

PART TWO CONFIGURATION MANAGEMENT (CM) HANDBOOK

SECTION III

NATIONAL CONFIGURATION MANAGEMENT PROCEDURES



1 Introduction

National Configuration Management (CM) Procedures represent the third set of information contained in National Airspace System (NAS) CM policy for the Agency. National CM Procedures provide further detail for the step-by-step implementation of requirements captured in the top-level policy statements and the activities depicted in the National Process Definition. Figure 1.0, "National CM Procedures Relationship to the Agency's CM Information Hierarchy," portrays the correlation of National CM Procedures to the other components of the Agency's CM information hierarchy. The four major policy elements are depicted in pyramid-fashion below to illustrate how the pieces are interconnected and build upon each other. The fifth element, Office of Primary Interest (OPI) Supporting Documentation, is shown at the base of the pyramid because it represents implementation of CM policy specific to an organization. OPI Supporting Documentation is produced by any organization operating under NAS CM policy and it consists of operating procedures and resulting work products for configuration management. The National CM Procedures provide the framework by which an OPI develops this documentation.

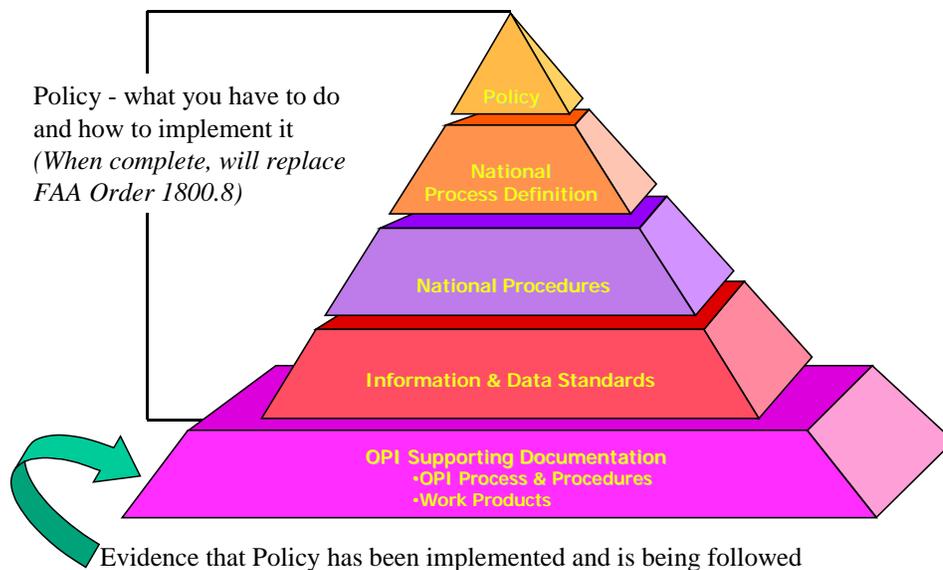


Figure 1.0, National CM Procedures Relationship to the Agency's CM Information Hierarchy

1.1 Purpose

National CM Procedures define standard requirements for the implementation of NAS CM policy across all affected organizations. The procedures promote the effective practice of configuration management as a discipline supporting the acquisition and operation of NAS systems. National CM Procedures are to be used by an OPI in developing a configuration management program suitable to its mission and consistent with national policy requirements.

1.2 Scope

National CM Procedures apply to the Federal Aviation Administration (FAA) and its management of NAS systems, equipment, facilities and services, which include hardware, firmware, documentation, test and support equipment, facility space, spares, training and courseware, and manuals. These procedures likewise apply to commercial equipment and non-federal facilities used in NAS operations. These procedures apply to FAA organizations responsible for procuring, managing, and operating NAS systems, equipment, facilities and services. Research and Acquisitions (ARA), Air Traffic Services (ATS) and Region/Center Operations (ARC) personnel collaboratively developed these procedures with the intent of standardizing CM processes among their organizations.

National CM Procedures are included in FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, as indicated in bold type below:

- | | | |
|----------------------------------|--|---------------------------------|
| • Policy | • Part One – Configuration Management (CM) Policy Elements | • Approved by FAA Administrator |
| • National Process Definition | • Part Two, Configuration Management Handbook, Section II, National Configuration Management Process | • Approved by FAA Administrator |
| • National CM Procedures | • Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures | • Under Development |
| | • Part Two, Configuration Management Handbook, Section III, National CM Procedures | |
| • Information and Data Standards | | • To Be Developed |

National CM Procedures are also included in the FAA Acquisition System Toolset (FAST).

1.3 Document Overview

National CM Procedures contain standard operating requirements structured around the CM areas of: management responsibility; life cycle CM planning and management; configuration identification; change management; status accounting; configuration verification and audits; and CM of commercial-off-the-shelf (COTS) items. Designated Part Two, Section III of NAS CM Policy, the procedures specifically track to the other approved elements of policy, expanding upon the CM requirements outlined in the policy statements and process definition.

As with NAS CM policy as a whole, the procedures were the result of a team approach and consensus among participating organizations. The procedures generally reflect the move toward application of best commercial practices for CM such as those documented in ISO methodology. The CM Steering Group (CMSG), as shown by its endorsement of the procedures, supports this philosophy of Agency CM. The procedures are not duplicative of the Acquisition Management System (AMS) and will support attainment of capability Level 3 for all NAS systems as defined by the FAA Integrated Capability Maturity Model (FAA-iCMM®).

National CM Procedures define at the Agency level the “who, what, when and how” for each discrete CM activity mandated by policy. The procedures document the rules by which a necessary level of standardization is maintained for CM in the Agency. A main objective of the procedures is to ensure the usability of information created by the various organizations that perform NAS CM activities.

The procedures capture, for the most part, activities and processes as they are currently performed. By documenting existing processes, the procedures provide a starting point for continuous process improvement. The procedures also provide a benchmark by which to conduct corporate evaluations of CM practices for effectiveness and compliance with policy.

National CM Procedures should not be confused with OPI Supporting Documentation and the purpose it serves. OPI Supporting Documentation defines how a specific organization accomplishes its CM tasks, providing a greater degree of detail for CM activities first addressed in National CM Procedures. OPI Supporting Documentation must be consistent with National CM Policy, Process and Procedures.

In writing the procedures, an important goal was to present the information as clearly and simply as possible. A standard format was selected and followed to facilitate ease of use. The standard format includes the following sections:

- **Purpose:** aim of the procedure
- **Scope:** the organizations and CM functions covered by a given procedure
- **Responsibilities:** who (by job function) has responsibility for specific tasks or actions

- **References:** list of the documents or references that apply to a procedure
Minimally, these are:
 - National Policy Statements
 - National process activities
 - FAA Policy or orders
 - Applicable standards and specifications
- **Procedure:** a narrative overview, followed by a step-by-step description of the actions or tasks to be carried out, by whom, and in what sequence
- **Flowchart:** a graphic representation that matches the procedural steps
- **Supplementary Information:** tables, checklists, forms and organizational diagrams.

The procedures use “shall” statements in the procedure narrative sections and step sequences to identify CM process elements that have been standardized and which, at a minimum, must be adhered to by organizations under NAS CM Policy. Where appropriate, the procedures also recognize CM activities that may be tailored once minimum requirements have been met.

National CM Procedures currently consist of approximately forty topics as categorized below:

- Section 3.1, Management Responsibilities
 - Section 3.1.1, Roles, Responsibilities, and Relationships, describes the groups that monitor and oversee the FAA-wide CM process.
 - Section 3.1.2, Establishing and Maintaining CM Policy, describes the procedure for maintaining CM policy documents used throughout the agency. In this context, “policy” refers not only to policy statements but to the CM Handbook (containing the NAS CCB Charter and Operating Procedures, the National Life Cycle Process Definition, and the National CM Procedures) and to the CM standards.
 - Section 3.1.3, Monitoring, Oversight, and Evaluation, describes the procedure for ensuring that CM policy is implemented and for performing corrective action in the event of divergence from policy.
- Section 3.2, Life Cycle CM Planning and Management
 - Section 3.2.1, Establishing and Maintaining a Configuration Control Board (CCB), describes the means to implement change control at optimum levels of authority. Each IPT, regional office, and other solution provider has its own CCB, which is chartered by the NAS CCB.

- Section 3.2.2, Solution Provider Responsibilities, describes the CM planning and management activities specifically applicable to IPTs and other solution providers.
- Section 3.2.3, Regional Responsibilities, describes the CM planning and management activities applicable to regional offices.
- Section 3.3, Configuration Identification
 - Section 3.3.1, Maintaining the Master Configuration Index (MCI) and Publishing NAS-MD-001, describes the procedure for ensuring that the MCI is continually updated to reflect the current configuration.
 - Section 3.3.2, Fundamentals of Configuration Identification, includes the procedures for selection of Configuration Items (CI); the determination of the types of configuration documentation required for each CI; the development of the product structure as a basis of CM control; the issuance of numbers and other identifiers affixed to the CIs; and the release and control of the data.
 - Section 3.3.3, Establishing and Maintaining Baselines, describes the actual baselines used to identify the currently approved documents pertaining to a phase of the life cycle and describes the technical attributes that have been agreed upon or accepted as representative of the characteristics of the equipment or system, at that specific point in time.
 - Section 3.3.4, Assigning Corporate Identifiers, describes the procedures for assigning unique identifiers to documentation and products. This section addresses:
 - Assignment of System-Level Specification Numbers
 - Assignment of Interface Requirements Document (IRD) Numbers
 - Assignment of Interface Control Document (ICD) Numbers and
 - Assignment of FAA Type Numbers for Equipment
- Section 3.4, Configuration Change Management
 - Section 3.4.1, Configuration Control Board (CCB) Structure for Systems in the NAS, describes the composition and extent of authority of each type

of CCB within the NAS. Configuration control boards are the central mechanism used for approving or disapproving proposed changes to the system. The CCB types are the NAS CCB, IPT/Solution Provider CCB, Regional CCB and CCBs such as the William J. Hughes Technical Center CCB (TCCCB).

- Section 3.4.2, NAS Change Proposal (NCP)/Configuration Control Decision (CCD) Process, describes the central process for proposing, assessing, dispositioning and implementing changes.
 - Section 3.4.3, Change Management Metrics, describes how to collect metrics via change management activities in order to monitor product development and to analyze trends.
 - Section 3.4.4, Requirements Traceability, describes how to ensure that requirements are maintained and are traceable from the NAS level technical requirements through the NAS system/subsystem level products.
- Section 3.5, Configuration Status Accounting
 - Section 3.5.1, National CM Information Management System, describes the types of information that shall be available and maintained in CSA systems.
 - Section 3.5.2, Data Accessibility, describes the CSA user environment and how to obtain data maintained in CSA systems.
- Section 3.6, Configuration Verification and Audits
 - Section 3.6.1, Functional Configuration Audits (FCA), describes the planning, coordination and conduct of functional audits.
 - Section 3.6.2, Physical Configuration Audits (PCA), describes the planning, coordination and conduct of physical audits.
 - Section 3.6.3, Other CM Audits, describes audit procedures to verify facility baselines, facility space and power panels, and recovery of system baselines.

- Section 3.7, Commercial Off-The-Shelf (COTS) Configuration Management
(to be determined)
- This section describes COTS/NDI CM implications and provides guidance for performing configuration management on systems comprised of COTS/NDI products.

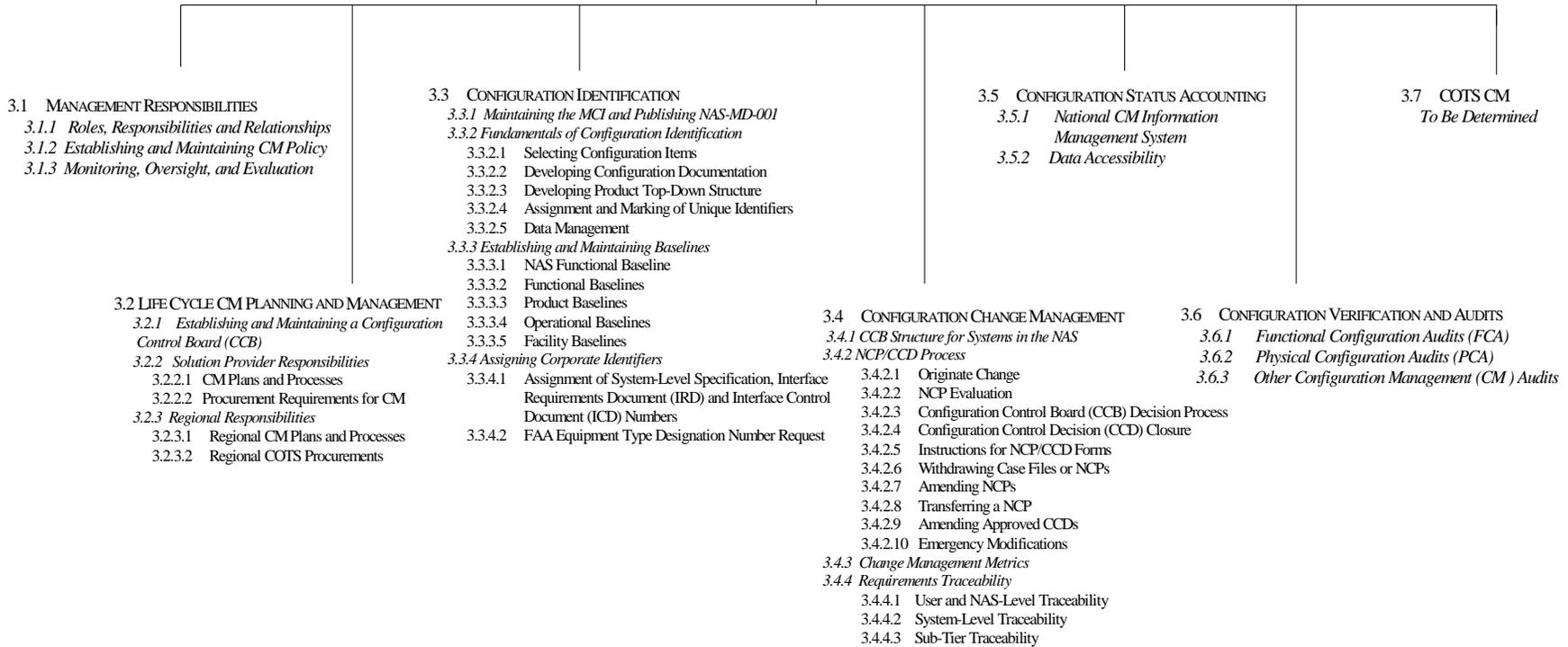
Figure 1.3-1 depicts the hierarchy of procedures.

National CM Procedures

1.0 Introduction

2.0 Applicable References

3.0 National Procedures



Revised: 09-15-00

2 Applicable References

The following documents are referenced within and used in conjunction with National Procedures.

<u>Reference</u>	<u>Date</u>	<u>Document Owner</u>
Acquisition Management System (AMS)	Current on-line version	Acquisition Policy and Procedures Division, ASU-100
ARS Role in Requirements Management During Solution Implementation Phase	January 5, 1999	Air Traffic System Requirements Service, ARS-1
ATC-88-1092, DOCCON General User's Reference Guide	January 1995	NAS Configuration Management and Evaluation, ACM-1
ATS Requirements Traceability Process. ARS Guidance Document Version 1.0	February 16, 1999	Air Traffic System Requirements Service, ARS-1
CM Steering Group Charter, Supporting the Life Cycle Management of the National Airspace System	November 24, 1998	NAS Configuration Management and Evaluation, ACM-1
CM web page	Current on-line version	NAS Configuration Management and Evaluation, ACM-1
FAA Form 1800-2, Case File/NAS Change Proposal	May 1999	NAS Configuration Management and Evaluation, ACM-1
NCP Worksheet (supplement to FAA Form 1800-2)	May 1999	NAS Configuration Management and Evaluation, ACM-1
FAA Form 1800-49, NAS Configuration Control Decision	May 1999	NAS Configuration Management and Evaluation, ACM-1
FAA Form 1800-60, NAS Documentation and Configuration Identification Data Sheet	June 1994	NAS Configuration Management and Evaluation, ACM-1
FAA-D-2494b, Technical Instruction Book Manuscripts: Electronic, Electrical, and Mechanical Equipment, Requirements for Preparation of Manuscript and Technical Production of Books	March 14, 1984	ATM Systems Branch, ASD-120
FAA-G-2100F, Electronic Equipment, General Requirements	November 15, 1993	ATM Systems Branch, ASD-120
FAA Order 1100.127C, Airway Facilities Sector Configuration	May 1991	Staffing and Compensation Policy Division, AFZ-200
FAA Order 1800.66: <ul style="list-style-type: none"> • Appendix 1, Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements • Appendix 1, Configuration Management in the National Airspace System, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process 	November 29, 1999	NAS Configuration Management and Evaluation, ACM-1
FAA Order 1800.66, Appendix 1, Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures	Draft dated April 5, 2000	NAS Configuration Management and Evaluation, ACM-1

<u>Reference</u>	<u>Date</u>	<u>Document Owner</u>
FAA Order 6032.1A (with Change 1 and 2), Modifications to Ground Facilities, Systems, and Equipment	August 21, 1992	NAS Policy Division, AOP-300
FAA-STD-005E, Preparation of Specifications, Standards and Handbooks	August 1, 1996	ATM Systems Branch, ASD-120
FAA-STD-025d, Preparation of Interface Documentation	October 5, 1995	ATM Systems Branch, ASD-120
In-Service Review Checklist Template	Current on-line version located in FAST	NAS In-Service Management Division, AOP-1000
Management and Control of ATS Requirements Version 1.0	November 3, 1998	Air Traffic System Requirements Service, ARS-1
NAS-MD-001, National Airspace System Master Configuration Index Subsystem Baseline Configuration and Documentation Listing	17 July 1999	NAS Configuration Management and Evaluation, ACM-1
National Configuration Management Standard Procedure Document for Conducting Formal Configuration Audits of Operational Facilities	May 1999	Technical Graphics and Configuration Management Branch, ANS-110
National Configuration Management Standard Procedure Document for Facility Baseline	May 1999	Technical Graphics and Configuration Management Branch, ANS-110
Technical Architecture Process Definition Document	Draft Dated November 4, 1999	Architecture and System Engineering, ASD-100

3 National CM Procedures

This section contains the National CM Procedures that are structured around the areas of:

- 3.1, Management Responsibilities
- 3.2, Life Cycle CM Planning and Management
- 3.3, Configuration Identification
- 3.4, Configuration Change Management
- 3.5, Configuration Status Accounting
- 3.6, Configuration Verification and Audits
- 3.7, Commercial Off-The-Shelf Configuration Management (to be written)

3.1 Management Responsibilities

The Management Responsibilities section contains procedures specific to FAA management of the CM process. It addresses the mechanisms that measure the efficiency of the FAA CM process, that effect process improvements, that assess adherence to the process, and that implement corrective actions when the process does not function according to plan.

This section contains three subsections:

- Section 3.1.1, Roles, Responsibilities, and Relationships, describes the groups that monitor and oversee the FAA-wide CM process.
- Section 3.1.2, Establishing and Maintaining CM Policy, describes the procedure for maintaining CM policy documents used throughout the agency. In this context, “policy” refers not only to policy statements but to the CM Handbook (containing the NAS CCB Charter and Operating Procedures, the National Life Cycle Process Definition, and the National CM Procedures) and to the CM standards.
- Section 3.1.3, Monitoring, Oversight, and Evaluation, describes the procedure for ensuring that CM policy is implemented and for performing corrective action in the event of divergence from policy.

3.1.1 Roles, Responsibilities and Relationships

3.1.1.1 Purpose

This procedure describes key roles, responsibilities, and relationships for organizations performing CM under NAS CM Policy.

3.1.1.2 Scope

This procedure includes organizations responsible for performing NAS, acquisition, regional, and operational level configuration management. The organizations described herein are those addressed in sections 3.1 through 3.7 of the national CM procedures.

3.1.1.3 Responsibilities

CM roles and responsibilities for all organizational entities described within national CM procedures are described in the following tables:

- Table 3.1.1.3-1, Key CM Implementation and Oversight Organizations, describes organizations, groups, or teams whose mission is to effectively implement policy and/or enhance CM within the agency.
- Table 3.1.1.3-2, Corporate Decision Making and Configuration Control Boards, describes those groups whose roles are to manage NAS configuration items.
- Table 3.1.1.3-3, Agency Offices with Major CM Roles and Responsibilities, describes agency offices that perform CM on configuration items.
- Table 3.1.1.3-4, Individual CM Roles and Responsibilities, describes various types of CM supporting functions.

The levels of policy fulfilled through these organizations are also indicated in these tables. The levels of policy in FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements* are:

- General (GEN)
- National Airspace (NAS)
- Acquisition (ACQ)
- Regional (REG)
- Operational (OPS)

Organizations fulfil CM policy through direction or leadership, in an advisory function (indicated by an “A”), or through direct implementation (indicated by an “X”).

Table 3.1.1.3-1. Key CM Implementation and Oversight Organizations

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)					
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES	G	N	A	R	O	
			E	A	C	E	P	
			N	S	Q	G	S	
• FAA Administrator	AOA	• Approves CM Policy						Direction, Leadership
• Associate Administrator for Air Traffic Services	ATS-1 ARA-1	• Responsible for the effective implementation of CM						Direction, Leadership
• Associate Administrator for Research and Acquisition		• Approves revisions to the NAS CCB Charter, Configuration Management Program Plan (CMPP), and other pertinent products related to the effective implementation of Agency CM						
		• Resolve CM initiatives/issues, which exceed the scope of the CMSG (e.g., authorization for additional resources).						
• Central CM Authority	ACM-1	NAS Configuration Management and Evaluation Staff (ACM-1) reports to the Associate Administrators for Air Traffic (ATS-1) and Research and Acquisitions (ARA-1). Refer to Figure 3.1.2.3.1-1, Central CM Authority and Organizational Hierarchy. ACM has the overall responsibility for CM in the FAA, serves as executive secretariat of the NAS CCB, and issues CM policy.		X				
• Configuration Management Steering Group (CMSG)	Refer to the <i>Configuration Management Steering Group Charter</i>	The Configuration Management Steering Group (CMSG) is an Agency-wide forum of FAA senior managers committed to the establishment and promotion of an integrated CM for the NAS. The CMSG resolves cross-functional CM issues and determines the appropriate course of action to ensure consistent implementation and operation of CM across the Agency. The team operates in consonance with the FAA's Central CM Authority, the NAS Configuration Management and Evaluation Staff (ACM).	A	X	A	A	A	
				A				
• Configuration Management Core Team (CMCT)	Various	The CMCT is a cross-functional working team created by the CMSG to lead CMSG initiatives and make recommendations to the CMSG on their implementation. They are responsible for:		X				

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES	G E N	N A S	A C Q	R E G	O P S
Team (CMCT)		<ul style="list-style-type: none"> • Recommending Agency-wide CM requirements and processes • Providing input to the CM program plan • Making recommendations for the coordination of CM efforts • Reviews and ensures integration of the CM working groups' products. 					
<ul style="list-style-type: none"> • Configuration Management Staff 	ACM-20	<p>Staff support to ACM-1 in support of its agency configuration management mission. In this capacity ACM-20:</p> <ul style="list-style-type: none"> • Manages the CM process for the Agency • Develops CM policy and guidance • Standardizes national CM processes and procedures • Monitors, evaluates, reports, and provides corrective guidance • Provides follow-up to ensure that CM is meeting Agency needs • Serves as the focal point for resolution of CM issues • Facilitates continuous improvement of CM for the Agency • Supports the NAS CCB executive secretariat 	X	X	A	A	A

Table 3.1.1.3-2. Corporate Decision Making and Configuration Control Boards

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S
<ul style="list-style-type: none"> Joint Resources Council (JRC) 	<ul style="list-style-type: none"> Refer to the <i>Acquisition Management System</i> 	<p>The JRC makes corporate-level decisions. The deliberations of this body focus on five investment-related decisions:</p> <ul style="list-style-type: none"> The mission need decision which determines what capability the agency will pursue The investment decision which determines what acquisition programs the agency will approve and fund fully Acquisition Program Baseline change decisions which alter the performance, cost, schedule, and benefit baselines established at the investment decision Approval of the agency's RE&D and F&E budget submissions Approval of the NAS Architecture baseline. <p>The JRC also participates in development of the agency's operations budget submission.</p>					X
<ul style="list-style-type: none"> NAS CCB 	<p>Refer to FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures</p>	<p>The NAS CCB is responsible for:</p> <ul style="list-style-type: none"> Providing technical and administrative direction for identifying and controlling change to the NAS-level baselines for Configuration Items (CIs); Serving as the technical arm of the JRC; Baselining the Technical Architecture Requirements; Baselining of Interface Requirement Documents (IRDs); Adjudicating differences and resolving issues elevated from lower-level CCBs; Ensuring traceability of NAS requirements down to IPT-controlled baselines; Adjudicating changes that impact more than one lower level CCB; Providing an Agency-wide forum for the discussion of technical issues at the discretion of the co-chairs; 	X	X			

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S
		<ul style="list-style-type: none"> Establishing subordinate CCBs (i.e., approval authority for all other FAA life cycle support CCB charters). This includes the approval of new or modified IPT, regional and other solution provider CCB Charters; Approving and implementing the NAS CCB Operating Procedures and any changes to them; Maintaining currency of NAS CCB charter. 					
<ul style="list-style-type: none"> IPT CCBs Program CCBs 	ARA ATS	IPT CCBs are responsible for controlling subsystem functional, design, product, and operational baselines. They are responsible for administering change control for NAS subsystems throughout their lifecycle.	X	X	X		X
<ul style="list-style-type: none"> Regional CCBs 	AAL ACE AEA AGL ANE ANM ASO ASW AWP	Responsible for controlling changes to space management (facility baselines), critical power breaker assignment, site adaptation, equipment unique to the region and regionally tailored construction specifications as stated in the regional CCB Charters. Regional CCBs are also responsible for utilizing ANI IC facility as-built drawings to develop facility baselines per "The National Configuration Management Standard Procedure Document for Facility Baselineing".	X	X			X
<ul style="list-style-type: none"> WJHTC CCB 	ACT	The William J. Hughes Technical Center (WJHTC) Configuration Control Board (TCCCB) is assigned the responsibility for managing and/or monitoring baselines and governing and verifying changes to baselines for systems, which are resident in the WJHTC NAS Laboratories.	X	X	X		

Table 3.1.1.3-3. Agency Offices with Major CM Roles and Responsibilities

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S
• Air Traffic System Requirements Service	ARS	The Air Traffic System Requirements Service (ARS) supported by the Integration Requirements Team (IRT) is responsible for the generation of the initial Requirements Document and the final Requirements Document from the NAS-level requirements and the traceability of those requirements to the system and subsystem level requirements. ARS also participates in IPT CCBs.	X	X			
• Airways Facility Service	AAF	The Director of Airways Facilities (AAF-1), the NAS Operations Program (AOP-1), the Operational Support Program (AOS-1), the NAS Transition and Implementation Program (ANS-1), and the regional offices perform CM in support of the Airways Facilities Directorate to include: <ul style="list-style-type: none"> • Co-chairing the NAS CCB • Managing and maintaining the operational configuration of the NAS • Providing service-wide technical, maintenance, and administrative policy and direction to properly identify, control changes, and record the configuration and change implementation status of all existing facilities, equipment and software in the In-service life-cycle phase • Representing the AF Service on each IPT to monitor and evaluate the configuration management activities and process to assure that the CM process is meeting AF requirements for NAS Service baselined systems • Providing configuration management for FAA telecommunications network • Coordinating and monitoring Airway Facilities Regional CCBs • Establishing and maintaining facility space and critical power baselines • Maintaining ARTCC site-specific end-state and transition drawings • Operating Computer Aided Engineering Graphics (CAEG) • Performing periodic audits and/or reviews of the Airway Facilities Regional CM activities • Ensuring compliance of CM policy and procedures within the facilities under their control • Authorizing temporary emergency modifications to equipment subject to approval by the cognizant CCB 	X	X	X	X	X

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S
• Office of Acquisitions	ASU	<ul style="list-style-type: none"> Evaluating the technical feasibility and operational impact of field generated case files and NCPs Serving as the regional focal point for configuration management responsible for coordinating the intra-regional review of case files/NCP's <p>The Office of Acquisitions provides leadership, direction, and guidance related to acquisition policy and is responsible for planning, monitoring, controlling, scheduling, and implementing the acquisition of material, equipment and services for the National Airspace System (NAS) and for interagency and international programs. ACM-20 coordinates CM policy through the Office of Acquisitions for incorporation on the FAA Acquisition Toolset (FAST). Also, ASU provides acquisition, quality assurance, and procurement support and management of real property for agency programs.</p>	X		X		
• FAA Logistics Center	AML	<p>The FAA Logistics Center (FAALC) ensures that all internal and National NAS logistical, technical, engineering, and financial configuration management requirements are integrated locally and with each affiliated Integrated Product Team (IPT) and the National Airspace (NAS) System Configuration Control Boards (CCBs). In addition, FAALC personnel coordinate ECP and NCP activities with the appropriate FAALC organizations, monitor and coordinate CM activities in the FAALC test beds and for spares; and participate in the IPT and NAS CCBs.</p>	X	X	X		X
• FAA Technical Center	ACT	<p>The FAA Technical Center is responsible for:</p> <ul style="list-style-type: none"> Monitoring and maintaining test configurations Monitoring system and equipment transition from the solution provider to the operational support organizations Supporting FCAs and PCAs Coordinating ECP and NCP activities at the FAATC Monitoring and coordinating CM activities in the FAATC laboratories Participation in the IPT and NAS CCBs. 	X	X	X		
• IPT/Solution Providers • Product Team	ARA ATS	<p>IPT/solution providers are responsible for:</p> <ul style="list-style-type: none"> Implementing national CM policy CM planning 	X		X		X

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S
		<ul style="list-style-type: none"> Aiding in the development, review, and revision of CM contract requirements Monitoring vendors in the area of CM Planning and participating in Functional and Physical Configuration Audits (FCA/PCAs) Preparing for and executing transition of CM responsibilities to the operational support organizations Monitoring and maintaining baseline management for its configuration items Change processing and status accounting for baselines under their control Identifying and supporting improvements to the FAA CM process. 					
<ul style="list-style-type: none"> Office of System Architecture and Investment Analysis 	ASD	The Office of System Architecture and Investment Analysis is responsible for co-chairing (ASD-1) the NAS CCB and for providing technical and administrative direction to properly identify, control, and record configuration and change implementation status to NAS Level requirements.	X	X			

Table 3.1.1.3-4. Individual CM Roles and Responsibilities

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S
• CCD Action Office	Various	The action office designated in a CCB-approved CCD is responsible for completing specified actions and returning a signed CCD Action Completion Verification Grid to the cognizant CCB to document closure. The designated action office includes any field organizations that assist with implementation activities.	X				
• CCB Executive Secretariat	Various	A CCB executive secretariat is responsible for: <ul style="list-style-type: none"> • Selecting subjects for consideration at a CCB • Scheduling CCB meetings • Ensuring that items or issues brought before the CCB are adjudicated • Tracking open CCB items and issues • Ensuring orderly conduct of meetings • Providing status accounting services to the CCB including open NCPs, CCD action items and action items not associated with CCDs • Preparing and distributing agendas and minutes. 	X				
• CM Control Desk	ACM-20	Responsible for reviewing all case files submitted to ACM-20 or an IPT. The control desk ensures that case files are complete and accurate and assigns an NCP number upon successful validation.	X	X	X		X
• Must Evaluator	Various	A must evaluator is typically an analyst, technician, engineer, end-user expert or Air Traffic Control specialist who reviews an NCP for its technical or programmatic accuracy.	X				
• NCP Originator	Various	An NCP originator is typically a system user, analyst, or engineer who proposes a recommended change for consideration by a configuration item owner.	X				
• Prime Contractor • Prime Equipment Vendor/Contractor • Equipment Vendors • Contractor	Various	Equipment vendors/contractors are responsible for following contractual requirements for CM while developing or maintaining a NAS system/equipment.	X		X		X

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES X= ROLE DIRECTLY RELATED TO CM POLICY A=ADVISORY ROLE	G	N	A	R	O
			E	A	C	E	P
			N	S	Q	G	S

<ul style="list-style-type: none"> Quality Assurance Group/Quality Reliability Officer 	ASU	Through the Quality and Reliability Officers (QROs) ASU is responsible for monitoring vendor/contractor performance during a system acquisition to assure that vendors comply with all requirements of the contract. The QRO plays a role in an FCA/PCA by providing information relating to any major problems discovered during first article testing and inspections. The QRO also brings to the attention of the audit team all known unique manufacturing processes, special tooling, and special test and inspection equipment. The QRO monitors the status of any non-conformance deficiencies discovered during the audit, and monitors the vendor/contractor's correction of these deficiencies.					X
<ul style="list-style-type: none"> Survey Team 	Various	<p>Airway Facilities Regional offices are responsible for performing site surveys and for planning and implementing any actions that are found to be necessary as a result of the surveys. Surveys include functions of a configuration management audit (for a baseline that has been established previously) and inventory (for a baseline that is intended to be established).</p> <p>The survey team authorized by the Airway Facilities Regional office is responsible for performing activities to verify facility documentation. Members of the team prepare the case file/NCP form that initiates a facility baseline, identify problem areas, obtain Airway Facilities/Air Traffic (AF/AT) signatures, and debrief site personnel after verification is completed. The NAS Implementation Program (ANI) organization shall assist the Airway Facilities Regional offices on an as-needed basis in conducting site surveys."</p>					X

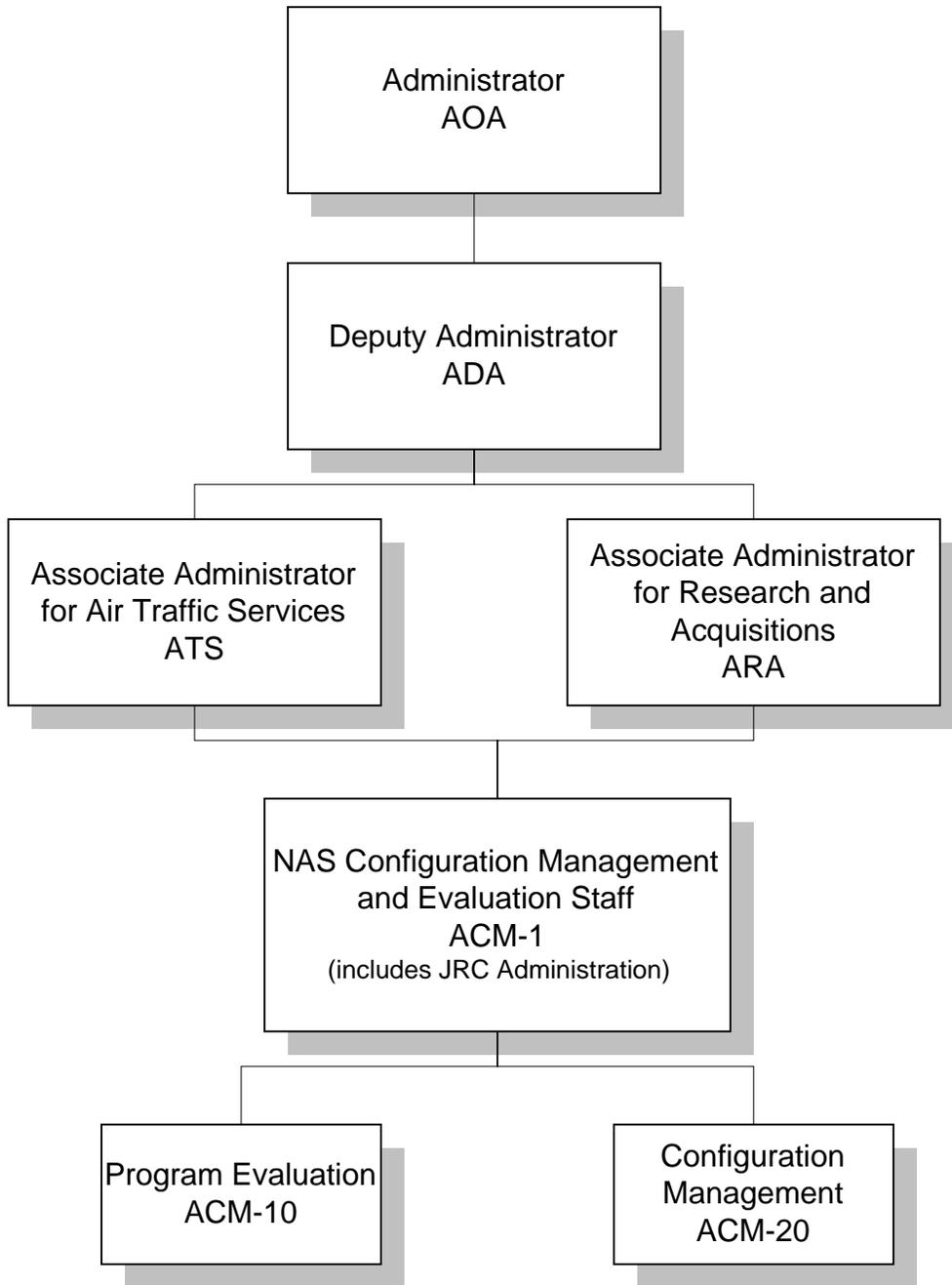


Figure 3.1.2.3.1-1. Central CM Authority and Organizational Hierarchy

3.1.1.3.1 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	Statement II-3
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1 Plan and Manage NAS Requirements • 1.1 Develop and Manage Acquisition Policy • 1.2 Develop, Manage, and Communicate CM Technical Guidance • 1.3 Establish and Manage NAS Technical Products • 1.4 Establish and Maintain NAS Infrastructure • 3 Obtain Mission Need Decision • 9 Plan and Manage Program CM • 100 Perform Change Management
<ul style="list-style-type: none"> • <i>Acquisition Management System</i> 	
<ul style="list-style-type: none"> • Order 1100.127, <i>Standard Regional Airway Facilities Division Organizations</i> 	
<ul style="list-style-type: none"> • FAA Order 6032.1 (with Change 1 and 2), <i>Modifications to Ground Facilities, Systems, and Equipment in the National Airspace System</i> 	
<ul style="list-style-type: none"> • <i>The National Configuration Management Standard Process Document for Conducting Formal Configuration Audits of Operational Facilities</i> 	
<ul style="list-style-type: none"> • <i>The National Configuration Management Standard Procedure Document for Facility Baselineing</i> 	

3.1.2 Establishing and Maintaining CM Policy

3.1.2.1 Purpose

This procedure describes the process for establishing, maintaining, and disseminating CM policy and its constituent elements. It explains how to raise policy issues, submit comments for policy improvement, and how to update the policy. It describes procedures for revising each element of Policy (Parts One, Two, Three, and Four).

3.1.2.2 Scope

This procedure applies to the following elements of CM Policy:

- Part One: *Configuration Management (CM) in the National Airspace System*
- Part Two, Section I: *NAS CCB Charter and Operating Procedures*
- Part Two, Section II: *National Configuration Management Process*
- Part Two, Section III: *National Configuration Management Procedures*
- Part Three: *CM Standards and Standardization*
- Part Four: *Acronyms and Definitions*

3.1.2.3 Responsibilities

- Changes to Part One, *Configuration Management (CM) in the National Airspace System*, are approved by the Administrator.
- Changes to Part Two, Section I, *NAS CCB Charter and Operating Procedures*, are approved jointly by the Associate Administrator for Air Traffic Services and Associate Administrator for Research and Acquisitions. Changes only affecting the NAS CCB operating procedures are approved by the NAS CCB co-chairs.
- Changes to Part Two, Section II, *National Configuration Management Process*, and to Part Two, Section III, *National Configuration Management Procedures*, of CM Policy are approved by NAS Configuration Management and Evaluation Staff (ACM).
- ACM maintains CM policy and performs the following activities:
 - coordinates suggested revisions to CM policy elements
 - evaluates proposed changes for impacts to all elements of CM policy
 - obtains feedback from organizations regarding proposed changes
 - reports the status of proposed changes to the CMSG
 - submits proposed changes for approval
 - disseminates authorized policy revisions
- The Configuration Management Core Team (CMCT) supports ACM by performing assigned tasks related to change processing and providing advice

and feedback from their organizations concerning the merits of proposed changes to CM policy.

- The Configuration Management Steering Group (CMSG) resolves policy issues and provides arbitration when consensus on any policy issue cannot be reached.
- Any organization that performs CM in the agency can propose a change for policy improvement.

3.1.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • II-3
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1.2 Develop, Manage and Communicate CM Technical Guidance • 103 Provide Continuous Improvement/Assessment

3.1.2.5 Procedure

Any organization, including ACM, shall propose policy updates. The suggested updates may enhance existing CM processes or may correct a perceived conflict between existing CM policy and its effective implementation. Since policy updates may affect processes of several organizations, any proposed change is therefore analyzed, and fully coordinated with the organizations affected by the proposed change.

A change form for proposing policy updates shall be down loaded from the national CM web site and once completed shall be submitted to ACM. A completed hardcopy of the form shall be signed by the manager of the originating office and mailed to ACM. As indicated on the form, initiators shall provide their name, routing symbol, e-mail address, phone number, brief description of the change, reason for the change, the suggested revision, and if revising existing language, a comparison of the existing language to the revised language.

ACM shall maintain the policy document and track all proposed changes. It shall conduct an initial analysis of all proposed changes. If the proposed change contains sufficient information, ACM shall schedule the change for an initial review by the CMCT.

Taking into consideration recommendations from the CMCT, ACM shall evaluate the proposed change, and if necessary, shall fully develop the change, establish and direct working groups where necessary, and coordinate with impacted organizations and managers to resolve issues and achieve consensus. When the proposed change to CM policy is fully developed and coordinated with the originator and organizations most impacted, it shall be coordinated via a clearance record review. Upon resolving clearance record review comments, ACM shall forward the change to the approving authority – Part One changes to the Administrator and all other changes (with the exception of NAS CCB changes) to ACM. If consensus cannot be reached, ACM shall work with the CMSG to achieve resolution of issues related to the policy revision.

Changes to the NAS CCB charter and operating procedures shall be processed in accordance with the NAS CCB charter and operating procedures. Changes to the NAS CCB charter are approved jointly by the Associate Administrator for Air Traffic Services and Associate Administrator for Research and Acquisitions. Changes only affecting the NAS CCB operating procedures shall be approved by the NAS CCB co-chairs. (See procedure 3.2.1.)

Procedural steps follow. Figure 3.1.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Develop Proposed Policy Revision	<ul style="list-style-type: none"> The originating organization shall develop proposed revisions to existing CM policy.
2. Perform Initial Analysis	<ul style="list-style-type: none"> ACM shall conduct an initial analysis of the proposed change to ensure that requisite information is contained in the submission. Additionally, an estimate of the parts of policy affected by the change shall be made.
3. Requisite Information?	<ul style="list-style-type: none"> If the requisite information is in the proposed change, ACM shall continue processing it. If not, it shall be returned to the initiator with an explanation, proceed to Step 1.
4. Change to NAS CCB Charter/Operating Procedures?	<ul style="list-style-type: none"> If the proposed change affects the NAS CCB charter and/or operating procedures, proceed to Step 5. Otherwise, the proposed change shall be placed on the CMCT's agenda for review.

Procedure Step	Procedure Description
5. Establishing and Maintaining a CCB (Procedure 3.2.1)	<ul style="list-style-type: none"> If the proposed change affects the NAS CCB Charter and Operating procedures proceed to procedure 3.2.1. Changes to the NAS CCB charter and operating procedures shall be submitted to the NAS CCB executive secretariat.
6. Analyze Proposed Revision and Determine Feasibility	<ul style="list-style-type: none"> ACM and the CMCT shall review and analyze the proposed revision to determine if it has merit. A recommendation shall be presented and ACM shall endorse or reject it.
7. Change Endorsed?	<ul style="list-style-type: none"> If ACM endorses the change, proceed to Step 10; otherwise ACM shall provide rejection status to the originator.
8. Provide Rejection Status to Originating Organization	<ul style="list-style-type: none"> If ACM, after considering recommendations, determines that the proposed change has no merit, it shall be returned to the initiator with an explanation for rejection. Proceed to Step 1.
9. Re-Propose Change?	<ul style="list-style-type: none"> After rejection of a proposed change, the originating organization may decide to re-propose a change after making additional refinements. Proceed to Step 1.
10. Is a Team Required?	<ul style="list-style-type: none"> Depending on complexity of the proposed change, ACM shall coordinate with the affected organizations or establish a team to coordinate and further develop the change.
11. Assemble Ad Hoc Team	<ul style="list-style-type: none"> ACM shall assemble the appropriate subject matter experts to develop a comprehensive change package.

Procedure Step	Procedure Description
12. Develop Change Package	<ul style="list-style-type: none"> • In some cases the proposed change may affect parts of policy that were not considered by the original submission. If ACM determines that other parts of policy (process, procedures, etc.) will also be affected by the change, ACM shall initiate actions to address all necessary changes. • A comprehensive change package shall be developed by ACM or by ACM in conjunction with an ad hoc team. Proper coordination shall be conducted with impacted organizations. The change package shall include all impacted areas of policy.
13. Perform Clearance Record Review	<ul style="list-style-type: none"> • ACM shall initiate a clearance record review for the updated policy document. • The designated organizations shall review the revised document in accordance with clearance record guidelines. • ACM (and the ad hoc team) shall review comments from the clearance record review.
14. Arbitration Required?	<ul style="list-style-type: none"> • Issues that cannot be resolved by comment resolution activities or by the CMCT shall be forwarded to the CMSG for resolution.
15. Perform Arbitration	<ul style="list-style-type: none"> • The CMSG shall determine if a revision can be incorporated.
16. Submit to Approving Authority	<ul style="list-style-type: none"> • When the proposed change has been properly coordinated and completed, ACM shall submit it to the approving authority based on the part of policy changed - Part One changes to the Administrator and all other changes (with the exception of NAS CCB changes) to ACM.
17. Initiate Publication Process	<ul style="list-style-type: none"> • ACM shall initiate publication procedures in accordance with applicable guidance provided for publishing changes to orders and AMS.

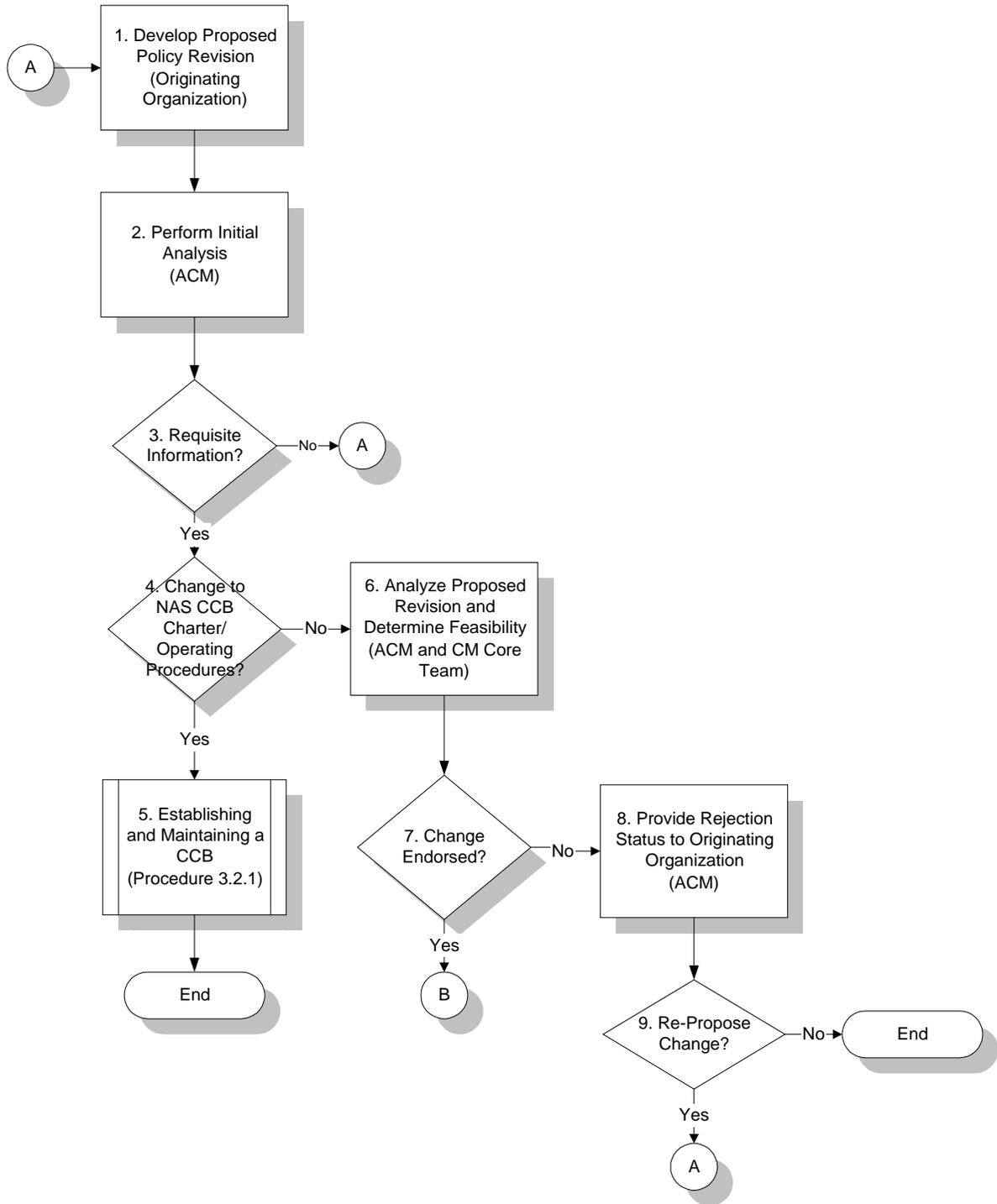


Figure 3.1.2.5-1. Establishing and Maintaining Policy (Page 1 of 2)

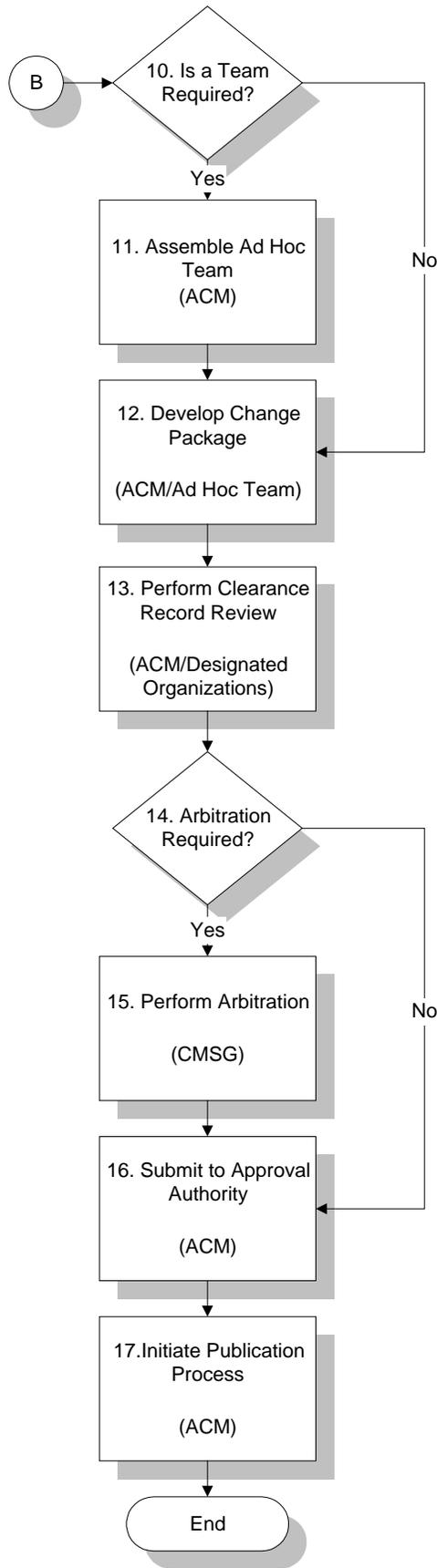


Figure 3.1.2.5-1. Establishing and Maintaining Policy (Page 2 of 2)

3.1.3 Monitoring, Oversight, and Evaluation

3.1.3.1 Purpose

This procedure describes the process for ensuring that configuration management (CM) policy is being effectively and consistently performed Agency-wide. It ensures the effectiveness of the CM system using expert judgement, CM metrics, and CM process compliance audits.

3.1.3.2 Scope

This procedure applies to discrepancies between CM policy and the actual implementation of CM processes and the subsequent action resolution activities within an Integrated Product Team (IPT), regional office, or other solution provider.

3.1.3.3 Responsibilities

- NAS Configuration Management and Evaluation Staff (ACM) is responsible for:
 - providing a mechanism for agency organizations to report CM process problems, issues, and recommendations for enhancements;
 - monitoring the CM process of all organizations such as IPTs, regional offices, and other solution providers;
 - initiating corrective actions upon uncovering CM process discrepancies; and
 - providing follow-up to ensure that corrective actions are implemented.
- Organizations (i.e., IPTs, regional offices, and other solution providers) are responsible for:
 - reporting CM process problems, issues or recommended process enhancements;
 - providing input to ACM for implementing corrective actions recommended by ACM for policy compliance; and
 - providing documentary evidence that these corrective actions have been completed.
- Various levels of management, including the Associate Administrators for Air Traffic Services and Research and Acquisition (ATS-1 and ARA-1), are responsible for supporting arbitration in the event that ACM and the responsible organization cannot reach agreement on the appropriate corrective actions or the extent to which actions are fulfilled.

3.1.3.4 References

Reference	Reference Para./Activity #:
FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i> , Part One – Configuration Management (CM) Policy Elements	<ul style="list-style-type: none"> • Statement II-3
FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i> , Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	<ul style="list-style-type: none"> • 1.2 Develop, Manage and Communicate CM Technical Guidance • 16 Monitor CM Activities • 103 Provide Continuous Improvement/Assessment

3.1.3.5 Procedure

Discrepancies in the CM process shall be identified through the following methods:

- control desk function - includes a thorough review of a case file before it is processed as an NCP.
- participation in CCB meetings – includes monitoring and oversight of CCB processes
- NAS CCB secretariat function – includes the review of new or revised CCB charters and operating procedures
- CM acquisition reviews – includes the review of the CM related sections of Integrated Program Plans (IPP), participation in In-Service Reviews (ISR) and observation of Functional and Physical Configuration Audits (FCA/PCA).
- on-going collection of CM performance metrics - Table 3.1.3.5-1 lists the typical metrics collected. Irregularities (such as a sudden increase in average NCP processing time for an organization) may indicate a problem and require investigation. Refer to Section 3.4.3 for change management metrics and collection procedures.
- performance of CM compliance audits - ACM conducts these audits either as requested by an organization or as initiated by ACM. For compliance audits, ACM and the organization being audited jointly develop an audit plan to define the audit's scope and procedures including location of audit and personnel involved. These audits may be requested by any organization performing NAS-related CM.
- CM discrepancy reporting - provides the means for organizations to report CM process problems via a problem reporting mechanism (using the feedback function at ACM's Web site or contacting ACM via phone or e-mail).

ACM shall track each discrepancy reported, including the source, the affected organization, and resolution status. In this way, ACM can provide guidance for resolution of discrepancies similar to those already uncovered and resolved. In addition, this provides a source of useful CM process metrics including number of process changes by organization, rate of change correction, change status, number of proposed changes still open, etc.

When a discrepancy is reported, ACM shall confer with the organization to investigate it. The investigation initially determines whether the perceived discrepancy is the result of a genuine process issue or was reported on the basis of a misconception. If the discrepancy is not a true discrepancy, ACM shall record in the discrepancy log that the issue was resolved and shall supply an explanation of the circumstances that led to its being reported. The procedure terminates at this point.

If the discrepancy requires resolution, ACM shall determine whether it has arisen because of a policy statement or because the organization has improved upon the national CM process. If either is the case, the procedure for updating the policy shall be invoked. Refer to Section 3.1.2 for details. After this procedure is followed, ACM shall enter the end result (either an update to the policy or an explanation of why the proposed update was not incorporated) into the discrepancy log, after which the procedure is terminated.

If the discrepancies are confirmed and the organizational process (as opposed to the policy) requires update as a result, the organization shall develop a corrective action plan and shall submit it to ACM for review. If the organization and ACM reach concurrence on the plan of action, the organization shall proceed with implementation activities. ACM shall assess the organization's implementation to determine whether corrective actions are completed. If so, ACM shall record the results in the change log and state that the discrepancies have been resolved, after which the procedure is terminated.

If ACM determines that corrective actions are not sufficient, it shall advise the organization. If the organization concurs, it shall re-attempt performing the corrective actions until adequately resolved. If the organization does not concur, ACM shall confer with succeeding levels of management to resolve any disagreement. This may also occur when ACM and the organization cannot reach agreement on the plan of corrective actions. ATS-1/ARA-1 shall support arbitration if issues remain.

Procedural steps follow. Figure 3.1.3.5.1-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Assess CM Process Compliance</p>	<ul style="list-style-type: none"> • ACM shall identify discrepancies between policy and the implementation of an organization's CM process. • ACM shall use various measurements as part of its on-going monitoring of Agency CM performance. Table 3.1.3.5-1 illustrates some metrics that may be captured and reviewed. • Identification of such discrepancies may occur as a result of: <ul style="list-style-type: none"> – the control desk function – participation in CCB meetings – CM acquisition reviews – on-going collection of CM performance metrics – performance of CM compliance audits – CM discrepancy reporting • ACM shall document discrepancies and maintain a log to provide follow-up and traceability.
<p>2. Organizational Discrepancy?</p>	<ul style="list-style-type: none"> • ACM shall confer with the affected organization to determine whether the uncovered discrepancy is the result of a difficulty in implementing policy or is due to a misconception on the part of the individuals who discovered the discrepancy. If the uncovered discrepancy is not a true discrepancy, continue with Step 3. Otherwise proceed to Step 4.
<p>3. Record Results</p>	<ul style="list-style-type: none"> • ACM shall record resolution of issues in the discrepancy log. This step is the termination point of the procedure.
<p>4. Policy Update Required?</p>	<ul style="list-style-type: none"> • Analysis of the discrepancy between the organization's practice and agency policy may indicate that the organization's process is an improvement over policy and that the policy should be updated. In that case, continue with Step 5. • If the analysis indicates that the organization should change its current practice, proceed to Step 6.

Procedure Step	Procedure Description
5. Establish and Maintain Policy (Procedure 3.1.2)	<ul style="list-style-type: none"> The organization shall follow procedure 3.1.2, Establish and Maintain CM Policy, to propose a policy update. After agreement on the proposed update, proceed to Step 3 to record the results in the discrepancy log.
6. Plan Corrective Actions	<ul style="list-style-type: none"> The organization shall develop a plan to correct the discrepancy. The corrective action plan includes, as appropriate, implementation steps, materials, training, proposed schedule, etc. <p>The organization may confer with ACM in determining the appropriate corrective actions.</p>
7. Review Corrective Action Plan	<ul style="list-style-type: none"> ACM shall review the corrective action plan with the organization to ensure that it is accurate and feasible.
8. Concurrence Reached?	<ul style="list-style-type: none"> If ACM concurs with the recommended corrective actions, continue with Step 9. Otherwise proceed to Step 14.
9. Perform Corrective Actions	<ul style="list-style-type: none"> The organization shall perform the recommended corrective actions according to the documented plan. The performance of corrective actions shall include documentary evidence that these actions have been implemented. Documentary evidence, in this context, is not restricted to hard-copy documents but shall extend to software artifacts (e.g., a database that is automatically updated upon configuration changes).
10. Assess Corrective Actions	<ul style="list-style-type: none"> ACM shall assess the performance of the corrective actions to determine whether they have been satisfactorily completed.
11. Actions Successful?	<ul style="list-style-type: none"> If the actions have been satisfactorily performed, proceed to Step 3. Otherwise continue with Step 12.

Procedure Step	Procedure Description
12. Advise Organization	<ul style="list-style-type: none"> • In the event that corrective actions are not satisfactorily performed, ACM shall advise the organization on this matter and recommend steps to correct the issue.
13. Arbitration Required?	<ul style="list-style-type: none"> • If the organization agrees with the assessment of ACM that actions are not sufficiently completed, the process shall be repeated to correct the issue, beginning with Step 9. Otherwise continue with Step 14.
14. Support Arbitration	<ul style="list-style-type: none"> • If the organization does not concur, ACM shall confer with succeeding levels of management to resolve any disagreement. This may also occur when ACM and the organization cannot reach agreement on the plan of corrective actions. • ATS-1 and ARA-1 shall support arbitration as necessary in the event that ACM and other levels of management cannot reach agreement.
15. Assessment Findings Confirmed?	<ul style="list-style-type: none"> • If arbitration determines that corrective actions are necessary, the corrective action process shall be repeated, beginning with Step 9. Otherwise proceed to Step 3 to record the results and terminate the process.

