



Department of Defense **INSTRUCTION**

NUMBER 5000.73

June 9, 2015

Incorporating Change 1, October 2, 2017

CAPE

SUBJECT: Cost Analysis Guidance and Procedures

References: See Enclosure 1

1. PURPOSE. In accordance with the authority in DoD Directive 5105.84 (Reference (a)), this instruction:

a. Establishes policy, assigns responsibilities, and provides procedures for the conduct of cost estimation and analysis in the DoD.

b. Incorporates and cancels DoD 5000.4-M (Reference (b)).

2. APPLICABILITY. This instruction applies to OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this instruction as the "DoD Components").

3. POLICY. It is DoD policy, in accordance with Reference (a), that analysis be conducted to provide accurate information and realistic estimates of cost for DoD acquisition programs.

4. RESPONSIBILITIES

a. Director of Cost Assessment and Program Evaluation (DCAPE). The DCAPE:

(1) Oversees implementation of the procedures in Enclosure 2.

(2) Prepares clarifying guidance as needed for this instruction.

(3) Reviews and takes appropriate action on waiver requests from the DoD Components.

b. DoD Component Heads. The DoD Component heads:

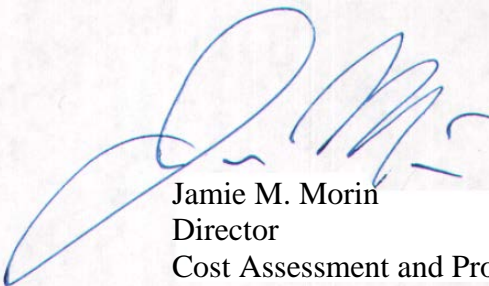
(1) Implement the procedures in this instruction and develop DoD Component guidance, as appropriate.

(2) When necessary, request DCAPE approval of waivers or exceptions to the provisions of this instruction. Statutory requirements cannot be waived unless the statute permits.

5. PROCEDURES. See Enclosure 2.

6. RELEASABILITY. **Cleared for public release.** ~~This instruction is available on the Internet from the DoD Issuances Website at <http://www.dtic.mil/whs/directives>.~~ *This instruction is available on the Directives Division Website at <http://www.esd.whs.mil/DD/>.*

7. EFFECTIVE DATE. This instruction is effective June 9, 2015.



Jamie M. Morin
Director
Cost Assessment and Program Evaluation

Enclosures

1. References
2. Procedures

Glossary

TABLE OF CONTENTS

ENCLOSURE 1: REFERENCES4

ENCLOSURE 2: PROCEDURES5

 GENERAL5

 COST ESTIMATION FOR MDAPS5

 CAPE Cost Analysis Activities5

 Timelines for Cost Analysis Activities6

 Scope of Analysis at Key Acquisition Events16

 Analysis at Key Acquisition Events and Phases16

 COST ESTIMATION FOR MAIS PROGRAMS25

 CAPE Cost Analysis Activities25

 Timelines for MAIS Program Cost Analysis Activities26

 CAPE Analysis at Critical Change31

 DATA COLLECTION31

 Collection of Documentation for MDAPs and MAIS Programs32

 Collection of Studies32

 Cost Data Collection33

GLOSSARY36

 PART I. ABBREVIATIONS AND ACRONYMS36

 PART II. DEFINITIONS38

FIGURES

 1. Timeline for the Preparation of ACAT ID ICES8

 2. Timeline for ACAT IC Cost Estimate Review10

 3. Percentage of Savings Versus EOQ Investment in MYP Contract11

 4. Notional Price Versus Quantity Curve for MYP Contract11

 5. Timetable for the Preparation of MYP Contract Cost Analysis13

 6. Timeline for Cost Analysis of Critical Nunn-McCurdy Breach Declared Between
 October 1 and Submission of the President’s Budget15

 7. Ground Vehicle Procurement Cost and Capability Trade Space18

 8. Acquisition Strategy and Contract Approach20

 9. Timeline for MAIS Programs Cost Estimate Review28

 10. Timeline for Cost Analysis of MAIS Critical Change30

TABLE

 Nunn-McCurdy Breach Thresholds24

ENCLOSURE 1

REFERENCES

- (a) DoD Directive 5105.84, “Director of Cost Assessment and Program Evaluation (DCAPE),” May 11, 2012
- (b) DoD 5000.4-M, “Cost Analysis Guidance and Procedures,” December 11, 1992 (hereby cancelled)
- (c) Title 10, United States Code
- (d) Subpart 234.71, Defense Federal Acquisition Regulation Supplement, “Cost and Software Data Reporting,” November 5, 2014
- (e) DoD Instruction 5000.02, “Operation of the Defense Acquisition System,” January 7, 2015, *as amended*
- (f) DoD 5000.04-M-1, “Cost and Software Data Reporting (CSDR) Manual,” November 4, 2011
- (g) Department of Defense Standard MIL-STD-881C “Work Breakdown Structures (WBS) for Defense Materiel Items,” October 3, 2011
- (h) Office of the Secretary of Defense Cost Assessment and Program Evaluation, “Operating and Support Cost-Estimating Guide,” March 2014

ENCLOSURE 2

PROCEDURES

1. GENERAL. Independent and sound cost estimates are vital for effective acquisition decision making and oversight. Cost estimates also support efficient and effective resource allocation decisions throughout the Planning, Programming, Budgeting, and Execution process. The policies and procedures for the preparation of cost estimates for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) programs at key acquisition events, as well as the requirements for cost data collection, are described in this instruction. While these procedures are applicable to Acquisition Category (ACAT) I and IA programs, the concepts presented should to the greatest degree possible be applied to all DoD acquisition programs as designated in policies established by the Service cost agencies or Defense Agency equivalents (SCAs).

2. COST ESTIMATION FOR MDAPs. Cost estimates and analyses for MDAPs are conducted at key acquisition points throughout a program's life cycle. This section describes the points at which the Office of Cost Assessment and Program Evaluation (CAPE), DoD Components, and SCAs conduct cost analyses, the timelines and required documentation for the conduct of such analyses, and the considerations necessary at specific points in the acquisition cycle. The cost estimates developed under this section for baseline descriptions and other program purposes may not be used for contract negotiations or the obligation of funds.

a. CAPE Cost Analysis Activities

(1) Independent Cost Estimates (ICEs) for MDAPS¹

(a) Pursuant to section 2334 of Title 10, United States Code (Reference (c)), the Office of Cost Assessment (CA) within CAPE conducts ICEs and cost analysis for MDAPs for which the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) is the milestone decision authority (MDA):

1. In advance of any Milestone A certification under section 2366a of Reference (c) or Milestone B certification under section 2366b of Reference (c).

2. In advance of any decision to enter low-rate initial production (LRIP) or full-rate production (FRP).

3. Any certification for critical Nunn-McCurdy breaches under section 2433a of Reference (c).

4. At any other time considered appropriate by the DCAPE or upon the request of the USD(AT&L).

¹ Cost estimation for MAIS programs, including ICEs for critical changes under Section 2445c(f) of Reference (c), is discussed in Section 3.

(b) CA prepares an ICE for ACAT IC programs at any time considered appropriate by the DCAPE or upon the request of the USD(AT&L) or the MDA. In most cases, CA will review cost estimates for ACAT IC programs.

(2) Cost Analysis for Development Request for Proposal (RFP) Release Decision Point. CA may present a cost analysis at the Development RFP Release Decision Point Review. The type of cost analysis varies depending upon the program and the information that is needed to support the decision to release the RFP. For some programs, no new cost analysis may be necessary, and the CA representative will present the Milestone A ICE or an update to the Milestone A ICE. In other cases, the cost analysis presented at the Development RFP Release Decision Point Review may be a more general cost assessment or a complete ICE, and CA may direct the SCA to provide the analysis.

(3) Multiyear Procurement (MYP) Certification. Pursuant to section 2306b of Reference (c), prior to the submission of a request for legislative authority to enter into an MYP contract is submitted, CA conducts a cost analysis to determine the projected savings from use of a MYP contract over a baseline annual procurement contract. CA conducts a final cost analysis at least 30 days before the MYP contract award.

b. Timelines for Cost Analysis Activities

(1) Preparation of ACAT ID ICEs. Figure 1 sets forth the typical timeline of events and deadlines to support the timely completion of an ICE for ACAT ID programs. This timeline may be tailored, as needed, depending upon the program and the information needed to best support the decision maker.

(a) At least 210 days before the planned overarching integrated product team (OIPT) meeting, the SCA will notify CA of a program's upcoming milestone or acquisition event that requires an ICE.

(b) A kick-off meeting is held no later than 180 days before the OIPT meeting. Before the kick-off meeting, the SCA and CA will develop an agenda of information to discuss, to include requirements for the cost estimates, alternatives to consider, and the assumptions on which the cost estimates will be based. A CA representative and SCA representative will co-chair the kick-off meeting.

(c) The Program Management Office (PMO) will prepare and deliver the draft Cost Analysis Requirements Description (CARD) to CA no later than 180 days before the planned OIPT meeting. For joint programs, the CARD will include the common program agreed to by all participating DoD Components, as well as any unique program requirements of the participating DoD Components.

(d) No later than 45 days after receipt of the draft CARD (usually at least 135 days before the planned OIPT meeting), CA will provide feedback to the PMO on the draft CARD.

(e) No later than 45 days after receipt of the draft CARD (usually at least 135 days before a planned OIPT meeting), if the CARD is insufficient, CA and the SCA will sign a

memorandum to the PMO informing the PMO that the CARD is insufficiently developed to continue with preparation of the cost estimates. In this scenario, the planned OIPT meeting and defense acquisition board (DAB) meeting may be delayed.

(f) Following the kick-off meeting and continuing until the OIPT meeting, the CA analyst and representatives from the SCA and PMO will conduct site visits and collect and review program data. During this same time, the CA analyst and SCA and PMO representatives will have ongoing discussions concerning the cost estimating strategies and methodologies used to develop all relevant cost estimates, including the ICE, DoD Component cost estimate (CCE), program office estimate (POE), DoD Component cost position (CCP).

(g) At least 45 days before the OIPT meeting, the PMO and SCA representatives will brief CA on the working level drafts of the POE, CCE, CCP, and any other relevant estimates available at the time. Following this briefing, the PMO and SCA representatives will provide CA any updates to the working level drafts of the estimates as appropriate or upon request.

(h) A final copy of the CARD, signed by the program executive officer and program manager, must be provided to CA by the PMO at least 45 days before the scheduled OIPT meeting and placed into the electronic CA Library.

(i) At CA's discretion, approximately 28 days before the OIPT meeting, representatives from CA, the PMO, and the SCA may meet to compare and discuss the results of the ICE and the CCP.

(j) The SCA must deliver the final, signed CCP and full funding certification memorandum to CA at least 10 days before the planned OIPT meeting. Copies of these documents will be submitted to the CA Library. If the program concept evolves after a milestone review, the SCA may update the CCP, and the DoD Component may fully fund the program in the Future Years Defense Program (FYDP) to the updated CCP. A copy of the updated CCP must be submitted to the CA Library.

