceability from CDD to the functional baseline has been documented	Ensures that user requirements and their associated functions have been allocated
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning

Criteria SFR	Rationale
a. Initial strategic test planning for the EMD phase has been initiated	Provides engineering and management insight into test planning
b. A Draft Software Test Plan has been completed (no Software Specification Review (SSR) or Release Backlog Review (RBR) is planned)	Ensures functions that are allocated to software will be verified
c. V&V methodologies have been defined for each specification requirement	Required to plan the scope of verification for the test program for lower level systems
3. Project Management and Execution (Planning, Assessment and Control)	Provides programmatic process control and metrics to assess program progress
a. The SDP has been completed	Defines software maturation plan; For Agile software development: defines the Agile software lifecycle management tool and metrics to include burndown trends and epic and release trends
b. CSIs and CAI have been identified in the functional baseline	Provides long-leading planning data for support of CSIs
c. CTE have been identified and current Technology Maturation Plans (TMP) are being executed	Provides indication of system critical technology maturity
d. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
e. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
f. CARD and/or cost estimates are up to date	Updated cost estimates based on program functional baseline provides single basis for consistent cost estimating

Criteria SFR	Rationale
g. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing and processes) form a satisfactory basis for program execution
h. Program execution risks (programmatic and technical) are identified and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD within the program budget and schedule
i. The manufacturing and production strategy has been defined	Defines manufacturing planning

          Enclosure (2)

SSR Entry Criteria

Criteria SSR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and non-tailorable design requirements traced to CDD and establishes functional baseline and that there is program-wide understanding of the system's intended operation
a. DoD Policy, guidance, threshold design and certification standards, and public law are represented in the allocated baseline	Defines subsystem performance parameters and traceability back to user requirements; ensures that system critical performance attributes are allocated to lower level specifications
b. TPM (KPPs, KSAs, MOP, MOS and MOE) have been allocated to subsystem functions	Required to support functional decomposition; defines system design and detailed architecture in the anticipated operational environment
c. Use Case Analysis identifies complete system functionality derived from the OMS/MP and has been assigned to the Software Requirements Description (SRD) or Software Requirements Specification (SRS)	Bounds the design and establishes system constraints and description and ensures that contractor understands requirements
d. The SRS or SRD is complete	Provides user supportability requirements traceability to subsystems
e. System software interfaces (including external interfaces) have been updated	Ensures that contractor understands lower level interface requirements
f. Requirements traceability from the CDD to the allocated baseline is complete	Ensures that user needs from the applicable user requirements documents are reflected in lower-level specifications
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning

Criteria SSR	Rationale
a. Strategic test planning for the EMD phase is complete	Provides competency buy-in to test planning; required for MS B; provides engineering and management insight into metrics, their maintenance and their use
b. A draft Software Test Plan has been updated	Required to develop test resource scheduling; provides structure and discipline to software engineering processes
c. V&V methodology has been identified and documented for each software requirement	Required to trace verification back to the initiating requirement
d. The M&S Plan includes software requirements	Defines outline of M&S during later phases of development
e. Software Certification plans have been approved by certifying agencies	Ensures that software requirements have been vetted by any agencies whose review is required for certification
3. Project Management and Execution (Planning, Assessment and Control)	Provides programmatic process control and metrics to assess program progress
a. The SEP and the SEMP are complete	Required for MS B when a PDR is not planned
b. The Risk Management process is operating across the program, including contractor and government activities	Essential for identification and tracking of technical and programmatic risks which is critical to program success
c. Software plans in the area of development, integration and safety have been documented and are up to date	Defines processes to manage software development processes; ensures that hardware and software interfaces are consistent; required to document software safety processes and oversight

Criteria SSR	Rationale
d. Safety critical software requirements have been identified in the SRD or SRS	Provides long-leading planning data for support of CSI and Safety Critical Software
e. Software related CTE have been verified and documented	Demonstrates adequate system maturity to proceed with design
f. Cybersecurity Strategy has been updated and initial controls have been selected and assigned at the software requirements or CSCI level	Provides long-lead planning information for information security
g. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
h. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
i. CARD and/or cost estimates are up to date	Updated cost estimates based on program performance baseline; provides single basis for consistent cost estimating
j. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing and processes) form a satisfactory basis for program execution
k. Program execution risks (programmatic and technical) are identified and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD within the program budget and schedule

PDR Entry Criteria

Criteria PDR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and non-tailorable design requirements traced to CDD and establishes allocated baseline
a. DoD Policy, guidance, threshold design and certification standards, and public law are represented in the allocated baseline	Defines overarching and non-tailorable requirements
b. All TPMs (KPPs, KSAs, MOP, MOS, and MOE) have been allocated to subsystems specifications and ICDs	Defines subsystem performance parameters and traceability back to user requirements and ensures that system critical performance attributes are allocated to lower level specifications
c. The system design has been decomposed to the allocated baseline	Allows assessment of functional allocation from system specification to subsystem specifications; establishes allocated baseline; Provides traceability for software CSCI through subsystems; allows for up-front training analysis and M&S planning; ensures that training considerations are in the allocated baseline
d. Interface design maturity is documented in ICD and Interface Design Documents	Defines and documents coordination boundaries across Integrate Product Teams (IPT) developing each subsystem; establishes allocated baseline

Criteria PDR	Rationale
e. Requirements traceability from the CDD to the allocated baseline is complete and has been documented	Ensures that user requirements and their associated functions are able to be allocated to subsystems; Defines boundaries for each CI and required interactions; defines allocated baseline; Provides traceability from user requirements to subsystem verification
f. System level analysis supports the allocated baseline	Evaluates the breadth of the design; characterizes compliance of the design to safety, interoperability, security, IPS, Reliability and Maintainability, Human System Integration, training, etc. requirements; identifies system safety hazards
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Strategic test planning for the EMD phase is complete	Provides competency buy-in to test planning; required for MS B; provides engineering and management insight into metrics, their maintenance and their use
b. Test Planning and Test Procedure development is at an appropriate level of maturity and has been documented	Allows for system and subsystem verification planning
c. Critical ICDs interfaces identified in test requirements	Provides traceability from critical interfaces to subsystem verification
d. Verification planning to subsystem is complete and documented in the allocated baseline	Ensures that requirements and functions traced from top level systems specifications are verified at the subsystem level

Criteria PDR	Rationale
e. M&S role in testing has been defined and representative mission profiles have been defined and documented	Defines scope of what is to be modeled and simulated as part of verification plan; Required to define operational test vignettes and scenarios to allow for resourcing
f. Engineering data requirements needed from testing are finalized and documented	Substantiates coordinated EDRAP requirements with TAE in order to facilitate flight clearance planning; coordinated with contractors to ensure that flight clearance artifacts will be generated and available to TAE
g. Integration planning and test facilities planning are complete and documented	Defines test planning and resources required to implement effective integration testing at subsystem and system level
h. Certification plans have been approved by certifying agencies	Require for MS B
i. System level analysis has been accomplished to show compliance with Safety, Security, Cybersecurity, and Performance requirements	Required for MS B (CCA compliance)
3. Project Management and Execution (Planning, Assessment, and Control)	Provides engineering process control and metrics to assess technical progress
a. The SEP, the SEMP, and SDP are complete	SEP required for MS B; SDP provides updates software maturity plan
b. The Risk Management process is operating across the program, including contractor and government activities	Essential for identification and tracking of technical and programmatic risks which is critical to program success
c. CSI identification is complete	Provides long-leading planning data for support of CSIs

Criteria PDR	Rationale
d. Verification and documentation that the CTEs have achieved Technical Readiness Level 6	Demonstrates adequate system maturity to proceed with design
e. PPP and Program Protection Implementation Plan is complete and requirements have been allocated to the design	Defines plans to safeguard data at all levels of program design
f. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
g. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
h. CARD and/or cost estimates are up to date	Updated cost estimates based on program allocated baseline
i. IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing and processes) form a satisfactory basis for program execution
j. Integrated information dissemination processes and tools are available and have been updated	Defines methods and implementation of integrated data exchange
k. CM procedures are up to date and address program needs	Required to maintain baseline integrity
l. Program execution risks (programmatic and technical) are identified, and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD within the program budget and schedule
m. Subcontract strategy for subsystems and allocated baseline vendors has been defined	Defines plans for bringing on sub-vendors
n. RFP requirements are complete for the EMD phase	Defines tasks and data for EMD to include SOW and CDRL

Criteria PDR	Rationale
o. MS B Acquisition documentation (SEP, PPP, Acquisition Strategy, etc.) is complete	Required to support MS B
p. System-level Producibility analysis supports the allocated baseline	Defines manufacturing planning

RBR Entry Criteria

Criteria RBR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and non-tailorable design requirements traced to CDD and establishes product baseline
a. The KPPs and KSAs assignment to the Backlog User Stories and/or Software requirement is complete.	Ensures that requirements use cases are captured in the baseline
b. Implementation of User Stories assigned to release cycles have been completed	Ensure that use cases are properly assigned and included in the software development
c. Traceability analysis demonstrates the user stories and/or software requirements support the OMS/MP and CDD	Defines requirements traceability
d. Updated Software documentation to be consistent with software release plan	Ensure all developmental software documentation (SRS, Software Performance Specification (SPS), Software Design Description (SDD), Interface Requirements Specification (IRS), IDD and Software Verification Document (SVD)) reflects the software release under review
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Systems Integration Plan for release complete	Defines integration plans
b. Results from Sprint testing are available for review	Ensures that continual testing is rolled into each planned release
c. Test procedures have been developed and are under configuration control	Ensures that the verification requirements have been translated to test planning that is configuration controlled

Criteria RBR	Rationale
d. Integration point complexity has been defined with a defined order of execution	Provides an understanding of the sequencing of the test events
e. System performance against Airworthiness criteria has been evaluated	Ensures that allocated airworthiness requirements are included in testing
f. Test plan provided to development team	Assure sync of independent test team to development team
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. Rework quantification and backlog allocation to Sprints and Releases has been re-prioritized and is complete	Allows for update of the backlog to a revised software schedule and synchronization of the various software teams; ensures that the amount of rework is known
b. Release schedule has been updated in Government and contractor IMS	Provides an integrated view of the software planning; ensures integrity of the release; each software release plan will have the detail of the capabilities of user stories that were allocated to the individual sprint
c. Software development execution metrics have been updated to reflect the latest release	Allows management to gauge progress of the entire software development effort
e. Software release (including requirements, design, and test data) are under configuration control.	Ensures integrity of the release
f. Computer resource utilization metrics have been updated to reflect the latest release	Confirms that hardware has the capacity to run software within the required margins

Critical Design Review (CDR) Entry Criteria

Criteria CDR	Rationale
1. System Requirements, Traceability, and Design	Establishes performance and non-tailorable design requirements traced to CDD and establishes product baseline
a. DoD Policy, guidance, threshold design and certification standards, and public law are represented in the product baseline	Defines overarching and non-tailorable requirements
b. TPMs (KPPs, KSAs, MOP, MOS and MOE)) have been allocated to the product baseline	Defines subsystem performance parameters and traceability back to user requirements; ensures that system critical performance attributes are allocated to lower level specifications
c. The System Design is complete and documented in the product baseline	Allows assessment of completion of the design to the component level; provides traceability for software CSCI through subsystems' design; defines boundaries for each CSCI and required interactions; ensures that final design is a balanced solution given technical and programmatic constraints; concludes alternate design exploration; defines product baseline
d. System technical interfaces (including external interfaces) have been updated	Defines and documents coordination boundaries across IPT developing each subsystem; establishes product baseline

Criteria CDR	Rationale
e. Requirements traceability from CDD and/or draft Capability Production Document (CPD) to the product baseline has been documented	Ensures that user requirements and their associated functions are able to be allocated and designed into subsystems; defines product baseline
f. Traceability from design requirements to test verification plan is complete	Provides traceability from user requirements to subsystem verification; ensures that requirements and functions traced from top level systems specifications are verified at the subsystem level; defines product baseline
g. Subsystem level analysis supports the product baseline	Assures engineering rigor has been utilized in the translation of requirements into the component level design
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Developmental and Operational Test planning is documented and test procedure development supports the verification plan	Allows for system and subsystem verification planning
b. Verification Test planning is complete and documented in the product baseline	Defines and scopes verification effort at the component level
c. Systems Integration Lab (SIL) V&V Plan finalized, including simulation, stimulation and models	Defines hardware and software integration methodology and processes and that SIL is suitable to replicate the intended environment for both ground and flight test

Criteria CDR	Rationale
d. M&S role in testing is defined and documented. Verification, Validation and Accreditation plans are complete.	Defines scope of what is to be modeled and simulated as part of verification plan; ensures the robustness of the system verification models
e. Engineering data requirements needed for testing are finalized and documented	Substantiates coordinated EDRAP requirements with TAEs in order to facilitate flight clearance planning; coordinated with contractors to ensure that flight clearance artifacts will be generated and available to TAEs
f. Test and data processing procedures are established to ensure data is collected and reduced to support analysis and qualification	Defines methodology to provide data to support design verification and EDRAP requirements; ensures that requirements and functions that are allocated to software are adequately verified at the unit level
g. Certification plans have been approved by the certifying agencies	Defines product baseline; required for Milestone MS C
h. Subsystem level analysis accomplished to show compliance with performance, safety, security, and Cybersecurity requirements	Required for MS C CCA compliance; provides technical assessment of system performance risk to program;
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. The SEP and the SEMP have been updated	Required for MS C

Criteria CDR	Rationale
b. The Risk Management process is operating across the program, including contractor and government activities	Essential for identification and tracking of technical and programmatic risks which is critical to program success
c. CSI identification complete	Provides planning data for support of CSI
d. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
e. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
f. CARD and/or cost estimates are up to date	Updated cost estimates based on program product baseline provides single basis for consistent cost estimating
g. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing and processes) form a satisfactory basis for program execution
h. Program execution risks (programmatic and technical) are identified, and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD and draft CPD within the program budget and schedule
i. System and subsystem level analyses of producibility, manufacturing process, and process control, support the product baseline	Ensures that contractors have processes and process controls in place to manufacture systems per the product baseline

Integration Readiness Review (IRR) Entry Criteria

Criteria IRR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and non-tailorable design requirements traced to CDD and that there is program-wide understanding of the system's intended operation
a. DoD Policy, guidance, threshold design and certification standards, and public law are represented in the product baseline	Defines overarching and non-tailorable requirements
b. The current design reflects the product baseline	Provides an established baseline of requirements in order to stabilize test requirements; confirms integration readiness; provides an established baseline of requirements in order to stabilize test requirements; confirms integration readiness
c. System technical interfaces (including external interfaces) have been updated and documented	Ensures that interfaces have been updated and traced to requirements and reflect the current baseline
d. Requirements traceability from the CDD and draft CPD to the Product baseline is complete, including updates since CDR	Provides traceability from user requirements to subsystem verification and ensures readiness for integration; defines subsystem performance parameters and traceability back to user requirements

Criteria IRR	Rationale
e. Requirements Verification Matrix has been reviewed and is up to date	Ensures that all system and subsystem requirements have defined verification methods ready for integration testing; provides traceability from user requirements to subsystem verification and ensures readiness for integration; provides traceability from user requirements to subsystem verification and ensures readiness for integration in a validated SIL
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Developmental and Operational Test planning is documented and test procedure development supports the verification plan	Allows for system and subsystem verification planning
b. SIL V&V completed, results are documented, and the SIL is under CM control	Ensures that the lab environment can support integration testing in a controlled setting; determines fidelity of SIL's replication of the operational environment and its suitability for integration testing; determines adequacy of systems requirements roll down
c. M&S role in testing is defined and documented	Outlines the expected M&S plan
d. Certification plans have been updated and approved by the certifying agencies	Required for MS C
e. CSI and CSA test planning is complete	Ensures testability of CSIs in their intended environment

Criteria IRR	Rationale
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. The Risk Management process is operating across the program, including contractor and government activities	Essential for identification and tracking of technical and programmatic risks which is critical to program success
b. Detailed integration planning and software products support integration testing and the software integration plan is complete	Outlines the plan to test completeness of the system integration
c. Maturity of the CTEs are in accordance with the TMP	Demonstrates adequate system maturity to proceed with integration
d. Cybersecurity controls are in place to support integration testing	Required for robust Cybersecurity certifications
e. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
f. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
g. CARD and/or cost estimates are up to date	Updated cost estimates based on program performance baseline; provides single basis for consistent cost estimating
h. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing and processes) form a satisfactory basis for program execution

Criteria IRR	Rationale
i. Program execution risks (programmatic and technical) are identified, and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD within the program budget and schedule
j. Manufacturing planning has matured to support integration	Ensures that the manufacturing base is aligned with the baselined product

Test Readiness Review (TRR) Entry Criteria

Criteria TRR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and non-tailorable design requirements traced to CDD
a. The current design reflects the product baseline	The current design reflects the product baseline; provides an established baseline of requirements in order to stabilize test requirements; confirms test readiness
b. System technical interfaces (including external interfaces) have been updated and documented	Defines and documents coordination boundaries across IPT developing each subsystem; establishes allocated baseline
c. Traceability from design requirements to verification plan is complete and has been updated	Provides traceability from user requirements to subsystem verification and ensures readiness for testing in a validated SIL; provides traceability from user requirements to subsystem verification and ensures readiness for test; ensures that all system and subsystem requirements have defined verification methods ready for testing; defines subsystem performance parameters and traceability back to user requirements
d. Subsystem level safety and hazard analysis supports the product baseline	Provides leadership completed assessments of system hazards
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Test plans are ready for final review	Determines completeness of test planning; provides engineering and management insight into metrics, their maintenance and their use

Criteria TRR	Rationale
b. Test procedures are updated and address Acceptance Test Procedures (ATP); data collection, reduction, analysis; test and deficiency reporting	Defines processes for system and subsystem verification; assesses interdependencies between successive tests and allows for effective test program risk management; provides formal approval and acceptance of data reduction processes; ensures that planned testing is supportable; defines the content of test reports that satisfies TAE data; defines process to document anomalies to identify vulnerabilities and limitations requirements
c. Coordination of test facilities is complete and facilities are available for testing	Determines adequacy and fidelity of lab's replication of the operational environment, are properly resourced, and are available; ensures that the lab environment can support testing in a controlled setting;
d. SIL V&V completed, results are documented, and the SIL is under CM control	Ensures that the lab environment can support integration testing in a controlled setting; determines fidelity of SIL's replication of the operational environment and its suitability for integration testing; determines adequacy of systems requirements roll down and fidelity of SIL's replication of the operational environment
e. Certifications and/or flight approvals have been obtained	Required to conduct testing in the intended environment

Criteria TRR	Rationale
f. CSI and CSA testing is complete and documented	Ensures testability of CSIs in their intended environment
g. Analysis of the current design verifies conformance to the product baseline	Confirms that current system under test reflects the product baseline
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. Maturity of the CTEs are in accordance with the TMP	Demonstrates system maturity to proceed with integration
b. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
c. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
d. CARD and/or cost estimates are up to date	Updated cost estimates based on program product baseline provides single basis for consistent cost estimating
e. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing, and processes) form a satisfactory basis for program execution
f. Program execution risks (programmatic and technical) are identified, and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD and draft CPD within the program budget and schedule

Enclosure (2)

Flight Readiness Review (FRR) Entry Criteria

Criteria FRR	Rationale
1. System Requirements, Traceability and Design	Establishes performance and non-tailorable design requirements traced to CDD andCPD and that there is program-wide understanding of the system's intended operation
a. The current design reflects the product baseline	The current design reflects the product baseline; provides an established baseline of requirements in order to stabilize test requirements; confirms test readiness
b. Traceability from design requirements to verification plan is complete and has been updated	Provides traceability from user requirements to subsystem verification and ensures readiness for test; defines subsystem performance parameters and traceability from test plans back to user requirements
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Test plans have been drafted, are in the approval cycle, and ready for Executive Review Board	Determines completeness of test planning and readiness for test
b. Flight test requirements supporting M&S validation are identified	Determines tests required to support M&S efforts

Criteria FRR	Rationale
c. Test procedures have been updated and address ATP, data collection, reduction, analysis, test and deficiency reporting	Test procedures are updated and address ATP; data collection, reduction, analysis; test and deficiency reporting; defines detailed teaming arrangement between contractor and government entities; defines required flight test support to ensure availability and resourcing; defines the content of test reports that satisfies TAE data requirements
d. Coordination of test facilities is complete and facilities are available for testing	Determines adequacy and fidelity of lab's replication of the operational environment, are properly resourced, and are available; ensures that the lab environment can support testing in a controlled setting;
e. Certifications required for flight testing are in place	Ensures that all outside agency certifications and approvals support flight test
f. Interim Flight Clearance to support flight test is in place	Documents approval for flight with any restrictions and limitations required for flight; documents airworthiness
g. CSI and CSA testing is complete and documented	Ensures testability of CSIs in their intended environment
h. The design has been tested against the functional requirements	Ensures that the design verification efforts support the baseline
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. Maturity of the CTE are in accordance with the TMP	Demonstrates adequate system maturity to proceed with flight test

Criteria FRR	Rationale
b. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
c. Earned Value data reflects current program status	Establishes basis for maintaining program performance metrics
d. CARD and/or cost estimates are up to date	Updated cost estimates based on program product baseline; provides single basis for consistent cost estimating
e. The IMS with critical path reflects current program status	Allows for assessment that system requirements and program resources (funding, schedule, staffing, and processes) form a satisfactory basis for program execution
f. Program execution risks (programmatic and technical) are identified, and mitigation plans in place	Assesses the ability to achieve the capabilities specified in the CDD and CPD within the program budget and schedule
g. CDRL and data requirements are up to date	Defines data needs to support airworthiness and program execution

Functional Configuration Audit (FCA) Entry Criteria

Criteria FCA	Rationale
1. System Requirements and Capabilities	Establishes performance and non-tailorable design requirements traced to CPD and that there is program-wide understanding of the system's intended operation
a. The physical system reflects the functional baseline	Audits physical design to ensure all functions are represented from the functional baseline established at SFR
b. Traceability from design and functional requirements to verification plan is complete and has been updated	Provides traceability from user requirements to subsystem verification and ensures readiness for operational test; defines subsystem performance parameters and traceability from test plans back to user requirements
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Engineering data artifacts have been reviewed and demonstrates compliance with the functional baseline	Provides assessment of system functional robustness compared to the specified performance
b. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
c. CM procedures are up to date and address program needs	Required to maintain baseline integrity

Production Readiness Review (PRR) Entry Criteria

Criteria PRR	Rationale
1. System Requirements and Capabilities: Product baseline has been verified to meet all requirements	Establishes performance and non-tailorable design requirements traced to CPD and that there is program-wide understanding of the system's intended operation: Ensures that the design verification efforts support the baseline, Functional Configuration Audit (FCA) and System Verification Review (SVR) activities are complete
2. Test, Evaluation and Certification of Product: Final certifications have been obtained from all certifying agencies	Establishes verification and validation planning: Required for MS C
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. The SEP and the SEMP are complete and up to date	Required for MS C
b. Configuration Management procedures are up to date and address program needs	Required to maintain baseline integrity
c. Product baseline, Manufacturing, Producibility and Quality requirements are producible as verified by the results of the Incremental Production Readiness Reviews (IPRR)	Ensures that test data indicate readiness for production; ensures the specified manufacturing and quality requirements are captured in the production plans

System Verification Review (SVR) Entry Criteria

Criteria SVR	Rationale
1. System Requirements and Capabilities: Traceability from design and functional requirements to verification plan is complete and has been updated	Establishes performance and non-tailorable design requirements traced to CPD: Provides traceability from user requirements to subsystem verification and ensures readiness for test; defines subsystem performance parameters and traceability from test plans back to user requirements
2. Test, Evaluation and Certification of Product	Establishes verification and validation planning
a. Current test Results and remaining tests planned have an acceptable level of risk	Substantiates MS C and production decisions
b. Certifications required for fielding are in place or will be in place by Initial Operation Capability	Ensures that all outside agency certifications and approvals to support fielding
c. Permanent Flight Clearance (PFC) in the form of Preliminary Naval Aviation Training and Operating Procedures Standardization (NATOPS) and Naval Aviation Technical Information Product (NATIP) (or equivalent) to support operational flight test is in place	Documents approval for flight with any restrictions and limitations; required for flight; documents airworthiness
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. The Risk Management process is operating across the program, including contractor and government activities	Essential for identification and tracking of technical and programmatic risks which is critical to program success

Criteria SVR	Rationale
b. CSI and CSA are identified, documented and are being managed	Ensures testability of CSIs in their intended environment
c. Planning for IPS elements is current and supports the baseline	Provides planning tools for all elements of IPS
d. CDRL and data requirements are up to date	Defines data needs to support airworthiness and program execution
e. Product baseline is producible as defined by Manufacturing, Producibility and Quality requirements as verified by the results of the IPRR	Ensures that test data indicate readiness for production; ensures the specified manufacturing and quality requirements are captured in the production plans

Physical Configuration Audit (PCA) Entry Criteria

Criteria PCA	Rationale
1. System Requirements and Capabilities: No System Requirements and Capabilities criteria required for PCA	Establishes performance and non-tailorable design requirements traced to CPD and that there is program-wide understanding of the system's intended operation
2. Test, Evaluation and Certification of Product: No Test, Evaluation, or certification criteria required for PCA	Establishes verification and validation planning
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. Current system risk assessment is available	Provides assessment and tracking of technical and programmatic risks
b. Results of the PCAs conducted at the major suppliers	Documents system and subsystem PCA results; provides technical products required to demonstrate design compliance
c. Manufacturing Plan	Documents configuration control at the manufacturers
d. Quality Control plan	Documents process control at the manufacturers

In-Service Review (ISR) Entry Criteria

Criteria ISR	Rationale
1. System Requirements and Capabilities: No System Requirements and Capabilities criteria required for ISR	Establishes performance and non-tailorable design requirements traced to CDD
2. Test, Evaluation, and Certification of Product: Permanent Flight Clearances in the form of Promulgated and Approved NATOPS and NATIP (or equivalent) to support fleet introduction is in place	Establishes verification and validation planning: Documents approval for flight with any restrictions and limitations; required for flight; documents airworthiness
3. Project Management and Execution (Planning, Assessment and Control)	Provides engineering process control and metrics to assess technical progress
a. The following technical products have been made available to the cognizant ISR participants prior to the review:	Technical products required to demonstrate design compliance
(1) System Safety Hazard Risk Assessment	Updates program system safety assessments
(2) Programmatic Risk Assessment	Updates program risk assessments
b. Current In-Service Hazards are documented to include:	Provides updated status on regulatory and safety compliance
(1) Safety Assessment Reports status	
(2) Active Mishap Reports	
(3) Active Hazard Reports	
(4) Active safety Engineering Investigations	
(5) Active Bulletin Technical Directives	

Criteria ISR	Rationale
(6) Original Equipment Manufacturer Service Bulletins and Alerts	
(7) Federal Aviation Administration Airworthiness Directives and Rule Changes	
c. Aging Aircraft Status	Provides status of long-term sustainability for aging aircraft and systems
(1) Fatigue Life	
(2) Wiring	
(3) Diminishing Manufacturing Sources and materiel Shortage reporting	
d. Naval Aviation Maintenance Discrepancy Reporting Program Status	Provides status of discrepancy reporting and tracking system
(1) Routine Engineering Investigations	
(2) Hazard Material Reports	
(3) Technical Publication Deficiency Reports	
(4) Production Quality Deficiency Reports	
e. CM Status	Provides status on change management
(1) Technical Directive Status Accounting status	
(2) Engineering Change Proposal status	
f. Software Trouble Reports status	Provides status on software anomalies and deficiencies
g. Operational Advisory Group (OAG) Priorities	Updates status on actions relative to Top ten (10) OAG Priorities
h. Operational Requirements Status and Assessment	Provides status on system employment
(1) Fielded Systems' status (Number of Systems, Permanent Sites, unclassified Deployed Sites)	

Criteria ISR	Rationale
(2) New Mission Capability	
(3) Interoperability	
(4) Communication, Navigation Systems	
(5) Logistics Footprint Assessment (Baseline and Annual Review)	
i. System Readiness and Maintenance Program Status	Provides status of readiness tracking efforts
(1) Naval Aviation Readiness Integrated Improvement Program (Includes Cross Functional Team: Readiness; Providers; Plans and Programs; Cost Wise Readiness Status)	
(2) Reliability Centered Maintenance (RCM) and IMP	
(3) Airframe Management Board status	
(4) Status Comparison of RCM and IMP plans to baselines	
(5) Adequacy of staffing to sustain RCM and IMP efforts	
j. Integrated Product Support Element Issues and Status evaluated	Updates integrated support status
k. Budget requirements tied to system metrics and prioritized in accordance with NAVAIR requirements determination priority categories, including the delta between requirements and funding	Updates program operations and support budget status
(1) Current Execution Year	
(2) Pending Execution Year	
(3) Future Years Defense Program	
l. Program Staffing Status	Updates program manpower status

Criteria ISR	Rationale
(1) Organization structure and chart supporting program management, technical and IPS requirements	
(2) Key government and contractor interfaces	
(3) Planned versus actual resource curve	
m. Open Action Items from previous reviews	Documents completion of any previous reviews

SETR Closure. SETRs are considered complete when all RFAs are signed off, and an acceptable level of program risk is ascertained. The SETRs are formally completed by the TRB Chairperson via a letter of closure.