Table 3.1.3.5-1. CM Process Measurement Criteria (Page 1 of 2)

- **CM Planning and Management Metrics**
 - Key CM milestones identified
 - Key milestones met
 - CM tools identified
 - CM tools implemented
 - CM tool efficiency
 - Percentage of manpower allocated to CM activities
 - Number and severity of national CM policy/process/procedure compliance issues
 - Number and severity of OPI CM process compliance issues

- **Configuration Identification Metrics**
 - Number of specifications/configuration documents identified
 - Number of specifications/configuration documents released
 - Number of specifications/configuration documents requiring submittal
 - Number of specifications/configuration documents submitted
 - Number of specifications/configuration documents on-time submittals
 - Number of specifications/configuration documents requiring approval
 - Number of specifications/configuration documents approved
 - Number of specifications/configuration documents disapproved
 - Average number of revisions per specifications/configuration documents
 - Average number of change notices per revision
 - Percentage of documentation in electronic format
 - Number of baselines established
 - Number of requirements identified
 - Number/percentage of requirements allocated
 - Number/percentage of requirements to be tested
 - Number of engineering drawings scheduled for release
 - Number/percentage of engineering drawings released
 - Percentage of engineering drawings released on time
 - Number/percentage of engineering drawings on critical path
 - Number/percentage of critical drawings released
 - Percentage of critical drawings released on time

Table 3.1.3.5-1. CM Process Measurement Criteria (Page 2 of 2)**• Configuration Control Metrics**

The following metrics are also outlined in procedure 3.4.3, Change Management Metrics. In addition, organizations may maintain similar metrics for engineering change proposals, variances, change notices, etc.

– NAS-Level Metrics

- NCP totals by status (opened, undergoing pre-screening, etc.)
- NCP totals by priority (normal, time-critical, urgent)
- NCP totals by CI
- NCP totals by scope (local, test, national, regional CCB)
- NCP totals by reason for change (safety, requirements change, etc.)
- NCP totals by date of initiation
- NCP totals by duration (from date of initiation to CCD closure)
- NCP totals by originating organization
- NCP totals by facility identifiers
- NCP totals by facility codes
- NCP totals by cost center code
- Totals of NCPs with supplemental forms (ECPs, ECRs, TESs)
- Emergency modifications currently open
- Emergency modifications by CI
- Emergency modifications by date of initiation
- Emergency modifications by duration (from date of initiation to CCD closure)
- Emergency modifications by originating organization
- Emergency modifications by cost
- Open CCD totals by category (modification, documentation, test)
- Open CCD action totals by CI
- Open CCD action totals by CCD issue date
- Open CCD action totals by CCD

NOTE: Combinations of these may be employed, as mandated by management requirements: e.g., NCP totals by priority for each CI.

– IPT/Solution Provider/Regional-Level Metrics

- Percentage of modifications requiring follow-up design engineering/verification
- Percentage of engineering design activities accomplished on time and within budget
- Percentage of mod kits and materials delivered on time and within budget
- Percentage of change incorporation accomplished on time and within budget

- Mod dollars under/over budget by fiscal year (FY)
- Labor hours identified and committed at CCB decisions

- **Configuration Status Accounting Metrics**
 - Number of reports anticipated
 - Number of reports provided
 - Number of open items

- **Configuration Audit Metrics**
 - Audits scheduled
 - By subsystem
 - By type (FCA, PCA, other)
 - Audits performed
 - By subsystem
 - By type (FCA, PCA, other)
 - Action Items per audit
 - By category/responsibility
 - By status (open/complete)
 - Audits approved

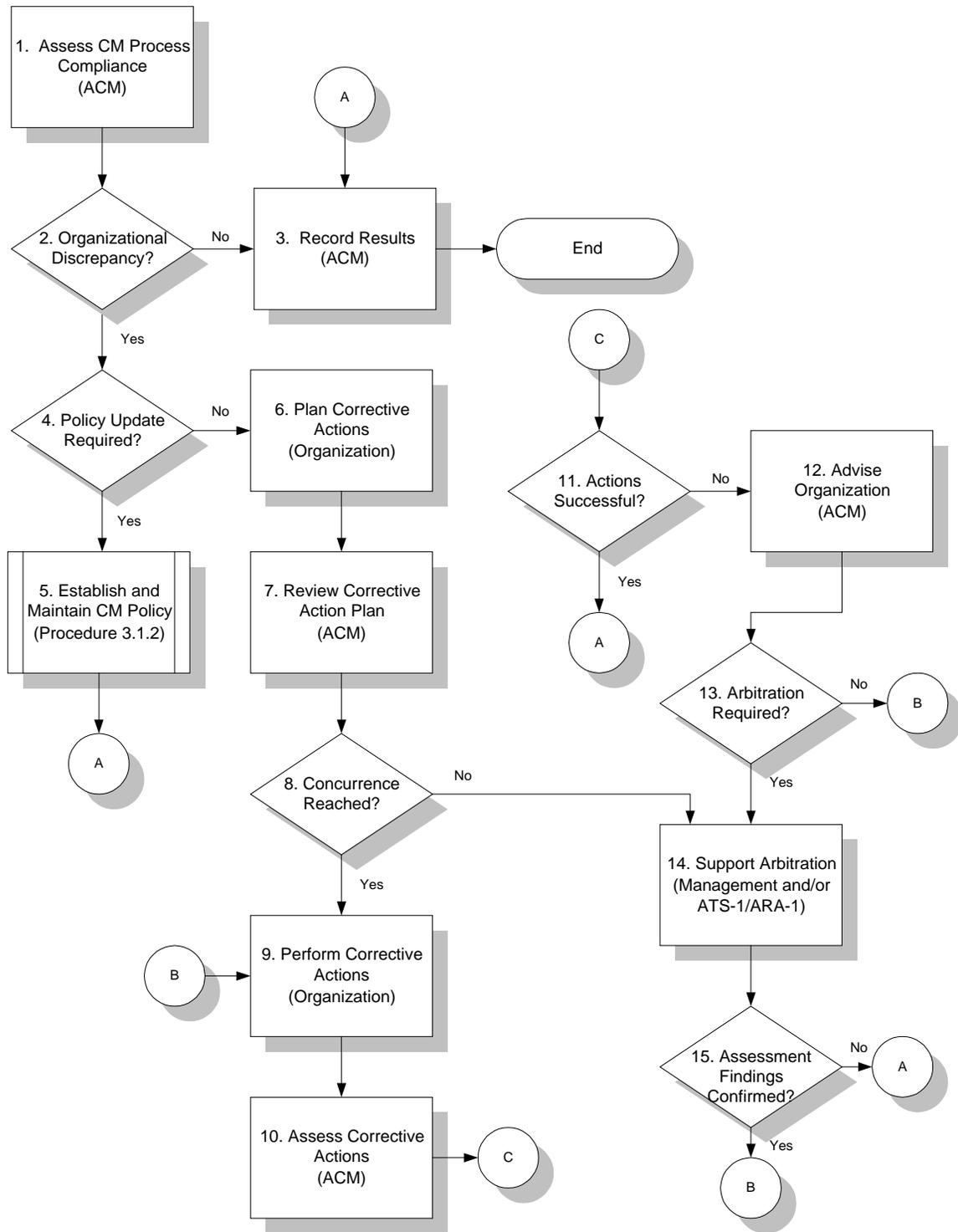


Figure 3.1.3.5.1-1. Monitoring, Oversight, and Evaluation

3.2 Life Cycle CM Planning and Management

CM life cycle management and planning is the top-level CM activity used as a reference point to plan and implement the major CM principles over the program life cycle. It includes planning for, coordinating, and managing all tasks necessary to implement CM principles and to conduct CM activities. It determines the necessary resources for CM activities throughout the life cycle, establishes the mechanisms necessary to perform the CM process, designates the responsibilities of the organizations performing the CM process, and ensures that control will be extended to vendors and contractors when acquiring equipment.

This section contains three subsections:

- Section 3.2.1, Establishing and Maintaining a Configuration Control Board (CCB), describes the means to implement change control at optimum levels of authority. Each IPT, regional office, and other solution provider has its own CCB, which reports to the NAS CCB.
- Section 3.2.2, Solution Provider Responsibilities, describes the CM planning and management activities specifically applicable to IPTs and other solution providers.
- Section 3.2.3, Regional Responsibilities, describes the CM planning, management, and system procurement activities specifically applicable to regional offices.

3.2.1 Establishing and Maintaining a Configuration Control Board (CCB)

3.2.1.1 Purpose

The procedure for establishing and maintaining a CCB via an approved charter and operating procedures is described below. Instructions for preparing new CCB charters and operating procedures, as well as instructions for updating them as changes occur, are included.

3.2.1.2 Scope

This procedure applies to Integrated Product Teams (IPT) and other solution providers upon their formation. This procedure remains applicable to IPTs, regions and other solution providers, including the National Airspace System (NAS) CCB, for their duration as organizational entities responsible for managing and supporting NAS configuration items (CI).

3.2.1.3 Responsibilities

- IPTs, regions and other solution providers are responsible for preparing, coordinating and submitting a charter for NAS CCB approval, and maintaining the approved charter as changes occur. Once established by an approved charter, a CCB develops, approves and maintains its operating procedures.
- NAS Configuration Management and Evaluation Staff (ACM) assists in the development and coordination of CCB charters and operating procedures. ACM also coordinates the approval of CCB charters through the NAS CCB.
- The NAS CCB is responsible for the review, approval and distribution of all subordinate CCB charters and updates. In addition, the NAS CCB is responsible for obtaining joint approval of updates to its charter from the Associate Administrator for Research and Acquisitions (ARA-1) and the Associate Administrator for Air Traffic Services (ATS-1). As with other CCBs, the NAS CCB approves changes to its own operating procedures.

3.2.1.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.3, I-5 and I-6

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1 Plan and Manage NAS Requirements • 1.2 Develop, Manage and Communicate CM Technical Guidance • 1.3 Establish and Manage NAS Technical Products • 1.4 Establish and Maintain NAS Infrastructure • 6.2 Establish Program; Assign IPT • 9 Plan and Manage Program CM • 9.1 Develop CM Plan and Practices • 9.2 Develop CCB Charters and Operating Procedures • 9.3 Establish Program Support Library (PSL) • 16 Monitor CM Activities • 100 Perform Change Management • 101 Perform Configuration Status Accounting
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures 	

3.2.1.5 Procedure

A CCB is the Agency-authorized forum for establishing configuration management baselines and for reviewing and acting upon changes to these baselines. Procedure 3.4.1, Configuration Control Board (CCB) Structure for Systems in the NAS, explains the purpose of a CCB and the relation of the various chartered CCBs in the NAS.

Established by the FAA Administrator as the highest-ranking CCB, the NAS CCB has authority to charter subordinate CCBs as necessary.

A newly formed IPT or other solution provider shall typically develop its CCB charter and operating procedures upon assignment of a NAS program or programs. The structure and content of charters are described in Table

3.2.1.5.1-1. Because each CCB develops operating procedures in accordance with its specific mission and needs, Table 3.2.1.5.2-1 provides suggested content only, which may be followed as guidance. Additionally, samples of current CCB charters and operating procedures are on the CM web page at <http://www.faa.gov/cm/> or are available by request to ACM.

Each CCB, including the NAS CCB, shall be responsible for updating its approved charter as changes occur and obtaining approval for the update in accordance with this procedure. A revision to an approved charter is required to reflect modifications resulting from Joint Resources Council (JRC) decisions, assignment of a new program or programs to an existing CCB, additions or deletions of CIs, changes to board membership and organizational re-alignments. The NAS CCB shall approve all subordinate CCB charters and updates in accordance with Part One of Policy. Procedures for processing administrative or editorial changes to CCB charters can be found in the NAS CCB Operating Procedures. ARA-1 and ATS-1 shall jointly approve updates to the NAS CCB charter.

Each CCB, including the NAS CCB, shall update its operating procedures as changes occur. The operating procedures specify rules for update. Each CCB approves its initial operating procedures and all changes to them.

Note that a change identified for either the charter or operating procedures may not necessarily require a corresponding change to the other document. In this case, the CCB follows the procedural steps listed below that apply to the document being updated.

Sections 3.2.1.5.1 and 3.2.1.5.2 address the procedural steps for approval of CCB charters and operating procedures, respectively. A figure providing a graphical representation of these steps is included in each section.

3.2.1.5.1 CCB Charter Approval

The steps below describe the process for approval of both new and updated CCB charters. IPT, region and other solution provider CCB charters shall be approved by the NAS CCB. ARA-1 and ATS-1 shall jointly approve changes to the NAS CCB charter. Figure 3.2.1.5.1-1 depicts the charter approval process.

Procedure Step	Procedure Description
1. Develop/Revise CCB Charter	<ul style="list-style-type: none"> • An IPT, region or other solution provider may contact ACM for assistance with development (or revision), coordination and approval of a CCB charter. • A CCB charter shall be developed/ revised using the template in Table 3.2.1.5.1-1.
2. Coordinate Internal Review	<ul style="list-style-type: none"> • The IPT, region or other solution provider, including the NAS CCB, shall coordinate the initial draft charter and updates with the CCB members.
3. Change to NAS CCB Charter?	<ul style="list-style-type: none"> • ARA-1 and ATS-1 shall jointly approve all substantive updates to the NAS CCB charter. The NAS CCB approves all subordinate CCB charters or revisions. Proceed to Step 4 for approval of NAS CCB charter updates and Step 5 for approval of subordinate CCB charters and updates.
4. Submit Charter to ARA/ATS for Action	<ul style="list-style-type: none"> • ACM shall coordinate review and approval of updates to the NAS CCB charter with ARA-1 and ATS-1.
5. Process Charter through NAS CCB	<ul style="list-style-type: none"> • Upon completion of coordination and concurrence with the CCB members, the IPT, region or other solution provider lead shall sign the new (or revised) charter. • The IPT, region or other solution provider shall submit the endorsed charter (or revision) to ACM for continued processing. • ACM shall validate that the submitted charter (or revision) is complete and has been fully coordinated. • Upon validation, ACM shall schedule the charter (or revision) for NAS CCB review. • ACM shall notify the IPT, region or other solution provider of the schedule for NAS CCB review.

Procedure Step	Procedure Description
6. CCB Charter Approved?	<ul style="list-style-type: none"> • The IPT, region or other solution provider shall attend the scheduled NAS CCB in support of the charter's approval. • ARA-1 and ATS-1 shall approve updates to the NAS CCB charter as presented, or request additional changes. If the charter is approved as presented, proceed to Step 7. • If additional changes to the NAS CCB charter are requested, ACM shall update the charter, coordinate it with the CCB members as required and then resubmits it to ARA-1 and ATS-1 for approval. (Repeat Steps 1 through 4.) • For subordinate CCBs, the NAS CCB shall approve the initial charter (or revision) as presented, or request additional changes. If the charter is approved as presented, proceed to Step 7. • If the NAS CCB requests a change to the charter (or revision), the IPT, region or other solution provider shall update the charter, coordinate it with the CCB members as required and then resubmits it to ACM for NAS CCB approval. (Repeat Steps 1, 2 and 5.)
7. Distribute Approved Charter	<ul style="list-style-type: none"> • ACM shall distribute the approved charter (or revision) to the appropriate Agency organizations.

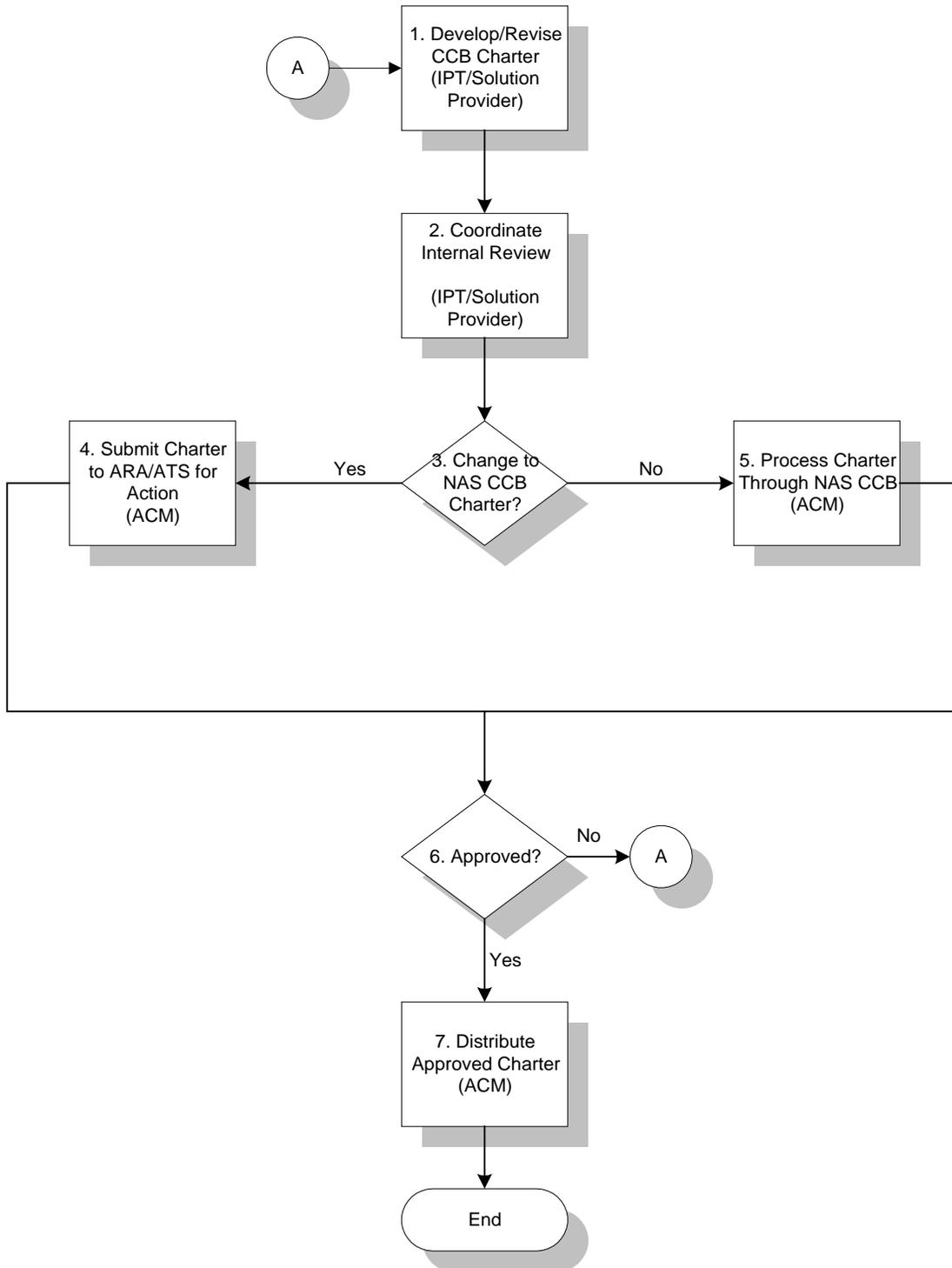


Figure 3.2.1.5.1-1 CCB Charter Approval

Table 3.2.1.5.1-1 CCB Charter Content

Charter Section	Section Content
a. Cover Page	Includes the document title, "Charter for the..." with the organization's title; effective date; "submitted by" signature spaces; and "approved by" signature spaces for the approving body.
b. Signature Page	Provides space for signatures attesting to internal coordination with the CCB members.
c. Table of Contents	Lists charter contents and page numbers.
d. Introduction	Section heading for "Purpose" and "Authority."
e. Purpose	Explains the CCB's purpose in relation to FAA Corporate and IPT/Region/Solution Provider CM responsibilities.
f. Authority	Explains the policy basis upon which the CCB is established.
g. CCB Responsibilities	Provides a summary of general CCB responsibilities that include the establishment of baselines, review and approval of changes and issuance of implementing directives- Configuration Control Decisions (CCD).
h. CCB Participants	<p>The CCB charter specifies the Co-Chairs, Executive Secretary and permanent members. Unless otherwise approved by the NAS CCB, operational and acquisition managers co-chair the IPT CCBs. (Refer to Policy Statement III-2.) The charter also identifies criteria for ad hoc members and attendance by technical advisors, consultants and other specialists.</p> <p>Responsibilities of the various CCB members, which are summarized below, are included in this section.</p> <p>The CCB Co-Chairs have final decision authority on CCB agenda items. Permanent and ad hoc members provide recommendations to the Co-Chairs. (NOTE: The CCB operating procedures specify the procedure by which an appeal of the Co-Chairs' decision may be made.)</p> <p>The Executive Secretary administers and documents the meeting. In general, the Configuration Manager for the IPT, region or other solution provider serves as Executive Secretary.</p> <p>Permanent members are selected to ensure full representation from all organizations within the organization (e.g., F&E Resource and Planning, Logistics, System Engineering and Maintenance Engineering) so that their respective concerns are addressed and their expertise supports a full and well-informed decision by the Co-Chairs.</p> <p>Ad hoc members represent FAA organizations, other than those already represented by the permanent CCB membership, that are impacted by changes under consideration and are designated as members for these changes. Ad hoc members ensure that proposed changes are consistent with the technical and policy decisions of their organizations.</p>

Table 3.2.1.5.1-1 CCB Charter Content

Charter Section	Section Content
	Technical advisors, consultants and other specialists are those invited to attend a CCB meeting to provide specialized technical or program management information.
i. CCB Administration	Defines the authority of the CCB Executive Secretary in coordinating the administrative tasks of the CCB.
j. CCB Recommendations and Decisions	Provides the procedures for the CCB decision process and its administrative support.
k. Changes to the Charter	States how changes to the charter are processed.
l. Delegation of CCB Authority	Includes a prohibition against creating subordinate CCBs.
m. Appendix A (CI listing and/or support activities)	Appendix A is the current listing of CIs and activities controlled or supported by the CCB. In preparing Appendix A, the CCB's CM Office verifies that all CIs assigned to the organization have been identified and are consistent with reports generated from the Documentation and Configuration Identification System (DOCCON) on request from ACM. The CCB's CM Office researches and resolves discrepancies before the final Appendix A listing is generated. ACM can provide assistance in resolving Appendix A discrepancies.

The steps below describe the process for approval of both new and updated CCB operating procedures. Each CCB, including the NAS CCB, shall approve its initial operating procedures and all changes to them. Each CCB shall update its operating procedures as changes occur. In writing operating procedures, a subordinate CCB must ensure consistency with policy requirements specified in the NAS CCB charter and operating procedures as well any applicable National Procedures. Figure 3.2.1.5.2-1 depicts the approval process for CCB operating procedures.

Procedure Step	Procedure Description
1. Develop/Revise CCB Operating Procedures	<ul style="list-style-type: none"> • An IPT, region or other solution provider may contact ACM for assistance with development (or revision), coordination and approval of CCB operating procedures. • Table 3.2.1.5.2-1 provides a suggested format that shall be used as guidance in developing operating procedures.
2. Coordinate Internal Review	<ul style="list-style-type: none"> • The IPT, region or other solution provider, including the NAS CCB, shall coordinate their initial draft operating procedure and subsequent updates with CCB members.

Procedure Step	Procedure Description
3. CCB Charter Approved?	<ul style="list-style-type: none"> • Only a chartered CCB shall approve operating procedures (or revisions). • Typically, one of the first actions a newly chartered CCB takes is approval of its operating procedures. • Proceed to Step 4 if CCB charter approval is required (Procedure 3.2.1.5.1). Otherwise, proceed to Step 5.
4. CCB Charter Approval (Procedure 3.2.1.5.1)	<ul style="list-style-type: none"> • New CCB charters and revisions shall be processed in accordance with Procedure 3.2.1.5.1, CCB Charter Approval.
5. Process Operating Procedures at CCB	<ul style="list-style-type: none"> • Operating procedures for a new or previously established CCB are ready for CCB action upon completion of coordination with the CCB members and signature by the IPT, region or other solution provider lead. For the NAS CCB, the CCB Executive Secretary shall sign to indicate completion of reviews and coordination.
6. Operating Procedures Approved?	<ul style="list-style-type: none"> • The IPT, region, other solution provider or NAS CCB shall meet to approve the new (or revised) operating procedures. • The IPT, region, other solution provider or NAS CCB shall approve the new operating procedures (or revisions) as presented, or requests additional changes. If the operating procedures are approved as presented, proceed to Step 7. • If additional changes are requested, the operating procedures shall be rewritten and coordinated with the CCB members as required. (Repeat Steps 1 and 2.) The operating procedures shall then be resubmitted to the CCB for action. (Repeat Step 5.)
7. Distribute Approved Operating Procedures	<ul style="list-style-type: none"> • The CCB shall distribute the approved operating procedures to the appropriate organizations, including the CCB members and, for subordinate CCBs, ACM.

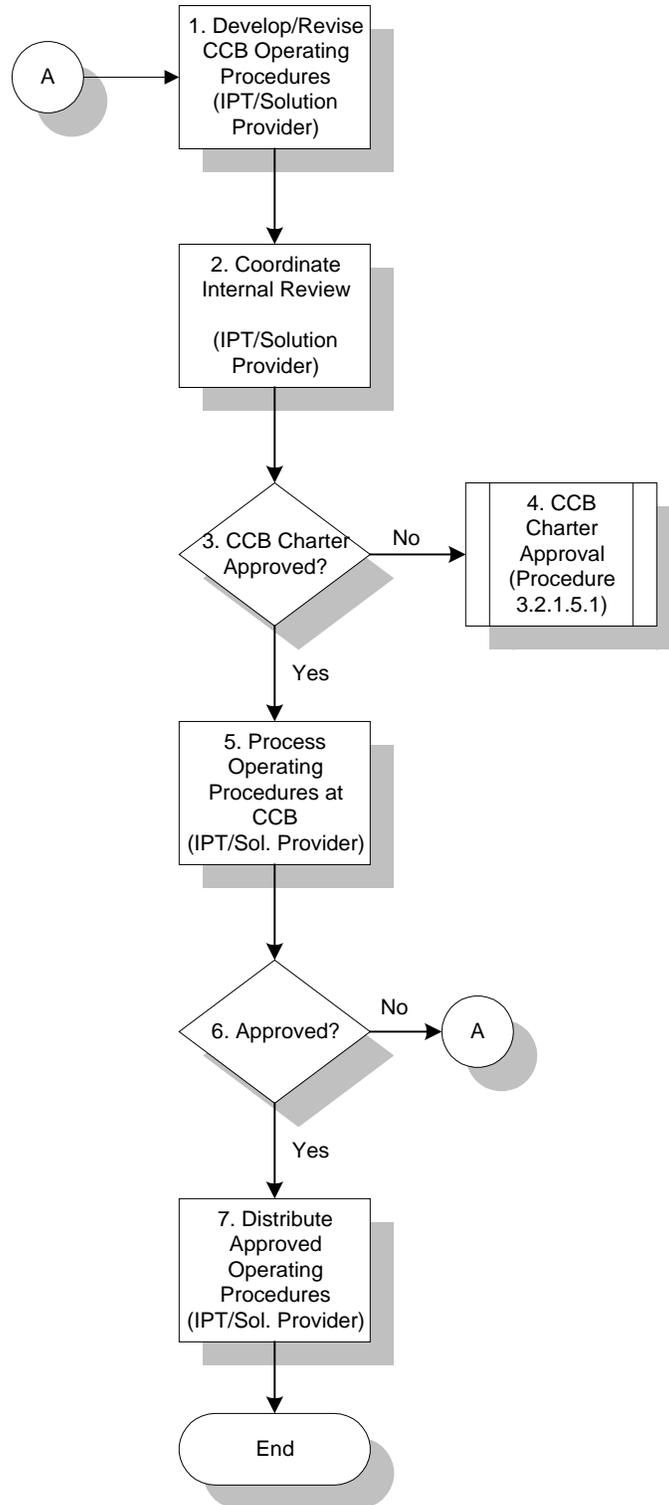


Figure 3.2.1.5.2-1 CCB Operating Procedures Approval

Table 3.2.1.5.2-1 Suggested CCB Operating Procedures Content

Charter Section	Section Content
a. Cover/Signature Page	Provides the document title, date and CCB Co-Chair signature spaces.
b. Table of Contents	Lists contents and page numbers.
c. Purpose	States the purpose of the document in defining the organization's change management process and rules for conduct of the CCB. Describes the authority for the organization's change management system.
d. Scope	States the applicability of the operating procedures to CIs listed in Appendix A and their baselines.
e. Guiding Principles	Discusses the basic approach for ensuring all changes processed by the CCB have been fully coordinated and issues resolved before presentation for decision. Includes reference to special processing situations (e.g., urgent and administrative changes).
f. Reference Documents	Provides a listing of relevant references including the organization's CCB charter and FAA CM Policy Document.
g. Acronyms	Lists all acronyms used in the document and definitions.
h. Procedures	Describes in detail the organization's change management process from initiation of a change through review, coordination and final CCB review and disposition. This section covers prescreening activities, must evaluation and resolution of comments, scheduling and preparation for CCB, the CCB decision process and CCB meeting minutes. The procedures define roles and responsibilities as well as the procedure for elevation of changes to the NAS CCB and expedited processing of emergency and limited scope changes. In writing operating procedures, a subordinate CCB must ensure consistency with policy requirements specified in the NAS CCB charter and operating procedures as well any applicable National Procedures.
i. CCD Appeal Process	Defines the procedure by which an appeal of the board's decision may be made.
j. Procedure for Modifying the Change Control Procedures	Describes the procedure by which changes to the operating procedures are identified and processed. Identifies the procedure for update of the CCB charter.
k. Change Process Flow Diagram	Depicts the organization's change management process as described in the operating procedures.

3.2.2 Solution Provider Responsibilities

This section contains life cycle CM planning and management procedures to be performed by IPTs and other solution providers. (NOTE: for regional life cycle CM planning and management procedures, refer to Section 3.2.3.).

This section contains two procedures:

- Section 3.2.2.1, CM Plans and Processes, describes the responsibilities of IPTs and other solution providers in implementing CM plans and processes, and the scope of IPT CM Plans.
- Section 3.2.2.2, Procurement Requirements for CM, provides guidance for developing and including CM requirements in contracts for procurement of NAS equipment.

3.2.2.1 CM Plans and Processes

3.2.2.1.1 Purpose

The procedure for implementing CM plans and processes is described below. It is applicable to Integrated Product Teams (IPT), Product Teams (PT) and other solution providers.

3.2.2.1.2 Scope

This procedure applies to the CM plans and processes to be documented by IPTs, PTs and other solution providers. (Special considerations apply to regional offices, whose plans and processes are described in Section 3.2.3.1). Each IPT, PT and solution provider should develop a CM plan. Additional documents may be useful depending upon the complexity of the CM tasks. Such documents may include, but are not limited to:

- A CM policy specific to the IPT, PT or solution provider
- A life-cycle CM process description
- A transition process description for each program
- An audit plan for each program.

3.2.2.1.3 Responsibilities

- The IPT/solution provider representative on an investment analysis team provides CM requirements for each candidate solution. They ensure that each candidate solution in the Acquisition Program Baseline has appropriate CM elements that are documented in Acquisition Strategy Papers (ASP) and Integrated Program Plans (IPP).
- The IPT/solution provider is responsible for CM planning commensurate with programs under its control and for documenting its processes and procedures in a CM Plan. This plan provides guidance in sufficient detail to allow tailoring of CM products for each life cycle phase of the programs under its control. Transition planning and budgeting are integral to overall CM planning activities.
- The PT reviews the IPT CM plan and identifies and documents the practices applicable to the specific program being acquired in its product team planning documentation (i.e., Acquisition Strategy Paper, Integrated Program Plan, product team CM plan, and transition process description).
- NAS Configuration Management and Evaluation Staff (ACM) provides:
 - high-level CM requirements for a program's initial requirements document
 - assistance and consultation as needed to the IPT/solution provider in generating their life cycle CM planning and management documentation.

3.2.2.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.1 and III-1
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 8.1 Develop Acquisition Strategy Paper • 8.2 Develop Integrated Program Plan (IPP) • 8.2.1 Field Input to Integrated Program Plan (IPP) • 9 Plan and Manage Program CM • 9.1 Develop CM Plan and Practices • 9.1.1 Develop PT CM Teams Tailored Plans and Practices • 13.1 Execute CM Requirements Flow Down

3.2.2.1.5 Procedure

The IPT/solution provider shall determine the documentation required for CM planning. At a minimum, this documentation shall include a CM plan defining the requirements for implementing CM within the organization; however, additional documentation, (such as transition plans, tailored processes, audit plans, etc.), may be required, depending upon the complexity of the system or requirements of the contract. The IPT/solution provider shall assign an author or team of authors to document program specific processes.

After the documents are completed, the IPT/solution provider shall review the documentation. The author shall incorporate review comments into the draft, at which point it is submitted to the IPT or solution provider’s CCB. The CCB shall provide an additional review of the documentation to ensure it does not conflict with other managerial considerations.

Following CCB approval, the IPT/solution provider shall forward the CM plan to team members and ACM. Additionally, the IPT/solution provider shall be responsible for implementing a CM program as detailed in the CM plan, including resource allocation and training.

Using the IPT/solution provider CM plan, the PT shall develop specific CM information for the Acquisition Strategy Paper, the Integrated Program Plan, and the PT CM plan. These documents define their CM requirements and activities for each life cycle phase for the specific product being acquired. The PT shall address CM transition requirements to ensure a smooth transfer of new NAS systems, software, facilities or services from the solution implementation phase to the in-service phase. PT CM plans are reviewed and approved in accordance with an IPT's CM process and procedures.

Procedural steps follow. Figure 3.2.2.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Determine Documentation Requirements	<ul style="list-style-type: none"> • The IPT/solution provider shall determine which documents in addition to a CM Plan are required for life cycle CM planning and management. • Additional planning documents, such as process descriptions, transition plans and audit plans, etc., may be included at the discretion of the IPT/solution provider.
2. Designate Author(s)	<ul style="list-style-type: none"> • The IPT/solution provider shall designate an author or a group of authors to write the planning documents.
3. Develop Documentation	<ul style="list-style-type: none"> • The appointed author(s) shall draft the CM plan and other documents. • The author(s) may contact ACM for assistance, as needed, to ensure documentation is in accordance with best CM practices and FAA policy. • The CM plan shall address the basic CM functions (configuration identification, configuration change control, configuration status accounting, and configuration audit), as well as applicable data management considerations, administrative concerns (budget, schedule, etc.) and transition planning requirements. A sample template is given in Table 3.2.2.1.5-1. • The author(s) shall ensure that additional planning documentation is consistent with the CM plan.

Procedure Step	Procedure Description
4. Review Documentation	<ul style="list-style-type: none"> The IPT/solution provider shall review the draft CM plan and additional documentation (if used) with the appropriate IPT/solution provider team members.
5. Revision Required?	<ul style="list-style-type: none"> If the draft CM plan and additional documentation are not deemed acceptable by the review, continue with Step 6. Otherwise proceed to Step 8.
6. Revise Documentation	<ul style="list-style-type: none"> The author(s) shall revise the CM plan and other documents in accordance with the review comments.
7. Review Required?	<ul style="list-style-type: none"> If the review comments are sufficiently extensive to require another review after incorporation of comments, proceed to Step 4. Otherwise continue with Step 8.
8. Submit to Organizational CCB	<ul style="list-style-type: none"> The organizational CCB shall review the CM documentation.
9. Documentation Approved?	<ul style="list-style-type: none"> If the organizational CCB approves the CM plan and additional documents, continue with Step 10. Otherwise proceed to Step 12.
10. Disseminate CM Documentation	<ul style="list-style-type: none"> The IPT/solution provider shall disseminate the CM documents to IPT team members and ACM.
11. Allocate Resources	<ul style="list-style-type: none"> The IPT/solution provider shall provide the resources, including training, specified by the CM plan and other documentation for the CM process.
12. Incorporate CCB Comments	<ul style="list-style-type: none"> The designated author(s) shall incorporate comments from the CCB review into the CM plan and additional documentation. Proceed to Step 8.
13. Develop Product Team CM Planning Documentation	<ul style="list-style-type: none"> The PT shall review the approved IPT CM plan and document those practices applicable to the specific program being acquired in its product team planning documentation (i.e., ASP, IPP, PT CM plan, and transition process description).

Procedure Step	Procedure Description
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14. Approve Product Team CM Planning Documentation	<ul style="list-style-type: none">• The PT CM planning documentation shall be reviewed and approved in accordance with the IPT's CM process and procedures.
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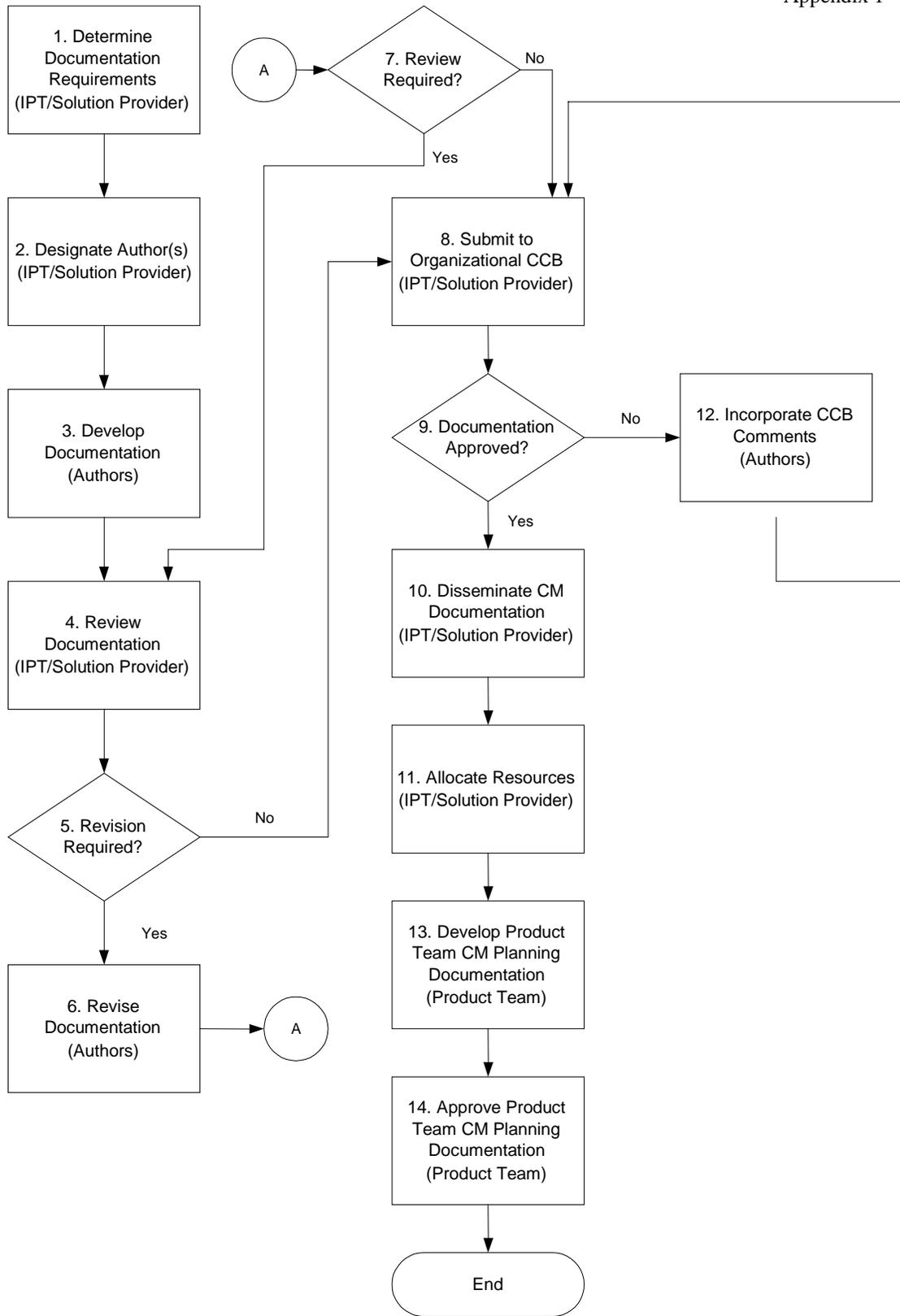


Figure 3.2.2.1.5-1. CM Plans and Processes

Table 3.2.2.1.5-1. Sample CM Plan Template

CM Plan Section	Section Content
a. Cover Page	Includes the document title, effective date, and document control number.
b. Table of Contents	Lists the title and page number of all titled sections and subsections, followed by the title and page number of all figures, tables, and appendices.
c. Section 1 – Introduction	Includes the following: <ul style="list-style-type: none"> • The purpose and scope of the plan • A brief description of the IPT/solution provider organization • A description of the organization's major functions and programs
d. Section 2 – Reference Documents	Lists the specifications, standards, manuals, and other reference documents by title, document number, issuing authority, revision, and date of issue.
e. Section 3 – Organization	Includes the following: <ul style="list-style-type: none"> • Relationships and integration of IPT/solution provider organization and CM organization • Responsibility and authority for CM of all participating organizations and team members, including their role in configuration control boards • Identification of the IPT/solution provider CM organization • Interfaces between the IPT/solution provider CM organization and other FAA CM organizations • Interfaces between the IPT/solution provider CM organization and contractors/subcontractors
f. Section 4 – Configuration Management Phasing and Milestones	Includes the schedules of the following: <ul style="list-style-type: none"> • Release and submittal of configuration documentation in relation to life cycle program events (such as reviews) • Establishment of baselines • Implementation of configuration control • Establishment of configuration control boards • Implementation of the status accounting system • Conduct of configuration audits • Transition planning (e.g., In-Service Review participation)
g. Section 5 – Data Management	Describes the methods for the following: <ul style="list-style-type: none"> • Data identification • Data version control • Digital data transmittal • Data access control
h. Section 6 – Configuration Identification	Describes the following: <ul style="list-style-type: none"> • Selection of CIs • Establishment and management of development configuration • Establishment of baselines • Release of products • Assignment and application of configuration identifiers
i. Section 7 – Interface Management	Describes the procedures for identification of interface requirements and establishment of interface agreements
j. Section 8 – Configuration Control	Describes the following: <ul style="list-style-type: none"> • Functions, responsibility, and authority of configuration control boards • Classification of changes • Change proposal processing (NCPs, ECPs, variances, etc.)

CM Plan Section	Section Content
k. Section 9 – Configuration Status Accounting	Describes the following: <ul style="list-style-type: none"> • Methods for collecting, recording, processing, and maintaining data necessary to provide status accounting information • Description of contents of reports • Methods of access to information in status accounting systems. Identify CM tools, as appropriate.
l. Section 10 – Configuration Audits	Describes plans, procedures, and schedules for functional and physical configuration audits
m. Section 11 – Contractor/Vendor Control	Describes the methods for ensuring contractor/vendor compliance with the configuration management requirements
n. Appendices	Optional; appendices may include abbreviations and acronyms, definitions, and other generic information.

3.2.2.2 Procurement Requirements for CM

3.2.2.2.1 Purpose

The procedure provides the methodology for developing and including CM requirements in procurement contracts for NAS systems and services.

3.2.2.2.2 Scope

This procedure applies to the configuration management activities performed in conjunction with procurement of NAS equipment by IPTs and other solution providers.

3.2.2.2.3 Responsibilities

- The IPT/solution provider is responsible for reviewing procurement documentation and reviewing the IPT/solution provider planning documentation to determine the configuration management requirements of a proposed procurement. CM deliverables are generally required to support management of the contract and the maintenance philosophy for the procurement. The IPT/solution provider ensures that these identified requirements are incorporated into the statement of work (SOW) and are itemized in contract deliverables. Additionally, the IPT/solution provider reviews proposal responses (to determine whether they meet the CM requirements) and participates in post-award conferences (to ensure common understanding of contract CM requirements among all members and to resolve any issues).
- The ASU organization is responsible for drawing up and awarding the contract to the vendor selected by the IPT/solution provider.
- NAS Configuration Management and Evaluation Staff (ACM) provides procurement guidance to the PT and reviews draft system-level specifications and SOW inputs, as needed. Types of data and the formats required must be consistent with the CM Information Management System input requirements.

3.2.2.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.1 and III-1

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	9 Plan and Manage Program CM 13 Develop Program SOW 13.2 Develop/Select CDRL/DID 14 Program SOW Approved 15 Issue Contract 15.1 Attend Post-Award Conference 16 Monitor CM Activities
<ul style="list-style-type: none"> • FAA Order FAA-G-2100, <i>Electronic Equipment General Requirements</i> 	

3.2.2.2.5 Procedure

The IPT/solution provider shall ensure configuration management requirements are defined and obtained in the procurement

The IPT/solution provider shall review the Acquisition Strategy Paper and CM planning documentation to identify configuration management requirements of the procurement. (The process for developing CM planning documentation is described in Section 3.2.2.1.)

Additionally, the IPT/solution provider shall be responsible for assisting the development, review and approval of procurement baselines, i.e., System-level Specifications and Interface Requirements Documents (IRDs) for inclusion into the applicable screening information request (SIR) or request for offers (RFO).

Initially, the IPT/solution provider shall translate requirements in the Requirements Document into a System-level Specification (a functional baseline document) that governs development by the system/software contractor. (Follow Procedure 3.3.3.2 to establish and maintain functional baselines.) Additionally, the IPT/solution provider shall prepare Interface Requirements Documents (IRDs) for each system or equipment interface affecting other NAS systems, equipment, or facilities. They shall also ensure the System-level Specification is baselined by the IPT/solution provider CCB; and the IRD is baselined by the NAS CCB prior to final request for offer release.

After CM requirements are identified and procurement baselines established, the IPT/solution provider shall ensure that they are incorporated into the Statement of Work. For example, physical marking and/or imbedding of unique identifiers on hardware, software, and firmware, as described in Procedure 3.3.2.4, should be included in the SOW. In addition, the IPT/solution provider shall ensure the SOW specifies appropriate contract data requirements list items (CDRLs) to fulfill these requirements, and their associated data item descriptions (DIDs).

The IPT/solution provider shall participate in the proposal evaluation process. The IPT/solution provider's CM staff shall review and evaluate offeror proposal responses for soundness and compliance to specified CM requirements.

The IPT/solution provider shall meet with the winning contractor and their staff in a post-award conference to ensure a common understanding of the contract and to resolve any issues, including CM issues. Action plans may be developed as required for issues whose resolution is lengthy or complex.

Procedural steps follow. Figure 3.2.2.2.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Review Procurement Planning Document	<ul style="list-style-type: none"> The IPT/solution provider shall review the procurement documentation to determine program-specific CM requirements.
2. CM Plans and Processes (Procedure 3.2.2.1)	<ul style="list-style-type: none"> The IPT/solution provider shall follow procedure 3.2.2.1 to develop overall CM planning and processing documentation. This procedure may be performed by a different set of personnel within the organization in tandem with Step 1, but it is a pre-requisite for the next step.
3. Review Planning Documentation	<ul style="list-style-type: none"> The IPT/solution provider shall review CM planning documentation (refer to Section 3.2.2.1) to compare CM requirements of the specific procurement to the overall CM requirements.
4. Identify and Tailor CM Requirements	<ul style="list-style-type: none"> The IPT/solution provider shall identify CM requirements based on the reviews of the two sets of documentation, tailoring them as necessary to the requirements of the procurement.
5. Establish Procurement Baselines (Procedure 3.3.3.2)	<ul style="list-style-type: none"> The IPT/solution provider shall follow procedure 3.3.3.2 to develop and baseline (at the IPT CCB) the System-level Specification. The IPT/solution provider shall also develop and baseline (at the NAS CCB) IRDs needed in the program.

Procedure Step	Procedure Description
6. Develop SOW Input	<ul style="list-style-type: none"> The IPT/solution provider shall develop input for the SOW consistent with the product CM plan.
7. Develop CM CDRL and DID Input	<ul style="list-style-type: none"> The IPT/solution provider shall develop CM CDRLs and applicable DIDs that are needed to fulfill the identified requirements.
8. Respond to Proposal	<ul style="list-style-type: none"> The offerors provide their proposal response as specified in the RFO.
9. Review Proposal Responses	<ul style="list-style-type: none"> The IPT/solution provider shall evaluate offeror proposals to determine which offeror best meets the identified requirements (including CM requirements).
10. Select Contractor	<ul style="list-style-type: none"> The IPT/solution provider shall provide an evaluation report to the Source Selection Official (SSO) who will select the contractor that is to be awarded the contract.
11. Issue Contract	<ul style="list-style-type: none"> Based on the SSO's decision, ASU will draw up the contract and issue it to the winning contractor.
12. Conduct Post-Award Conference	<ul style="list-style-type: none"> The IPT/solution provider shall conduct a Post-Award conference with the winning contractor to establish a common understanding of the contract and to identify any issues that require resolution.
13. Action Plans Required?	<ul style="list-style-type: none"> If any issues identified in the previous step require action plans for their resolution, continue with Step 14. Otherwise terminate the process.
14. Develop Action Plans	<ul style="list-style-type: none"> The IPT/solution provider shall develop any action plans required to resolve issues that arise from the Post-Award conference.

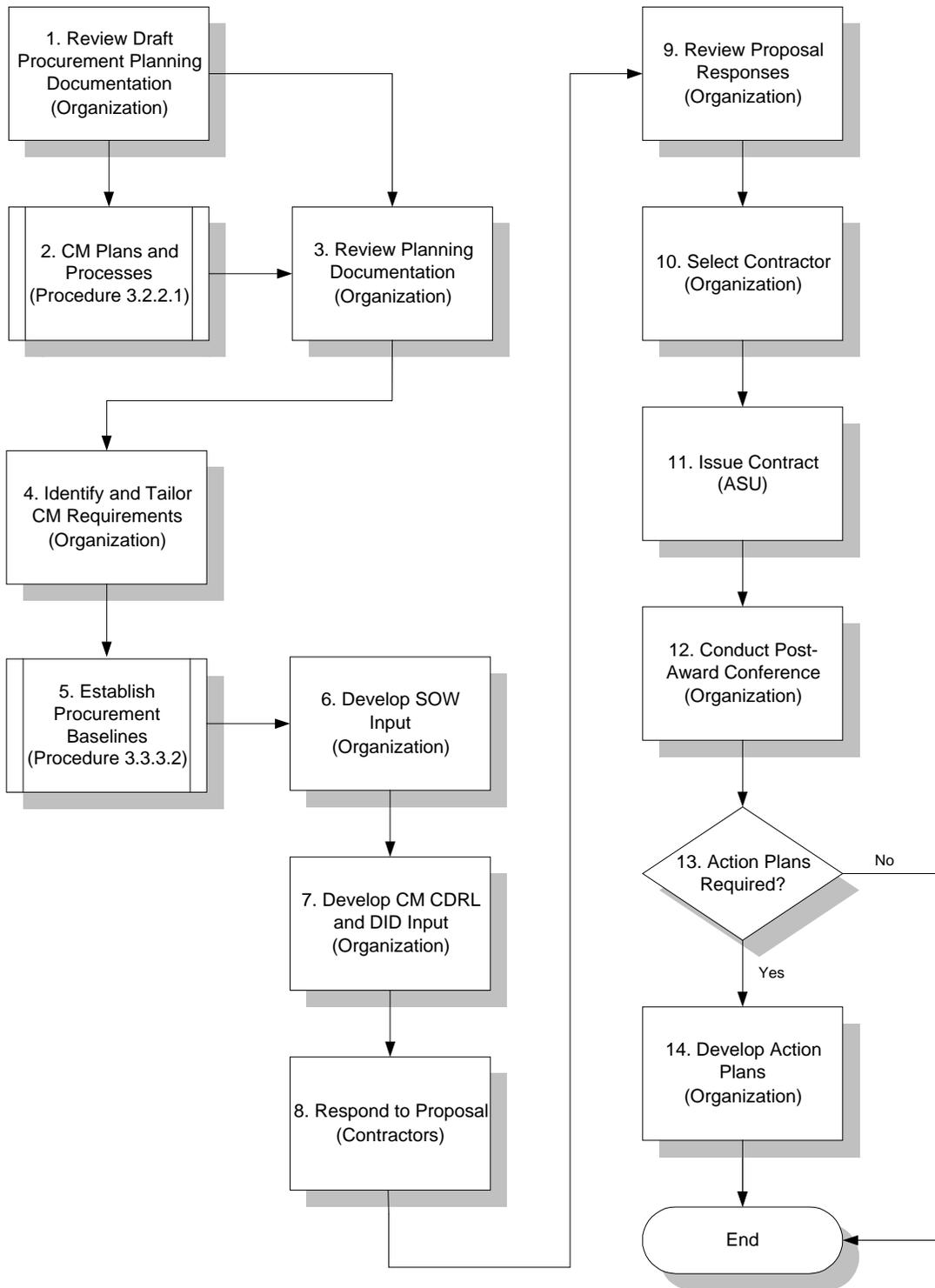


Figure 3.2.2.5-1. Procurement Requirements for CM

3.2.3 Regional Responsibilities

This section contains life cycle CM planning, management, and system procurement activities performed by regional offices.

This section contains two procedures:

- Section 3.2.3.1, Regional CM Plans and Processes, describes the CM planning and management activities specifically applicable to regional offices.
- Section 3.2.3.2, Regional COTS, describes the CM procedures and safeguards for regionally-procured components, systems, or services introduced into the NAS.

3.2.3.1 Regional CM Plans and Processes

3.2.3.1.1 Purpose

The procedure provides the methodology for developing regional CM plans and processes.

3.2.3.1.2 Scope

This procedure applies to the configuration management plans and processes to be documented by regional offices. The NAS Transition and Integration (ANS) office will develop a Master CM plan for use by the Regions that addresses each facility platform type (e.g. ARTCCs). The ANS NAS Facility Platform Managers develop individual sections or subplans for each facility platform type. The Regional Configuration Management Plan (CMP) establishes and provides the basis for uniform and concise CM practices for facility baselines, fielded systems, and regional unique equipment. Additional documents may be useful depending upon the complexity of the CM tasks. Such documents may include, but are not limited to:

- A change management policy specific to the regional facility
- A life cycle CM process description
- A system transition process description specific to the regional facility

3.2.3.1.3 Responsibilities

- The ANS Regional CMP applies to all Airway Facilities Service (AAF) Regions within the FAA and establishes standard methods for conducting CM. The Regional AAF Division Office (AXX-400) disseminates the information to region participants, and ensures that appropriate training and resources are allocated. The ANS NAS Facility Platform Managers designate authors of the Regional CM Plan appendixes or subplans for each facility platform type and of other planning documentation deemed necessary. They also review the documentation. The Regional Configuration Control Board (RCCB) reviews the Regional CM Plan and other planning documentation to ensure that there are no conflicts between the Regional CM planning documentation and other managerial policy documents.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for consultation, as required, to the region generating life cycle CM planning and management documentation.

3.2.3.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> Statements I-4.1 and IV-3
<ul style="list-style-type: none"> FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> 9 Plan and Manage Program CM 9.1 Develop CM Plans and Practices

3.2.3.1.5 Procedure

The Regional CM Plan determines the documentation required for regional CM planning. At a minimum, this documentation shall include an appendix to the Regional CM Plan that addresses each facility platform type; however, additional documentation, such as policies, processes, etc., may be required, depending upon the complexity of the system. The region shall designate an author or a group of authors to develop those documents or portions of documents not provided by Technical Graphics and Configuration Management Team, ANS-110.

After the initial CM documents are developed, the region shall review all draft documentation. The author(s) shall incorporate review comments into the draft, at which point it is submitted to the regional CCB. The CCB shall provide an additional review of the CM documentation to ensure it does not conflict with other managerial considerations.

Following CCB approval, the region shall forward the CM Plan to appropriate personnel and ACM. Additionally, the region shall be responsible for allocating resources, including training, as specified by the CM Plan.

Procedural steps follow. Figure 3.2.3.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Determine Documentation Requirements</p>	<ul style="list-style-type: none"> • ANS-100 shall determine which documents are required for life cycle CM planning and management. • ANS-100 shall provide a Master Regional CM Plan addressing each facility platform type (e.g. ARTCCs). • At a minimum, the region shall develop the individual appendixes describing CM for each facility platform type.
<p>2. Designate Author(s)</p>	<ul style="list-style-type: none"> • ANS-100 shall designate an author or a group of authors to develop the Master Regional CM Plan. • The region shall designate an author or a group of authors to develop those documents or portions of documents not provided by Technical Graphics and Configuration Management Team, ANS-110
<p>3. Develop Documentation</p>	<ul style="list-style-type: none"> • The appointed author(s) shall draft the CM Plan and other documents. • The author(s) should contact ACM for assistance, as needed, to ensure that the documentation is in accordance with best CM practices and with FAA policy. • The CM Plan shall address the basic CM functions (configuration identification, configuration change control, configuration status accounting, and configuration audit), as well as applicable data management considerations and administrative concerns (budget, schedule, etc.). A sample template is given in Table 3.2.3.1.5-1. • The author(s) shall ensure that additional planning documentation is consistent with the CM Plan.
<p>4. Review Documentation</p>	<ul style="list-style-type: none"> • The region shall review the draft CM Plan and additional documentation (if used) with the appropriate region team members.

Procedure Step	Procedure Description
5. Updates Required?	<ul style="list-style-type: none"> • If the draft Plan and additional documentation are not deemed acceptable by the review, continue with Step 6. Otherwise proceed to Step 8.
6. Revise Documentation	<ul style="list-style-type: none"> • The author(s) shall revise the CM Plan and other documents in accordance with the review comments.
7. Review Required?	<ul style="list-style-type: none"> • If review comments are sufficiently extensive to require another review after incorporation of comments, proceed to Step 4. Otherwise continue with Step 8.
8. Submit to RCCB	<ul style="list-style-type: none"> • The regional CCB (RCCB) shall review the CM documentation.
9. Documentation Approved?	<ul style="list-style-type: none"> • If the RCCB approves the CM Plan and additional documents, proceed to Step 10. Otherwise continue with Step 12.
10. Disseminate CM Documentation	<ul style="list-style-type: none"> • The region shall disseminate the CM documents to the appropriate personnel and to the CM authority.
11. Allocate Resources	<ul style="list-style-type: none"> • The region shall provide resources, including training, specified by the CM plan and other documentation for the CM process.
12. Incorporate RCCB Comments	<ul style="list-style-type: none"> • The designated author(s) shall incorporate comments from the RCCB review into the CM Plan and additional documentation. Continue with Step 8.

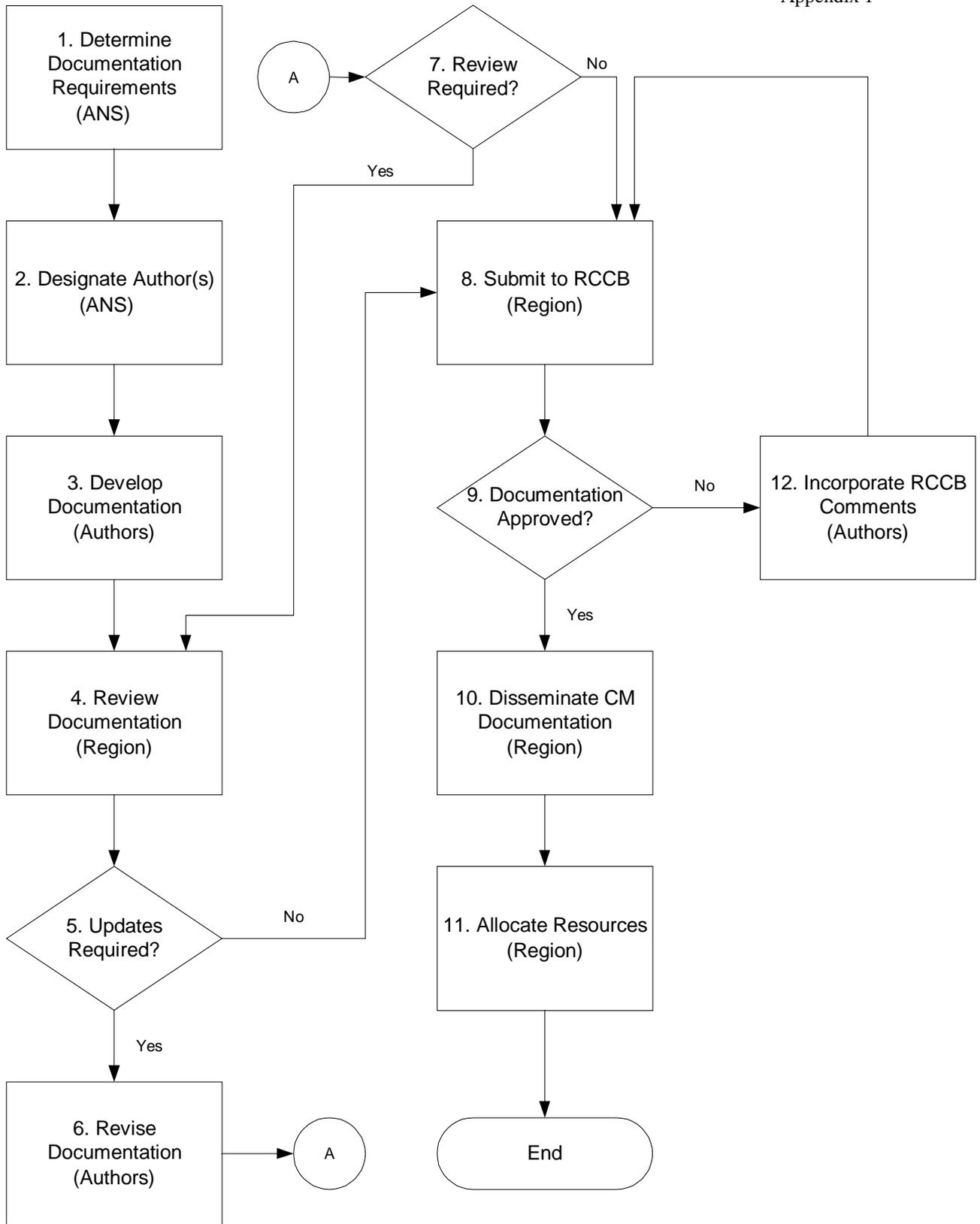


Figure 3.2.3.1.5-1. Regional CM Plans and Processes

Table 3.2.3.1.5-1. Sample Regional CM Plan Template

CM Plan Section	Section Content
a. Cover Page	Includes the document title, effective date, and document control number.
b. Table of Contents	Lists the title and page number of all titled sections and subsections, followed by the title and page number of all figures, tables, and appendices.
c. Section 1 – Introduction	Includes the following: <ul style="list-style-type: none"> • The purpose and scope of the plan • A brief description of the system or top-level CI and of the component lower-level CIs • A description of the plan's major features and objectives
d. Section 2 – Reference Documents	Lists the specifications, standards, manuals, and other reference documents by title, document number, issuing authority, revision, and date of issue.
e. Section 3 – Organization	Includes the following: <ul style="list-style-type: none"> • Relationships and integration of region organization and CM organization • Responsibility and authority for CM of all participating groups, including their role in configuration control boards • Identification of the CM organization • Interfaces between the CM organization and contractors and subcontractors
f. Section 4 – Configuration Management Phasing and Milestones	Includes the schedules of the following: <ul style="list-style-type: none"> • Recursive milestones of life cycle CM for the regional facility • Events and products, with associated CM activities
g. Section 5 – Data Management	Describes the methods for the following: <ul style="list-style-type: none"> • Data identification • Data version control • Digital data transmittal • Data access control
h. Section 6 – Configuration Identification	Describes the following: <ul style="list-style-type: none"> • Selection of CIs • Establishment and management of development configuration • Establishment of baselines • Release of products • Assignment and application of configuration identifiers
i. Section 7 – Interface Management	Describes the procedures for identification of interface requirements and establishment of interface agreements
j. Section 8 – Configuration Control	Describes the following: <ul style="list-style-type: none"> • Functions, responsibility, and authority of configuration control boards • Classification of changes • Change proposal processing (NCPs, ECPs, variances, etc.)
k. Section 9 – Configuration Status Accounting	Describes the following: <ul style="list-style-type: none"> • Methods for collecting, recording, processing, and maintaining data necessary to provide status accounting information • Description of contents of reports • Methods of access to information in status accounting systems

I. Section 10 – Configuration Audits	Describes plans, procedures, and schedules for audits.
m. Section 11 – Inventory Management	Describes configuration identification considerations associated with the facility configuration and describes inventory procedures.
n. Section 12 – Library Management	Describes methods for the establishment, implementation, control, status accounting and reporting for the acquisition, storage, retrieval and distribution of technical information within the facility's library system.
o. Section 13 – Cable Management	Describes methods for coordination, regulation, and recording of cable configurations. Describes the structure of the database used for cable management.
p. Section 14 – Contractor/Vendor Control	Describes the methods for ensuring contractor/vendor compliance with the configuration management requirements.
q. Appendices	Optional; appendices may include abbreviations and acronyms, definitions, and other generic information.

3.2.3.2 Regional Commercial-Off-The-Shelf (COTS) Procurements

3.2.3.2.1 Purpose

FAA regions and field organizations have the ability to obtain and utilize operational solutions (i.e., components, systems, or services) that meet their local needs. In most of these instances, the solutions are COTS based. These solutions often interface with other NAS systems and thus modify the operations and technical description of the NAS. It is FAA policy that the NAS shall remain a configuration-managed item at all times and that the introduction of a new solution shall be approved and appropriately documented. This procedure explains the CM requirements and safeguards for ensuring configuration management of regionally-procured solutions.

3.2.3.2.2 Scope

This procedure applies to FAA regions and field organizations that have the ability to introduce a NAS operational solution outside the Integrated Product Team (IPT) program management structure and the Acquisition Management System (AMS).

3.2.3.2.3 Responsibilities

- FAA regions and field organizations are responsible for:
 - Proposing locally-procured NAS solutions;
 - Obtaining approval of these solutions by all IPT/solution provider configuration control boards (CCB) impacted by the introduction of these solutions; and
 - Submitting case files to the NAS CCB proposing that the configuration item(s) associated with a proposed solution are placed under configuration management of the appropriate IPT CCB.

- The NAS CCB is responsible for:
 - Ensuring the review and adjudication of locally-proposed solutions by the appropriate IPT CCB(s); and
 - Submitting proposed solutions to the Air Traffic Requirements Service (ARS) and others as appropriate for review and validation of the requirement.

- The Air Traffic Requirements Service (ARS) is responsible for reviewing proposed solutions for its applicability to current and future NAS operational requirements.

- IPT CCBs are responsible for:
 - Reviewing all proposed solutions for impacts or interface relationships to the IPTs’ assigned configuration items; and
 - Concurring with proposed solutions that have been demonstrated to be worthwhile and adequately tested, documented, and managed.

3.2.3.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-3, I-8, III-5,
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 24 Establish System Product Baseline

3.2.3.2.5 Procedure

IPTs are responsible for the development and fielding of FAA solutions (i.e., components, systems, services) as delineated in AMS policy; however, in some cases, FAA regions and field sites will procure local solutions. The introduction of these solutions into National Airspace (NAS) operations is treated as an exception to the rule, in that the well-established Acquisition Management System (AMS) process remains the preferred method for solution procurement.

The procuring region or field organizations shall prepare a case file for submittal to the NAS CCB that identifies the proposed solution, its associated configuration items and any known external system interface(s) or connectivity impacts.

The NAS CCB shall ensure that the case file has been coordinated with Air Traffic Requirements Service (ARS), the Technology Transfer Program Office (AAR-400), System Architecture and Investment Analysis (ASD), Operational Support (AOS), and any impacted IPTs.

Thus, through this process no new or local capabilities shall be connected to any operational NAS system without the concurrence of all impacted IPTs. Prior to commencement of operational use, all associated configuration items will be placed under configuration management of the appropriate IPT CCB.

A proposed solution with impacts (especially interface and connectivity impacts) to operational NAS system(s) shall be documented as follows:

- A physical and functional description the system, equipment, software or capability down to the lowest level intended for replacement, repair, or configuration management. This may include the purchase description, vendor product literature or installation drawings.
 - User Documentation to include, if available:
 - Technical Instruction Books
 - Maintenance Manuals
 - Operators' Manuals
 - Diagnostic Manuals
- List of executable code detailing version, sizes, and date.

If the documentation that describes the proposed solution is insufficient to provide adequate life-cycle support, the assigned IPT shall create a funding profile that establishes the required costs for operations and maintenance.

Upon approval of the proposed solution for operations within the NAS (i.e., NAS CCB approval) the NAS CM and Evaluation Staff (ACM) shall enter the associated configuration item(s) into the Master Configuration Index (MCI). The NAS CCB will direct that an appropriate IPT is assigned to manage and maintain the solution and that the configuration item(s) associated with it are entered into that IPT's CCB charter.

Procedural steps follow. Figure 3.2.3.2.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Determine Proposed Solution	<ul style="list-style-type: none"> • A FAA regional or field organization decides to procure a local solution to meet their operational needs.
2. Develop Case File for Submittal to NAS CCB (Procedure 3.4.2.5)	<ul style="list-style-type: none"> • The FAA regional or field organization shall develop a case file identifying the configuration items and the external system interfaces or connectivity associated with the solution. • The FAA regional or field organization shall submit the case file to the NAS CCB.

Procedure Step	Procedure Description
3. Process NCP through NAS CCB (Procedure 3.4.2)	<ul style="list-style-type: none"> • ACM shall coordinate the case file/NCP through the NAS CCB. • The NAS CCB shall ensure that the case file is coordinated with the appropriate IPTs, ARS, AAR-400, ASD, and AOS. • IPTs shall review the NCP for external interface relationships or connectivity to their systems • The Air Traffic Requirements Service (ARS) shall review the NCP to determine its feasibility as a national requirement and/or relationship with other requirements.
4. NAS CCB Approval?	<ul style="list-style-type: none"> • The NAS CCB will review and adjudicate the proposed solution, and if approved, assign the new NAS subsystem to an appropriate IPT CCB for subsequent configuration management. • Additional effort may be required, and directed by the NAS CCB, to create the infrastructure necessary to meet system life cycle needs, including funding.
5. Add Configuration Item(s) to IPT CCB Charter (Procedure 3.2.1)	<ul style="list-style-type: none"> • The IPT assigned the configuration item(s) shall ensure that it is added to the IPT CCB charter.
6. Add Configuration Item(s) into Master Configuration Index (Procedure 3.4.2.1)	<ul style="list-style-type: none"> • ACM shall enter configuration item(s) associated with the NAS approved solution into the MCI.

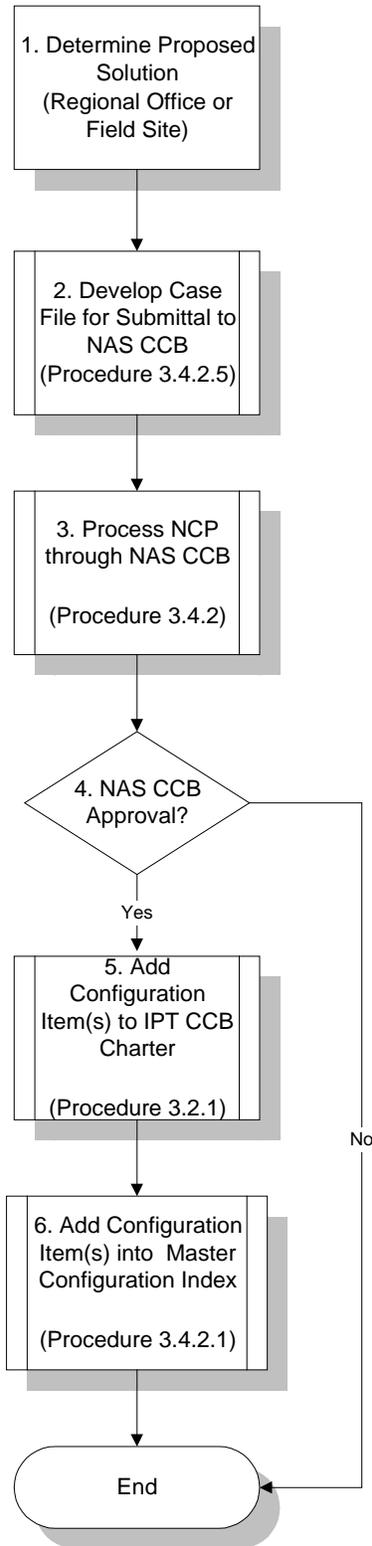


Figure 3.2.3.2.5-1. Regional Commercial-Off-The-Shelf Procurements

3.3 Configuration Identification

Configuration identification is the basis for all other configuration management processes. It provides the reference from which the configurations of products are defined, products and documents are labeled, changes are managed, and accountability is maintained. This activity includes the development of a top-down structure that summarizes the total units and configuration documentation for products and systems, and the assignment of unique identifiers that identify units and groups of units in a product.

This section contains four subsections:

- Section 3.3.1, Maintaining the Master Configuration Index (MCI) and Publishing NAS-MD-001, describes the procedure for ensuring that the MCI is continually updated to reflect the current National Airspace (NAS) configuration of products and systems.
- Section 3.3.2, Fundamentals of Configuration Identification, includes the procedures for selection of Configuration Items (CI); the determination of the types of configuration documentation required for each CI; the development of a top-down product structure as a basis of CM control; the issuance of numbers and other identifiers affixed to the CIs; and the release and control of the data associated with the CM process.
- Section 3.3.3, Establishing and Maintaining Baselines, describes pertinent FAA life cycle baselines.
- Section 3.3.4, Assigning Corporate Identifiers, describes the procedures for assigning unique identifiers to documentation and products. This section addresses:
 - Assignment of System-Level Specification Numbers
 - Assignment of Interface Requirements Document (IRD) Numbers
 - Assignment of Interface Control Document (ICD) Numbers and
 - Assignment of FAA Type Numbers for Equipment

3.3.1 Maintaining the Master Configuration Index (MCI) and Publishing NAS-MD-001, “NAS Subsystem Baseline Configuration and Documentation Listing”

3.3.1.1 Purpose

This procedure describes how the MCI is maintained and how NAS-MD-001 is published.

3.3.1.2 Scope

This procedure applies to NAS Configuration Management and Evaluation Staff (ACM) in its role of monitoring and distributing CM information in the National Airspace System (NAS) and to all solution providers that are responsible for maintaining configuration identification information.

3.3.1.3 Responsibilities

- ACM is responsible for maintaining the MCI and publishing NAS-MD-001.
- IPTs and other solution providers are responsible for providing timely information to ACM by submitting current configuration identification information to the Document Control Center (DCC).

3.3.1.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statements II-2 and II-5
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i> 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 108 Perform Modification Tracking
<ul style="list-style-type: none"> • NAS-MD-001, <i>National Airspace System Master Configuration Index Subsystem Baseline Configuration and Documentation Listing</i> 	
<ul style="list-style-type: none"> • ATC-88-1092, <i>DOCCON General User’s Reference Guide</i> 	

3.3.1.5 Procedure

Configuration identification establishes and maintains the definitive current basis for control and status accounting of a system/facility and its designated configuration items (CI) throughout their life cycle. The configuration identification process ensures that all acquisition and operational management disciplines have common sets of documentation as the basis for developing a new system/facility, modifying an existing component, buying a product for operational use and providing support for the system/facility and its components. The MCI is one aspect of the NAS configuration identification process. The MCI collects configuration identification information across the various solution providers and provides a view of that information from a national level.

The MCI serves three functions:

- to ensure the current hierarchical representation of the NAS by identifying each NAS subsystem/facility and its relationship to other NAS subsystems/facilities;
- to provide configuration identification data for each NAS subsystem/facility; and
- to track the engineering and technical documentation (including drawings) for each subsystem/facility, including all approved changes to the documentation.

The MCI is maintained on and is accessible to users through the Documentation and Configuration Identification System (DOCCON).

Generated from the MCI data, NAS-MD-001 is a report of all baselined NAS subsystems/facilities currently operational or under procurement for the NAS. It includes a listing of currently approved baseline documentation for these subsystems/facilities. NAS-MD-001 is published in hard copy format once a year. The National Airspace Documentation (NASDOCS) web site (<http://nasdocs.faa.gov>) contains an on-line version of the published document. Real-time NAS-MD-001 information is available through DOCCON's report generation feature.

ACM shall maintain the MCI and generate NAS-MD-001. ACM shall maintain the MCI through the incorporation of changes resulting from NAS change proposal (NCP) activity as well as through ongoing verifications to ensure the integrity of information.

The accuracy of the MCI depends on information linkages with NAS solution providers. NAS solution providers shall provide ACM copies of all documents generated as a result of an approved NCP and Configuration Control Decision

(CCD) issuance (along with a copy of the approved CCD). This documentation shall include:

- new documents placed under configuration control;
- updates to documents already under configuration control (e.g., Specification Change Notices (SCN) and change pages to Maintenance Orders); and
- documentation generated as a result of an approved CCD (e.g., change pages transmitted via an Electrical Equipment Modification (EEM), Facility Equipment Modification (FEM) and Plant Equipment Modification (PEM))

Currently, copies of the actual source document are the means by which to verify the configuration identification records created in DOCCON. A NAS Documentation and Configuration Identification Data Sheet (FAA Form 1800-60) collects meta data to facilitate creation of appropriate MCI (and DCC library) records. (Meta data is a summary of data that characterizes the data or points to the data, but is not the data itself.) Information collected on the form is not in itself sufficient to verify the MCI records. (The DCC also uses the hard or electronic format copies in support of its cataloging and library functions.)The procedures in section 3.5, Configuration Status Accounting, describe in more detail the type of information that shall be available through the National CM Information Management System in support of maintaining the MCI.

Procedural steps follow. Figure 3.3.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Process NAS Change Proposal (NCP)/Configuration Control Decision (CCD) (Procedure 3.4.2)</p>	<ul style="list-style-type: none"> • An IPT/solution provider shall process an NCP and submit configuration documentation to ACM in accordance with procedures 3.4.2.1 through 3.4.2.4. • Prior to submitted the approved CCD to ACM, the IPT/solution provider shall annotate it to signify that the configuration documentation has been baselined.
<p>1. Update and Maintain MCI</p>	<ul style="list-style-type: none"> • Upon receipt of new or revised configuration baseline documentation, ACM shall enter the appropriate information into DOCCON. • ACM shall enter CCD closure information into DOCCON upon completion of actions associated with receipt of the configuration documentation.

Procedure Step	Procedure Description
	<ul style="list-style-type: none"> • Upon receipt of new or revised documentation per CCD transmittal, ACM shall evaluate any resulting MCI impacts. • ACM shall create the necessary MCI linkages between submitted documentation and the proper subsystem/facility listed in DOCCON. • Independent of NCP activity, ACM shall also update MCI data on an ongoing basis to reflect changes resulting from its own verifications and audits.
2. Notify IPT/Solution Provider CCB	<ul style="list-style-type: none"> • ACM shall notify the IPT/solution provider CCB that the baselined configuration documentation has been received and stored in the DCC.
3. Need for MCI Data?	<ul style="list-style-type: none"> • If reports or queries based on MCI data are required, proceed to Step 4. Otherwise, proceed to Step 5.
4. Query/Report from DOCCON	<ul style="list-style-type: none"> • All solution providers with access to DOCCON may obtain real-time MCI data through the query/report function. • Upon request, ACM shall provide assistance to all solution providers that need to query MCI data contained in DOCCON.
5. Timeframe for Annual NAS-MD-001 Publication?	<ul style="list-style-type: none"> • ACM shall establish a schedule for the annual publication of NAS-MD-001 and shall make preparations to publish NAS-MD-001 in accordance with that schedule. Proceed to Step 6 when required by the publication schedule.
6. Publish NAS-MD-001	<ul style="list-style-type: none"> • ACM shall publish NAS-MD-001 in hard copy format in accordance with the yearly release schedule. ACM shall ensure that the current published version is posted on the NASDOCS web site (http://nasdocs.faa.gov).

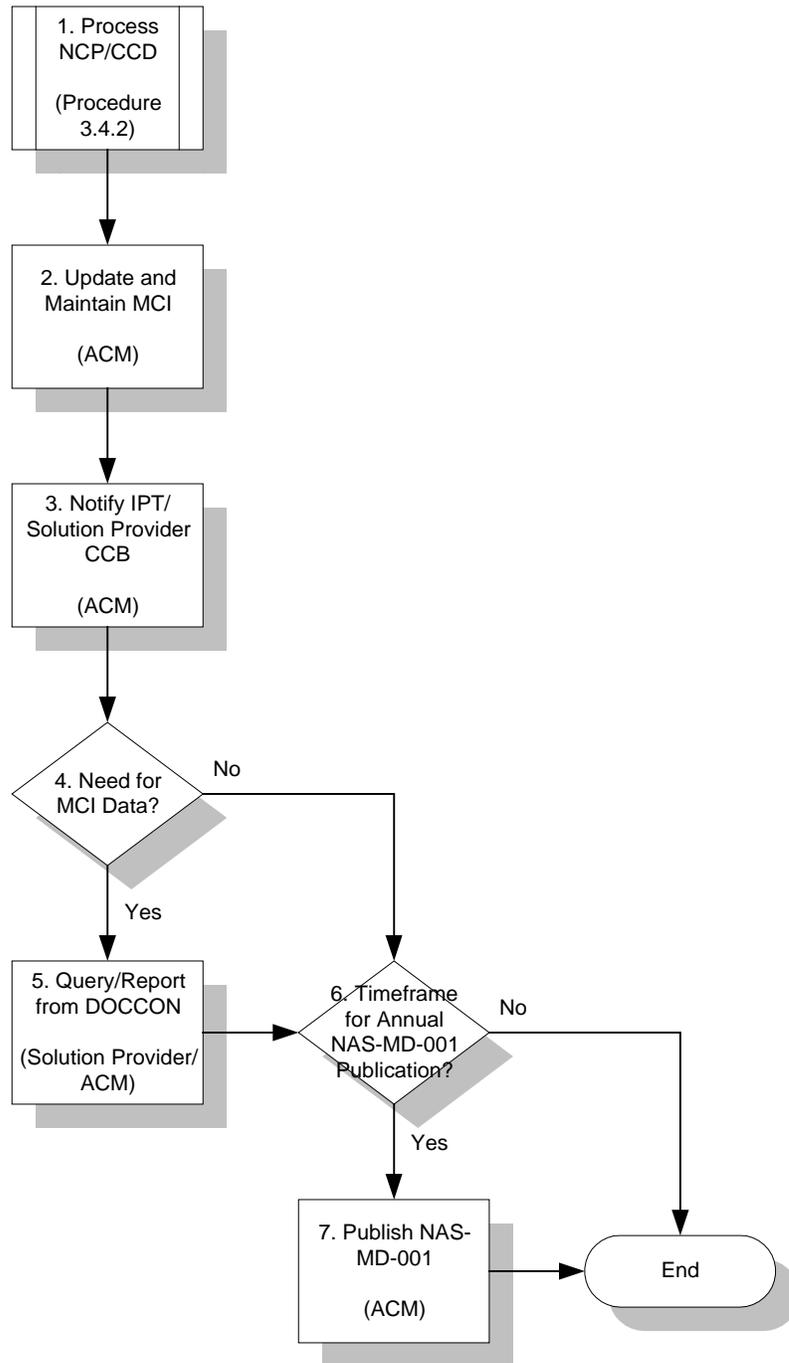


Figure 3.3.1.5-1 Maintaining the MCI and Publishing NAS-MD-001

3.3.2 Fundamentals of Configuration Identification

The FAA will control change and provide management information at appropriate levels of detail concerning National Airspace System (NAS) systems and elements. The following sections provide fundamentals and guidance for correctly identifying items.

This section contains five subsections:

- Section 3.3.2.1, Selecting Configuration Items, describes how the FAA will identify configuration items from which change will be managed.
- Section 3.3.2.2, Developing Configuration Documentation, describes the types of configuration documentation required for each configuration item.
- Section 3.3.2.3, Developing Product Top-Down Structure, describes the requirement for graphic and discrete hierarchical segmentation of a NAS product to provide traceability of requirements and functionality.
- Section 3.3.2.4, Assignment and Marking of Unique Identifiers, tells how the physical marking and/or imbedding of unique identifiers on the hardware, software, and firmware shall be accomplished.
- Section 3.3.2.5, Data Management, describes the six key tasks associated with the management of data, including the management of digital data.

Configuration identification, as used here, includes the selection of Configuration Items (CI); the determination of the types of configuration documentation required for each CI; the issuance of numbers and other identifiers affixed to the CIs; plus the release and control of the data. Fundamentals of configuration identification also pertain to commercial off-the-shelf (COTS) products, but as such they usually involve less FAA control and more status accounting dependencies. Thus, configuration identification remains critical to efficient operations of the NAS, from the highest levels of the NAS Architecture to the lowest levels of individually replaceable COTS components.

3.3.2.1 *Selecting Configuration Items*

3.3.2.1.1 *Purpose*

This procedure describes how to select configuration items (CI) for a system or product. Configuration item selection is a prerequisite step for managing the system’s development. CI selection separates system components into identifiable subsets for the purpose of managing further development. Each CI is documented, controlled, statused, and audited/verified." CIs are created and used at all levels. Piece parts and the National Airspace System (NAS) itself are CIs and of importance to different information users. The FAA CM system will be responsive to all NAS elements and assist the correct selection of CIs from which change can be managed.

3.3.2.1.2 *Scope*

This procedure applies to all levels of management within the FAA, from those solution providers (i.e., ARS and ASD) responsible for creating the NAS Architecture to IPT/solution providers assigned the task of product development and maintenance.

3.3.2.1.3 *Responsibilities*

- The Joint Resources Council (JRC) approves the NAS Architecture. This architecture is composed of subsystems, equipment and services that represent the first-level of configuration identification describing the NAS.
- The Integrated Product Team (IPT)/solution provider designated for implementing a mission need solution selects the program’s lower level configuration items and lists these in their CCB Charter. They also ensure, verify, and authorize the contractor’s selection of lower level CIs.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for recording the allocation of configuration items in the Master Configuration Index (MCI) and mapping the assigned CI to the assigned IPT/solution provider.

3.3.2.1.4 *References*

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.2 and II-5

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 4 Conduct Investment Analysis • 6 Document Selected Alternative • 6.2 Establish Program; Assign IPT • 6.3 Approve Acquisition Program Baseline (APB) • 8.1 Develop Acquisition Strategy Paper • 8.2 Develop Integrated Program Plan (IPP)

3.3.2.1.5 Procedure

Selection of CIs separates the elements of a system or product into individual subsets for the purpose of managing their development and subsequent change. The designation of CIs for FAA configuration management is usually limited to the major subsystem levels of the work breakdown structure or to critical items, lowest replaceable units (LRU) and releasable software code elements.

When the Investment Analysis phase is complete, the JRC will establish a program to implement a specified solution and assign an IPT or other solution provider to the program. The configuration identification schema selected for the program at this time shall remain the same for life of the item. In the course of planning the acquisition strategy, the IPT/solution provider shall further select desired configuration items and the overall system structure. In selecting CIs, the IPT/solution provider shall take into account the factors in Table 3.3.2.1.5-1.

As the procurement progresses, the IPT/solution provider shall verify and approve the contractor’s recommendations of lower level CIs.

Generally, any item requiring logistics support (LRUs or software high level groupings) shall be identified as CIs. However, all CIs associated with any given development program are not necessarily designated as CIs at the same point in time. Computer hardware shall be treated as CIs. The FAA shall make the final CI selection.

ACM shall be consulted for advice on appropriate levels of configuration item selection and top-down structures. The FAA Acquisition System Tool (FAST) shall also be consulted for selection of detailed instructions to enable procurement of appropriate documentation. When the IPT/solution provider approves the configuration items, ACM shall record them into the MCI after an NAS change proposal (NCP) has been approved which lists the CIs as

components of a formal baseline (see procedures 3.3.3.1 through 3.3.3.5 for formal baselines).

Procedural steps follow. Figure 3.3.2.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Establish Program and Program Identification(s)</p>	<ul style="list-style-type: none"> • The JRC shall establish the program to implement a solution or improvement to the NAS and shall assign an IPT or other solution provider responsibility to perform the solution implementation. • At program inception, the subsystem, equipment, or service shall be uniquely identified and this configuration identification maintained during its useful service life. • ACM shall insure the maintenance of records and tracking information concerning the configuration item during its life cycle. • All directive changes to configuration items shall be traceable to the initial configuration item.
<p>2. Plan Acquisition Strategy (Procedure 3.2.2.1)</p>	<ul style="list-style-type: none"> • The development of the acquisition strategy shall include the development and identification of engineering documents that establish the technical criterion of the CI. These too shall be CIs and shall normally include system-level specifications and interface documents. Refer to procedure 3.2.2.1, CM Plans and Processes.

Procedure Step	Procedure Description
3. Select Configuration Items	<ul style="list-style-type: none">• In the course of the development/acquisition, the IPT/solution provider and contractor shall select subordinate configuration items (top-tier and lower-level CIs) that constitute the system. These CIs form the mechanics for control of subsequent changes and shall be documents, LRUs, releasable code, manuals, etc.• Management of these lowest level CIs shall be consistent so that a change to one, if applicable, shall be motivation and authority to change them all.• Criteria for CI selection are listed in Table 3.3.2.1.5-1.
4. Update IPP (Procedure 3.2.2.1)	<ul style="list-style-type: none">• The IPT/solution provider shall maintain and keep current the Integrated Program Plan (IPP) as CIs are identified. Refer to procedure 3.2.2.1, CM Plans and Processes.

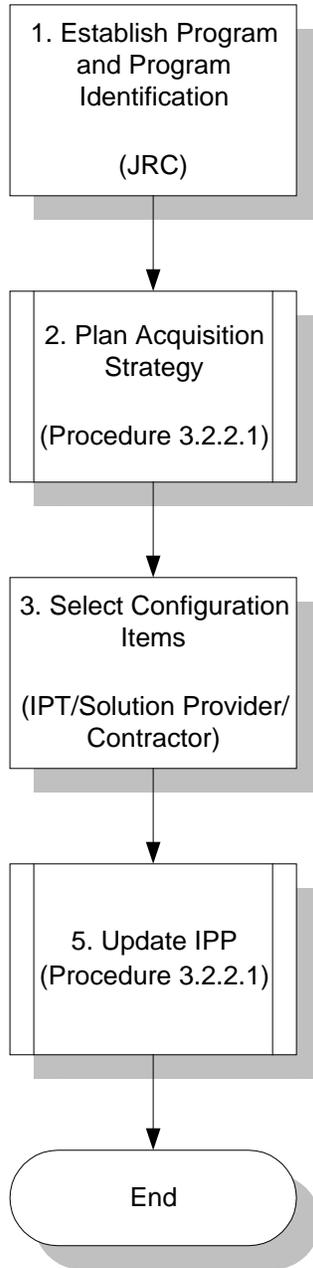


Figure 3.3.2.1.5-1. Selecting Configuration Items

Table 3.3.2.1.5-1. Factors of Configuration Item Selection

Criterion	Guideline
Logistics/life cycle	CI selection shall encompass life cycle and management impacts. Care should be taken not to allocate too many or too few CIs. The selection of too many CIs increases the cost of control. The administrative burden in preparing, processing, and status reporting of changes become prohibitively expensive, the system development time increases, and management work in coordinating the CIs becomes more complicated. The selection of too few CIs results in costly logistics and maintenance difficulties. Field or depot personnel maintaining or installing systems may lose traceability of critical components, replacement of items becomes more difficult to track, and the risk of loss of operational use is increased.
Common subsystems/equipment	Assembly parts of a subsystem or support equipment that is common to multiple systems shall be treated as CIs. An assembly part required to meet interface or other requirements peculiar to one of the systems shall be identified as a separate CI of that system.
Software/firmware	Selection of software component CIs is dependent on the system breakdown structure. Any sub-program designated for use in multiple higher-level programs shall be a separate CI. Firmware components required for a computer program shall be designated as separate CIs.
Engineering release system	CI selection shall enable the contractor to release engineering changes at an assembly level that is reportable and that enables verification of change incorporation. Verification of change incorporation shall not be precluded at a lower level assembly.
Criticality	An item whose failure would adversely affect the following shall be identified as a separate CI: security, human safety, accomplishment of a mission, or national defense.
Existing or modified items/COTS	Existing or modified items that are not CIs developed at Government expense are usually not re-identified as new CIs on new programs. The same consideration applies to commercial off-the-shelf (COTS) hardware or software.
Complexity	For new or modified design items, selection of CIs shall address complexity, use of new materials or processes, and the degree to which the Government requires direct control over the item's performance requirements.
Interfaces	Functions that are highly data-dependent or control-dependent of a configuration item should be allocated to that same CI. Each function that exhibits a high disparity between input and output data rates should be allocated to a separate CI.
Susceptibility to change	Each item with a high degree of anticipated change after it becomes operational should be allocated to a separate CI.

Criterion	Guideline
Maintenance	When different agencies have responsibility for maintaining parts of an element, the element may be broken into separate CIs even though they are part of the same function. ACM, IPTs, and other solution providers shall determine whether it is easier to administer the element as a single CI or multiple CIs.
Support equipment	A large amount of support equipment may be allocated to one or more separate CIs. ACM, IPTs, and other solution providers shall determine whether it is easier to administer the equipment as part of a higher-level CI or as separate CIs.
Subassembly characteristics	A subassembly within a CI should have common installation and deployment requirements, have a change cycle dependent on the CI, or subject to separate test or formal acceptance activities.
Types	Different configurations due to different adaptation data for each operating location shall be identified by types within a single CI. They should not be classified as separate CIs.
Supplier	Elements provided by separate suppliers should be separate CIs.
Use	Elements that are general purpose in nature, that require the capability to be operationally reprogrammed, that are intended for reuse in other systems, or that are likely to be changed after initial deployment may be classified as separate CIs.
Location	Functions allocated to a CI shall not be partitioned among separate geographic areas. Functions allocated to physically distinct processors in a distributed environment should be allocated as separate CIs.
Size	CI selection may be made on the basis of keeping it to manageable proportions; however, this criterion should be used only when selection cannot be made on the basis of other criteria.
Schedule/Phasing	Elements scheduled for development, testing, and delivery at different times should be allocated to separate CIs.
Documentation	All documentation recognized and controlled as a component part of any FAA baseline. Refer to section 3.3.3, Establishing and Maintaining Baselines, for applicable documentation.

3.3.2.2 Developing Configuration Documentation

3.3.2.2.1 Purpose

This procedure describes how to document a system’s configuration. Configuration documentation results from the determination of what is required for appropriately and uniquely identifying the performance, functional, and physical attributes of a system and each configuration item (CI) that makes up that system.

3.3.2.2.2 Scope

This procedure applies to the Integrated Product Teams (IPT) and other solution providers assigned the task of product development. Other solution providers include the Office of System Architecture and Investment Analysis (ASD) and Air Traffic Systems Requirements (ARS) responsible for the development and maintenance of the NAS Functional Baseline and regional offices responsible for the documentation associated with facility baselines and regionally procured NAS capabilities/systems.

3.3.2.2.3 Responsibilities

- IPT/solution providers are responsible for developing configuration documentation, assigning identifiers to the documentation and to the electronic media on which the documentation is represented and tracking revisions to the documentation.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for storing or ensuring the storage of all baselined documentation.

3.3.2.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.2, III-5, V-4
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 12 Establish Functional Baseline • 18 Establish/Update Facility Baseline • 19 Establish Allocated Baseline • 24 Establish System Product Baseline • 101 Perform Configuration Status Accounting

3.3.2.2.5 Procedure

Configuration documentation characterizes the information that defines the performance, functional, and physical attributes of a system. Each NAS system shall be part of the NAS functional baseline. Each NAS system shall also have lower level baselines to include the functional, product, operational and often facility baselines. The documentation associated with each of these baselines, are listed in procedures 3.3.3.1 through 3.3.3.5.

When documentation intended for inclusion in FAA baselines is finalized, the IPT/solution provider configuration control board (CCB) shall request document identifiers and shall prepare a case file/NAS Change Proposal. The approved configuration control decision (CCD) shall designate that the document(s) is under formal FAA configuration control. For NAS-level documentation, Air Traffic Requirements (ARS) shall prepare the case file/NCP for CCD approval by the Joint Resources Council (JRC).

The Executive Secretariat for the applicable CCB shall then forward the documentation to the appropriate program support library including the national support library (i.e., the Document Control Center (DCC)). A catalog number shall be assigned to each baseline document by ACM when documentation is received for storage in the DCC. The applicable CCB shall be notified of these actions. Upon receiving this notification, the Executive Secretariat of that CCB shall annotate the CCD to signify that the documentation has been secured and placed under FAA version control. The IPT/solution provider shall also store the documentation in its program support library, using its office of primary interest (OPI) -level data management procedures. This step ensures that project participants have rapid access to system documentation and enables version control of baselined documents.

Procedural steps follow. Figure 3.3.2.2.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Select Configuration Items (Procedure 3.3.2.1)	<ul style="list-style-type: none"> An IPT/solution provider shall select configuration items in accordance with procedure 3.3.2.1.
2. Develop Baseline Documentation	<ul style="list-style-type: none"> The IPT/solution provider shall develop documentation appropriate for the system under development. Documentation, which may be appropriate to each baseline, is listed in procedures 3.3.3.1 through 3.3.3.5.
3. Request/Assign Document Number(s) (Procedures 3.3.2.4 and 3.3.4)	<ul style="list-style-type: none"> The IPT/solution provider shall request/assign document identification as described in procedures 3.3.2.4 and 3.3.4.

Procedure Step	Procedure Description
4. Prepare NCP/CCD (Procedure 3.4.2)	<ul style="list-style-type: none"> The Executive Secretariat of the CCB for the IPT/solution provider shall prepare a CF/NCP/CCD to baseline documentation. The steps for processing these are described in procedure 3.4.2, NCP/CCD Process.
5. Forward Documentation to DCC and Update MCI (Procedure 3.3.1)	<ul style="list-style-type: none"> The Executive Secretariat shall forward two copies of each baseline document to ACM for storage in the national program support library (i.e., the DCC). ACM shall notify the CCB that the documentation has been received and stored in the DCC. The Executive Secretariat shall annotate the CCD to signify that the freezing of the baseline documentation action item has been completed.
6. Catalog/Store Documentation (Procedure 3.5.2)	<ul style="list-style-type: none"> Refer to procedure 3.3.1, Maintaining the MCI and Publishing NAS-MD-001. ACM shall catalog and store the documentation the DCC as described in procedure 3.5.2. The IPT/solution provider shall catalog and store documentation within their local program support library. The catalog number assigned to each document is distinct from the document identifier. Refer to procedure 3.3.4.1 for more details about document identifiers.
7. Perform Data Management (Procedure 3.3.2.5)	<ul style="list-style-type: none"> The data management (DM) group of IPT/solution provider shall provide version level control and access to their documentation by program participants in accordance with their data management process. Refer to procedure 3.3.2.5.

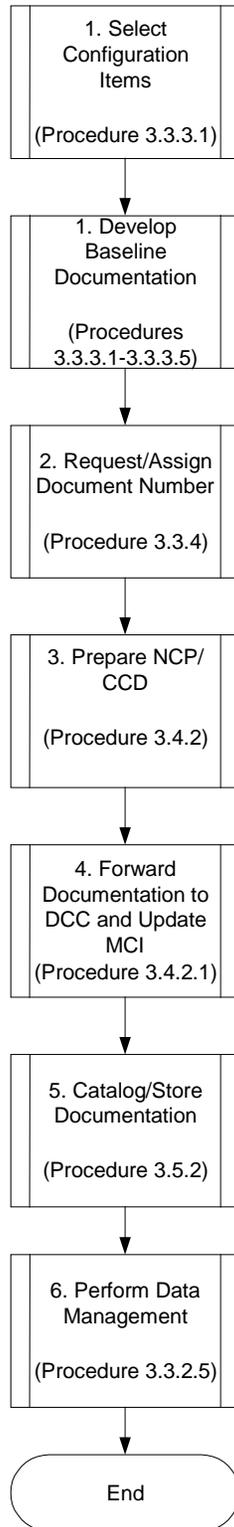


Figure 3.3.2.2.5-1. Developing Configuration Documentation

3.3.2.3 Developing Product Top-Down Structure

3.3.2.3.1 Purpose

This procedure describes how to develop a top-down structure for a product. A CM product structure provides the basis for system development and design control. It is also used to describe in graphic and very discrete increments the hierarchical division of a product. Both uses provide traceability of requirements and functionality.

3.3.2.3.2 Scope

This procedure applies to the Integrated Product Teams (IPT) and other solution providers assigned the task of product development.

3.3.2.3.3 Responsibilities

- The IPT/solution provider designated for implementing a mission need solution is responsible for developing the top-down structure of its assigned product. Hierarchical decomposition of baselines continues throughout the development of a system culminating in the approval of a product baseline. In addition, the IPT/solution provider verifies and approves the contractor’s decomposition of system requirements into acceptable design and product components. The IPT/solution provider ensures that the contractor maintains an engineering release system that logically portrays these components and their relationships, as required by the contract.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for recording the top-down structure of the NAS down to the CI level in the Master Configuration Index (MCI).

3.3.2.3.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.2
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA-G-2100, <i>Electronic Equipment, General Requirements</i> 	

3.3.2.3.5 Procedure

When the Joint Resources Council (JRC) has established a program to implement a specified solution and has assigned an IPT or other solution provider to the program, ACM shall update the MCI to reflect the addition of the program.

The IPT or other solution provider that has been assigned the program shall begin the process to select configuration items, described in procedure 3.3.2.1. As part of the acquisition strategy analysis, the IPT/solution provider shall organize these CIs in a top-down structure, which shall provide the basis for the work breakdown structure.

The top tier of CIs shall be related to the line items of a contract and the work breakdown structure. If the IPT/solution provider determines that management needs depend upon the selection of lower-level items, it shall itemize the lower-level items of each CI. Otherwise this task shall be assigned to the contractor and the IPT/solution provider shall verify and approve the contractor’s effort. As lower-level items are defined, the IPT/solution provider shall maintain the product structure in its local program support library. Contractors shall normally be required to prepare a drawing tree in block diagram format that identifies all system and subsystem equipment drawings and associated CI documentation that will be delivered. The tree shall be structured in top-down breakdown order beginning with the top assembly drawing for the system and ending at the lowest replaceable component/software unit.

Procedural steps follow. Figure 3.3.2.3.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Establish Program</p>	<ul style="list-style-type: none"> • The JRC shall establish a program to implement a mission needs solution and shall assign the IPT or other solution provider that performs the solution implementation.
<p>2. Add Program to NAS Structure in MCI (Procedure 3.4.2.1)</p>	<ul style="list-style-type: none"> • The JRC shall direct ACM to record the new program CI in the NAS structure. ACM shall enter this information into the MCI as described in procedure 3.4.2.1.

Procedure Step	Procedure Description
3. Identify Top-Tier Configuration Items for Program (Procedure 3.3.2.1)	<ul style="list-style-type: none"> The IPT/solution provider shall identify the top-tier configuration items within for a program, as described in procedure 3.3.2.1.
4. Generate Work Breakdown Structure	<ul style="list-style-type: none"> The IPT/solution provider shall generate the work breakdown structure for the contract based on the top-tier configuration items identified in the previous step.
5. Itemize Lower-Level Configuration Items	<ul style="list-style-type: none"> After contract award, the top tier of the configuration items shall be broken down into lower-level items. Depending upon management needs, this task shall be performed by the IPT/solution provider, the contractor, or both. If the contractor accomplishes this, the IPT/solution provider shall verify and approve their selection and itemization of configuration items.
6. Record Lower-Level Configuration Items	<ul style="list-style-type: none"> The IPT/solution provider shall record the lower-level configuration items and their relationship to the top tier configuration items its program support library.
7. Update MCI (Procedure 3.4.2.1)	<ul style="list-style-type: none"> The IPT/solution provider shall submit the lower level items to ACM to enter into the MCI as described in procedure 3.4.2.1.

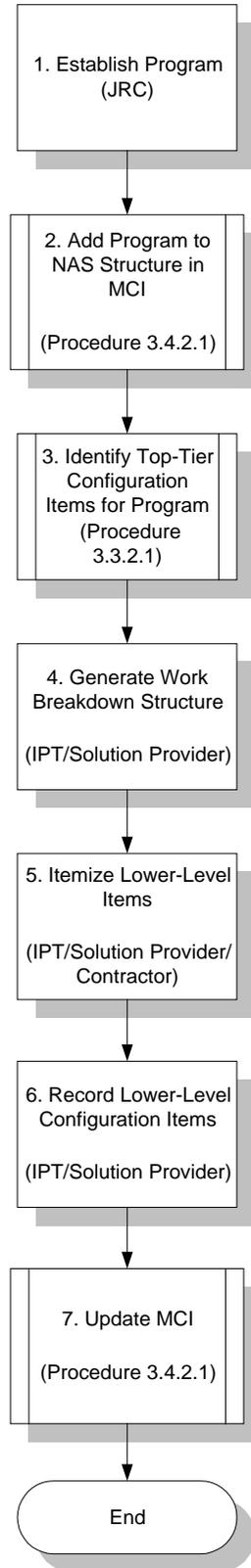


Figure 3.3.2.3.5-1. Developing Product Top-Down Structure

3.3.2.4 Assignment and Marking of Unique Identifiers

3.3.2.4.1 Purpose

This procedure describes the assignment of unique identifiers to documents and the physical marking of items. Its intent is to achieve configuration traceability from paper records (documentation) to the actual equipment. As a procedure, it should be further enunciated and elaborated upon in Office of Primary Interest (OPI) supporting documentation at all Integrated Product Team (IPT)/solution provider organizations and second level engineering elements.

3.3.2.4.2 Scope

This procedure applies to NAS Configuration Management and Evaluation Staff (ACM), contractor/equipment vendors, IPT/solution providers (including second level engineering elements).

3.3.2.4.3 Responsibilities

- IPT/solution providers, (including second level engineering elements), are responsible for issuing identifiers to documentation and other configuration items, and for recording these identifiers so that they are visible to system users. IPT/solution providers verify and approve a contractor’s assignment and marking of configuration items.
- ACM is responsible for issuing FAA type numbers and identifiers for Specifications, Interface Requirements Documents, and Interface Control Documents.

3.3.2.4.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.2 • Statement V-4
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 6.6 Update NAS Technical Products • 9.1 Develop CM Plans and Practices • 12 Establish Functional Baseline • 17 Conduct Facility

Reference	Reference Para./Activity #:
	Documentation Review <ul style="list-style-type: none"> • 18 Establish/Update Facility Baseline • 19 Establish Allocated Baseline • 24 Establish System Product Baseline
<ul style="list-style-type: none"> • FAA-G-2100, Electronic Equipment General Requirements 	

3.3.2.4.5 Procedure

There are four sections included in this procedure:

- Identification of those with authority to assign identification numbers to significant FAA configuration management documents.
- Suggestions and details on how to choose appropriate identifiers.
- The requirements for marking documents, hardware, software and firmware.
- Conditions when changes require new item identification.

3.3.2.4.5.1 *Authority to Assign Identification Numbers.*

There are two levels of management authorized to assign identification numbers. In the first, ACM is the only element empowered to assign the identification numbers to the documents listed below. Their use and details can be found in Section 3.3.4, Assigning Corporate Identifiers.

- Specifications, Interface Requirements and Interface Control Documents
- FAA Type numbers.

In the second, IPT/solution providers shall ensure the correct marking of FAA assigned identification numbers. In accordance with an IPT/solution provider CM plan and contract requirements, second level engineering elements, and contractor/equipment vendors are empowered to assign, approve, and mark identification numbers on the following types of documents and their corresponding equipment:

- Subordinate specification numbers
- Hardware/software configuration item numbers
- Equipment serial numbers/lot numbers
- Drawing numbers/part numbers
- Change request numbers for NAS Change Proposals (NCP), Engineering Change Proposals (ECP), Notices of Revision (NOR), etc.

3.3.2.4.5.2 *Item Identification.*

The following guidance is provided as a convention for the selection of identifiers:

Subordinate specification numbers should each be identified by a document source, a unique identifier assigned by the document source, and a document type. Each iteration of a document (revision, change or re-release) must be identified by a revision identifier that is unique to the document.

FAA type numbers, which establish a hardware configuration item numbering system, will consist of seven digits of alphanumeric characters. This number shall be used in the following manner:

- It shall be used only for units which will receive a name plate
- It shall not change when the unit is modified
- It shall not change if the CI has more than one application or is re-procured through different vendors.

Equipment serial numbers shall be assigned to each unit having an individual nameplate and to identify all individual units of equipment that would benefit manufacturing, repair, retrofit, or configuration control activities. Lowest Replaceable Units (LRU), for example, should be serialized. A sequentially assigned alphanumeric identifier should be applied to the item to differentiate separate units. This may be an FAA serial number, manufacturer's serial number, or date code.

Part numbers are based on drawing numbers. A part identifying number containing the manufacturer's commercial and government entity (CAGE) code, drawing number plus an optional suffix is normally used. Each part number shall consist of letters, numbers, or a combination of letters and numbers, which may or may not use dashes for separation. Part numbers assigned to LRUs form the foundation for change documentation and tracking, sparing, and provisioning. National Stock Numbers (NSN) are used by the FAA Logistics Center for ordering provisioned items.

NCP numbers are generated automatically by the National Configuration Management Information Management System. These are numbered consecutively in a single series for all systems. Change requests at lower levels (ECPs, NORs, etc.) shall be numbered according to the system used by the IPT/solution provider or contractor.

3.3.2.4.5.3 *Item Marking.* Documents shall be revised as described above. The mechanics of marking hardware, software and firmware are somewhat more difficult, and are described below:

LRU hardware, including LRU spares, shall be marked by the contractor/equipment vendor using standard commercial marking practices for

the purpose of product identification and inventory management control. The contractor/vendor's CM plan (or other contractual submittal) should describe the contractor's equipment methodology and format. The use of bar code symbology that is consistent with commercial product identification and clearly and visually identifies the LRU and the contents of the LRU is encouraged.

Software which is designed to be directly installed in hardware shall be identified and labeled as follows:

- Software identifier and version, where applicable, shall be embedded in the source code header.
- Each software medium (e.g., magnetic tape, disk) containing copies of tested and verified software entities shall be marked with a label containing, or providing cross-reference to, a listing of the applicable software identifiers of the entities it contains.
- Media copy numbers shall distinguish each copy of the software media from its identical copies. Each time a new version of software is issued, new copy numbers, starting from 1, shall be assigned. Firmware shall be labeled on the device or, if the device is too small, on the next higher assembly, as follows:
 - Firmware changes released for operational use independently of a parent component shall be identified as an LRU and controlled accordingly. Changes to such LRUs shall be approved or approved for use in the NAS only via the NAS CM system. Contractor generated changes to LRUs, including firmware, shall only be approved for use after NCP authorization is obtained.
 - Where both the hardware device and the embedded code are controlled via a single engineering drawing, the part number representing the device with the code embedded shall comprise the label/part number.
 - Where the source code, the unloaded device specification or drawing, and an altered item or process drawing for fusing the two together exists; the altered item, process, or assembly drawing shall comprise the label.
 - Labels shall, size permitting, identify the embedded code, version number, and part number.

3.3.2.4.5.4 *Changes requiring new identification.* When a part, including firmware devices, within an LRU is changed so that it is no longer interchangeable with its previous version, it shall be assigned a new part number. A new part number shall also be assigned to the next higher assembly for the changed repair part and to all subsequent higher assemblies up to and including the level at which interchangeability is re-established. IPTs/solution providers, equipment vendors and second level engineering elements shall assign or cause to be assigned, new part numbers whenever a part or item is changed in such a manner that any of the following conditions occur:

- Parts, subassemblies, or complete articles are changed to such an extent that the superseded and superseding items are not interchangeable.
- Performance or durability is affected to such an extent that superseded items must be discarded or modified for reasons of safety or malfunction.

- When superseded parts are limited to use in specific articles or models of articles and the superseding parts are not so limited to use.
- When an item has been altered, selected, or is a source control item.

3.3.2.5 Data Management

3.3.2.5.1 Purpose

This procedure describes how to perform data management on documentation and drawings essential to configuration management. It includes how to manage the electronic representations of this type of data.

3.3.2.5.2 Scope

This procedure applies to NAS Configuration Management and Evaluation Staff (ACM) and to all CM groups within Integrated Product Teams (IPT), regional offices, and other solution providers during all phases of system lifecycle. It should be further enunciated and elaborated upon in Offices of Primary Interest (OPI) supporting documentation for all organizations that provide data management in for CM-related documentation.

3.3.2.5.3 Responsibilities

ACM and the CM groups of IPTs, regional offices, and other solution providers are responsible for data control and maintenance.

3.3.2.5.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> Statement I-4.2
<ul style="list-style-type: none"> FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> 9.3 Establish Program Support Library (PSL)

3.3.2.5.5 Procedure

The term “data” includes documentation and drawings. Data management is an essential prerequisite to the performance of configuration management. Digital data is information prepared by electronic means, is available to users by electronic data access, interchange, or transfer, and is stored on electronic media. Configuration management of data is therefore part of data management activity. Management of the configuration of a product configuration cannot be

accomplished without it. Data management principles must be applied to data during development, as shown below:

- Working data – under originator control only
- Released data – working data approved by contractor, released for its intended use, and subject to contractor configuration control procedures
- Submitted data – released data formally submitted for Government approval
- Approved data – submitted data formally approved by the Government.
- Baselined data – accepted/ officially approved by the Government and placed under formal configuration management.

The following six tasks are associated with data management and are described in the sections below:

- Identifying the documents containing information for each configuration item (CI) and system.
- Tracking data status during development.
- Monitoring the relationships between electronic media and data.
- Controlling versions of data files.
- Ensuring data transmission to users.
- Controlling access to all data.

3.3.2.5.5.1 Identifying Configuration Documentation.

For documents/drawings stored on electronic media, their associated files shall also be identified and the relationships between these files and the data they represent shall be maintained as a data management function. It should be noted that a single document might be represented by a collection of several files. The following information shall be maintained by the individuals responsible for data management of CM-related documents or in the CM status accounting system (see procedures in section 3.5):

- Identifiers of each file associated with a document
- Document identifier
- File version identifiers
- Document version identifiers
- Tool used to generate the document; the tool version number is included in this identification.

3.3.2.5.5.2 Data Status Level Management.

ACM, IPTs, regional offices, and other solution providers shall establish a process for document/drawing revision and track whether the status of each revision of each document is working, released, submitted, or approved. When a revision of a document reaches the approved state, it is fixed and may not be

edited. Approved documents can be changed only by approval of a superseding document revision. The data managers shall ensure that documents will not be altered outside the formal approval process. The process shall address the following:

- Whether submittal to, or access by, contractors is required
- The software and data format for which submittal and access is required
- Access privileges to data in each state
- Approval requirements to promote a document from one state to the next
- Archiving rules (for example, a requirement that all released versions be archived 90 days after release of a superseding version).

3.3.2.5.5.3 Monitoring Data Relationships.

Personnel with data management responsibilities shall maintain the relationships between digital data, data requirements, and the related product configuration so that the correct revision of a data item may be accessed or retrieved when needed. Additionally, provisions should be made so that previous versions of the data may be recovered, when and if needed.

3.3.2.5.5.4 Data Version Control.

Personnel with data management responsibilities shall identify versions of files whenever a file is changed. Change control considerations that apply to the documents themselves also apply to the document files. File updates may be performed only after changes are authorized (by a change control mechanism such as an NAS change proposal (NCP), Engineering Change Proposal (ECP), Notice of Revision (NOR), etc.). When a file undergoes revision, the change author shall check a copy of the file out of the database. The original file residing shall be "locked" to prevent alterations by other users. The updated file must be formally approved before it is checked back into the database.

These data management personnel shall maintain previous versions of the document files, since they may be required for retrieval. Two methods are feasible. The first is to store different versions of the same file in different file paths, so that the file name will not have to be updated for each version. The second, and preferred, method is to store the files in a document check-in/check-out tool. In a tool of this type, updates to a file are identified whenever a new version of the file is checked in. The updates are stored in "delta" files to conserve disk space.

If documents are composed of several files, the data management group shall maintain a log that identifies document components. If the application used for the document permits it, it is recommended that a master file (analogous to a "build" file of a software program) be used for document assembly. In some cases, a read-me file may be needed to provide document assembly instructions.

When an application is updated (e.g., transitioning from Microsoft Word 6.0 to Microsoft Word 97), older files should be converted when used. Consideration should be made so that both versions of the documents are maintained, since

during the transitioning phase various sites and facilities may not all be working with the same application version.

3.3.2.5.5.5 Digital Data Transmittal.

Personnel with data management responsibilities shall ensure that any transmitted document shall be readable for the receiver. When disks or tapes are used, the data management personnel shall identify the contents on the disk/tape label; if the space on the label is insufficient, a listing or a read-me file shall be included in the transmittal. At a minimum, the data available to personnel receiving data should include:

- Identification of files transferred by name, description, version, data status level, file type, and application version
- References to associate the data with the requirement for transmittal, if applicable
- Instructions for assembly of any document that consists of multiple files
- The naming convention for file versions
- Whether version changes are indicated; and, if so, how these are indicated if so
- How to acknowledge receipt of data
- Time constraints relating to review and disposition, if applicable.

3.3.2.5.5.6 Data Access Control.

Personnel with data management responsibilities shall limit access to files so that only the appropriate users may alter them. Depending upon security requirements, the data management personnel shall also restrict reading access to data files.

The easiest method to control access is to store the files in a document check-in/check-out tool, as described in Section 3.3.2.5.5.4. If such a tool is not available, the file permissions shall be set manually.

3.3.3 Establishing and Maintaining Baselines

Baselines are formally designated and controlled sets of documents which serve a critical role in configuration management. Configuration baselines are used to identify the currently approved documents pertaining to a phase of the life cycle and describe the technical attributes that have been agreed upon or accepted as representative of the characteristics of the equipment or system, at that specific point in time. Further, whenever a change is contemplated to one of the items in a given baseline, the effect of that change on all the other items in that baseline shall also be evaluated. Approved changes shall be incorporated into all affected baseline documents to correctly represent the technical attributes of the equipment or system and thus keep the baseline current.

The FAA shall require the creation and maintenance of five baseline types:

- the National Airspace (NAS) Functional Baseline
- the Functional Baseline
- the Product Baseline
- the Operational Baseline, and
- Facility Baselines.

Baselines are associated with life cycle phases with each succeeding level traceable to and a detailed extension of, its predecessor(s). Thus, baselines include all the documents identified with each proceeding life cycle step, in a cumulative fashion.

The absence of an Allocated Baseline in the list of baselines mandated for use in the FAA is intentional. It has been determined that an Allocated Baseline does not provide documents or other configuration items which warrant change review and processing within the National FAA CM process. Instead, should IPTs or other solution providers wish to internally establish this baseline as a means to assist control systems development, design documentation, or other configuration items, they are encouraged to do so. The Allocated Baseline may be used to great advantage during equipment/system development if it might benefit the management of complex acquisitions, facilitate the development and integration of system components, or focus management attention on critical or high-risk components, such as software.

The principles of baseline management shall also apply to control test facilities, automatic test equipment, or even curricula in order to capture approved configurations, important milestones, or control subsequent changes.

3.3.3.1 NAS Functional Baseline

3.3.3.1.1 Purpose

This procedure describes how the National Airspace System (NAS) Functional Baseline is established and maintained.

3.3.3.1.2 Scope

This procedure applies to those organizations responsible for translating needs and capabilities into NAS requirements and to Integrated Product Teams (IPT)/Solution Providers who are responsible for deploying systems that meet these requirements. Establishment of the NAS Functional Baseline typically occurs during Investment Analysis activities; however, updates to the NAS Functional Baseline are performed throughout the life cycle of a program.

3.3.3.1.3 Responsibilities

- Office of System Architecture and Investment Analysis (ASD) system engineers perform analyses to support the preparation of diagrams and associated text representing the NAS-Level Requirements or changes thereto.
- Air Traffic System Requirements Service (ARS) is responsible for the release of case files that baseline or modify NAS-Level Requirements and the Final Requirements Document (FRD).
- IPTs/Solution Providers assess changes and report impacts to acquisitions based on proposed changes to the NAS Functional Baseline. Additionally, IPTs/Solution Providers are responsible for incorporating approved changes to the NAS Functional Baseline in their acquisition programs. If there are changes to the IPT/Solution Provider’s acquisition baselines that affect the NAS Functional Baseline, the IPT/Solution Provider forwards such changes to ARS for processing.
- The NAS Configuration Control Board (CCB) provides tracking and change management for changes to the NAS Functional Baseline after approval by the Joint Resources Council (JRC).

3.3.3.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-2, II-1, II-2

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1.3 Establish and Manage NAS Technical Products • 4 Conduct Investment Analysis • 4.5 Provide Field Level Input to Investment Analysis • 6.6 Update NAS Technical Products • 101 Perform Configuration Status Accounting
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures 	

3.3.3.1.5 Procedure

The technical portion of the NAS Architecture defines and translates services, capabilities, and implementation steps into design solutions and their required technical characteristics. The technical characteristics are defined as “NAS-Level Requirements”, which explicitly translate the operational needs of the agency into functional, performance, and constraint requirements that are sufficient to direct the appropriate design and development of NAS systems.

NAS-Level Requirements are the highest level requirements maintained within the FAA and are initially utilized during Investment Analysis.

The NAS Functional Baseline is comprised of two elements:

- NAS-Level Requirements
- FRDs.

NAS-Level Requirements arise from a number of sources and, after they have been validated through the Investment Analysis process, comprise requirements that are directed for implementation. It is at this point that the NAS Functional Baseline shall be established and from which subsequent changes shall be monitored and tracked through the NAS Change Proposal (NCP) process. The tracking of these changes is no different from the tracking of changes against any FAA baseline except that a different set of must evaluators and approving authority are authorized to review and process the change. This process is described in Table 3.3.3.1.5-1 below.

Table 3.3.3.1.5-1 NAS Functional Baseline

NAS Functional Baseline	Office of Primary Interest	(Initial) Review Process	(Maint.) Review Process	Approval Authority	Example Events That Impact NAS Functional Baseline Products
NAS-Level Requirements	ASD-100	JRC	NAS CCB	JRC	<ul style="list-style-type: none"> JRC1 Congressional Mandates New/Additional/Deletion of Need(s)
FRD	ARS	ATS	NAS CCB	ATS	<ul style="list-style-type: none"> NAS-Level Requirements Changes Unmet/Unattainable Requirement

This procedure describes updates to the NAS Functional Baseline only. Corresponding changes to system/sub-system baselines are discussed in Sections 3.3.3.2 – 3.3.3.5, which usually occur as a result of changes to the NAS-Level Requirements. The procedure for maintaining the NAS Functional Baseline shall also be invoked in the atypical case when a proposed change originating in a lower level baseline affects the NAS Functional Baseline.

Procedural steps follow. Figure 3.3.3.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Descriptions
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- | | |
|---|---|
| <p>1. Capture NAS Functional Baseline</p> | <ul style="list-style-type: none"> The NAS Functional Baseline was initially established with the baselining of the NAS-1000 Series. As the NAS-1000 Series transitions to a Service Based Architecture, each Service shall be baselined by the NAS CCB and eventually the NAS-1000 Series shall be decommissioned. This transition is described in the ASD-100 Transition Plan. |
| <p>2. Assess JRC Decisions, User Desires, CONOPS</p> | <ul style="list-style-type: none"> ASD, ARS and the Investment Analysis Teams (IAT) assess impacts from JRC decisions, new/updated User Desires and new/updated concept of operations (CONOPS) for possible impact to the NAS Functional Baseline. |

3. Update the NAS Functional Baseline

- Impacts and findings shall be documented in NAS-Level Requirements and FRDs, and changes shall be processed in accordance with Table 3.3.3.1.5-1.
- The establishment of a new NAS Level Requirement shall include the following:
 - Provide Configuration Identification of the Configuration Item (CI) by document name, reference number, version, date, etc.
 - The CIs shall be entered into NAS-MD-001 with the Office of Primary Interest (OPI) as shown in table 3.3.3.1.5-1.

4. Update and Distribute NAS Functional Baseline Products

- The FRD and NAS-Level Requirements shall be configuration controlled by NAS Configuration Management and Evaluation Staff (ACM).
- Once the system engineering team has received approval for the changes, the NAS Functional Baseline shall be updated and made available to the aviation community.

5. Change to a Source or User Documentation?

- Changes may be identified and/or modified by any line of business (LOB).
- Assess JRC Decisions, user desires, CONOPS, specification, Interface Changes, etc.
- If there is a change to source or user documentation, go to Step 6
- If no change to source or user documentation, assess for other impacts.

6. Conduct Impact Analysis

- ASD with subject matter experts (working groups, teams, etc.) shall evaluate user needs to identify changes to NAS-Level Requirements.

7. NAS-Level Requirements Impacted?

- If requirements are impacted, ASD shall initiate the case file process.

8. Initiate Case File

- If requirements are not impacted, assess for other impacts.
- The case file shall include proposed was/now changes to NAS-Level Requirements, etc. as attachments.
- The case file shall also include:
 - Proposed was/now changes to NAS Requirements
 - Updated traceability matrix.
- ASD shall forward the case file to ARS and ACM.

9. Conduct Impact Analysis

- ARS shall verify the need for the change, add any additional was/now material to the case file pertaining to FRD impact, and coordinate the proposed change with impacted IPTs/Product Teams (PT)
- The IPT/PT shall add any additional was/now material based on impacts to the IPT.
- ATS-1 shall decide whether to concur with the proposed FRD changes.

10. Release Case File for NAS CCB Processing

- ARS shall consolidate all was/now material, comments, improvements, etc. (from Steps 2 – 6) and submit the case file to the NAS Control Desk for NCP processing.
- The process described above shall be defined as the prescreening of the NCP.

11. Process NCP

- ACM shall distribute the NCP to JRC Members for limited review.
- If there are comments against the NCP, ARS shall work on comment resolution. In this case go to Step 13.
- If there are no comments, ACM shall create the Configuration Control Decision (CCD) directing implementation. In this case go to Step 14.

12. Comments Against the NCP?

- ARS, supported by appropriate subject matter experts (SME), shall resolve comments and coordinate

13. Conduct Comment Resolution

applicable updates to was/now material and/or traceability matrices.

14. FAE Endorsement

- The ARS lead engineer for this change, along with ACM, will submit the resultant CCD to the JRC Chairperson (the FAA Acquisition Executive (FAE)).
- The JRC Chairperson shall provide an initial co-signature to the CCD, normally outside of a JRC meeting.

15. NAS CCB Approval

- The NAS CCB shall formally approve the proposed change. Normally the JRC endorsed package is signed outside of the NAS CCB by the NAS CCB Chairpersons.

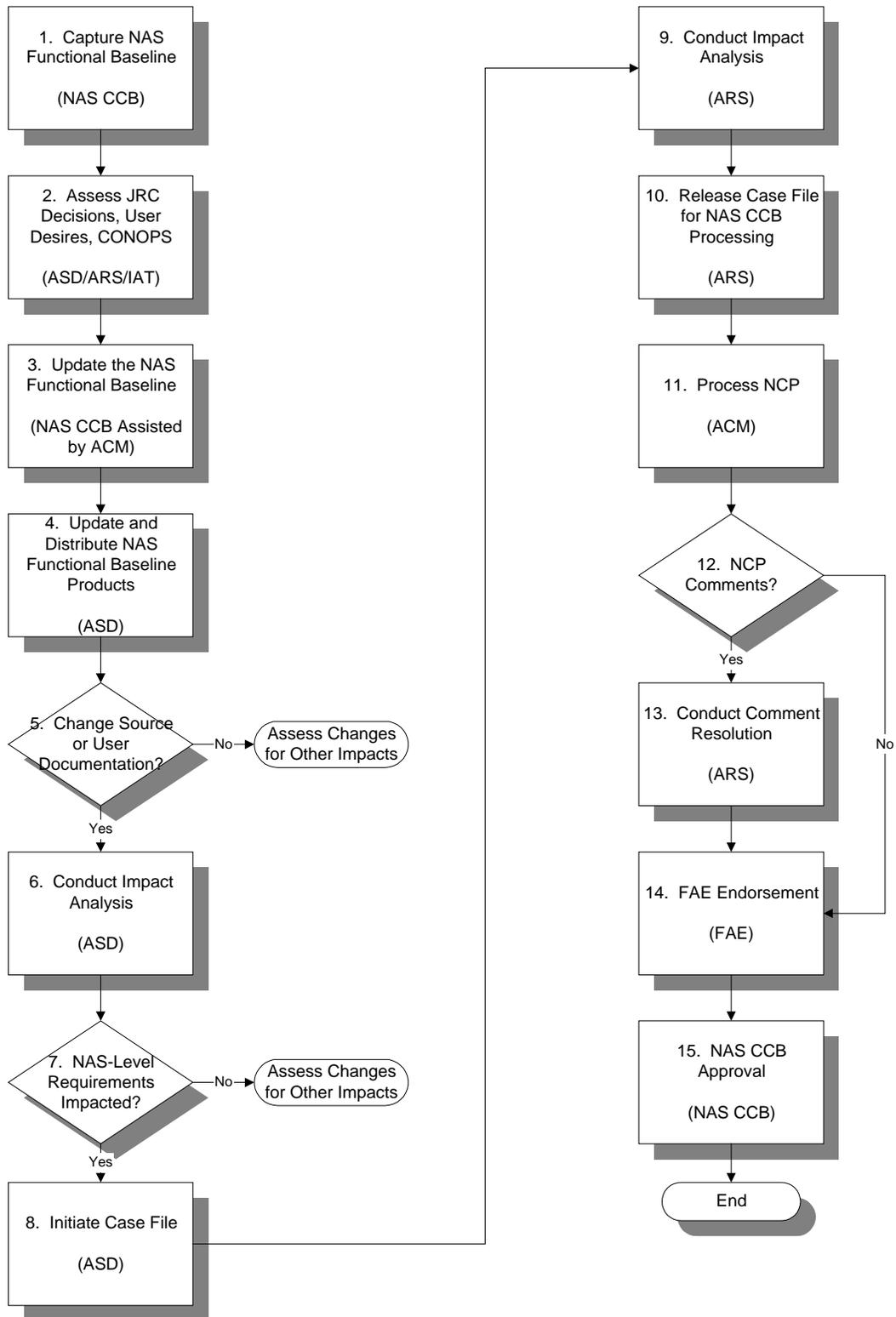


Figure 3.3.3.1.5-1 NAS Functional Baseline

3.3.3.2 Functional Baselines

3.3.3.2.1 Purpose

This procedure describes how Functional Baselines are created and maintained.

3.3.3.2.2 Scope

This procedure applies to Integrated Product Teams (IPT) and other solution providers after responsibility for an acquisition has been assigned to that IPT/solution provider.

3.3.3.2.3 Responsibilities

- The IPT/solution provider is responsible for creating system-level specifications and interface documentation; reviewing proposed changes to system requirements; maintaining the documentation that constitutes the Functional Baseline; and developing NAS Change Proposals (NCP) to propose changes to Functional Baseline documents. The IPT/solution provider is also responsible for overseeing the contractor’s system engineering and configuration management programs in order to meet contractual objectives for schedule and performance. Oversight includes ensuring the contractor proposes needed changes to Functional Baseline documentation and tracks and reports change information in a configuration status accounting system.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for storing or ensuring the storage of all Functional Baseline documentation.

3.3.3.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.2, III-5
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 12 Establish Functional Baseline • 101 Perform Configuration Status Accounting

3.3.3.2.5 Procedure

Functional Baselines interpret National Airspace System (NAS) requirements into concrete performance objectives and direction for acquisition of equipment, systems, services or capabilities. Functional Baselines normally govern these acquisitions during the period of development and culminate in the establishment of Product Baselines.

A Functional Baseline defines system requirements in terms of its functional, interoperability, and interface characteristics and the verification required to demonstrate the achievement of those specified characteristics.

All acquisitions of systems, equipment, services and capabilities that are part of the NAS shall use Functional Baselines to decompose the requirements of the NAS Technical Architecture into individual procurement documents. The IPT/solution provider shall utilize systems engineering and program management practices to ensure the creation and subsequent attainment of these requirements. This shall be accomplished with consideration given to the complexity of the procurement, the size of the acquisition, the assets available (including time) and other factors that influence the task. At the completion of the development, a Product Baseline shall be created.

There are normally two classes of documents that compose the Functional Baseline:

- System-level Specifications, and
- Interface Requirements Documents (IRD).

Their names and governing requirements may change, but their purpose remains to convey in technical terms the requirements (as obtained from the NAS Functional Baseline) that must be satisfied in order to accomplish the intended purpose of the acquisition.

The FAA Acquisition System Toolset (FAST) should be consulted for selection of appropriate documentation. However, if any of the items listed or their equivalents are procured, they shall be included in the Functional Baseline. The FAST and flowcharts identify the actions and activities an IPT/solution provider may use during product acquisition and include a series of reviews, technical interchanges, tests, and audits to oversee the development process.

A Product Team normally translates high-level system requirements from a Requirements Document into system-level documentation to include System, Performance, Detailed, or General Specification. Interface documentation may include Interface Requirements Documents, Interface Control Documents, interface drawings, correlation drawings, and letters of agreement, all of which may have been generated from different sources. Together, the system-level specifications and the interface document(s) form the basis for the contract Statement of Work (SOW), Contractor Data Requirements List, Data Item Descriptions, Instructions to Offerors, Evaluation Criteria, etc. which lead to the selection of a preferred provider.

The appropriate configuration control board (CCB) shall approve both sets of documents prior to the release of the Request for Offer/Request for Proposal/Screening Information Request.

As the acquisition progresses, the IPT/solution provider shall maintain the accuracy of the Functional Baseline documents by:

- reviewing the contractor's products for responsiveness and attainment of the requirements of the contract;
- evaluating the completeness, accuracy, and adequacy of the requirements defined for the system;
- revising the Functional Baseline documents, if necessary; and supporting the integration of the system into the NAS baseline process.

Any Functional Baseline documents maintained by the IPT/solution provider shall be changed only through the NCP process.

3.3.3.3 Product Baselines

3.3.3.3.1 Purpose

This procedure describes how Product Baselines are created and maintained at the conclusion of systems development and acquisition.

3.3.3.3.2 Scope

This procedure applies to Integrated Product Teams (IPT) and other solution providers after a system/subsystem has undergone a successful Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA).

3.3.3.3.3 Responsibilities

- The IPT/solution provider is responsible for structuring the acquisition contract so as to identify documents for delivery, which will define the technical characteristics of the system in the Product Baseline. The IPT/solution provider monitors the contractor’s control of these documents, ensuring that the contractor maintains effective configuration control of Product Baseline documentation until it is accepted by the FAA, that this documentation is consistent and describes the final approved article. The IPT/solution provider conducts the Functional and Physical Configuration Audits; submits Product Baseline documentation for incorporation into the NAS CM system; and physically places all baselined documents into an approved FAA CM repository/program support library.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for storing or ensuring the storage of all Product Baseline documentation.

3.3.3.3.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.2, III-5
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 24 Establish System Product Baseline • 101 Perform Configuration Status Accounting

3.3.3.3.5 Procedure

A Product Baseline consists of the approved technical documentation defining the system configuration upon completion of system/product development. An IPT/solution provider shall establish a Product Baseline upon completion of FCA and PCA. The Product Baseline documentation, along with the Functional Baseline documentation, supports the operation, maintenance, and logistics needs of an end item. After establishment, the Product Baseline shall be used as the basis for proposing changes to the operational system, tracking the status of modification installations and providing the current approved documentation for use by various FAA organizations. Lower-level Office of Primary Interest (OPI) supporting documentation shall supplement this procedure by providing requirements for FCA, PCA and Product Baselines pertinent to individual programs.

The IPT/solution provider shall utilize the Functional Baseline documentation (system-level specifications and interface requirements documents) to structure the procurement. In so doing, consideration shall be given to secure documents from the procurement or elsewhere which will ultimately comprise the Product Baseline.

Product Baseline documents shall include at a minimum:

- All necessary physical and functional characteristics of the system, equipment, software or capability down to the lowest level intended for replacement
- The selected functional characteristics designated for production acceptance testing
- The production acceptance test requirements, and
- Documentation pertaining to the item, so that if the item were to be re-procured, the performance requirements for the item would also be included.

Product Baseline documentation shall include the complete set of released and approved engineering design and production documents, such as engineering drawings and associated lists for hardware; and the software, interface and database design documents for software, if they were procured. It should also include the material and process specifications invoked by the engineering documentation.

The IPT/solution provider shall ensure that documents procured for Product Baselines purposes are transferred from the developing contractor to the FAA for configuration control and subsequent maintenance by the Government. Such documents shall be verified as a result of the PCA (refer to Section 3.6.2). Upon successful completion of the PCA, the IPT/solution provider shall establish the Product Baseline via the NAS Change Proposal (NCP) process to become part of the NAS baseline. The IPT/solution provider shall submit the documentation comprising the product baseline to ACM. ACM shall enter the documentation into the Documentation and Configuration Identification System (DOCCON). The

completion of this step ensures the baseline documents can be retrieved in their current state no matter how many subsequent updates are made to them.

The documents (or their counterparts) commonly part of the Product Baseline include the following:

- Product Specifications
- Interface Control Documents
- Design Specifications
- Drawing Package, containing:
 - Assembly drawings
 - Parts lists
 - Fabrication details
 - Procurement drawings
- Software Detailed Design Specifications, such as:
 - Software Top-Level Design Document
 - Interface Design Document
 - Database Design Document
 - Software Detailed Design Document
 - Source Code Listing
 - Object Code Listing
- Version Description Document
- Commercial off-the-shelf (COTS) Documentation
- User Documentation/Data
- Technical Instruction Books
- Hardware (HW) Maintenance Manuals
- HW Operators' Manuals
- Computer System Diagnostic Manuals
- Computer System Operator's Manuals
- Software Users' Manuals
- Software Programmers' Manuals
- Site-Adaptation Data
- Support Tool Documentation

Procedural steps follow. Figure 3.3.3.3.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Select and Order Product Baseline Documentation	<ul style="list-style-type: none"> • Based upon program complexity and other variables, the IPT/solution provider shall select and procure appropriate technical documentation from which the Product Baseline will be established.

Procedure Step	Procedure Description
2. Monitor Development	<ul style="list-style-type: none"> The IPT/solution provider shall monitor the development of the end item and ensure that its accompanying documentation is accurate, consistent, and provides adequate descriptions of its physical and functional characteristics.
3. Conduct Functional Configuration Audit (Procedure 3.6.1)	<ul style="list-style-type: none"> The IPT/solution provider shall follow the procedure for a FCA to verify that the system performs to its contractual requirements.
4. Conduct Physical Configuration Audit (Procedure 3.6.2)	<ul style="list-style-type: none"> The IPT/solution provider shall follow the procedure for a PCA to ensure that the product baseline documentation set accurately reflects the unit(s) that passed performance and acceptance testing.
5. Process Product Baseline NCP, (Procedure 3.4.2)	<ul style="list-style-type: none"> The IPT/solution provider shall prepare the Product Baseline NCP upon verification of the documentation at PCA and shall submit it for approval in accordance with the NCP process (Procedure 3.4.2). The IPT/solution provider shall establish, via the NCP process, the Product Baseline.
6. Update MCI, and Store Documents in DCC (Procedure 3.3.1)	<ul style="list-style-type: none"> After IPT CCB approval, the documentation shall be provided to ACM for storage in the Document Control Center (DCC). ACM shall capture the pertinent baseline data in DOCCON.

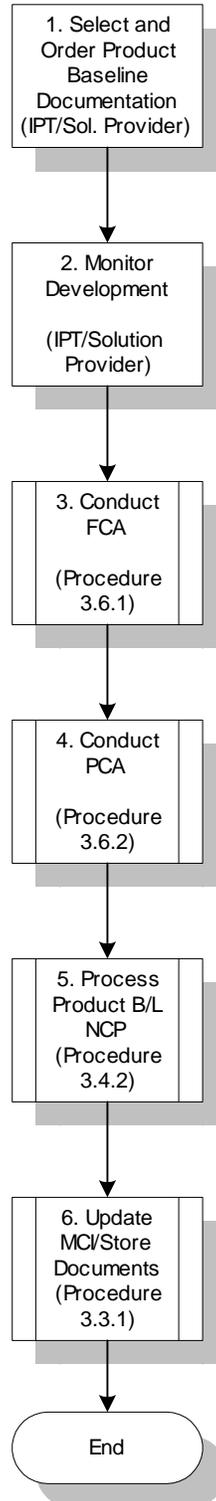


Figure 3.3.3.3.5-1. Product Baselines

3.3.3.4 Operational Baselines

3.3.3.4.1 Purpose

This procedure describes how Operational Baselines are created and maintained. It describes the importance of providing one set of interconnected, interdependent and complementary technical data to system users, maintainers, item managers and managers for use during a system's operational service life.

3.3.3.4.2 Scope

This procedure applies to Integrated Product Teams (IPT)/other solution providers and second level engineering organizations after a Product Baseline has been established.

3.3.3.4.3 Responsibilities

- IPTs and other solution providers are responsible for submitting the Product Baseline case file to begin the Operational Baselining process; safely storing master copies of baselined documents; and controlling documents designated for configuration management through the NAS Change Proposal (NCP) process so that they reflect the operational configuration. IPTs and other solution providers are further responsible for capturing detailed documentation, lists or aids which reflect the configuration of each site at the time of commissioning down to the serialization, revision and version status of all hardware, software and firmware identified as lowest replaceable units (LRU).
- Organizations providing second level engineering support are responsible for identifying changes to optimize or improve National Airspace System (NAS) operational systems as well as implementing changes to operational systems when approved through the NCP process. Second level engineering organizations maintain all baselined documents for which they are listed as the Office of Primary Interest (OPI). These organizations periodically validate the accuracy of operational systems and the corresponding documentation and create and/or maintain baseline documents and tools to monitor site configurations. They also develop change implementation directives such as Specification Change Notices (SCN), Electronic Equipment Modification (EEM) Handbooks, Plant Equipment Modification (PEM) Handbooks, Site Program Bulletins (SPB), Site Technical Bulletins (STB), Facilities and Equipment (F&E) Program Descriptions, Special Maintenance Project Descriptions, System Support Directives (SSD) and change notices to Maintenance Technical Handbooks (MTHB) as well as track the installation status of approved modifications using the approved modification tracking system.

3.3.3.4.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • Statements I-4.5, V-4 • 24 Establish System Product Baseline • 42 Establish Initial Operational Capability (IOC) • 43 Conduct Operational Readiness Demonstration (ORD) • 46 Initiate Operations with New/Updated Configuration • 50 Initiate 2nd Level Support Activities • 101 Perform Configuration Status Accounting

3.3.3.4.5 Procedure

Operational Baselines come into use after a system has been deployed into the NAS. Operational Baselines comprise the technical documentation that initially describes a delivered system and changes to it that occur as a result of in-service modifications and improvements or the addition of FAA-developed documentation/tools. In short, the Operational Baseline includes the Product Baseline and any subsequent changes to it. Lower-level OPI supporting documentation shall supplement this procedure by providing requirements for Operational Baselines pertinent to individual programs and organizations.

The process of establishing the Operational Baseline shall begin with approval of the Product Baseline NCP by the cognizant IPT or other solution provider. NAS Configuration Management and Evaluation Staff (ACM) shall enter the documents listed in the approved NCP into the NAS Master Configuration Index (MCI) as the technical representation of installed operational hardware and software. This set of documents shall accurately reflect each NAS subsystem at the beginning of its service life.

Systems entering active service are expected to face change as a result of the need to correct problems or provide enhancements. Although proposed changes may be identified by any organization, a change shall be authorized only through the NCP process. When a change is approved, it shall be reflected in all

documents identified in the Operational Baseline, as applicable. IPT/solution providers and FAA second level engineering elements shall manage the documents assigned to them as the responsible OPI, incorporating any approved changes.

New documents, tools or controls may be added to the Operational Baseline at any time. Examples of new Operational Baseline items include aids to creating firmware, engineering or documentation release processes, item marking associated with specific sites or additional system-wide instructions such as Maintenance Handbooks. Similarly, new Operational Baseline items shall be added only by processing a change through the NCP process.

Site configuration data shall be maintained to the LRU or replaceable software component level. IPT/solution providers normally provide the initial set of data, but at the point of commissioning, the second level engineering elements shall maintain this information.

Changes to Operational Baseline documentation shall be implemented only through the following:

- EEM Handbook
- PEM Handbook
- SSD - three types:
 - System Support Modification (SSM)
 - System Technical Release (STR)
 - System Documentation Release (SDR)
- SPB
- STB
- Specification Change Notice (SCN)/Specification Revision, and
- Change Notices to Maintenance Technical Handbooks.

The Operational Baseline shall be maintained during the system life cycle and shall be verified periodically. Approved modifications shall also be tracked to ensure integration of the required change in NAS systems.

Procedural steps follow. Figure 3.3.3.4.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Maintain All Baseline Documents</p>	<ul style="list-style-type: none"> • The FAA will only deploy systems after consideration of the cost and utility of developmental and maintenance documentation. It is the policy of the FAA to maintain the entire set of documentation that was procured and placed into baseline status, for the duration of the system's use. • IPT/solution providers and FAA second level engineering elements shall manage the documents assigned to them as the responsible OPI, incorporating any approved changes.
<p>2. Create New FAA CM Documents</p>	<ul style="list-style-type: none"> • Baseline documents are usually, though not always, created by equipment development contractors to describe their product. The FAA also develops and uses other baseline documents, such as Maintenance Handbooks, for life-cycle maintenance. Second level engineering elements may, and are encouraged to use additional systems, tools, and documents to manage Operational Baselines. In such cases, NCPs shall be submitted to report the details of the choice.
<p>3. Create/Maintain Site CM Tools</p>	<ul style="list-style-type: none"> • It is FAA policy that all newly deployed systems shall include the reporting of an authenticated, standardized set of data for each LRU for each site before Site Commissioning. IPT/solution providers normally provide the initial set of data, but at the point of commissioning, the second level engineering elements shall maintain this information. Second level engineering elements shall endeavor to control legacy systems to such a level also.

Procedure Step	Procedure Description
4. NAS Change Proposal (NCP)/Configuration Control Decision (CCD) Process (Procedure 3.4.2)	<ul style="list-style-type: none"> • The set of baselined documents will normally require change due to the correction of deficiencies or integration of improvements. Although proposed changes may be identified by any organization, a change shall be authorized only through the NCP process. • IPT/solution providers and FAA second level engineering elements shall manage the documents assigned to them as the responsible OPI, incorporating any approved changes. In such cases, change implementation directives shall be added to the list of baselined documents. Documents such as the following non-inclusive list shall be considered part of the Operational Baseline: EEMs, PEMs, SPBs, STBs, SCNs, MTHBs, SSDs, NCPs and CCDs.
5. Track Modifications	<ul style="list-style-type: none"> • Second level engineering elements and/or IPT/solution providers shall, in a coordinated fashion, closely monitor the installation of directed modifications to ensure incorporation as directed by the CCD. • Tracking of such information shall be to the lowest LRU level noted in the Modification Directive. • Reporting of the accomplishment of each Modification at each required site shall be performed in an FAA-wide status accounting system.
6. Periodically Validate Operational Baseline	<ul style="list-style-type: none"> • The IPT/solution provider shall periodically validate the Operational Baseline and baseline documents. Validation of each NAS subsystem is recommended every three years. • Utilization of and coordination with Regional Technical evaluation or Site personnel is recommended.

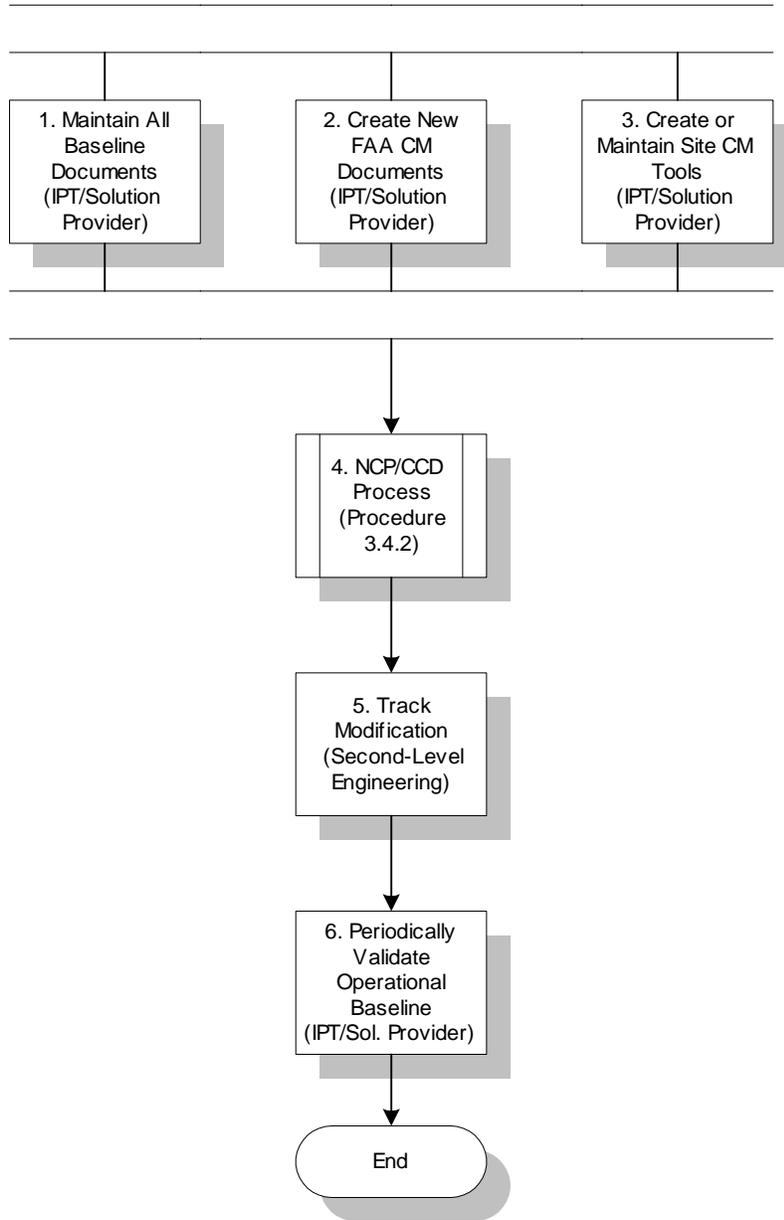


Figure 3.3.3.4.5-1. Operational Baselines

3.3.3.5 Facility Baselines

3.3.3.5.1 Purpose

This procedure describes how to establish and maintain a NAS Facility Baseline for Air Traffic Control Towers (ATCT), Terminal Radar Approach Control (TRACON) facilities, Automated Flight Service Stations (AFSS), Air Route Traffic Control Centers (ARTCC), ARSR-4 facilities, Navaid facilities, communications facilities, and other radar facilities.

3.3.3.5.2 Scope

This procedure applies to regional offices responsible for maintaining facilities, offices responsible for installing modifications or new equipment, and to site personnel. This procedure describes Regional Configuration Control Board (RCCB) authority to establish and modify Facility Baselines where target year end state configurations are not violated.

3.3.3.5.3 Responsibilities

- The Regional CCB (RCCB) is responsible for reviewing Facility Baseline documentation packages; establishing Facility Baselines; and approving/disapproving modifications to Facility Baselines which do not violate target year end state configurations.
- Regional CM personnel are responsible for writing the NAS change proposal (NCP) that initiates the Facility Baseline; establishing schedules for baselining activities; resolving issues; and managing the baseline process within the region.
- The Regional Computer Aided Engineering Graphics (CAEG) personnel are responsible for ensuring that all technical data items are archived on the CAEG system.
- Integrated Product Teams (IPT)/solution providers are responsible for resolving any issues arising from the Facility Baseline changes that are associated with national program implementation.

3.3.3.5.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.2, IV-2

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 17 Conduct Facility Documentation Review • 18 Establish/Update Facility Baseline • 101 Perform Configuration Status Accounting
<ul style="list-style-type: none"> • <i>National Configuration Management Standard Procedure Document for Conducting Formal Configuration Audits of Operational Facilities</i> 	
<ul style="list-style-type: none"> • <i>National Configuration Management Standard Procedure Document for Facility Baselineing</i> 	

3.3.3.5.5 Procedure

A Facility Baseline is an essential element of FAA planning for the introduction of NAS systems/subsystems. The complexities and variety of new projects to be implemented result in competition for floor and/or roof space, electrical power, and environmental and operational resources. Consequently, regional CM Plans and CCB charters define space, power, and other resources as configuration items (CI) that must be managed.

Facility Baseline data is defined as the information needed to identify and control changes as well as record configuration and change implementation status of all CIs under RCCB authority. There are two important categories of facility data subject to configuration management:

- Standard facility drawings (footprint), such as equipment layout drawings consisting of:
 - Air Traffic operational areas
 - Equipment areas
 - Administrative, support, and storage areas
 - Facility roof plans: equipment and antenna placement on the roof
 - Facility plot: land use layout including buildings, parking, driveways, antennas, and satellite dishes.
- Engineering data such as critical power panel drawings (ARTCCs) or one line electrical diagrams.

These two categories of data and their drawings shall be baselined and modified only through the formal NCP process, and shall be itemized in the NAS Master Configuration Index (MCI). Additionally, the facility may contain regional unique equipment. Regional unique equipment shall also require a formal NCP to establish a baseline or modify it, but the items shall not be listed in the MCI. They shall be controlled by the RCCB.

The decision whether to establish or modify a Facility Baseline shall be determined by assessing the impact of Capital Investment Plan projects, as well as regional and locally initiated changes and improvements. When required, the regional CM personnel shall write an NCP to establish or modify the baseline, in accordance with Section 3.4.2.1, Originate Change. Additional guidance for Facility Baselines can be found in the *National Configuration Management Standard Procedure Document for Conducting Formal Configuration Audits of Operational Facilities* and *National Configuration Management Standard Procedure Document for Facility Baselineing*.

The regional office shall verify the facility data in accordance with the procedure described in Section 3.6.3. The regional CM personnel shall be responsible for the review and coordination of NCP packages, and, upon completion of the review cycle, submitting the package to the RCCB for approval. Note that a new facility baseline is established and brought under configuration control upon NCP approval by the RCCB. Any action items noted in the approval documentation (refer to Section 3.4.2.4, Configuration Control Decision Closure) shall be monitored during the implementation phase, ending with a sign-off by the responsible party.

Procedural steps follow. Figure 3.3.3.5.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Assess CIP Projects/Proposed Changes	<ul style="list-style-type: none"> The regional office shall assess Capital Investment Plan (CIP) projects, as well as changes and improvements initiated on the regional and local level to determine whether a Facility Baseline should be established or modified.
2. Establish/Modify Facility Baseline?	<ul style="list-style-type: none"> If the regional office decides to establish or modify a Facility Baseline, continue with Step 3. Otherwise terminate the procedure.
3. Originate Change (Procedure 3.4.2.1)	<ul style="list-style-type: none"> The regional CM personnel shall initiate the establishment or modification of the Facility Baseline via the Originate Change procedure described in Section 3.4.2.1. This procedure includes resolution of any comments received from the evaluators.

Procedure Step	Procedure Description
4. ROC Successful?	<ul style="list-style-type: none"> • If the comments have been successfully resolved via the Resolution of Comment (ROC) process described in Section 3.4.2.1, continue with Step 5. Otherwise terminate the procedure.
5. Verification of Facility Baseline (Procedure 3.6.3)	<ul style="list-style-type: none"> • The regional office shall verify the Facility Baseline via the procedure described in Section 3.6.3.
6. Formal NCP Evaluation (Procedure 3.4.2.2)	<ul style="list-style-type: none"> • The regional office shall route the NCP, with the verified drawings, to the RCCB for formal evaluation in accordance with the procedure described in Section 3.4.2.2.
7. Capture Documentation	<ul style="list-style-type: none"> • The regional CM authority shall capture the baseline documentation by entering it into the regional configuration status accounting system.
8. Action Items Specified?	<ul style="list-style-type: none"> • If the verification of the Facility Baseline has specified action items for site personnel and contractors, continue with Step 9.
9. Resolve Action Items	<ul style="list-style-type: none"> • The site personnel (and contractors, if appropriate) shall resolve the action items assigned from the verification. • Corrective actions may be assigned on a continuous basis.
10. Monitor Corrective Actions	<ul style="list-style-type: none"> • The regional office shall monitor the site personnel (and contractors, if appropriate) to ensure that the corrective actions are successfully carried out. • The corrective actions are frequently assigned on a continuous basis. In such cases, the monitoring of their performance is also continuous and shall assist the Assessment of Projects/Proposed Regional Changes. Proceed to Block 1.

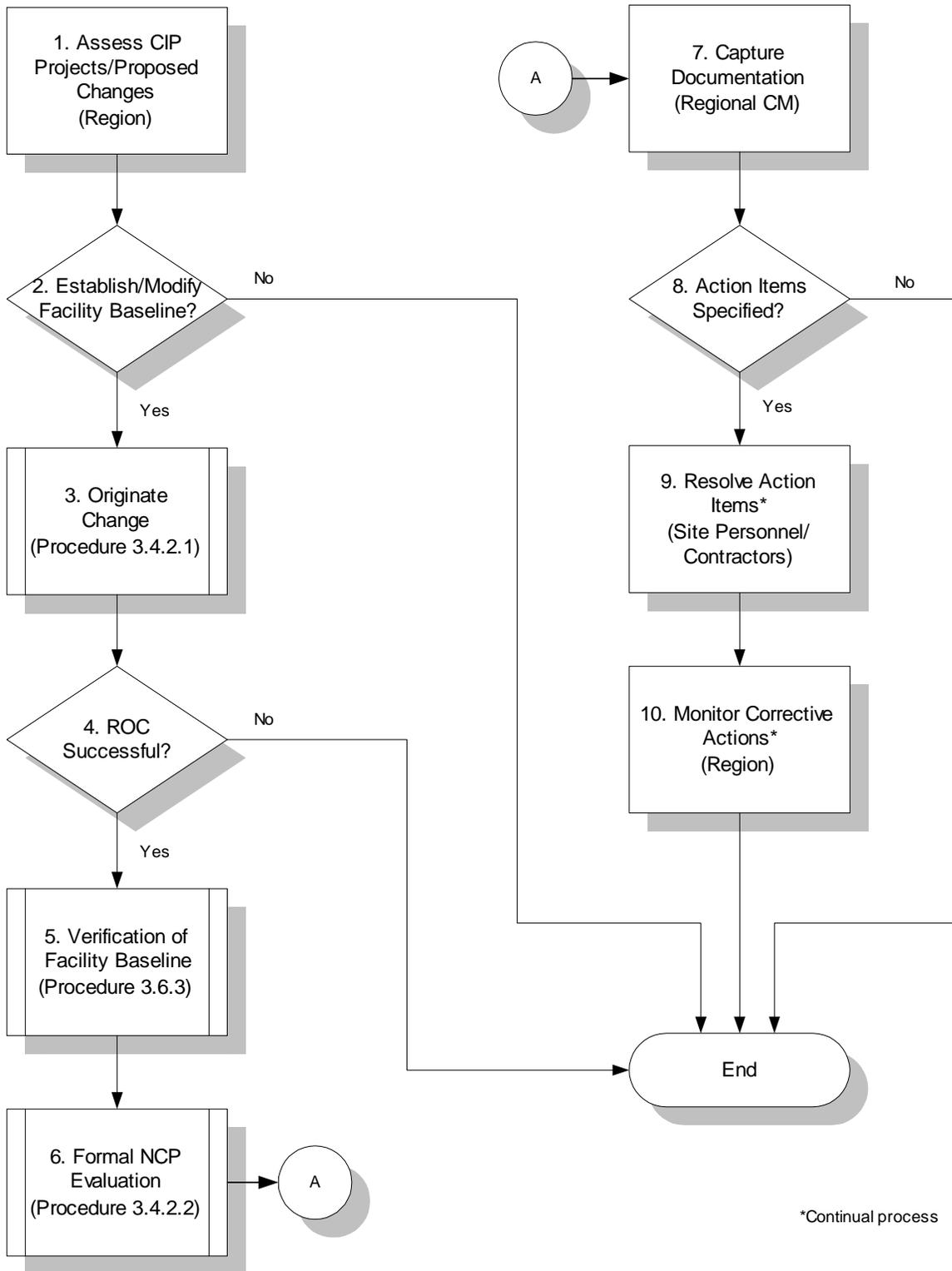


Figure 3.3.3.5.5-1. Facility Baselines

3.3.4 Assigning Corporate Identifiers

This section describes the role of NAS Configuration Management and Evaluation Staff (ACM) in maintaining the mechanism for assigning FAA Type numbers, system-level specification numbers, Interface Requirements Document (IRD) and Interface Control Document (ICD) identifiers and other corporate identifiers. The procedures for requesting and generating these identifiers are provided.

3.3.4.1 Assignment of System-Level Specification, Interface Requirements Document (IRD) and Interface Control Document (ICD) Numbers

3.3.4.1.1 Purpose

This procedure describes how FAA system-level specification, IRD and ICD numbers are assigned.

3.3.4.1.2 Scope

This procedure applies to Integrated Product Teams (IPT) and other solution providers for the assignment of system-level specification, IRD and ICD numbers.

3.3.4.1.3 Responsibilities

- The Office of System Architecture and Investment Analysis (ASD), IPTs and other solution providers are responsible for requesting system-level specification, IRD and ICD numbers from ACM.
- ACM is responsible for assigning system-level specification, IRD and ICD numbers.

3.3.4.1.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statement II-4
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i> 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 10 Develop A-Spec • 12 Establish Functional Baseline • 16 Monitor CM Activities
<ul style="list-style-type: none"> • FAA-STD-005E, <i>Preparation of Specifications, Standards and Handbooks</i> 	<ul style="list-style-type: none"> • Section 5.2.6, Specification Numbering

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> <li>• FAA-STD-025d, <i>Preparation of Interface Documentation</i> 	

3.3.4.1.5 Procedure

The consistent assignment of identification numbers enables correlation between a configuration item, its configuration documentation and other associated data. The FAA maintains a numbering system for FAA system-level specifications, IRDs and ICDs. These documents are prepared during the solution implementation phase of the National Airspace System (NAS) life cycle.

A specification is a document prepared to support acquisition and life-cycle management. It describes essential technical requirements and verification procedures for items, materials and services. When invoked by a contract, it is legally enforceable and its requirements are contractually binding. Specifications constitute the primary configuration identification documentation developed for allocated, functional and product baselines. The type and number of specifications will vary by program depending on the nature of the acquisition and its complexity.

Specifications developed for or by the FAA shall be prepared in accordance with *FAA-STD-005, Preparation of Specifications, Standards and Handbooks*.

IPTs and other solution providers shall write an IRD to specify the interface requirements between two or more subsystems or facilities. It is used to ensure that the interface requirements between an existing subsystem/facility and a new subsystem/facility are agreed to by all affected offices.

An IRD becomes part of the procurement package to contractors to ensure that the contractors are designing toward a mutually understood interface. An IRD shall be started in the early phases of an acquisition. It must be in place before a Statement of Work is finalized.

An ICD is a formal agreement prepared by the contractor(s) that documents how the interface requirements between subsystems or between a subsystem and facilities are implemented. The ICD identifies, quantifies and controls the design characteristics of the interface. The ICD ensures interface compatibility by documenting form, fit and function.

FAA-STD-025, Preparation of Interface Documentation, provides the requirements for preparation of interface documentation.

Procedural steps related to the assignment of unique identification numbers to FAA system-level specifications, IRDs and ICDs follow. Figure 3.3.4.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Prepare Draft System-level Specification, IRD or ICD	<ul style="list-style-type: none"> An IPT or other solution provider shall draft system-level specifications and interface documentation (IRDs and ICDs) as required. Preparation of a specific document is assigned to an Office of Primary Interest (OPI).
2. Submit Request for Document Number to ACM	<ul style="list-style-type: none"> Upon completion of the draft documentation, the IPT or other solution provider shall request a specification, IRD or ICD number from ACM via the CM web page. The CM web page is located at http://www.faa.gov/cm. At the main web page, the request area is found by clicking on "CM Documentation" and then "Guidance," where the appropriate request selection is made. Requested information includes the document title, author, routing symbol and phone number. Requests for interface documentation shall specify the interfacing subsystems. If the request is for an ICD number, the requestor shall also specify the IRD from which it is being developed. (An ICD number is derived from the applicable IRD number.)
3. Review Request for Document Number	<ul style="list-style-type: none"> ACM shall review the request for a specification, IRD or ICD number and shall verify all necessary information has been provided. ACM shall contact the requestor if additional information or clarification is required.
4. Assign Document Number	<ul style="list-style-type: none"> ACM shall assign a specification, IRD or ICD number through its internal tracking system as appropriate and notify the requestor.

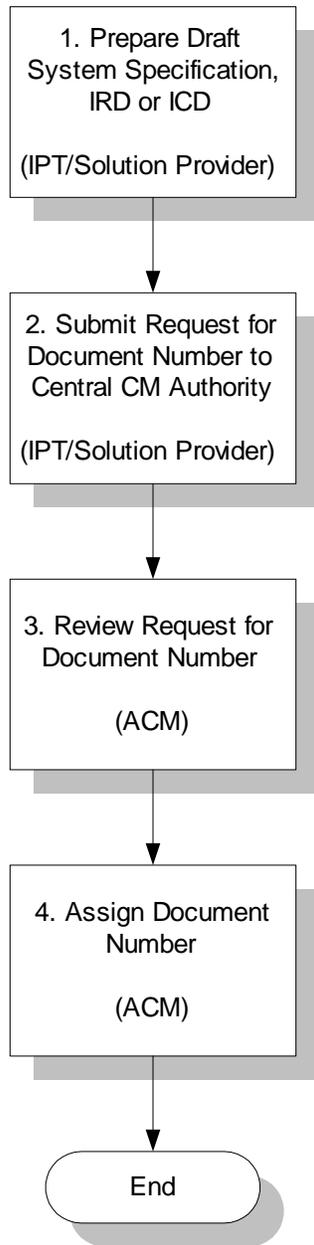


Figure 3.3.4.1.5-1. Assignment of System-Level Specification, IRD and ICD Numbers

3.3.4.2 FAA Equipment Type Designation Number Request

3.3.4.2.1 Purpose

This procedure describes how ACM supports FAA Equipment Type Designation Number assignment before commissioning of National Airspace System (NAS) operational equipment.

3.3.4.2.2 Scope

FAA Equipment Type Designation Numbers are assigned to all new FAA equipment types that are to be utilized as commissioned equipment, i.e., prototype and production equipment, and brand name commercial equipment modified to FAA specifications. This procedure addresses processing requests for assignment of FAA Equipment Type Designation Numbers from Integrated Product Teams (IPT) and other solution providers. FAA Equipment Type Designation Numbers are also commonly referred to as FAA Type Numbers.

3.3.4.2.3 Responsibilities

- IPTs and other solution providers acquiring new equipment for the purpose of FAA commissioning or NAS operational use are responsible for requesting FAA Type Numbers and ensuring that FAA equipment destined for NAS commissioned use is identified with nameplate information.
- ACM is responsible for supporting the assignment of FAA Type Numbers and maintains a comprehensive list of NAS FAA Type Number assignments.

3.3.4.2.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statement II-4
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management</i> 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 16 Monitor CM Activities • 13 Development of the Program SOW
<ul style="list-style-type: none"> • FAA-G-2100F, Electronic Equipment, General Requirements 	<ul style="list-style-type: none"> • Section 3.3.3, Nameplates and Marking
<ul style="list-style-type: none"> • FAA-D-2494b, Technical Instruction Book Manuscripts: Electronic, Electrical, and 	

Reference	Reference Paragraph/Activity Number
Mechanical Equipment, Requirements for Preparation of Manuscript and Technical Production of Books	

3.3.4.2.5 Procedure

FAA Equipment Type Designation Numbers (also referred to as FAA Type Numbers) shall be assigned to all new FAA equipment types that are to be utilized as commissioned equipment, i.e., prototype and production equipment, and brand name commercial equipment modified to FAA specifications. However, FAA Type Numbers are normally not assigned to brand name commercially available products not modified to FAA specifications. Additionally, they are not assigned to equipment that has been procured by other government agencies.

Standard nameplate information shall be placed on all commissioned FAA equipment. Nameplate marking requirements shall be in accordance with the latest version of FAA-G-2100, "Electronic Equipment, General Requirements," in effect at the time of contract award.

FAA Logistics, Field Maintenance, Second-level Engineering and Configuration Management organizations require up-to-date and accurate FAA Type Numbers for several reasons:

- FAA Type Number designators prevent substitution in subsequent contracts for replacement parts with cards, assemblies, etc. that are designed for non-FAA systems.
- FAA Type Number designators are used in preparation of Facility Outage and Equipment Failure Reports.
- FAA Type Number designators support maintenance publications and dissemination of essential data before equipment commissioning (e.g., Maintenance Handbooks and Technical Instruction Books). FAA-D-2494 requires use of FAA Type Numbers in Technical Instruction Books.
- FAA Type Number designators support modification publications after equipment commissioning (e.g., Electrical Equipment Modifications (EEM) and Plant Equipment Modifications (PEM)).
- NAS-MD-001, "NAS Subsystem Baseline Configuration and Documentation Listing," ties the FAA Type Number designator to the device/equipment and its supporting documentation.

In most cases, a baselined functional specification shall be approved before a FAA Type Number is issued. ACM shall assign FAA Type Numbers upon verification of the equipment details and an approved specification.

The following procedural steps apply to the assignment of FAA Type Numbers. Figure 3.3.4.2.5-1 shows a flow for this procedure.

Procedure Step	Procedure Description
<p>1. Develop Procurement Requirements for Type Number Assignment (Procedure 3.2.2.2)</p>	<ul style="list-style-type: none"> The IPT or other solution provider shall include requirements for nameplates and product marking in the procurement package for a system in accordance with FAA-G-2100. (Refer to procedure 3.2.2.2, Procurement Requirements for CM).
<p>2. Submit Request for Type Number</p>	<ul style="list-style-type: none"> In accordance with contract requirements, the contracting officer for an IPT or other solution provider shall ensure that the following vendor requests are submitted before Critical Design Review (CDR) (or a comparable technical design/program review): serial number assignment, request for nameplate approval and identification of plate drawing approval. Normally, a request consists of 1) a memorandum listing the name(s) of each piece of equipment and 2) an electronic file containing the data required in Table 3.3.4.2.5-1, FAA Type Number Request Instructions. Upon receipt of the vendor information, the IPT or other solution provider shall review the equipment name and functional description to ensure that the name(s) is appropriate and that it is not in conflict with other names or abbreviations already in use within the NAS. This review may be done in conjunction with ACM, which maintains a comprehensive list of NAS system/subsystem identifiers. After review, FAA Type Number assignment shall be requested from ACM via the CM web page. The CM web page is located at http://www.faa.gov/cm. At the main web page, the request area is found by

Procedure Step	Procedure Description
3. Review Request and Assign FAA Type Number	<p>clicking on “CM Documentation” and then “Guidance,” where the appropriate request selection is made. Table 3.3.4.2.5-1 lists the information required when a Type Number assignment is requested.</p> <ul style="list-style-type: none"> • ACM shall process the FAA Type Number request. ACM shall determine assignment based on the level of indenture requested (e.g., one number for an entire system or several numbers for various units within a system) and shall record this new information in a NAS log for tracking purposes. ACM shall return the assignment to the IPT or other solution provider. • The IPT or other solution provider shall draft a memorandum for the contracting officer to the vendor to incorporate the assignment information on the nameplate. (The vendor provides nameplate drawings for contracting officer approval and requests permission to mount the nameplates.)

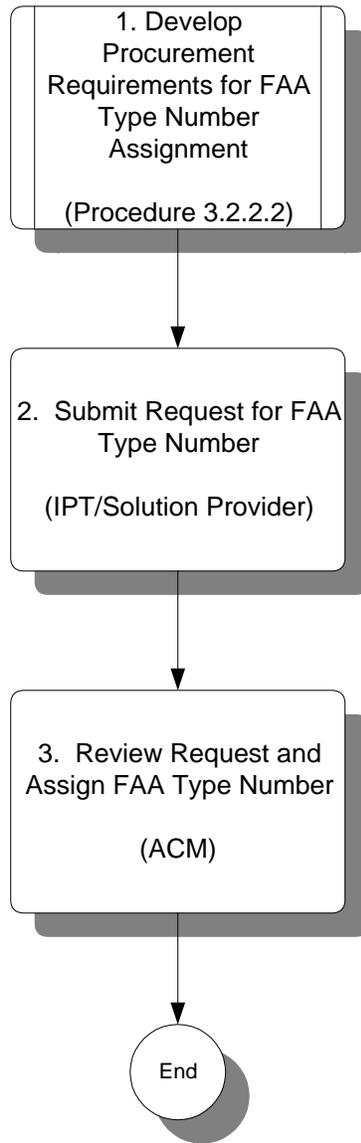


Figure 3.3.4.2.5-1. Assigning FAA Type Numbers

Table 3.3.4.2.5-1. FAA Type Number Request Instructions

1. Equipment System Name	A list of assemblies requiring FAA Type Numbers. Normally, this will be any unit that is to receive a nameplate in accordance with FAA-G-2100.
2. Specification/Drawing Number	The referenced specification must be baselined, i.e., included in NAS-MD-001 or shown as baselined in the Documentation and Configuration Identification System (DOCCON). If the unit is under fabrication by the FAA Logistics Center, FAA Field Maintenance Organization or FAA Regional Office, a drawing number is acceptable.
3. Contract Number	The contract must have been awarded. If the unit is under fabrication by the FAA Logistics Center, FAA Field Maintenance Organization or FAA Regional Office, a work order number is acceptable.
4. Contractor	List the contractor's name, address, city, state, and zip code.
5. CAGE Code	List the Contractor and Government Entity (CAGE) Code.
6. Capital Investment Plan (CIP) Number	List Capital Investment Plan (CIP) number if applicable.
7. National Stock Number (NSN)	List NSN of each unit.
8. FAA Point of Contact	List routing symbol, name and phone number. Include name and phone number of person actually making the request, if different.
9. Associated Subsystem Acronym	List subsystem requiring FAA Type Number (e.g., LLWAS, ILS, ARSR-x).
10. Logistics Control Number (LCN)	List Logistics Control Number (LCN) of each unit receiving a FAA Type Number.

3.4 Configuration Change Management

Configuration change management is a systematic and measurable change process consistent with the National Life Cycle CM Process. The implemented change process shall ensure that proposed changes are properly identified, prioritized, documented, coordinated, evaluated, and adjudicated. Approved changes shall be properly documented, implemented, verified and tracked to insure incorporation in all systems and spares.

This section contains four subsections:

- Section 3.4.1, Configuration Control Board (CCB) Structure for Systems in the NAS, describes the composition and extent of authority of each type of CCB within the NAS. Configuration control boards are the central mechanism used for approving or disapproving proposed changes to the system. The CCB types are the NAS CCB, IPT/Solution Provider CCB, Regional CCB and CCBs such as the William J. Hughes Technical Center CCB (TCCCB).
- Section 3.4.2, NAS Change Proposal (NCP)/Configuration Control Decision (CCD) Process, describes the central process for proposing, assessing, dispositioning and implementing changes.
- Section 3.4.3, Change Management Metrics, describes how to collect metrics via change management activities in order to monitor product development and to analyze trends.
- Section 3.4.4, Requirements Traceability, describes how to ensure that requirements are maintained and are traceable from the NAS level technical requirements through the NAS system/subsystem level products.

3.4.1 Configuration Control Board (CCB) Structure for Systems in the NAS

3.4.1.1 Purpose

This procedure describes the FAA CCB structure, the relationships of the various chartered CCBs and the scope of authority for each level of CCB.

3.4.1.2 Scope

This procedure applies to organizations that evaluate and determine disposition actions of National Airspace System (NAS) Change Proposals (NCP) at their chartered CCBs and to the NAS CCB in its role as the highest-ranking FAA board. This procedure applies to change management activities that occur in any phase of the FAA's Acquisition Management System (AMS) life cycle.

3.4.1.3 Responsibilities

- The NAS CCB is the senior board responsible for establishing and maintaining the NAS level baseline for the Agency. This includes ensuring the traceability of requirements from the NAS level documentation/baselines to the program level documentation/baselines. In this capacity, the NAS CCB charters all other CCBs, delegates appropriate decision authority to the chairperson(s) and serves as the forum to adjudicate and resolve issues elevated from these subordinate CCBs. The NAS CCB also identifies and controls changes to NAS baselines for CIs identified in Appendix A of its charter. These CIs include the NAS System Requirements Specification (NAS-SR-1000); NAS Design Document Specification (NAS-DD-1000); elements of the NAS Technical Architecture; Final Requirements Documents (FRD) (after JRC-2 approval); unassigned NAS systems; standards; Interface Requirements Documents (IRD); and, in defined cases, Interface Control Documents (ICD). In addition, the NAS CCB reviews changes impacting more than one IPT when neither an IRD nor ICD has been approved. Changes to non-NAS equipment that have interfaces with NAS systems (including prototypes) are managed by the NAS CCB as well. Finally, the NAS CCB examines technical issues not submitted as formal changes but which either 1) relate directly to strengthening the application of CM principles in the NAS; or 2) serve to prepare a recommendation to the Joint Resources Council (JRC) for proper baselining of NAS-level documentation.
- A Solution Provider or Integrated Product Team (IPT) CCB is responsible for establishing and managing changes to baselines for CIs identified in Appendix A of its CCB charter. The CCB has life cycle management responsibility for all assigned products/solutions.
- A Regional CCB (RCCB) is responsible for establishing baselines and managing changes to baselines for CIs controlled within the region and which are identified in Appendix A of the RCCB charter. It has the authority to approve/disapprove all case files pertaining to operational and administrative equipment space for Air Route Traffic Control Centers (ARTCC), Air Traffic Control Towers/Terminal Radar Approach Control (ATCT/TRACON) facilities,

Automated Flight Service Stations (AFSS) and ARSR-4 facilities (joint-use only). For ARTCCs, these installations, moves and removals must not violate the baselined end-state configuration drawings. The RCCB controls the critical power panel drawings detailing the breaker connections to the critical power panel when the connection and wiring are in strict accordance with FAA Orders 6950.2 and 6950.15. In addition, the RCCB has the authority to establish and control changes to baselines for regional-unique equipment. The RCCB is also responsible for utilizing NAS Implementation Program (ANI) implementation center as-built drawings to develop facility baselines.

- The William J. Hughes Technical Center (WJHTC) Configuration Control Board (TCCCB) is responsible for managing and/or monitoring baselines and governing and verifying changes to baselines for systems which are resident in the WJHTC NAS Laboratories. These baselines are applicable to the hardware CI platforms and laboratory environments that fall under the ownership and space jurisdiction of the WJHTC Facilities Management Division. Hardware CI platforms and/or laboratory environments in the division’s jurisdiction are identified in Appendix A of the TCCCB Charter. The TCCCB has the authority to review and evaluate all case files/NCPs pertaining to operational, administrative and equipment space, including all installations, moves and removals which do not violate the baselined end-state configuration drawings for NAS system replicas within the WJHTC domain. The TCCCB controls the critical power panel drawings, as well as construction, space management, all area and all equipment configuration as-built drawings.

3.4.1.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statements I-4.3, I-5 and I-6 • Statements II-1 and II-2 • Statements III-2, III-3 and III-4 • Statement IV-1
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i> 	<ul style="list-style-type: none"> • 1.4 Establish and Maintain NAS Infrastructure • 100 Perform Change Management • 101 Perform Configuration Status Accounting

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures 	

3.4.1.5 Procedure

The CCB shall be the Agency-authorized forum for establishing configuration management baselines and for reviewing and acting upon changes to these baselines. In the FAA, the CCB structure has an established hierarchy. Two levels of CCB exist in the FAA as shown in Figure 3.4.1.5-1. Accountable to the Associate Administrator for Research and Acquisitions (ARA-1) and the Associate Administrator for Air Traffic Services (ATS-1), the NAS CCB shall be the highest-ranking FAA board and shall have authority to charter subordinate IPT/Solution Provider, Regional and other CCBs such as the William J. Hughes Technical Center CCB. In this role, the NAS CCB shall have general oversight responsibility for ensuring consistency across the various CCBs. The NAS CCB shall also serve as the appropriate forum to resolve issues elevated from subordinate CCBs. The NAS CCB charter and operating procedures shall provide further detail on the relationship and interaction of the NAS CCB with other chartered CCBs.

Each CCB shall act as an independent decision-making body within its prescribed level of authority. A CCB shall have decision authority for all changes affecting CIs assigned to the CCB as listed in Appendix A of its charter as well as any other responsibilities specifically identified in the charter. Although an IPT/Solution Provider, Regional or other NAS-chartered CCB shall not establish subordinate CCBs, these CCBs may approve any change so long as the CI is assigned to the CCB and a source of funding is available when cost impact is involved. In cases where a source of funding is not identified, the CCB shall follow Agency procedures for obtaining necessary funds. Although the NAS CCB is the highest-ranking FAA board, it shall not approve changes to CIs that belong to other CCBs except when elevated for adjudication in accordance with CCB procedures.

A CCB's approved charter and operating procedures shall delineate the configuration control process tailored to that CCB's responsibilities. Each CCB shall approve its own operating procedures. Minimum content requirements for CCB charters are described in Procedure 3.2.1, Establishing and Maintaining a CCB.

The following is a summary of the rules governing FAA CCBs:

- The CCB shall be the Agency-authorized forum for establishing configuration management baselines and for reviewing and acting upon changes to these baselines;
- A CCB shall have an approved charter and operating procedures;
- The NAS CCB, whose charter is jointly approved by ARA-1 and ATS-1, shall charter all other CCBs;
- IPT/Solution Provider, Regional and other NAS-chartered CCBs shall not establish subordinate CCBs;
- The NAS CCB shall adjudicate issues elevated from subordinate CCBs;
- A CCB shall approve changes with cost impact only when a source of funding has been identified; otherwise, the CCB shall follow Agency procedures for obtaining necessary funds;
- Each CCB shall prepare and approve operating procedures in accordance with the National Procedures.

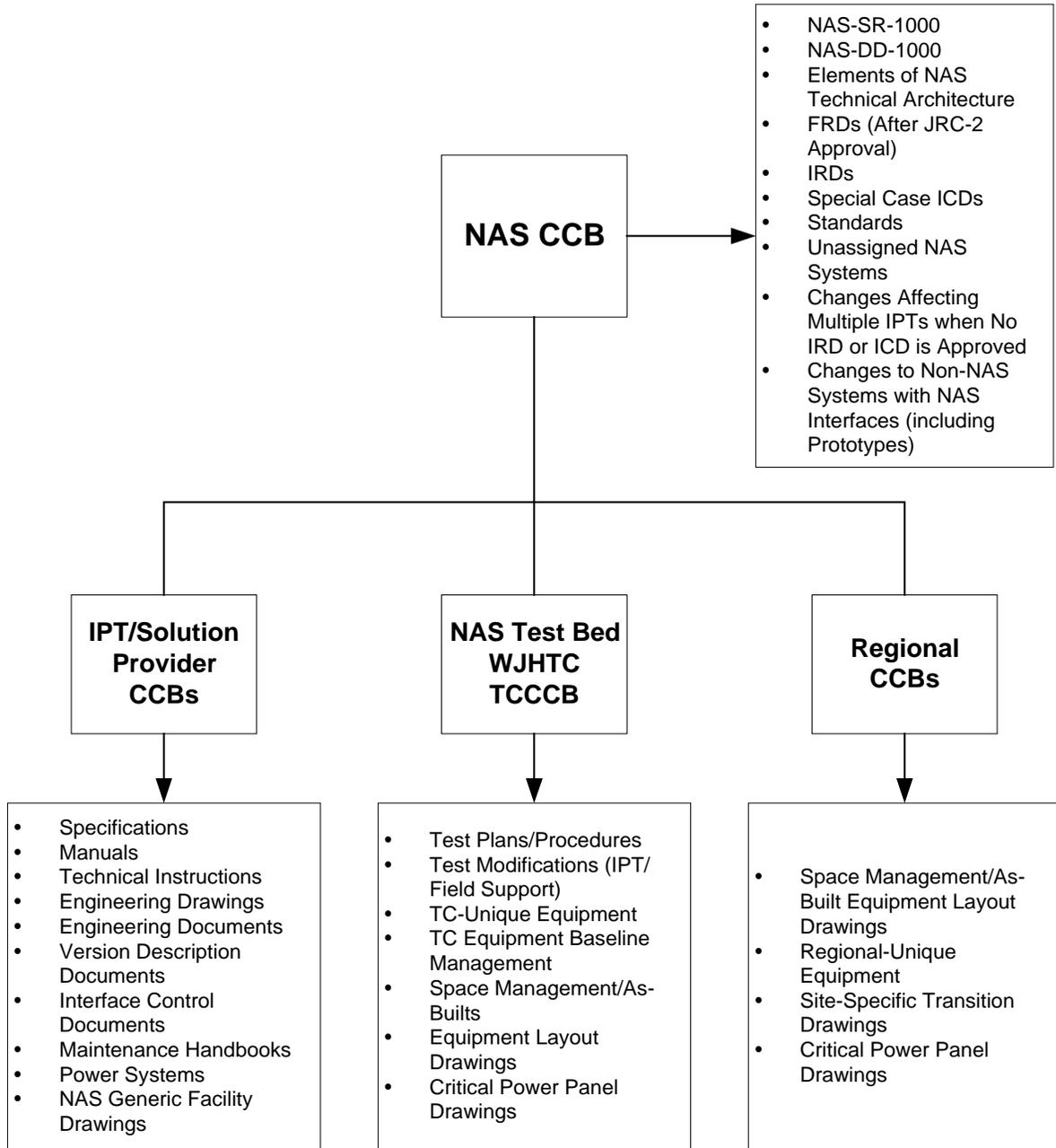


Figure 3.4.1.5-1 NAS CCB Charter Hierarchy

3.4.2 NAS Change Proposal (NCP)/Configuration Control Decision (CCD) Process

The NCP/CCD Process shall be used for change management in the FAA. It has clearly defined elements that shall be adhered to by all CM participants. A Solution Provider shall tailor its change process around these standard elements. This section contains the following procedures:

- Originate Change (Section 3.4.2.1), which describes the process for proposing a change up to the point that an NCP number is assigned to it
- NCP Evaluation (Section 3.4.2.2), which describes the procedures for evaluating an NCP before it is submitted to a CCB for approval
- Configuration Control Board (CCB) Decision Process (Section 3.4.2.3), which describes how a CCB evaluates a proposed change
- Configuration Control Decision (CCD) Closure (Section 3.4.2.4), which describes the method for ensuring that the CCB decision is implemented
- Instructions for NAS Change Proposal (NCP) and Configuration Control Decision (CCD) Forms (Section 3.4.2.5), which describes the forms used for NCPs and CCDs, with instructions for filling out each block of the form
- Withdrawing Case Files or NCPs (Section 3.4.2.6), which describes how to withdraw a case file or an NCP at any point after initiation, but prior to CCD issuance
- Amending NCPs (Section 3.4.2.7), which describes how to update an NCP at any point after initiation
- Transferring a NAS Change Proposal (NCP) (Section 3.4.2.8), which describes how to transfer an NCP from one CCB to another
- Amending Approved CCDs (Section 3.4.2.9), which describes how to amend a CCD after it has already obtained CCB approval
- Emergency Modifications (Section 3.4.2.10), which describes the variation on the standard change process used for changes with emergency priority.

3.4.2.1 Originate Change

3.4.2.1.1 Purpose

This procedure describes the methods of originating a change to a system configuration. It encompasses the change management process from the decision to originate a change to the point that the proposed change is ready for NCP evaluation.

3.4.2.1.2 Scope

This procedure applies to organizations that are responsible for implementing CM in accordance with National Policy. Any person can identify a problem or suggest an improvement at any time during the product life-cycle. However, change origination procedures differ according to the source of the change. These sources include the following:

- Headquarters or a solution provider during any point of a system’s life cycle
- Operational Support (AOS) during system transition, test, and operation
- The field or region during system deployment as well as for operational changes.

3.4.2.1.3 Responsibilities

- The originating office is responsible for
 - providing an internal review that verifies a proposed change
 - disseminating the proposed change to the appropriate reviewers
 - incorporating prescreening comments into the case file package.
- Prescreening is performed by offices identified in *NAS-MD-001, NAS Subsystem Baseline Configuration and Documentation Listing*.
- The CM Control Desk is responsible for performing quality checks on the case file to ensure that all prescreening comments are coordinated between the originator and commentor and that it is complete and ready for must evaluation. The CM Control Desk is responsible for logging proposed changes and tracking their status.

3.4.2.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9 Plan and Manage Program CM • 49 Require Baseline Change • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 102 Perform Problem Management Tracking • 106 Provide Nonconformance Tracking
<ul style="list-style-type: none"> • NAS-MD-001, Revision 17, <i>National Airspace System Master Configuration Index: Subsystem Baseline Configuration and Documentation Listing</i> 	<ul style="list-style-type: none"> • pp. iii- xi

3.4.2.1.5 Procedure

The procedure for originating a change varies considerably depending on the point of origination. For this reason, an overview of the general process is presented in this section. It is followed by a more detailed description of the individual procedural sequences for Headquarters/solution providers, AOS, and the field/regions in Sections 3.4.2.1.5.1, 3.4.2.1.5.2, and 3.4.2.1.5.3 respectively.

Any person can identify a problem or suggest an improvement at any time during the product life-cycle. If the product has not yet been fielded, the appropriate Integrated Product Team (IPT) can act upon the proposed change. If the product is fielded, regional field personnel can document the change. In cases where no existing (including unassigned) NAS hardware, software or baseline documents or an interface to a NAS system is affected by the proposed change, AOS/Region may take corrective action without processing a NAS case file/NCP. However, the corrective action shall be recorded in the appropriate status accounting systems. A Program Trouble Report (PTR) is one example of a corrective action that can be made without processing a NAS case file/NCP.

For changes that fall within the scope of this procedure, the originator shall document the change in a case file. The case file provides a description of the change and additional pertinent information, such as priority, point of origin, affected components, etc. Instructions for filling out a case file form are described in Section 3.4.2.5. Case files contain documentation of the proposed change; this documentation shall be augmented during the course of change evaluation, as described in the individual procedural steps below.

If the proposed change is an emergency modification, the originator shall submit it to the System Management Office (SMO) for approval. Emergency modifications differ from other changes in that the change is implemented first and the paperwork is completed afterwards. This procedure is described in Section 3.4.2.10.

Each proposed change shall undergo internal reviews, which determine whether the change is beneficial to the NAS and feasible and which also act as a quality check to ensure that the case file contains all of the required information. The quality check shall validate that a case file/NCP worksheet has been included. If the change is not beneficial and feasible, no further action shall be taken (although the originator has the option of redrafting the case file to meet the reviewers' objections and resubmitting it for review).

Once a change passes an internal review, it shall undergo a prescreening review when applicable. Prescreening organizations shall perform reviews to verify: 1) the sufficiency of background information supporting the need for the proposed change, 2) scope of change, 3) benefit and technical feasibility and 4) that estimated cost data is provided. The prescreening organizations for an implementing organization shall be designated in the organization's Configuration Control Board (CCB) operating procedures. The prescreening organizations shall be listed on the case file form. Prescreening organizations shall respond by:

- Accepting the proposed change,
- Returning the change with comments/requests for additional information, or
- Rejecting the proposed change.

Note that a non-concur in prescreening shall be indicated by a rejection response. Comments and requests for additional information shall be returned to the CM Control Desk, which attaches them to the case file.

Once the prescreening process is complete and the change is accepted, the CM Control Desk shall review the case file. The CM Control Desk shall perform the following activities during case file review:

- Review the case file for completeness and verify that applicable blocks on the form are accurately completed. Verified fields include Affected Configuration Item, FAA Type numbers, Facility Identifiers (if applicable), Affected Documents, and Review Data.
- Ensure that the affected documents are baselined and added to the case file record. If new documents are proposed for baselining, verify that such documents have FAA-assigned document numbers and appropriate signatures.
- Verify that the "was/now" pages of impacted documents (i.e., the initial and updated versions of pages affected by the change) are included in the case

file package, if obtainable. In some cases, they may not be available until completion of an engineering study.

- Verify that appropriate prescreening has been accomplished and all necessary signatures are provided.

If the case file is deemed acceptable, the CM Control Desk shall log it into the CM tool, assign an NCP number to the case file, and forward it to the organizational CM office for formal NCP evaluation (Procedure 3.4.2.2). The CM Control Desk may return the case file with requests for additional information if the case file is deemed incomplete. If so, the case file shall be forwarded only after the originator supplies the requested information and the CM Control Desk confirms that the case file is complete.

Procedural steps follow. Since this procedure varies depending on the circumstances under which the change is proposed, only the step-by-step description for case file initiation common to all organizations is given here. The organization-specific procedures are described in the following sections:

- Section 3.4.2.1.5.1: Headquarters/solution provider-originated changes
- Section 3.4.2.1.5.2: AOS-originated changes
- Section 3.4.2.1.5.3: Field/region-originated changes

All of these sub-procedures either continue with the formal NCP Evaluation procedure (if the case file is approved) or terminate following case file disapproval from one of the reviews.

Figure 3.4.2.1.5-1 provides a graphical representation of the steps for case file initiation.

Procedure Step	Procedure Description
1. Identify Change	<ul style="list-style-type: none"> • The change originator shall identify the proposed change. • A change may be proposed by any person, at any point in the life-cycle.
2. Change to or Interface with NAS Baseline?	<ul style="list-style-type: none"> • If the proposed change does not affect existing (including unassigned) NAS hardware, software or any baseline documents or an interface to a NAS system, the change may be implemented immediately in the appropriate field. In that case go to Step 3. Otherwise proceed to Step 5.

Procedure Step	Procedure Description
3. Implement Corrective Action	<ul style="list-style-type: none"> • AOS, in conjunction with the appropriate regional and Academy office, shall implement the corrective action and record it in the appropriate status accounting (CSA) systems.
4. Standard CSA Information for Configuration Items/Products (Procedure 3.5.1)	<ul style="list-style-type: none"> • The corrective action shall be incorporated via the organization's configuration status accounting process to update the local configuration database. The procedure terminates at this point.
5. Emergency Change?	<ul style="list-style-type: none"> • If the change is an emergency modification, continue with Step 6. Otherwise proceed to Step 7.
6. Emergency Modifications (Procedure 3.4.2.10)	<ul style="list-style-type: none"> • The change shall be submitted to the System Management Office (SMO) for implementation as an emergency modification.
7. Initiate Case File (Procedure 3.4.2.5)	<ul style="list-style-type: none"> • The change originator shall draft a case file in accordance with Procedure 3.4.2.5. The case file shall be the standard form of documenting proposed changes. If the product is not yet fielded, the appropriate solution provider can take action. If the product is fielded (operational), regional field personnel can document the problem. • The change originator shall direct the case file to the appropriate organization.
8. HQ/Solution Provider-Originated Change?	<ul style="list-style-type: none"> • If the change has originated from Headquarters (HQ) or from a solution provider, proceed to Step 10. Otherwise continue with Step 9.
9. AOS-Originated Change?	<ul style="list-style-type: none"> • If the change has originated from AOS, proceed to Step 11. If the change has originated from a field location or a regional office, continue with Step 12.
10. Headquarters/Solution Provider-Originated Changes (Procedure 3.4.2.1.5.1)	<ul style="list-style-type: none"> • For changes originating from Headquarters or solution providers, the change originator shall continue the process in accordance with the steps given in Procedure 3.4.2.1.5.1.

Procedure Step	Procedure Description
11. AOS-Originated Changes (Procedure 3.4.2.1.5.2)	<ul style="list-style-type: none">• For changes originating from AOS, the change originator shall continue the process in accordance with the steps given in Procedure 3.4.2.1.5.2.
12. Region/Field-Originated Changes (Procedure 3.4.2.1.5.3)	<ul style="list-style-type: none">• For changes originating from regional or field offices, the change originator shall continue the process in accordance with the steps given in Procedure 3.4.2.1.5.3.

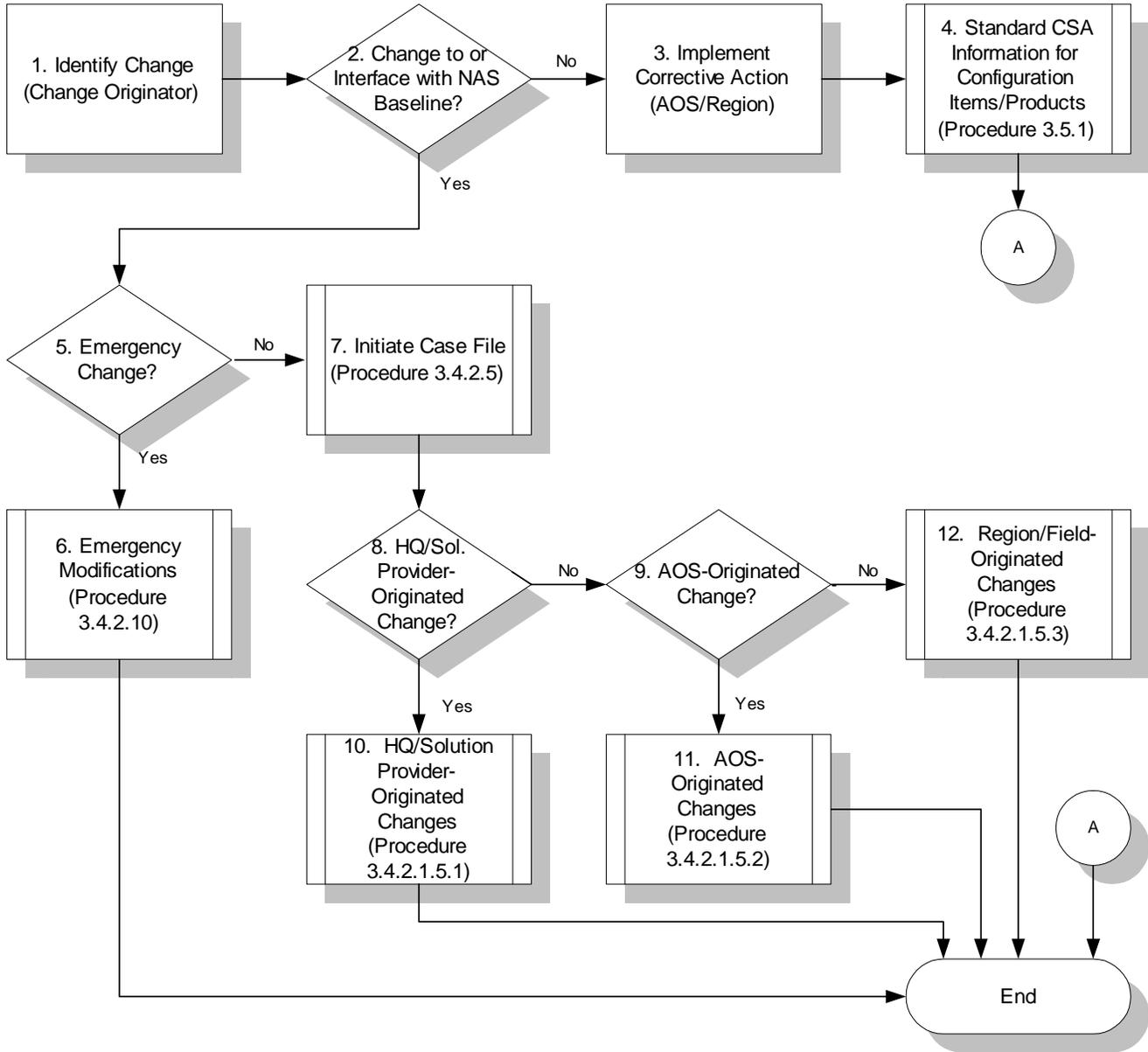


Figure 3.4.2.1.5-1. Originate Change

3.4.2.1.5.1 Headquarters/Solution Provider-Originated Changes

Refer to the initial discussion in Section 3.4.2.1.5 for considerations of case files in general. For changes originating from Headquarters and solution providers, the following reviews and quality checks shall be used:

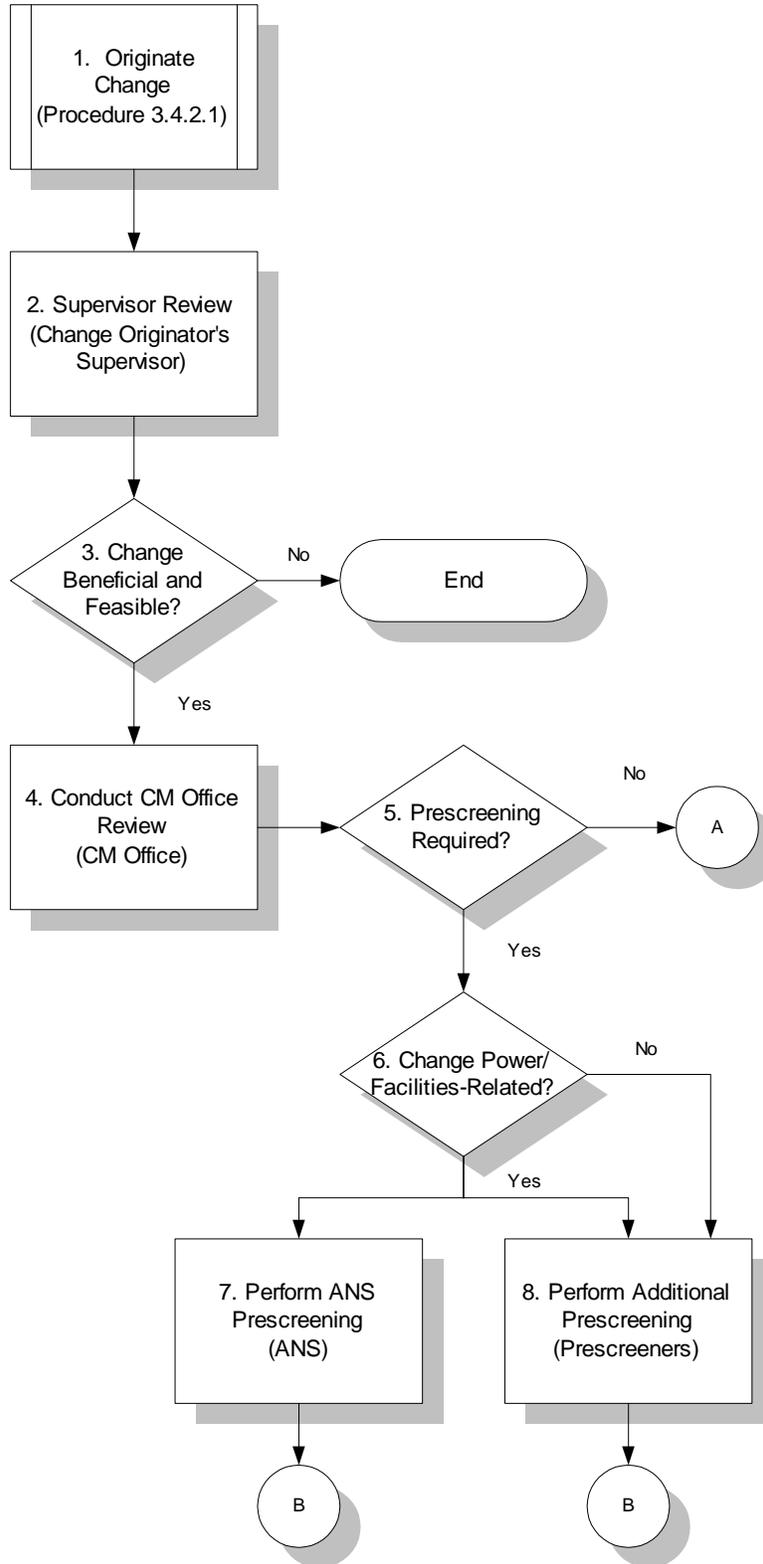
- Internal review, at the supervisory level, for benefit to the NAS and technical feasibility
- Organizational CM office review, for quality check. The check shall verify that the NCP worksheet is included in the case file; the worksheet form is described in Section 3.4.2.5.
- Prescreening, which is required for all changes that affect Power Systems and Facilities (PS&F) CIs. This prescreening shall be performed by NAS Transition and Implementation (ANS). Certain organizations may require additional prescreenings, regardless of which CI is affected
- CM Control Desk review, for case file completeness.

Figure 3.4.2.1.5.1-1 provides a graphical representation of the steps for changes originating from Headquarters or solution providers.

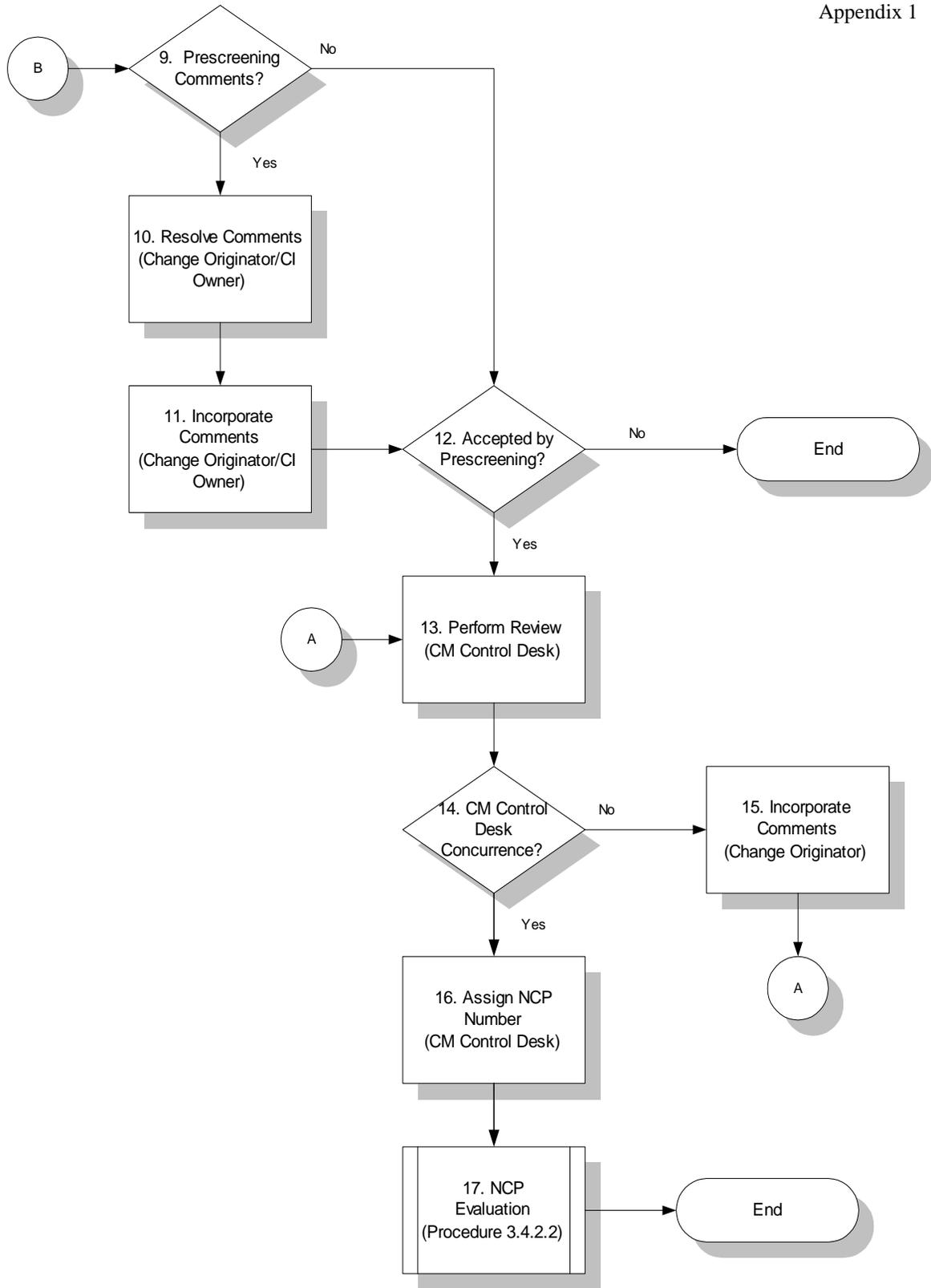
Procedure Step	Procedure Description
1. Originate Change (Procedure 3.4.2.1)	<ul style="list-style-type: none"> • The change originator shall follow the steps for case file initiation given in Procedure 3.4.2.1.
2. Supervisor Review	<ul style="list-style-type: none"> • The supervisor of the change originator shall review the case file to determine whether the change is beneficial to the NAS and technically feasible.
3. Change Beneficial and Feasible?	<ul style="list-style-type: none"> • If the change is beneficial and feasible, continue with Step 4. Otherwise terminate the process. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
4. Conduct CM Office Review	<ul style="list-style-type: none"> • The CM office for the IPT or solution provider shall review the case file to perform a quality check on the case file contents. This quality check shall ensure that a worksheet has been included with the case file/NCP form.

Procedure Step	Procedure Description
5. Prescreening Required?	<ul style="list-style-type: none"> • If prescreening is required, continue with Step 6. Otherwise proceed to Step 13. • Prescreening for all changes may be required by certain organizations.
6. Change Power or Facilities-Related?	<ul style="list-style-type: none"> • If the proposed change affects PS&F CIs, an ANS prescreening shall be performed. In that case continue with Steps 7 and 8. Otherwise proceed to Step 8.
7. Perform ANS Prescreening	<ul style="list-style-type: none"> • The ANS organization shall perform a prescreening to ensure that the change to the power systems or facilities does not adversely impact other systems or the overall power system. • This step shall be performed simultaneously with Step 8.
8. Perform Additional Prescreening	<ul style="list-style-type: none"> • The organization shall perform any additional prescreening(s) that its change management procedures require. These prescreening(s) shall be performed in parallel with the ANS prescreening.
9. Prescreening Comments?	<ul style="list-style-type: none"> • If comments were generated from the prescreening(s), continue with Step 10. Otherwise proceed to Step 12.
10. Resolve Comments	<ul style="list-style-type: none"> • The change originator and the owner of the CI affected by the change shall request resolution of prescreening comments from the evaluators and collect all memoranda relating to comment resolution.
11. Incorporate Comments	<ul style="list-style-type: none"> • The change originator and CI owner shall add the comments from the prescreening(s) to the case file.

Procedure Step	Procedure Description
12. Accepted by Prescreening?	<ul style="list-style-type: none"> • If prescreening determines that the proposed change is not beneficial and feasible or that its costs greatly outweigh its potential benefits, terminate the process. Otherwise continue with Step 13. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
13. Perform Review	<ul style="list-style-type: none"> • The CM Control Desk shall perform a quality check on the case file. The quality check shall review the case file to ensure that it is complete and that all prescreening comments have been incorporated.
14. CM Control Desk Concurrence?	<ul style="list-style-type: none"> • If the CM Control Desk validates the case file, proceed to Step 16. If comments were generated from the CM Control Desk review, continue with Step 15 to incorporate the comments.
15. Incorporate Comments	<ul style="list-style-type: none"> • The change originator shall incorporate the comments and resubmit the case file to the CM Control Desk for verification. Proceed to Step 13.
16. Assign NCP Identifier	<ul style="list-style-type: none"> • The CM Control Desk shall assign an NCP identifier to the case file and record the number in the Documentation and Configuration Identification System (DOCCON).
17. NCP Evaluation (Procedure 3.4.2.2)	<ul style="list-style-type: none"> • The case file shall be submitted for formal evaluation. Continue with the NAS Change Proposal Evaluation procedure (Procedure 3.4.2.2).



**Figure 3.4.2.1.5.1-1 HQ/Solution Provider-Originated Changes
(Sheet 1 of 2)**



**Figure 3.4.2.1.5.1-1 HQ/Solution Provider-Originated Changes
(Sheet 2 of 2)**

3.4.2.1.5.2 AOS-Originated Changes

Refer to the initial discussion in Section 3.4.2.1.5 for considerations of case files in general. For changes originating from AOS, the following reviews and quality checks shall be used:

- Internal review at the supervisory level for benefit to the NAS and technical feasibility
- Peer review from various AOS divisions for benefit to the NAS and technical feasibility
- AOS NCP Coordinator review for a quality check
- CM Control Desk review for case file completeness.

Figure 3.4.2.1.5.2-1 provides a graphical representation of the steps for changes originating from AOS.

Procedure Step	Procedure Description
1. Originate Change (Procedure 3.4.2.1)	<ul style="list-style-type: none"> • The change originator shall follow the steps for case file initiation given in Procedure 3.4.2.1.
2. Conduct Peer Review	<ul style="list-style-type: none"> • The AOS organization shall conduct a peer review to assess the ramifications of the change. • Depending on the nature of the change, multiple peer reviews may be conducted by the various divisions within AOS.
3. Review Concurrence?	<ul style="list-style-type: none"> • If the peer review(s) determines that the change is beneficial and feasible, continue with Step 4. Otherwise terminate the process. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
4. Conduct Supervisor Review	<ul style="list-style-type: none"> • The supervisor of the change originator shall review the case file to determine whether the change is beneficial and technically feasible.

Procedure Step	Procedure Description
5. Change Beneficial and Feasible?	<ul style="list-style-type: none"> • If the change is beneficial and feasible, continue with Step 6. Otherwise terminate the process. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
6. Conduct AOS NCP Coordinator Review	<ul style="list-style-type: none"> • The AOS NCP coordinator shall review the case file to ensure that it is complete and includes a worksheet.
7. Coordinator Approval?	<ul style="list-style-type: none"> • If the coordinator approves the case file, proceed to Step 9. Otherwise continue with Step 8 to obtain additional information.
8. Provide Additional Information	<ul style="list-style-type: none"> • The change originator shall supply the information deemed missing from the case file. Return to Step 6 to repeat the review for completeness.
9. Perform Review	<ul style="list-style-type: none"> • The CM Control Desk shall perform a quality check on the case file. The quality check shall review the case file to ensure that it is complete and that all prescreening comments have been incorporated.
10. Case File Complete?	<ul style="list-style-type: none"> • If comments were generated from the CM Control Desk review, continue with Step 11 for comment incorporation. If the CM Control Desk verifies that the case file is complete, proceed to Step 12.
11. Incorporate Comments	<ul style="list-style-type: none"> • The change originator shall incorporate the comments and resubmit the case file to the CM Control Desk for verification. Return to Step 9 to repeat the check for case file completeness.
12. Assign NCP Identifier	<ul style="list-style-type: none"> • The CM Control Desk shall assign an NCP identifier to the case file and record the number in DOCCON.
13. NCP Evaluation (Procedure 3.4.2.2)	<ul style="list-style-type: none"> • The case file shall be submitted for formal evaluation. Continue with the NAS Change Proposal Evaluation procedure (Procedure 3.4.2.2).

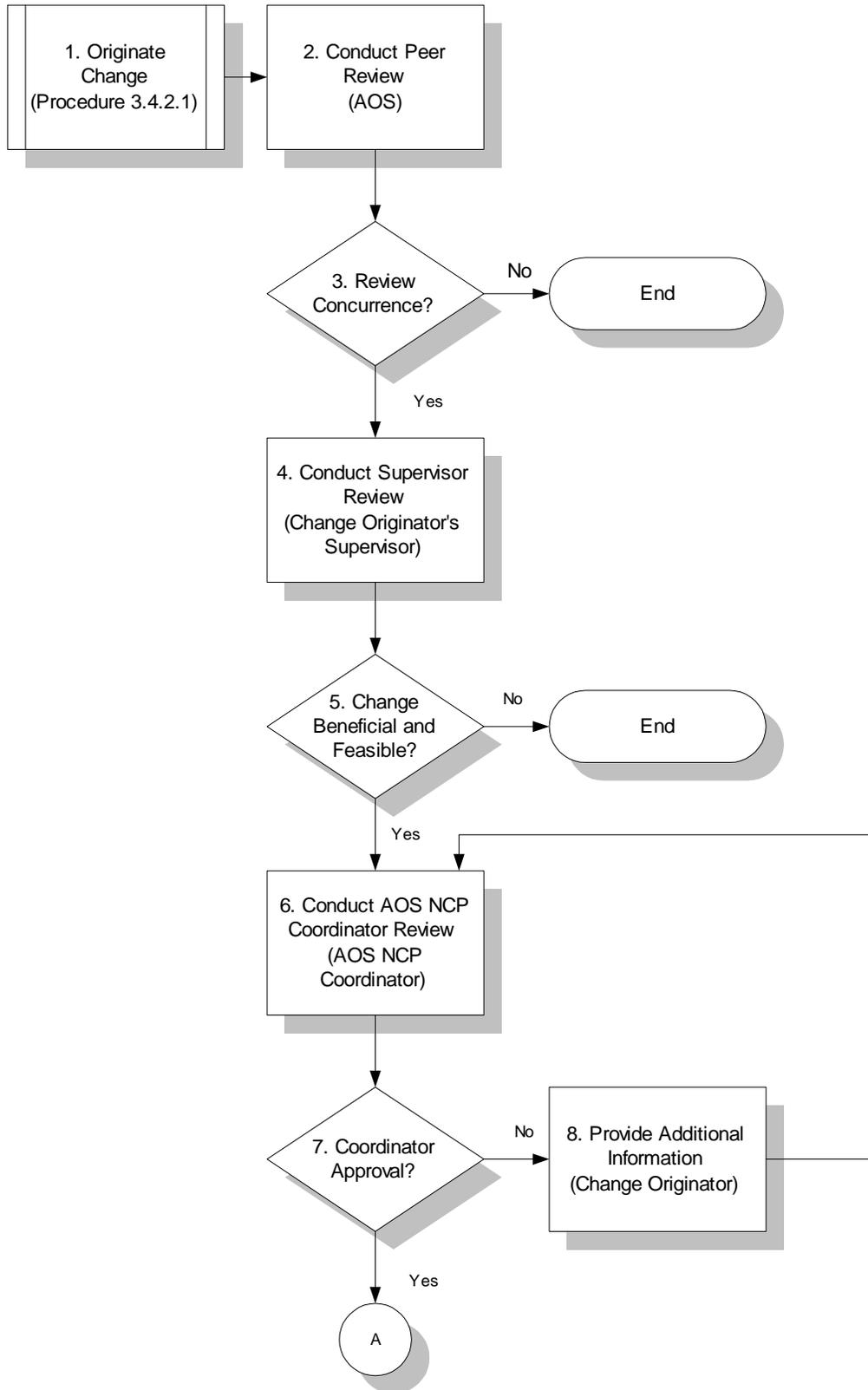


Figure 3.4.2.1.5.2-1 AOS-Originated Changes (Sheet 1 of 2)

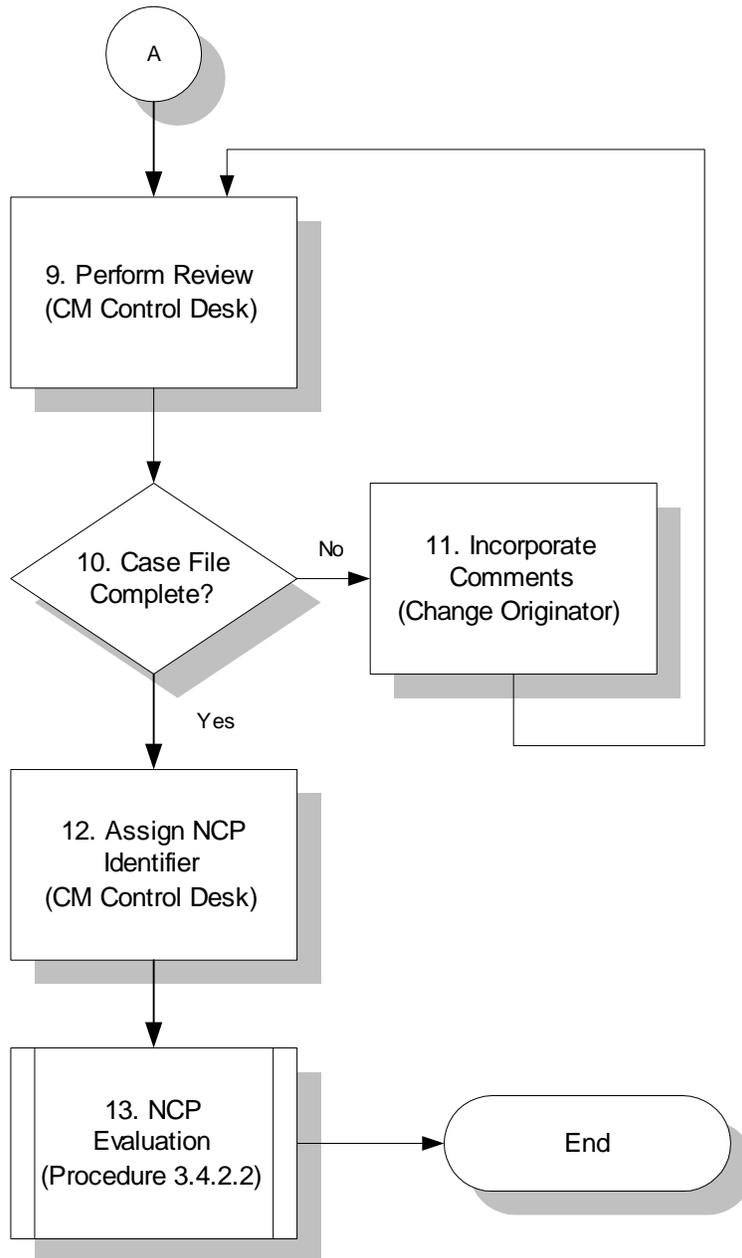


Figure 3.4.2.1.5.2-1 AOS-Originated Changes (Sheet 2 of 2)

3.4.2.1.5.3 *Field/Region-Originated Changes*

Refer to the initial discussion in Section 3.4.2.1.5 for considerations of case files in general. The procedure for handling changes from field locations and regional offices is more complicated than for handling changes from other sources. The following reviews and quality checks shall be used:

- Internal review at the supervisory level for benefit to the NAS and technical feasibility
- System Management Office (SMO)/Airports District Office (ADO) review for benefit to the NAS and technical feasibility
- Regional Coordinator review for quality check
- Regional subject matter expert review which is explained in greater detail below
- Prescreening which is required for all field/region-initiated changes except waivers against installation and siting criteria documents. For changes that affect PS&F CCB CIs, ANS prescreening shall be mandatory
- CM Control desk review for case file completeness, performed for all changes beyond the regional level.

Since changes from the field do not require the originator to attach a worksheet to the NCP form, the prescreening organization (e.g., AOS) shall attach the worksheet and provide the best information available for estimated costs, etc.

The regional review contains elements of the formal NCP Evaluation procedure (Procedure 3.4.2.2). The proposed change shall be thoroughly evaluated by regional subject matter experts. The regional review ensures evaluation of a proposed change by impacted organizations from technical, management and cost perspectives, and provides input to the CCB for its approval/disapproval decision.

If a proposed change is:

- Local in scope and within the approval authority granted to the Regional CCB (RCCB), it shall not undergo prescreening or Must Evaluation. Evaluation of the proposed change shall follow the procedures listed in the RCCB's operating procedures. All approved and implemented changes shall be logged in DOCCON.
- Local in scope and outside the approval authority granted to the RCCB, it shall undergo prescreening and CM Control Desk review followed by formal NCP evaluation (Procedure 3.4.2.2). However, waivers/deviations shall not go through prescreening, but shall be forwarded to the CM Control Desk for formal NCP evaluation.

- National in scope, the case file shall undergo regional review and prescreening prior to being forwarded to the CM Control Desk for formal NCP evaluation.

Figure 3.4.2.1.5.3-1 provides a graphical representation of the steps for changes originating from regions or fields.

Procedure Step	Procedure Description
1. Originate Change (Procedure 3.4.2.1)	<ul style="list-style-type: none"> • The change originator shall follow the steps for case file initiation given in Procedure 3.4.2.1.
2. Supervisor Review	<ul style="list-style-type: none"> • The supervisor of the change originator shall review the case file to determine whether the change is beneficial and technically feasible.
3. Change Beneficial and Feasible?	<ul style="list-style-type: none"> • If the change is beneficial and feasible, continue with Step 4. Otherwise terminate the process. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
4. Conduct SMO/ADO Review	<ul style="list-style-type: none"> • The SMO and/or ADO technical staff shall review the case file to verify its benefit and feasibility.
5. Change Beneficial and Feasible?	<ul style="list-style-type: none"> • If the change is beneficial and feasible, continue with Step 6. Otherwise terminate the process. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
6. Conduct Regional Coordinator Review	<ul style="list-style-type: none"> • The Regional Coordinator shall review the case file for completeness.
7. Regional Coordinator Validation?	<ul style="list-style-type: none"> • If the Regional Coordinator validates that the case file is complete, proceed to Step 9. Otherwise, continue with Step 8 to obtain additional information.

Procedure Step	Procedure Description
8. Obtain Additional Information	<ul style="list-style-type: none"> The change originator shall be requested to supply the information deemed missing by the Regional Coordinator. Return to Step 6 to repeat the review for completeness.
9. Change Under RCCB Authority?	<ul style="list-style-type: none"> If the change falls under regional authority, the case file shall be processed under the RCCB charter and operating procedures. In that case continue with Step 10. Otherwise proceed to Step 11.
10. Conduct RCCB Review	<ul style="list-style-type: none"> The Regional Coordinator shall assign an NCP identifier to the case file and record the number in DOCCON. All comments received from regional subject matter experts shall be resolved. The RCCB shall either approve/disapprove the NCP and issue the CCD documenting the action. The Regional Coordinator shall record the disposition of the case file/NCP in the DOCCON.
11. Conduct Intra-Regional Review	<ul style="list-style-type: none"> The Regional Coordinator shall identify the regional subject matter experts, schedule the review and distribute the case file to the reviewers. The regional subject matter experts shall review the case file for accuracy, validity, benefit and technical feasibility and soundness of the proposed change.
12. National Case File?	<ul style="list-style-type: none"> If the proposed change is determined to be on a national level, proceed to Step 14. Otherwise the change is on a regional or local level; in that case continue with Step 13.
13. Deviation/Waiver?	<ul style="list-style-type: none"> If the proposed change is a deviation/waiver to installation or siting criteria, proceed to Step 22. Otherwise continue with Step 14.

Procedure Step	Procedure Description
14. Change Power or Facilities-Related?	<ul style="list-style-type: none"> If the proposed change affects PS&F CCB CIs, an ANS prescreening shall be performed. In that case, continue with Steps 15 and 16. Otherwise proceed directly to Step 16.
15. Perform ANS Prescreening	<ul style="list-style-type: none"> The ANS organization shall perform a prescreening to ensure that the change to PS&F CI does not adversely impact other systems or the overall power system. This step shall be performed simultaneously with Step 16.
16. Perform Additional Prescreening	<ul style="list-style-type: none"> Prescreening organizations shall perform reviews to verify the sufficiency of background information supporting the need for the proposed change; scope of change; benefit; technical feasibility; and to provide estimated cost data.
17. Prescreening Comments?	<ul style="list-style-type: none"> If <i>significant</i> comments were generated from the prescreening(s), continue with Step 18. Otherwise proceed to Step 20.
18. Resolve Comments	<ul style="list-style-type: none"> The change originator shall discuss/coordinate prescreening comments with the prescreening evaluator.
19. Incorporate Comments	<ul style="list-style-type: none"> The prescreening organization shall attach the prescreening comments to the case file prior to forwarding it to the CM Control Desk.
20. Concurrence by Prescreening?	<ul style="list-style-type: none"> If a prescreening organization determines that the proposed change is not beneficial and feasible or that its costs greatly outweigh its potential benefits, the case file shall be returned to the Regional Coordinator. In that case continue with Step 21. Otherwise continue with Step 22.

Procedure Step	Procedure Description
21. Return Case File	<ul style="list-style-type: none"> • The prescreening evaluators shall return the case file to the Regional Coordinator for dissemination to the originator and other affected groups. • The change originator has the option of resubmitting the change if the objections to the proposed change can be met. In that case, the originator shall begin the procedure again at Step 1, redrafting the case file as necessary.
22. Perform CM Control Desk Review	<ul style="list-style-type: none"> • The CM Control Desk shall perform a quality check on the case file. The quality check ensures that pertinent case file information has been completed and that all prescreening comments have been incorporated. (Note: Waiver/deviation NCPs do not go through the prescreening process, but are sent directly to the CM Control Desk by the Regional Coordinator.)
23. Case File Complete?	<ul style="list-style-type: none"> • If the CM Control Desk verifies that the case file is complete, proceed to Step 25. If the review results in the need for additional information, or if comments were generated from the CM Control Desk review, continue with Step 24 to incorporate the comments or attach the missing information, e.g. schematic.
24. Provide Additional Information/Incorporate Comments	<ul style="list-style-type: none"> • The change originator shall provide the additional information and/or incorporate the changed verbiage into the case file. The case file is then resubmitted to the CM Control Desk for verification. Proceed to Step 23 to repeat the review for case file completeness.
25. Assign NCP Number	<ul style="list-style-type: none"> • The CM Control Desk shall assign an NCP identifier to the case file and record the number in DOCCON.
26. NCP Evaluation (Procedure 3.4.2.2)	<ul style="list-style-type: none"> • The case file shall be submitted for formal evaluation. Continue with the NAS Change Proposal Evaluation procedure (Procedure 3.4.2.2).

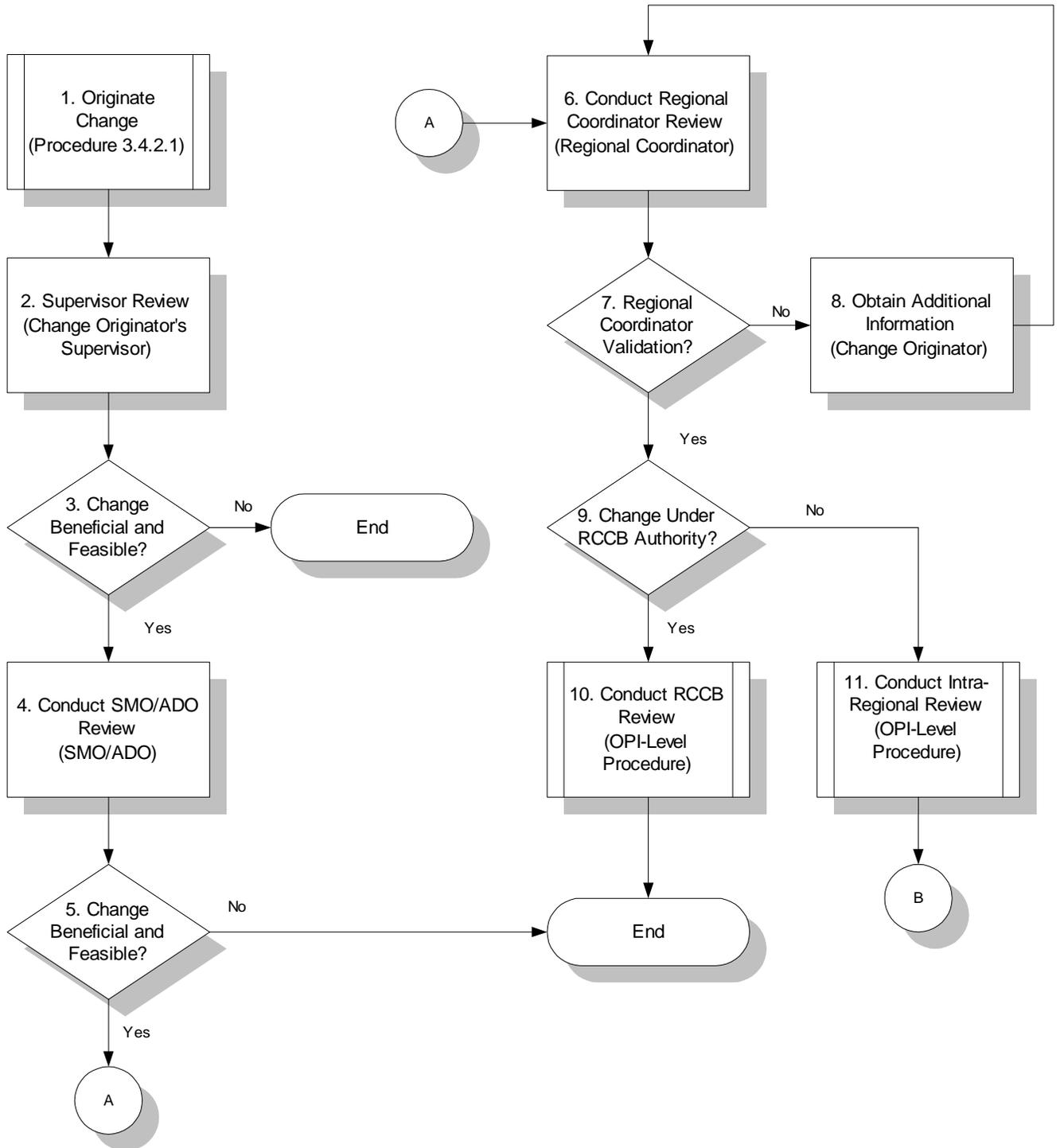


Figure 3.4.2.1.5.3-1 Field/Region-Originated Changes (Sheet 1 of 3)

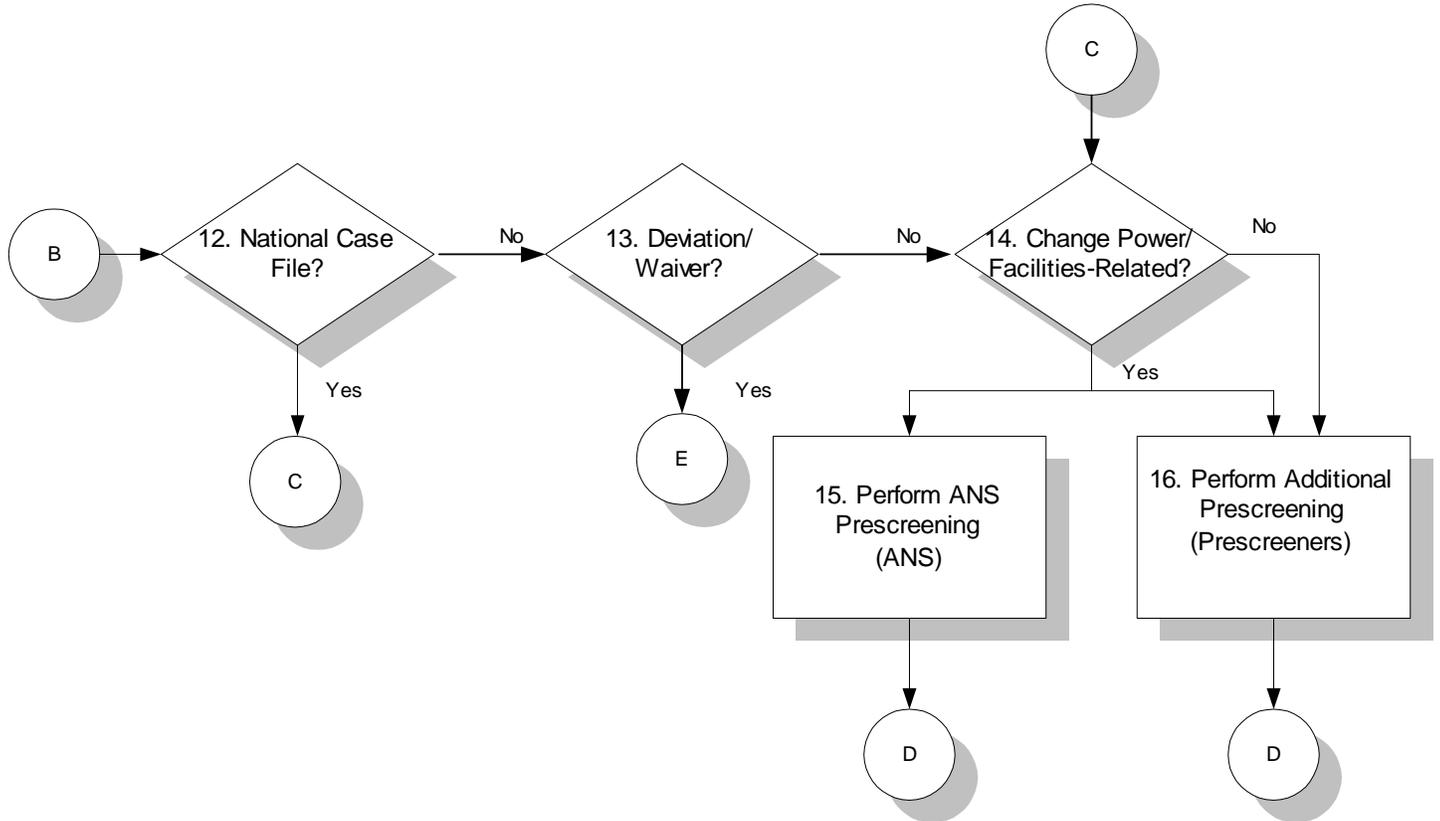


Figure 3.4.2.1.5.3-1 Field/Region-Originated Changes (Sheet 2 of 3)

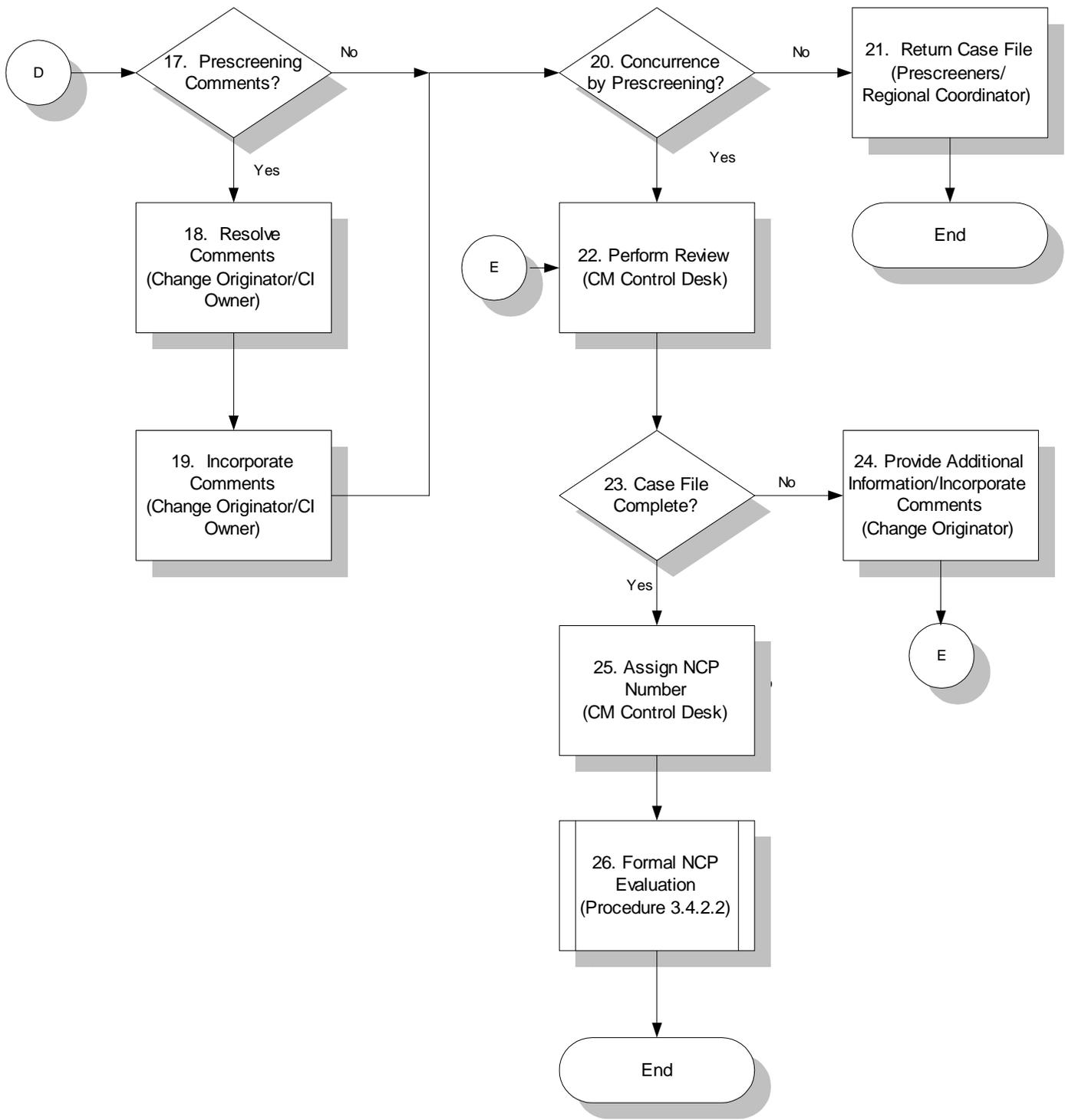


Figure 3.4.2.1.5.3-1 Field/Region-Originated Changes (Sheet 3 of 3)

3.4.2.2 NCP Evaluation

3.4.2.2.1 Purpose

This procedure describes the process steps that support a thorough review of proposed NAS Change Proposals (NCP) in preparation for Configuration Control Board (CCB) activities. These steps include the collection and resolution of NCP review comments. The activities of “Must Evaluation” and “Resolution of Comments” constitute the NCP evaluation phase of the FAA change management process.

3.4.2.2.2 Scope

This procedure applies to organizations that process and/or review NCPs. This procedure applies to change management activities that occur in any phase of the FAA’s Acquisition Management System (AMS) life cycle.

3.4.2.2.3 Responsibilities

- A CCB is responsible for administrative and coordination activities associated with the evaluation of NCPs subject to its processing authority. NCP evaluation activities include data entry of related configuration status accounting (CSA) information into the Documentation and Configuration Identification System (DOCCON) on a real-time basis.
- A Must Evaluator is responsible for the timely review of an NCP when assigned as an evaluator.
- An NCP Originator and, as appropriate, configuration item (CI) owner are responsible for resolving comments resulting from a formal NCP evaluation.
- The CM Control Desk is responsible for administration and coordination of activities supporting NCP evaluations.

3.4.2.2.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statements I-4.3, I-4.4 and I-8 • Statements III-3 and III-4
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i> 	<ul style="list-style-type: none"> • 100 Perform Change Management • 101 Perform Configuration Status Accounting

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • ATC-88-1092, <i>DOCCON General User's Reference Guide</i> 	

3.4.2.2.5 Procedure

NCP evaluation provides a thorough review of a proposed change by all impacted organizations from technical, management and cost perspectives, thereby supporting a well-informed decision by the CCB Chairperson(s). Within the FAA change management process, NCP evaluation shall consist of the activities called “Must Evaluation (ME)” and “Resolution of Comments (ROC)”. A CCB’s CM Office shall distribute all NCPs subject to the CCB for Must Evaluation review. Upon completion of prescreening and NCP number assignment, a CCB shall coordinate an NCP evaluation among appropriate functional organizations. This effort shall ensure that all changes have been fully coordinated before CCB review and action. Review organizations are selected based on the nature of the change. Organizations designated by a CCB CM Office as Must Evaluators shall provide an NCP review within the designated timeframe. Each CCB’s operating procedures shall identify detailed Must Evaluation parameters. The operating procedures may also include expedited processing steps to accommodate urgent and time-critical changes or non-contentious and administrative changes.

Review comments require resolution before the NCP is forwarded for CCB action. If all must evaluation comments are concur without comment, an ROC action is not required, and the NCP is scheduled for CCB action. In cases where comments cannot be resolved, the deadlocked NCP is forwarded for CCB review and determination of action in accordance with the CCB operating procedures. Requirements for comment resolutions as well as elevation of NCPs for which comment resolution is deadlocked are specified in the CCB operating procedures.

The CCB CM Office shall update DOCCON as each event in the evaluation process occurs. The update of CSA information shall include the entry of designated evaluators upon their assignment, entry of evaluation responses and assignment of deadlines for both review and resolution of comments.

Procedural steps follow. Figure 3.4.2.2.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. Originate Change (Procedure 3.4.2.1)</p>	<ul style="list-style-type: none"> • The CM Control Desk shall assign an NCP number to a case file upon successful completion of mandatory

Procedure Step	Procedure Description
<p>2. Assign Must Evaluators</p>	<p>pre-reviews (prescreening) and shall forward the NCP to the appropriate CCB for NCP evaluation processing. Refer to Procedure 3.4.2.1, Originate Change.</p> <ul style="list-style-type: none"> • The CCB CM Office shall assign Must Evaluators to an NCP based on the nature, scope and organizational impact of the change. The CCB operating procedures shall define criteria for assignment of Must Evaluators. In general, Must Evaluators include, but are not limited to: <ul style="list-style-type: none"> – All full-time board members – ANS-110 (for coordination with all ANS organizations) – AOP – ATP – Contractor organization as applicable – Regions (if NCP affects Regions). Note: In general, NCPs that do not make changes to operational systems or to systems nearing fielding do not need Regional evaluation. – Organizations recommended by the prescreening office or originator, as identified in block 26 of the case file.
<p>3. Schedule Must Evaluation Review</p>	<ul style="list-style-type: none"> • The CCB CM Office shall assign due dates for Must Evaluation responses in accordance with the processing priority for the change. The must evaluation timeframes are as follows: <ul style="list-style-type: none"> – Routine priority NCPs – 30 calendar days – Time-Critical priority NCPs – 14 calendar days – Urgent priority NCPs – 10 calendar days

Procedure Step	Procedure Description
<p>4. Distribute Must Evaluation Package</p>	<p>The CCB operating procedures shall reflect the review period allotted each change priority. Urgent and time-critical NCPs may receive expedited processing and an abbreviated Must Evaluator list as necessary.</p> <ul style="list-style-type: none"> • The CCB CM Office shall enter the appropriate Must Evaluator assignments and due date in DOCCON. Related CSA information shall be recorded in DOCCON for all succeeding steps in the Must Evaluation process. • The CCB CM Office shall distribute the NCP for review in accordance with the CCB operating procedures. At a minimum, the Must Evaluation Package shall include: <ul style="list-style-type: none"> - A copy of the NCP - Must Evaluator memorandum that identifies: <ul style="list-style-type: none"> – Designated Must Evaluators – Review due date – Case file and NCP numbers – Originating CCB and CM Point of Contact (with routing symbol and telephone number) • The CCB CM Office shall take appropriate steps to ensure timely distribution of NCP evaluation packages, including but not limited to initiation of walk-through procedures as needed to expedite the evaluation process.
<p>5. Conduct Must Evaluation Review</p>	<ul style="list-style-type: none"> • All designated Must Evaluators shall review the NCP and provide a response code and any comments to the CCB CM Office within the timeframe indicated on the memorandum.

Procedure Step	Procedure Description
6. Collect Must Evaluation Responses	<ul style="list-style-type: none"> • The response codes are as follows: C – Concur Without Comment N – Nonconcur With Comment R- Concur With Comment • A Must Evaluator may also add appropriate information to the NCP Worksheet (see Procedure 3.4.2.5, Instructions for NCP/CCD Forms). The NCP Worksheet is meant to collect relevant information, as it becomes available during the change management review process. • The CCB CM Office shall enter the code “O”, No Review Provided, for any organization that does not respond to the request for an evaluation. • The CCB CM Office shall collect all Must Evaluator responses and shall record all nonconcurs and other responses in the case file documentation. The evaluation comments shall be kept in the NCP folder along with other relevant correspondence and tracking data. In addition, the CCB CM Office shall record any relevant telecons and actions that have taken place regarding the NCP on the information sheets maintained in the NCP folder. • If a Must Evaluator does not provide a response within the specified time, the CCB CM Office, at its discretion, shall issue a Late Must Evaluation memorandum. This memorandum shall allocate an additional review period as deemed appropriate by the CCB CM Office. • If a Must Evaluator has been issued a Late Must Evaluation memorandum or other extension and has not yet responded, the

Procedure Step	Procedure Description
	<p>CCB CM Office shall contact the Must Evaluator to determine the reason for delay. The CCB CM Office shall then determine whether to extend the deadline for a response. If an extension is not granted, the CCB CM Office shall classify the response as No Response Provided (code "O").</p>
<p>7. Actionable Comments?</p>	<ul style="list-style-type: none"> • A copy of the Late Must Evaluation memorandum and other notes shall be included in the case file/NCP documentation. • At the end of the evaluation period and any extensions, the CCB CM Office shall determine whether actionable comments have been generated. If yes, proceed to Step 8. Otherwise, proceed to Step 14.
<p>8. Issue Resolution of Comments Package</p>	<ul style="list-style-type: none"> • The CCB CM Office shall forward Must Evaluation comments officially to the NCP originator for resolution via a ROC Memorandum. • Prior to the evaluation period cutoff, the CCB CM Office may also forward copies of evaluation responses to the NCP originator upon receipt. This practice provides the NCP originator additional time for comment resolution. • The ROC Memorandum and package shall contain the following information: <ul style="list-style-type: none"> - Breakout of responses by category (Concur without comment, Concur with comment or Nonconcur). - Due date for ROC completion. (The schedule for comment resolution shall be the same as that given in Step 5 for Must Evaluator responses based on change priority.)

Procedure Step**Procedure Description****9. Resolve Must Evaluation Comments**

- Instructions for resolving the comments (i.e., substantive concur with comment or nonconcur evaluations shall be resolved with the commenting organization, documented and signed-off).
- CM point of contact and telephone number.
- Copies of all actionable comments.
- A copy of the ROC memorandum and other notes shall be included in the case file/NCP documentation.
- For purposes of resolving NCP evaluation comments, the term "NCP originator" shall connote the NCP sponsor (i.e., originating organization) and CI owner, when appropriate.
- The NCP originator shall review the Must Evaluation comments and shall determine how the comments can be resolved. The NCP originator shall be responsible for contacting individual commentors to determine mutually agreed-to resolutions.
- The CCB CM Office shall monitor progress in completing the ROC. The CCB CM Office shall either contact the NCP originator directly or issue a Late ROC memorandum if the ROC has not been received by the due date. The CCB CM Office may grant an extension as appropriate. Reasons for delay in completing the ROC shall be documented in the NCP folder and DOCCON.
- The NCP originator shall prepare the ROC package in accordance with the instructions contained in the ROC memorandum and shall

Procedure Step	Procedure Description
10. Resolution Completed?	<p>submit it to the CCB CM Office upon completion. Each CCB's operating procedures shall specify any unique requirements for completing the ROC.</p> <ul style="list-style-type: none"> • Proceed to Step 14 for NCPs with completed and submitted ROCs. When an agreed-to resolution cannot be reached for one or more comments within the due date or any extensions granted, proceed to Step 11 to withdraw the NCP, or go to Step 13 to have the CCB evaluate the deadlocked comments and make final disposition of the NCP.
11. NCP Candidate for Withdrawal?	<ul style="list-style-type: none"> • In cases where comment resolution cannot be reached within a reasonable time due to the complexity of the issues or the need for a major rewrite of the NCP, the NCP originator shall consider withdrawing the NCP and submitting a new case file when issues are resolved. Proceed to Step 12 for NCP withdrawal. Otherwise, proceed to Step 13.
12. Withdraw NCP (Procedure 3.4.2.6)	<ul style="list-style-type: none"> • See Procedure 3.4.2.6 for steps to withdraw an NCP. • Note that a NCP/case file may be withdrawn at any time during the change review process including at a CCB meeting. NCP withdrawal is not possible after a Configuration Control Decision (CCD) has been issued.
13. Schedule NCP for CCB Direction	<ul style="list-style-type: none"> • The CCB CM Office shall forward the NCP for CCB review and determination of action to address the deadlocked comments. Proceed to Step 15. • The NCP originator and commenting office shall send representatives to the CCB for

Procedure Step	Procedure Description
14. Schedule NCP for CCB Action	<p>discussion of any resolution problems.</p> <ul style="list-style-type: none"> • The CCB CM Office shall declare an NCP ready for CCB upon completion of a Must Evaluation review that does not generate actionable comments or upon receipt of a fully completed ROC. When an impasse in resolving comments has been reached, the CCB shall make the decision as to the disposition of the NCP, and the NCP shall be scheduled for CCB direction in accordance with Step 13. • The NCP shall be scheduled for the next available CCB in accordance with the cut-off deadlines established in the CCB operating procedures. • At the CCB CM Office/Executive Secretariat's discretion, NCPs may be taken to the CCB chairperson(s) for signature outside the board as appropriate. The CCB operating procedures shall specify procedures for obtaining NCP dispositions outside a regularly scheduled CCB. Procedure 3.4.2.3, CCB Decision Process, provides steps for such actions.
15. CCB Decision Process (Procedure 3.4.2.3)	<ul style="list-style-type: none"> • See Procedure 3.4.2.3 for CCB process steps leading to review and disposition of NCPs.

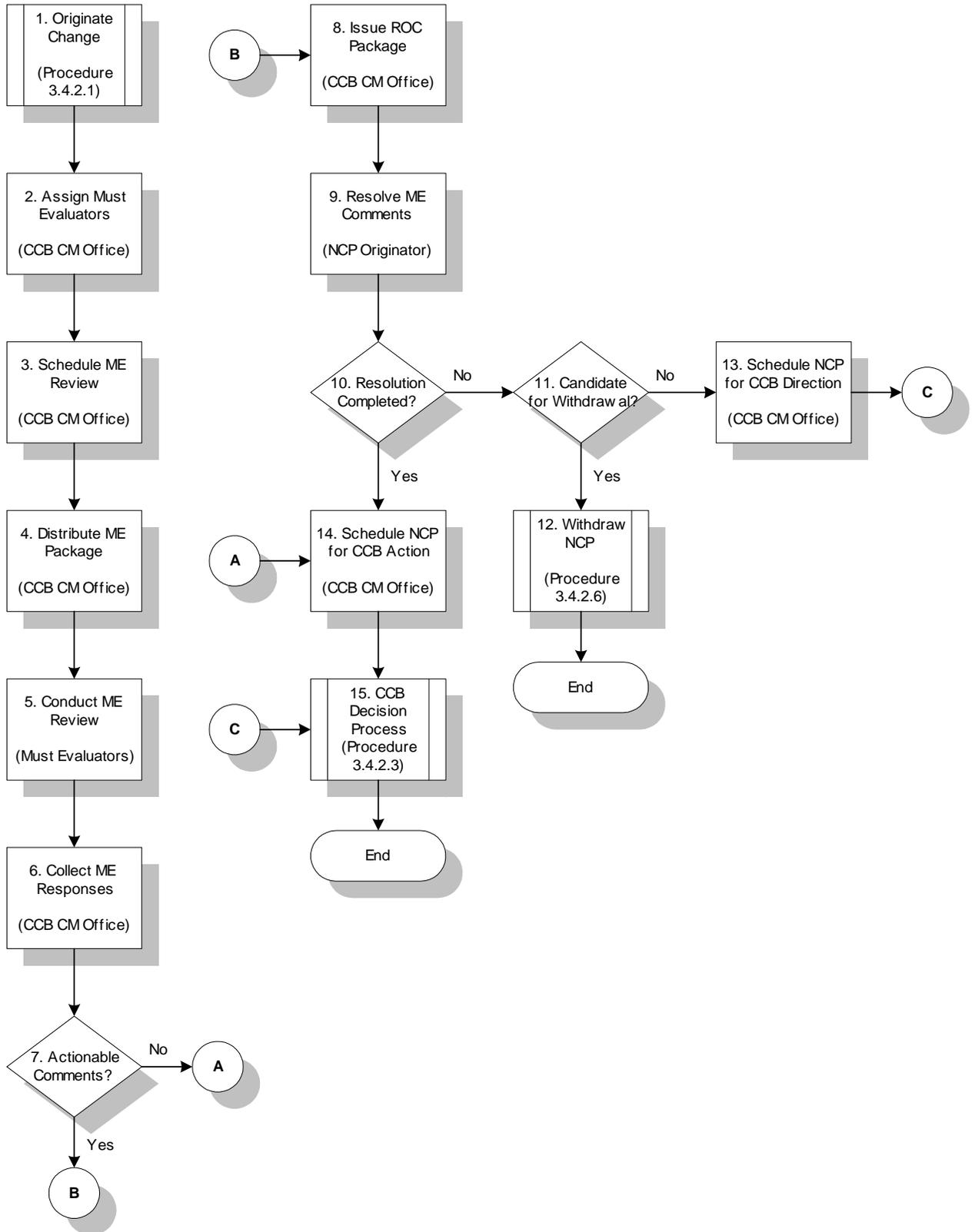


Figure 3.4.2.2.5-1 NCP Evaluation

3.4.2.3 Configuration Control Board (CCB) Decision Process

3.4.2.3.1 Purpose

This procedure describes the process steps that support disposition of NAS Change Proposals (NCP) through CCB review and action. These steps include determination of NCPs ready for CCB; scheduling a CCB; dissemination of agenda packages; conduct of the CCB meeting; and preparation and issuance of meeting minutes and implementing directives. These activities constitute the CCB review portion of the FAA change management process.

3.4.2.3.2 Scope

This procedure applies to organizations that evaluate and determine disposition action of NCPs at a chartered CCB. This procedure applies to change management activities that occur in any phase of the FAA's Acquisition Management System (AMS) life cycle.

This procedure also applies to organizations that are assigned action items as a result of CCB disposition of an NCP or discussion of a CCB agenda item.

3.4.2.3.3 Responsibilities

- A CCB is responsible for administrative and coordination activities associated with the disposition of NCPs. These activities include data entry of related configuration status accounting (CSA) information into the Documentation and Configuration Identification System (DOCCON) on a real-time basis.
- The CCB Executive Secretariat performs the administrative functions associated with the CCB decision process. The CCB Executive Secretariat is the focal point for establishing the CCB schedule and agendas; ensuring necessary action is taken in processing all proposed changes for disposition by the CCB; maintaining records for the CCB; and preparing minutes, action items and status tracking based on the CCB meeting results.
- NAS Configuration Management and Evaluation (ACM) Staff is responsible for coordinating activities associated with the NAS CCB and monitoring subordinate CCB activities.

3.4.2.3.4 References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statements I-4.3, I-4.4, I.5 and I-8 • Statements II-1 and II-3 • Statements III-2, III-3 and III-4 • Statement IV-1
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, 	<ul style="list-style-type: none"> • 100 Perform Change Management

Reference	Reference Paragraph/Activity Number
<p><i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i></p>	<ul style="list-style-type: none"> • 101 Perform Configuration Status Accounting
<ul style="list-style-type: none"> • <i>ATC-88-1092, DOCCON General User's Reference Guide</i> 	

3.4.2.3.5 Procedure

A CCB shall be the official agency-authorized forum to consider and disposition NCPs. A CCB is composed of technical and administrative representatives who recommend approval or disapproval of proposed changes to the CCB chairperson(s). The CCB chairperson(s) shall have final authority for making disposition decisions. The CCB shall have decision authority for all changes affecting configuration items (CI) assigned to it (as listed in Appendix A of the CCB charter).

Upon completion of comment resolution or a must evaluation review that generates no actionable comments, the CCB CM Office shall declare an NCP ready for action. At this point, the NCP is forwarded to the CCB Executive Secretariat for CCB disposition in accordance with the operating procedures. The CCB CM Office may also forward NCPs with deadlocked issues for CCB direction. Note that a member of the CCB CM Office may fill the position of CCB Executive Secretariat.

The CCB operating procedures may include steps to accommodate signature of NCPs outside a regularly scheduled CCB. NCPs that might be considered for signature outside a scheduled meeting include "urgent" and "time-critical" changes that require expedited processing, or non-contentious and administrative changes for which a formal CCB review would not be necessary.

The CCB Executive Secretariat shall use agenda packages to notify participants of an upcoming CCB as well as provide background material in support of the agenda. In addition to the agenda, agenda packages shall include proposed Configuration Control Decisions (CCD), copies of NCPs and their resolution of comments and other briefing materials, as appropriate. The CCB operating procedures shall define other preparations for a formal board (e.g., instructions for briefers and issue discussion).

At a scheduled CCB, the chairperson(s) shall first verify that a quorum is present. The chairperson(s) shall then convene the meeting and lead the discussion of the various agenda items. The CCB Executive Secretariat shall provide administrative support at the meeting. Issues are discussed and then the chairperson(s) shall make a disposition decision for all presented NCPs; the chair

shall approve, disapprove or defer an NCP. NCPs shall not be deferred indefinitely. (Note that each CCB's operating procedures shall specify a time limit for NCP deferrals. After that point, the NCP shall be taken back to the CCB for decision. As a general rule, deferral time limits are one to two CCB cycles.) NCP deferrals are described in Section 3.4.2.3.5.1. In addition, the chairperson(s) may prescribe actions for discussion items not associated with a specific NCP.

Note that the CCB chairperson(s) shall not under any circumstance approve NCPs that have cost impact unless a funding source has been identified.

The chairperson(s) shall sign a NAS CCD (FAA Form 1800-49) for all NCPs that are approved or disapproved, documenting the decision. The CCD shall serve as the official FAA notification of CCB decisions and directives. The CCD shall identify the actions required and the organizations responsible for completing implementation of approved changes. In cases where the CCD requires changes from the version presented at the meeting, the CCB Executive Secretariat shall be responsible for updating it and submitting the revision along with the meeting minutes for signature by the chairperson(s).

Before approving a test NCP, the chairperson(s) shall verify the NCP has a requirements organization sponsor, requirements document or statement, test plan and procedures to include exit criteria. (Note that a test NCP is used for prototype changes as well.) The chairperson(s) normally approves test configurations for a maximum of 12 months. In any case, the CCD shall specify a set duration for the test configuration. The CCD shall also require restoration of the pre-test configuration unless a test extension is processed or a follow-on NCP is approved to make the test configuration permanent. Extensions shall require amendment and approval of the NCP in accordance with Sections 3.4.2.7 and 3.4.2.9.

The CCB Executive Secretariat shall issue meeting minutes to document the disposition of each NCP and any associated action items. At a minimum, the minutes shall include the list of attendees; disposition of each NCP and rationale for disapproval, if applicable; list of action items; a summary of all other CCB items discussed; and copies of the signed CCDs. The CCB operating procedures shall provide further detail on the contents of the meeting minutes.

The CCB CM Office shall enter all actions listed on the CCD into DOCCON and monitor the CCD record until all specified actions have been completed. Note that the DOCCON system is used to enter all status accounting data associated with change processing. DOCCON updates shall be entered on a real-time basis as specific processing events occur (e.g., case file number assignment, pre-screening data, must evaluator assignment, CCB schedule date, CCB disposition and CCD actions).

Although the objective of the change management process is to identify, discuss, assess and resolve all substantive issues before a CCB, on occasion an appeal of a CCB decision will be made. The CCB operating procedures shall include directions for appeal of decisions made at the CCB. CCD appeals are described in Section 3.4.2.3.5.2.

Procedural steps follow. Figure 3.4.2.3.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
<p>1. NCP Evaluation (Procedure 3.4.2.2) 2. Schedule CCB</p>	<ul style="list-style-type: none"> • The CCB CM Office shall declare an NCP ready for CCB. • The CCB Executive Secretariat shall establish an advance schedule for CCB meetings. This schedule shall establish a regular interval for the CCB to meet. The CCB Executive Secretariat shall distribute the schedule to all permanent CCB members and other offices as appropriate.
<p>3. Distribute CCB Agenda Package</p>	<ul style="list-style-type: none"> • The CCB Executive Secretariat shall schedule an NCP for the next available CCB in accordance with the cut-off deadlines established in the CCB operating procedures. • The CCB Executive Secretariat may authorize any additions or deletions to the CCB agenda as appropriate. Examples include NCPs with deadlocked issues for which CCB direction will assist the resolution process; discussion items not related to a specific NCP; and NCPs that did not meet the prescribed submission deadline, but which, for other reasons, should be processed quickly. • The CCB CM Office shall notify the NCP originator upon establishing a CCB review date. • The CCB CM Office shall enter the CCB scheduling information in DOCCON. • The CCB Executive Secretariat shall prepare and issue the CCB agenda package in accordance with the operating procedures.

Procedure Step**Procedure Description****4. Conduct CCB Meeting**

- The CCB Agenda Briefing Package may include the following:
 - Cover memorandum signed out by the CCB Executive Secretariat with the tentative meeting agenda;
 - A cover sheet for each NCP that indicates the status of all review comments for that NCP;
 - A copy of all NCPs with their Must Evaluation comments and Resolution of Comments;
 - Briefings and other attachments applicable to the listed agenda items;
 - A copy of the draft CCD for each NCP. (Note the CCD is drafted in accordance with Procedure 3.4.2.5.).
- At the discretion of the issuing CCB, the package may also include a briefing summary for each NCP on the agenda. The summary would include:
 - NCP number and title;
 - Case file originator;
 - Summary of the nonconcur and substantive concur with comments;
 - Cost impact, if any, and funding source;
 - Schedule impact.
- The CCB Executive Secretariat shall be responsible for the timely distribution of the briefing package.
- The CCB operating procedures shall provide instructions for conduct of a formal CCB meeting.
- The CCB chairperson(s) shall verify that a quorum is present before calling the meeting to order.
- The CCB chairperson(s) shall lead the discussion of the various agenda items.
- The CCB Executive Secretariat shall provide administrative support at the meeting and shall record the meeting minutes.
- After discussion concludes for each

Procedure Step	Procedure Description
	<p>NCP on the agenda, the CCB chairperson(s) shall make a disposition decision; the CCB chairperson(s) may approve, disapprove or defer an NCP.</p> <ul style="list-style-type: none">• NCPs shall not be deferred indefinitely. Each CCB's operating procedures shall specify a time limit for NCP deferrals. After exceeding that period, the NCP shall be taken back to the CCB for decision. (As a general rule, deferral time limits are one to two CCB cycles.) See Steps 6 and 7 below.• Before approving an NCP with cost impact, the CCB chairperson(s) shall verify that a source of funding has been identified.• Before approving a test NCP, the CCB chairperson(s) shall verify the NCP has a requirements organization sponsor, requirements document or statement, test plan and procedures to include exit criteria. The CCB chairperson(s) normally approves test NCPs for a maximum of 12 months. In any case, the CCD shall specify an exact duration for the test. The CCD shall also require restoration of the pre-test configuration unless a test extension is processed or a follow-on NCP is approved to make the test configuration permanent. Extension of a test NCP shall require amendment and approval of the NCP in accordance with Sections 3.4.2.7 and 3.4.2.9.• The CCB chairperson(s) shall sign a NAS CCD (FAA Form 1800-49) for each NCP that is approved or disapproved, documenting the decision. The CCD shall serve as the official FAA notification of CCB decisions and directives. The CCD shall identify the actions required and the organizations responsible for completing implementation of approved changes.

Procedure Step	Procedure Description
<p>5. Issue CCB Minutes</p>	<ul style="list-style-type: none"> • In cases where the CCD requires changes from the version presented at the meeting, the CCB Executive Secretariat shall be responsible for updating it and submitting the revision along with the meeting minutes for signature by the chairperson(s). • The CCB chairperson(s) shall also prescribe actions for discussion items not associated with a specific NCP, and these shall be recorded in the CCB meeting minutes. • The CCB Executive Secretariat shall prepare status reports for review by the CCB. These may include reports of past due NCPs and actions from previous CCB meetings. • If the NCP originator was not present at the CCB, the CCB Executive Secretariat shall notify the originator of the disposition decision after the meeting. • Although regularly scheduled CCBs are the preferred forum for the review and disposition of NCPs, from time to time the CCB Executive Secretariat may determine that an NCP should be signed outside a scheduled board. • NCPs that might be considered for signature outside a scheduled meeting include “urgent” and “time-critical” changes that require expedited processing, or non-contentious and administrative changes for which a formal CCB review would not be necessary. • NCPs that are identified for signature outside the board shall be processed in accordance with the CCB operating procedures. • The CCB Executive Secretariat shall prepare the meeting minutes within the deadline specified in the CCB operating procedures. • NCPs signed outside a formal CCB are

Procedure Step	Procedure Description
<p>6. NCP Deferred?</p>	<p>normally listed in the meeting minutes of the next regularly scheduled CCB.</p> <ul style="list-style-type: none"> • The CCB chairperson(s) shall approve and sign the CCB minutes. • The CCB Executive Secretariat shall distribute the CCB minutes upon signature. • The CCB CM Office shall enter the CCB results in DOCCON. • NCPs shall not be deferred indefinitely. Proceed to Step 7 for NCP deferrals and Step 8 for all others.
<p>7. NCP Deferrals (Procedure 3.4.2.3.5.1)</p>	<ul style="list-style-type: none"> • Deferred NCPs shall be processed in accordance with Procedure 3.4.2.3.5.1.
<p>8. Appeal CCB Decision?</p>	<ul style="list-style-type: none"> • On occasion, an appeal of an NCP decision will be made. The CCB operating procedures shall include directions for appeal of decisions made at a CCB. • Proceed to Step 9 for appeals and Step 10 for all others.
<p>9. CCD Appeals (Procedure 3.4.2.3.5.2)</p>	<ul style="list-style-type: none"> • Appealed NCP/CCDs shall be processed in accordance with Procedure 3.4.2.3.5.2. Proceed to Step 12.
<p>10. NCP Approved?</p>	<ul style="list-style-type: none"> • Proceed to Step 11 for approved NCPs and Step 12 for disapproved NCPs.
<p>11. Issue Implementing Directive</p>	<ul style="list-style-type: none"> • The CCB Executive Secretariat shall issue the signed CCD for approved changes to the appropriate action offices for implementation. CCD actions may include approval of physical incorporation of changes to affected hardware, software or facilities; approval of technical evaluations, studies or tests; and directions for incorporation of changes in appropriate baseline documentation.

Procedure Step	Procedure Description
12. CCD Closure (Procedure 3.4.2.4)	<ul style="list-style-type: none">• For both approved and disapproved NCPs, the CCB CM Office shall perform CCD closure activities in accordance with Procedure 3.4.2.4, CCD Closure. Note that for disapproved NCPs, CCD closure consists primarily of documenting the disapproval and reason in Block 7 of the CCD form and updating DOCCON.

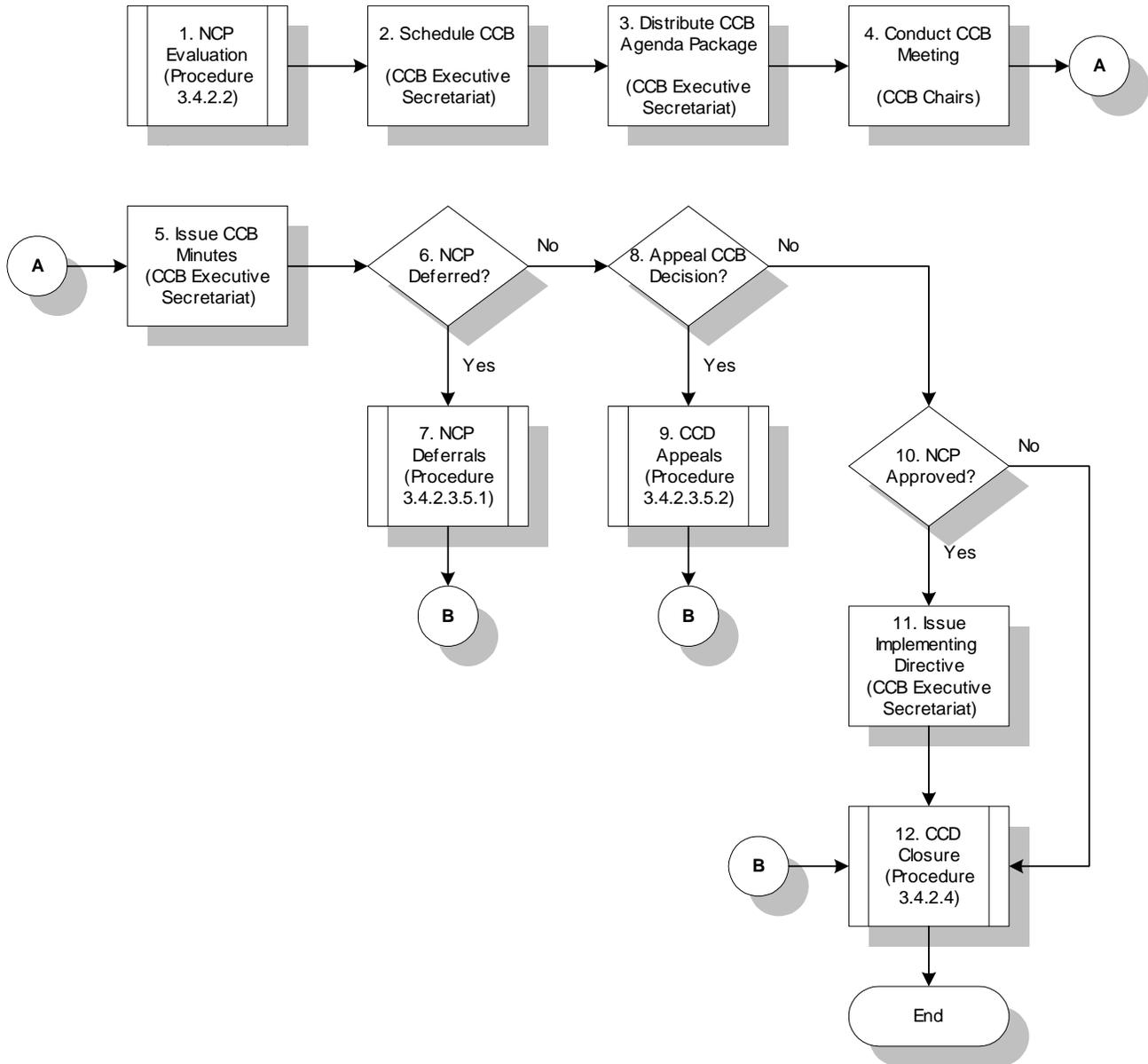


Figure 3.4.2.3.5-1 Configuration Control Board (CCB) Decision Process

3.4.2.3.5.1 NCP Deferrals

A CCB may review an NCP and decide that deferral is the appropriate disposition pending resolution of issues raised at the CCB. However, NCPs shall not be deferred indefinitely. Each CCB's operating procedures shall specify a time limit for NCP deferrals. After that point, the NCP shall be taken back to the CCB for a decision of approval or disapproval. As a general rule, deferral time limits are one to two CCB cycles. This section addresses the procedure steps for NCPs that are deferred at a CCB. Figure 3.4.2.3.5.1-1 provides a graphical representation of these steps.

Procedure Step	Procedure Description
1. Defer NCP and Identify Follow-Up Actions	<ul style="list-style-type: none"> The CCB chairperson(s) shall make a disposition decision (i.e., approved, disapproved or deferred) for all NCPs presented. For deferrals, the CCB chairperson(s) shall specify any follow-up actions that must be resolved before a final disposition decision of approval or disapproval is made for the NCP.
2. Resolve Deferral Actions	<ul style="list-style-type: none"> The NCP Originator shall attempt to resolve all actions within the deferral period specified in the CCB operating procedures.
3. Actions Resolved?	<ul style="list-style-type: none"> If yes, proceed to Step 5. Otherwise, proceed to Step 4.
4. Deferral Timeframe Expired?	<ul style="list-style-type: none"> If deferral actions remain unresolved and the deferral period is expired, proceed to Step 5. Otherwise, repeat Step 2.
5. Schedule NCP for CCB	<ul style="list-style-type: none"> The CCB Executive Secretariat shall schedule the NCP for the next available CCB in accordance with the CCB operating procedures. The CCB CM Office shall notify the NCP originator upon establishing a CCB date for review of the NCP.
6. Determine Disposition	<ul style="list-style-type: none"> At the scheduled CCB, the chairperson(s) shall make a final decision of approval or disapproval for the previously deferred NCP. The CCB chairperson(s) shall not defer an NCP that has been previously deferred. The CCB Executive Secretariat

Procedure Step	Procedure Description
7. CCD Closure (Procedure 3.4.2.4)	<p>shall include the decision in the CCB minutes and shall notify the NCP originator if not present at the CCB meeting.</p> <ul style="list-style-type: none">• For both approved and disapproved NCPs, the CCB CM Office shall issue the signed CCD for implementation in accordance with Procedure 3.4.2.4, CCD Closure.• The CCB CM Office shall enter the disposition results in DOCCON.

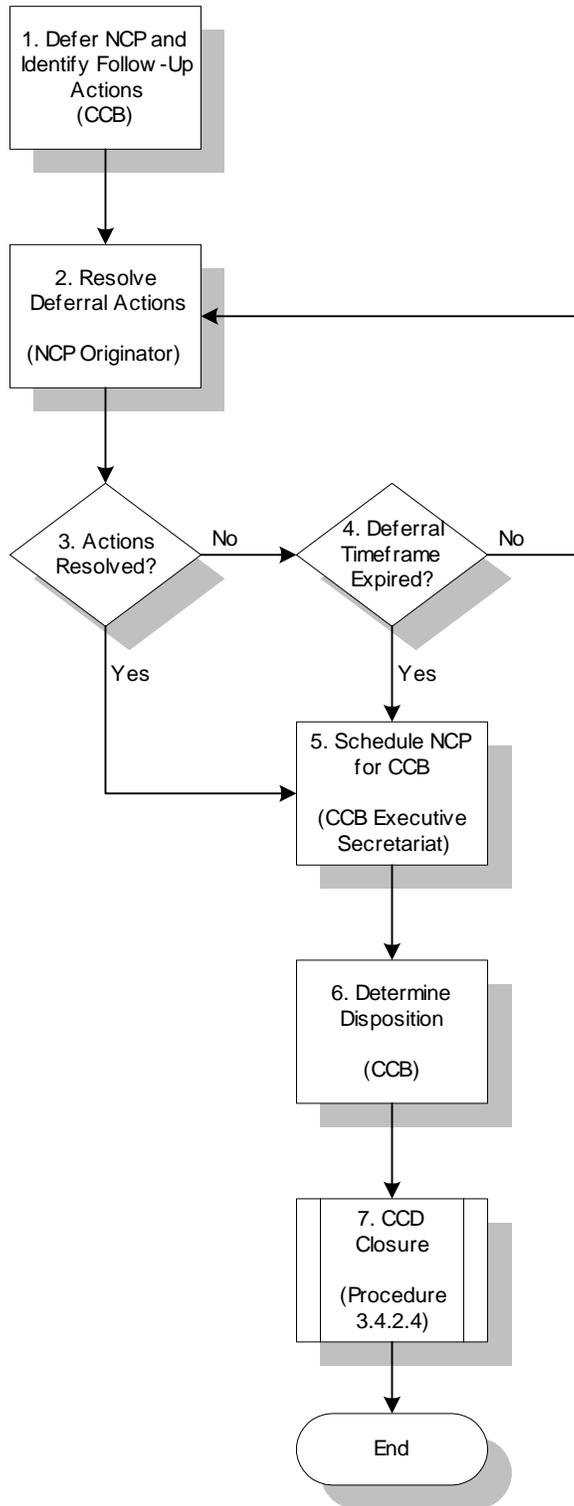


Figure 3.4.2.3.5.1-1 NCP Deferrals

3.4.2.3.5.2 CCD Appeals

An NCP originator or other interested party may appeal an NCP approval or disapproval documented in a signed CCD. Although the objective of the change management process is to identify, discuss, assess and resolve all substantive issues before a CCB, on occasion an appeal of a CCB decision will be made. An appeal should be considered a last resort, however. The NCP originator or other interested party must believe serious negative impact would result if the decision were not reconsidered. The operating procedures shall include directions for appeal of decisions made at the CCB. If the appeal is not successful at the reviewing CCB level, redress may be further sought from the NAS CCB. The NAS CCB shall be the final appeal body for NCPs. This section addresses the procedure steps for the appeal of a CCB decision. Figure 3.4.2.3.5.2-1 provides a graphical representation of these steps.

Procedure Step	Procedure Description
1. Prepare Appeal and Notify CCB	<ul style="list-style-type: none"> • The CCB operating procedures shall include directions for appeal of decisions made at the CCB and documented in the CCD. • Appeal of a CCB decision shall be made in accordance with the process defined in the CCB operating procedures. Normally, this includes finding an appeal sponsor, making the appeal within the prescribed timeframe and providing justification for a reversal. An appeal sponsor is usually a member of the CCB. • The appeal sponsor shall notify the CCB Executive Secretariat of the appeal request and shall submit the necessary documentation.
2. Schedule Appeal for CCB	<ul style="list-style-type: none"> • The CCB Executive Secretariat shall schedule the appeal for the next available CCB in accordance with the appeal process. • The CCB Executive Secretariat shall notify the NCP originator, appeal sponsor and other interested parties upon establishing a CCB date for the appeal.
3. Make Appeal Decision	<ul style="list-style-type: none"> • The CCB chairperson(s) shall review the appeal request and shall make a disposition decision.

Procedure Step	Procedure Description
	<ul style="list-style-type: none"> The CCB Executive Secretariat shall include the decision in the CCB minutes and shall notify any interested party not present at the CCB meeting.
4. Appeal Denied?	<ul style="list-style-type: none"> If the appeal is granted, proceed to Step 10. Otherwise, proceed to Step 5.
5. Continue Appeal?	<ul style="list-style-type: none"> The reviewing CCB's decision may be further appealed to the NAS CCB. For appeals to the NAS CCB, proceed to Step 6. Otherwise, proceed to Step 11.
6. Submit Appeal to NAS CCB	<ul style="list-style-type: none"> The appealing party shall notify the NAS CCB Executive Secretariat of the appeal request and shall submit the necessary documentation.
7. Schedule Appeal for NAS CCB	<ul style="list-style-type: none"> The NAS CCB Executive Secretariat shall schedule the appeal for the next available CCB in accordance with the NAS CCB operating procedures defining the appeal process. The NAS CCB Executive Secretariat shall notify the appealing party upon establishing a CCB date.
8. Make Appeal Decision	<ul style="list-style-type: none"> The NAS CCB chairpersons shall review the appeal request and shall make a disposition decision. The NAS CCB Executive Secretariat shall include the decision in the CCB minutes and shall notify the originating CCB's Executive Secretariat of the decision as well as any interested party not present at the meeting.
9. Appeal Successful?	<ul style="list-style-type: none"> If the appeal is granted, proceed to Step 10. Otherwise proceed to Step 11.
10. Prepare Revised NCP/CCD Package	<ul style="list-style-type: none"> The originating CCB's Executive Secretariat shall coordinate preparation of the revised NCP/CCD package as appropriate.

Procedure Step	Procedure Description
11. CCD Closure (Procedure 3.4.2.4)	<ul style="list-style-type: none"><li>• The CCB CM Office shall issue the signed CCD for implementation in accordance with Procedure 3.4.2.4, CCD Closure.<li>• The CCB CM Office shall enter the disposition results in DOCCON.

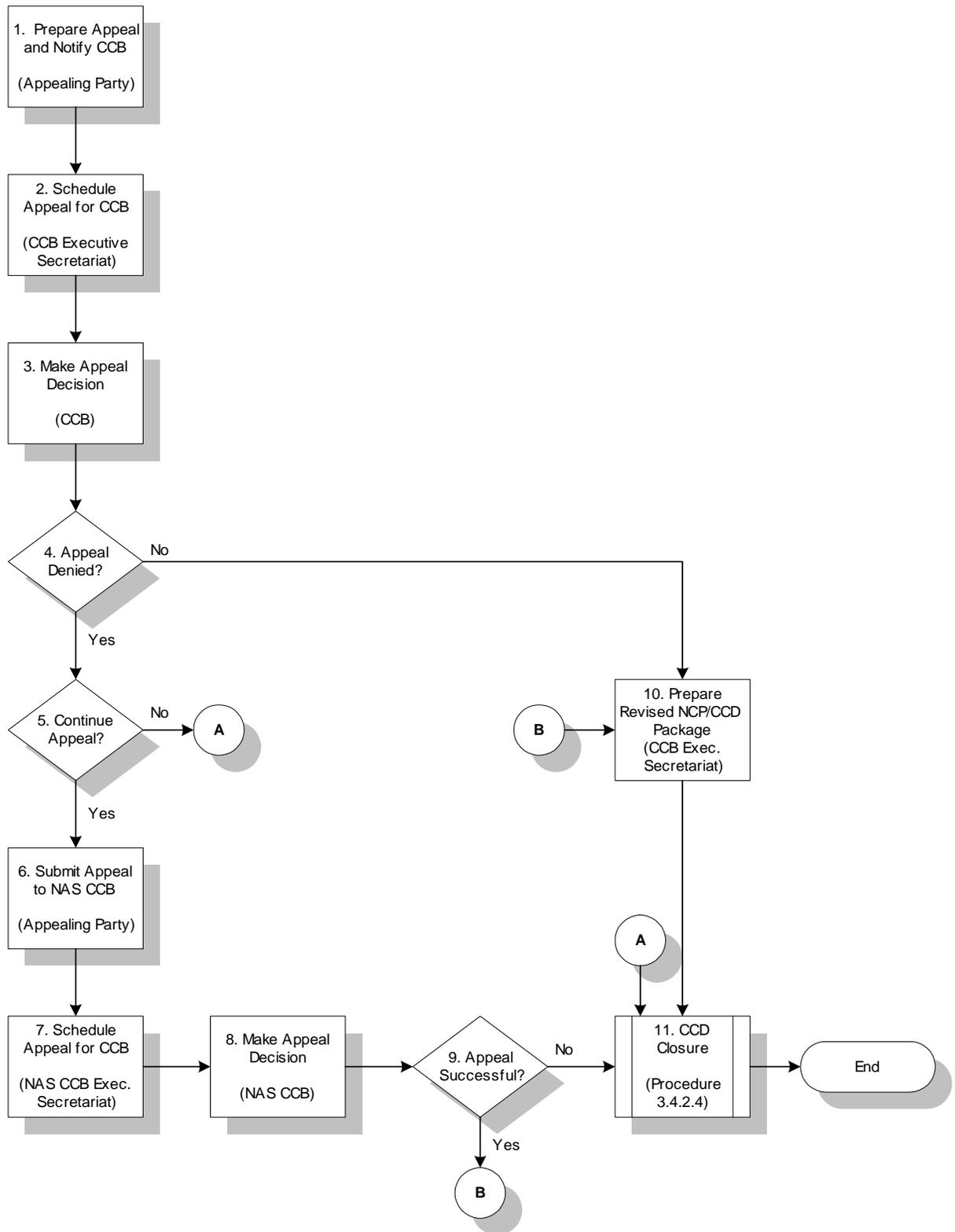


Figure 3.4.2.3.5.2-1 CCD Appeals

3.4.2.4 Configuration Control Decision (CCD) Closure

3.4.2.4.1 Purpose

This procedure describes the process steps that support implementation of actions defined in the CCD for a National Airspace System (NAS) Change Proposal (NCP) and closure of the CCD upon completion of the assigned actions. These activities constitute the CCD closure portion of the FAA change management process. CCD actions may include approval of physical incorporation of changes to affected hardware, software or facilities; approval of technical evaluations, studies or tests; and directions for incorporation of changes in baseline documentation. For changes to facilities or operational equipment, field modification installation and tracking are primary activities of the CCD closure process.

3.4.2.4.2 Scope

This procedure applies to both a Configuration Control Board (CCB) that directs CCD actions and the Action Offices that are designated in the CCD for completing specified actions. This procedure applies to change management activities that occur in any phase of the FAA's Acquisition Management System (AMS) life cycle.

This procedure also applies to NAS Configuration Management and Evaluation Staff (ACM) in its monitoring and oversight role related to the closure of CCD actions.

3.4.2.4.3 Responsibilities

- The Action Office designated in a CCB-approved CCD is responsible for completing specified actions and returning a signed CCD Action Completion Verification Grid to the cognizant CCB to document closure. The designated Action Office includes any field organizations that assist with implementation activities.
- The cognizant CCB is responsible for initiating CCD actions and monitoring their status through completion and closure, including update of the Documentation and Configuration Identification System (DOCCON) to reflect closure of completed actions.
- ACM is responsible for monitoring timely closure of completed CCD actions in DOCCON.

References

Reference	Reference Paragraph/Activity Number
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statements I-4.2, I-4.3, I-4.4, and I.5 • Statements II-3 and II-5 • Statement III-4 • Statement IV-1 • Statement V-1
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i> 	<ul style="list-style-type: none"> • 14 CCD Closure • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 108 Perform Modification Tracking
<ul style="list-style-type: none"> • FAA Order 6032.1A (with Change 1 and 2), <i>Modifications to Ground Facilities, Systems, and Equipment in the National Airspace System</i> 	
<ul style="list-style-type: none"> • ATC-88-1092, <i>DOCCON General User's Reference Guide</i> 	

3.4.2.4.4 Procedure

A NAS CCD (FAA Form 1800-49) shall be issued for each NCP approved or disapproved by a CCB. The CCD shall serve as the official FAA notification of CCB decisions and directives. The CCD shall identify required actions and the organizations responsible for completing either implementation of approved changes or follow-up of actions for disapproved changes. CCD actions for approved changes may include physical incorporation of changes to affected hardware, software or facilities; approval of technical evaluations, studies or tests; and directions for incorporation of changes in baseline documentation. For approved changes to facilities or operational equipment, field modification installation and tracking are primary activities of the CCD closure process. The CCB CM Office shall enter all actions listed on the CCD into DOCCON and monitor the CCD record until all specified actions have been completed.

CCD closure consists of implementing actions, tracking completion of these actions and ensuring their closeout in the appropriate information management systems (e.g., DOCCON and Maintenance Management System). Because implementation and closure of actions can span a period of time and a number of different organizations, it is important that each step of the closure process be fully coordinated among the impacted organizations.

For approved NCPs, CCD actions may encompass a wide range of activities from physical incorporation of changes and temporary test configurations to update of baseline documentation. Completion of CCD actions usually requires the coordination and effort of several organizations. Specific implementation actions thus depend on the nature of the change, and CCDs must be written clearly to state desired outcomes.

All action offices shall notify the appropriate CCB CM Office of completion of their actions by signing and forwarding the CCD Action Completion Verification Grid. The CCB CM Office shall then close the action record in DOCCON. When all CCD actions are similarly completed and closed, the CCD as a whole shall be considered closed and the CCB CM Office shall archive the related NCP folder.

For disapproved NCPs, CCD closure consists primarily of documenting the disapproval in Block 7 of the CCD form, attaching comments documenting why the NCP was disapproved, notifying the NCP originator and updating DOCCON.

The CCB CM Office shall include a copy of the signed CCD in the CCB meeting minutes. In monitoring CCD closure, the CCB CM Office shall identify delinquent CCD actions and initiate follow-up measures, including CCB review of outstanding actions and issues. In special cases where funding is no longer available to implement or complete implementation of an approved change, a new case file shall be processed to rescind the change. Each CCB's operating procedures shall address requirements for tracking open CCD actions and ensuring closure.

ACM's role in the CCD closure process relates to the review and analysis of CCD closure activity in DOCCON. ACM may initiate inquiries to determine the status of CCDs open past a specified period of time, disseminate metrics data and assist CCBs with CCD closure activities or issues.

The above section provides an overview of the CCD closure process, which is also represented in Figure 3.4.2.4.5-1. A procedural description from an overview perspective is included immediately below. Procedural steps for implementing and closing CCD actions vary somewhat, however, depending on the type of action. For this reason, procedural sequences are presented for typical actions along with one sequence depicting CCD closure as a whole. The procedures included below are as follows:

- Section 3.4.2.4.5, Overview of CCD Closure Process
- Section 3.4.2.4.5.1, CCD Documentation Actions
- Section 3.4.2.4.5.2, CCD Modification Installation Actions
- Section 3.4.2.4.5.3, CCD Test Actions
- Section 3.4.2.4.5.4, CCD Closure Tracking

Procedure Step	Procedure Description
1. Configuration Control Board (CCB) Decision Process (Procedure 3.4.2.3)	<ul style="list-style-type: none"> • A CCB shall include specific instructions on all implementing Configuration Control Decisions (CCDs) for approved NCPs that describe required actions. • The CCB shall write CCD actions to clearly state required steps and/or outcomes. • For disapproved NCPs, CCD closure consists primarily of documenting the disapproval and reason in Block 7 of the CCD form, notifying the NCP originator and updating DOCCON. The CCB CM Office shall coordinate closure of disapproved changes.
2. NCP Approved?	<ul style="list-style-type: none"> • For approved changes, proceed to Step 3. Otherwise, proceed to Step 11.
3. CCD Direct Documentation Action?	<ul style="list-style-type: none"> • For approved changes that direct documentation actions, proceed to Step 4. Otherwise, proceed to Step 5.
4. CCD Documentation Actions (Procedure 3.4.2.4.5.1)	<ul style="list-style-type: none"> • Action offices shall submit documentation in accordance with Procedure 3.4.2.4.5.1. • The CCB CM Office shall coordinate activities resulting from closure of a CCD documentation action. • CCD documentation actions shall be processed in accordance with Procedure 3.4.2.4.5.1.
5. CCD Direct Modification Action?	<ul style="list-style-type: none"> • For approved changes that direct modification installation actions, proceed to Step 6. Otherwise, proceed to Step 7.
6. CCD Modification Installation Actions (Procedure 3.4.2.4.5.2)	<ul style="list-style-type: none"> • Upon approval of an NCP that requires installation of a modification, the designated action office(s) shall coordinate all activities that support change incorporation.

Procedure Step	Procedure Description
	<ul style="list-style-type: none"> • The CCB CM Office shall monitor modification installation actions and shall ensure CCD closure in DOCCON. • CCD modification installation actions shall be processed in accordance with Procedure 3.4.2.4.5.2.
7. CCD Direct Test Actions?	<ul style="list-style-type: none"> • For approved changes that direct test actions, proceed to Step 8. Otherwise, proceed to Step 9.
8. CCD Test Actions (Procedure 3.4.2.4.5.3)	<ul style="list-style-type: none"> • Upon approval of an NCP that authorizes a test, the action office shall prepare and coordinate all necessary activities to accomplish the test, including installation of test parts to create the test configuration. • The CCB CM Office shall coordinate specified activities resulting from closure of a CCD test action. • CCD test actions shall be processed in accordance with Procedure 3.4.2.4.5.3.
9. CCD Direct Other Actions?	<ul style="list-style-type: none"> • For CCD actions that are not classified as documentation, modification installation, or test, proceed to Step 10. Otherwise, proceed to Step 11.
10. Implement Actions	<ul style="list-style-type: none"> • Action offices shall take all necessary steps to complete actions specified in a CCD. Action offices shall notify the appropriate CCB CM Office of completion of specified actions in accordance with this Procedure. • CCD actions shall be processed in accordance with this Procedure.

Procedure Step	Procedure Description
11. CCD Closure Tracking (Procedure 3.4.2.4.5.4)	<ul style="list-style-type: none"><li>• A CCD shall be considered closed as a whole when all listed CCD actions have been completed and closed. The CCB CM Office shall ensure the closure of all CCDs in accordance with Procedure 3.4.2.4.5.4, CCD Closure Tracking.

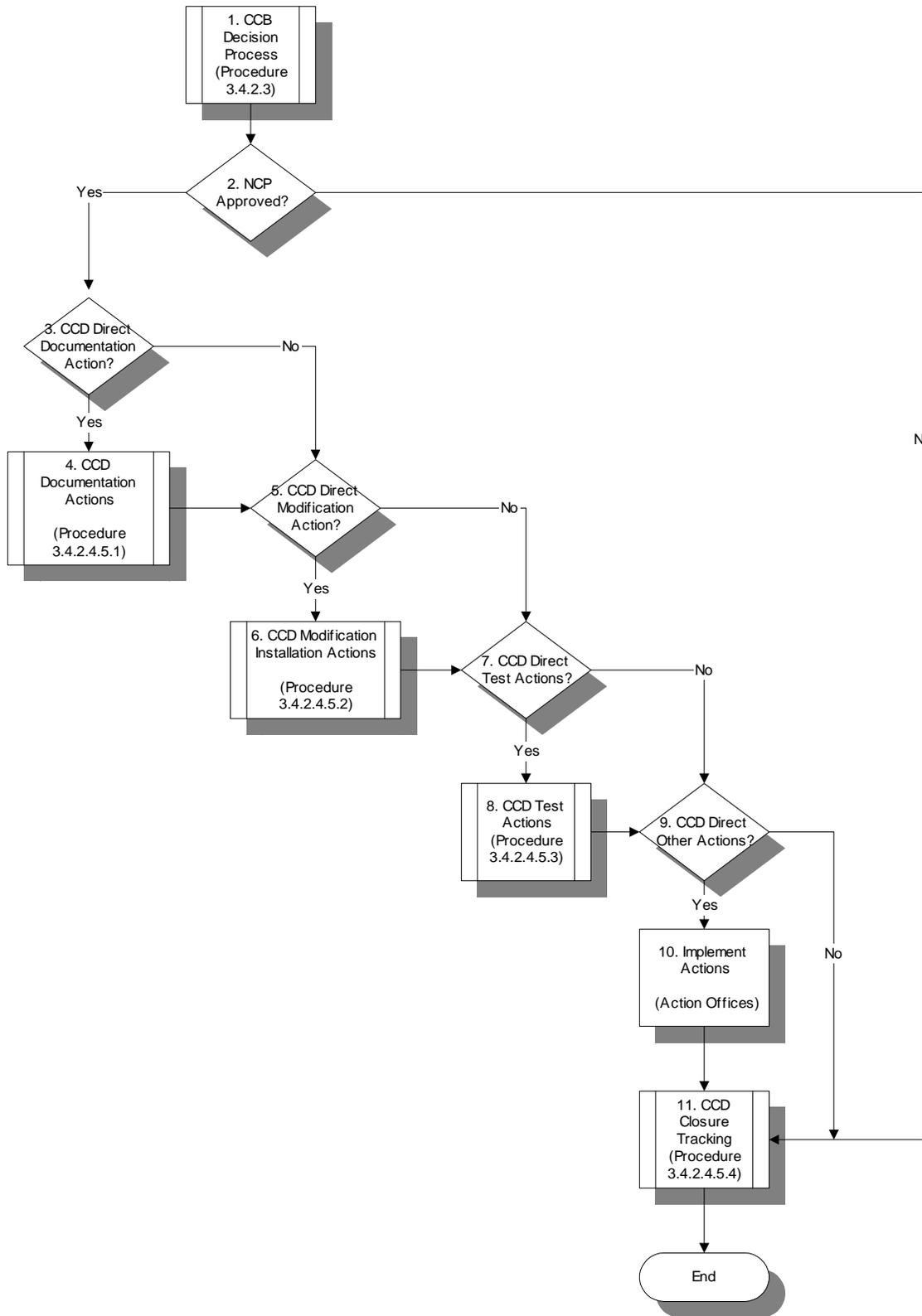


Figure 3.4.2.4.5-1 Overview of CCD Closure Process

3.4.2.4.4.1 CCD Documentation Actions

When a CCB baselines a document or approves changes to a baselined document via an NCP, the implementing CCD shall direct the action office to complete the appropriate documentation actions. The CCD shall instruct the action office to complete a NAS Documentation and Configuration Identification Data Sheet (FAA Form 1800-60) identifying the affected baseline document or change and to forward two copies of the baselined document/change with the completed Data Sheet to the NAS Documentation Control Center (DCC). In addition, the action office shall submit a copy of the completed CCD Action Completion Verification Grid to the CCB CM Office to indicate closure of the action. The CCB CM Office may choose to coordinate submittal of documentation to the DCC; specific submittal requirements shall be defined in the CCB Operating Procedures.

Procedure 3.3.1, Maintaining the Master Configuration Index (MCI) and Publishing NAS-MD-001, provides detailed requirements for the submittal of baseline documentation and updates to the DCC.

Upon receipt of the Data Sheet and the baseline document or approved change, the DCC shall verify the Data Sheet information and enter the document data into DOCCON.

The CCB CM Office shall close the CCD documentation action in DOCCON and track any outstanding CCD actions until the CCD is completely closed. The CCB CM Office shall regularly review the status of open CCDs to ensure that all approved baseline documentation and changes are forwarded to the DCC as directed by the CCD. The CCB CM Office shall track open CCD actions for the CCB to ensure follow-up actions are taken to close the CCD.

Procedural steps follow. Figure 3.4.2.4.5.1-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Develop New or Update Existing Documentation	<ul style="list-style-type: none"> Upon approval of an NCP that baselines a document or updates a baselined document, the action office shall prepare all associated documents and/or changes.
2. Forward Signed CCD Grid and Documentation	<ul style="list-style-type: none"> The documentation action office shall prepare a package for submittal to the DCC in accordance with the CCD instructions and National Procedure 3.3.1, Maintaining the Master Configuration Index (MCI) and

Procedure Step	Procedure Description
3. Create Document Record	<p>Publishing NAS-MD-001.</p> <ul style="list-style-type: none"> <li>• The documentation action office shall submit the signed CCD Action Completion Verification Grid indicating closure of the documentation action to the CCB CM Office. <li>• The CCB Operating Procedures shall specify whether the documentation action office submits the documentation directly to the DCC or whether the CCB CM Office coordinates the submittal. In either case, the signed CCD Action Completion Verification Grid shall be provided to the CCB CM Office upon completion of the documentation action. <li>• Upon receipt of new or revised baseline documentation, ACM shall enter the appropriate information into DOCCON. <li>• ACM shall enter CCD closure information into DOCCON upon completion of actions associated with receipt of the configuration documentation. <li>• ACM shall evaluate any resulting MCI impacts and shall create the necessary linkages between submitted documentation and the proper subsystem/facility listed in DOCCON.
4. Close CCD Action	<ul style="list-style-type: none"> <li>• Upon receipt of the signed CCD Action Completion Verification Grid and documentation package (as procedurally specified for that CCB), the CCB CM Office shall close the action in DOCCON.

Procedure Step	Procedure Description
5. CCD Closure Tracking (Procedure 3.4.2.4.5.4)	<ul style="list-style-type: none"><li>• A CCD shall be considered closed as a whole when all listed CCD actions have been completed and closed. The CCB CM Office shall ensure the closure of all CCDs in accordance with Procedure 3.4.2.4.5.4, CCD Closure Tracking.

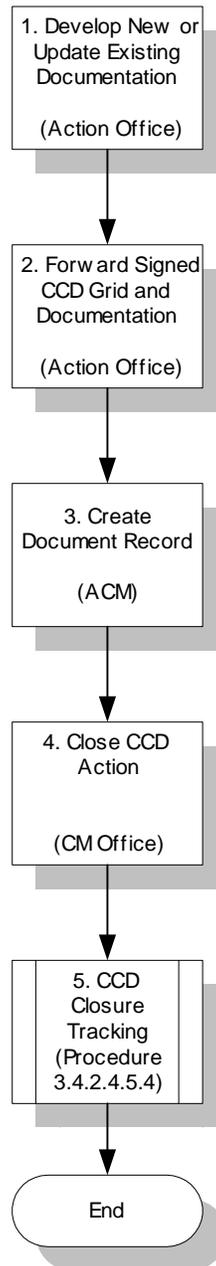


Figure 3.4.2.4.5.1-1 CCD Documentation Actions

3.4.2.4.4.2 *CCD Modification Installation Actions*

The implementation of approved changes to operational systems requires the support of field and logistics organizations that develop and authorize the actual implementation for the cognizant CCB. These steps include:

- Preparation and distribution of modification documentation (i.e., Electronic Equipment Modifications [EEM], Site Program Bulletins [SPB], Site Technical Bulletins [STB], Plant Equipment Modifications [PEM], Facility Equipment Modifications [FEM] and System Support Directives [SSD]);
- Preparation and distribution of modification kits;
- Update of logistics documentation and procurement and modification of spares;
- Incorporation of changes at designated sites by authorized field technicians.

For operational systems, physical change incorporation may affect multiple sites and may be incorporated at different times within the allocated six-month window after release of the modification. Specific site implementation status is provided by various information management systems. For example, the Maintenance Management System [MMS] tracks completed modifications.

Operational Support (AOS) is responsible for developing the modifications (mod kits, etc.) for implementation. Typically, the Regions request the modification kit from the FAA Logistics Center (AML) and then install the modification. NAS Operations (AOP) performs modification installation tracking. FAA Order 6032.1A governs the process.

Installation of modifications for all NAS-related systems and subsystems components, including current, active operational systems; inactive, fully-configured stand-by systems; and on-site spare parts; shall adhere to the CCD and be accomplished following existing guidelines and procedures. All logging activities relative to a modification shall be accomplished upon receipt of the modification and subsequent to the completion of the modification installation. Facility logging activities shall be completed in both the MMS and Facility Reference Data File (FRDF).

Procedural steps follow. Figure 3.4.2.4.5.2-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Initiate Modification Actions	<ul style="list-style-type: none"> • Upon approval of an NCP that requires a modification to a CI, the action office shall prepare and coordinate all activities that support change incorporation.

Procedure Step	Procedure Description
2. National NCP?	<ul style="list-style-type: none"> For national scope changes, proceed to Step 3. Otherwise, proceed to Step 4.
3. Perform Engineering Study	<ul style="list-style-type: none"> AOS shall perform an engineering study for a national change before release of a modification kit.
4. Monitor Modification Installation Status	<ul style="list-style-type: none"> The action office and CCB CM Office shall monitor and track modifications through completion using the designated information management systems (e.g., DOCCON and MMS.)
5. Install Modification	<ul style="list-style-type: none"> The action office shall install the modification as described in the CCD and shall record the installation information in the appropriate facility logging/automated management system (e.g., MMS and FRDF).
6. Forward Signed CCD Grid	<ul style="list-style-type: none"> The action office shall submit the signed CCD Action Completion Verification Grid indicating closure of the modification action to the CCB CM Office upon completion of installation.
7. Close CCD Action	<ul style="list-style-type: none"> Upon receipt of the signed CCD Action Completion Verification Grid, the CCB CM Office shall close the modification action in DOCCON.
8. CCD Closure Tracking (Procedure 3.4.2.4.5.4)	<ul style="list-style-type: none"> A CCD shall be considered closed as a whole when all listed CCD actions have been completed and closed. The CCB CM Office shall ensure the closure of all CCDs in accordance with Procedure 3.4.2.4.5.4, CCD Closure Tracking.

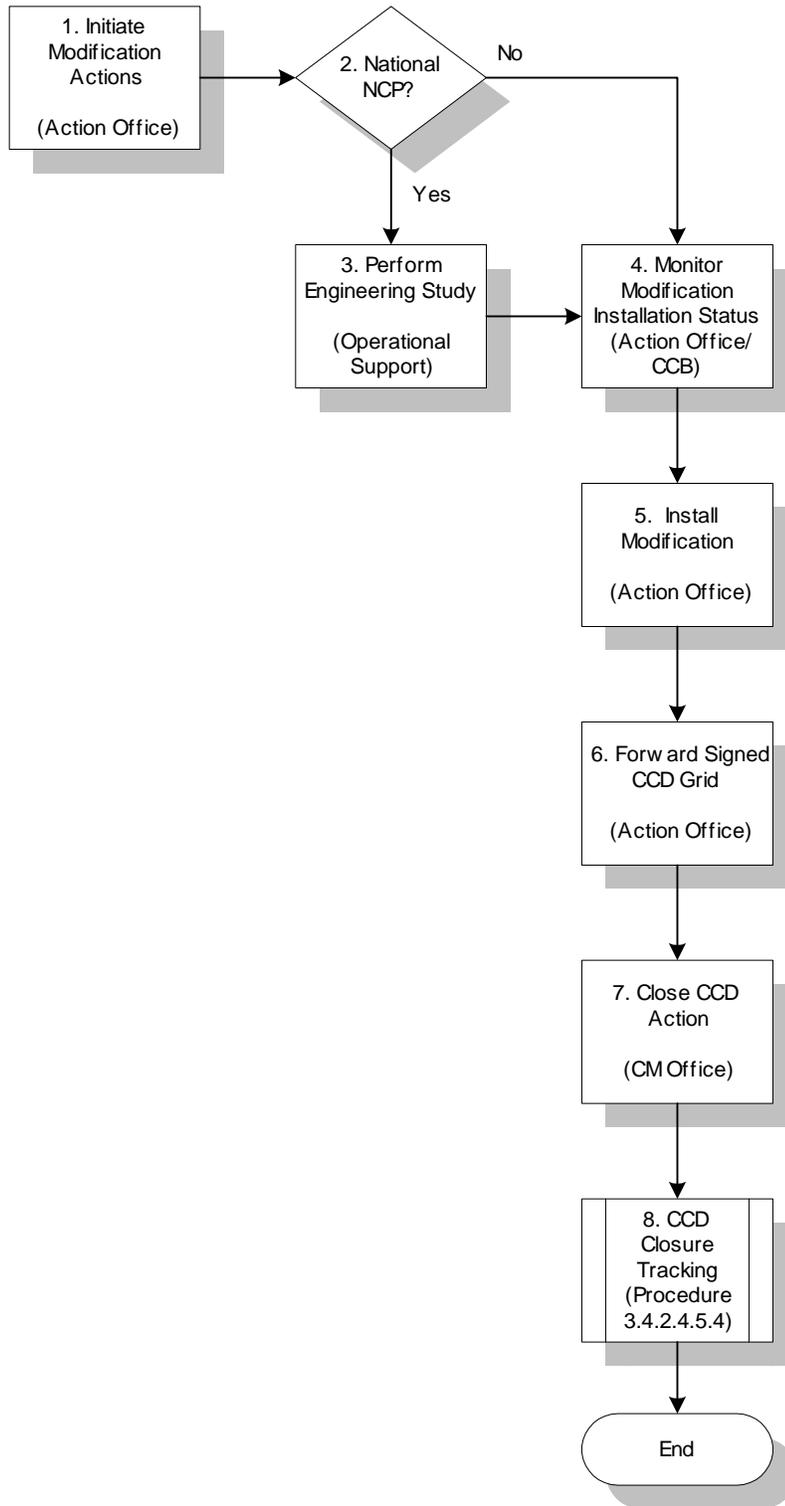


Figure 3.4.2.4.5.2-1 CCD Modification Installation Actions

3.4.2.4.4.3 CCD Test Actions

CCDs for test NCPs authorize temporary configuration changes to existing baselined systems, including installation of prototypes. Before approving a test NCP, the CCB shall verify the NCP has a requirements organization sponsor, requirements document or statement, test plan and procedures including exit criteria. The CCB chairperson(s) normally approves a test NCP for a maximum of 12 months. In any case, the CCD shall specify an exact duration for the test. The CCD shall also require restoration of the pre-test configuration unless a test extension is processed or a follow-on NCP is approved to make the test configuration permanent. Extension of a test NCP shall require amendment and approval of the NCP in accordance with Sections 3.4.2.7 and 3.4.2.9. The CCB CM Office shall track removal of the test configuration after expiration of the approved test period.

Procedural steps follow. Figure 3.4.2.4.5.3-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Install Test Parts/Configuration	<ul style="list-style-type: none"> Upon approval of an NCP that authorizes a test, the action office shall prepare and coordinate all necessary activities to accomplish the test, including installation of test parts to create the test configuration. Note that NCP approval shall be contingent upon CCB verification that the test or prototype NCP has a requirements organization sponsor, requirements document or statement, test plan and procedures including exit criteria.
2. Conduct Test	<ul style="list-style-type: none"> The action office shall conduct the test as prescribed by the approved CCD.
3. Test Extension Required?	<ul style="list-style-type: none"> A CCD shall normally authorize a test for a maximum of one year. In cases where the test cannot be completed within the authorized period, the action office shall request an extension of the test. If a test extension is required, proceed to Step 4. Otherwise, proceed to Step 5.

Procedure Step	Procedure Description
4. Initiate Test Extension	<ul style="list-style-type: none"> • A test extension shall be granted through amendment and approval of the NCP in accordance with National Procedures 3.4.2.7, Amending NCPs, and 3.4.2.9, Amending Approved CCDs. The action office shall initiate the amended case file/NCP when an extension is required. Proceed to Step 7.
5. Distribute Test Results and Forward CCD Grid	<ul style="list-style-type: none"> • The action office shall prepare and distribute the test results to the appropriate organizations, including the CCB. • Upon completion of the test, the action office shall submit the signed CCD Action Completion Verification Grid to the CCB CM Office indicating closure of the test action.
6. Review Test Results and Determine Follow-On Actions	<ul style="list-style-type: none"> • The CCB shall review the test results and shall determine whether any follow-on actions are warranted. Follow-on actions may include initiation of a national or local change to retain the test configuration. • At the conclusion of the test, the action office shall ensure the return of the pre-test configuration as appropriate.
7. Close CCD Action	<ul style="list-style-type: none"> • Upon receipt of the signed CCD Action Completion Verification Grid, the CCB CM Office shall close the test action in DOCCON. • In cases where a test extension is required, the CCB CM Office shall close the test action for the expired CCD.
8. CCD Closure Tracking (Procedure 3.4.2.4.5.4)	<ul style="list-style-type: none"> • A CCD shall be considered closed as a whole when all listed CCD actions have been completed and closed. The CCB CM Office shall ensure the closure of all CCDs in accordance with Procedure

Procedure Step**Procedure Description**

3.4.2.4.5.4, CCD Closure Tracking. As part of the CCD closure process, the CCB CM Office shall track removal of the test configuration after expiration of the approved test period when no follow-on NCP has been approved to retain the test configuration.

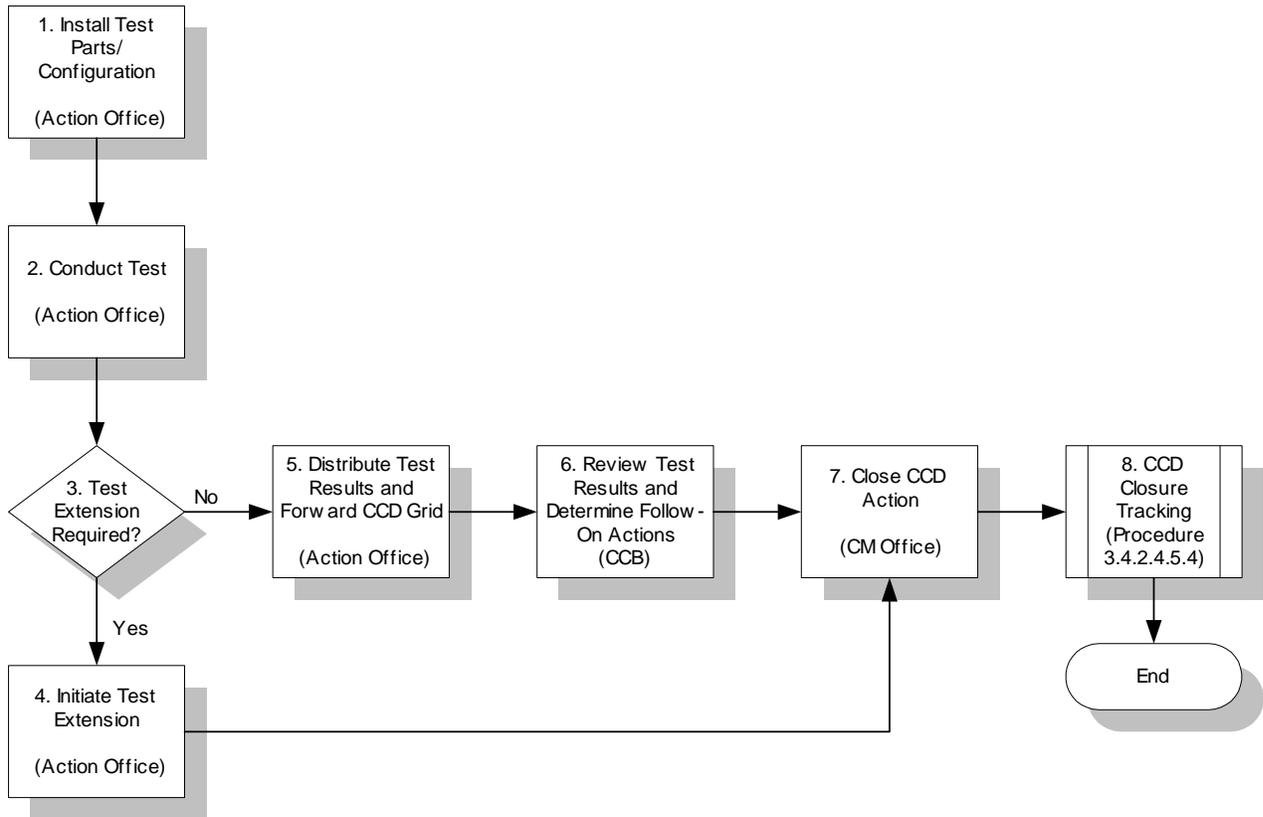


Figure 3.4.2.4.5.3-1 CCD Test Actions

3.4.2.4.4.4 CCD Closure Tracking

CCD closure consists of implementing defined actions, tracking completion of these actions and ensuring their closeout in the appropriate information management systems (e.g., DOCCON and Maintenance Management System). Because implementation and closure of actions can span a period of time and a number of different organizations, it is important that each step of the closure process be fully coordinated.

All action offices shall notify the appropriate CCB CM Office of completion of their actions by signing and forwarding the CCD Action Completion Verification Grid. The CCB CM Office shall then close the action record in DOCCON. When all CCD actions are similarly completed and closed, the CCD as a whole shall be considered closed and the CCB CM Office shall archive the related NCP folder.

For disapproved NCPs, CCD closure consists primarily of documenting the disapproval and reason in Block 7 of the CCD form, notifying the NCP originator and updating DOCCON. A copy of the CCD shall be included in the CCB meeting minutes. The CCB CM Office shall be responsible for these actions.

In cases of delinquent CCD closure, the CCB shall be responsible for initiating follow-up action to ensure closure. In special cases where funding is no longer available to implement or complete implementation of an approved change, a new case file shall be processed to rescind the change. Each CCB's operating procedures shall address requirements for tracking open CCD actions and ensuring closure. ACM shall independently monitor CCD closure activities in DOCCON.

Procedural steps follow. Figure 3.4.2.4.5.4-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Configuration Control Board (CCB) Decision Process (Procedure 3.4.2.3)	<ul style="list-style-type: none"> The CCB shall include specific instructions on all implementing CCDs for NCPs that describe required actions. The CCB shall write CCD actions to clearly state required steps and/or outcomes.
2. NCP Approved?	<ul style="list-style-type: none"> If yes, proceed to Step 3. Otherwise, proceed to Step 11.
3. Complete Actions and Forward Signed CCD Grid	<ul style="list-style-type: none"> Upon CCD approval, designated action offices shall initiate preparatory steps for each assigned action (e.g., writing documentation updates).

Procedure Step	Procedure Description
	<ul style="list-style-type: none"> • The action office shall submit the signed CCD Action Completion Verification Grid indicating closure of the action to the CCB CM Office upon completion. • Action offices shall take all necessary steps to complete assigned actions. In cases where implementation cannot be accomplished, the action office shall notify the CCB CM Office. The CCB CM Office shall then coordinate follow-up action with the CCB in accordance with Step 9.
4. Close CCD Actions	<ul style="list-style-type: none"> • Upon receipt of the signed CCD Action Completion Verification Grid, the CCB CM Office shall close the specified action in DOCCON.
5. Monitor CCD Closure	<ul style="list-style-type: none"> • ACM shall routinely review the status of CCD closure in DOCCON. • ACM may initiate inquiries to determine the status of CCDs open past a specified period of time, disseminate metrics data related to CCD closure status and assist CCBs with CCD closure activities or issues.
6. All CCD Actions Closed?	<ul style="list-style-type: none"> • If all CCD actions are closed, proceed to Step 11. Otherwise, proceed to Step 7.
7. Identify Delinquent CCD Actions	<ul style="list-style-type: none"> • ACM shall independently monitor CCD closure activity in DOCCON. ACM may identify outstanding CCDs and request CCBs to review their status and take action to ensure closure. • The CCB CM Office shall regularly monitor all CCD actions originated by the CCB until closure. The CCB shall identify actions that have exceeded due dates and shall take action to ensure closure.
8. Prepare Status Report for CCB	<ul style="list-style-type: none"> • The CCB CM Office shall regularly prepare reports for the CCB detailing the status of outstanding CCD actions or actions that have been determined to be unimplementable.

Procedure Step	Procedure Description
9. Determine Follow-Up for Delinquent CCD Actions	<ul style="list-style-type: none"> The CCB shall determine appropriate follow-up actions for CCD actions that exceed time periods determined by the CCB as being adequate for completion or actions that cannot be implemented (e.g., funding is no longer available for a previously approved change).
10. Coordinate Follow-Up for Delinquent CCD Actions	<ul style="list-style-type: none"> The CCB CM Office shall coordinate any follow-up actions directed by the CCB for closure of delinquent or unimplementable CCD actions. In cases where funding is no longer available to implement or complete implementation of an approved change, a new case file shall be processed to rescind the change.
11. Close CCD	<ul style="list-style-type: none"> A CCD shall be considered closed as a whole when all listed CCD actions have been completed and closed. The CCB CM Office shall ensure the closure of all CCDs. Note that for disapproved NCPs, CCD closure consists primarily of documenting the disapproval and reason in Block 7 of the CCD form and updating DOCCON.

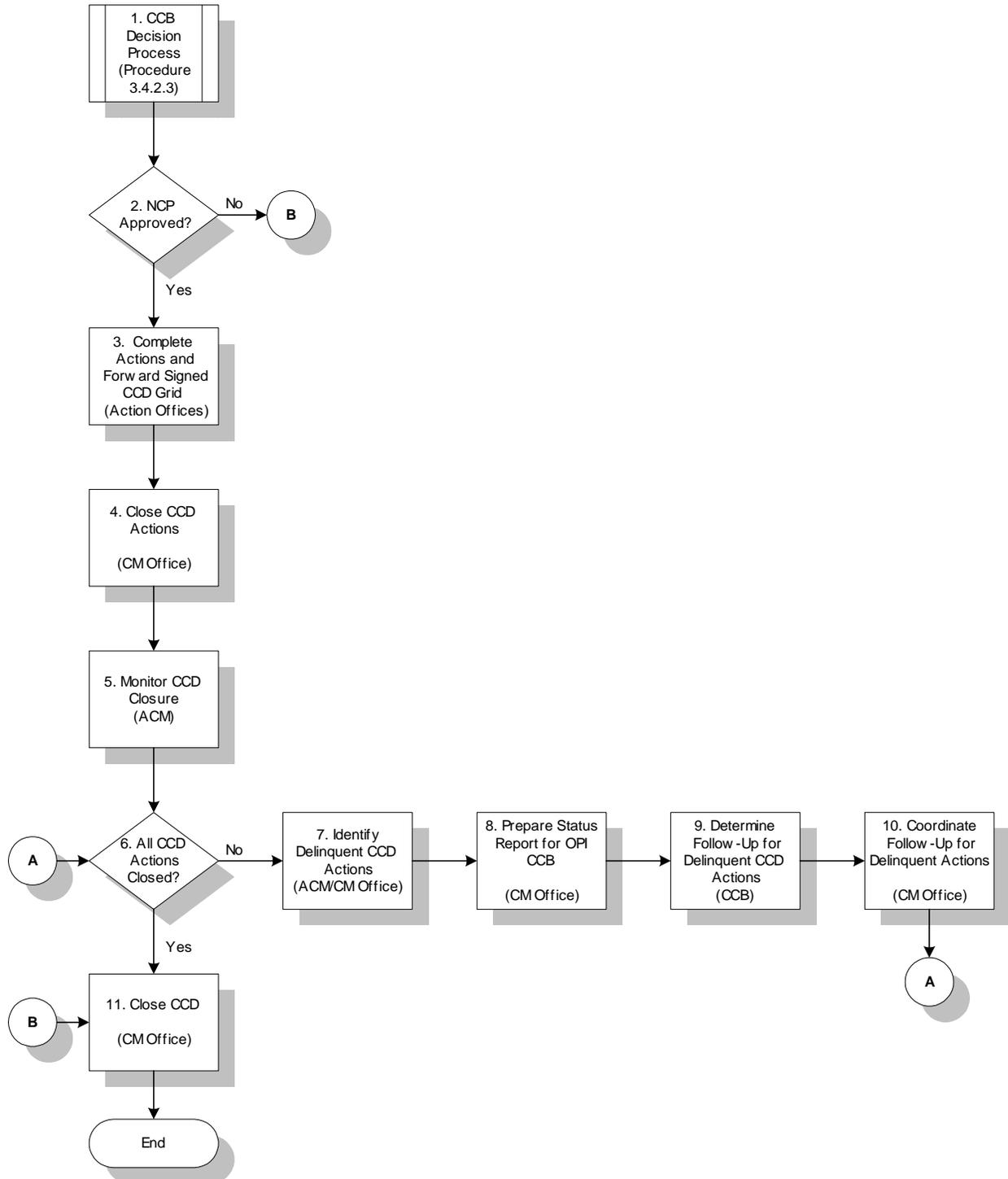


Figure 3.4.2.4.5.4-1 CCD Closure Tracking

3.4.2.5 Instructions for NCP/CCD Forms

3.4.2.5.1 Purpose

This procedure contains instructions for completing the National Airspace System (NAS) Change Proposal (NCP), NCP Worksheet and NAS Configuration Control Decision (CCD) forms.

3.4.2.5.2 Scope

This procedure applies to organizations that process and/or review NCPs.

3.4.2.5.3 Responsibilities

- The change originator is responsible for filling out the case file/NCP form.
- The change originator and/or the various case file reviewers are responsible for filling out the NCP worksheet. Filling out the worksheet is a cumulative process; new information may be added up to the point that the NCP is submitted to the Configuration Control Board (CCB) for action.
- The CCB Executive Secretariat is responsible for filling out the CCD form.

3.4.2.5.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • Statements I-4.3 and V-1 • 4.1 Process Emergency Modifications • 11 Implement Configuration Control Decision (CCD) Actions • 14 CCD Closure • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 104 Perform Modification Tracking • 107 Perform Drawing Management

3.4.2.5.5 Procedure

Figure 3.4.2.5.5-1 displays the case file/NCP form. Figure 3.4.2.5.5-2 displays the case file/NCP worksheet, a supplemental form that shall accompany each proposed change. Figure 3.4.2.5.5-3 displays the CCD form. Each form is immediately followed by instructions for its completion.

CASE FILE/NAS CHANGE PROPOSAL				Page 1 of _____	
(PLEASE TYPE OR PRINT NEATLY)					
1. Case File Number		2. FOR CM USE		Case File Received Date	NCP Issuance Date
				NCP Number	
3. Scope of Change		4. Reason For Change			
<input type="checkbox"/> Local <input type="checkbox"/> National <input type="checkbox"/> Test		<input type="checkbox"/> Safety <input type="checkbox"/> Technical Upgrade <input type="checkbox"/> Systems Interface <input type="checkbox"/> Requirements Change <input type="checkbox"/> Design Error <input type="checkbox"/> Parts Unavailability <input type="checkbox"/> Baseline <input type="checkbox"/> Other			
5 Priority	6. Justification of Time Critical/Urgent Priority			7. Supplemental Change Form	
<input type="checkbox"/> Normal <input type="checkbox"/> Time-Critical <input type="checkbox"/> Urgent				<input type="checkbox"/> ECR/ECP <input type="checkbox"/> TES <input type="checkbox"/> N/A 7a. Supplemental Change No. _____ 7b. Supplemental Change Initiation Date _____	
8. Case File Originator		9. Originator's Organization		10. Telephone Number	
				11. Case File Initiation Date	
12. Type of Document Affected				13. Baseline Document Number(s)	
<input type="checkbox"/> CPFS <input type="checkbox"/> SPEC <input type="checkbox"/> MTBK <input type="checkbox"/> _____ <input type="checkbox"/> TI <input type="checkbox"/> DWG <input type="checkbox"/> IRD/ICD					
14. CI Subsystem Designator		15. FA Type		16. CI Component Designator	
17. Facility Identifier (FACID)		18. Facility Code (FACCODE)		19. Cost Center Code	
				20. System Software Version	
21. Title					
22. Description: (a) identification of problem, (b) proposed change, (c) interface impact, (d) cost estimate (e) funding source (f) benefits/risks, (g) Schedule (h) Other (e.g. logistics, quality, etc.)					
(a)					
(b)					
(c)					
(d)					
(e)					
(f)					
(g)					
(h)					
Blocks 1 through 22 are to be completed by originator and/or the NCP coordinator. If a block is not applicable, write n/a. Attach additional sheets if necessary. See current revision of NAS-MD-001 for detailed completion instructions.					

Figure 3.4.2.5.5-1 NCP Form (Sheet 1 of 2)

Case File Number					NCP Number					Page 2 of ____											
23. Name and Title of Originator's Immediate Supervisor (Type/Print Clearly)					Signature					Date											
24. Facility/SMO Review (AT/AF)					25. Regional Review																
Name		Routing Symbol		Date		Concur		Non-Concur			Name		Routing Symbol		Date		Concur		Non-Concur		
					<input type="checkbox"/> Recommend Approval <input type="checkbox"/> Disapprove (Enter into CM/STAT. Forward to Prescreening) (Return to Originator)																
Routing Symbol		Signature					Routing Symbol		Signature												
Date							Date														
Routing Symbol		Signature					Routing Symbol		Signature												
Date							Date														
24a. Comments					Routing Symbol		Signature/Configuration Mgr/NCP Coordinator/ Reg Exec Sec														
					Date																
					25a. Comments																

(Attach additional sheets if necessary)

26. **PRESCREENING**

Prescreening Office _____

Prescreening Comments:

(Attach additional sheets if necessary)

Reviewers		Routing Symbol		Date		Concur		Non-Concur			<input type="checkbox"/> Recommend Approval <input type="checkbox"/> Recommend Disapproval <input type="checkbox"/> New Requirement	
											(Return original to originating office through the Regional NCP Coordinator)	
Recommended Must Evaluators					Routing Symbol		Signature					
					Date							

27. For Internal Configuration Management Use Only

Figure 3.4.2.5.5-1 NCP Form (Sheet 2 of 2)
Part Two, Section iii Page 2-III-257

The case file/NCP prepared on FAA Form 1800-2 shall be used to propose changes to or establish baselines of NAS systems/subsystems and their associated documentation.

General Instructions

All pages of the case file/NCP shall be numbered and clearly marked page (A) of (B), where (A) is the actual page number and (B) is the total number of pages. The case file number shall also be clearly marked on each page. The originator, using additional sheets if necessary shall complete Blocks 1 through 22. If a block is not applicable, designate it with "N/A" (for "Not Applicable). Use of an automated version of the 1800-2 form in Microsoft Word is recommended. Copies of this application are available upon request from NAS Configuration Management and Evaluation Staff (ACM).

Detailed Instructions

1. **Case File Number** - This shall be a discrete identification number (alphanumeric format, e.g., STLAF-CD -001) issued by the originating organization:
 - a. The first 5 alphanumeric characters shall identify the originating organization (e.g., AL462, STLAF, ZLAAT, TR230, etc.)
 - b. The center group is a maximum of five characters and shall represent the acronym for the subsystem affected by the case file. For baselined systems this acronym is found in NAS-MD-001; otherwise it shall correspond to the Facility, Service and Equipment Profile (FSEP) acronym for the subsystem, (e.g., CD, AFSS , EARTS, etc.).
 - c. The last group of three digits shall denote a consecutive number assigned by the originator's organization for the specific subsystem identified in the center group (e.g., 001, 002, . . . , 999)
Note: Numbers shall be assigned consecutively *for the life of the system* and shall not start over again at the beginning of the calendar year.
 - d. A capital letter added at the end of a case file number shall denote an amendment to that case file (e.g. A, B, C, etc.)
2. **For CM Use** - A block for the CM Control Desk to identify:
 - a. Case File Received Date
 - b. NCP Issuance Date
 - c. NCP Number.

As appropriate.

3. Scope of Change -

- a. Local - Case file applies to one or more identified sites as indicated in block 17. Dependent upon the change proposed, the case file/NCP may be approved either at the Headquarters or Regional CCB level.
- b. Test - Case file applies to one or more identified sites and is approved at the Headquarters CCB level for a limited duration specified in the CCD.
- c. National - Case file is applicable to all items of a type specified and is approved at the Headquarters CCB level.

4. Reason for Change - The reason for generating the change shall be selected. If "Other" is selected, provide an explanation of "other".

- a. Safety - correction of a deficiency which is required primarily to eliminate an unsafe condition.
- b. Technical Upgrade - a proposal to incorporate advanced technology into an existing system, piece of equipment, etc., either hardware or software.
- c. Systems Interface - a proposal dealing with system hardware and/or software and documents that are considered the "go between" enabling different systems to interact. This includes communications, power, etc.
- d. Requirements Change - a proposal to add a new requirement or to change an existing requirement to a system, piece of equipment, etc.
- e. Design Error - a condition caused directly by human engineering error or design shortcomings. (Do not confuse with obsolete, antiquated, or non-designed items or fixes)
- f. Parts Unavailability - a proposal to incorporate a new component/part into an existing system or piece of equipment, or to replace a part no longer manufactured.
- g. Baselining - documenting a specific configuration including hardware, software, firmware, test equipment, power and facility space. This includes the documentation to define the configuration including specifications, plans, drawings, manuals, etc.
- h. Other - a change that does not fit into any of the previous categories.

5. Priority - Select appropriate priority and provide justification as necessary in block 6.

- a. Normal - Classification for case files that do not meet criteria of urgent or time-critical.
- b. Time-Critical - Classification restricted to changes requiring expeditious processing (e.g., need CCD by certain date, to support schedule of other projects, budget related, etc.) Reason and required date shall be specified in block 6.
- c. Urgent - Classification for changes that will prevent a prolonged outage or catastrophic failure to operational systems, or will correct unsafe conditions usually to document a fix already made for safety reasons). Explanation shall be included under justification in block 6.

6. Justification of Time-Critical/Urgent Priority - If block 5 is marked Time-Critical or Urgent Priority, justification shall be provided in this block.

7. Supplemental Change Form - Used to identify initiating change documentation, such as Engineering Change Request (ECR), Engineering Change Proposal (ECP), or Technical Employee Suggestion (TES). A copy of the change form used to initiate the case file shall be attached. If not applicable, this block shall be marked N/A (for "Not Applicable").

- a. Supplemental Change No. - If either ECR/ECP or TES is checked in the upper portion of block 7, the corresponding ECR/ECP or TES change number shall be supplied.
- b. Supplemental Change Initiation Date - The date of initiation of either the ECR/ECP or TES change shall be entered in this block.

8. Case File Originator - Case file originator's full name shall be printed in this block.

9. Originator's Organization - The organization of the originator identified in block 8 shall be entered in this block.

10. Telephone Number - The telephone number, including area code, of the originator identified in block 8 shall be entered in this block.

11. Case File Initiation Date - The date of initiation of the case file shall be entered in this block. (Month/day/year in mm/dd/yyyy format)

12. Type of Document Affected - At least one baseline document type shall be identified. Multiple selections shall be made only if a case file is changing multiple types of baseline documents.

CPFS – Computer Program Functional Specification

SPEC – Specification

MTBK – Maintenance Technical Handbook

TI – Technical Instruction Book

DWG – Drawing

IRD/ICD – Interface Requirements Document /Interface Control Document

13. Baseline Document Number(s) - The document number of each baseline document listed in block 12 shall be provided. Case files to change a configuration item (CI) cannot be processed without identified documentation.

14. CI Subsystem Designator -

- a. For operational support phase, the specific model of the designated subsystem (e.g., ARSR-4, ASDE-3, ASR-9). The case file number should only reflect the generic identifier (e.g., ARSR, ASDE, ASR). If a specific model is not applicable, use the subsystem designator identified in the center of the case file number (e.g., UA460-ITWS-XXX).
- b. For acquisition phase, the FAA project shall be the CI designator acronym (e.g., FBWTG).

- c. For changes that apply to the top-level NAS documents, the CI designator "NAS" shall be used, as well as the specific subsystem designators affected (e.g., ITWS, WAAS, WARP).
- d. The designator "BLD" shall be used for changes affecting ARTCC as-built facility drawings. "ACF" shall be used for changes affecting the standard and site-specific end state facility space drawings.

15. FA Type - The unique equipment identifier, which should be provided from *NAS-MD-001, NAS Subsystem Baseline Configuration and Documentation Listing*. Otherwise, N/A.

16. CI Component Designator - When this kind of equipment or software module is affected by a proposed change, its CI designator shall be cited in this block on the case file exactly as it appears in NAS-MD-001.

17. Facility Identifier (FACID) - For Local and Test case files pertaining to hardware facilities. (Format: ABBBBBCCCC) It is an eleven-character field (e.g., WPARSR_BAM_) with the first two characters (e.g., "WP") representing the Region, the next five characters (e.g., "ARSR_") representing the Facility and the last four characters (e.g., "BAM_") representing the Location per the FSEP. Each character has a place and if there is no character for a given place then an underscore ("_") is the proper character. Enter "N/A" for National case files.

18. Facility Code (FACCODE) - For Local and Test case files pertaining to hardware facilities. It is a five-digit code that breaks the facility down to its lowest unit as per FAA Order 1375.4. Enter "N/A" for National case files. (ASDE-2 would be entered 45512).

19. Cost Center Code - A five-character alphanumeric code indicating the cost center that the change implementation is to be charged against. It should be provided for Local and Test case files: e.g., "12345".

20. System Software Version - When making a change to software, the specific software version of the software being proposed for change shall be provided (e.g., Version 4.2).

21. Title - Indicate the subject of the change, being as descriptive as possible. For waivers to installation and siting criteria, include location and runway if applicable.

22. Description - Complete information pertaining to items a through h should be provided. Attach additional pages if necessary.

- a. Identification of problem - provide complete information identifying nature of problem, length of time it has existed, etc.
- b. Proposed change - identify proposed solution(s) to the problem in as much detail as possible.
- c. Interface impact - identify any known interface impacts involved with the proposed change.
- d. Cost estimate – Supply estimated cost and basis of estimate.
- e. Funding source - Identify organization providing funding for change.
- f. Benefits/risks - state the benefits of this change or the impact of not making the change
- g. Schedule - provide a schedule for the change to be implemented whenever possible.
- h. Other (e.g., logistics, quality, etc.)

23. Name and Title of Originator's Immediate Supervisor - Required. Title and name shall be typed or printed clearly in the first section of this block. The supervisor's legal signature shall go in the second section of the block and the date signed shall go in the third section.

24. Facility/SMO Review (AT/AF) - Facility/System Management Office (SMO) coordination is required for all case files originating from a facility or SMO. The SMO and/or Air Traffic Manager shall sign the block(s) at the bottom of Block 24.

25. Regional Review - Regional coordination is required for all case files originating from a facility/region. The signature of the individual responsible for regional case file coordination (Configuration Manager, NCP Coordinator, or Regional Executive Secretariat) shall be provided.

26. Prescreening - The Prescreening Office, not the originator of the case file/NCP, shall complete this block. It contains comments from the Prescreening review. Prescreening review shall be indicated for those case files requiring review by a prescreening organization. The prescreening office shall accomplish the review, recommend approval or disapproval of the case file, identify if this is a new requirement and list the recommended Must Evaluators for the review. If disapproved, the prescreening office shall return the case file with comments to the originator (through Regional CM for those case files originated at or below the regional level) and send a copy to ACM.

27. For Internal Configuration Management Use Only - For internal Configuration Management use only.

Case File Number		NCP Number				Page 1 of	
EFFECTS ON PRODUCT CONFIGURATION DOCUMENTATION, LOGISTICS AND OPERATIONS							
Applicable		Element	Case File/NCP Costs (Savings)				
YES	NO		Non-recurring	Unit	Recurring		Total
		Quantity			Total (recurring)	Total	
		1. Effect on product configuration documentation					
<input type="checkbox"/>	<input type="checkbox"/>	a. Performance					
<input type="checkbox"/>	<input type="checkbox"/>	b. Technical data/drawings					
<input type="checkbox"/>	<input type="checkbox"/>	c. Nomenclature change					
		2. Effect on NAS Integrated Logistics Support (NAIS)					
<input type="checkbox"/>	<input type="checkbox"/>	a. NAIS plans					
<input type="checkbox"/>	<input type="checkbox"/>	b. Maintenance concept, plans & procedures					
<input type="checkbox"/>	<input type="checkbox"/>	c. Logistics support analyses					
<input type="checkbox"/>	<input type="checkbox"/>	d. Interim support programs					
<input type="checkbox"/>	<input type="checkbox"/>	e. Spares and repair parts					
<input type="checkbox"/>	<input type="checkbox"/>	f. Tech manuals/programming Media					
<input type="checkbox"/>	<input type="checkbox"/>	g. Facilities					
<input type="checkbox"/>	<input type="checkbox"/>	h. Support equipment					
<input type="checkbox"/>	<input type="checkbox"/>	i. Operator training					
<input type="checkbox"/>	<input type="checkbox"/>	j. Operator training equipment					
<input type="checkbox"/>	<input type="checkbox"/>	k. Maintenance training					
<input type="checkbox"/>	<input type="checkbox"/>	l. Maintenance training equipment					
<input type="checkbox"/>	<input type="checkbox"/>	m. Contractor maintenance					
		3. Effect on operational Deployment					
<input type="checkbox"/>	<input type="checkbox"/>	a. Safety					
<input type="checkbox"/>	<input type="checkbox"/>	b. Reliability					
<input type="checkbox"/>	<input type="checkbox"/>	c. Maintainability					
<input type="checkbox"/>	<input type="checkbox"/>	d. Service life					
<input type="checkbox"/>	<input type="checkbox"/>	e. Operating procedures					
<input type="checkbox"/>	<input type="checkbox"/>	f. Electromagnetic interference					
<input type="checkbox"/>	<input type="checkbox"/>	g. Implementation schedule					
<input type="checkbox"/>	<input type="checkbox"/>	h. Critical single point failure items					
		4. Other considerations					
<input type="checkbox"/>	<input type="checkbox"/>	a. Interface					
<input type="checkbox"/>	<input type="checkbox"/>	b. Other affected equipment					
<input type="checkbox"/>	<input type="checkbox"/>	c. Physical constraints					
<input type="checkbox"/>	<input type="checkbox"/>	d. Computer programs and resources					
<input type="checkbox"/>	<input type="checkbox"/>	e. Rework of other equipment					

Figure 3.4.2.5.5-2 NCP Worksheet (Sheet 1 of 2)

Case File Number		NCP Number			Page 2 of		
EFFECTS ON PRODUCT CONFIGURATION DOCUMENTATION, LOGISTICS AND OPERATIONS							
Applicable		Factor	Case File/NCP Costs (Savings)				
YES	NO		Recurring		Total		
		4. Other considerations (Continued from previous page)	Non-recurring	Unit	Quantity	Total (recurring)	Total
<input type="checkbox"/>	<input type="checkbox"/>	f. Testing Impacts					
<input type="checkbox"/>	<input type="checkbox"/>	g. Parts control					
<input type="checkbox"/>	<input type="checkbox"/>	h. Life cycle costs					
<input type="checkbox"/>	<input type="checkbox"/>	i. Remote Maintenance Monitoring System (RMMS)					
		5. Miscellaneous (as required)					
<input type="checkbox"/>	<input type="checkbox"/>	a.					
<input type="checkbox"/>	<input type="checkbox"/>	b.					
<input type="checkbox"/>	<input type="checkbox"/>	c.					
<input type="checkbox"/>	<input type="checkbox"/>	d.					
<input type="checkbox"/>	<input type="checkbox"/>	e.					
6. Comment Field for Blocks 1 through 5, Include Basis for Cost Estimates							
7. Alternate solutions							
8. Developmental status							
9. Recommendations for retrofit							

Submitted by: _____ Organization: _____ Date: _____

Figure 3.4.2.5.5-2 NCP Worksheet (Sheet 2 of 2)

The case file/NCP worksheet shall be used to supplement the information provided on FAA Form 1800-2. The information will be used by CCB chairpersons to make better-informed decisions. Every attempt to provide a best available estimate should be made. If dollar values cannot be estimated, providing a "yes", "no" or "N/A" entry for the "Non-recurring" and "Recurring" columns is acceptable.

General Instructions

All pages of the case file NCP worksheet shall be numbered and clearly marked page (A) of (B), where (A) is the actual page number and (B) is the total number of pages. The case file number shall also be clearly marked on each page. Blocks 1 through 9 shall be completed using supplemental sheets if necessary. Supplemental sheets shall be clearly marked with the name of the individual providing input and the section of the worksheet to which the input applies. If a block is not applicable, designate with "N/A". It is understood that dollar amounts, if entered, are estimates only. Block 6 on the worksheet should be used to provide comments on the quality/basis of cost estimates. Actual costs of making changes will be gathered using the CCD form (FAA Form 1800-49) by requesting through action items that final actual costs be provided.

Originators: For originators at the field level this form shall be optional. Originators at the field level are encouraged to use this form if detailed information is available and not provided in block 22 (cost estimate) of the Case file/NCP form (1800-2).

Prescreening CM Coordinators: Attach this worksheet prior to prescreening if not already attached. Ensure that all prescreeners have had the opportunity to provide input to this worksheet.

Prescreeners and Must Evaluators: Provide input to this form as appropriate, from your organization's perspective. This worksheet is cumulative in nature and may contain information from the originator, and more than one prescriber or Must Evaluator. A new worksheet shall not be added at each prescreening or Must Evaluation but rather supplemental sheets.

CCB Executive Secretariats: Supplying information via this worksheet is a cumulative process and Executive Secretariats shall be responsible for summarizing the information for presentation to the CCB.

Detailed Instructions

Block 1 - Effect on Product Configuration Documentation - The effects on performance, etc., shall be indicated by checking the appropriate boxes and by identifying the cost/savings. These effects and the cost/savings shall be explained in detail in block 6 and/or on an enclosure.

- a. Effect on approved product specifications shall be described by reference to the Specification Change Notice(s) (SCN), Notice of Revision(s) (NOR) or other enclosure(s) which cover such proposed text changes in detail.
- b. Effect on technical data and/or drawings shall be described in general terms.
- c. Address nomenclature change when applicable.

Block 2 - Effect on NAS Integrated Logistics Support (NAILS) - The effects of the change on logistic support of the item shall be indicated by checking the appropriate boxes and by identifying the cost/savings. These effects and the cost/savings shall be explained in detail in block 6 and/or on an enclosure. The information required shall indicate the method to be used to determine the integrated logistic support plans and items which will be required for the support of the new configuration as well as retrofitting previously delivered items to the same configuration. The following shall be covered as applicable:

- a. Effects on schedule and content of the NAILS plan.
- b. Effect on maintenance concept and plans for the levels of maintenance and procedures.
- c. System and/or CI logistics support analysis (LSA) tasks to be accomplished and LSA data requiring update.
- d. Extension/revision of the interim support plan/program.
- e. Spares and repair parts that are changed, modified, obsolete, or added.
- f. Revised or new technical manuals or programming media.
- g. Revised or new facilities requirements and site activation plan.
- h. New, revised, obsolete, or additional support equipment (SE), test procedures and software. For items of SE which require change, furnish a cross reference to the related changes, and for any related change not furnished with the basic change, furnish a brief description of the proposed change(s) in SE.

- i. Qualitative and quantitative personnel requirements data which identify additions or deletions to operator or maintenance manpower in terms of personnel skill levels, knowledge and numbers required to support the CI as modified by the change.
- j. New operator and maintenance training requirements in terms of training equipment, trainers and training software for operator and maintenance courses. This information should include identification of specific courses, equipment, technical manuals, personnel, etc. required to set up the course at either the contractor or Government facility.
- k. See paragraph j above for instructions.
- l. See paragraph j above for instructions.
- m. Any effect on contractor maintenance that increases the scope or dollar limitation established in the contract.

Block 3 - Effect on Operational Deployment - The effects of the change of CI utilization shall be indicated by checking the appropriate factors and by identifying the cost/savings. These effects and the cost/savings shall be explained in detail in Block 6 and/or on an enclosure.

Block 4 - Other Considerations - The effects of the proposed change on the following shall be indicated by checking the appropriate factors and by identifying the cost/savings. These effects and the cost/savings shall be explained in detail in Block 6 and/or on an enclosure:

- a. Interfaces having an effect on adjacent or related items (output, input, size, mating connections, etc.).
- b. Other affected equipment changed, modified or obsolete.
- c. Physical constraints: removal or repositioning of items, structural rework, increase or decrease in overall dimensions.
- d. Software requiring a change to existing code and/or resources or addition of new software.
- e. Rework required on other equipment not included previously, which will affect the existing operational configuration.
- f. Additional or modified system test procedures required.
- g. Changes or updates to the parts control program.

- h. Effects on life cycle cost projections for the CI or program, including projections of operation and support costs/savings for the item(s) affected over the life and projections of the costs/savings to be realized in planned future production and spares buys of the item(s) affected.
- i. Effects on Remote Maintenance Monitoring System (RMMS).

Block 5 – Miscellaneous (as required) - a.-e. Any other impact not covered by blocks 1 through 4 shall be indicated by inserting and checking the appropriate factors and by identifying the cost/savings. These effects and the cost/savings shall be explained in detail in block 6 and/or on an enclosure.

Block 6 - Comment Field for Blocks 1 through 5, Include Basis for Cost Estimates

Block 7 - Alternate Solutions - A summary of the various alternative solutions considered, including the use of revised operation or maintenance procedures, revised inspection or servicing requirements, revised part replacement schedules, etc., shall be included. An analysis of the alternatives, identifying the advantages and disadvantages inherent in each feasible alternative approach, and showing the reasons for adopting the alternative solution proposed by the change, shall be provided. When the analysis addresses new concepts or new technology, supporting data should be presented with the proposal to authenticate the trade-off analysis.

Block 8 - Developmental Status - When applicable, recommendations as to the additional tests, trials, installations, prototypes, fit checks, etc., which will be required to substantiate the proposed change, shall be made. These recommendations shall include the test objective and test vehicle(s) to be used. The development status of the major items that will be used in conjunction with the change and the availability of the equipment in terms of the estimated production incorporation point shall be indicated.

Block 9 - Recommendations for Retrofit - When applicable, recommendations for retrofit of the change into accepted items with substantiating data, any implications thereto, and a brief description of the action required, shall be made. Where retrofit is not recommended, an explanation of this determination shall be provided. Reference shall be made to recommended retrofit effectivity.

NAS CONFIGURATION CONTROL DECISION		Page 1 of _____
1. CCD No.		2. Case File No.
3. NCP Title		
4. Site Location(s) (Local or Test NCPs/CCDs only)		5. Configuration Item Designator(s)
6. Action Directed		
7. Remarks or Explanation of Disapproval		
8. Decision _ Approval _ Disapproval	9. Date	10. Signature and Title _____ CCB Co-Chair _____ CCB Co-Chair

The CCD prepared on FAA Form 1800-49 shall be used to document and implement approved changes made by case files/NCPs.

General Instructions

All pages of the Configuration Control Decision (CCD) shall be numbered and clearly marked page (A) of (B), where (A) is the actual page number and (B) is the total number of pages. The CCD number shall also be clearly marked on each page. Blocks 1 through 9 shall be completed by the CCB Executive Secretariat, using additional sheets if necessary. Block 10 shall be signed by the chairperson(s). Block 11 shall be completed by the action office indicated in block 6 when the directed action is complete, and provided to ACM for tracking/status accounting purposes. Use of an automated version of the 1800-49 form in Microsoft Word is recommended. Copies of this application are available upon request from ACM.

Detailed Instructions

1. CCD No. - This shall be a discrete identification number in alphanumeric format (e.g., N20767) issued by the Executive Secretariat of the responsible CCB:

- a. The first alphabetic character is a prefix and identifies the applicability or status of the case file.
 1. N - National
 2. L - Local
 3. T - Test
 4. F - Field
 5. D - Disapproved
- b. The last five numbers are the NCP numbers and can be obtained from the case file/NCP form.

A capital letter appended to an NCP number denotes an amendment to that NCP (e.g., A, B, C, etc.)

2. Case File No. - The case file number as indicated in block 1 of the case file/NCP form.

3. NCP Title - The title of the NCP as found in block 21 of the case file/NCP form.

4. Site Location(s) (Local or Test NCPs/CCDs only) - Those site locations affected by the change, found in block 17 of the case file NCP form.

5. Configuration Item Designator(s) - Found in block 16 of the case file/NCP form.

6. Action Directed - Action(s) directed by the case file/NCP and the Chairperson(s) of the CCB.

7. Remarks or Explanation of Disapproval - Remarks pertaining to an approved NCP may be included in this block. If the NCP is disapproved, the Executive Secretariat shall provide remarks or explanation of same in this block.

8. Decision - As provided by the chairperson(s).

- a. Approval
- b. Disapproval (requires explanation in block 7)

9. Date - The date the decision was rendered on the NCP, as provided by the Executive Secretariat.

10. Signature and Title - As provided by the Chairperson(s).

11. Action Office - A signature grid for those organizations assigned actions in block 6 to indicate when the action is complete or closed.

3.4.2.6 *Withdrawing Case Files or NCPs*

3.4.2.6.1 *Purpose*

This procedure describes the methods of withdrawing a case file or NAS Change Proposal (NCP) at any point after it has been originated, but prior to Configuration Control Decision (CCD) issuance.

3.4.2.6.2 *Scope*

This procedure applies to organizations that process NCPs.

3.4.2.6.3 *Responsibilities*

- The change originator or originating organization is responsible for requesting the withdrawal of the case file or NCP once the decision has been made to retract it.
- The appropriate CM organization is responsible for annotating the case file/NCP form to record that it has been withdrawn and for updating its status in the Documentation and Configuration Identification System (DOCCON).

3.4.2.6.4 *References*

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9 Plan and Manage Program CM • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 102 Perform Problem Management Tracking

3.4.2.6.5 *Procedure*

At times it may be necessary to withdraw a change proposal due to technical inaccuracies, incomplete information or changes in program requirements. To withdraw a case file before an NCP number is issued, an originator shall notify the appropriate CM office in writing to withdraw the case file. The CM Coordinator shall then document the case file withdrawal in DOCCON.

To withdraw a field-generated NCP under the approval authority of the Regional Configuration Control Board (RCCB), the originator shall send a written request stating the reason(s) for withdrawal to the Regional CM Coordinator. For these changes, the Regional CM Coordinator shall update DOCCON to reflect the NCP withdrawal.

To withdraw other local and national NCPs, the originator shall send a written request (via the Regional CM Coordinator, if appropriate) to the CM Control Desk stating the reason(s) for withdrawal. The CM Control Desk shall then withdraw the NCP in DOCCON.

The date of the request for withdrawal shall be the official date entered into DOCCON. The reason(s) for withdrawal shall be appended to or annotated on Form 1800-2, Block 27.

Case file or NCP withdrawal shall be allowed at any time during the processing cycle, but not after a CCD has been issued.

Figure 3.4.2.6.5-1 provides a graphical representation of the steps for withdrawing a case file or an NCP.

Procedure Step	Procedure Description
1. Identify Case File/NCP for Withdrawal	<ul style="list-style-type: none"> • The originator or originating organization shall identify the case file or NCP to be withdrawn. • Reasons for case file/NCP withdrawal include uncovering of technical inaccuracies, incomplete information or changes in program requirements.
2. Notify CM Office	<ul style="list-style-type: none"> • The originator or originating organization shall notify the appropriate CM organization in writing that the case file/NCP is to be withdrawn. • The written notification requesting case file/NCP withdrawal shall specify the reason(s) for withdrawal.
3. Update Configuration Status Accounting	<ul style="list-style-type: none"> • The appropriate CM Organization shall annotate the case file/NCP form to reflect the reason(s) for, and date of, withdrawal. • DOCCON shall be updated to record withdrawal of the case file/NCP.

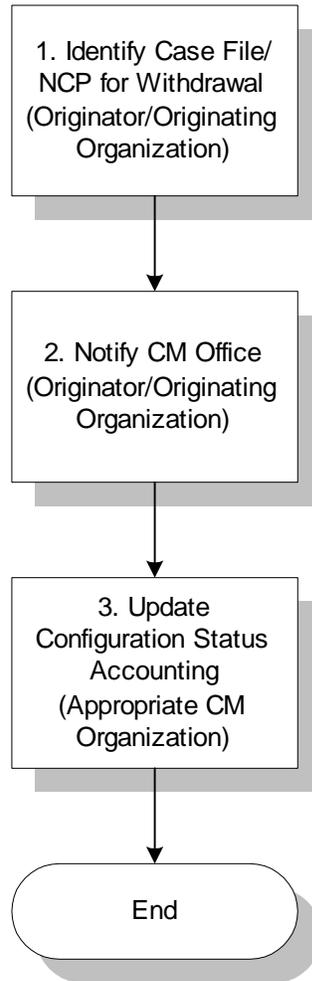


Figure 3.4.2.6.5-1 Withdraw Case File/NCP

3.4.2.7 Amending NCPs

3.4.2.7.1 Purpose

This procedure describes the method of amending a NAS Change Proposal (NCP) at any point after origination.

3.4.2.7.2 Scope

This procedure applies to organizations that process NCPs.

3.4.2.7.3 Responsibilities

- The processing organization is responsible for coordinating revision of the NCP and submitting it to the appropriate CM organization once the decision has been made to amend it.
- The appropriate CM organization (CM Control Desk or Regional CM Coordinator) is responsible for updating the NCP to record that it has been amended, entering the amended NCP into the Documentation and Configuration Identification System (DOCCON) and forwarding the amended NCP to the appropriate CM office for continued processing.

3.4.2.7.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9 Plan and Manage Program CM • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 102 Perform Problem Management Tracking

3.4.2.7.5 Procedure

NCP amendments shall be required under the following circumstances:

- An NCP is to be modified for certain scope changes after it has been approved and a CCD has been issued.
- The original NCP has been withdrawn and the originator wishes to reinstate the change proposal.

Note that only one version of an NCP shall be active at any time.

An example of a situation that requires an amended NCP is the addition of an affected site after Configuration Control Decision (CCD) issuance. This is a change in scope and as such the NCP must be amended accordingly.

The originator shall notify the organizational CM office that the NCP is to be amended. The CM office shall ensure the NCP is revised, and in turn, shall request the appropriate CM organization (CM Control Desk or Regional CM Coordinator) to update the database accordingly. To do this, a notation that the amended NCP replaces the original NCP shall be added to the text of Block 22 on Form 1800-2 (the NCP form). (For a detailed explanation of this form, refer to Procedure 3.4.2.5.) The appropriate CM organization shall place a sequential alpha suffix (A, B, C etc.) after the NCP number for each amendment. The previous version of the NCP is closed out when the database has been updated to reflect the amendment. Note that DOCCON also requires the corresponding case file number to be revised before the NCP amendment can be assigned in the system.

Amended NCPs shall require re-evaluation and a CCB decision before the proposed change may be implemented. The amended NCP shall be submitted for the evaluation procedure given in Section 3.4.2.2.

Figure 3.4.2.7.5-1 provides a graphical representation of the steps for amending an NCP.

Procedure Step	Procedure Description
1. Identify NCP	<ul style="list-style-type: none"> The originator or originating organization shall identify the NCP to be amended.
2. Notify CM Office	<ul style="list-style-type: none"> The originator/organization shall notify the CM office in writing that the NCP is to be updated. The notification shall include the amended NCP.
3. Notify Appropriate CM Organization	<ul style="list-style-type: none"> The CM office shall request the appropriate CM organization (Control Desk or Regional CM Coordinator) to update DOCCON to reflect the amendment of the NCP.

Procedure Step	Procedure Description
4. Update Configuration Status Accounting	<ul style="list-style-type: none"> • The appropriate CM organization shall update DOCCON to record the amended NCP and to record that the original NCP has been superseded. • The appropriate CM organization shall enter a notation in Block 22 of the appropriate Form 1800-2 (NCP form) to signify that the original NCP has been replaced with the amended NCP. • The appropriate CM organization shall append an alpha suffix to the NCP number to signify that it is an amended NCP.
5. NCP Evaluation (Procedure 3.4.2.2)	<ul style="list-style-type: none"> • The originating organization shall submit the amended NCP for evaluation in accordance with the procedure described in Section 3.4.2.2.
6. Conduct CCB (Procedure 3.4.2.3)	<ul style="list-style-type: none"> • CCB approval of the amended NCP shall be obtained in accordance with the procedure described in Section 3.4.2.3.
7. Configuration Control Decision (CCD) Closure (Procedure 3.4.2.4)	<ul style="list-style-type: none"> • CCD closure shall be performed in accordance with the procedure described in Section 3.4.2.4.

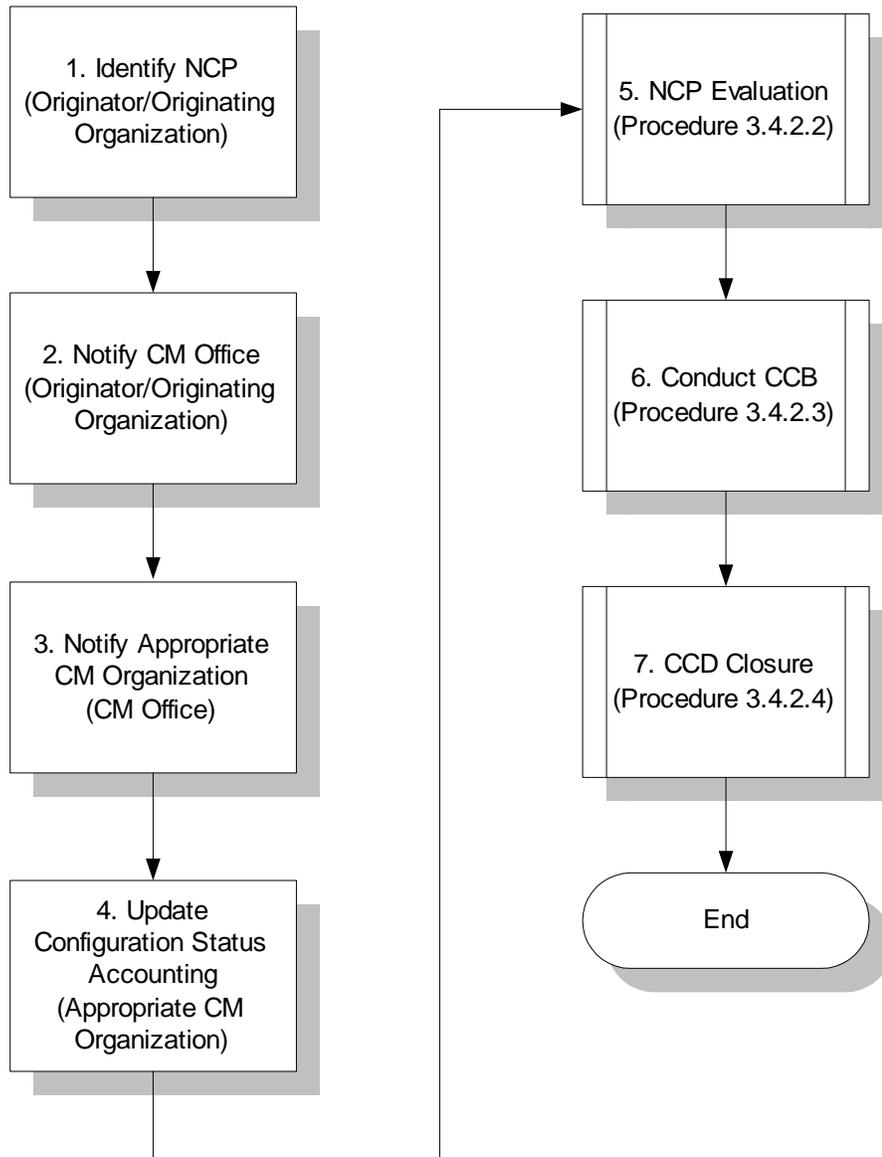


Figure 3.4.2.7.5-1. Amending NCPs

3.4.2.8 Transferring a NAS Change Proposal (NCP)**3.4.2.8.1 Purpose**

This procedure describes the method for transferring an NCP from one Configuration Control Board (CCB) to another after initial CCB assignment.

3.4.2.8.2 Scope

This procedure applies to organizations that process NCPs.

3.4.2.8.3 Responsibilities

- The processing organizations are responsible for coordinating the NCP transfer once it has been determined that it exceeds the approval authority of the CCB currently holding it.
- The CM Control Desk is responsible for updating the NCP folder, NCP logbooks and Documentation and Configuration Identification System (DOCCON) to record the transfer.

3.4.2.8.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9 Plan and Manage Program CM • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 102 Perform Problem Management Tracking

3.4.2.8.5 Procedure

The CM Control Desk designates an NCP for a particular CCB based on the affected configuration item (CI), associated documentation and the responsible organization. However, the CCB CM Office may question this assignment based on NCP content, cost, CCB approval authority and other factors, and may propose a transfer to a different CCB, including the NAS.

When a transfer is desired, the CM Office shall initiate the action by contacting the CM Office of the proposed board to coordinate the transfer. The CM office may contact NAS Configuration Management and Evaluation Staff (ACM) for assistance in determining the responsible CCB when reassignment is not clear. The CM Offices shall indicate agreement by documenting and signing the transfer action in Block 27 of the NCP, FAA Form 1800-2. The transferring CM Office shall then forward the NCP to the CM Control Desk. The CM Control Desk shall execute the transfer by updating the NCP folder, NCP logbooks and DOCCON. After completing the transfer, the CM Control Desk shall forward the NCP to the newly assigned CCB for processing.

Figure 3.4.2.8.5-1 provides a graphical representation of the steps for transferring an NCP.

Procedure Step	Procedure Description
1. Identify NCP	<ul style="list-style-type: none"> • The organization's CCB CM Office shall identify the NCP to be transferred and the CCB that is to assume responsibility for the NCP. • The CM Office shall contact ACM for assistance in determining the responsible CCB when reassignment is not clear. • An NCP shall be transferred upon determination that it exceeds the approval authority of the CCB currently assigned.
2. Coordinate Transfer	<ul style="list-style-type: none"> • The affected CM Offices shall coordinate the transfer. Coordination shall entail indicating agreement with the transfer by signing Block 27 of the NCP and notifying any necessary organizations such as reviewers or CCB chairs.
3. Notify CM Control Desk	<ul style="list-style-type: none"> • Upon completion of coordination, the transferring CM Office shall forward the NCP folder with the request for transfer to the CM Control Desk.
4. Update Configuration Status Accounting	<ul style="list-style-type: none"> • The CM Control Desk shall update the NCP folder, NCP logbooks and DOCCON to execute the NCP transfer. • The CM Control Desk shall forward the transferred NCP to the newly assigned CCB for continued processing.

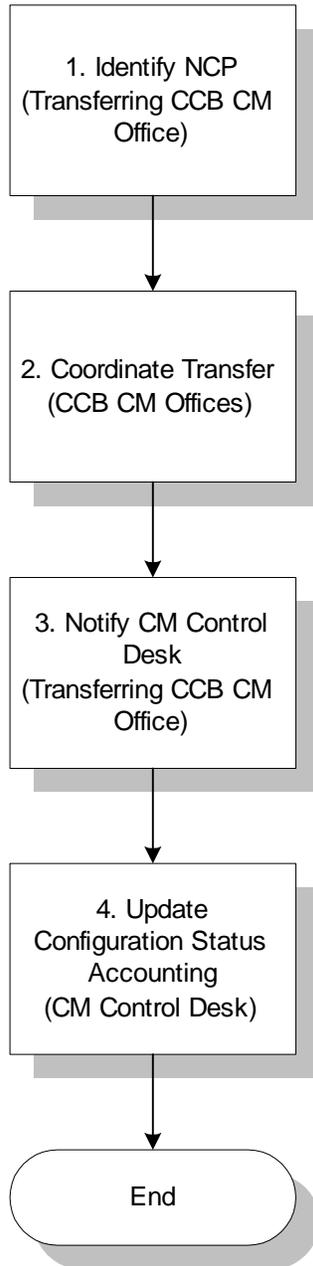


Figure 3.4.2.8.5-1 Transferring a NAS Change Proposal (NCP)

3.4.2.9 Amending Approved CCDs

3.4.2.9.1 Purpose

This procedure describes the method of amending a Configuration Control Decision (CCD) at any point after it has been formally approved.

3.4.2.9.2 Scope

This procedure applies to organizations that process NAS Change Proposals (NCP).

3.4.2.9.3 Responsibilities

- The processing organizations are responsible for amending the CCD form. A CCD is amended after it has been determined that it requires editorial changes or a change in scope has occurred. The CM Office of each organization is responsible for correcting clerical errors and for redrafting CCD forms to make more substantive changes.
- The CCB is responsible for evaluating any amended CCD form. The CCB Chairs are responsible for re-signing it if the amended form is approved.

3.4.2.9.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9 Plan and Manage Program CM • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 102 Perform Problem Management Tracking

3.4.2.9.5 Procedure

A signed CCD is an official FAA document. As such, it shall not be changed except through the signature process. There is one exception to this rule: minor administrative errors such as typographical errors, misspellings or punctuation errors may be updated directly on the form. NOTE: for errors or changes that are discovered before issuance of the NCP/CCD package, re-issuance of the CCD shall not be required. In such cases, the organization's CM office shall update the CCD directly.

For clerical errors, the organization's CM office shall strike through the error with a single line, make the correction in ink and initial the correction. NOTE: the CM office shall not use whiteout fluid or "cut and paste" changes. The amended CCD shall be distributed to the appropriate organizations, which at a minimum include the actionees and NCP originator.

For technical errors or changes that are discovered after issuance of the NCP/CCD package, the corresponding NCP shall be amended in accordance with the procedure described in Section 3.4.2.7. The amended NCP shall undergo re-evaluation as described in that procedure. After re-evaluation is complete, the organizational CM office shall redraft the CCD and send it to the CCB chairs for signature. The old CCD shall be attached to the updated CCD with an explanation of the change and its justification.

Figure 3.4.2.9.5-1 provides a graphical representation of the steps for updating a CCD.

Procedure Step	Procedure Description
1. Identify CCD	<ul style="list-style-type: none"> The organizational CM office shall identify the CCD to be updated.
2. Clerical Error?	<ul style="list-style-type: none"> If the update is a clerical error (typo, misspelling or punctuation), continue with Step 3. Otherwise proceed to Step 4.
3. Update CCD Form	<ul style="list-style-type: none"> The organizational CM office shall update the CCD form by striking through the error with a single line, making the correction in ink and initialing the correction. Whiteout fluid or a "cut and paste" method shall not be used. The original wording shall be clearly visible on the CCD form. The updated CCD shall be distributed to the appropriate organizations, which at a minimum include the actionees and NCP originator. Proceed to Step 10 to complete CCD closure.
4. Amend NCP (Procedure 3.4.2.7)	<ul style="list-style-type: none"> The corresponding NCP shall be amended, following the procedure described in Section 3.2.4.7.
5. Redraft CCD Form	<ul style="list-style-type: none"> The organizational CM office shall redraft the CCD form.
6. Submit CCD Form	<ul style="list-style-type: none"> The organizational CM office shall submit the updated CCD form to the CCB Chairs for approval.

Procedure Step	Procedure Description
7. CCD Approved?	<ul style="list-style-type: none">• If the Chairs approve the CCD, proceed to Step 9. Otherwise continue with Step 8.
8. Rework CCD	<ul style="list-style-type: none">• The organizational CM office shall update the CCD in accordance with the CCB Chairs' directions. Proceed to Step 6.
9. Sign CCD	<ul style="list-style-type: none">• The CCB Chairs shall re-sign the CCD.
10. CCD Closure (Procedure 3.4.2.4)	<ul style="list-style-type: none">• Any changes mandated by the updated CCD shall be performed in accordance with the CCD closure procedure (described in Section 3.4.2.4)

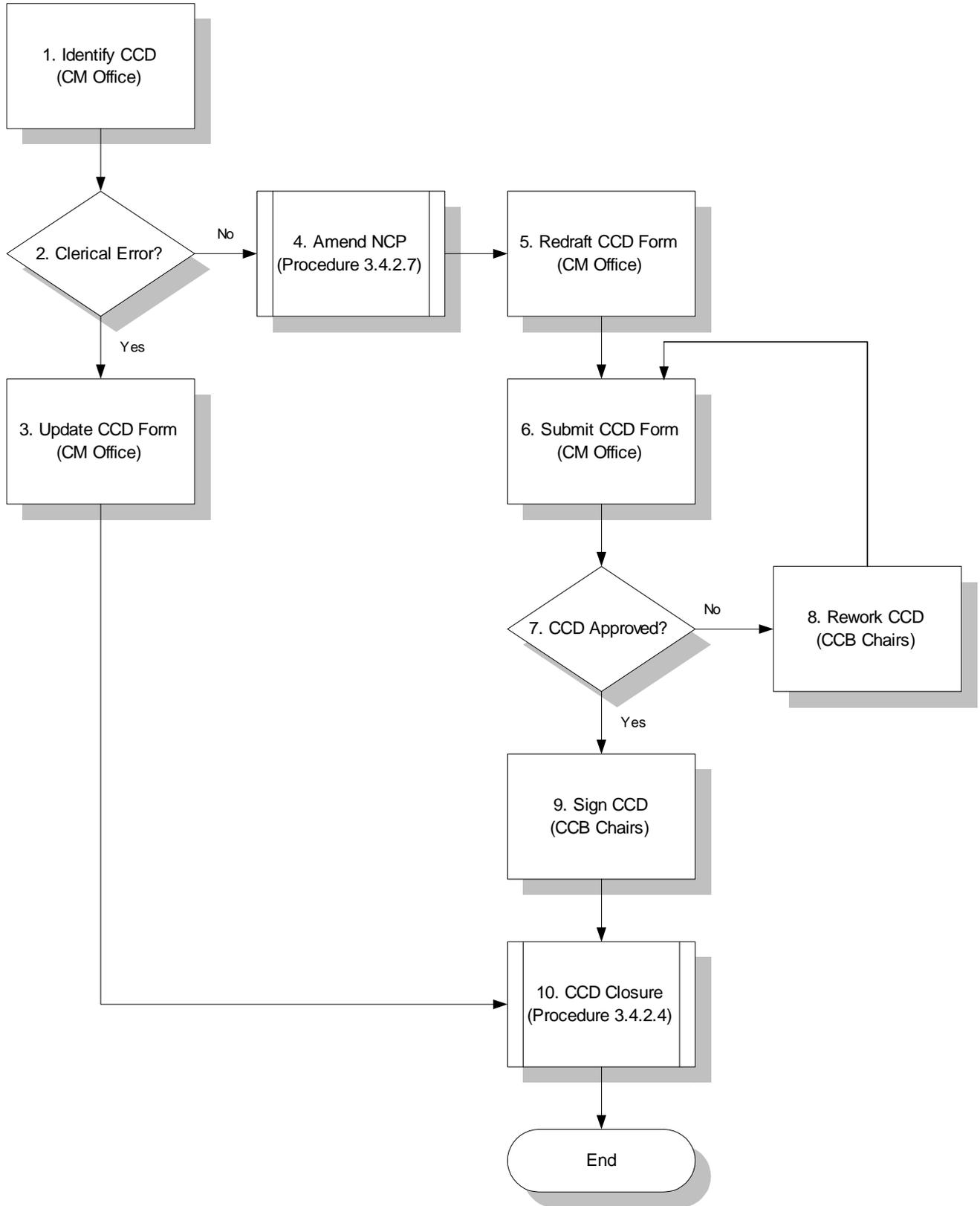


Figure 3.4.2.9.5-1. Amending Approved CCDs

3.4.2.10 Emergency Modifications

3.4.2.10.1 Purpose

This procedure describes the configuration management requirements associated with performing an emergency modification.

3.4.2.10.2 Scope

This procedure applies to System Management Offices (SMO) that may be called upon to perform emergency modifications.

3.4.2.10.3 Responsibilities

- Field personnel may initiate an emergency modification subject to approval by the SMO Manager. In addition, they update the appropriate site-specific documentation, draft the case file documenting the change and submit the case file to the cognizant Configuration Control Board (CCB) when the requested change is approved as an emergency modification.
- The SMO Manager is responsible for determining whether a proposed change qualifies as an emergency modification and approving implementation as an emergency modification.
- The cognizant CCB is responsible for reviewing/approving the implemented modification and determining whether it necessitates additional changes. If so, the CCB directs preparation of a case file by the originating organization for the additional changes.

3.4.2.10.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9 Plan and Manage Program CM • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 102 Perform Problem Management Tracking • 106 Provide Nonconformance Tracking • 108 Perform Modification Tracking

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> Order 6032.1A, <i>Modifications to Ground Facilities, Systems, and Equipment</i> 	<ul style="list-style-type: none"> Pages 1-26

3.4.2.10.5 Procedure

In most cases, changes go through a formal approval process, beginning with the Originate Change procedure documented in Section 3.4.2.1, before they are implemented. Sometimes, however, local changes must be performed immediately because system operation would be otherwise impaired. These changes are known as emergency modifications. Emergency modifications are performed in accordance with *Order 6032.1A, Modifications to Ground Facilities, Systems, and Equipment*. Emergency modifications can be approved temporarily by the SMO Manager, but shall be subject to a higher-level review and a Configuration Control Decision (CCD) by the cognizant CCB. For this reason, a case file shall be prepared after the temporary modification has been implemented and shall be processed in accordance with procedures documented in Section 3.4.2.1. The case file shall then be assigned an NAS change proposal (NCP) number and undergo formal NCP evaluation in accordance with the procedures given in Sections 3.4.2.2. and 3.4.2.3. Pending approval of the follow-up NCP, the local and site-specific configuration documentation shall be updated to ensure the integrity of the configuration.

In most cases, no further action is necessary after the cognizant CCB approves the follow-up NCP and issues the CCD in accordance with Sections 3.4.2.3 and 3.4.2.4. But occasionally the implemented modification may affect the system in such a manner that the CCB deems further changes are necessary to ensure proper system operation. Software patches often fall into this category. In that case, the organization shall draft a new case file in accordance with CCB direction, following the Originate Change procedure.

Any changes that the SMO Manager determines do not qualify as emergency modifications shall undergo the usual approval process, beginning with the Originate Change procedure.

Figure 3.4.2.10.5-1 provides a graphical representation of the steps for documenting an emergency modification.

Procedure Step	Procedure Description
<p>1. Initiate Request for Emergency Modification</p>	<ul style="list-style-type: none"> Field personnel shall initiate an emergency modification to be approved by the SMO Manager.

Procedure Step	Procedure Description
2. Approve Emergency Modification	<ul style="list-style-type: none"> The SMO Manager shall approve the emergency modification. For changes that are not deemed emergency modifications, a case file may be submitted to request the change in accordance with normal processing procedures detailed in Section 3.4.2.1.
3. Implement Emergency Modification	<ul style="list-style-type: none"> The organization shall implement the approved emergency modification. Implementation of the emergency modification shall include maintenance of the site documentation to reflect any changes made in the site configuration. Further details of emergency modification implementation are given in <i>Order 6032.1A, Modifications to Ground Facilities, Systems, and Equipment</i>.
4. Originate Change (Procedure 3.4.2.1)	<ul style="list-style-type: none"> The organization shall draft a case file documenting the implemented modification and submit it for pre-screening in accordance with the procedure described in Section 3.4.2.1. The NCP associated with this case file shall be marked as having an Urgent priority.
5. NCP Evaluation (Procedure 3.4.2.2)	<ul style="list-style-type: none"> The NCP shall be evaluated in accordance with the procedure described in Section 3.4.2.2.
6. Conduct CCB (Procedure 3.4.2.3)	<ul style="list-style-type: none"> The cognizant CCB shall review and approve the NCP documenting the emergency modification in accordance with Section 3.4.2.3. The CCB shall determine whether changes in addition to those made with the emergency modification are required. If so, the CCB shall direct the organization to submit a new case file to make the additional changes. This follow-on case file shall be submitted through the regular change management process, beginning with the Originate Change procedure.

Procedure Step	Procedure Description
7. Configuration Control Decision (CCD) Closure (Procedure 3.4.2.4)	<ul style="list-style-type: none">• The CCB CM office shall close out the CCD in accordance with the procedure described in Section 3.4.2.4. NOTE: CCD closure ordinarily entails implementation of the change. For emergency modifications, implementation will already have been performed before this point.

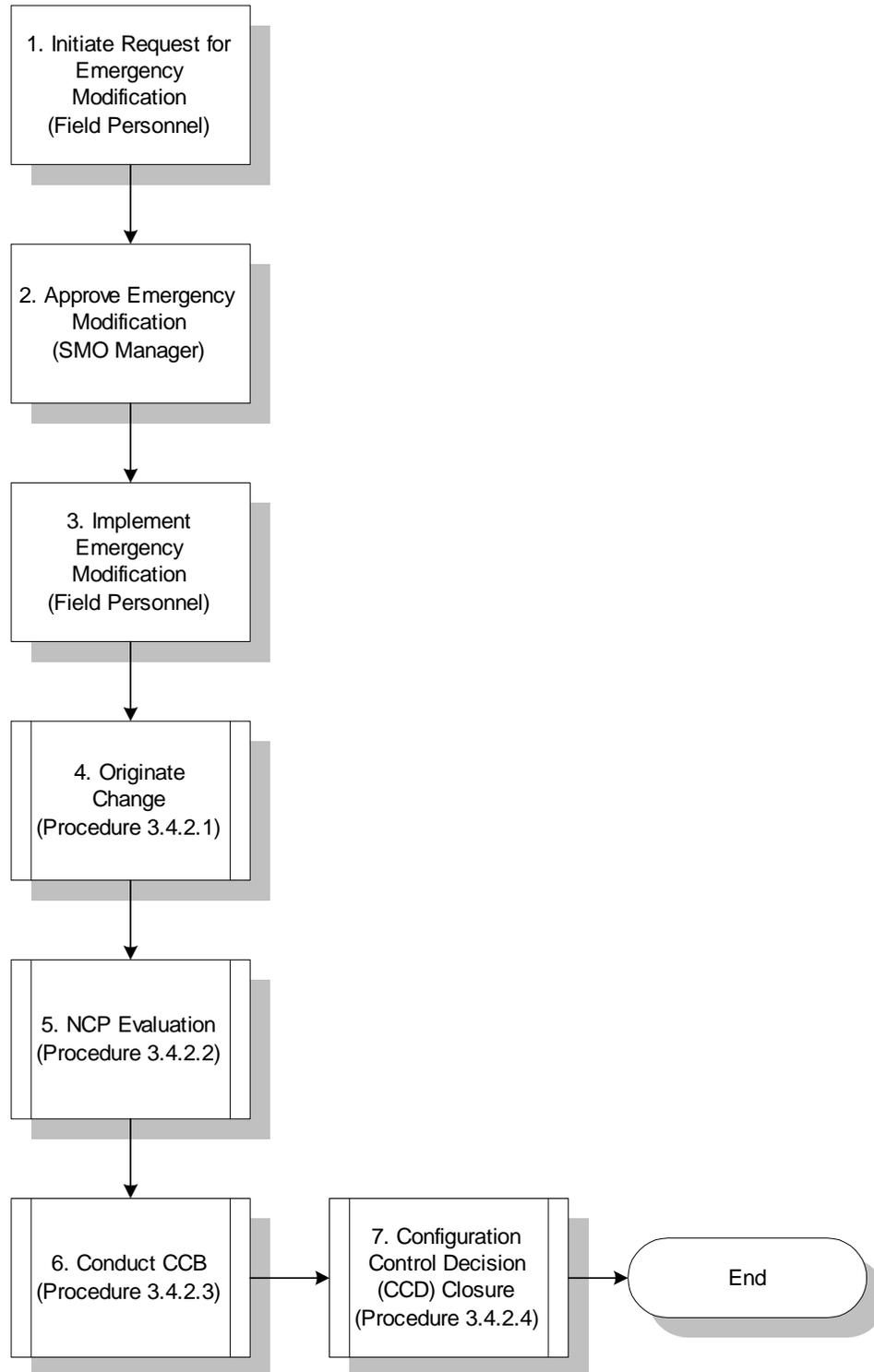


Figure 3.4.2.10.5-1 Emergency Modifications

3.4.3 Change Management Metrics

3.4.3.1 Purpose

This procedure describes how to obtain measures for evaluating the effectiveness of the National Airspace System (NAS) change management process. It includes examples of types of metrics that may be used for this purpose.

3.4.3.2 Scope

This procedure applies to NAS Configuration Management and Evaluation Staff (ACM), which is responsible for monitoring CM activities and for determining methods of process improvement, based on measurements obtained from such monitoring. It also applies to each organization responsible for monitoring its CM capability.

3.4.3.3 Responsibilities

- ACM is responsible for determining the metrics needed to provide the necessary data for process improvement, obtaining the metrics from their monitoring of CM activities, and for disseminating the data to organizations as needed.
- The organizations are responsible for using these metrics for analyzing and reporting CM effectiveness.

3.4.3.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement II-3.
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 16 Monitor CM Activities • 103 Provide Continuous Improvement/Assessment

3.4.3.5 Procedure

The procedure for measuring CM effectiveness relies on data provided by the Documentation and Configuration Identification System (DOCCON). ACM shall determine the types of measurements required, construct the database queries that produce such measurements, and conduct measurements on a periodic

basis. Table 3.4.3.5-1 lists samples of metrics that are potentially useful for FAA organizations.

ACM shall also provide the metrics to requesting organizations. If an organization desires a type of measurement that ACM has not constructed, it shall request ACM to construct the query and to provide the measurements obtained from the query once it has been constructed.

Figure 3.4.3.5-1 provides a graphical representation of the steps for change management metrics.

Procedure Step	Procedure Description
1. Schedule Measurement	<ul style="list-style-type: none"> ACM shall schedule measurement activities on a periodic basis.
2. Perform Process Analysis	<ul style="list-style-type: none"> ACM shall review the database queries currently available to determine whether they are sufficient to provide the information needed for assessment and improvement of the CM process.
3. New Database Queries Needed?	<ul style="list-style-type: none"> If analysis determines that the library of database queries does not provide all of the information required, continue with Step 4. Otherwise proceed to Step 5.
4. Identify Database Queries	<ul style="list-style-type: none"> ACM shall determine the database queries that are required to provide the information derived in Step 2.
5. New Information Requested?	<ul style="list-style-type: none"> If one or more organizations have requested a measurement not currently obtainable from the library of database queries, continue with Step 6. Otherwise proceed to Step 7.
6. Determine Database Queries	<ul style="list-style-type: none"> ACM shall determine the database queries that are required to provide the information requested in Step 5. New queries shall be kept to a minimum. If ACM has also determined that new information is needed (refer to Step 2), the new queries shall satisfy both sets of requests as efficiently as possible.
7. New Database Queries?	<ul style="list-style-type: none"> If new database queries are required, as determined by ACM in Step 4, one or more organizations in Step 6, or both, continue with Step 8. Otherwise proceed to Step 9.

Procedure Step	Procedure Description
8. Construct New Queries	<ul style="list-style-type: none">• ACM shall construct the new database queries that the analysis has determined to be required.• Once constructed, ACM shall add the new database queries to the library of CM database queries.
9. Produce Metrics Reports	<ul style="list-style-type: none">• ACM shall run the database queries to produce metrics reports.
10. Disseminate Reports	<ul style="list-style-type: none">• ACM shall disseminate the reports to personnel within the organization and to other requesting organizations.
11. Report Results to Management	<ul style="list-style-type: none">• The organization shall report the measurement results to its management.
12. Monitoring, Oversight, and Evaluation (Procedure 3.1.3)	<ul style="list-style-type: none">• ACM shall retain the measurements for use in process improvement analysis.

Table 3.4.3.5-1 Sample Change Management Metrics**I. NAS-Level Metrics**

NCP totals by status (opened, undergoing pre-screening, etc.)
 NCP totals by priority (normal, time-critical, urgent)
 NCP totals by CI
 NCP totals by scope (local, test, national, regional CCB)
 NCP totals by reason for change (safety, requirements change, etc.)
 NCP totals by date of initiation
 NCP totals by duration (from date of initiation to CCD closure)
 NCP totals by originating organization
 NCP totals by facility identifiers
 NCP totals by facility codes
 NCP totals by cost center code
 Totals of NCPs with supplemental forms (ECPs, ECRs, TESs)

Emergency modifications currently open
 Emergency modifications by CI
 Emergency modifications by date of initiation
 Emergency modifications by duration (from date of initiation to CCD closure)
 Emergency modifications by originating organization
 Emergency modifications by cost

Open CCD totals by category (modification, documentation, test)
 Open CCD action totals by CI
 Open CCD action totals by CCD issue date
 Open CCD action totals by CCD

NOTE: Combinations of these may be employed, as mandated by management requirements: e.g., NCP totals by priority for each CI.

II. IPT/Solution Provider/Regional-Level Metrics

Percentage of modifications requiring follow-up design engineering/verification
 Percentage of engineering design activities accomplished on time and within budget
 Percentage of mod kits and materials delivered on time and within budget
 Percentage of change incorporate accomplished on time and within budget
 Mod dollars under/over budget by fiscal year (FY)
 Labor hours identified and committed at CCB decisions

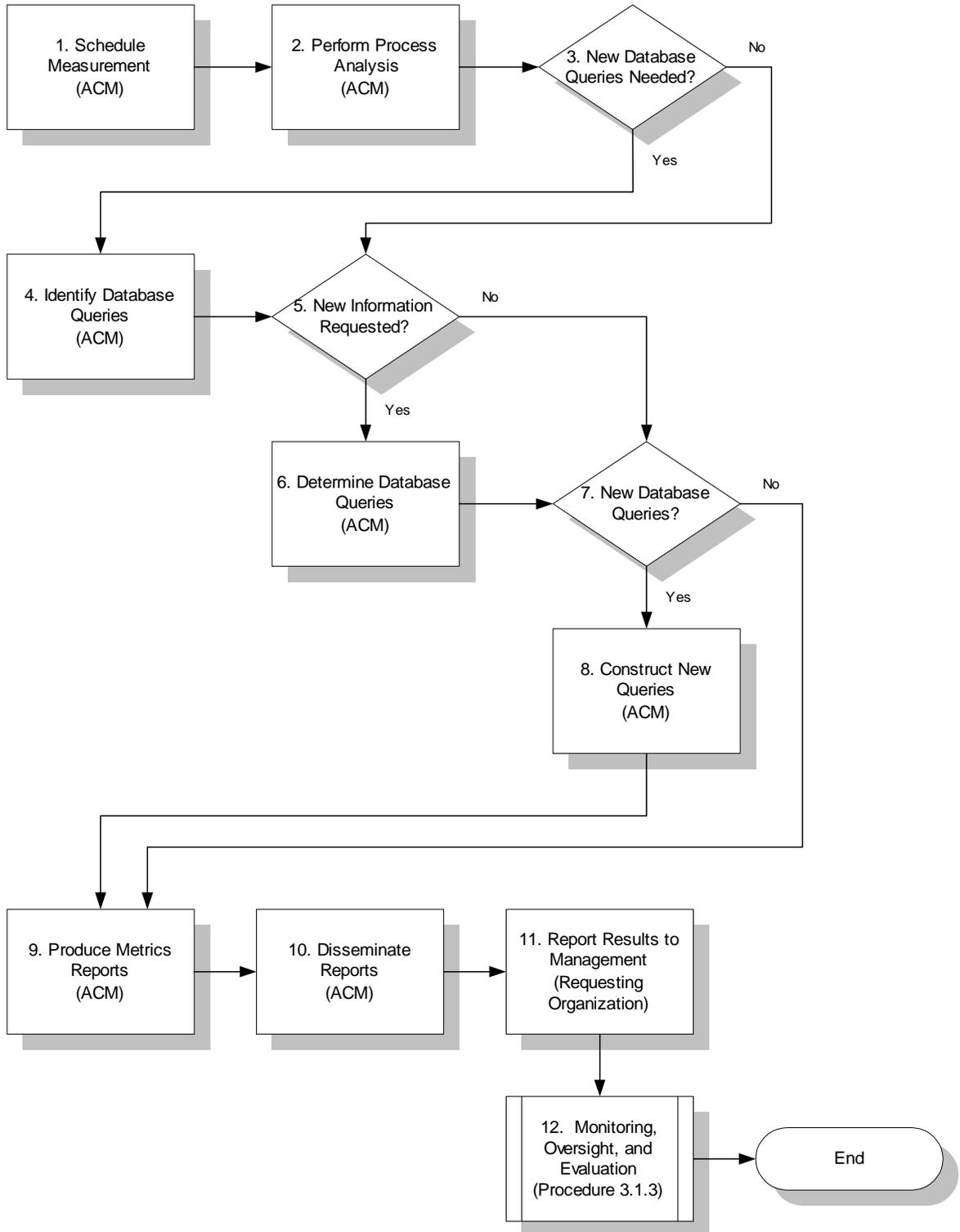


Figure 3.4.3.5-1 Change Management Metrics

3.4.4 Requirements Traceability

Requirements define a comprehensive picture of the current National Airspace System (NAS) and the plan for future enhancements. Requirements traceability data from the top level (or operational) requirements to the lowest level requirements define a consistent picture of the NAS. Requirements traceability will:

- support mission and investment analyses;
- support architecture assessments at critical Acquisition Management System (AMS) milestones;
- provide the operational context and functional descriptions to define requirements, interfaces, procedures, and other products needed to support a capability; and
- provide details to support data-enhanced decisions.

A number of organizations are responsible for the decomposition of requirements from the top level to the lowest level. To facilitate the management, communication and status of requirements traceability data, a central requirements repository shall be maintained. All organizations involved in development and maintenance of requirements shall have access to the central requirements repository. It is critical to maintain requirements traceability so that all organizations have a consistent view of the NAS as well as a vehicle to assess the impact of changes across the entire NAS.

Although requirements management is discussed in Section 3.3.3.1, the following subsections detail the establishment and traceability aspects of requirements:

- Section 3.4.4.1, User and NAS-Level Traceability, defines functional and performance requirements for NAS services, as well as NAS-wide constraints. These requirements are captured in various documents, such as the Concept of Operation Documents, Technical Reference Model, etc. They also define those requirements that cross domains (e.g., en route, oceanic, terminal, etc.), provide enabling functions (e.g., communications, navigation, surveillance, automation, etc.), document services, or drive NAS evolutions, which are captured in the NAS Technical Architecture.
- Section 3.4.4.2, System Level Traceability, defines the set of System Requirements applicable to a specific Investment Analysis (IA) for a project and which are applicable to a specific Integrated Requirements Team (IRT) or Integrated Product Team (IPT). System-Level Requirements are captured in the Requirements Document (RD), system-level specifications and interface requirements documents.
- Section 3.4.4.3, Sub-Tier Traceability, defines the set of requirements provided by the vendor in response to the System Requirements and which are used to support the development of the system. These requirements are captured in product specifications, detailed design specifications, drawing packages, etc.

3.4.4.1 User and NAS-Level Traceability

3.4.4.1.1 Purpose

The Aviation community's needs and expectations are documented in various sources. Modifications to Operational Concept documents, the NAS Architecture, statutory and regulatory laws, FAA standards, orders and procedures, or other sources containing high level concepts for the NAS are translated into National Airspace System (NAS)-Level Requirements.

This procedure describes how requirements traceability is established and maintained for User and NAS-Level Requirements.

3.4.4.1.2 Scope

This procedure applies to NAS Configuration Management and Evaluation Staff (ACM), national requirements offices, the Office of System Architecture and Investment Analysis (ASD), Air Traffic System Requirements Service (ARS), and other solution providers that participate in the development and maintenance of NAS-Level Requirements and/or specify and maintain traceability to/from NAS-Level Requirements. It describes organizational roles to ensure traceability information is captured and maintained as part of the requirements process.

3.4.4.1.3 Responsibilities

- The Joint Resources Council (JRC) is responsible for adjudicating proposed requirements changes that affect JRC-level parameters such as cost, schedule, performance or benefits. The JRC ensures traceability data is evaluated and updated traceability data is included with the decision data.
- The NAS Configuration Control Board (CCB) is responsible for adjudicating proposed NAS-Level Requirements changes, including traceability data, in accordance with its CCB charter and operating procedures. The NAS CCB ensures that traceability data is evaluated and updated traceability data is included with the decision data.
- ASD is responsible for:
 - The development and maintenance of NAS-Level Requirements (as defined in Table 3.3.3.1.5-1) and respective traceability data between User and NAS-Level Requirements
 - Performing an impact analysis when User Requirements are modified
 - Notifying ARS of proposed changes to NAS-Level Requirements
 - Submitting proposed requirements changes and traceability data to the NAS CCB or JRC.
- ARS is responsible for:
 - Notifying ASD of modifications to System and Subsystem-Level Requirements
 - Ensuring that an impact analysis of System and Subsystem Requirements is performed for proposed modifications to NAS-Level Requirements.

- ACM is responsible for the oversight and configuration management of the central requirements repository that stores the requirements and traceability data.

3.4.4.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-2, II-1, II-2
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1 Plan and Manage NAS Requirements • 1.3 Establish and Manage NAS Technical Products • 1.4 Establish and Maintain NAS Infrastructure • 100 Perform Change Management
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures 	
<ul style="list-style-type: none"> • <i>Technical Architecture Process Definition Document</i> 	

3.4.4.1.5 Procedure

ASD is responsible for extracting the top level requirements from their documented sources. ASD is also responsible for parsing and decomposing the User and NAS-Level Requirements. In order to ensure the NAS-Level Requirements are traceable, ASD shall develop and maintain traceability data. The initial version of the NAS-Level Requirements and traceability data shall be submitted to the NAS CCB and/or JRC for approval. Upon approval, ACM shall ensure that the requirements and traceability data in the central requirements repository are updated.

When a change is made to a User Requirement, ASD shall perform an impact analysis to determine if the NAS-Level Requirements are affected. The goal of the impact analysis is to ensure the “user need” will be met through the NAS-Level Requirements. If there is an impact, ASD shall modify the NAS-Level Requirements including the traceability data and forward an update notification to

ARS so that an impact analysis can be performed for System and Subsystem Requirements.

When a change is made to a lower level requirement that may result in a change to the User or NAS-Level Requirement, ASD receives an update notification (as described in Sections 3.4.4.2 and 3.4.4.3) which initiates an impact analysis.

Upon disposition of the requested changes, ACM shall ensure that the necessary modifications to the central requirements repository are made and the appropriate update notifications are forwarded.

3.4.4.2 System-Level Traceability

3.4.4.2.1 Purpose

This procedure describes how requirements traceability is established and maintained between the National Airspace System (NAS)-Level Requirements and System and Subsystem-Level Requirements.

3.4.4.2.2 Scope

This procedure applies to NAS Configuration Management and Evaluation Staff (ACM), national requirements offices, Integrated Product Teams (IPT), regional offices, and other solution providers that participate in NAS-Level and System-Level Requirements development and CM. It describes organizational roles in ensuring traceability information is captured and maintained from the NAS-Level, to the Acquisition Program Baseline (APB), to the system-level specification.

3.4.4.2.3 Responsibilities

- The NAS Configuration Control Board (CCB) is responsible for adjudicating proposed System and Subsystem-Level Requirements changes, including traceability data, in accordance with its CCB charter and operating procedures. For proposed requirements changes that affect APB Joint Resource Council (JRC)-level parameters, the NAS CCB refers the change and proposed traceability data to the JRC for adjudication.
- The JRC is responsible for approving the APB, including System-Level Requirements for each investment decision. The JRC is also responsible for adjudicating proposed requirements changes that affect JRC-level parameters such as cost, schedule, performance or benefits.
- The Air Traffic System Requirements Service (ARS) is responsible for the generation of the Initial Requirements Document (IRD) and the Final Requirements Document (FRD) from the NAS-Level Requirements and the traceability of those requirements to the System and Subsystem-Level Requirements to include the acquisition documentation.
- The Office of System Architecture and Investment Analysis (ASD) is responsible for updating the NAS-Level Requirements and traceability data to reflect the establishment of a new APB. ASD is responsible for the development and maintenance of NAS-Level Requirements and respective traceability data from top level requirements to NAS-Level Requirements.
- The IPT/solution provider that manages an individual system is responsible for developing the system procurement documentation that includes a system-level specification, statement of work, and identification of subordinate specifications that trace from the FRD. In addition, as the contract requirements are changed, the IPT/solution provider is responsible for updating the requirements and traceability data accordingly.
- The IPTs, solution providers, and regional offices are responsible for submitting requests for changing any level of requirement data, including traceability data in accordance with the standard NAS Change Proposal (NCP) process.

- ACM is responsible for the oversight and configuration management of the central requirements repository that stores the requirements and traceability data.

3.4.4.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part One – Configuration Management (CM) Policy Elements</i> 	<ul style="list-style-type: none"> • Statement I-2, II-1, II-2
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process</i> 	<ul style="list-style-type: none"> • 1 Plan and Manage NAS Requirements • 1.3 Establish and Manage NAS Technical Products • 1.4 Establish and Maintain NAS Infrastructure • 6.1 Baseline Requirements Document (RD) • 6.3 Approve Acquisition Program Baseline (APB) • 6.6 Update NAS Technical Products • 10 Develop Program A-Spec • 10.1 Develop Traceability Matrix (A-Spec to APB to NAS Requirements) • 10.2 Provide Field Review of Program A-Spec • 100 Perform Change Management
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section I, CCB Charter and Operating Procedures</i> 	
<ul style="list-style-type: none"> • <i>Technical Architecture Process Definition Document</i> 	
<ul style="list-style-type: none"> • <i>ARS Role in Requirements Management During Solution Implementation Phase</i> 	
<ul style="list-style-type: none"> • <i>Management and Control of ATS Requirements</i> 	
<ul style="list-style-type: none"> • <i>ATS Requirements Traceability Process. ARS Guidance Document</i> 	

3.4.4.2.5 Procedure

The JRC approves an APB for each program in the NAS. This baseline shall include the FRD System-Level Requirements and traceability data that shall be used to form the functional and performance baselines of a system. This data represents the starting point from which the decomposed system-specific "contract" requirements can be traced. ACM shall ensure that approved APB requirements and traceability data are stored in the central requirements repository, which can be accessed by all organizations that have an interest in the requirements.

The IPT or solution provider responsible for the program shall develop system acquisition documentation that includes a system-level specification, statement of work, and identification of subordinate specifications that trace to the Requirements Document (RD) and a Traceability Matrix. ARS shall ensure that all NAS-Level Requirements are met by the acquisition of that system or sub-system. Upon completion of the requirements and traceability data, ARS, in conjunction with the IPT/solution provider, shall establish the system's Functional Baseline (Section 3.3.3.2). ARS and the IPT/solution provider shall provide the requirements and traceability data to ACM in a format that can be imported into the central requirements repository. This data shall be made available to the organizations that have an interest in the program.

When a change is proposed to any of the documents covered in this procedure, the owner of that document shall ensure that the change review includes an impact analysis utilizing the requirements traceability information. The central requirements repository shall be updated with the results of the impact analysis and an update notification shall be forwarded.

3.4.4.3 Sub-Tier Traceability

3.4.4.3.1 Purpose

This procedure describes how requirements traceability is established and maintained between the System-level Requirements (FAA-generated documentation) and Sub-Tier Requirements (vendor-generated sub-tier specifications and documentation). This provides requirements traceability from the National Airspace System (NAS) level to the lowest level needed to support verification of the attainment of requirements during the Functional Configuration Audit (FCA) and the Physical Configuration Audit (PCA) activities. This also provides visibility into contractor-generated changes and their relationship to the Acquisition Program Baseline (APB) and contract requirements.

3.4.4.3.2 Scope

This procedure establishes the last step for the traceability of requirements from the acquisition documentation to the contractor/vendor-generated documentation to the lowest level, and lists the activities associated with allocating technical requirements to the Traceability Matrix.

3.4.4.3.3 Responsibilities

- ARS, assisted by the Integrated Product Teams (IPT), is responsible for tracing all decomposed system and subsystem requirements through the acquisition documentation to contractor/vendor-generated documentation (i.e., sub-tier specifications and performance validation testing), as contained in the traceability data. ARS ensures traceability down to the lowest levels possible consistent with the acquisition philosophy documented in the Acquisition Strategy Paper (ASP) so that all User and NAS-Level Requirements are met by the acquisition of that system or sub-system.

3.4.4.3.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-2, II-1, II-2, III-1, III-5

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 1 Plan and Manage NAS Requirements • 1.3 Establish and Manage NAS Technical Products • 1.4 Establish and Maintain NAS Infrastructure • 6.1 Baseline Requirements Document (RD) • 6.3 Approve Acquisition Program Baseline (APB) • 6.6 Update NAS Technical Products • 9 Plan and Manage Program CM • 10 Develop Program A-Spec • 10.1 Develop Traceability Matrix (A-Spec to APB to NAS Requirements) • 10.2 Provide Field Review of Program A-Spec • 12 Establish Functional Baseline • 22 Conduct Functional Configuration Audit (FCA) • 23 Conduct Physical Configuration Audit (PCA) • 24 Establish System Product Baseline • 100 Perform Change Management
<ul style="list-style-type: none"> • <i>ATS Requirements Traceability Process. ARS Guidance Document</i> 	

3.4.4.3.5 Procedure

ARS, in concert with the IPT or solution provider, shall establish a Traceability Matrix that flows from the system requirements down through the contractor/vendor-generated documentation. This is required to establish the linkages between the FAA-controlled procurement documentation and contractor/vendor-generated documentation.

As the system is developed, the IPT/solution provider shall ensure that the traceability data is expanded to show the relationship of the System and

Subsystem (contract) Requirements to the system design, component structure, and test plans. The IPT or solution provider shall capture changes to contractor-developed data to include sub-tier specifications, internal interface control documents, test procedures, test reports, and subcontractor-generated documentation during the procurement process. The IPT or solution provider shall establish an Office of Primary Interest (OPI) procedure/process that validates changes in contractor/vendor-generated data against the requirements established by the contract. This is needed to verify that the change made by the contractor/vendor at the sub-tier level is clearly understood and what impact, if any, this change will have on the requirements of the contract.

The OPI procedure/process shall address management of the configuration of the system or subsystem during the requirements decomposition process from the procurement documentation to the contractor/vendor-generated documentation. This procedure/process shall be used to track any changes to contractor/vendor-generated documentation.

ARS and the IPT/solution provider shall provide the requirements and traceability data to NAS Configuration Management and Evaluation Staff (ACM) in a format that can be imported into the central requirements repository. This data shall be made available to the organizations that have an interest in the program.

3.5 Configuration Status Accounting

Configuration status accounting (CSA) is one of the main components of configuration management (CM) and provides accurate and timely information about NAS systems, their components, and their associated documentation. CSA information is continuously updated throughout the life cycle. The data generated by this activity provides critical information to decision-makers, system users, and planners.

This section contains two subsections:

- Section 3.5.1, National CM Information Management System, describes the types of information available and maintained in CSA systems.
- Section 3.5.2, Data Accessibility, describes the CSA user environment and how to obtain data maintained in CSA systems.

CSA is the process of capturing and organizing information. It is necessary for the performance of configuration management and provides a highly reliable, common source of technical information to support NAS activities such as program management, systems engineering, acquisition, software development, second level engineering, logistic support, modification, maintenance, and training.

Under the auspices of NAS Configuration Management and Evaluation Staff (ACM), a NAS Documentation Control Center has been established as a repository for all baselined NAS documentation. An automated support tool has also been developed to collect, store, and report data about NAS facilities, hardware, and software to serve as the authoritative source of information concerning NAS systems and their associated documentation. The system reports information on change proposals in the review process, approved changes in the implementation process, and the current configuration of the NAS.

Several CM initiatives are in place to take advantage of new technology (s) improving the accuracy, availability, and accessibility to NAS data. Regardless of technology improvements, the data maintained will continue to be validated by ACM.

3.5.1 National CM Information Management System

A principal objective of FAA configuration status accounting (CSA) is to provide complete and current accounting of NAS systems beginning with the baselining of requirements through decommissioning of equipment. The National CM Information Management (CMIM) system provides the infrastructure (data standards and technological interfaces) to ensure that the status of NAS systems is available to all decision-makers. This includes establishing and maintaining libraries that contain technical baselines, change vehicles, guidance documents, standards, etc.

3.5.1.1 Purpose

This procedure defines the minimal set of information that is captured for each NAS system. This set of information includes:

- Recording the current approved configuration documentation and configuration identifiers for each configuration item (CI).
- Recording and reporting the status of proposed engineering changes from initiation to final approval to contractual implementation.
- Recording and reporting the status of all critical and major requests for acquisition deviations and waivers that affect the configuration of any CI.
- Recording and reporting the implementation status of authorized changes.
- Recording and reporting the results of configuration audits to include the status and final disposition of identified discrepancies and action items.
- Providing traceability of all changes from the original released configuration documentation of each CI.
- Reporting the effectivity and installation status of configuration changes to CIs at all locations.
- Recording digital data file identifiers and documentation representations of all revisions and versions of each document and software module that has been delivered or made accessible electronically.

3.5.1.2 Scope

This procedure applies to configuration information captured throughout the life cycle of a NAS system (from baselining of requirements through decommissioning of equipment).

3.5.1.3 Responsibilities

- Engineers working at the NAS level are responsible for providing and storing information on NAS Technical products associated with the NAS Technical Architecture baseline.
- Investment Analysis Teams are responsible for providing and storing information on the technical component of approved Acquisition Program Baselines (APB).

- IPTs and solution providers are responsible for providing and storing information on NAS system development and deployment. They also ensure that developing contractors provide and store CSA data, as contractually required.
- The Airway Facilities Service (AAF) community is responsible for providing and storing information on operational systems.
- NAS Configuration Management and Evaluation Staff (ACM) is responsible for NAS CCB information and providing the necessary facilities and electronic tools to document, monitor, and configuration manage information in the NAS (i.e., the overall National CM Information Management System).

3.5.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-2, I-4.2, I-4.3, I-4.4, IV-1, V-1, V-4
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 9.3 Establish Program Support Library (PSL) • 101 Perform Configuration Status Accounting
<ul style="list-style-type: none"> • ATC-88-1092, <i>DOCCON General User's Reference Guide</i> 	

3.5.1.5 Procedure

This procedure describes the type of information that shall be captured in the FAA's CM status accounting system, the CM activities that generate the information and the physical storage of the information that shall be required.

Figure 3.5.1.5-1 presents the activities per life cycle phase, that generate NAS status accounting information. Table 3.5.1.5-1 lists the minimal set of NAS CSA information that shall be captured for each NAS CI or system.

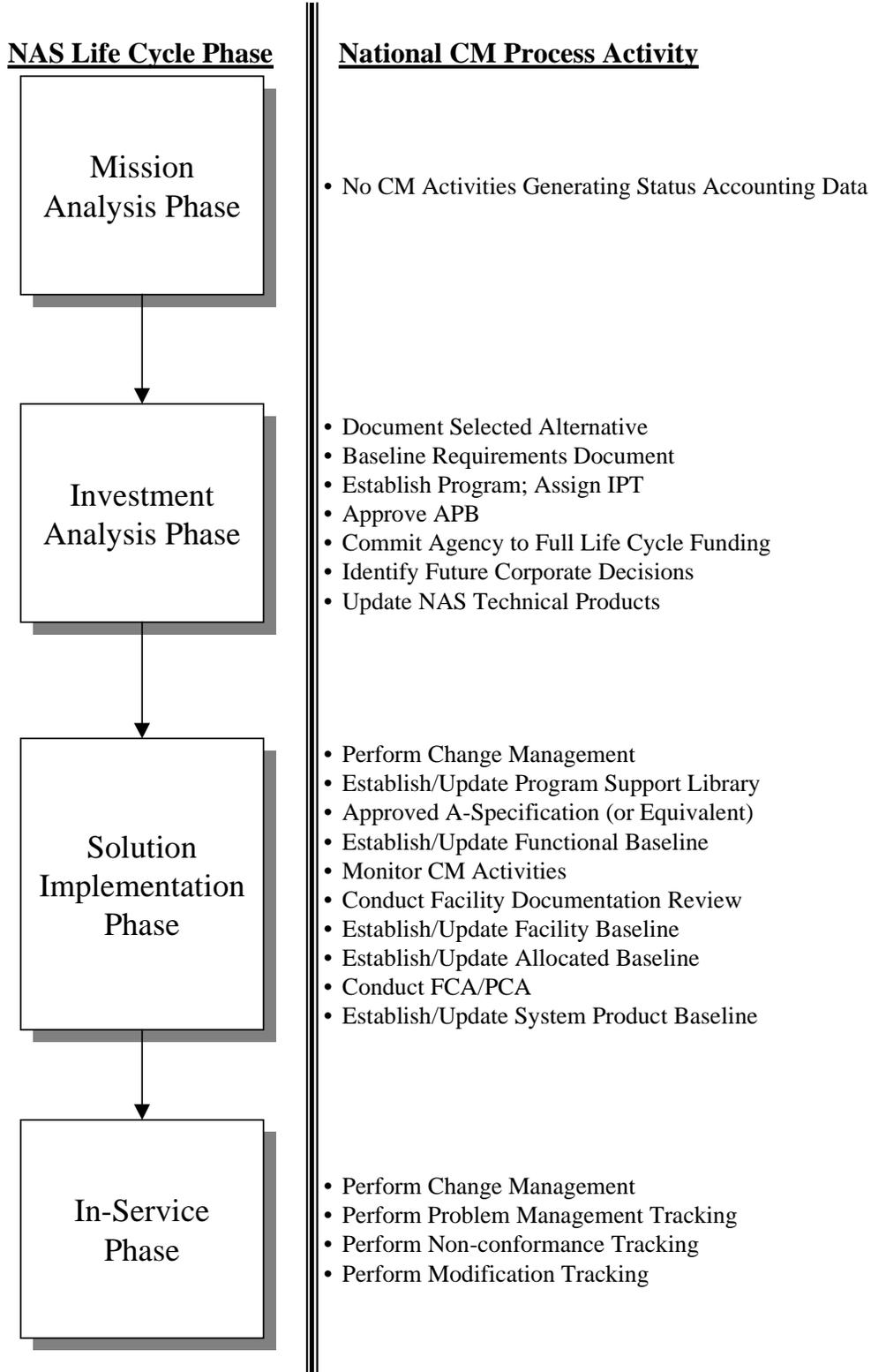


Figure 3.5.1.5-1. Activities Generating Status Accounting Information

Table 3.5.1.5-1. Activities Generating Status Accounting Information

Categories of Information	Information Overview	Minimum Status Accounting Information
Recording Configuration Documentation and CI Identifiers	The components of formal baselines and/or configurations (as described in the CM Plan) shall be documented in accordance with the configuration identification plan. Once the initial release has been documented, every change against each element shall be documented and linked to the initial release, ensuring a full audit trail for each CI.	<ul style="list-style-type: none"> • Document Identifiers (Document type, title, number, version) • CI Identifiers (Type Numbers, Contractor Part Number, Serial Number) • Part Data (Identifier of CI to Which the Part Belongs, Manufacturing Code Identification Number, National Stock Number, CI Part Number, Serial numbers or Lot Numbers (Hardware Parts), Version letters (Software Parts), Quantity of Unit Parts) • Contractual Information for each CI (Contractor Name, Number, FAA Procuring Activity) • Identifiers for Proposed Changes (Case File Number, NCP Number, Case File/NCP Title) • Identifiers for Approved Changes (Modification Implementation Directive Number, Date, Type Designation of Modification, Modification Directive Nomenclature, Modification Accomplishment Sequence Number, Modification Effectivity)
Status of Proposed Engineering Changes	Proposed engineering changes occur at two levels: NAS and internal to the developing/ procuring organization. NAS Level Changes (NCPs) are addressed in section 3.4.2 whereas internal changes (such as ECPs, ECRs, etc.), are addressed in individual CM Plans. The status of the change at each processing step shall be recorded and made available to all stakeholders.	<ul style="list-style-type: none"> • 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)
Status of Proposed Deviations/Waivers	Deviations and Waivers do not change baselined documentation. They are temporary or limited departures from baselines but shall be tracked, followed and archived.	<ul style="list-style-type: none"> • 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/

Categories of Information	Information Overview	Minimum Status Accounting Information
		reasoning, disposition by whom, disposition date) <ul style="list-style-type: none"> • Closeout data (communication vehicle used to communicate disposition with originator, date communication initiated)
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 shall be available to stakeholders.	<ul style="list-style-type: none"> • 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
Configuration Audit Data	Typical FAA audits include those that validate functionality (FCAs), verify the physical attributes (PCAs) and Facility Audits; however, each system contract and regional authority shall specify the appropriate set of audits. All audits shall be documented.	<ul style="list-style-type: none"> • Type of audit • Date(s) and Location(s) of audit • Configuration(s) under audit • Audit Participants • Audit Materials (Documents, SW Listings, Physical Configurations, etc.) • Audit Results (Certifications Made, Baselines Struck) • Action Items and Action Plans for Closure (Date Assigned/Due, Actionee, Specific Action to be Performed, Acceptance/Closure Criteria)
Change Traceability	As concepts evolve from needs (MNS) to physical assets (CIs/LRUs), its representative documentation shall be recorded and traceable. As such, a typical CI shall be represented as a MNS, APB, specification(s), FAA system, and LRU or Software Unit. There shall be a record of release for each representation and the associated traceability forward and backward. Also, changes against each release shall be documented such that there is an auditable history of every	A system for tracing changes in all baseline documentation (from the original version to the current version) shall be maintained by all Offices of Primary Interest. This information shall be consolidated and maintained by organizations with CCB responsibility in a CSA system. Various schemes are available to note changes in the documentation, but generally follow the following guidelines: <ul style="list-style-type: none"> • Letters "I", "O", "Q", "S", "X" and "Z" shall not be used. • Letters shall be uppercase (capital letters). • Numbers shall be Arabic numerals. Fractions, decimals and roman numerals shall not be used. • The first revision to a document shall

Categories of Information	Information Overview	Minimum Status Accounting Information
	<p>change against the release and traceability is maintained.</p>	<p>be identified by the entry of "R1" or "C1", for 'Revision' and 'Change' respectively. Further modification of the same document shall be identified by the entry of "R2", "C2", "R3", "C3", etc.</p> <ul style="list-style-type: none"> • Revisions or changes numbers plus dates shall be placed in the upper right hand corner of each affected page. • If change pages to a document become confusing or if a given change affects over 50% of the document, the version of the document itself should be incremented and re-released. Thus, the document would be republished to incorporate all approved changes and re-identified with a suffix letter, e.g., FAA-STD-005D was superseded by FAA-STD-005E. • A summary of changes at the beginning of each baselined document is encouraged. This form of an index should be included as a part of each Revision, Change or re-promulgation of the document.
<p>Effectivity and Installation Status of Engineering Changes</p>	<p>All approved changes shall include the identification of all impacted entities (vendor and FAA owned). The change implementation document shall include the action plan for implementing the change through all impacted entities (i.e., documentation, fielded systems, test beds, spares inventories, training, etc.)</p>	<ul style="list-style-type: none"> • Implementation Authorization Vehicle (EEM, STB, etc.) • 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
<p>Digital Data Identifiers and Document Representations</p>	<p>For each release, the digital identifiers (as described in the contractor CM Plan) shall be recorded, managed, and linked to the CI, to ensure there is a complete release audit trail.</p>	<p>As appropriate, digital identifiers for each of the "Minimum Status Accounting Information" items listed above.</p>

3.5.1.5.1 *Establishing Program Support Libraries (PSL) and Supporting the National PSL*

The IPT, solution provider or region shall work with its stakeholders to identify their information needs. Typically a PSL will contain technical baseline documents (specifications, IRDs, ICDs, etc.), change vehicles (NCPs, ECPs, etc.), guidance documents (plans, processes and standards, etc.) and other information needs required by stakeholders. This may include establishing a stand-alone library, establishing electronic links to an FAA and/or vendor/contractor library, etc. At a minimum IPT, solution provider and regional baseline information as defined in the section 3.3.3, along with change management information as defined in section 3.4, shall be available to all stakeholders from both the cognizant PSL and the Document Control Center (DCC), which presently serves as the National PSL.

It should be noted that the concept for the National PSL is evolving. ACM intends to incorporate updated technologies to allow the DCC to become to a greater extent an electronic repository, decreasing reliance on paper documents and providing linkages to related information sources/repositories.

3.5.2 Data Accessibility

3.5.2.1 Purpose

This procedure discusses the minimal set of configuration data that should be made available to the agency and existing methods of accessing configuration data. It is not inclusive. Some of the mechanisms that FAA personnel may use for accessing configuration data are described below.

3.5.2.2 Scope

This procedure applies to all National Airspace System (NAS) personnel.

3.5.2.3 Responsibilities

NAS Configuration Management and Evaluation Staff (ACM), personnel performing CM support for Integrated Product Teams (IPT) or Airway Facilities Regional Offices, and other solution providers are responsible for maintaining configuration status accounting data and for ensuring that it is accessible. As applicable, these organizations are also responsible for ensuring that contractors provide, maintain and store this information when contractually required.

3.5.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> Statement I-4.2
<ul style="list-style-type: none"> FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> 9.3 Establish Program Support Library (PSL)

3.5.2.5 Procedure

The FAA CM system requires that configuration status accounting (CSA) information shall be accurate and accessible.

Accessibility requirements (i.e., notifying users of information (push) versus making information available (pull)) shall be documented (as applicable) in CM plans, CCB operating procedures, PSL guidelines, etc.

Accessibility to data is described in two ways and is presented graphically in Table 3.5.2.5-1.

- **Notification** – means that users of this information are notified that it is available and/or modified (referred to as “pushing” the information to the recipient); and
- **Available** – means that this information is made available to all applicable users – these users initiate the effort to seek the information and/or changes to the information (referred to as “pulling” the information from the source)

Table 3.5.2.5-1. General Accessibility Guidelines

Information Type	Notification	Available	Procedure Ref.
Baselines	<ul style="list-style-type: none"> • CCB Membership • ACM • National Requirements Organizations 	<ul style="list-style-type: none"> • All FAA • Contractors 	3.3.3
Change Management	<ul style="list-style-type: none"> • Must Evaluators 	<ul style="list-style-type: none"> • All FAA • Contractors¹ 	3.4.2
CCB Charters/Operating Procedures	<ul style="list-style-type: none"> • CCB Membership • ACM 	<ul style="list-style-type: none"> • All FAA 	3.2.1
CM Plans and Procedures	<ul style="list-style-type: none"> • Sponsoring Organization • Interfacing Organization(s) • ACM 	<ul style="list-style-type: none"> • All FAA 	3.2.2
Verification and Audits	<ul style="list-style-type: none"> • Sponsoring Organization • Interfacing Organization(s) 	<ul style="list-style-type: none"> • All FAA 	3.6
Facility Baselines (space allocation)	<ul style="list-style-type: none"> • SMO (Office of Primary Responsibility) • Baselined Facility 	<ul style="list-style-type: none"> • All FAA • Contractors 	3.6.3
Critical Power	<ul style="list-style-type: none"> • SMO (Office of Primary Responsibility) • Baselined Facility 	<ul style="list-style-type: none"> • All FAA • Contractors 	3.6.3
Requirements Traceability	<ul style="list-style-type: none"> • Sponsoring Organization • National Requirements Organizations 	<ul style="list-style-type: none"> • ACM 	3.4.4

CM data is available from various FAA sources as described in the following sections.

3.5.2.5.1 Document Control Center

ACM shall maintain the Document Control Center (DCC), which presently serves as the National PSL. It is the principal repository for NAS configuration data and baselined documentation. This includes the index, inventory, and storage for NAS-related information including program specifications, FAA Standards, and NAS interface documents. The documents are usually stored in hardcopy. Some documents may be stored in softcopy, usually on floppy disks, CD-ROMs, or

¹ Cost and procurement information should be reviewed prior to making it available to the Contractor

other electronic media. The DCC is a primary source within the FAA for distribution of the following:

- NAS-MD-001 (Master Configuration Index)
- NAS-SS-1000
- NAS-SR-1000
- NAS-DD-1000
- FAA Specifications
- FAA Standards
- Interface Requirements Documents (IRDs)
- Interface Control Documents (ICDs).

In addition, the DCC stores and records status information about the following FAA documentation:

- Advisory Circulars (ACs)
- Data Item Descriptions (DIDs)
- Electronic Equipment Modification Handbook (EEM)
- FAA Directives (DIRs)
- FAA Maintenance Handbooks (MHBKs)
- Notices (NOTs)
- Program Implementation Plans (PIPs)
- Program Specifications
- Site Program Bulletins (SPBs)
- Site Technical Bulletins (STBs)
- System Implementation Plans (SIPs)
- Technical Instruction Books (TIs).
- System Support Directives (SSDs)

Personnel may request copies of the documents by one of the following methods:

- On-Site Document Request: Fill out a Document Request Form at the Documentation Control Center. There is no limit to the number of documents that can be requested, but no more than one copy of each document shall be provided.
- Order from the FAA CM Web Site: Fill out an on-line Document Request Form from the "DCC" frame of the web site. The request will be forwarded to the DCC staff for order completion.
- E-Mail/Fax Document Request: Send a Document Request Form via e-mail or fax. There is no limit to the number of documents that can be requested, but no more than one copy of each document shall be provided. This request can be sent via e-mail to the DCC at 9.awa.dcc.seta, or faxed to the Center. The fax number is (202) 548-5501.
- Document Request via the Documentation and Configuration Identification System (DOCCON): DOCCON system users can request copies using DOCCON. This will enable the requestor to use the DOCCON database

directly (in many instances from a personal computer) to order the documents. New users may obtain DOCCON access by contacting ACM.

- Download Documents: The FAA National CM Policy, National CM Process Model, National CM Procedures, CCB Charters, CCB Operating Procedures, NCP and CCD forms, FAA standards, and Interim CM Guidance documents may all be downloaded directly from the CM web site. In most cases, the documents may be downloaded in Acrobat format; for certain documents, such as the NCP and CCD forms, downloading in Microsoft Word format is also available. (See also the description of the web site below.) Also, FAA IRDs, Standards (including the 1000 series) and the CIP are available on-line at: <http://nasdocs.faa.gov>

3.5.2.5.2 FAA CM Web Site

ACM maintains a web site at the following URL: <http://www.faa.gov/cm/> It contains information of interest to FAA CM practitioners, such as the current CM organization within the FAA, newsletters, CM training presentations, document management, the DCC, and other CM document resources.

3.5.2.5.3 Documentation and Configuration Identification System (DOCCON)

ACM makes available and maintains the national configuration management information system, DOCCON, which shall be used by all organizations that have responsibility for collecting and managing configuration control and status accounting data related to the NAS.

Information available in DOCCON includes the following:

- Configuration control data for case files and NCPs
- Data that supports the Master Configuration Index (MCI)

Tailored reports and queries based on DOCCON data can be generated as well, such as:

- Open NCP reports
- CCD closure reports
- Metrics-related reports (e.g., average NCP processing time per CCB)

New users may obtain DOCCON access by contacting ACM.

3.5.2.5.4 Local Program Support Libraries

The IPTs, Airway Facilities Regional offices, and other solution providers shall maintain PSLs to ensure that project personnel can access data quickly and easily. The data shall include the following:

- Configuration identification data, such as
 - Document identifiers
 - