PART TWO – CONFIGURATION MANAGEMENT (CM) HANDBOOK

SECTION II: National Configuration Management Process

SECTION OVERVIEW

GENERAL

This set of processes represents a description of CM tasks and responsibilities necessary to perform CM in the FAA. This set of processes was put together in response to the following issues:

- Not everything that needs to get done is getting done
- No FAA-wide uniform process for CM
- Inability to integrate CM information and activities across organizations and functions
- Life-cycle CM process not documented
- Closed loop process not documented

A basic knowledge of FAA CM practices and principles is necessary to understand these processes.

USING THIS SECTION

This section is comprised of two main subsections. The first subsection is comprised of the life-cycle CM process and the second subsection expands on detailed lower-level life-cycle CM processes (Change Management and Implementation, Configuration Verification and Audit, Configuration Status Accounting, and the CM Drawing Process). Both subsections use the same format to present their content: a graphical flow chart, a set of definitions for the activities depicted on the flow, and an input/output table. (Each subsection also includes an acronym list.)

CM Life-Cycle Process: The life-cycle flow was designed to identify CM activities as they occur during the NAS life-cycle. CM activities are represented as either CM Lead or CM Supported activities. (Those activities for which CM does not play a role, but needed to be included in the process flow for consistency and contextual reasons, are referred to as CM Associated activities.) CM Lead activities are those activities that are lead by the CM organization whereas CM supported activities are those activities where CM either provides an input, receives an output, or provides a structure for the completion of the activity. There are also spanning activities, which span the entire life cycle and are represented by long bars across the bottom of the flow diagram. The connection between the individual activities and the spanning activities are represented by bubbles on the flow diagram.

The definition area includes a brief description of the action being performed and the organization(s) responsible for carrying out the action. The particular activity definitions can be found by associating the activity ID number in the activity block on the process flow diagram with that in the definition table.

The input/output tables are grouped by CM Lead, CM Supported, and CM Associated activities; they represent the key inputs and outputs associated with each action as well as a tie (where

applicable) to the detailed lower-level CM processes. The input/output tables also identify those CM activities that are deemed tailorable. (Tailorable activities allow the responsible organization to use its best business practices in the generation of the outputs for this activity; however, the inputs to the activity and the specific outputs from the activity are standard.)

Detailed CM Processes: The detailed CM processes were designed to show specific processing detail that could not be totally depicted in a top level flow. These activities typically span the NAS life cycle and do not lend themselves to a linear flow charting approach. Each detailed CM process includes the process flow, a definitions area, and an input/output matrix.

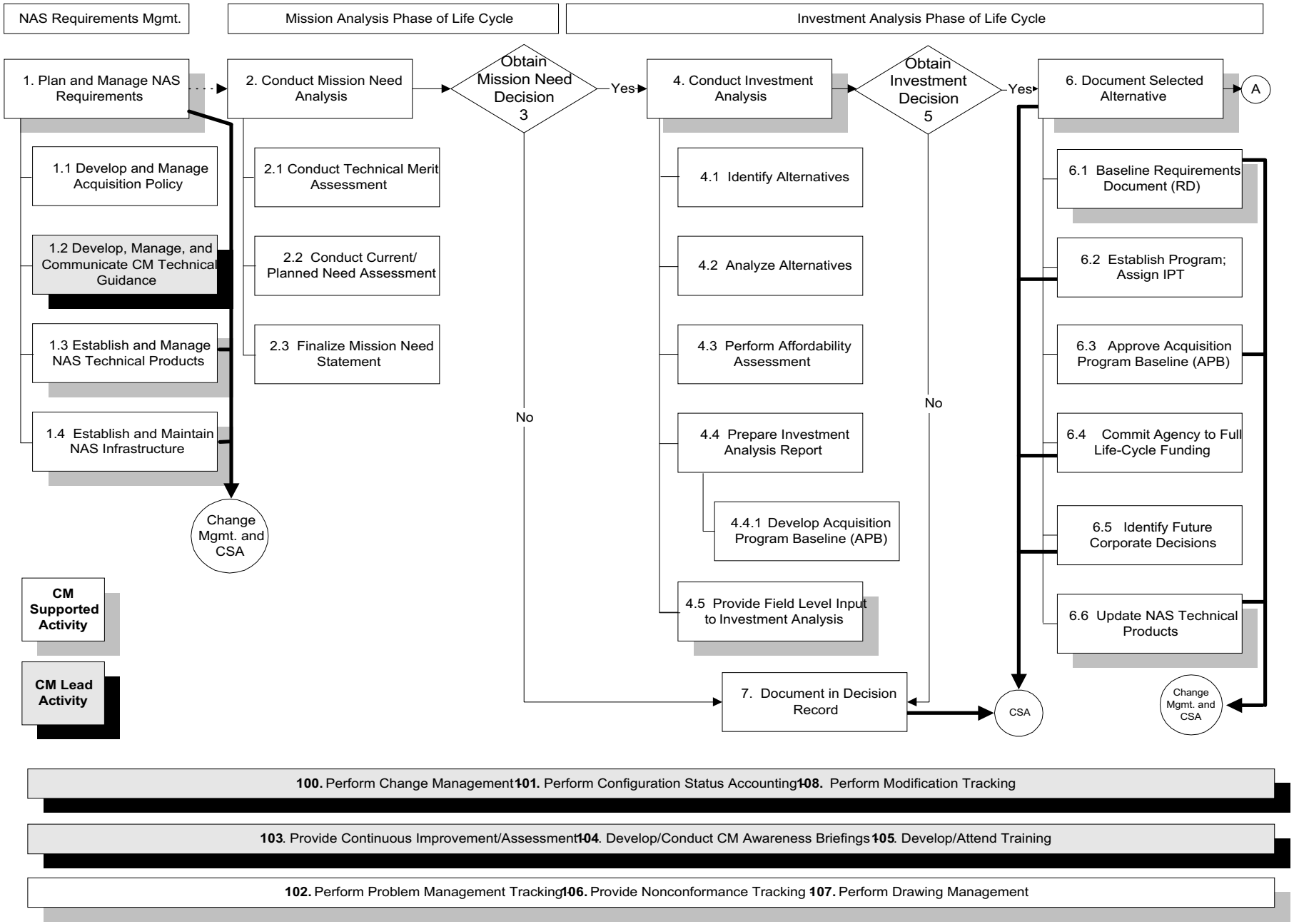
The ***Change Management and Implementation*** area was designed to identify those activities that occur during the processing of a change. (This flow was designed from a future-looking perspective, so you will not see NAS Change Proposal (NCP) specifically called out; however, the current change vehicle for the FAA is the NCP.) The Change Implementation portion of the flow identifies those activities that take place after the change is approved and are necessary to complete the change fully. These items include updating the documentation, installing the modification, and tracking the modification status.

The ***Configuration Status Accounting*** **(CSA)** area was designed to identify generically those elements (inputs, outputs, and activities) that comprise a typical CSA system as presented in MIL-HDBK-61. The definitions within this section seek to evolve the generic activities into FAA-specific activities, including types of information (where applicable) and the FAA organization(s) responsible for that activity (organizations are represented functionally such that the activity can be applied to the appropriate phase of the life cycle).

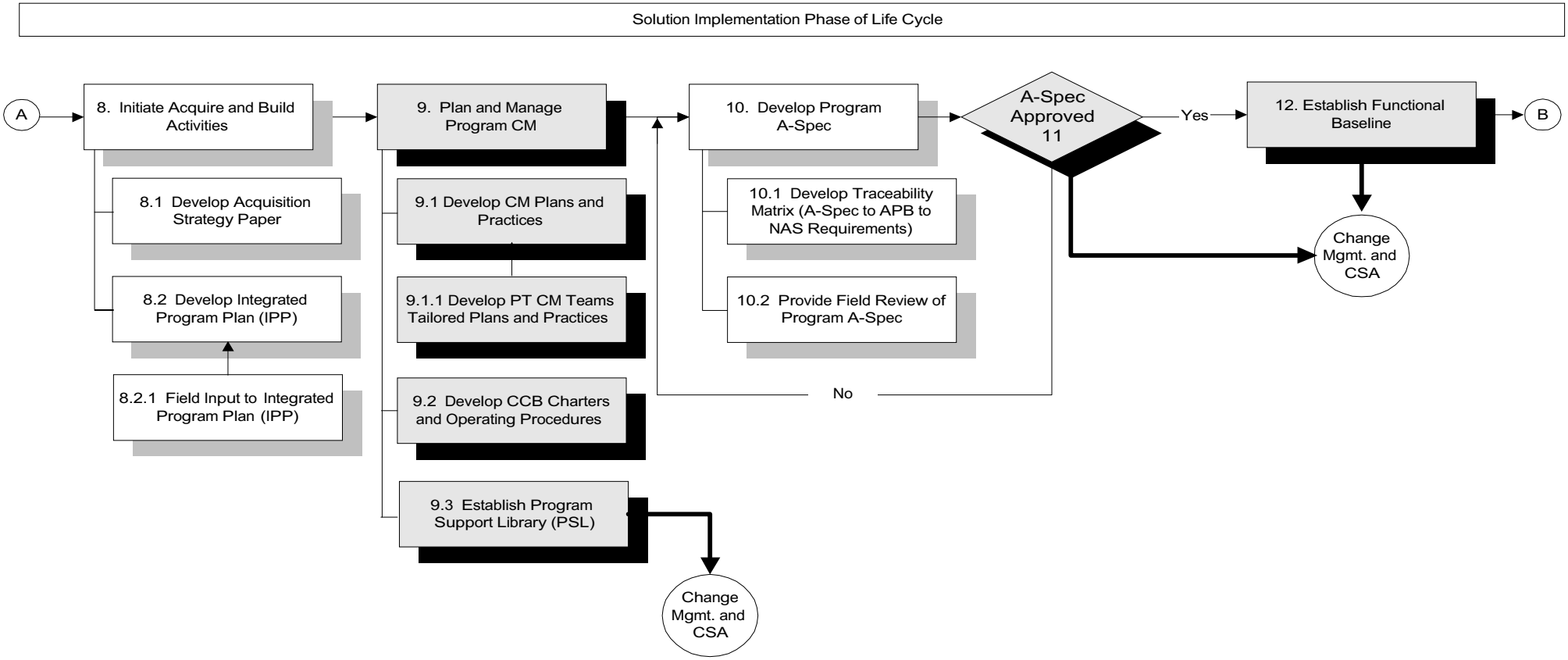
The ***Configuration Verification and Audit*** area expands on those audit activities that typically occur during the production phase (functional/physical configuration audits) and facility audits.

The drawing processes are addressed from two perspectives**.** ***Drawing Management – CM Perspective*** was designed to integrate the drawing management activities associated with getting vendor drawings accepted and the engineering document management (EDM) activities used to manage FAA drawings. ***Drawing Management – EDM Perspective*** as developed by the EDM Team is included with this package to provide contextual consistency. The CM community does not control this process flow, however, CM plays an important role in the approval process and management of FAA drawings.

Life-Cycle CM Process



Life-Cycle CM Process



CM Lead Activity

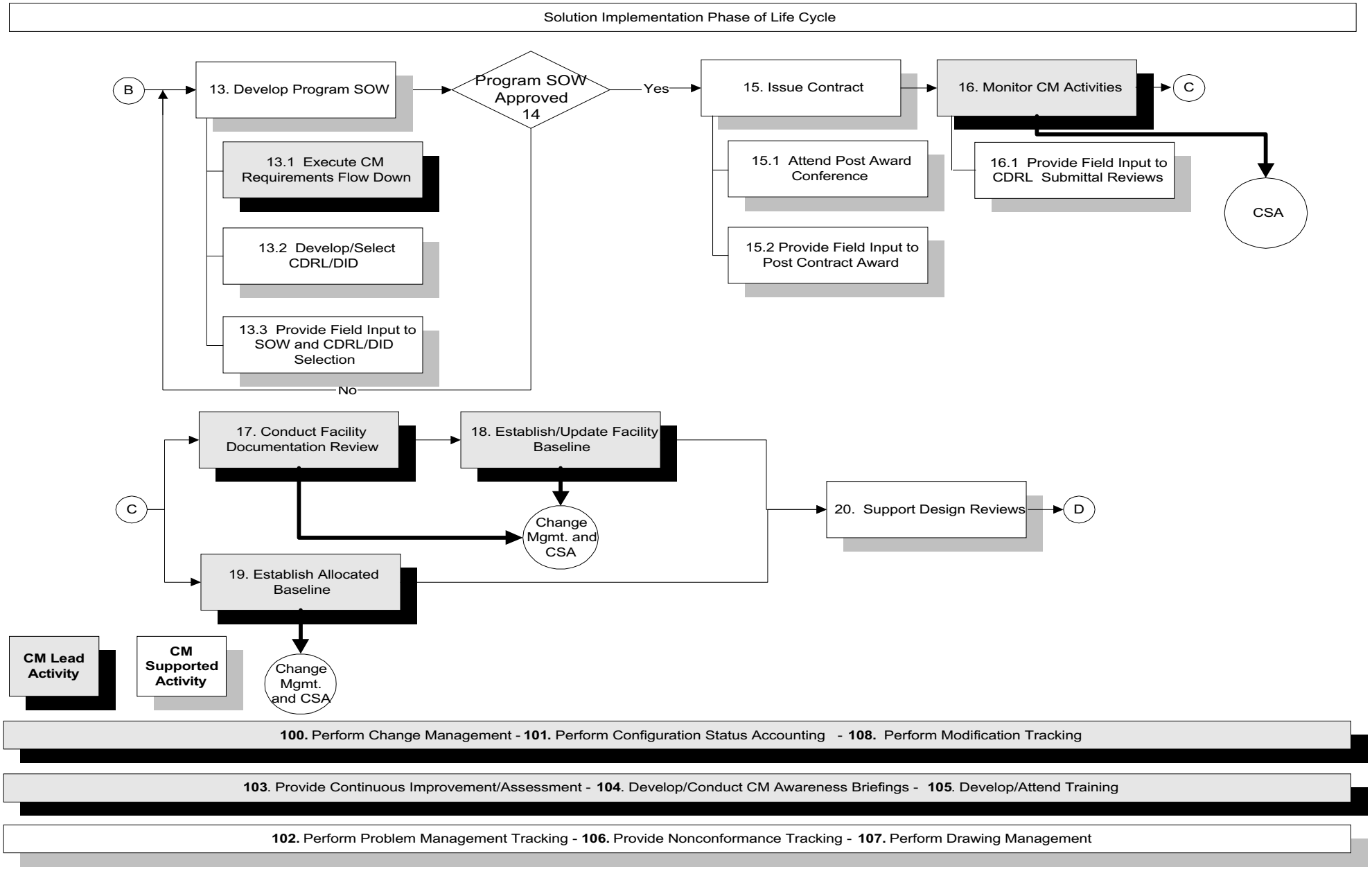
CM Supported Activity

100. Perform Change Management - **101.** Perform Configuration Status Accounting - **108.** Perform Modification Tracking

103. Provide Continuous Improvement/Assessment - **104**. Develop/Conduct CM Awareness Briefings - **105**. Develop/Attend Training

102. Perform Problem Management Tracking - **106.** Provide Nonconformance Tracking - **107.** Perform Drawing Management

Life-Cycle CM Process



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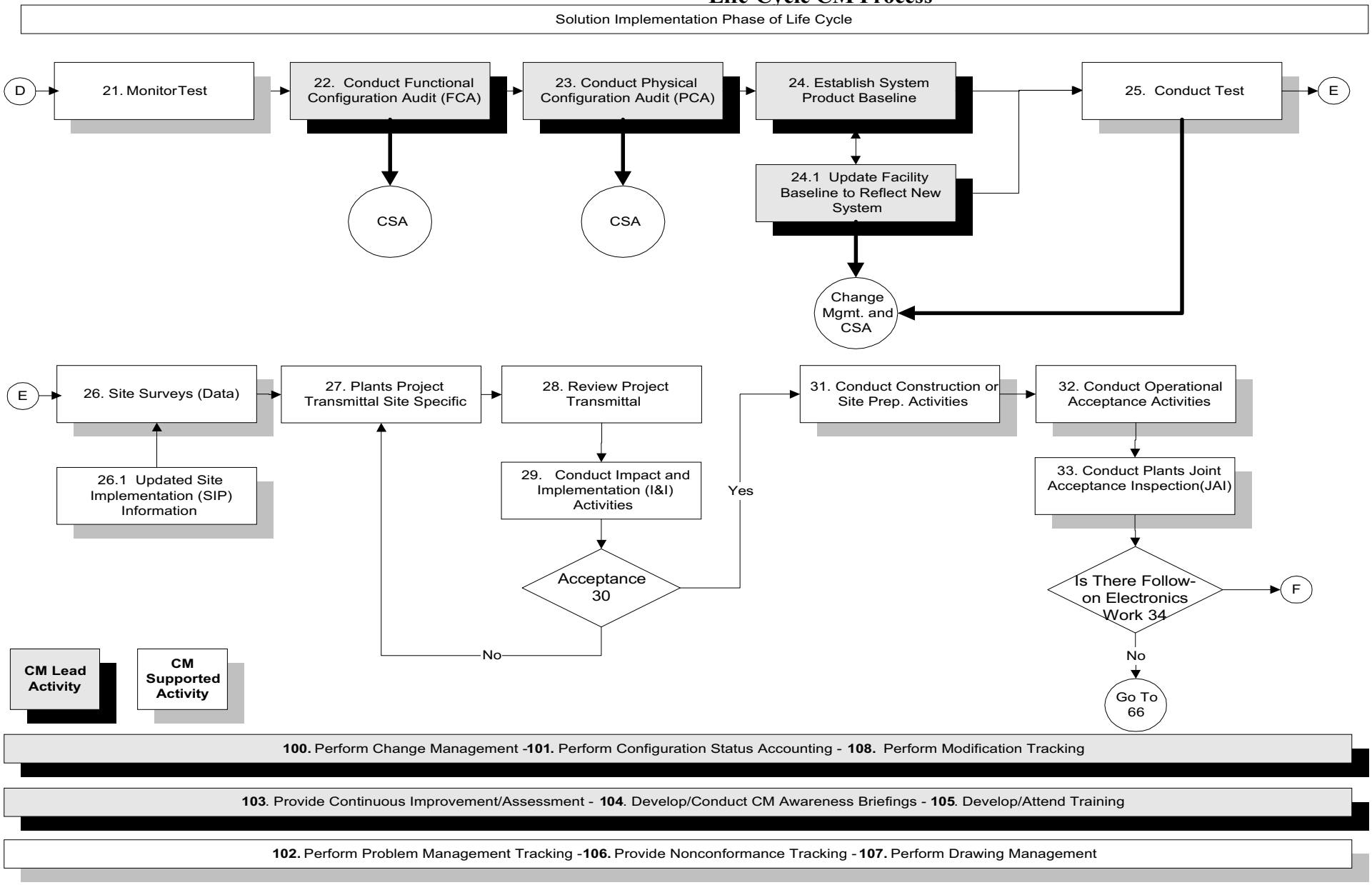

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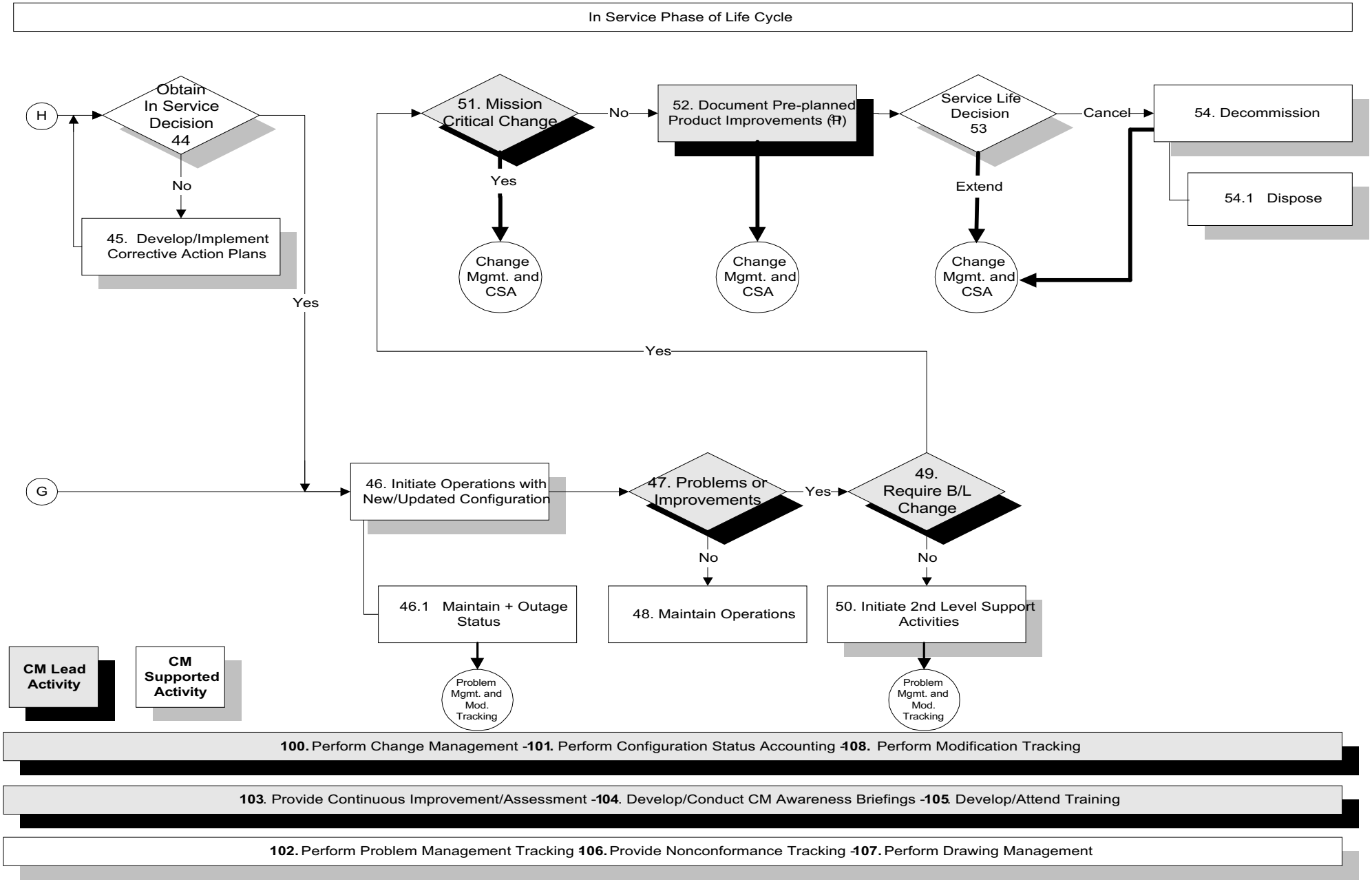

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
1	Activity	Plan and Manage NAS Requirements	The activities associated with the planning and management of NAS requirements encompasses "NAS Infrastructure Development" and "NAS Requirements Management." The NAS Requirements activities spawn the entire life cycle, the dotted arrow off this block symbolizes the NAS baseline and baseline assessment activities that support mission needs versus supplying a direct input into the mission needs activities. NAS Infrastructure Development - encompasses the activities associated with developing and managing processes to ensure the integrity, traceability, and full impact analysis of NAS requirements as they evolve from concept through physical development and decommission. NAS Requirements Management - encompasses the work of allocating FAA concepts into requirements and the day-to-day management of these requirements and changes generated against or impacting these requirements. **Responsible Org**.: ASU, ARA, and ASD
1.1	Sub-activity	Develop and Manage Acquisition Policy	The specific activities associated with the development and management of the AMS that defines all acquisition and procurement policy within the FAA. Whereas policy for FAA functional disciplines (i.e., Logistics Support, Test and Evaluation, Human Factors, Configuration Management, Contracting, and Transition to Operational Use) are fully contained within the AMS document itself, related guidance (e.g., instructions, best practices, lessons learned, other job-related aids) is recorded within the FAA Acquisition Management System Toolset (FAST). **Responsible Org**.: ASU
1.2	Sub-activity	Develop, Manage, and Communicate CM Technical Guidance	This activity includes the development, management, and communication of guidance (e.g., instructions, best practices, lessons learned, other job-related aids) needed to support policy for FAA functional disciplines (i.e., Logistics Support, Test and Evaluation, Human Factors, Configuration Management, Contracting, and Transition to Operational Use), along with any applicable implementation oversight. For CM, this work includes: • Developing and Maintaining the "End-to-End" Process Model; • Providing and Maintaining FAA CM Policy, Guidance, and Reference Materials; • Managing CM Information; • Supporting Life-Cycle CM Practices During Transition from Orders (1800.8, 1800.57, etc.) to full implementation of AMS and IPDS; • Providing Education and Communication for CM; and

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			• Evaluating CM Effectiveness **Responsible Org**.: CM Authority (currently this is ACM-20 augmented with expertise from CM Core Team and Core Team initiatives)
1.3	Sub-activity	Establish and Manage NAS Technical Products	The activities associated with developing and maintaining the NAS technical products (currently this includes NAS Architecture, NAS-1000 Series, Engineering data base(s), and IRD's), identifying and managing the relationships of the individual components comprising NAS products, and the configuration and data management (including formal review boards such as CCB's) required to support these products. **Responsible Org**.: ASD (100, 300, 400) and ACM-1
1.4	Sub-activity	Establish and Maintain NAS Infrastructure	The activities required to establish and maintain an overall CM infrastructure that supports NAS CI identification and maintenance for the entire life cycle. Specific CM activities include: • Performing configuration identification for NAS CI's; • Integrate/Validate baselines to form NAS baseline; • Perform NAS Infrastructure Change Management and Status Accounting; • Maintain National Program Support Library (currently referred to as the Document Control Center (DCC)) • Establish/Maintain CCB Infrastructure **Responsible Org**.: CM Authority (ACM-1 augmented with expertise from CM Core Team and Core Team initiatives)
2	Activity	Conduct Mission Need Analysis	This is the forward-looking and continuous analytical activity to evaluate the capacity of agency assets to satisfy existing and emerging demands for services, referred to as Mission Analysis in the AMS. Mission analysis enables the agency to determine and prioritize its most critical capability shortfalls and best technology opportunities for improving the FAA's overall safety, security, capacity, efficiency, and effectiveness in providing services to its customers. **Responsible Org**.: FAA Lines of Business (LOB) including ARS
2.1	Sub-activity	Conduct Technical Merit Assessment	This addresses the analysis required to identify and quantify: • Projected demand for services • Technological opportunities • Existing and projected supply of services thus validating the capability shortfall **Responsible Org**.: FAA LOB
2.2	Sub-activity	Conduct Current/Planned Need	The activities conducted by individuals well-versed in the budgeted and projected

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
		Assessment	architectures to verify that the technically validated shortfall is not being addressed by any current or planned initiative, as well as identifying any necessary changes to NAS requirements (identified in the NAS-1000 series and/or NAS Architecture). **Responsible Org**.: Cross Functional Architecture Team (currently referred to as Architecture Core Team)
2.3	Sub-activity	Finalize Mission Need Statement	Finalize the mission need statement that summarizes the mission analysis and serves as the decision document for the mission need decision. **Responsible Org**.: FAA LOB
3	Decision	Obtain Mission Need Decision	The activities conducted by the Joint Resources Council (JRC) and those teams presenting the mission needs statements (MNS) required to disposition the MNS. JRC approval of the MNS signifies the agency agrees the need is critical enough to initiate investment analysis. If mission analysis reveals a nonmaterial solution, the Associate Administrator of the sponsoring line of business may approve the solution and identify, within the line of business, any funding offset required for implementation. **Responsible Org**.: JRC
4	Activity	Conduct Investment Analysis	These are the activities associated with the Investment Analysis (IA) phase of the AMS. IA generates the information used by the JRC at the investment decision to determine the best overall solution for satisfying a mission need. It is conducted as a partnership between the sponsoring and acquiring organizations to ensure the critical needs of the user and customer are satisfied by an affordable solution. As potential solutions are analyzed, current, accurate, and complete information on the NAS baselines is imperative to ensure the solutions are based on actual NAS information. From a CM perspective, it is imperative that this analysis include anticipated CM functions to be performed throughout the life cycle such that they can be analyzed during the costing exercises and included in the proposed funding profiles. **Responsible Org**.: Investment Analysis Team. Members include representatives from the line of business with the need, the investment analysis staff, and the IPT's with candidate solutions and ARS.
4.1	Sub-activity	Identify Alternatives	Initial requirements are used as a basis for identifying all potential material and nonmaterial solutions to the mission need, using market surveys as well as input from industry and FAA organizations that have potential solutions. **Responsible Org**.: Investment Analysis Team. Members include representatives from the line of business with the need, the investment analysis staff, and the IPT's with candidate solutions.

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ID	Type	Action	Definition/Responsible Org.
4.2	Sub-activity	Analyze Alternatives	Candidate solutions are evaluated on such factors as life-cycle cost (including sustainment, supportability, and disposal), cost benefits, risk, technical performance, schedule, human factors, space, real estate, heating and cooling, power, telecommunications, physical infrastructure, environmental impact, security, radio frequency spectrum, logistics support, compatibility with NAS Architecture, regulatory and procedural impact, operational suitability, and disposal of obsolete assets. **Responsible Org**.: Investment Analysis. Members include representatives from the line of business with the need, the investment analysis staff, and the IPT's with candidate solutions.
4.3	Sub-activity	Perform Affordability Assessment	This is the assessment of the affordability of each candidate solution against all other agency programs in the financial baseline. Offsets may be proposed from lower priority programs or out-year funding baselines may be suggested. **Responsible Org**.: Systems Engineering/Operations Analysis Team (SEOAT) with Investment Analysis Team support
4.4	Sub-activity	Prepare Investment Analysis Report (IAR)	The report documents the results of investment analysis. It defines each candidate solution to mission need, and compares the relative strengths and weaknesses of each for all evaluation factors considered during investment analysis. A preferred solution should be recommended in the IAR. It also contains the affordability assessment. Mandatory attachments and items that accompany the IAR are: (1) analytical summary; (2) APB's; and (3) final RD. **Responsible Org**.: Investment Analysis Team. Members include representatives from the line of business with the need, the investment analysis staff, and the IPT's with candidate solutions.
4.4.1	Sub-activity	Develop Acquisition Program Baseline (APB)	These baselines include cost, schedule, performance, and benefit baselines for each candidate solution. CM requirements should be built into the cost, schedule, and performance baselines of the APB for each candidate solution to mission need. **Responsible Org**.: Investment Analysis Team. Members include representatives from the line of business with the need, the investment analysis staff, and the IPT's with candidate solutions.
4.5	Sub-activity	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, AFZ, and the Academy) Level Input to Investment Analysis	The costs estimated in the investment analysis are more than the acquisition and installation costs. The field must provide input from both AF and AT as to other costs such as: training, O/T, unique site requirements, and site or region overhead expenses. Also include operations and maintenance costs and CM costs during the In-Service Management phase. **Responsible Org**.: Regional, Logistics, ANI, ANS, AOS, AFZ, and the Academy

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ID	Type	Action	Definition/Responsible Org.
5	Decision	Obtain Investment Decision	The activities conducted by the augmented JRC to approve the implementation solution, specifically: • The Associate Administrator of the sponsoring line of business approves the Requirements Document (RD); • The Associate Administrator of the operating line of business may implement a nonmaterial solution to mission need that emerges during investment analysis when it can be fully funded within existing approved resources; • The JRC selects all other solutions, establishes all acquisition programs, commits the agency to full life-cycle funding, approves any necessary budget offsets, and determines any future corporate-level decisions; and • The Acquisition Executive and the Associate Administrator of the sponsoring line of business approve the Acquisition Program Baseline (the JRC chairperson at the investment decision is the Acquisition Executive). **Responsible Org**.: *Augmented* JRC
6	Activity	Document Selected Alternative	The sub-activities below describe the actions that result from an investment decision by the JRC. **Responsible Org**.: JRC
6.1	Sub-activity	Baseline Requirements Document (RD)	The final RD establishes the functional and performance baselines and operational framework required by the sponsoring organization. It builds on the base established by the initial RD, and is continually refined throughout the IA process. CM requirements should be included in the final RD. The RD is baselined at the Investment Decision after careful balancing of capability, cost, schedule, risk, and affordability. The sponsoring organization's associate administrator approves the document at the investment decision, and approves any updates or revision once any associated cost and schedule acquisition program baseline changes are approved by the JRC. **Responsible Org**.: JRC
6.2	Sub-activity	Establish Program; Assign IPT	The JRC establishes the program and assigns appropriate IPT. **Responsible Org**.: JRC
6.3	Sub-activity	Approve Acquisition Program Baseline (APB)	The JRC approves and may recommend the APB for performance (including critical operational issues) cost, schedule, and benefits. APB parameter sheets are developed by IPT summarizing the APB data. CM cost and performance requirements must be included in the APB.

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ID	Type	Action	Definition/Responsible Org.
			Responsible Org.: JRC
6.4	Sub-activity	Commit Agency to Full Life-cycle Funding	The JRC commits agency to full life-cycle funding of program . **Responsible Org**.: JRC
6.5	Sub-activity	Identify Future Corporate Decisions	The JRC defines subsequent corporate decisions if required. **Responsible Org**.: JRC
6.6	Sub-activity	Update NAS Technical Products	The detailed activities associated with completing the tasking in Activity #6.3 for the NAS architecture components, as of 12/97, this list included: • Concept of Operations • NAS Specification (operational, functional, performance, and interface requirements) • Logical Architecture • Technical Standards • Technical Characteristics • Architecture Version X.X • NAS Architecture Information Data Base • NAS Standards Data Base • Integrated Master NAS Architecture Schedule • Integrated Architecture Cost Profiles For the NAS-1000 series, this includes: • NAS-SR-1000 • NAS-DD-1000 • NAS-SS-1000 • Engineering Data Base • IRD's **Responsible Org**.: ASD-100, ACM-1
7	Sub-activity	Document in Decision Record	The JRC documents its findings in the JRC Decision Record and distributes it to the IPT, sponsoring organization, etc. If the findings are such that the JRC cannot or will not make a decision at this time, the actions to be completed are documented in the JRC Decision Record and distributed to the appropriate organizations. The FAA LOB analyzes feedback from JRC and reassess need and implements appropriate action plan to resubmit or withdraw proposal **Responsible Org**.: JRC (supported by ACM-1)
8	Activity	Initiate Acquire and Build Activities	Acquire and Build addresses the "acquisition oriented" activities associated with the

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Solution Implementation phase of the AMS. It begins after the JRC selects a solution and establishes an acquisition program. It ends when a new capability goes into service. The activities vary widely depending on the nature and scope of the acquisition, and as such, the specific lower-level activities may be modeled differently. Most will include these high-level activities: 1. Plan and Manage the acquisition/lease; 2. Monitor the development of the product/lease; and 3. Perform Configuration Verification and Audits for the acquisition/lease. **Responsible Org**.: IPT
8.1	Sub-activity	Develop Acquisition Strategy Paper	A required document that defines the overall approach by which an acquisition program will be executed during the Solution Implementation phase. It is a strategic overview of the technical, management, and procurement approach. It integrates the planning requirements of several previous FAA planning documents, including: • Program Master Plan • Integrated Logistics Support Plan • Test and Evaluation Master Plan • Program Implementation Plan • Human Factors Plan • Procurement Plan • System Engineering Program Plan (SEMP) • Configuration Management Plan The Acquisition Strategy Paper should explain the CM strategy for the program, as well as define the CM roles and responsibilities of key organizations, both at headquarters and in the field. The Acquisition Strategy Paper must be approved before release of a Request for Offer for a proposed contract. **Responsible Org**.: IPT (development of the paper), IMT (it is approved by the co-leaders of the appropriate Integrated Management Team)
8.2	Sub-activity	Develop Integrated Program Plan (IPP)	• The Integrated Program Plan is the detailed action plan for all aspects of program implementation This document is initially released prior to release of a request for offer for a proposed contract -- it is meant to be a living document and is updated as more details become available. The Integrated Program Plan should include all activities that must be executed to establish and maintain CM over the service life of the product(s) of the acquisition program. For each CM activity, the Integrated Program Plan defines the responsible agent and approval authority (if applicable). **Responsible Org**.: The IPT develops the plan; co-leads IMT approve the initial IPP only; and the Director IOT&E co-approves the test section of the IPP for programs designated

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			for IOT&E
8.2.1	Sub-activity	Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to Integrated Program Plan (IPP)	All affected field organizations must contribute to the development of the Integrated Program Plan, either as members of the IPT or through field representatives of the IPT. This information ensures site-specific requirements and resources are included in program planning. From this ANI can develop an installation schedule for the national work plan and estimate project dollars required for site preparation and transition. **Responsible Org**.: Regional, Logistics, ANI, ANS, AOS, and the Academy
9	Activity	Plan and Manage Program CM	The activities associated with establishing and maintaining CM practices. These activities will vary depending on the type of development/procurement and whether this is a Regional, IPT, or HQ perspective; however the outcomes from this activity should be available to, and in a format consistent with the rest of the agency performing similar activities. Specific activities include: • Establishing and Maintaining CM Plans and Practices; • Developing and Maintaining a CCB Charter and Operating Procedures; • Establishing and Maintaining PT CM Teams and tailored plans and practices; and • Establishing and Maintaining the Program Support Library (PSL). **Responsible Org**.: IPT's, Regions, and Solution Providers
9.1	Sub-activity	Develop CM Plan and Practices	Establish and maintain those activities that must be accomplished to establish a CM office. Assess all inputs and controls to identify the requirements for which the CM Practices must be designed. Requirements are in three flavors: (1) Budget - based on the CM allocation of solution funds, what resources will be obtained; (2) Technology - what will it cost to connect to/procure/design the appropriate technology within the FAA (DOCCON, NIMS, INFO_Sys, etc.) and outside vendors, etc.; (3) CM Processes - what guidance (1800.8, AOS practices, ACT practices, etc.) are integrated to complete the mission. Develop the top level (i.e., shopping list) of IPT Life-Cycle CM activities that will be used by individual PT's to define how they will work (i.e., what their FAA processes will be). Secure the budget, resources, technology to prepare a CM team to conduct the CM life-cycle practices for a specific set of requirements (i.e., program, system, or CI). **Responsible Org**.: IPT's, Regions, and Solution Providers
9.1.1	Sub-activity	Develop PT CM Teams Tailored Plans and Practices	Review the set of IPT CM practices and identify and document the practices applicable to this product in the Acquisition Strategy Paper and Integrated Program Plan, as appropriate. Set up the resources (budget, personnel, technology) to implement CM for the PT. Establish the vendor requirements for this product. Review the technical requirements (draft specification, IRD's, etc.) and the proposed maintenance requirements to ascertain what level of CM requirements are required to support this procurement. Based on the type

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			of program and specific level of CM needed, coordinate with the vendor/contractor to ensure that its Program CM Plan captures any tailored processes required to support the CM Mission for this specific program. Submit the draft PT CM planning in the Acquisition Strategy Paper and Integrated Program Plan for review by the IPT and impacted organizations, and obtain approval once resolution of comments has occurred. **Responsible Org**.: IPT CM
9.2	Sub-activity	Develop CCB Charters and Operating Procedures	This activity includes the development of a CCB Charter and Operating Procedures, which once approved become the official agencywide forum used to establish baselines and approve/disapprove subsequent changes to those baselines. The CCB Charter and Operating Procedures include, but is not limited to: – CCB membership (including co-chairs); – CI's under the purview of the CCB; – CCB operating norms (meeting frequency, notification methods, etc.); and – the process whereby the CCB ensures that documentation associated with an approved change to a NAS system is updated. CCB Charters and Operating Procedures are maintained to reflect modifications resulting from Joint Resource Council (JRC) decisions, initiation of new programs, the additions/deletions of CI's, and changes to Board membership IPT's/Regions/Solution Providers develop their charters and operating procedures and route them for internal approval. Once this occurs, they are submitted to an upper level CCB for formal approval (reference life-cycle activity 1.4). (Currently, the NAS CCB is the authority for approving the charters of all other agency CCB's. Agency CCB's have the authority to approve their own CCB Operating Procedures.) **Responsible Org**.: IPT's, Regions, and Solution Providers
9.3	Sub-activity	Establish Program Support Library (PSL)	Identify the information needs required to establish and maintain a library containing technical baselines, change vehicles, guidance documents (standards, etc.) and any other information needs required. Baselined documentation is provided to the appropriate program, IPT, or national PSL, and maintained with all necessary links to the CM Information Management System. (To ensure that CM information is made available, the CM Authority is responsible for providing the necessary facilities and electronic tools to document, monitor, and distribute CM information in the NAS.) This may include establishing a stand-alone library, establishing electronic links to an FAA and/or vendor/contract library, establishing access to an already established library, etc. Identify specifically what type of information will be included in the PSL, what library(s) will be referenced and/or electronically linked to the PSL, and identify which metrics are applicable to the PSL.

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			To facilitate the sharing of information, it is desirable that we as an agency procure/develop as much information as possible in electronic format. Although specific standards for managing electronic versions of CM and CM-related information are not finalized when planning for a PSL, the use of electronic data is highly desired. **Responsible Org**.: IPT's, Regions, and Solution Providers
10	Activity	Develop Program A-Spec	The document resulting from the activities associated with allocating technical requirements from the APB (specifically the RD and any interface requirements) to a procurement vehicle (Performance Specification, SIR, etc.). **Responsible Org**.: IPT System Engineering
10.1	Sub-activity	Develop Traceability Matrix (NAS Requirements to ABP to A-Spec)	This activity allocates technical requirements from the APB (specifically the RD and any interface requirements) to a matrix, which establishes the audit trail of requirements from the "NAS" level to the IPT/PT level. This matrix is used as a checklist during impact analysis of proposed changes to system requirements. **Responsible Org**.: IPT System Engineering
10.2	Activity	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Review of Program A-Spec	When the IPT has completed the draft A-spec, field sites need to validate implementation and transition requirements. This process is often accomplished in draft CDRL's circulated by the IPT, usually in conjunction with a prime contractor for acquisition. **Responsible Org**.: Regional, Logistics, ANI, ANS, AOS, and the Academy
11	Decision	A-Spec Approved	The activities associated with coordinating, resolving comments, and obtaining approval of the A-specification or appropriate procurement vehicle. **Responsible Org**.: IPT System Engineering (coordination/comment resolution), IPT technical membership (review), IPT Management (approval)
12	Activity	Establish Functional Baseline	The program engineering information products used to establish and maintain the functional baseline may include the Requirements Document (RD), Interface Requirements Documents (IRD), Functional/Performance Specifications, and System Segment Specifications. The IPT typically establishes (and maintains) a functional baseline based on the need to develop and deploy specific services. **Responsible Org**.: IPT System Engineering (technical development), IPT ASU (contractual communication), IPT CM (document baseline, release baseline, and update status accounting)
13	Activity	Develop Program SOW	The program Statement of Work (SOW) defines how and when the requirements of the

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			contract will be delivered. The SOW should define when deliveries will be made and the format of those deliveries, as identified on the Contract Data Requirements List. For configuration management, the SOW should contain the level of Configuration Identification, the method for changing baselines, the requirement for audits and establishing baselines, and status accounting requirements. **Responsible Org**.: IPT
13.1	Sub-activity	Execute CM Requirements Flow Down	Flow down of CM requirements is required if the prime contractor is subcontracting large portions of a program or subsystems of a program. Also, it is important to verify CM requirements to the end user to ensure maintenance of baselines and the support of required methods. **Responsible Org**.: IPT
13.2	Sub-activity	Develop/Select CDRL/DID	Contract Data Requirements List (CDRL) and Data Item Description (DID) are developed by the Government to provide the frequency and requirements for data delivery by the contractor. An example of this would be Status Accounting reports. The CDRL provides frequency of submittal, distribution and approval method, etc. The DID for the CDRL would provide specific fields and data elements of the report and the various sections of the report and when they are required. CDRL's are required for all data deliveries. **Responsible Org**.: IPT
13.3	Sub-activity	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to SOW and CDRL/DID Selection	The IPT will develop a program Statement of Work. The regions need to review that document for content as to site deliverables and field implementation. **Responsible Org**.: Regional, Logistics, ANI, ANS, AOS, and the Academy
14	Decision	Program SOW Approved	This is usually accomplished by the product team through a series of reviews and meetings to coordinate comments and interdependencies of the SOW. Final review is contracts and legal. **Responsible Org**.: IPT
15	Activity	Issue Contract	The Product Team contracting officer issues all contracts. Contracts are negotiated and signed by the contracting officer. **Responsible Org**.: IPT ASU member
15.1	Sub-activity	Attend Post Contract Award Conference	Initial meeting whereby the IPT, winning contractor, and regional representatives meet to ensure common understanding of the contract and to develop action plans to resolve any issues. This meeting may be the initial meeting for follow-on TIMS, PMR's, etc. **Responsible Org**.: IPT and development contractor

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
15.2	Sub-activity	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to Post Contract Award Conference	Implementation Schedule • Regional RAPM, AT, and AF teams need to validate the proposed implementation schedule. Resources Defined • RAPM, AT, and AF teams need to validate regional resources required for implementation. • Cost estimate refined • Regional engineers need to complete and/or validate implementation cost estimates. **Responsible Org**.: Regional, Logistics, ANI, ANS, AOS, and the Academy
16	Activity	Monitor CM Activities	The activities that are required to assess the vendor's performance of CM in accordance with the requirements levied on the vendor, as well as those activities performed to assess how well the internal (FAA) processes are working with respect to the continuous improvement parameters included in the CM implementation plan. It includes set-up time and activities required to assess compliance. Some activities associated with monitoring the vendor/contractor include In-process Reviews, Code Reviews, etc. Review the metrics, initiatives, etc., prepared (by the PT CM POC's) in support of the IPT Metrics Plan. Document assessment of reviews and, in the case of vendor/contractor CDRL reviews, complete the technical assessment, and prepare for coordination via the contracting officer. In the case of internal metric compliance, prepare assessments in accordance with the IPT metrics plan. For the internal metrics compliance, there is a review via IPT program management resources. **Responsible Org**.: IPT CM (develop plans, coordinate, document), Engineering (technical reviews), IPT ASU (contractual communication), Regions, ANS
16.1	Sub-activity	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to CDRL Submittal Reviews	Regional Office, IC, SMO, and field sites need to be part of the CDRL reviews as they pertain to the region. These are usually on an aggressive review schedule from the IPT and need to be distributed to the field in a timely manner. **Responsible Org**.: Regional, Logistics, ANI, ANS, AOS, and the Academy
17	Activity	Conduct Facility Documentation Review	The facility document review identifies if the configuration documentation associated with a facility is accurate. Change control information, facility drawings, and technical documents, etc, are reviewed to determine if they are complete and support the current configuration of a facility and whether all CM requirements are met. **Responsible Org**.: Regional CM
18	Activity	Establish/Update Facility Baseline	Depending on the type of facility, facility baseline drawings (depicting space utilization)

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			will be at various levels of configuration. The ANI organization that has the next major implementation at any facility should add to their tasks, bringing the (space utilization) baseline drawings and Facility Services Equipment Profile (FSEP) up to date. It is unlikely that the CM office will be able to fund an effort such as this without Facility and Equipment (F&E) resources. **Responsible Org**.: ANI EC and IC, Regions
19	Activity	Establish Allocated Baseline	The allocated baseline consists of the approved documentation that describes an item's functional, interoperability, and interface characteristics allocated from those of a system or higher level configuration item; interface requirements with interfacing configuration items; additional design constraints; and the verification required to demonstrate the achievement of specified characteristics. **Responsible Org**.: Development contractor develops products. IPT CM develops plans, coordinates review and/or validation activities, documents baseline, releases baseline, and updates status accounting. Engineering conducts technical reviews. IPT contracting officer conducts contractual communication.
20	Activity	Support Design Reviews	The activities associated with supporting design reviews conducted on each configuration item to evaluate the progress, technical adequacy, satisfaction of the performance, engineering, and interface requirements. These reviews typically come in the form of a Preliminary Design Review (PDR) and Critical Design Review (CDR). **Responsible Org**.: IPT
21	Activity	Monitor Test	Testing is monitored to determine whether the performance and functional requirements defined in the configuration documentation (e.g., RD, A-Spec) have been achieved by the design. It also establishes that the design has been accurately and sufficiently documented. (This testing is commonly referred to as Developmental Tests.) CM activities with respect to monitoring tests include supporting the establishment of baseline requirements prior to the start of DT, monitoring changes identified during testing, and supporting their assessments, ensuring that testing results are appropriate and available to support FCA/PCA. **Responsible Org**.: IPT and Test Lead
22	Activity	Conduct Functional Configuration Audit (FCA)	The activities associated with the planning, coordinating, and actual conduct of the FCA. The formal examination of functional characteristics of a configuration item, prior to acceptance, to verify that the item has achieved the requirements specified in its functional and allocated configuration documentation. Functional configuration documentation describes the system's functional, performance, interoperability, interface requirements, and the verifications required to demonstrate the achievement of specified requirements.

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Allocated configuration documentation describes a configuration items's functional, performance, interoperability, and interface requirements that are allocated from those of the system or higher level configuration. **Responsible Org**.: IPT
23	Activity	Conduct Physical Configuration Audit (PCA)	The activities associated with the planning, coordinating, and actual conduct of the PCA. This audit is an indepth presentation to show that development is complete, the first production item is built in accordance with its engineering requirements, and all differences between the as-designed and as-built configurations are reconciled. The PCA is conducted after all test programs have been completed, as close to the first production item as possible. **Responsible Org**.: IPT
24	Activity	Establish System Product Baseline	Establishment of the system's Product Baseline occurs as a result of FAA monitoring the developmental baseline and auditing of Product Baseline. Specifically, the developmental baseline includes top-level and lower-level design specifications and the evolving product components (hardware and software). After IPT approval of the allocated baseline and a CDR of the top-level and lower-level design documentation and associated data, the evolving product is configuration managed by the contractor. The IPT monitors this effort by ensuring the contractor's compliance to CM plans, reviewing engineering notebooks, examining the contractor's CM tools, and participating in code reviews. The end result of the developmental activity is an integrated product configuration and associated data, which is the basis for the Product Baseline. The Product Baseline includes product specifications (hardware and software), technical instruction manuals, version design documents, interface control documents (ICD), drawings, and any site-specific directives/instructions, adaptation data, and updates to the baselines. The official Product Baseline is established after closure of a successful FCA/PCA and approval of the NAS Change Proposal, which introduces Product Baseline components into the NAS. The Operational Baseline is defined as the configuration of an entity (system) as installed and commissioned in the operational environment and associated documentation. This differs from the Product Baseline in that it incorporates not only the approved changes to the Product Baseline, but also changes required in the installation of the system. The Operational Baseline must be maintained for the remainder of the life cycle, and records are kept of all changes to this baseline using the approved configuration management process.

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Responsible Org.: IPT
24.1	Sub-activity	Update Facility Baseline to Reflect New System	The act of taking a "snapshot in time" at a particular facility to depict the location of all walls, doors, and permanently affixed equipment. The standard is the "shadow on the floor, shadow on the wall" concept; this is crucial for planning space allocation for expected and "pop-up" equipment deliveries. **Responsible Org**.: Regions (as-built), ANS (end-state), ANI
25	Activity	Conduct Test	Conducting tests addresses those CM responsibilities associated with operational tests. (The primary objective of operational testing is to demonstrate that a new system is operationally effective and operationally suitable for use in the NAS, and that the NAS infrastructure is ready to accept the system. Although these tests are under the authority of the cognizant FAA testing organizations -- IPT CM (or specific CM units with the testing organizations) generally have responsibilities for documenting the testing configuration, maintaining master copies of SW under test, managing changes to the testing configuration, and participating in pre-and post-test meetings. **Responsible Org**.: IPT and Test Lead
26	Activity	Site Surveys (Data)	This activity involves conducting an on-site survey of existing conditions versus what is on current prints, and the analysis of what is to be done to bring the system and prints into alignment. Site survey activities may begin earlier in the life cycle depending on the needs of the specific program. **Responsible Org**.: ANI EC and IC, SMO, AT
26.1	Sub-activity	Updated Site Implementation Plan (SIP) Information	Site Implementation Plans will be developed by Regional F&E organizations with input from facility AF and AT. This document needs to be updated as information from the IPT changes such as constraints, new requirements, or schedule changes. **Responsible Org**.: ANI EC and IC
27	Activity	Plants Project Transmittal Site Specific	The appropriate engineering organization develops the site-specific project transmittal. It includes all site-peculiar information gathered in the site survey, including coordination information, security requirements, work schedule limitations, and space limitations. **Responsible Org**.: ANI EC and IC, ANS, AOS
28	Activity	Review Transmittal Process	Entities review the transmittal for accuracy, conflicts with other projects, conformance with published standards, handbooks, codes, etc.

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Responsible Org.: SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA
29	Activity	Conduct Impact and Implementation (I&I) Activities	Per the PASS Union Agreement, Article 69, if there is a change in working conditions not covered by the agreement, a 45-day advance written notice must be given to the appropriate local representative. **Responsible Org**.: SMO - Local, IPT or Appropriate HQ Organization - National
30	Decision	Acceptance	Was the transmittal acceptable to the reviewing parties? If not, resolve comments and send out for review again. **Responsible Org**.: SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA
31	Activity	Conduct Construction or Site Preparation Activities	Site is prepared to accept new equipment. Construction contractor has performed contracted work. **Responsible Org**.: ANI EC and IC, AOS
32	Activity	Conduct Operational Acceptance Activities	The contractor is responsible for implementing all functions under system installation and for successfully completing demonstration and acceptance tests. Tests and checks are conducted to verify the system/equipment functions properly meets Air Traffic requirements and is maintainable. (Overall FAA testing guidance is addressed within FAST and system-specific testing requirements, such as the need for IOT&E, are available on a case-by-case basis.) Typical testing during this activity includes installation and integration testing along with site acceptance testing. **Responsible Org**.: SMO, ANI, AXX-470, AOS, AT
33	Sub-activity	Conduct Plants Joint Acceptance Inspection (JAI)	The Joint Acceptance Inspection is conducted to gain consensus of the involved offices that the project(s) has been completed in accordance with applicable standards and specifications and the facilities are capable of providing the services required within established standards and tolerances. **Responsible Org**.: SMO, ANI EC and IC, AT
34	Decision	Is There Follow-on Electronics Work	Does the project have only plants-associated work (e.g., construction of PAPI)? **Responsible Org**.: ANI EC and IC, ANS, AOS
35	Activity	Electronics Project Transmittal Site Specific (if Applicable)	The appropriate engineering organization develops the site-specific project transmittal. It includes all site-peculiar information gathered in the site survey, including coordination information, security requirements, work schedule limitations, and space limitations. **Responsible Org**.: ANI EC and IC, ANS, AOS

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
36	Activity	Review Project Transmittal	Entities review the transmittal for accuracy, conflicts with other projects, conformance with published standards, handbooks, codes, etc. **Responsible Org**.: SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA
37	Activity	Conduct Impact and Implementation (I&I) Activities	Per the PASS Union Agreement, Article 69, if there is a change in working conditions not covered by the agreement, a 45-day advance written notice must be given to the appropriate local representative. **Responsible Org**.: SMO - Local, IPT or Appropriate HQ Organization - National
38	Decision	Acceptance	Was the transmittal acceptable to the reviewing parties? If not, resolve comments and send out for review again. **Responsible Org**.: SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA
39	Activity	Conduct Electronics Installation Activities	Either the FAA work force or vendor installs electronics equipment, as described in electronics project transmittal **Responsible Org**.: ANI EC and IC, ANS, AOS
40	Activity	Conduct Operational Acceptance Activities	The contractor is responsible for implementing all functions under system installation and for successfully completing demonstration and acceptance tests. Tests and checks are conducted to verify the system/equipment functions properly, meets Air Traffic requirements, and is maintainable. (Overall FAA testing guidance is addressed within FAST and system-specific testing requirements such as the need for IOT&E, are available on a case by case basis.) Typical testing during this activity includes installation and integration testing along with site acceptance testing. **Responsible Org**.: SMO, ANI, AXX-470, AOS
41	Activity	Conduct Electronics Joint Acceptance Inspection (JAI)	The Joint Acceptance Inspection is conducted to gain consensus of the involved offices that the project(s) has been completed in accordance with applicable standards and specifications and the facilities are capable of providing the services required within established standards and tolerances. **Responsible Org**.: SMO, ANI EC and IC, AT
42	Sub-activity	Establish Initial Operational Capability (IOC)	Where applicable, equipment hardware subsystems/systems and, where required, software, shall have operated successfully and met defined subsystem/system requirements. As applicable, operations software shall have met contract specifications and operational requirements. Diagnostic software shall have met contract specifications and run error free. Support software shall have met contract specifications.

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Responsible Org.: SMO, AT, Second-Level Maintenance
43	Sub-activity	Conduct Operational Readiness Demonstration (ORD)	The joint acceptance board will determine the date (ORD) on which a new or improved facility or system satisfies FAA JAI construction, installation, performance, operation, and maintenance criteria, and will be ready to be placed into operational use. **Responsible Org**.: SMO, AT
44	Decision	Obtain In-Service Decision	The In-Service Decision authorizes the operational use of products or services and related deployment activities, such as installation and commissioning. It marks the transition point from Solution Implementation to In-Service Management. The authority for this decision is determined by the JRC at the Investment Decision and can reside at various points within the organization. **Responsible Org**.: AF or JRC or MAR
45	Activity	Develop/Implement Corrective Action Plans	This activity encompasses the work associated with developing and implementing corrective actions that have to be completed in order to obtain an approved "In-Service Decision." **Responsible Org**.: IPT
46	Activity	Initiate Operations with New/Updated Configuration	This activity comprises the work necessary to initiate operations, without any limitations, utilizing the new/updated configuration (activities may include training, etc.) **Responsible Org**.: Facility POC
46.1	Sub-activity	Maintain + Outage Status	This activity consists of the continuous tracking of preventative and corrective maintenance actions along with indication of cause for unscheduled interruptions. **Responsible Org**.: AXX-470
47	Decision	Problems or Improvements	Is the equipment/system functioning properly? **Responsible Org**.: AXX-470
48	Sub-activity	Maintain Operations	These include the day-to-day activities required to maintain operations of ATC services. Local specialist is able to correct problem under his/her own initiative and normal operations resume. **Responsible Org**.: AXX-470
49	Decision	Require Baseline Change	The decision that determines whether a problem impacts a baselined entity. **Responsible Org**.: Point of origination specific
50	Sub-activity	Initiate 2nd Level Support Activities	The actions initiated when a problem is beyond specialist's or TSU's expertise. Next level

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			of assistance is required. **Responsible Org**.: 2nd Level Maintenance Organization
51	Decision	Mission Critical Change	The decision that determines whether a problem impacts a tested requirement or if it is a new (or currently not funded) requirement. **Responsible Org**.: IPT SE
52	Activity	Document Pre-Planned Product Improvement (P^3I)	Pre-planned product improvements enhance the functionality of a product after initial development is complete. **Responsible Org**.: IPT, AOS
53	Decision	Service-Life Extension	Decision is made as to whether equipment is upgraded to newer version. Example is upgrading Mark-1B ILS to Mark-1F system. **Responsible Org**.: IPT, AOS, AXX-470
54	Activity	Decommission	Equipment that has served useful life is removed from the NAS. **Responsible Org**.: IPT, AOS, AXX-470
54.1	Sub-activity	Dispose	Equipment is either excessed, returned to Logistics Center, or leapfrogged to another location. Site is returned to original condition. If necessary, an Environmental Due Diligence Audit (EDDA) is conducted. **Responsible Org**.: IPT, AOS, AXX-470
100	Spanning Activity	Perform Change Management	The configuration management activity involving the systematic proposal, justification, evaluation, coordination, and disposition of proposed changes, and the implementation of all approved and released changes into the (a) applicable configurations of a product, (b) associated product information, and (c) supporting and interfacing products and their associated product information. **Responsible Org**.: CM Organization (Lead CM Organization phase dependent)
101	Spanning Activity	Perform Configuration Status Accounting	The configuration management activity involving the recording, storing, and accessing of information needed to manage configuration items effectively, including: a. A record of the approved configuration documentation and identification numbers. b. The status of proposed changes and deviations to the configuration. c. The implementation status for approved changes. d. The configuration of all units of the configuration item in the operational inventory.

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Responsible Org.: CM Organization (Lead CM Organization phase dependent)
102	Spanning Activity	Perform Problem Management Tracking	The tracking of problems is achieved by a combination of AF reporting systems: MMS (Maintenance Management System), LIS (Logistics Information System), Daily NMCC Reports, BCATS, etc. **Responsible Org**.: AXX-470, AML, IPT
103	Spanning Activity	Provide Continuous Improvement/Assessment	This activity determines the effectiveness of the CM system/process using authoritative expert judgment, CM metrics, and CM system/process audits with the focus on the continual improvement of the CM system/process. **Responsible Org**.: CM Organization (Lead CM Organization phase dependent)
104	Spanning Activity	Develop/Conduct CM Awareness Briefings	Management and worker briefings are used to acquaint management and other personnel with CM roles, responsibilities, and functions along with promoting the awareness and knowledge of the benefits of CM. **Responsible Org**.: CM Organization (Lead CM Organization phase dependent)
105	Spanning Activity	Develop/Attend Training	Training is conducted at three levels: CM Awareness (general familiarity with CM); CM Comprehension (an understanding of CM); and Applied Knowledge (a level of CM understanding and capabilities that results in the skills and abilities to perform CM in the FAA. Training is tailored for the specific audience (executives, managers, CM managers, CM practitioners, and general users) and may be delivered by internal or external sources. **Responsible Org**.: CM Organization (Lead CM Organization phase dependent)
106	Spanning Activity	Provide Nonconformance Tracking	Nonconformance is the failure of a unit or product to conform to specified requirements. Tracking of these items ensures that they will be "flagged" for future activity, i.e., deviation. **Responsible Org**.: AXX-470, AML, IPT
107	Spanning Activity	Perform Drawing Management	Drawing management is essential to ensure all items under configuration control are changed only through the appropriate approval process. Some elements of drawing management are drawing number, date of release, approval signature/CCD number, number of sheets, and drawing title. **Responsible Org**.: CM Organization (Lead CM Organization phase dependent)
108	Spanning Activity	Perform Modification Tracking	The process of installing and documenting implementation of a modification . This includes updating the national automated tool and the site records. **Responsible Org**.: Regional CM, AML, IPT's

Life-Cycle CM Process

Life-Cycle CM Process

CM LIFE-CYCLE PROCESS INPUT/OUTPUTS FOR

CM *LEAD* ACTIVITIES

KEY:

- Tailorable = how the output is developed may vary; however, the input to the activity and the output from the activity are standard (i.e, **NOT** tailorable!!!!)
- A=Action – you jump down into the detailed flow (action comes back to this top-level activity)
- I=Impact – what you are doing here impacts the work/timing of what you do in the lower-level flow (impact does not feed back into top-level activity)
- LC Phases: NRM = NAS Requirements Management; MA = Mission Analysis; IA = Investment Analysis; SI = Solution Implementation; IS = In-Service

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Ver -ification**
Y	• Agency Directives • Improvement Opportunities	NRM	1.2	Develop, Manage, and Communicate CM Technical Guidance	CM Authority	• CM Policy • CM Guidance and Procedures • CM Educational Materials • CM Effectiveness Measures	I	I	I	I
Y	• APB • Parameter Sheets	SI	9	Plan and Manage Program CM	IPT's, Regions, and Solution Providers	• CM planning is the Acquisition Strategy Paper • Budget Reqs. • Performance Reqs./Reports • Metrics • Unapproved CCB Charters and Operating Procedures	I	I	I	I
Y	• APB • Parameter Sheets	SI	9.1	Develop CM Plans and Practices	IPT's, Regions, and Solution Providers	• CM planning in the Integrated Program Plan	I	I	I	I

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Ver -ification**
						• Budget Reqs. • Performance Reqs./Reports • Metrics				
Y	• IPT CM Plan	SI	9.1.1	Develop PT CM Teams, Tailored Plans, and Practices	IPT CM	• Vendor Requirements	I	I	I	I
N	• APB • Parameter	SI	9.2	Develop CCB Charter and Operating Procedures	IPT, Regions, and Solution Providers	• Unapproved CCB Charter and Operating Procedures	I			
Y	• Baseline Info • Change Data • Audit Results • Information Requests • CM Plans and Procedures • CSA	SI	9.3	Establish Program Support Library (PSL)	IPT's, Regions, and Solution Providers	• Collection Criteria • PSL Listings • Completed PSL Requests	I	I	I	I
N	• A-Spec	SI	11	A-Spec Approved	IPT System Engineering	• Approved A-Spec	A		A	
Y	• Approved A-Spec (including interface requirements)	SI	12	Establish Functional Baseline	IPT (SE, ASU, CM)	• IRD/ICD Identifier Request • Established Functional B/L	A		A	A
Y	• CM Requirements	SI	13.1	Execute CM Requirements Flow Down	IPT CM	• CM Requirements to Prime				
Y	• CM Requirements • CM CDRL's • In-process Reviews	SI	16	Monitor CM Activities	IPT CM, ASU, Regions, ANS	• IRD/ICD Identifier Request • FAA Type Number Request • CM Compliance Information • CM Performance Reports			A	A
Y	• Facility Documentation	SI	17	Conduct Facility	Regional CM	• Updated/Revised		A	A	A

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Ver -ification**
				Documentation Review		Drawings • CSA				
N	• Documentation Review Results • NCP	SI	18	Establish/Update Facility Baseline	ANI EC and IC, Regions	• Approved NCP • CCD's • Drawings • Facility Baseline	A	A	A	A
Y	• Functional Baseline	SI	19	Establish Allocated Baseline	IPT CM, ASU, Developing Contractor	• Allocated Baseline • VRTM	A		A	A
Y	• Functional Baseline • Allocated Baseline • Test Results (DT&E and System Acceptance Test (SAT)) • Approved Changes	SI	22	Conduct Functional Configuration Audit (FCA)	IPT CM	• Audit Findings			A	A
Y	• Previous Audit Results • Design Documents • Log Books	SI	23	Conduct Physical Configuration Audit (PCA)	IPT CM	• Audit Findings • Product Baseline Information		A	A	A
Y	• Product Baseline Information • NCP	SI	24	Establish System Product Baseline	IPT CM	• Product Baseline • DD256	A	A	A	A
N	• Exiting Facility Documentation • NCP to Change Facility Documentation	SI	24.1	Update Facility Baseline to Reflect New System	Regions, ANS, ANI	• Updated Facility Drawing	A	A	A	
Y	• NAPRS • Trouble Reports • Unsatisfactory Conditions Reports	IS	47	Problems or Improvements	AXX-470	• Verified Problem	I		I	
N	• Verified Problem	IS	49	Require B/L Change	Point of Origination Specific	• Analysis supporting need for baselined change	I		I	
N	• Change Requests	IS	51	Mission Critical Change	IPT System Engineering	• Decision	A	I	A	
Y	• Change Requests (non-Mission Critical) • Unfunded Requirements	IS	52	Document Pre-planned Product Improvement (P^3I)	IPT, AOS	• Unfunded Requirements List	A		A	
N	• ***Reference Lower-Level Flows***	All	100	Perform Change Management	IPT's, Regions, and Solution Providers	• ***Reference Lower-Level Flows***	A			

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Ver -ification**
Y	• ***Reference Lower-Level Flows***	All	101	Perform Configuration Status Accounting	IPT's, Regions, and Solution Providers	• ***Reference Lower-Level Flows***			A	
Y	• Metrics	All	103	Provide Continuous Improvement/ Assessment	IPT's, Regions, and Solution Providers	• Assessment Statements • Improvement Recommendations				I
Y	• FAA-iCMM Requirements • Program Improvements	All	104	Develop/Conduct CM Awareness Briefings	IPT's, Regions, and Solution Providers	• Program Improvements				
Y	• FAA-iCMM Requirements • Program Improvements • Practitioner Needs	All	105	Develop/Attend Training	IPT's, Regions, and Solution Providers	• Program Improvements • Trained Practitioners				
N	• Distribution Vehicle with Modification Attached	All	108	Perform Modification Tracking	Regional CM, AML, IPT's	• Current Status	A	I	A	

Life-Cycle CM Process

CM LIFE-CYCLE PROCESS INPUT/OUTPUTS FOR

CM *SUPPORTED* ACTIVITIES

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- LC Phases: NRM = NAS Requirements Management; MA = Mission Analysis; IA = Investment Analysis; SI = Solution Implementation; IS = In-Service

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
N	• NAS Architecture • CIP	NRM	1	Plan and Manage NAS Requirements	ASU, ARA, ASD	• NAS Baseline • Identified Shortfalls	A		A	
N	• NAS Level NCP's • Industry Input (Architecture)	NRM	1.3	Establish and Manage NAS Technical Products	ASD (100-400)	• NAS Requirements Baseline • Unapproved NAS CCB Charter and Operating Procedures	A		A	
N	• Changes to CM Baselined Documentation • Unapproved CCB Charters and Operating Procedures	NRM	1.4	Establish and Maintain NAS Infrastructure	CM Authority	• MCI • NAS-MD-001 • Approved CCB Charters and Operating Procedures • FAA Type Numbers • Specification Numbers • IRD/ICD Identifiers	A		A	
N	• Approved MNS	IA	4	Conduct Investment Analysis	IA Team	• Approved APB	I		I	
N	• Request for field input	IA	4.5	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Level Input to Investment Analysis	Regional, Logistics, ANI, ANS, AOS, AFZ, and the Academy	• Field input				

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
N	• Investment Analysis Report	IA	6	Document Selected Alternative	JRC	• APB			A	
N	• Architecture Impact Assessment • Selected Investment Alternative	IA	6.1	Baseline Requirements Document (RD)	JRC	• Direction to Update/Create Impacted Lower-Level Documents • Information for Traceability Matrix	A		A	
N	• APB • CCD	IA	6.6	Update NAS Technical Products	ASD-100, ACM-1	• Updated NAS Technical Products	A		A	
Y	• APB	SI	8	Initiate Acquire and Build Activities	IPT	• Direction to develop docs. • ASP • IPP				
N	• APB	SI	8.1	Develop Acquisition Strategy Paper	IPT, IMT	• Acquisition Strategy Paper				
N	• APB	SI	8.2	Develop Integrated Program Plan (IPP)	IPT, IOT&E	• Integrated Program Plan (IPP)				
N	• Request for field input	SI	8.2.1	Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to Integrated Program Plan (IPP)	Regional, Logistics, ANI, ANS, AOS, the Academy	• Input to IPP				
Y	• Project Specific RD	SI	10	Develop Program A-Spec	IPT System Engineering	• Specification Number Request • Proposed A-Spec	I			
Y	• A-Spec • RD • (Appropriate) NAS Technical Products	SI	10.1	Develop Traceability Matrix (A-Spec to APB to NAS Requirements)	IPT System Engineering	• Traceability Matrix				
N	• Request for field input	SI	10.2	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Review of Program A-Spec	Regional, Logistics, ANI, ANS, AOS, and the Academy	• Input to A-Spec				

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
Y	• Functional B/L Info • Vendor Requirements	SI	13	Develop Program SOW	IPT	• Proposed SOW				
Y	• Vendor Requirements	SI	13.2	Develop/Select CDRL/DID	IPT	• CDRL's/DID's				
N	• Request for field input	SI	13.3	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to SOW and CDRL/DID Selection	Regional, Logistics, ANI, ANS, AOS, and the Academy	• Input to SOW and CDRL/DID Selection				
Y	• SOW • Contractor Response	SI	15	Issue Contract	IPT ASU	• Contract				
Y	• Conference Notification	SI	15.1	Attend Post Contract Award Conference	IPT and Developing Contractor	• Contract Validation • Contract Modifications				
N	• Request for field input	SI	15.2	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to Post Contract Award Conference	Regional, Logistics, ANI, ANS, AOS, and the Academy	• Field Input to Post Contract Award Conference				
N	• Request for field input	SI	16.1	Provide Field (includes Regional, Logistics, ANI, ANS, AOS, and the Academy) Input to CDRL Submittal Reviews	Regional, Logistics, ANI, ANS, AOS, and the Academy	• Field Input to CDRL Reviews				
Y	• Technical Data Packages (CDRL's)	SI	20	Support Design Reviews	IPT	• Provide Subject Matter Expertise Comments • Design Review Minutes			I	

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
Y	• Request for Site Survey Document • Contractors CM Plan • SW Delivery Notifications • Contractors QA Configuration Lists • Site Allocation Document (SAD) • Site Implementation Plan (SIP) • Version Description Documentation (VDD)	SI	21	Monitor Test	IPT and Test Lead	• TRR Package • ACT-200 Configuration Management Implementation Plan			I	

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
Y	• TRR Package • Test Plans • Contractors QA Configuration Lists • Test Schedule Document • Site Allocation Document (SAD) • Site Implementation Plan (SIP) • Version Description Documentation (VDD)	SI	25	Conduct Test	IPT and Test Lead	• FCA/PCA document • DD-256 Acceptance Document	A		A	
Y	• Facility B/L Data	SI	26	Site Surveys (Data)	ANI EC and IC, SMO, AT	• Site Survey Results	I		I	
Y	• Generic Implementation Plan	SI	26.1	Updated Site Implementation Plan (SIP) Information	ANI EC and IC	• SIP				
Y	• Approved Plants Project Transmittal	SI	31	Conduct Construction or Site Preparation Activities	ANI EC and IC, AOS	• Prepared Site or completed construction project				
Y	• System ready to be tested	SI	32	Conduct Operational Acceptance Activities	SMO, ANI, AXX-470, AOS, AT	• Proven system			I	
N	• System ready to be placed into he NAS or site ready to accept electronics equipment	SI	33	Conduct Plants Project Joint Acceptance Inspection (JAI)	ANI EC and IC, SMO, AT	• System accepted into the NAS			I	

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
Y	• Approved Electronics Transmittal	SI	39	Conduct Electronics Installation Activities	ANI EC and IC, ANS, AOS	• Installed System		I		
Y	• System ready to be tested	SI	40	Conduct Operational Acceptance Activities	SMO, ANI, AXX-470, AOS, AT	• Proven System			I	
N	• System ready to be placed into the NAS	SI	41	Conduct Electronics Joint Acceptance Inspection (JAI)	ANI EC and IC, SMO, AT	• System accepted into the NAS			I	
N	• Equipment and software that meets all defined requirements • Training	SI	42	Establish Initial Operational Capability (IOC)	SMO, AT, Second-Level Maintenance	• IOC Acceptance			I	
N	• IOC Acceptance	SI	43	Conduct Operational Readiness Demonstration (ORD)	SMO, AT	• ORD Acceptance			I	
N	• ORD Acceptance	IS	44	Obtain In-Service Decision	AF or JRC or MAR	• Commissioning the Facility			I	
Y	• Negative In-service decision	IS	45	Develop/Implement Corrective Action Plans	IPT	• Corrective action plan(s)				
Y	• In-service Decision • JAI Acceptance	IS	46	Initiate Operations with New/Updated Configuration	Facility POC	• Maintenance with New/Updated System				
Y	• Request for AOS Support	IS	50	Initiate Second-Level Support Activities	Second-Level Maintenance Org.	• Maintenance Activity	I		I	
Y	• System at end of service life	IS	53	Service Life Extension Program (SLEP)	IPT, AOS, AXX-470	• SLEP Decision	A		A	
Y	• AT Decision to end service life • CCD	IS	54	Decommission	IPT, AOS, AXX-470	• Disposal Decision	A		A	
Y	• Disposal Decision	IS	54.1	Dispose	IPT, AOS, AXX-470	• Removal NAS			I	

Life-Cycle CM Process

							Detailed Flows			
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Drawing Mgmt.**	**CSA**	**Audit/Verification**
Y	• Maintain + Outage Status • Second Level Support Activities	All	102	Perform Problem Management Tracking	AXX-470, AML, IPT	• Problem Management Status				
Y	• Deviations • Waivers	All	106	Provide Nonconformance Tracking	AXX-470, AML, IPT	• Nonconformance Tracking				
Y	• ***Reference Lower-Level Flows***	All	107	Perform Drawing Management	IPT's, Regions, and Solution Providers	• ***Reference Lower-Level Flows***		A		

Life-Cycle CM Process

CM LIFE-CYCLE PROCESS INPUT/OUTPUTS FOR

CM *ASSOCIATED* ACTIVITIES

KEY:

- Tailorable = how the output is developed may vary; however, the input to the activity and the output from the activity is standard (i.e, **NOT** tailorable!!!!)
- A=Action – you jump down into the detailed flow (action comes back to this top-level activity)
- I=Impact – what you are doing here impacts the work/timing of what you do in the lower-level flow (impact does not feed back into top-level activity)
- LC Phases: NRM = NAS Requirements Management; MA = Mission Analysis; IA = Investment Analysis; SI = Solution Implementation; IS = In-Service

							Detailed Flow Impacted				
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Change Imp.**	**Drawing Mgmt.**	**CSA**	**Audit/Ver -ification**
		MA	1.1	Develop and Manage Acquisition Strategy	ASU						
		MA	2	Conduct Mission Need Analysis	FAA LOB (including ARS)						
		MA	2.1	Conduct Technical Merit Assessment	FAA LOB						
		MA	2.2	Conduct Current/Planned Need Assessment	Cross Functional Arch. Team						
		MA	2.3	Finalize Mission Need Statement	FAA LOB						
		MA	3	Obtain Mission Need Decision	JRC						
		IA	4.1	Identify Alternatives	IA Team						
		IA	4.2	Analyze Alternatives	IA Team						
		IA	4.3	Perform Affordability Assessment	SEOAT w/ IA Team						
		IA	4.4	Prepare Investment Analysis Report	IA Team						
		IA	4.4.1	Develop Acquisition Program Baseline (APB)	IA Team						
		IA	5	Obtain Investment Decision	Augmented JRC						
		IA	6.2	Establish Program; Assign IPT	JRC						
		IA	6.3	Approve Acquisition Program Baseline (APB)	JRC						

Life-Cycle CM Process

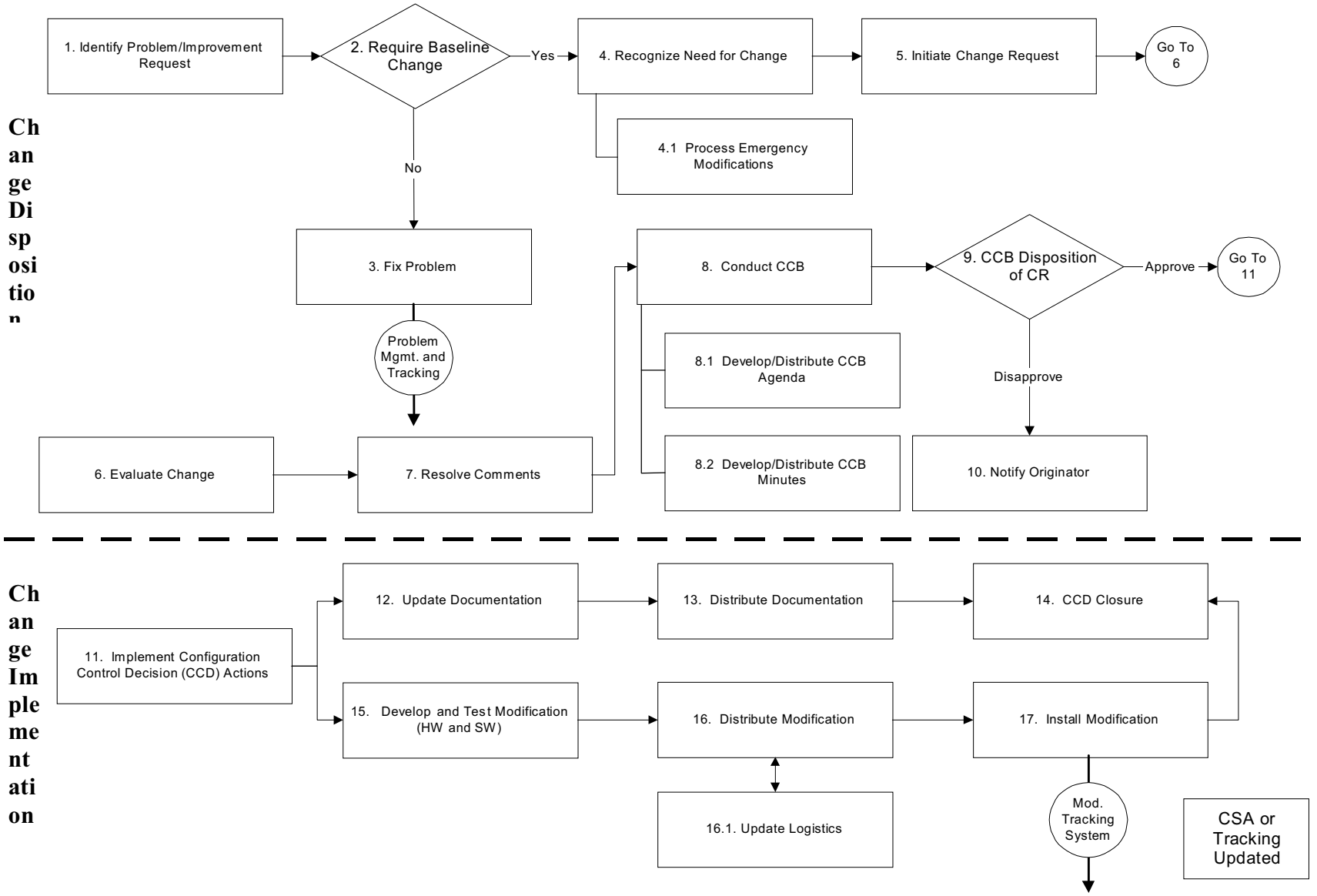
							Detailed Flow Impacted				
Tailorable	**INPUT**	**LC Phase**	**Process #**	**CM Tasks (per Process Flow)**	**Resp. Org.**	**OUTPUT**	**Change Mgmt.**	**Change Imp.**	**Drawing Mgmt.**	**CSA**	**Audit/Ver -ification**
		IA	6.4	Commit Agency to Full Life-Cycle Funding	JRC						
		IA	6.5	Identify Future Corporate Decisions	JRC						
		IA	7	Document in Decision Record	JRC (Supported by ACM-1)						
		SI	27	Plants Project Transmittal Site Specific	ANI EC and IC, ANS, AOS						
		SI	28	Review Transmittal Process	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate non-FAA						
		SI	29	Conduct Impact and Implementation (I&I) Activities	SMO – Local, IPT or Appropriate HQ Org. – National						
		SI	30	Acceptance	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate non-FAA						
		SI	34	Is There Follow-on Electronics Work	ANI EC and IC, ANS, AOS						
		SI	35	Electronics Project Transmittal Site Specific (if Applicable)	ANI EC and IC, ANS, AOS						
		SI	36	Review Project Transmittal	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA						
		SI	37	Conduct Impact and Implementation (I&I) Activities	SMO – Local, IPT or Appropriate HQ Org. – National						
		SI	38	Acceptance	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA						
		SI	46.1	Maintain + Outage Status	AXX-470						
		SI	48	Maintain Operations	AXX-470						

DETAILED PROCESS PACKAGE

- CHANGE MANAGEMENT AND IMPLEMENTATION
- CONFIGURATION STATUS ACCOUNTING
- CONFIGURATION VERIFICATION AND AUDIT
- DRAWING MANAGEMENT (CM & EDM)

Life-Cycle CM Process

Change Management and Implementation with CSA Annotated



Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**
00	CSA or Tracking	1. Problem Management and Tracking 2. Configuration Status Accounting System 3. Modification Tracking System	***See "LIFE-CYCLE FLOW" Definitions***
1	Activity	Identify Problem/Improvement Request	Any person can identify a problem and initiate a change/improvement request. This can occur anytime during the product life cycle; if the product is not yet fielded, the appropriate IPT can take action. If the product is fielded (operational), regional field personnel can document the problem. **Responsible Org.:** FAA-wide (and those holding FAA inter-agency agreements)
2	Decision	Require Baseline Change	The decision to make a change to a baseline Configuration Item (CI) requires updating existing hardware, software, or any baseline documents. It can occur as part of an engineering, acquisition, or operational baseline process. **Responsible Org.:** Originating Organization with CM POC
3	Activity	Fix Problem	The problem does not require a baseline change: If the problem or improvement does not require a baseline change then it is either: a. Nontechnical: Take the necessary steps to correct the problem; i.e., order more supplies, make the necessary administrative corrections to the drawing, manual, or specs, etc. b. Technical: Take the necessary steps to repair and return the equipment to operating conditions. This may include such things as using technical instructions manuals, maintenance books and diagrams, other maintenance personnel, second-level field support services, flight check, etc. **Responsible Org.:** OPR (Office of Primary Responsibility)
4	Activity	Recognize Need for Change	Recognition of a need for change in a given configuration is the first step to initiating the CM change process. **Responsible Org.:** FAA-wide (and those holding FAA inter-agency agreements)
4.1	Sub-activity	Process Emergency Modifications	Emergency Modifications are allowed under FAA Order 6032.1 Modifications to ground facilities, systems and equipment (including monitor and test

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**

			equipment), structures, buildings, etc., shall be authorized ONLY to correct deficiencies, satisfy changing requirements, improve performance, increase reliability, minimize safety hazards, reduce manpower requirements, facilitate maintenance, save money, or enable commissioning.
			
			Approval of emergency Modifications to end items under Configuration Management (listed in NAS-MD-001) is subject to higher-level review and a CCD.
			
			Systems and equipment involved in the direct generation, transmission, processing, or display of information provided to aircraft and/or Air Traffic personnel are excluded.
			
			Emergency Modifications to NAS equipment must be:
			– Approved by the responsible System Management Office Manager;
			– Contain a written report to the Regional AF Manager, which must be submitted within 2 working days and it shall contain:
			  – Item modified,
			  – Nature of conditions or emergency,
			  – Description of Changes,
			  – Indication when the item will be restored to original condition.
			
			An Urgent NCP is required, approved by the SMO Manager, and submitted in accordance with CM Policy.
			
			Responsible Org.: SMO

5	Activity	Initiate Change Request	A change request is initiated by completing a change form (see NAS-MD-001 for completion instructions). Requests initiated at field locations shall be fully coordinated between Airway Facilities (AF) and Air Traffic (AT), as necessary, prior to forwarding the case file to the region for processing. Requests initiated outside the regions should be forwarded to the regions for evaluation prior to approval. **Responsible Org.:** FAA-wide (and those holding FAA inter-agency agreements)
6	Activity	Evaluate Change	The Change Request (CR) shall be evaluated for engineering, logistics, training, cost, and schedule. **Responsible Org.:** CCB Membership plus Subject Matter Experts (SME)

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**
7	Activity	Resolve Comments	An attempt to resolve all comments made against a change request prior to submission to the CCB. In some cases, there may be comments and/or conflicts that must be resolved by the CCB. **Responsible Org.:** Change Request Originator and Office of Primary Interest (OPI) as necessary
8	Activity	Conduct CCB	The CCB is a Program Management process used by the Program Manager to ascertain all the benefits and impacts of the change request before the decision is made. It is usually chaired by the Program Manager, CM Manager, or System Engineer. The membership of the CCB is comprised of the key functional or subject matter experts from the FAA. The members are responsible for advising the CCB Chairperson. It is a nonvoting entity that reviews the problem to be solved; the proposed change request; the alternatives considered; the proof the change will introduce no new problems; verification of interface compatibility, including safety, test, etc.; an estimate of cost and schedule impact; and any documentation changes required. The CCB also considers the impact of not making the change. Issues approval/disapproval decisions for proposed changes outlined in the change request. Assigns implementation actions for proposed changes. **Responsible Org.:** CCB Chairperson
8.1	Sub-activity	Develop/Distribute CCB Agenda	The Executive Secretary for the CCB shall develop an agenda for those changes to be brought before the CCB for disposition. The agenda shall include the names and organizations of the personnel involved with the development of the change request. **Responsible Org.:** CCB Executive Secretariat
8.2	Sub-activity	Develop/Distribute CCB Minutes	An accurate account of what transpires at each Configuration Control Board meeting. Indicates those individuals in attendance, identifies change requests that were approved/disapproved or require further explanation/information to make an informed decision, and serves as the forum for resolution of comments (when required). Final minutes should be signed off by the CCB secretariat and Chairperson. **Responsible Org.:** CCB Executive Secretariat
9	Decision	CCB Disposition of Change Request (CR)	Outcome of the CCB as to the approval, disapproval, or “on hold” status assigned to individual change requests. **Responsible Org.:** CCB Chairperson
10	Sub-activity	Notify Originator	Written notification imparting required or pertinent information communicated directly to

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**
			the originator, the originator's management group, or representative. This notice indicates the disposition or status of that change proposal as rendered by the approval organization and may assign responsibilities and/or actions as required. **Responsible Org.:** CCB Executive Secretariat
11	Activity	Implement Configuration Control Decision (CCD) Actions	Action offices implement assigned actions in CCD. **Responsible Org.:** CCD Action Offices
12	Activity	Update Documentation	Update documentation as required to include: • Drawings • Specifications • Tech Instructions • Tech Manuals • Orders • Software Documentation • Training Manuals • CSA **Responsible Org.:** Office of Primary Interest
13	Activity	Distribute Documentation	Distribute updated documentation as directed by the approved CCD. **Responsible Org.:** Office of Primary Interest
14	Activity	CCD Closure	The closure of a CCD signifies the completion of a change's implementation. This includes both documentation updates and modification implementation. **Responsible Org.:** CCB Executive Secretariat with input from the Assigned Action Offices
15	Activity	Develop Modification (HW and SW)	Modifications are developed during the initial study phase. All modifications are fully field tested prior to formal release. **Responsible Org.:** IPT, Regions
16	Activity	Distribute Modification	Distribution of parts, supplies, or software associated with an engineering change in order to complete the modification. **Responsible Org.:** IPT, Regions
16.1	Sub-activity	Update Logistics	Planned approach to upgrade spares, including number of back-up parts held in the spares

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**
			area. **Responsible Org.:** AML
17	Activity	Install Modification	The process of installing and documenting a modification implementation. This includes updating the national automated tool and the site records. **Responsible Org.:** IPT, Regions

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION INPUT/OUTPUT MATRIX

INPUT		OUTPUT
• Identified Problem	**1. IDENTIFY PROBLEM/ IMPROVEMENT REQUEST**	• Identified Request
• Identified Request	**2. REQUIRE BASELINE CHANGE**	• (If yes) Change Request • (If no) Maintenance Action
• Maintenance Action	**3. FIX PROBLEM**	• Completed Maintenance Action
• Preliminary Change Request	**4. RECOGNIZE NEED FOR CHANGE**	• Change Information
• Emergency Solution	**4.1 PROCESS EMERGENCY MODIFICATIONS**	• SMO Manager Approved Emergency Modification • Change Request (CR)
• Change Information	**5. INITIATE CHANGE REQUEST**	• Change Request (CR)

• Change Request (CR)	**6. EVALUATE CHANGE**	• Technical Evaluation
		  • Engineering Evaluation
		  • Testing Impact
		  • Logistics Impact
		  • Training Impact
		  • Documentation Impact
		  • Interface Impact
		  • Operational Impact
		  • Facility Impact
		  • Identify Funding Sponsor
		• Programmatic Evaluation
		  • Sponsor ID
		• Cost Evaluation
		  • Cost to Fix (Engineering)
		  • Cost of Documentation Updates
		  • Cost of Training
		  • Cost of Implementation (include travel)

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION INPUT/OUTPUT MATRIX

INPUT		OUTPUT

• Technical Evaluation
  • Engineering Evaluation
  • Testing Impact
  • Logistics Impact
  • Training Impact
  • Documentation Impact
  • Interface Impact
  • Operational Impact
  • Identify Funding Sponsor
• Programmatic Evaluation
  • Sponsor ID
• Cost Evaluation
  • Cost to Fix (Engineering)
  • Cost of Documentation Updates
  • Cost of Training
  • Cost of Implementation (include travel)
	7. RESOLVE COMMENTS	• Comment Resolution

• Change Request (including technical, program, and cost evaluations) • Comment Resolution	**8. CONDUCT CCB** **8.1 Develop/Distribute CCB Agenda** **8.2 Develop/Distribute CCB Minutes**	• Change Request Disposition • Follow-on Actions
• Change Request • Comment Resolution	**9. CCB DISPOSITION OF CR**	• (If Approved) Configuration Control Decision (CCD) Actions • (If Disapproved) Originator Notification
• Disapproved CCD	**10. NOTIFY ORIGINATOR**	• Receipt of Originator Notification
• Approved CCD • CR Information • Resolution of Comments	**11. IMPLEMENT CONFIGURATION CONTROL DECISION (CCD) ACTIONS**	• CCD Actions

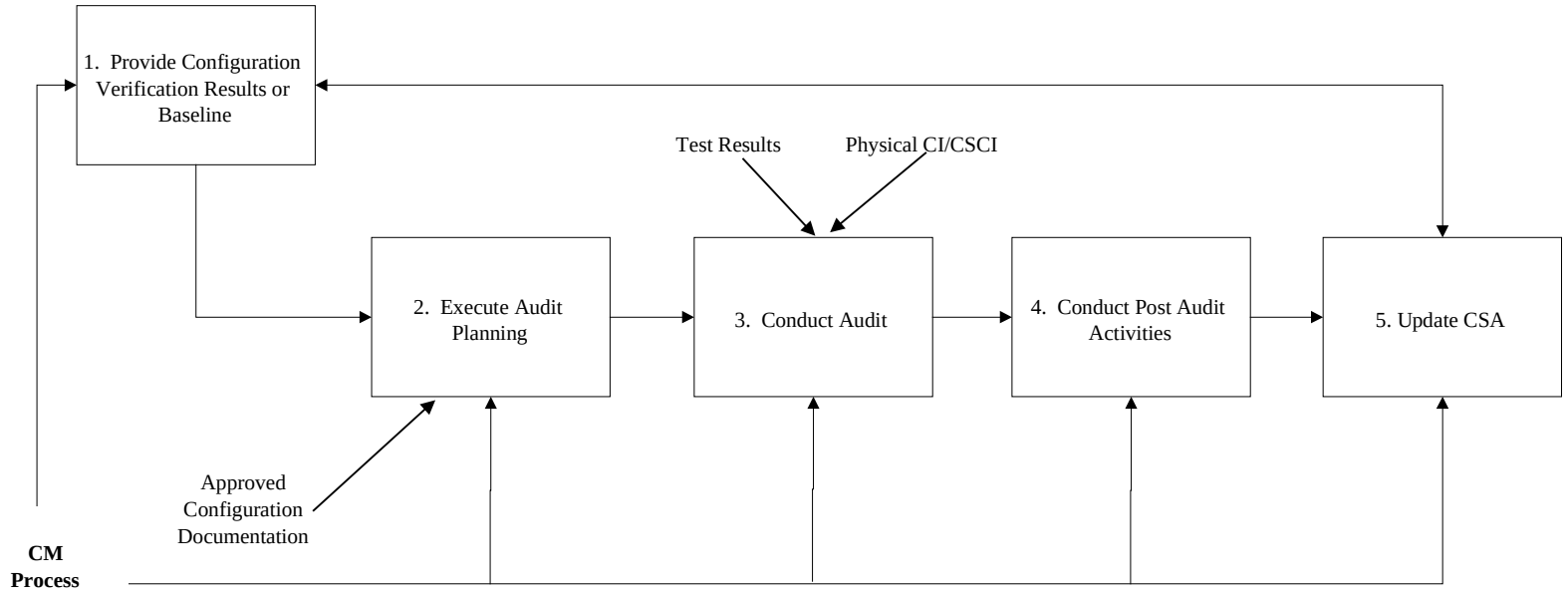
Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION INPUT/OUTPUT MATRIX

INPUT		OUTPUT
• CCD Actions	**12. UPDATE DOCUMENTATION**	• Documentation • Drawings • Specifications • Tech Instructions • Tech Manuals • Orders • Software Documentation • Training Manuals • CSA
• Documentation • Drawings • Specifications • Tech Instructions • Tech Manuals • Orders • Software Documentation • Training Manuals	**13. DISTRIBUTE DOCUMENTATION**	• Distribution Vehicle with Documentation Attached • CSA
• CCD Actions	**15. DEVELOP AND TEST MODIFICATION (HW AND SW)**	• Modification • CSA
• CCD Actions • Modification	**16. DISTRIBUTE MODIFICATION**	• Distribution Vehicle with Modification Attached • CSA
• Modification • Documentation	**16.1 UPDATE LOGISTICS**	• Feedback to CSA • Feedback to Logistics (Anywhere housing spares)
• Distribution Vehicle with Modification Attached	**17. INSTALL MODIFICATION**	• Site-Specific and Test Bed Feedback to CSA
• Site-Specific and Test Bed Feedback to CSA	**14. CCD CLOSURE**	• CCD Closure Notification to CSA

Life-Cycle CM Process

Configuration Verification and Audit Process Flow



Life-Cycle CM Process

CONFIGURATION VERIFICATION and AUDIT DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**
1	Activity	Provide Configuration Verification Results or Baseline	Configuration verification is a process that is common to configuration management, systems engineering, design engineering, manufacturing, and quality assurance. The functional aspect of configuration verification encompasses all of the test and demonstrations performed to meet quality assurance sections of the performance specification. The physical aspect of configuration verification establishes that the as built configuration is in conformance with the as-designed configuration. This verification is accomplished through physical inspection, process control, or a combination of both. In the case of a re-baseline audit of a facility or equipment, the existing baseline documentation will be utilized. **Responsible Org.:** • *PRODUCTION AUDITS* = Quality Assurance Organization • *FACILITY AUDITS* = Site Personnel at the Direction of the CCB
2	Activity	Execute Audit Planning	Audit planning involves the coordination of objectives, scope, and agenda within the program and other affected organizations to ensure total agreement to facilitate the effective and efficient conduct of the audit. This part of the audit process sets the schedule, agenda, facilities, and the rules of conduct and identifies the participants of the audit. It is beneficial to document these items in a configuration audit plan and to have this plan agreed to by all parties involved in the conduct of the audit. **Responsible Org.:** CM Organization
3	Activity	Conduct Audit	There are various audits that are conducted during the program life cycle. These audits include the Functional Configuration Audit (FCA), Physical Configuration Audit (PCA), and Facility Audit. The FCA is used to verify that the actual performance of the CI meets requirements stated in its performance specification. The PCA is used to examine the actual configuration of the CI that is representative of the product configuration in order to verify that the related design documentation matches the design of the deliverable CI. It is also used to validate many of the supporting processes that the contractor uses in the production of the CI. For large, complex CI's, the audits should be accomplished incrementally with each increment addressing a specific functional or physical area of the CI. After all the increments have been completed, a final summary audit may be held to address the status of all of the increments. The Facility Audit is used to baseline or re-baseline a facility in which it has been determined is of significant importance and must

Life-Cycle CM Process

CONFIGURATION VERIFICATION and AUDIT DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition/Responsible Org.**
			be placed under formal CM. **Responsible Org.:** Audit Team
4	Activity	Conduct Post Audit Activities	This part of the audit process focuses on follow-up to the audit action items and the preparation of official audit minutes. It is important that all action items are followed up. Each action item would have an owning organization identified and a planned action item completion date. The list of action items must be maintained in the CM data base and updated as the action items are worked off. The audit minutes would typically include time, place, purpose, participants, action item lists reflecting all actions and agreed to suspense dates, and key audit review activities. After completion of the FCA and PCA and all open action items are closed, the approved documentation that describes the product becomes the product baseline. After completion of the Facility Audit, and all action items are closed the approved documentation that describes the Facility becomes the Facility baseline. **Responsible Org.:** CM Organization with Subject Matter Experts
5	Activity	Update CSA	The CSA system is updated to reflect the audit results including any action items and status resulting from the audit. **Responsible Org.:** CM Organization

Life-Cycle CM Process

CONFIGURATION VERIFICATION and AUDIT INPUT/OUTPUT MATRIX

INPUT		OUTPUT
• Documented CM Process • CSA Information • Verification Required	**1. PROVIDE CONFIGURATION VERIFICATION RESULTS OR BASELINE**	• Verified Configuration • Verified Changes • Open Items (Action Items)
• Verified Configuration • Verified Changes • Open Items (Action Items) • Documented CM Process • CSA Information • Approved Configuration Documentation • *Equipment Status Reports (RTP, MDFM, etc)*	**2. EXECUTE AUDIT PLANNING**	• Agenda • Facilities, Tools • Audit Team • Documentation • Audit Objectives

• Verified Configuration
• Verified Changes
• Open Items (Action Items)
• Documented CM Process
• CSA Information
• Physical CI/CSCI
• Test Results
• Agenda
• Facilities, Tools
• Audit Team
• Documentation
• Audit Objectives
	3. CONDUCT AUDIT	• Audit Report
		  • Verification
		  • Validation
		  • Action Items

• Documented CM Process
• CSA Information
• Audit Report
  • Verification
  • Validation
  • Action Items
	4. CONDUCT POST AUDIT ACTIVITIES	• Verification
		• Validation
		• Action Item Closure
		• Established or Revised Baseline

• Audit Report
  • Verification
  • Validation
  • Action Items
• Action Item Closure
• Established or Revised Baseline
	5. UPDATE CSA	• Updated CSA Information

Life-Cycle CM Process
Configuration Status Accounting Process Flow

CONFIGURATION STATUS ACCOUNTING
Tasks

1. Record the current approved configuration documentation and configuration identifiers with each System/Configuration Item (CI).
2. Record and report the status of proposed engineering changes from initiation to final approval to contractual implementation.
3. Record and report the status of all critical and major requests for acquisition deviation and waivers, which affect the configuration of a System/Configuration (CI).
4. Record and report the results of configuration audits to include the status and final disposition of identified discrepancies and action items.
5. Record and report implementation status of authorized changes.
6. Provide the traceability of all changes from the original released configuration documentation of each System/Configuration Item (CI).
7. Report the effectivity and installation status of configuration changes to all system Configuration Items (CIs) at all locations, including design, production, modification, retrofit and maintenance changes. (Facility Reference Data File (FRDF))
8. Record the digital data file(s) identifiers and document representations of all revisions/ versions of each document and software which has been delivered, or made accessible electronically, in support of the contract.

Approved Configuration Documentation →

Change Identification, Document Disposition →

Configuration Verification →

Change Verification & Validation →

Action Items →

→ Status

→ Configuration Information

→ Performance Measurement

Life-Cycle CM Process

CONFIGURATION STATUS ACCOUNTING DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition**
1	Activity	Record the current approved configuration documentation and configuration identifiers with each System/Configuration Item (CI).	The components of formal baselines and/or configurations (as described in the CM Plan) should be documented in accordance with the configuration identification plan. Once the initial release has been documented, every change against each element should be documented and linked to the initial release, ensuring a full audit trail for each CI. **Responsible Org.:** Configuration Management Lead
2	Activity	Record and report the status of proposed engineering changes from initiation to final approval to contractual implementation.	In accordance with the top level guidance provided by the "Change Management and Implementation Process Flow" (and any detailed procedures), the status of the change at each step should be recorded and made available to all stakeholders, at a minimum, the status should include: • Initiation data (source, date submitted, date received) • Review data (list of reviewers, date of review initiation, due date for review comments, review comments, comment resolution) • Disposition data (change disposition, disposition justification/reasoning, disposition by whom, disposition date, implementation direction/actions) • Closeout data (communication vehicle used to communicate disposition with originator, date communication initiated) **Responsible Org.:** Change Lead
3	Activity	Record and report the status of all critical and major requests for acquisition deviation and waivers, which affect the configuration of a System/Configuration Item (CI).	The IPT's process for managing deviations and waivers should identify key steps for review and disposition, at a minimum, the process should support status information as follows: • Initiation data (source, date submitted, date received) • Review data (list of reviewers, date of review initiation, due date for review comments, review comments, comment resolution) • Disposition data (deviation/waiver disposition, disposition justification/reasoning, disposition by whom, disposition date) • Closeout data (communication vehicle used to communicate disposition with originator, date communication initiated) **Responsible Org.:** Change Lead

Life-Cycle CM Process

CONFIGURATION STATUS ACCOUNTING DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition**

4	Activity	Record and report the results of configuration audits to include the status and final disposition of identified discrepancies and action items.	Typical FAA audits include those that validate functionality (FCA), verify the physical attributes (PCA's and Facility Audits); however, each system contract and regional authority will specify the appropriate set of audits. All audits should be documented and include at a minimum the following information:
			• Type of audit
			• Configuration(s) under audit
			• Audit Participants
			• Audit Materials (Documents, SW Listings, Physical Configurations, etc.)
			• Action Items and action plans for closure
			  • Date Assigned/Due
			  • Actionee
			  • Specific Action to Be Performed
			  • Acceptance/Closure Criteria
			
			Responsible Org.: Audit Lead

5	Activity	Record and report implementation status of authorized changes.	Typically changes within the FAA are approved via Configuration Control Boards, as such, the implementation status of any change approved by the CCB should be provided at a minimum, it should include:
			• Implementation Authorization Vehicle
			• Impacted Baseline/Configuration
			• Schedule of Implementation
			• For each Implementation
			  • Planned/Actual Design Dates
			  • Planned/Actual Test Dates
			  • Planned/Actual Implementation Start
			  • Planned/Actual Implementation Complete
			  • Problems/Actions Associated with Implementation
			
			Responsible Org.: Change Lead

Life-Cycle CM Process

CONFIGURATION STATUS ACCOUNTING DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition**
6	Activity	Provide the traceability of all changes from the original released configuration documentation of each System/Configuration Item (CI).	As concepts evolve from needs (MNS) to physical assets (CI/LRU) its representative documentation should be recorded and traceable. As such, a typical CI will be represented as an MNS, APB, specification(s), FAA system, and LRU or Software Unit. There should be a record of release for each representation and the associated traceability forward and backward. Also, changes against each release should be documented such that there is an auditable history of every change against the release and traceability is maintained. **Responsible Org.:** Release Lead

7	Activity	Report the effectivity and installation status of configuration changes to all system Configuration Items (CI) at all locations, including design, production, modification, retrofit, and maintenance changes.	All approved changes should include the identification of all impacted entities (vendor and FAA owned). The change implementation document will include the action plan for implementing the change through all impacted entities (i.e., documentation, fielded systems, test beds, spares inventories, etc.). The installation status reported should at a minimum include:
			• Implementation Authorization Vehicle
			• Impacted Baseline/Configuration
			• Schedule of Implementation
			• For each Implementation
			  • Planned/Actual Design Dates
			  • Planned/Actual Test Dates
			  • Planned/Actual Implementation Start
			  • Planned/Actual Implementation Complete
			  • Problems/Actions Associated with Implementation
			
			Responsible Org.: Impacted Entity OPI

8	Activity	Record the digital data file(s) identifiers and document representations of all revisions/versions of each document and software that has been delivered, or made accessible electronically, in support of the contract.	For each release, the digital identifiers (as described in the contract or CM Plan) should be recorded, managed, and linked to the CI, to ensure there is a complete release audit trail. **Responsible Org.:** Digital Data File OPI

Life-Cycle CM Process

CONFIGURATION STATUS ACOUNTING INPUT/OUTPUT MATRIX

INPUT

- Mission need statements
- System requirements documents
- NAS Change Proposals (NCP)
- Engineering Change Proposals (ECP)
- Performance specifications
- Test plans, procedures, and results
- Engineering reports
- Configuration Item (CI) detailed specification
- Engineering drawings and associated lists
- Facility Drawings
- Audit results
- Installation and as built verification
- LRU location by serial number (S/N)
- Support equipment
- Software listings
- Spares
- Training material
- Operating and maintenance manuals
- Verification/validation of modifications and changes
- Installation of modifications and changes
- Spares modification information
- FRDF
- FSEP
- CCD Actions
- SAD
- VDD

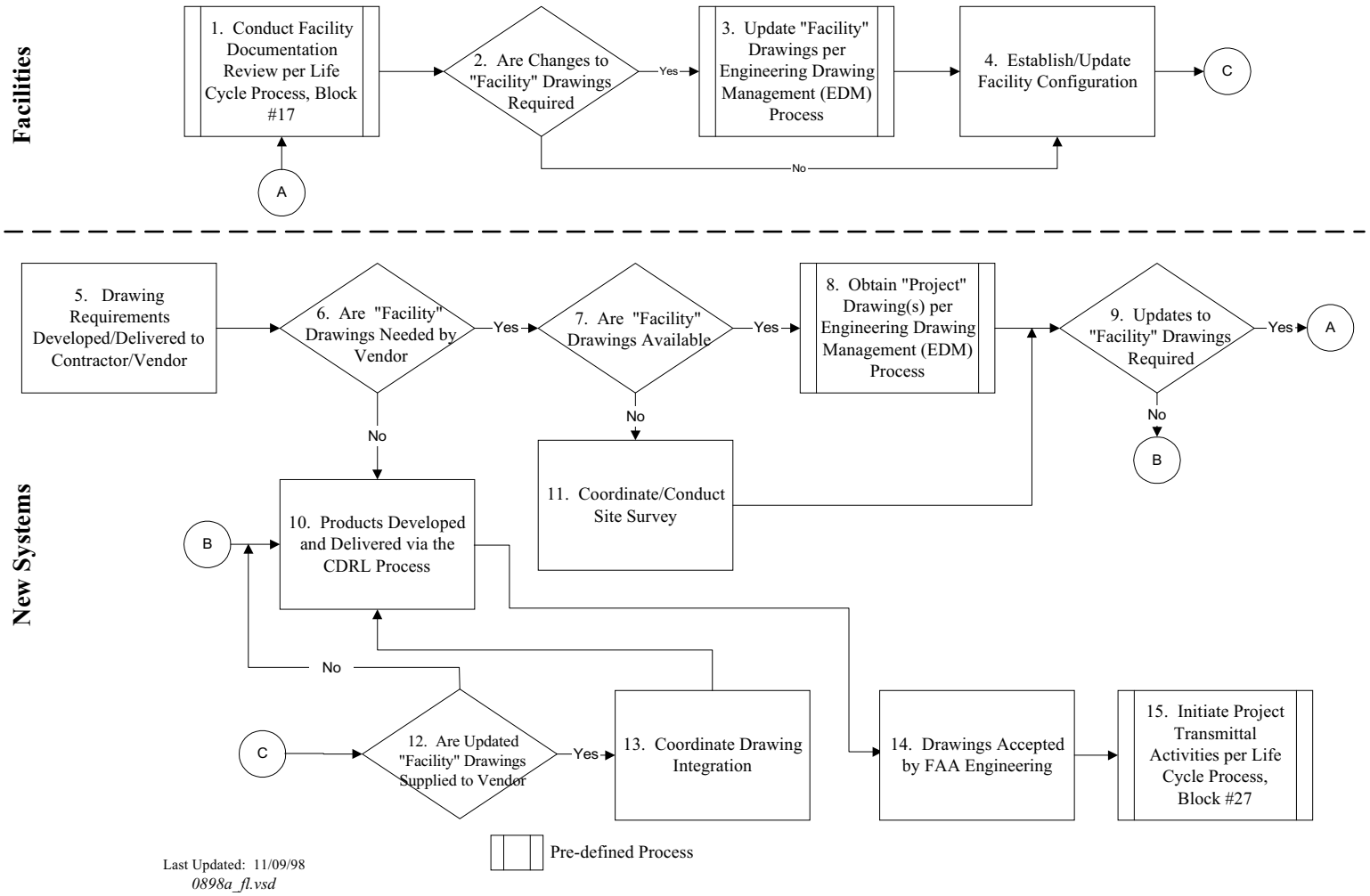
CONFIGURATION STATUS ACCOUNTING

OUTPUT

- Current revision of each document
- Release and approval status for each document
- Release date
- Current functional, allocated, product and operational baselines
- As-designed configuration, current and as of any prior date
- As built configuration, current up to time of delivery, and any prior date
- As-delivered configuration
- Status of NCP's
- Effectivity and incorporation status of approved NCP, including Mod effectivity
- Test plans, procedures, and results
- Verification and audit status and action items
- Current configuration of all systems/CI's in all locations (As-modified/As-maintained) (FRDF)
- Required configuration of all support equipment, spares, training, manuals, software, and facilities needed to operate and maintain all systems/CI's at all sites
- Status of all requested, in process, and approved NCP's and case files
- CCD actions required to implement approved changes, including recurring (happening at all sites) modifications at all sites
- Mod actions necessary to bring any serial numbered CI to the current or any prior configuration
- FEQ

Life-Cycle CM Process

Configuration Management Drawing Process



Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition**
1	Pre-defined Process	Conduct Facility Documentation Review per Life-Cycle Process, Block #17	***(Copied from Life-Cycle Definition #17)*** The Facility Document Review identifies if the Configuration Documentation associated with a facility is accurate. Change control information, facility drawings, and technical documents, etc., are reviewed to determine if they are complete and support the current configuration of a facility and that all CM requirements are met. **Responsible Org.:** Regional CM
2	Decision	Are Changes to "Facility" Drawings Required	Once the facility documentation review has occurred, a determination must be made as to whether or not changes to the facility drawings are required. If updates to the facility drawings are required, they should be updated per the Engineering Document Management (EDM) process. If updates to the facility drawings are not required, then the Facility Baseline should be established/updated as appropriate. **Responsible Org.:** Regional CM Manager, ANI, and IPT (CM, Production Engineers)
3	Pre-defined Process	Update "Facility" Drawings per Engineering Drawing Management (EDM) Process	The facility drawings should be updated per the Engineering Document Management (EDM) process. (See EDM Drawing Flow) **Responsible Org.:** Regional CM Manager, ANI, and IPT (CM, Production Engineers)
4	Activity	Establish/Update Facility Configuration	The baseline consists of the approved documentation defining the configuration of a CI during the operational phase. The Regional CM Manager will use the audit findings and technical documentation to generate the initial change request, which will eventually represent the baseline. The Regional CM Manager will use subsequent audits to determine compliance with the CM policy and guidance documentation established by the FAA under the Acquisition Management System (AMS) and the RCCB Charter and Procedures. **Responsible Org.:** RCCB
5	Activity	Drawing Requirements Developed/ Delivered to Contractor/Vendor	As part of the planning for the procurement, the appropriate technical team, including representatives from CM, Engineering, Maintenance, and Logistics develop drawing requirements and provide them to the vendor using the appropriate contractual vehicles (including but not limited to SOW, CDRL's, DID's, etc.) **Responsible Org.:** IPT (CM, Production Engineers), Logistics, AOS, ANI, ASU

Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition**
6	Decision	Are "Facility" Drawings Needed by Vendor	During the activities associated with monitoring the vendors development (via CDRL reviews, design reviews, in-process reviews, etc.) the CM/Production engineering team will assess the vendors' need to access "Facility" drawings (as a means to meeting the vendors contractual requirements). **Responsible Org.:** IPT (CM, Production Engineers)
7	Decision	Are "Facility" Drawings Available	All "baseline" facility drawings are available and may be requested from the region's drafting group for use in engineering and project planning. If the facility is not under CM, then "as built drawings" can be obtained from either the drafting group and/or the facility. If dealing with an unmanned facility, check with the drafting group first, then the SMO office, and then the appropriate SSC. **Responsible Org.:** Regional CM Manager and IPT CM
8	Pre-defined Process	Obtain "project" Drawing(s) per engineering Drawing Management (EDM) Process	Project drawings are used to manage concurrent design updates to released drawings. Once it is determined that the facility drawings are available, the project drawings should be obtained per the Engineering Drawing Management (EDM) process. (See EDM Drawing Flow) **Responsible Org.:** Regional CM Manager, ANI, and IPT (CM, Production Engineers)
9	Decision	Updates to "Facility" Drawings Required	Drawings require update at this point to incorporate all changes not captured. The updates will need to be made to reflect those changes that have occurred at the facility prior to sending the drawings to the vendor. If the facility is Baselined, a change request would be generated along with the red-lined drawings to facilitate the revisions. **Responsible Org.:** IPT (CM, Production Engineers)
10	Activity	Products Developed and Delivered via the CDRL Process	In accordance with the IPT plans developed at the beginning of the solution implementation phase, the contractor will deliver the CDRL's, the CM/DM team will coordinate the review and disposition of the CDRL, and ASU will formalize the communication between the technical review team and the vendor. The drawings that were approved and delivered utilizing the CDRL process, are validated against the physical assets during the PCA. The PCA results along with the other contractual requirements are evaluated and when acceptable, the FAA takes ownership from the vendor (this is typically done via an FAA form 256). **Responsible Org.:** IPT CDRL Review Team and ASU

Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT DEFINITION MATRIX			
ID	**Type**	**Action**	**Definition**
11	Activity	Coordinate/Conduct Site Survey	Region's carry the lead role and bear the ultimate responsibility for the integrity of facility configuration baselines. Thus, the performance and certification of a facility audit is a regional responsibility. However, the accreditation of a region's facility audit process is a NAS Transition and Implementation (ANS) responsibility. **Responsible Org.:** IPT, Regional CM Manager
12	Decision	Are Updated "Facility" Drawings Supplied to Vendor	If the vendor requires access to "Facility" drawings, the CAEG Drafting Group and Regional CM Manager will coordinate with the appropriate technical lead within the IPT to ensure that these drawings are supplied to the vendor. If the drawings are unavailable or cannot be made available in time to support the vendors' schedule, the required information may be obtained during the site survey thus relieving the need for drawings to be delivered to the vendor. **Responsible Org.:** CAEG Drafting Group, Regional CM Manager, IPT Technical Lead
13	Activity	Coordinate Drawing Integration	Facility as-built drawings are incorporated with technical data and any engineering and/or baseline drawings, and are provided to the vendor for use in product/project development. **Responsible Org.:** Regional CM Manager, ANI, and IPT (CM, Production Engineers)
14	Activity	Drawings Accepted by FAA Engineering	The IPT CM Lead coordinates with ANI and the Regional CM Manager to transition the drawings from the "procurement inventory" to the ANI inventory. **Responsible Org.:** IPT CM, ANI, Regional CM Manager
15	Pre-defined Process	Initiate Project Transmittal Activities per Life-Cycle Process, Block #27	***(Copied from Life-Cycle Definition #27)*** The appropriate engineering organization develops the site-specific project transmittal. It includes all of the site-peculiar information gathered in the site survey including coordination information, security requirements, work schedule limitations, and space limitations. **Responsible Org.:** ANI EC and IC, ANS, AOS

Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT INPUT/OUTPUT MATRIX

INPUT		OUTPUT
• Facility Documentation	**1. CONDUCT FACILITY DOCUMENTATION REVIEW PER LIFE-CYCLE PROCESS, BLOCK #47**	• Results of Review • Updated/Revised Drawings • CSA
• Results of Review	**2. ARE CHANGES TO FACILITY DRAWINGS REQUIRED**	• (If yes) Redlined Drawings and Audit Findings • (If no) Audit Findings
• Redlined Drawings	**3. UPDATE "FACILITY" DRAWINGS PER ENGINEERING DRAWING MANAGEMENT (EDM) PROCESS**	• Updated Facility Drawings
• Updated Facility Drawings • Change Requests	**4. ESTABLISH/UPDATE FACILITY CONFIGURATION**	• Documented Facility Baseline
• Contract • Statement Of Work (SOW) • Contract Data Requirements List (CDRL)	**5. DRAWING REQUIREMENTS DEVELOPED/DELIVERED TO CONTRACTOR/VENDOR**	• Vendor Drawings • Vendor Request(s) For Additional Information
• Vendor Request(s) For Additional Information	**6. ARE FACILITY DRAWINGS NEEDED BY VENDOR**	• (If yes) Validated Drawing Request(s) to ANI • (If no) Contracts (ASU) Formal Rejection of Request(s)
• Validated Drawing Request(s) to ANI	**7. ARE FACILITY DRAWINGS AVAILABLE**	• (If yes) Request(s) For Project Drawings • (If no) Request(s) For Site Survey
• Request(s) For Project		• Project Drawings

Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT INPUT/OUTPUT MATRIX

INPUT		OUTPUT
Drawings	**8. OBTAIN "PROJECT" DRAWING(S) PER ENGINEERING DRAWING MANAGEMENT (EDM) PROCESS**	
• Project Drawings • Site Survey Results	**9. UPDATES TO "FACILITY" DRAWINGS REQUIRED**	• (If yes) Drawing Update Request(s) • (If no) Project Drawings To Vendor
• Vendor Drawings	**10. PRODUCTS DEVELOPED AND DELIVERED VIA THE CDRL PROCESS**	• Validated Vendor Drawings
• Request(s) For Site Survey	**11. COORDINATE/CONDUCT SITE SURVEY**	• Site Survey Results
• Documented Facility Baseline	**12. ARE UPDATED "FACILITY" DRAWINGS SUPPLIED TO VENDOR**	• (If yes) (Facility/Project) Drawing Package per Vendor Request(s) and Drawing Distribution Listing • (If no) Drawing Distribution Listing
• (Facility/Project) Drawing Package per Vendor Request(s) • Vendor Drawing Package	**13. COORDINATE DRAWING INTEGRATION**	• Coordinated Vendor/Facility-Project Drawing Package
• Validated Vendor Drawings	**14. DRAWINGS ACCEPTED BY FAA ENGINEERING**	• Vendor Drawings Acceptance Certification

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT INPUT/OUTPUT MATRIX

Life-Cycle CM Process

- Vendor Drawings Acceptance Certification

15. INITIATE PROJECT TRANSMITTAL ACTIVITIES PER LIFE-CYCLE PROCESS, BLOCK #59

- Project Transmittal

Life-Cycle CM Process

EDM DRAWING FLOW

Background

The initial Engineering Document Management (EDM) Team developed a standard drawing flow that could be used by all sites. This drawing flow was coordinated with all of the regions, Aeronautical Center, and Technical Center. This drawing flow that has been successfully piloted in one of our regions for 2 ½ years is described in this document. Currently, each site may have different drawing flows in place. This drawing flow is intended as the standard drawing flow that should be used; however, there would be a transition time period required in order to implement this flow. The sites may vary in their requirements and therefore the EDM may need to be configured differently at some sites.

Overview

The EDM drawing flow includes five drawing status vaults: Released, Active, Approval, Pending, and Revised. Obsolete is another drawing status vault but is not shown on the drawing flow because obsoleting a drawing is not part of the everyday drawing update process and is a simple Drawing Manager function. Released drawings are the current revisions of approved as-built drawings. Released drawings may be checked out for revision. Active drawings are in-progress drawings that have been checked out or created as new drawings. Drawings in Approval are in-progress drawings awaiting sign-off. Approval drawings will either be checked in or returned to Active for corrections. Pending drawings are drawings that have been checked out or created as new drawings and have been approved but not as built. Drawings from Pending may be checked out for revision or for versioning. Revised drawings are old revisions of drawings that have been updated, approved, and released.

Field Revision

The Field Revision process is for updating drawings to reflect the current state of a facility or site. When a drawing is checked out for Field Revision, the Released drawing is copied to the user's Active directory and the Released drawing is locked for check out. If the drawing is Configuration Managed, a casefile number is required on check out and the CM group is notified of the check out. When the changes to the drawing are complete and, if applicable, the CCD number is added to the drawing, the user submits the drawing for drafting approval and the drawing is then moved to the Approval vault. If the drawing is not approved, the drawing will be returned to the user's Active directory for corrections. If the drawing is Configuration Managed and the drawing is approved, the CCD must be approved by the CM group. If the CCD is not approved, then the drawing will

be reviewed by the CM group. When the CM review is complete and the CCD is approved, the drawing may be checked in to the Released vault by the Drawing Manager with validation of the CCD number. If the drawing is not Configuration Managed and the drawing is approved, the drawing may be checked in to the Released vault by the Drawing Manager. The previous revision of the drawing from Released is then moved to the Revised Vault.

New Drawing -> As Built
This is a two-phase process that starts with a design phase and ends with an as-built phase. When a new drawing is created, the title block information including the drawing number and title is entered into the EDM system and a template drawing with the title block filled in is copied to the user's Active directory. If the drawing will be Configuration Managed, a casefile number is required and the CM group is notified of the new drawing. When the new drawing is complete, the user submits the drawing for drafting approval and the drawing is then moved to the Approval vault. If the drawing is not approved, the drawing will be returned to the user's Active directory for corrections. If the drawing is approved, the drawing may be checked in to the Pending vault by the Drawing Manager. Note that only as-built drawings are checked in to the Released vault. If additional design changes need to be made to the Pending drawing, the drawing may be checked out for versioning.

The second phase is to as built the new drawing. The user checks out the drawing for As Built from the Pending Vault. The Pending drawing is copied to the user's Active directory and the Pending drawing is locked for check out. When the as-built changes to the drawing are complete and, if applicable, the CCD number is added to the drawing, the user submits the drawing for drafting approval and the drawing is then moved to the Approval vault. If the drawing is not approved, the drawing will be returned to the user's Active directory for corrections. If the drawing is Configuration Managed and the drawing is approved, the CCD must be approved by the CM group. If the CCD is not approved, then the drawing will be reviewed by the CM group. When the CM review is complete and the CCD is approved, the drawing may be checked in to the Released vault by the Drawing Manager with validation of the CCD number. If the drawing is not Configuration Managed and the drawing is approved, the drawing may be checked in to the Released vault by the Drawing Manager. The previous revision of the drawing from Pending is then moved to the Revised Vault.

Project Copy -> As Built
The Project Copy process manages concurrent design updates to a single Released drawing. This is a two-phase process that starts with a design phase

Life-Cycle CM Process

and ends with an as-built phase. The design phase is started by checking out a special copy of a drawing from the Released vault or in some cases from the Pending vault. The copy is assigned a sequential Project Copy number and the user is notified of existing Project Copies for the same drawing. Notification is also sent to the owners of the other existing Project Copies. If the drawing is Configuration Managed, a casefile number is required on check out and the CM group is notified of the check out. When the design changes to the drawing are complete, the user submits the drawing for drafting approval and the drawing is then moved to the Approval vault. If the drawing is not approved, the drawing will be returned to the user's Active directory for corrections. When the drawing is approved, the drawing may be checked in to the Pending vault by the Drawing Manager. If additional design changes need to be made to the Pending drawing, the drawing may be checked out for versioning.

The second phase is to as built the Released or Pending drawing that was used to create the Project Copy. The user checks out the drawing for As Built from the Released or Pending Vault. The Released or Pending drawing is copied to the user's Active directory and the Released or Pending drawing is locked for check out. The Project Copy that was used for the design phase is copied to the user's Active directory, as well. Notification is sent to the owners of any other existing Project Copies of the As Built check out. When the consolidation of the design and as-built changes to the drawing are complete and, if applicable, the CCD number is added to the drawing, the user submits the drawing for drafting approval and the drawing is then moved to the Approval vault. If the drawing is not approved, the drawing will be returned to the user's Active directory for corrections. If the drawing is Configuration Managed and the drawing is approved, the CCD must be approved by the CM group. If the CCD is not approved, then the drawing will be reviewed by the CM group. When the CM review is complete and the CCD is approved, the drawing may be checked in to the Released vault by the Drawing Manager with validation of the CCD number. If the drawing is not Configuration Managed and the drawing is approved, the drawing may be checked in to the Released vault by the Drawing Manager. The previous revision of the drawing from Released or Pending and the Project Copy are then moved to the Revised Vault.

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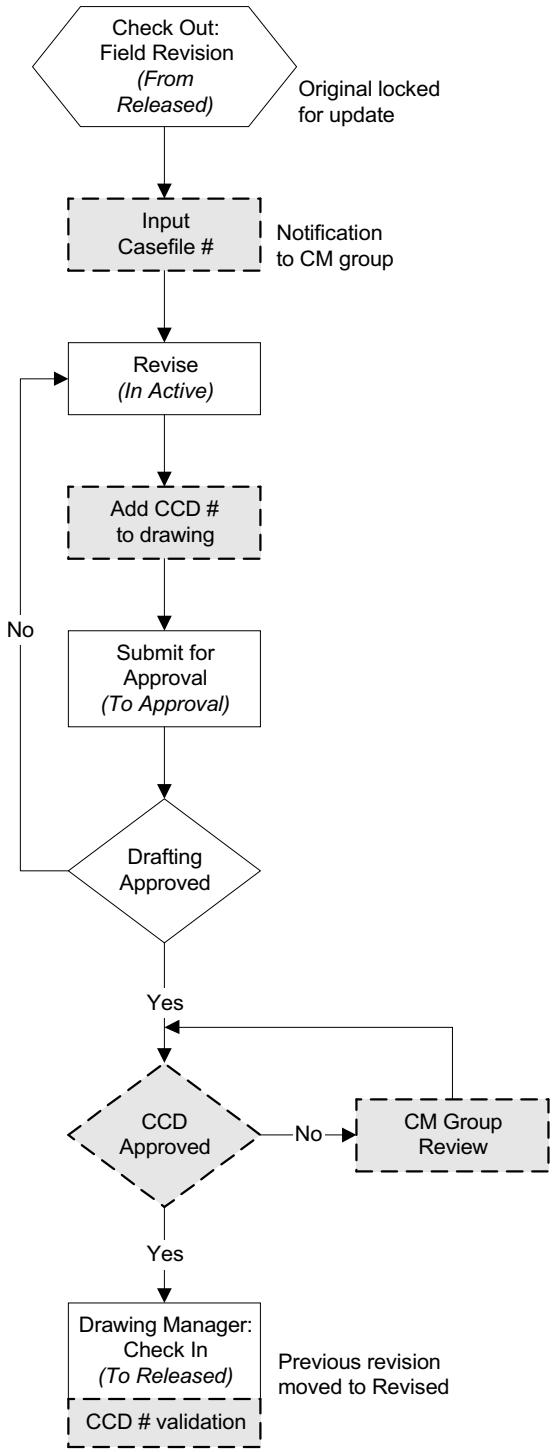
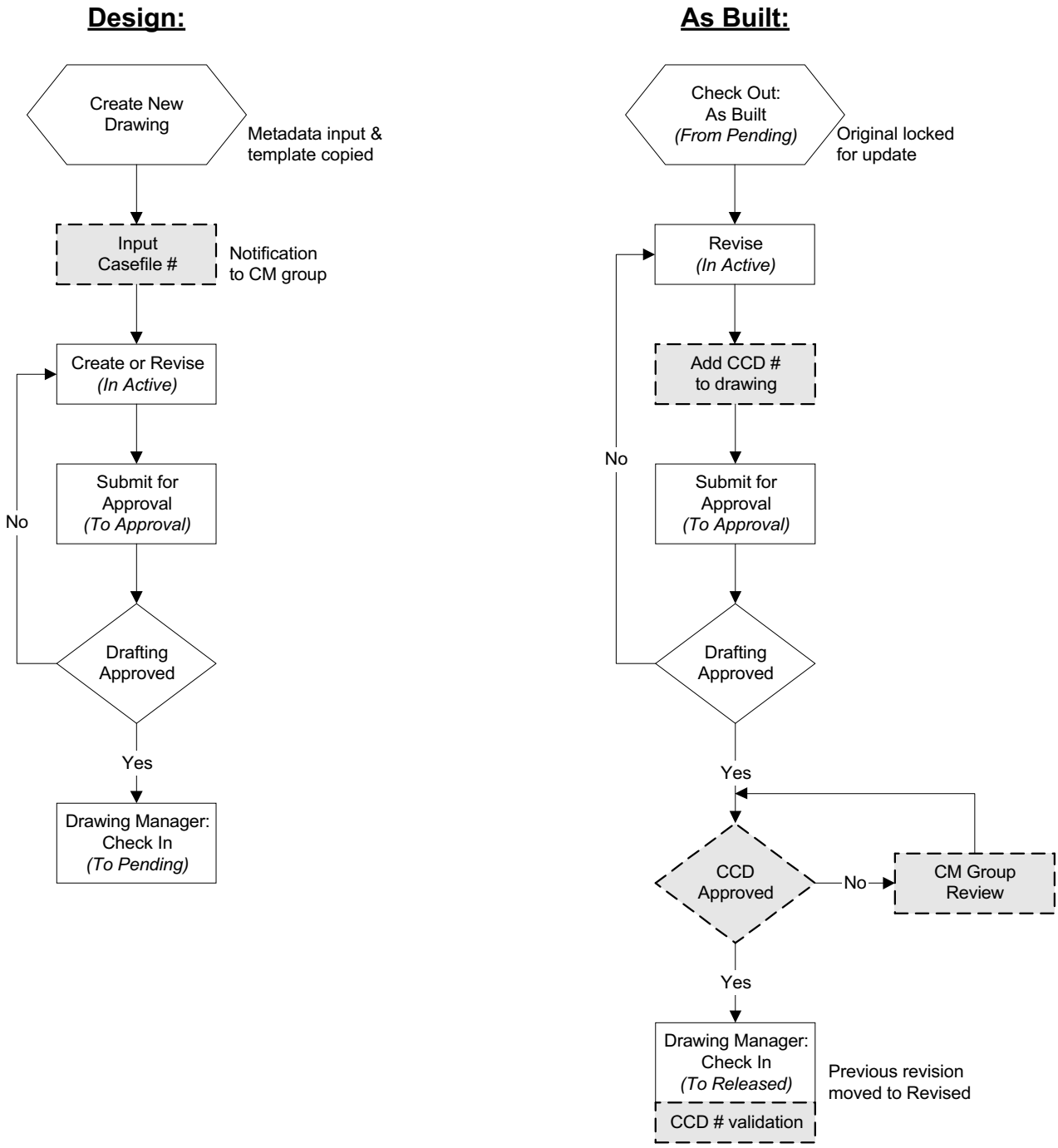
Field Revision



Legend:

Configuration Managed (CM) drawing steps — *These steps are skipped for non-CM drawings.*

Life-Cycle CM Process
New Drawing -> As Built



Legend:

Configuration Managed (CM) drawing steps — *These steps are skipped for non-CM drawings.*

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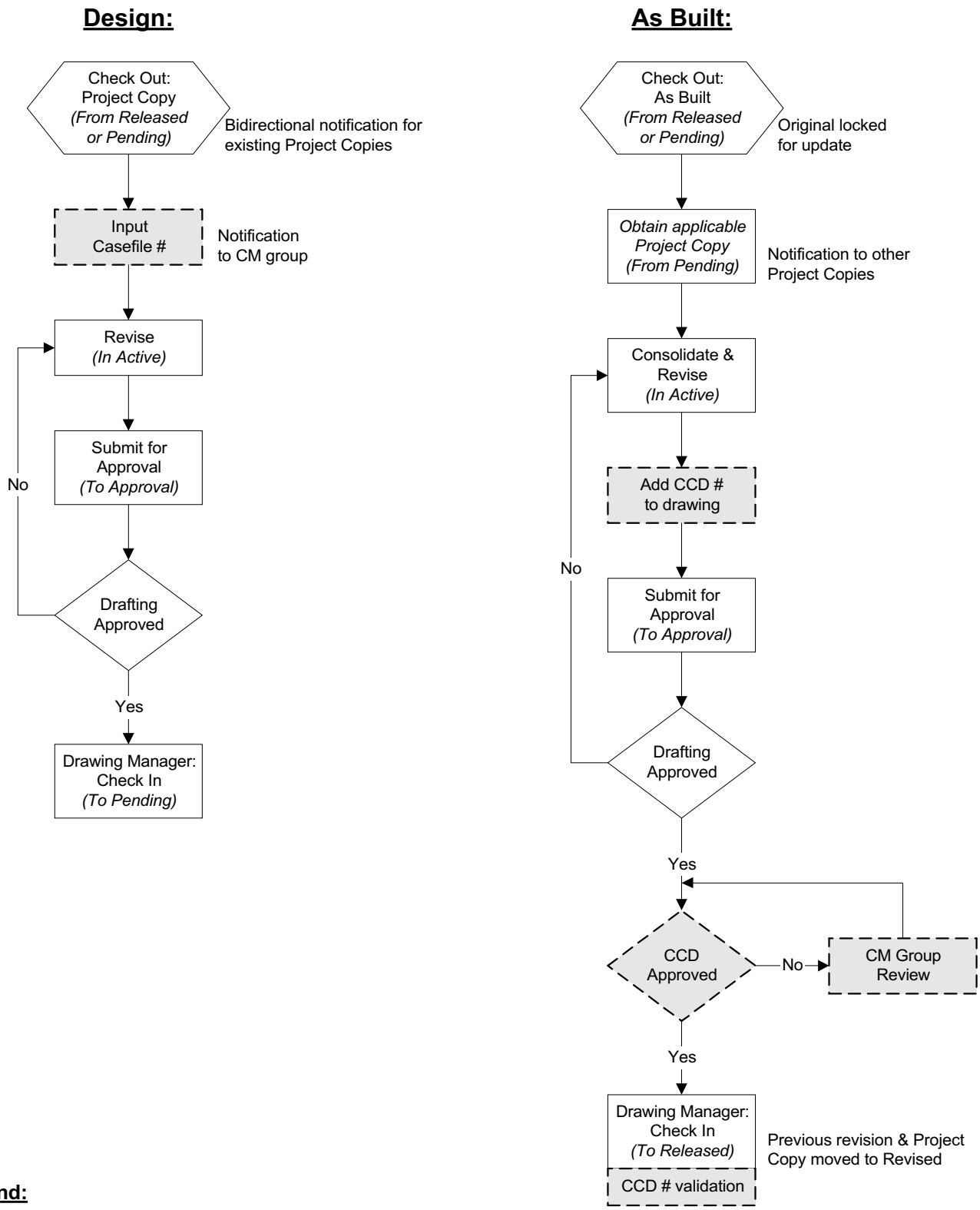
Project Copy -> As Built



Legend:

Configuration Managed (CM) drawing steps — *These steps are skipped for non-CM drawings.*

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