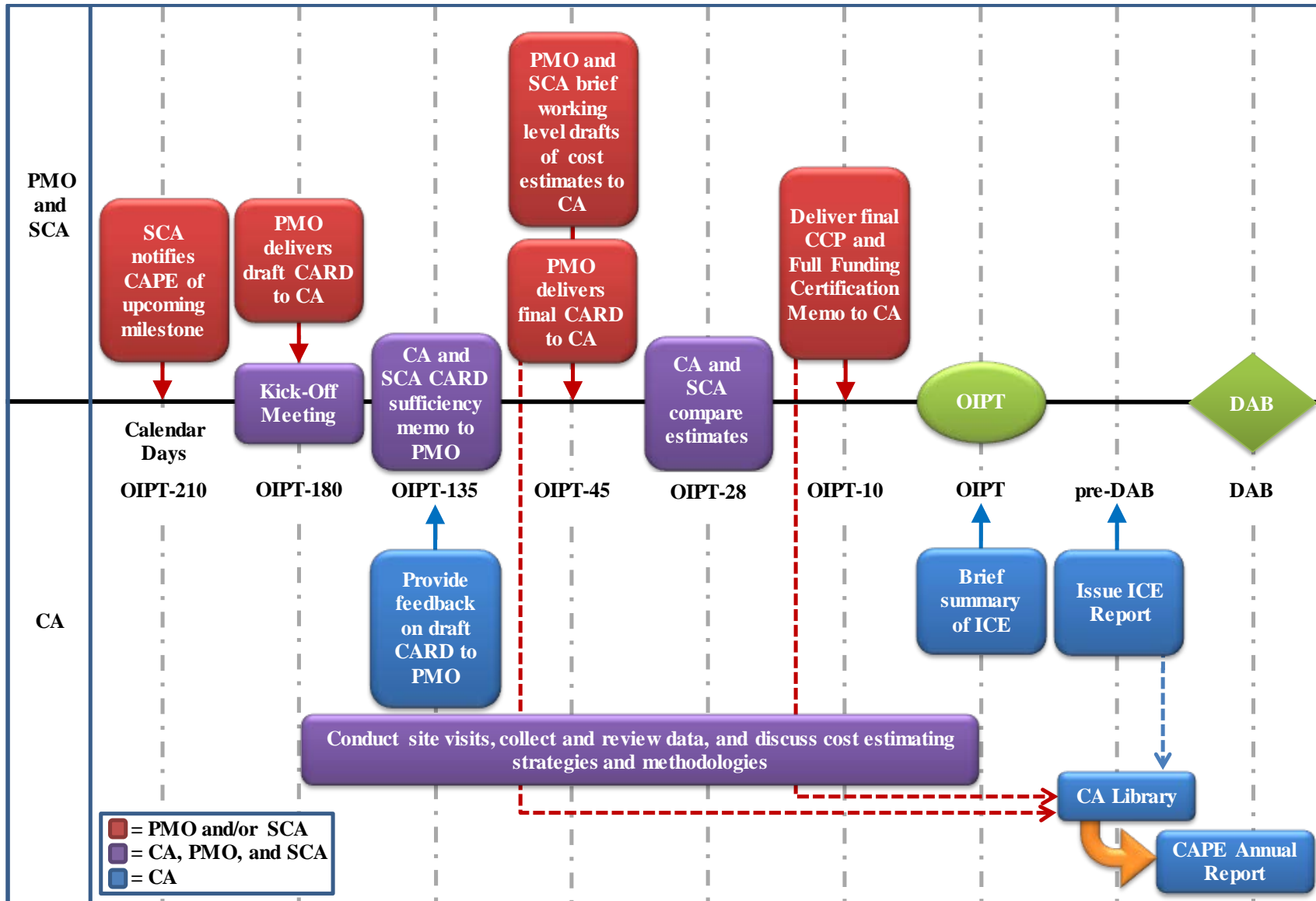
(k) A CA representative will brief a summary of the ICE at the OIPT.

(l) Before the DAB review, CA will issue its ICE report, a copy of which will be placed into the CA Library.

(m) If the DoD Component is directed to fund to the CAPE ICE, CAPE will help the DoD Component understand the methodologies used to conduct the CAPE ICE. Such understanding will allow the DoD Component to update its cost model.

(n) CA uses the information submitted to the CA Library when preparing its annual report to Congress. The annual report summarizes the cost estimation and analysis activities of the DoD during the previous year and assesses the progress of the DoD in improving the accuracy of its cost estimates and analyses.

Figure 1. Timeline for the Preparation of ACAT ID ICEs



(2) Review of ACAT IC Cost Estimates. The DCAPE typically reviews the ICE prepared by the DoD Component for ACAT IC programs. In certain cases, the DCAPE will prepare the ICE for ACAT IC milestone reviews. The timeline in Figure 2 is followed when determining whether CA or the DoD Component will prepare the ICE and, if the DoD Component prepares the ICE, the timeline for CA review.

(a) At least 210 days before the planned cost review board (CRB) meeting, the SCA will notify CA of an ACAT IC program's upcoming milestone that requires either a DoD Component ICE or a CA ICE.

(b) No later than 180 days before the planned CRB meeting, the PMO and SCA will brief the appropriate CA division director on the program, to include available data and methodologies. At or before the briefing, the PMO must deliver a draft CARD to CA.

(c) At least 165 days before the planned CRB meeting, CA will make a decision whether to review the DoD Component ICE or to prepare a CA ICE. CA will issue a memorandum, a copy of which will be placed into the CA Library, documenting its decision. If CA decides to prepare the ICE, the program will follow a tailored version of the timeline and procedures described in paragraph 2b(1) of this enclosure for ACAT ID programs.

(d) If CA decides to review the DoD Component ICE, the CA analyst will continue to meet with technical and cost analysts from the PMO and SCA from 165 to 30 days before the CRB meeting. If, during this time, CA determines that there are significant changes to the program or increased cost or schedule risk, CA may decide to perform a CA ICE of the program.

(e) The PMO will deliver the final draft CARD to CA at least 45 days before the CRB meeting. The final draft CARD should be in near complete form, with only minor changes occurring between its delivery and the delivery of the final signed CARD at least 21 days before the CRB meeting.

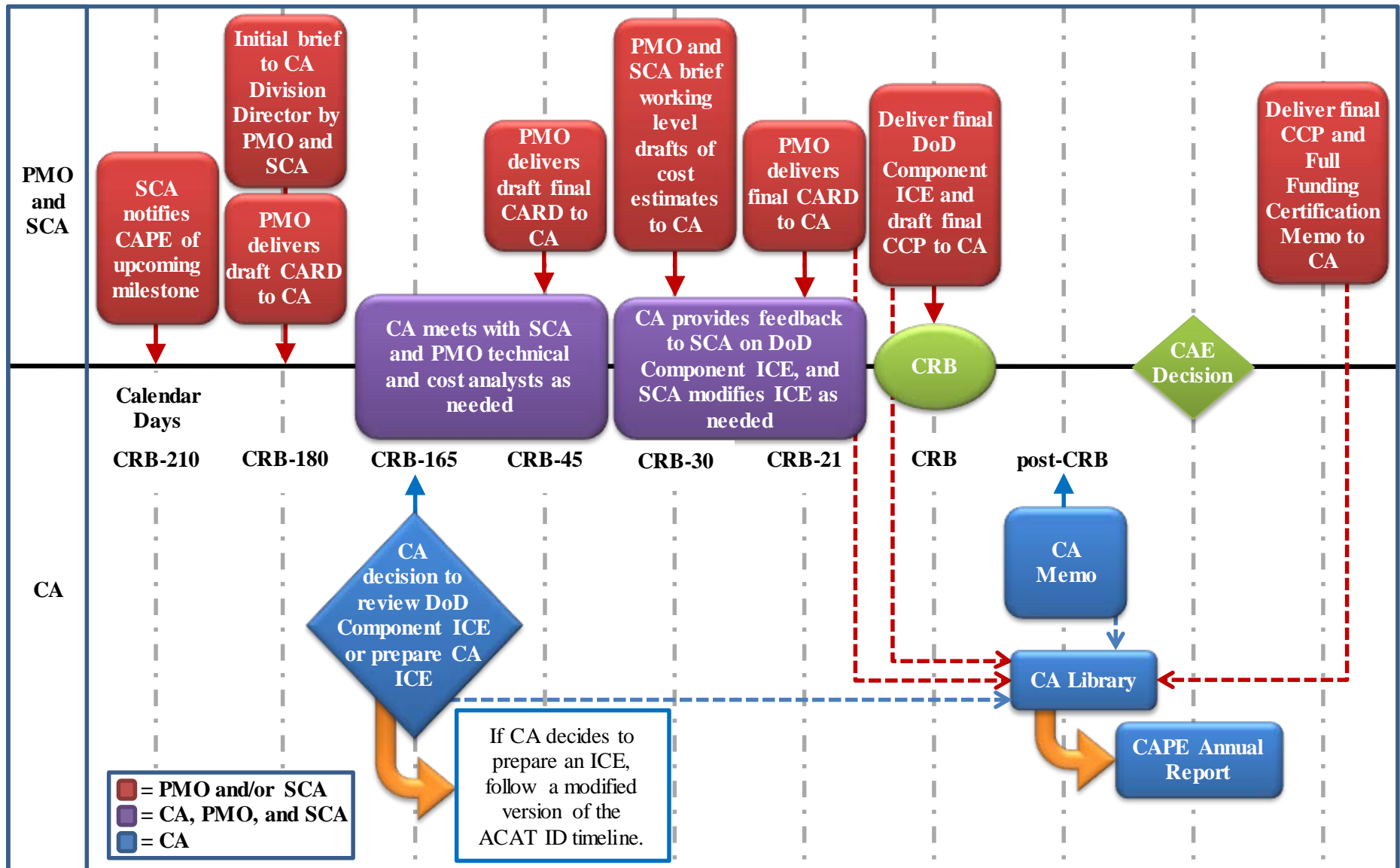
(f) At least 30 days before the CRB meeting, PMO and SCA representatives will brief CA on working level drafts of the POE, DoD Component ICE, CCP, and any other relevant estimates available at the time.

(g) During the 30 days before the CRB meeting, CA will review the DoD Component ICE and provide feedback to the SCA. Based on the feedback, SCA will revise the DoD Component ICE as needed.

(h) At the CRB, the SCA will deliver the final DoD Component ICE to CA. CA will review and assess the adequacy of the ICE and will document its assessment in a memorandum, copies of which will be delivered to the DoD Component Acquisition Executive (CAE) and placed in the CA Library.

(i) Following the CAE decision, the SCA will deliver to CA a signed CCP and full funding certification memorandum, copies of which will be placed into the CA Library.

Figure 2. Timeline for ACAT IC Cost Estimate Review



(3) MYP Cost Analysis. For multiyear contracts for acquisition of property exceeding \$500 million (then year dollars), the Secretary of Defense, or USD(AT&L) if delegated, must determine that the requirements listed in paragraph 2d(7)(c) of this enclosure have been fulfilled in submitting a request for authorization by law to use MYP. The Secretary’s determination is based upon a cost analysis performed by CA. CA follows the timeline in Figure 5 when preparing its analysis.

(a) No later than October 1 of the fiscal year preceding the fiscal year in which a DoD Component plans to request legislative authority for a multiyear contract, the agency head must submit a list of MYP contract candidates and supporting information to the DCAPE. Upon submission of this list, CA and the DoD Component begin to conduct an MYP options review to determine whether any of the programs are good MYP candidates. During the review, the CA and DoD Component representatives consider whether the loss of flexibility is justified in light of the potential savings opportunities, what level and phasing of investment in economic order quantity (EOQ) funding maximizes the government’s savings potential, the impact of foreign military sales on the program, the period of performance, and the buy profile’s impact on potential savings. Examples of charts depicting this analysis are in Figures 3 and 4. Figure 3 illustrates how the percentage of savings the DoD Component may achieve varies based upon investments in EOQ, while Figure 4 shows how unit price varies depending on the quantity.

Figure 3. Percentage of Savings Versus EOQ Investment in MYP Contract

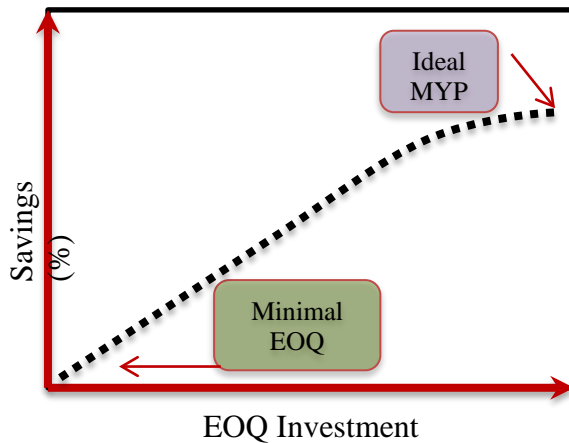
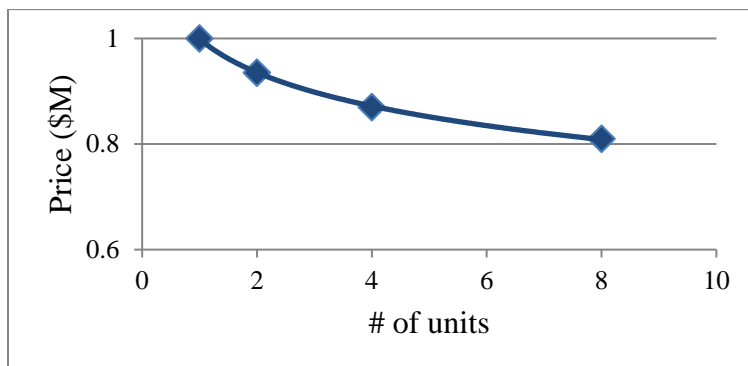


Figure 4. Notional Price Versus Quantity Curve for MYP Contract



(b) By March 1 of the fiscal year preceding the fiscal year in which a DoD Component plans to request legislative authority for a multiyear contract, CA and the DoD Component will complete their option review and present the results at a DAB-level review. The CAE will select the MYP options to pursue and will provide authority to release RFPs for the selected programs. The DoD Components will instruct contractors to submit proposals by July 1, and the DoD Components will begin proposal evaluation and not-to-exceed (NTE) contract negotiations.

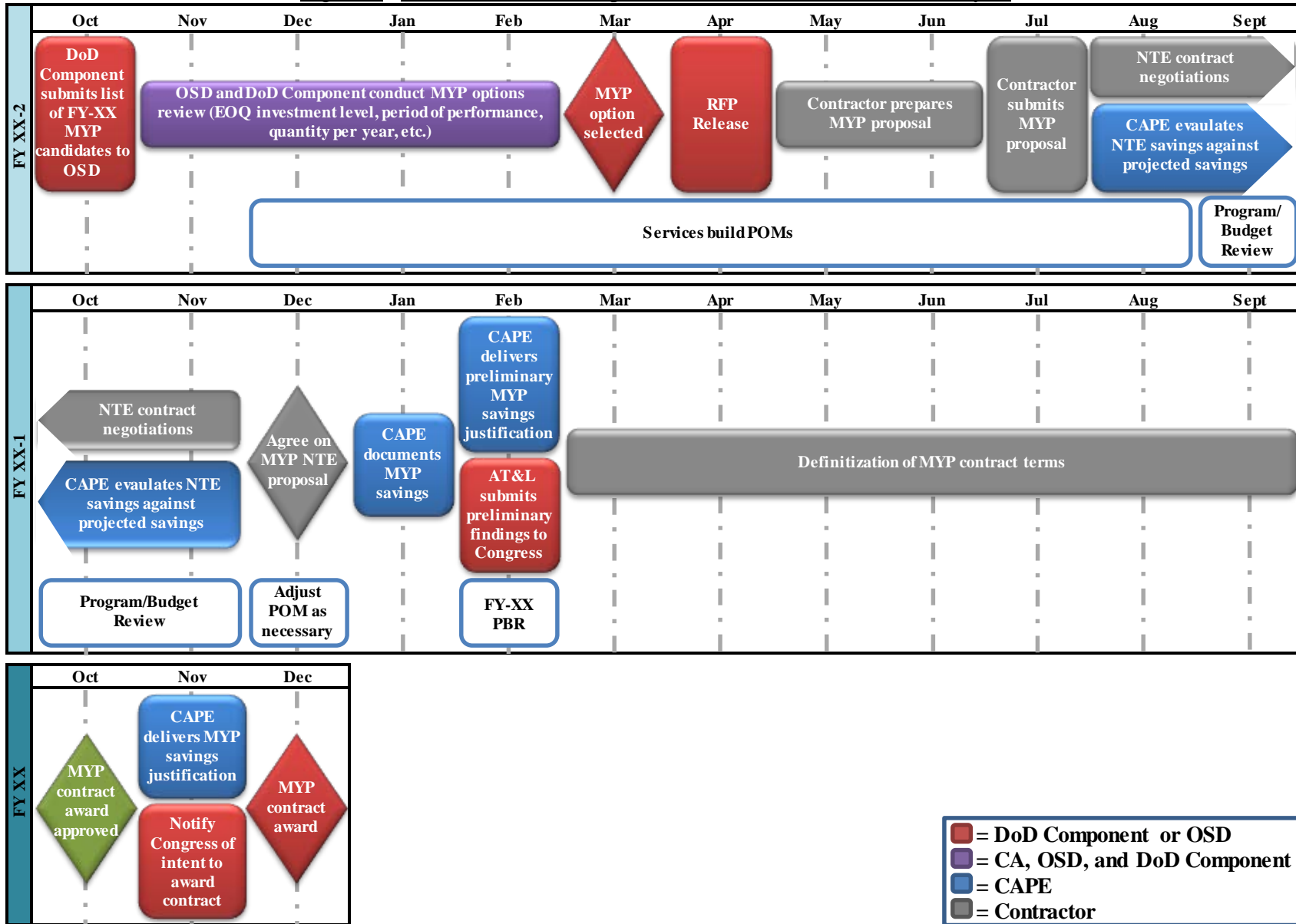
(c) Concurrently with the NTE contract negotiations, CA will evaluate the contractor's proposals against CA's earlier cost analysis.

(d) By December 1 of the fiscal year in which the DoD Component plans to request legislative authority for the multiyear contract, the contractor and the DoD Component, with OSD concurrence, will agree on an NTE contract proposal. From December 1 until the beginning of February, CA will document its estimate of the potential savings that could be achieved using the MYP contract. CA will deliver its preliminary MYP savings justification to AT&L, and the USD(AT&L) will submit the preliminary findings to Congress in conjunction with a request for a specific authorization by law to carry out a defense program using multiyear contract authority. A copy of the preliminary MYP savings justification will be submitted to the CA Library.

(e) From March until September of the fiscal year in which the DoD Component requests legislative authority for the MYP contract, the DoD Component and contractor negotiate and definitize the MYP contract terms.

(f) Following Congressional approval in the National Defense Authorization Act for award of the MYP contract, CA will finalize its MYP savings justification, a copy of which will be placed in the CA Library. CAPE's MYP savings justification should be based upon a reasonable expectation that the contractor will perform in accordance with its proposal and the contractor's previous experience. At least 30 days before MYP contract award, the Secretary of Defense will send notification to the congressional defense committees of the intent to award the MYP contract.

Figure 5. Timetable for the Preparation of MYP Contract Cost Analysis



(4) Nunn-McCurdy Cost Assessment. CA follows the timeline in Figure 6 when conducting its analysis to support a critical Nunn-McCurdy Breach certification. This timeline assumes that the breach is declared between October 1 and submission of the President's Budget. If the breach is declared at a different time, a tailored version of this timeline is used.

(a) By October 1, the DoD Components or PMOs should informally notify CA and the SCA of any programs in danger of a Nunn-McCurdy Breach. The early notification allows the CA analyst to become familiar with the program, begin to gather data, and do preliminary analysis on the program.

(b) Concurrently with the official declaration to Congress of the critical Nunn-McCurdy Breach, the PMO and SCA will deliver documentation regarding the program of record (POR) to CA, to include copies of the current CARD, latest cost estimates, and any other relevant program data. Copies of these documents are submitted to the CA Library.

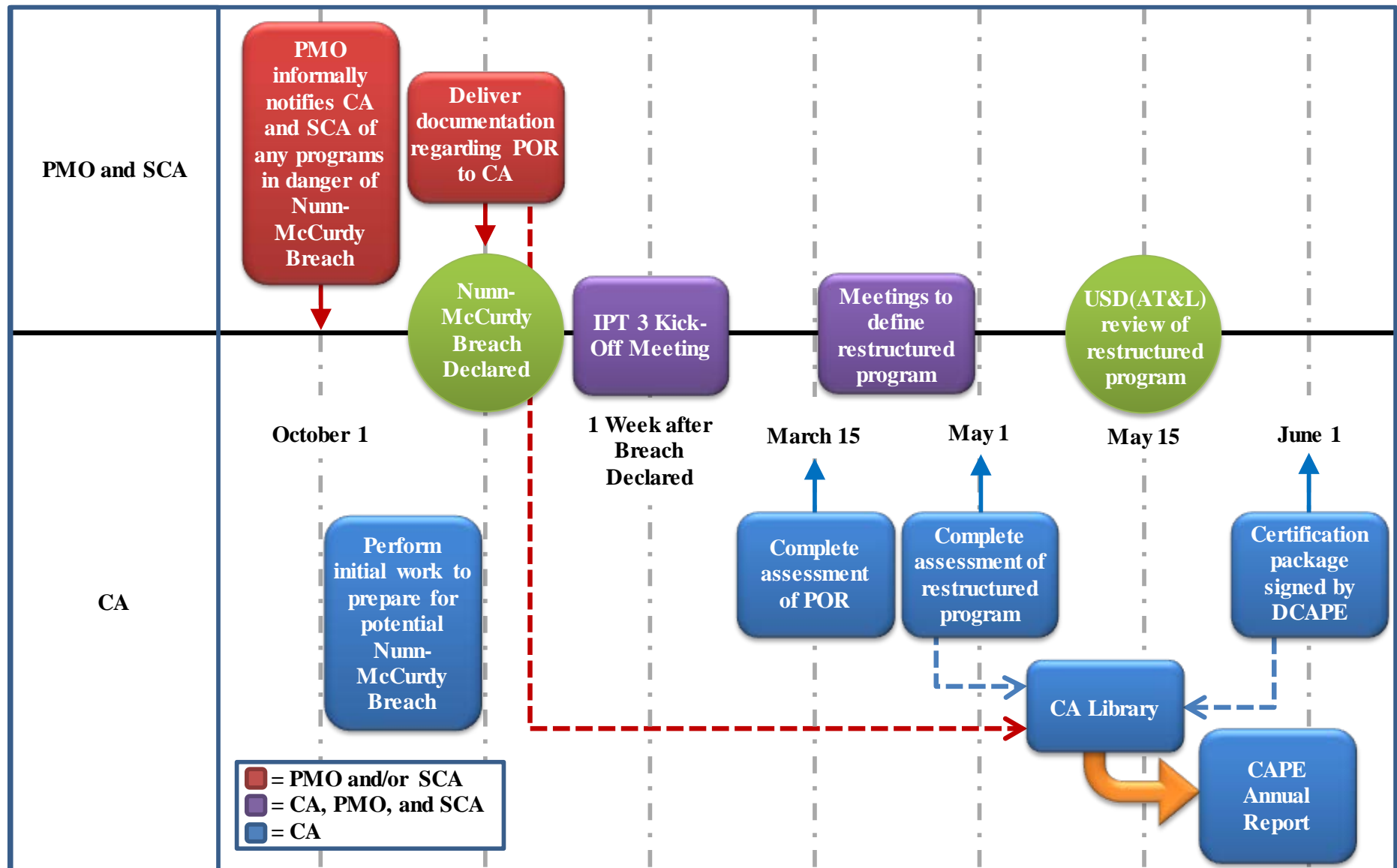
(c) Approximately 1 week after the critical Nunn-McCurdy Breach is declared, the integrated product team (IPT) 3, responsible for conducting cost analysis following declaration of the critical Nunn-McCurdy Breach, holds a kick-off meeting. At the meeting, changes to the program's cost, schedule, and technical status since the last acquisition milestone review should be discussed. If necessary, following the IPT 3 kick-off meeting, the DoD Component will brief the appropriate division director within CA regarding program status. Additionally, the division director often will lead a team of CA analysts on a field visit to one or more contractor facilities.

(d) By approximately March 15, CA will complete its analysis of the POR.

(e) From March 15 through May 1, CA participates in and supports discussions concerning the restructuring of the program. In many cases, DoD leadership considers adjustments to program definition, including technical content, costs and funding, and planned schedules. CA analysts typically assess options for program definition to support the decision making process that could result in a restructured program, perhaps constrained to align with available funding. In addition, the CA analysts may be called upon to assist the CAPE Deputy Director of Program Evaluation (PE) to assess alternatives to the program. PE analysts will perform an initial screening of program alternatives, based on factors other than cost, and identify the most promising alternative. CA analysts may be called upon to provide cost estimates for one, or a small number, of alternatives and may request additional data and information from the DoD Component to support such cost estimates. CA's review and assessment of the restructured program is completed around May 1.

(f) The results of the CA review are documented in a formal CA memorandum provided to the USD(AT&L) around June 1, a copy of which is submitted to the CA Library. The memorandum provides a summary of the current acquisition cost estimate for the program, as reported in the most recent Selected Acquisition Report (SAR), as well as the results of the CA analysis of program acquisition costs. The memorandum provides a breakdown of the considerations that led to the growth in unit cost and an assessment of the adequacy of current program funding.

Figure 6. Timeline for Cost Analysis of Critical Nunn-McCurdy Breach Declared Between October 1 and Submission of the President’s Budget



c. Scope of Analysis at Key Acquisition Events

(1) At each milestone or decision point, the analyst should provide a holistic view of the program and not just an estimate of the proposed solution. At each review, the cost analyst should provide analysis to the decision maker that provides insight enabling the decision maker to answer two main questions:

- (a) Has the DoD fully funded the POR within the FYDP?
- (b) Is the POR an affordable solution for the DoD's needs?

(2) Determining the answer to the first question is straightforward: namely, is there funding in the budget and the FYDP that corresponds to the amount of funding forecasted to be necessary to carry out the program?

(3) The answer to the second question is more complex, and the analysis will vary at each milestone. Specific strategic questions for analysis at each milestone are described in paragraph 2d of this enclosure. At all milestones, when presenting analysis that will help the decision maker determine whether the POR is a program that fulfills the DoD's needs and that the DoD can afford, the analyst should provide insight into:

- (a) The cost of the solution.
- (b) Time needed to achieve the solution.
- (c) Whether the solution pushes the envelope on performance.
- (d) Any potential cost in extending the life of the current materiel solution until the new proposed solution is operational.
- (e) Whether the solution impacts the DoD Component's portfolio by affecting other programs that are valuable to the DoD.

d. Analysis at Key Acquisition Events and Phases

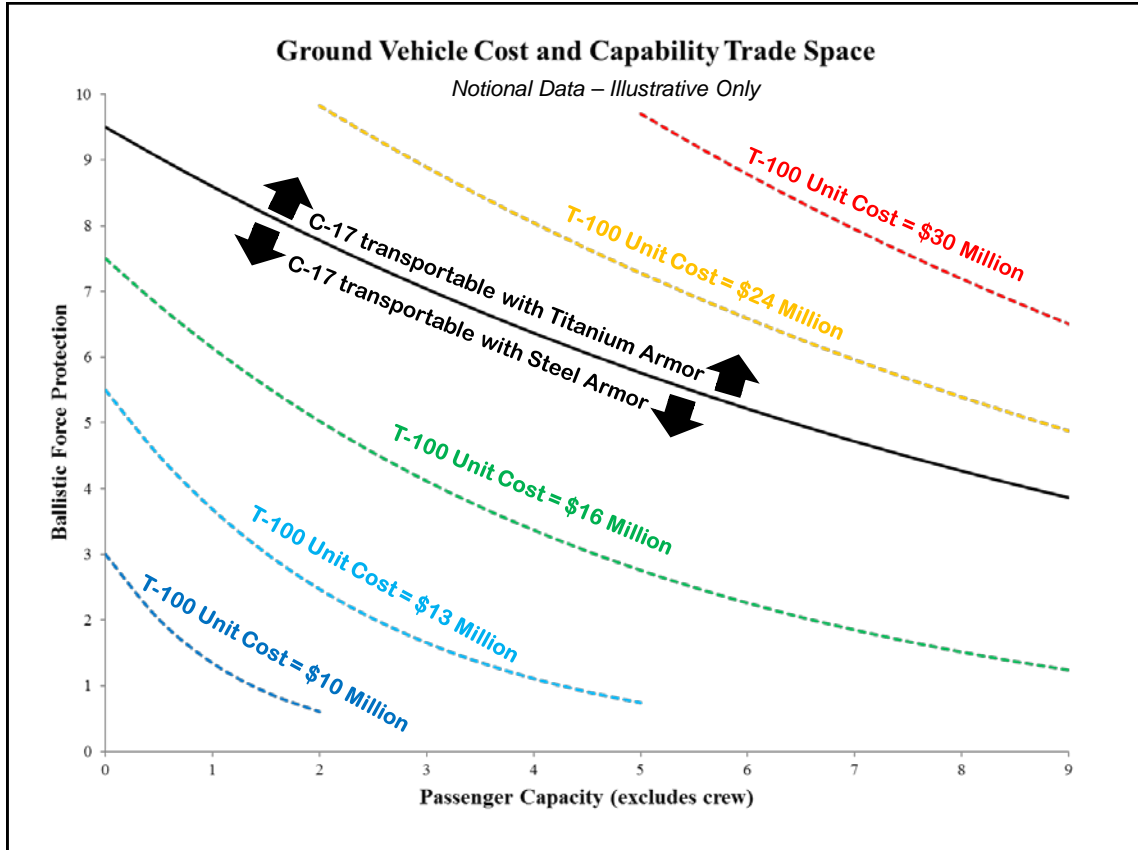
(1) Milestone A. Milestone A precedes the technology maturation and risk reduction (TMRR) phase. The purpose of the TMRR phase is to reduce technology risks and to determine and mature the appropriate set of technologies to be integrated into a full system. Given the limited state of maturity of the technologies proposed at Milestone A, cost uncertainties may be significant. Several potential solutions are considered in the analysis of alternatives (AoA) that span the spectrum of cost, schedule, and performance and are evaluated to determine what best fulfills the given set of requirements. Decision makers need this evaluation in order to converge on a set of solutions for further exploration and to ensure that the program is affordable. The decisions made at Milestone A are reflective of the program risks and broadly set the course for the approach taken in the acquisition program.

(a) At Milestone A, sections 2334 and 2366a of Reference (c) require, respectively, that CAPE prepare an ICE and that a cost estimate for the program be submitted with the concurrence of the DCAPE. The CA ICE at Milestone A gives insights to support trade-off studies, to compare to the AoA results, and to establish initial affordability goals. Despite the preliminary nature of the system design, rough operating and support (O&S) estimates must be included in the ICE and initial O&S affordability goals set. The key strategic questions the analyst should consider while conducting the Milestone A ICE are:

1. What is the cost and performance trade space for the conceptual materiel solution and other potential solutions?
2. Is the program affordable to both buy and operate in the long term?
3. Are CA's insights into the program consistent with the preferred solution of the AoA?

(b) While the focus of the AoA is on the relative cost, performance, and schedule of the full spectrum of solution options, the Milestone A ICE concentrates on a narrower spectrum of solutions and delves deeper into the performance characteristics and related cost and schedule of this smaller subset. Historical analogies to cost, schedule, and performance of similar systems are typically used to analyze the unique features of each system. This may include information on historical systems within the DoD, commercial off-the-shelf (COTS) systems, or modified off-the-shelf systems. Typically, these systems do not match the capability requirements exactly, but the analogous systems should have similar key performance characteristics. Plotting the cost of these analogous systems against their key performance characteristics, while noting the schedule for each system, enables decision makers to conduct cost and performance trades to converge on solutions that would be most beneficial to the DoD given affordability and schedule constraints. An example of a cost versus performance plot for a ground vehicle is illustrated in Figure 7. The plot depicts how the procurement cost for the 100th unit varies depending upon the key performance characteristics of ballistic force protection and passenger capacity.

Figure 7. Ground Vehicle Procurement Cost and Capability Trade Space



(c) For a given FYDP, the ICE is phased through each of the 5 years and compared against available funding to assess whether the program is affordable for a given acquisition profile of quantities procured through the years. Beginning at the Milestone A DAB, and continuing at the Milestone B, Milestone C, and FRP DABs, a program funding chart displaying the cost information provided by the DoD Components and CA, with a comparison to resources provided in the FYDP, must be presented. The template for this chart is found at <https://ebiz.acq.osd.mil/DABCalendar/>.

(2) Development RFP Release Decision Point. The Development RFP Release Decision Point occurs between Milestones A and B. The purpose of the decision point is to approve the release of the RFP for the engineering and manufacturing development (EMD) phase. While an ICE is not statutorily required at this point, CA may present a cost analysis at the decision point review to support the decision maker's release of the RFP.

(a) To determine what type of cost analysis, if any, will be presented at the decision point, CA representatives will meet with representatives from the SCA and PMO no later than 180 days before the scheduled decision point review to determine what cost analysis, if any, will be presented and who will be responsible for preparing the cost analysis. At this meeting, CA may choose to delegate the analysis to the SCA. If it is determined that a cost analysis is needed

to support this decision point, the CA, SCA, and PMO representatives will agree on a tailored timeline for the preparation of the analysis.

(b) Following the meeting, CA will notify the MDA of the type of cost analysis that will be presented at the decision point review. The type of cost analysis will vary depending upon the program and the information that is needed to support the decision to release the RFP.

(c) For some programs, no new cost analysis may be necessary, and the CA representative will present the Milestone A ICE, or an update to the Milestone A ICE, at the decision point review. In other cases, the cost analysis presented at the decision point review may be a general cost assessment or a complete ICE.

(3) Milestone B. Milestone B precedes the EMD phase. The primary focus of Milestone B is to decide upon the most appropriate materiel solution and EMD phase acquisition strategy and to set the initial acquisition program baseline (APB). The purpose of the EMD phase is to develop a system or an increment of capability; complete full system integration; develop an affordable and executable manufacturing process; ensure operational supportability with particular attention to minimizing the logistics footprint; design for producibility; ensure affordability; and demonstrate system integration, interoperability, safety, and utility.

(a) At Milestone B, sections 2334 and 2366b of Reference (c), respectively, require that CAPE prepare an ICE and that reasonable cost and schedule estimates have been developed to execute the product development and production plan under the program, with the concurrence of the DCAPE. The ICE supports the establishment of the original APB for the program at a set cost and schedule. As with all ICEs, the Milestone B ICE must include an O&S cost estimate. At this formative stage, O&S cost considerations support the systems engineering process and influence requirements decisions followed by the system design decisions. The long term affordability of the program is reassessed, and affordability goals are refined as formal caps and incorporated into program baselines. O&S cost estimates also are used in a program's business case analysis (BCA) to evaluate the costs and benefits of alternative life cycle sustainment strategies.

(b) When conducting the Milestone B ICE, the key strategic questions the analyst should consider are:

1. What is the cost and performance trade space for the detailed materiel solution and other potential solutions?

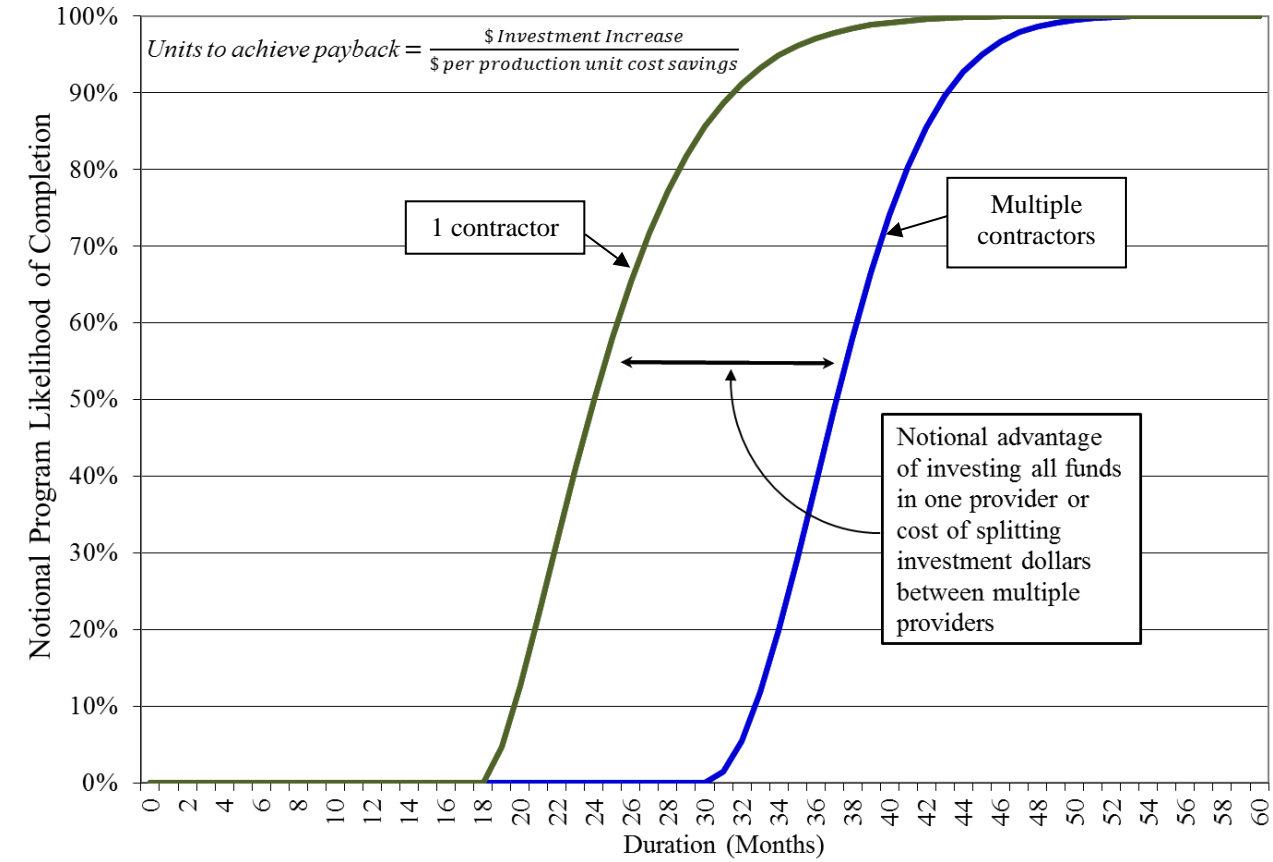
2. Is the program affordable to both acquire and operate in the long term?

3. Are there alternative acquisition or programmatic strategies that result in a more affordable and efficient program?

a. What is the nature and duration of competition for both prime and major subcontractors? What is the appropriate time to down select to one contractor? Figure 8 depicts

one example of analysis that evaluates the impact on schedule of carrying one contractor or multiple contractors through EMD.

Figure 8. Acquisition Strategy and Contract Approach



b. Are there ways to invest in manufacturing efficiencies?

4. What technologies or strategies can be pursued to lower the overall sustainment cost?

a. What investments can be made in sustainability?

b. Have alternative sustainment strategies been considered in the BCA?

c. Is there a way to introduce competition into planned contractor logistics support for a system?

(4) LRIP and Milestone C. At LRIP, the MDA decides to build the first production units for use in operational tests. LRIP typically occurs at Milestone C, which precedes the production and deployment phase. The purpose of the production and deployment phase is to achieve an operational capability that satisfies mission needs. During the phase, operational test and evaluation determines the effectiveness and suitability of the system.

(a) The primary purpose of the LRIP decision is to decide when to gear up for production and at what annual quantities. At this point, the cost analyst should provide analysis that allows the decision maker to determine the quantities to produce during LRIP and the level of commitment the DoD should make before operational testing. Making production-ready articles before operational testing to save program schedule may be technically risky, resulting in expensive retrofits after the testing phase. In other cases, the risks may be lower when, for example, the program has many COTS subsystems which are integrated without any modifications. The cost analyst also should provide analysis to support the decision maker's consideration of the acquisition strategy that will be used in procurement and the method of sustainment. Decisions may be made on non-recurring investments required for the most economical annual production rates with the least amount of technical risk and on reliability investments that reduce sustainment costs.

(b) At LRIP, as well as at the FRP decision review, the O&S cost estimates are updated and refined based on the system's current design characteristics, the latest deployment schedule, and the current logistics and training support plans. The DoD Component must compare the most recent O&S cost estimates to the prior estimates and identify reasons for any significant variances. Actual O&S experiences and costs, discovered during the system test and evaluation, should be factored into the updated O&S cost estimate, which in turn should be used to verify progress in meeting supportability goals or to identify problem areas. The BCA for the product support strategy should be updated with actual cost experience, and any funding issues associated with O&S should be resolved.

(c) At the decision to begin LRIP, section 2334 of Reference (c) requires that CAPE prepare an ICE. When conducting the LRIP ICE, the analyst should answer key strategic questions including:

1. What is the most efficient and affordable way to procure the system when considering rate of procurement, programmatic, reprocurement, and use of government furnished equipment?
2. What is the most efficient and affordable way to transition to LRIP and FRP?
 - a. What is the timing of initial procurement relative to operational testing results and demonstrated manufacturing capabilities?
 - b. How many operational systems should be purchased before testing is complete?
3. What technologies or strategies can be pursued to lower the sustainment costs?
4. Do the results of the cost analysis support the product support strategy BCA results?

5. Is the system affordable when compared to the annual O&S costs of the legacy system that is being replaced?

6. Is contractor logistics support or organic support more efficient and affordable?

7. Is the system cost effective, balancing the risks associated with the estimate of its O&S costs and related parameters such as reliability with higher system readiness and better mission availability?

(5) FRP. The primary purpose of the FRP decision is to determine whether the program is ready to begin production at the desired rates. This entails assessing the manufacturing infrastructure at the contractor site(s) to ensure they have the required capacity. By FRP, all the major technical challenges in the program should have been resolved and the focus should be on producing articles at the required rates based on the set acquisition profile. An assessment should be made as to whether the contractor can deliver these production rates at the most economical cost. Decisions also will be made on the optimum amount of raw materials and COTS subsystems procured through advance procurement that would be the most effective or economical for the proposed production run.

(a) Section 2334 of Reference (c) requires that CAPE prepare an ICE at FRP. The ICE covers the entire life cycle of the program, which at this stage in the acquisition life cycle can partially be based on the actual costs and demonstrated performance capabilities of the articles produced in LRIP and data collected on the program to date.

(b) When conducting the FRP ICE, the analyst should consider key strategic questions, including:

1. Are there alternative procurement profiles that result in a more affordable and efficient program?

2. Could substantial savings be achieved through use of a multiyear procurement contract for the program?

3. What changes should be made to the sustainment strategy in the BCA?

(6) Post-Initial Operational Capability (IOC)

(a) After IOC, DoD Components must continue to track O&S costs and update O&S cost estimates yearly throughout the program's life cycle to determine whether preliminary information and assumptions remain relevant and accurate and to identify and record reasons for variances.

(b) O&S cost estimates are independently reviewed at post-IOC reviews. Each O&S cost estimate must be compared to earlier estimates and the program's O&S affordability caps, and, as appropriate, used to update the life-cycle affordability analysis provided to the MDA and

requirements validation authority. This comparison must identify the reasons for significant changes and categorize those reasons into external and internal factors.

(7) MYP

(a) CA reviews programs seeking multiyear authority in order to determine whether cost savings may be achieved by entering into a multiyear contract compared to single year contracts for the same purchase. CA's analysis gives insight into:

1. The potential amount and sources of savings under a multiyear contract.
2. The impacts of EOQ, labor efficiencies, potential foreign military sales, and rate effects on the program.
3. The impact on the industrial business base.
4. The impact on labor rates for DoD programs serviced by the same contractor.
5. Whether the savings, if any, under a multiyear contract are justified when considering the loss of budget flexibility.

(b) CA may participate in multiyear contracting decisions pursuant to sections 2334(c) and 2306b of Reference (c). Section 2334(c) states that the DCAPE may participate in the consideration of any decision to request authorization of a multiyear procurement contract for an MDAP, while section 2306b requires the DCAPE to conduct a cost analysis for all defense acquisition programs specifically authorized by law to be carried out using multiyear contract authority and for all MYP contracts in an amount equal to or greater than \$500 million (then year dollars) for the acquisition of property. To note, multiyear authority is granted for a contract. If MYP is authorized at the program level, the DoD will review all of the program contracts, regardless of dollar value.

(c) Section 2306b(a) of Reference (c) permits the head of an agency to enter into a multiyear contract for the purchase of property, assuming that funds are available for obligation, if the head of the agency finds each of the following to be true:

1. The use of such a contract will result in substantial savings of the total anticipated costs of carrying out the program through annual contracts.
2. The minimum need for the property to be purchased is expected to remain substantially unchanged during the contemplated contract period in terms of production rate, procurement rate, and total quantities.
3. There is a reasonable expectation that throughout the contemplated contract period the head of the agency will request funding for the contract at the level required to avoid contract cancellation.

4. There is a stable design for the property to be acquired and the technical risks associated with such property are not excessive.

5. The estimates of both the cost of the contract and the anticipated cost avoidance through the use of a multiyear contract are realistic.

6. The use of such a contract will promote the national security of the United States.

(d) CA conducts a cost analysis, following the timeline in Figure 5, on which the Secretary of Defense's, or USD(AT&L)'s (if delegated), determination on the factors in paragraph 2d(7)(c) is based.

(8) Nunn-McCurdy Breach

(a) Background. A Nunn-McCurdy Breach occurs when the CAE for an MDAP or designated subprogram determines that the program acquisition unit cost (PAUC) or average procurement unit cost (APUC) estimate exceeds either the current or original baseline estimate by more than the percentages specified in the Table.

Table. Nunn-McCurdy Breach Thresholds

	Significant Breach	Critical Breach
Current Baseline Estimate	+15%	+25%
Original Baseline Estimate	+30%	+50%

1. The latest cost estimates for PAUC and APUC are tracked relative to two baseline cost estimates – the current and original baseline estimates. The current baseline estimate is the most recent baseline approved by the MDA. The original baseline estimate is the baseline approved at program initiation, usually Milestone B, and can only be revised in conjunction with the milestone re-approval process following a critical Nunn-McCurdy breach.

2. A unit cost breach may be either significant or critical. For significant breaches, the DoD Component notifies Congress of the breach within 45 days of the unit cost report upon which the breach is based and subsequently submits a program SAR with additional, breach-related information. For critical breaches, in addition to notifying Congress and submitting the SAR, the DoD is required to conduct a complete assessment of the program and determine if it should be terminated or continued. In order for the program to continue, the USD(AT&L) must certify that the program meets the criteria in section 2433a of Reference (c).

3. In most cases, a unit cost breach occurs in conjunction with submission of the new President's Budget and the unit cost breach information is reported in the annual December SAR. Occasionally, these breaches occur concurrently on more than one MDAP, with short deadlines (typically 2 or 3 months) for the certification process. Consequently, the Nunn-

McCurdy review process follows a more demanding and compressed timeline than the process followed for acquisition milestone reviews. The DoD Components must provide prompt assistance, including responding to CA requests for data and information, to support this expedited review process. In a few cases, the unit cost breach can occur out of cycle, when the DoD Component declares the breach due to an inherent and unavoidable problem or other issue. In such cases, the certification process will result in an out-of-cycle SAR, unless the program is terminated.

(b) CAPE Role

1. Upon declaration of a critical Nunn-McCurdy Breach, CAPE is statutorily required to carry out an assessment of the projected cost of completing the program if current requirements are not modified, the projected cost of completing the program based on reasonable modification of such requirements, the rough order of magnitude of the costs of any reasonable alternative system or capability, and the need to reduce funding for other programs due to the growth in cost of the program.

2. Additionally, pursuant to statute, following a critical breach, the DCAPE determines whether the new estimates of PAUC and APUC are reasonable.

3. As a standard business practice, CA prepares a cost analysis of the acquisition costs, following the timeline in Figure 6, to support the assessments described in paragraphs 2b(8)(b)1 and 2b(8)(b)2 of this enclosure. The cost analysis, with associated assessments, is provided to the Director of Performance Assessments and Root Cause Analyses to assist in his assessment of root causes of cost growth (e.g., unrealistic baseline assumptions and estimates for cost or schedule, inadequate program funding or funding instability, or poor contractor performance).

4. After a critical unit cost breach, if the program is not terminated, the milestone certification associated with the last milestone approval of the program is rescinded. Following completion of the Nunn-McCurdy certification process, a new milestone approval to restore the certification is required. A revised APB is also approved at that time. CA prepares a complete update to the ICE for the new program milestone following the typical process and timeline used for milestone reviews of acquisition programs.

3. COST ESTIMATION FOR MAIS PROGRAMS. Cost estimates and analyses for MAIS programs are conducted at key acquisition points throughout a system's life cycle. This section sets forth the points at which cost estimates are required. The cost estimates developed under this section for baseline descriptions and other program purposes may not be used for contract negotiations or the obligation of funds.

a. CAPE Cost Analysis Activities

(1) ICEs

(a) CA conducts ICEs for MAIS programs for which the USD(AT&L) is the MDA:

1. In advance of any critical change report under section 2445c(f) of Reference (c).

2. At any other time considered appropriate by the DCAPE or upon the request of the USD(AT&L) or the MDA.

(b) CA prepares an ICE for ACAT IAC programs at any time considered appropriate by the DCAPE or upon the request of the USD(AT&L) or the MDA.

(2) Estimate Reviews. In most cases, CA will review the DoD Component ICE, CCE, and other cost estimates conducted for ACAT IAC and IAM programs.

(3) Critical Change Certifications. CA conducts cost assessments for MAIS programs in advance of any critical change certification.

b. Timelines for MAIS Program Cost Analysis Activities

(1) Review of MAIS Program Cost Estimates. The DCAPE typically reviews the CCE prepared by the DoD Component for MAIS programs at Milestone A, Milestone B, Milestone C, the full deployment decision (FDD), or any time an economic analysis is required. In certain cases, the DCAPE will prepare an ICE for MAIS milestone reviews. The timeline in Figure 9 is followed when determining whether CA will prepare an ICE or the DoD Component will prepare a CCE, and if the DoD Component prepares a CCE, the timeline for the DCAPE review.

(a) At least 210 days before the planned OIPT equivalent meeting, the SCA will notify CA of a MAIS program's upcoming milestone that requires either a CCE or a CA ICE.

(b) No later than 180 days before the planned OIPT equivalent meeting, representatives from the PMO and SCA will brief the CA division director on the program and available data and methodologies. At or before the briefing, the PMO must deliver a draft CARD to CA.

(c) CA will make a decision whether to review the CCE or to prepare a CA ICE at least 165 days before the planned OIPT meeting. CA will issue a memorandum, which will be placed into the CA Library, documenting its decision. If CA decides to prepare the ICE, the program will follow a tailored version of the timeline and procedures described in paragraph 2b(1) of this enclosure for ACAT ID programs.

(d) If CA decides to review the CCE, a CA analyst will continue to meet with technical and cost analysts from the PMO and SCA from 165 to 30 days before the planned OIPT equivalent meeting. If, during this time, CA determines that there are significant changes to the program or increased cost or schedule risks, CA may decide to perform a CA ICE of the program.

(e) The PMO will deliver the final draft CARD to CA at least 45 days before the OIPT equivalent meeting. The final draft CARD should be in near-complete form, with only minor changes occurring between its delivery and the delivery of the final signed CARD at least 21 days before the OIPT equivalent meeting.

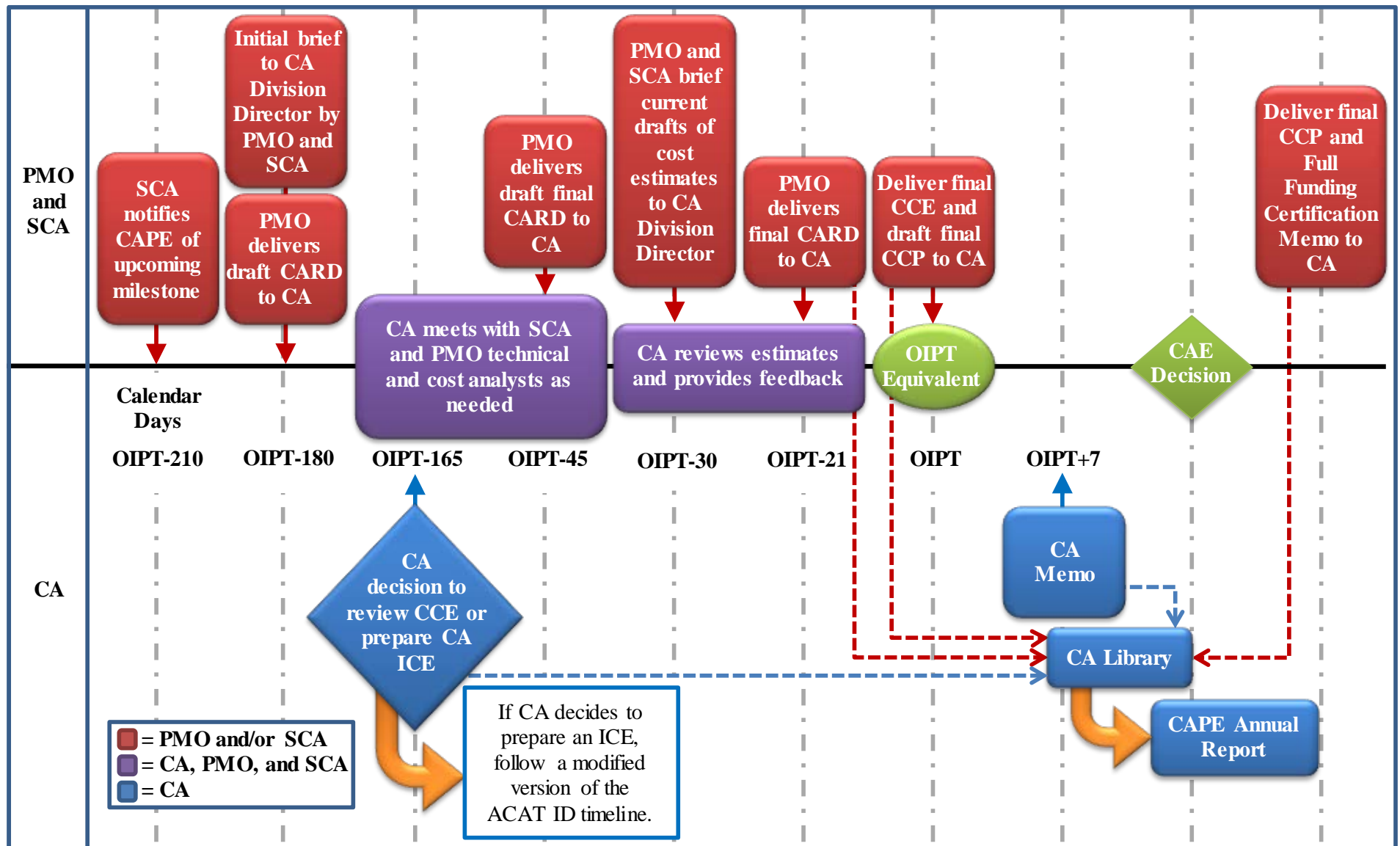
(f) At least 30 days before the OIPT equivalent meeting, PMO and SCA representatives will brief CA on working level drafts of the POE, CCE, CCP, and any other relevant estimates available at the time.

(g) During the 30 days before the OIPT equivalent meeting, CA will review the CCE and provide feedback to the SCA. Based on the feedback, the SCA will revise the CCE as needed.

(h) At the OIPT equivalent meeting, the SCA will deliver the final, signed CCE and draft final CCP to CA. CA will review and assess the adequacy of the CCE and document its assessment in a memorandum, copies of which will be delivered to the CAE and placed in the CA Library.

(i) Following the CAE decision, the SCA will deliver the final, signed CCP and final, signed full funding certification memorandum to CA.

Figure 9. Timeline for MAIS Programs Cost Estimate Review



(2) Critical Change Cost Analysis. In order to complete the analysis in a timely manner, CA follows the timeline in Figure 10 when conducting its analysis.

(a) PMOs should informally notify CA of any programs in danger of a critical change at least 180 days before the critical change report (CCR) will be submitted to Congress. The early notification allows the CA analyst to become familiar with the program, begin to gather data, and perform preliminary analysis on the program.

(b) Concurrently with declaration of a critical change, the PMO and SCA will deliver documentation regarding the POR to CA, to include copies of the current CARD, latest cost estimates, and any other relevant program data, copies of which are placed into the CA Library.

(c) Approximately 5 days after the critical change is declared, the cost integrated product team that will prepare Report 3 (R3) holds a kick-off meeting. At the meeting, changes to the program's cost, schedule, and technical status since the last acquisition milestone review should be discussed. If necessary, following the R3 kick-off meeting, the DoD Component will brief the appropriate division director within CA regarding program status. Additionally, the division director often will lead a team of CA analysts on a field visit to one or more contractor facilities.

(d) Approximately 40 days after the critical change is declared, CA will complete its analysis of the POR. A copy of the analysis will be submitted into the CA Library.

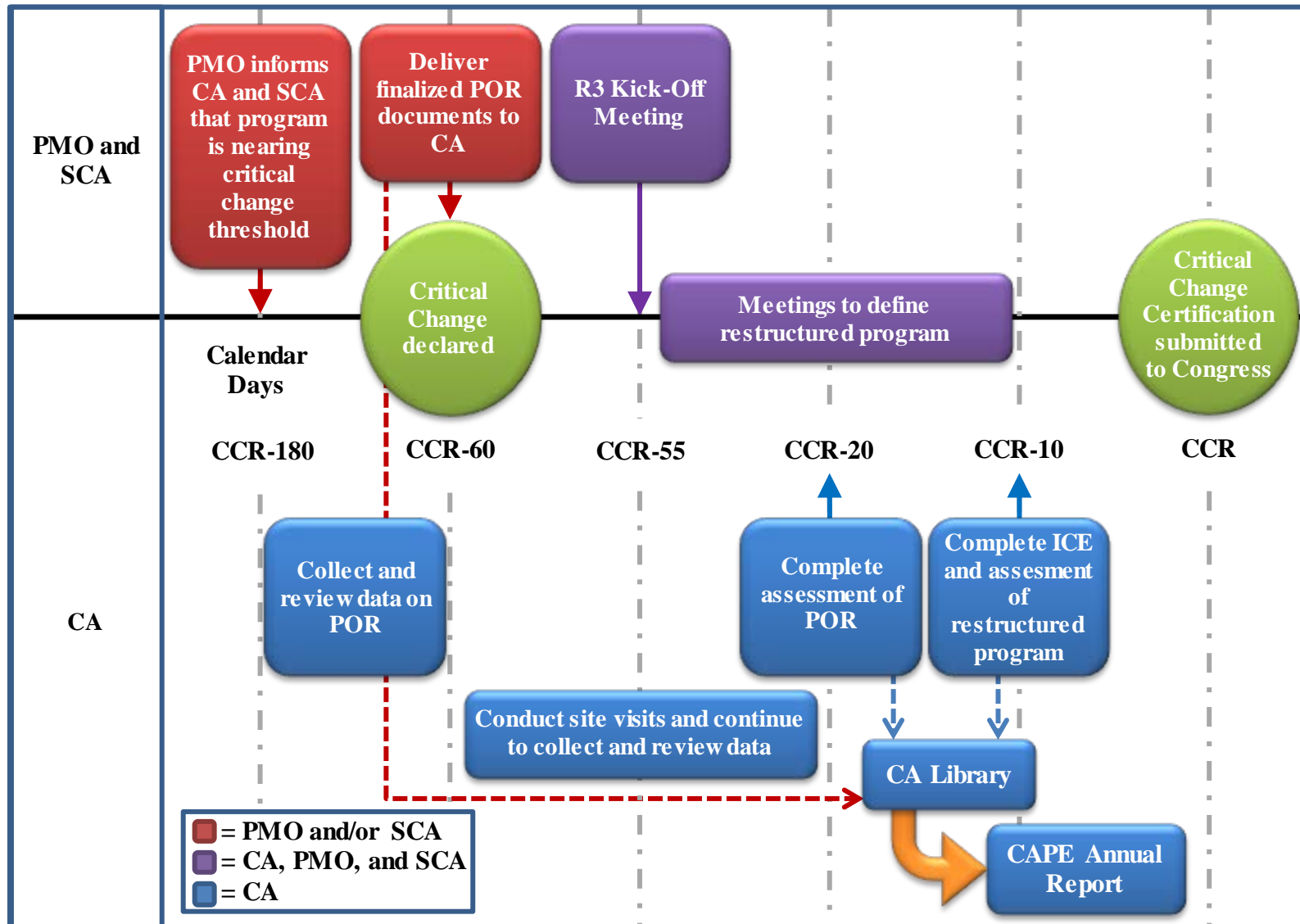
(e) Beginning with the R3 kick-off meeting and continuing until approximately 10 days before the CCR is submitted to Congress, CA participates in and supports discussions concerning the restructuring of the program.

1. In many cases, DoD leadership considers adjustments to program definition, including technical content, costs and funding, and planned schedules. CA analysts typically assess options for program definition to support the decision making process that could result in a restructured program, perhaps constrained to align with available funding. In addition, the CA analysts may be called upon to assist the CAPE Deputy Director of Program Evaluation in the Report 2 (R2) process to assess alternatives to the program.

2. PE analysts will perform an initial screening of program alternatives, based on factors other than cost, and identify the most promising alternative. CA analysts may be called upon to provide cost estimates for one (or a small number) of alternatives discussed in R2 meetings and may request additional data and information from the DoD Component to support such cost estimates.

3. CA's review and assessment of the restructured program is completed approximately 10 days before the CCR is submitted to Congress. The results of the CA review are documented in a formal CA memorandum provided to the USD(AT&L). The memorandum provides a summary of the current cost estimate for the program as well as CA's position as to whether the cost estimate is reasonable for purposes of the CCR submitted to Congress. A copy of the memorandum is submitted into the CA Library.

Figure 10. Timeline for Cost Analysis of MAIS Critical Change



c. CAPE Analysis at Critical Change

(1) Background

(a) A critical change occurs when it is determined that a MAIS program or other major information technology investment program:

1. Has had a schedule change that will cause a delay of 1 year or more in any program schedule milestone or significant event from the schedule originally submitted to Congress;

2. Has had an increase of 25 percent or more to the estimated program development cost or full life-cycle cost for the program over the original estimate submitted to Congress; or

3. Has had a change in the expected performance of the system that will undermine the ability of the system to perform the functions anticipated at the time information on the program was originally submitted to Congress.

(b) The program manager must report a critical change in the MAIS Quarterly Report that is submitted to Congress. Within 60 days of submitting the MAIS Quarterly Report, an evaluation must be completed of:

1. The projected cost and schedule for completing the program if current requirements are not modified.

2. The projected cost and schedule for completing the program based on reasonable modification of such requirements.

3. The rough order of magnitude of the cost and schedule for any reasonable alternative system or capability.

(2) CAPE Role. Upon declaration of a critical change, CAPE is statutorily required to determine whether the new estimates of costs, schedule, and performance parameters, are reasonable. When the USD(AT&L) is the MDA, CAPE is additionally required to conduct an ICE. Depending on the complexity of the program, available data, and cost of the program, CA may conduct an ICE for MAIS programs when the USD(AT&L) is not the MDA in order to determine if the new estimates are reasonable. CA follows the timeline in Figure 11 and procedures described in paragraph 3b(2) when conducting its analysis.

4. DATA COLLECTION. Well-documented estimates, research, and cost data represent enduring investments of government time and resources that can be used on estimates of similar systems, foster improvement in knowledge and estimating techniques over time, and serve as a basis for future methodology improvement efforts. To enable the collection and sharing of this data, the following procedures must be followed:

a. Collection of Documentation for MDAPs and MAIS Programs. The CA Library electronically houses cost estimates and the associated supporting documentation. SCAs and DoD Components must submit copies of the final CARD, CCP, full funding certification memorandum, DoD Component ICE, and other program cost documentation to the CA Library via email to osd.pentagon.cape.list.cost-librarian@mail.mil. Copies of certain documents are accessible to authorized users via CAPE's Cost Assessment Data Enterprise website (<http://cade.osd.mil/>) and AT&L's Acquisition Information Repository (<https://www.dodtechipedia.mil/dodc/display/AIR/Home>).

b. Collection of Studies

(1) The Collaborative Cost Research Library (CCRL) serves as an electronic repository for cost research reports so that cost estimating organizations can share data and research in traditionally difficult areas of estimation and avoid re-learning what other organizations have already experienced. This allows limited resources to be efficiently directed toward more thorough analyses and enables incremental and enduring improvements in estimating capabilities. To enable this sharing of data, CA, SCAs, DoD Components, and other DoD organizations associated with developing cost and schedule estimates for the DoD will:

(a) Annually provide the DCAPE and the SCA directors a summary of completed and ongoing research efforts.

(b) Upload research reports developed or sponsored by the organization to the CCRL located at <https://www.ncca.navy.mil/library/library.cfm>.

(2) The CCRL is compartmentalized so that each organization can manage its documents, document requests, document submissions, and user accounts through a librarian designated by that organization. The CCRL system is overseen by a library supervisor designated by the Naval Center for Cost Analysis who is also responsible for training, maintenance, and hosting of the system.

(a) The CCRL allows the uploading organization's librarian to control access to uploaded documents. Each organization will allow visibility and access to all cost research reports associated with the organization to U.S. Government employees. Organizations can separately control visibility and access to documents that are not cost research reports. However, to maximize the benefit to overall U.S. Government mission and cost community, appropriate visibility and sharing of all documents with government employees is encouraged.

(b) All cost estimating organizations will:

1. Designate one or more points of contact who will act as the librarian within CCRL for their organizations.

2. Ensure the upload of all cost research reports developed or sponsored by their organizations into CCRL.

(c) The library supervisor will provide the CA Deputy Director and the SCA Executive Directors a short annual report summarizing cost research reports uploaded into the library by organization, usage metrics, and a status of library resources, noting any areas needing the CA Deputy Director's and SCA Executive Directors' attention.

c. Cost Data Collection. Systematic and institutionalized cost data collection by each DoD Component is important to support credible cost estimates of current and future programs. The cost data collection systems subject to CA oversight are the Cost and Software Data Reporting (CSDR) system and the Visibility and Management of Operating and Support Costs (VAMOSOC) system. CA also provides technical oversight to the central repository for earned value management (EVM) data.

(1) CSDR. The CSDR system serves as the primary source of cost data for pre-MDAPs, MDAPs, pre-MAIS programs, and MAIS programs. CSDR reporting is required by subpart 234.71 of the Defense Federal Acquisition Regulation Supplement (Reference (d)); DoDI 5000.02 (Reference (e)); and DoD 5000.04-M-1 (Reference (f)). Reference (f) provides additional guidance on CSDR reporting. The Defense Cost and Resource Center (DCARC) is the OSD office responsible for administering the CSDR system. Access to CSDR data is provided by the DCARC to authorized and approved users, in accordance with Reference (f). Reference (f) describes the procedures in place to safeguard the proprietary data contained in the CSDR system.

(a) CSDR Reporting

1. The CSDR system consists of two distinct elements, Contractor Cost Data Reporting (CCDR) and Software Resources Data Reporting (SRDR). CCDR is the DoD's primary means of systematically collecting data on the development, production, and sustainment costs that contractors incur in performing acquisition program contracts, while SRDR supplements CCDR with software metrics that provide a better understanding and improved estimating of software-intensive programs.

2. CSDR reporting is required for all major contracts and subcontracts, regardless of contract type, for ACAT I and IA programs and pre-MDAP and pre-MAIS programs valued at more than \$50 million (then year dollars) for the full life cycle of the program. CSDR reporting requirements apply to acquisition programs in the sustainment phase. The requirement for CSDR on high-risk or high-interest contracts valued between \$20 million and \$50 million is left to the discretion of the program manager, subject to the approval of the CA Deputy Director. Such approval is obtained as part of the CSDR planning process.

(b) CSDR Planning Process

1. The foundation of successful cost and software data reporting is the planning process that occurs before the actual reporting begins. The planning process involves determining what data is needed, when the data will be needed, and how the data will be reported. This includes formally incorporating appropriate contractual requirements into RFPs,

model contracts, subcontracts, and other pertinent contract-related documents.

2. The key documents in the planning process are the program and contract CSDR plans that ultimately reflect the approved CSDR data requirements for each MDAP and MAIS program at each acquisition milestone. The CSDR planning documents together specify the program and contract work breakdown structure (WBS) elements, based on the Department of Defense Standard MIL-STD-881C (Reference (g)); the specific collection of CCDR and SRDR data by program and contracts; reporting frequency; and other supporting material. The PMO must develop these plans in consultation with CA staff, DCARC analysts, representatives from the SCA, and any other appropriate stakeholders. The PMO must submit the planning documents (program CSDR plan, contract CSDR plans (if appropriate), related RFP language, and a program WBS dictionary (as appropriate)) to the DCARC at the same time that the initial draft CARD is provided to CA (180 days before the planned OIPT meeting) or 60 days before the first RFP release, whichever is earlier.

(c) Sustainment Contract Cost Reporting. The requirement for CSDR is applicable to major sustainment contracts and subcontracts (e.g., contractor logistics support, interim contractor support, performance-based logistics, or other similar arrangements). The DD Form 1921-4, "Contractor Sustainment Report" (located at the DoD Forms Management Program website at <http://www.dtic.mil/whs/directives/infomgt/forms/formsprogram.htm>) must be used for cost reporting on new applicable sustainment contracts or contract modifications. The sustainment contract cost reporting requirement applies to contracts awarded after May 2012.

(2) VAMOS

(a) Each Military Department has developed and maintains an historical O&S cost data collection system. These systems were developed in response to an initiative known as VAMOS and are the preferred data source for use in preparation of O&S cost estimates. CA oversees and provides broad policy guidance pertaining to VAMOS programs but leaves the details concerning implementation to each Military Department. This approach allows each Military Department to maximize use of its existing management information systems (e.g., maintenance data collection or logistics financial management systems).

(b) Each Military Department must collect and manage actual O&S cost data for its fielded major systems. Each Military Department is responsible for the design, maintenance, administration, and quality control of its O&S cost data system. Each Military Department will make its VAMOS data system readily available to its registered users – DoD government personnel and contractor personnel when endorsed by an appropriate government sponsor – through online access.

(c) CA promotes standardization of O&S cost data collection, provides a forum for the exchange of ideas and research, and encourages the effective use of VAMOS data in O&S cost estimates. The Deputy Director for CA conducts annual reviews of the Military Departments VAMOS programs.

(d) To the greatest extent feasible, the Military Department VAMOS data systems

should provide a wide variety of choices for O&S cost displays and extracts. There should be options for displays in constant dollars, derived from appropriate inflation indices. Where appropriate, O&S cost data should be provided separately for Active, Reserve, and Guard branches, as well as by Services' major operational commands. In addition, where appropriate, the data should be provided separately for operational units and dedicated training units (e.g., Naval Aviation Fleet Readiness Squadrons). Where feasible, the data systems should provide users with system (i.e., end-item) level data, as well as lower levels of data (major subsystems and components). The data systems also should provide O&S-related non-cost data, such as system quantities and operating tempos. VAMOSOC reporting should be timely, in order to support the program and budget process and required annual O&S reporting such as SARs.

(e) The VAMOSOC systems must support the use of a documented and well-defined cost element structure. The purpose of a cost element structure is to categorize and define specific cost elements that, in total, comprise the full range of O&S costs that could occur for any defense system. To the greatest extent feasible, the VAMOSOC systems will support the CA cost element structure provided in the CAPE Operating and Support Cost-Estimating Guide (Reference (h)).

(3) EVM and the Central Repository. CA provides technical support to a single central repository for EVM reports. The purpose of the central repository is to provide authorized stakeholders access to information regarding contract execution status as reported in Integrated Program Management Reports and Contract Funds Status Reports.

(4) EVM and CSDR Consistency. For programs that are subject to both CSDR and EVM reporting requirements, the reporting must be consistent. The program manager will develop the CSDR and EVM reporting structures with DCAPE and the USD(AT&L) before the issuance of a contract solicitation. The same WBS must be used for both EVM reporting and CSDR and must be developed, approved, and maintained in accordance with References (f) and (g), unless approved by DCAPE and USD(AT&L).

GLOSSARY

PART I. ABBREVIATIONS AND ACRONYMS

ACAT	acquisition category
AoA	analysis of alternatives
APB	acquisition program baseline
APUC	average procurement unit cost
BCA	business case analysis
CA	Office of Cost Assessment
CAE	Component Acquisition Executive
CAPE	Cost Assessment and Program Evaluation
CARD	Cost Analysis Requirements Description
CCDR	Contractor Cost Data Reporting
CCE	DoD Component cost estimate
CCP	DoD Component cost position
CCR	Critical change report
CCRL	Collaborative Cost Research Library
COTS	commercial off-the-shelf
CRB	cost review board
CSDR	Cost and Software Data Reporting
DAB	defense acquisition board
DCAPE	Director of Cost Assessment and Program Evaluation
DCARC	Defense Cost and Resource Center
EMD	engineering and manufacturing development
EOQ	economic order quantity
EVM	earned value management
FDD	full deployment decision
FRP	full-rate production
FYDP	Future Years Defense Program

ICE	independent cost estimate
IOC	initial operational capability
IPT	integrated product team
LRIP	low-rate initial production
MAIS	major automated information system
MDA	milestone decision authority
MDAP	major defense acquisition program
MYP	multiyear procurement
NTE	not-to-exceed
O&S	operating and support
OIPT	overarching integrated product team
PAUC	program acquisition unit cost
PMO	program management office
POE	program office estimate
POR	program of record
R2	Report 2
R3	Report 3
RFP	request for proposal
SAR	Selected Acquisition Report
SCA	Service cost agency or Defense Agency equivalent
SRDR	Software Resources Data Reporting
TMRR	technology maturation and risk reduction
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
VAMOSC	Visibility and Management of Operating and Support Costs
WBS	work breakdown structure

PART II. DEFINITIONS

These terms and their definitions are for the purposes of this instruction.

APUC. The program procurement cost divided by the procurement quantity. The APUC procurement quantity includes any EMD quantities that have been refurbished using procurement dollars. APUC is displayed in constant dollars of a base year fixed for each program.

CARD. A detailed description of the acquisition program that is used to prepare the ICE, POE, CCE, CCP, and other cost estimates, as required. The CARD must be signed by the program executive officer and program manager and initially prepared to support the first milestone review after the Materiel Development Decision. Following the milestone review, updates of the CARD must be submitted annually to reflect the most recent President's Budget and the anticipated program objective memorandum. The CARD must be prepared and submitted by the PMO in accordance with the guidance issued by DCAPE.

CCE. Documents the cost analysis conducted by the SCA in cases where the SCA is not developing an ICE. This cost analysis may range from an SCA non-advocate estimate, independent SCA assessment of another government estimate, or other SCA cost analysis, as determined by the SCA and reflected in DoD Component policy.

CCP. The cost position established by the DoD Component. It is derived from the CCE and POE per DoD Component policy before Milestones A, B, and C and the FRP decision. The CCP must be signed by the DoD Component Deputy Assistant Secretary for Cost and Economics (or Defense Agency equivalent) and include a date of record.

days. Calendar days, as opposed to business days.

full funding certification memorandum. Certifies that the DoD Component will fully fund the program to the CCP in the current FYDP, or will commit to full funding of the CCP during the preparation of the next FYDP, with identification of specific offsets to address any funding shortfalls that may exist in the current FYDP. A full funding certification memorandum is required at Milestones A, B, and C and the FRP or full deployment decision. The full funding certification memorandum must be signed by the CAE and the DoD Component Chief Financial Officer and include a date of record.

ICE. An independent estimate that covers the entire life cycle of the program, including the development, production, operations and support, and disposal phases, regardless of funding source. The term "independent" refers to organizational and analytic independence. Organizational independence means that the cost estimate is prepared by an entity that is outside of any organization that would provide undue influence over the estimate. Analytic independence means that the cost estimate is free of any bias or preconceived notions about the program's most likely cost.

PAUC. The sum of all appropriations used to acquire a system (research, development, test, and evaluation; procurement; military construction; and acquisition operations and maintenance) divided by the total quantity of fully configured end items from both the EMD and production and deployment phases. PAUC is displayed in constant dollars of a base year fixed for each program.

POE. A cost estimate developed by the PMO or by a government cost estimating organization on behalf of the PMO. Each DoD Component will establish policy to determine how its POEs are developed and what role the POE plays in the establishment of a CCP.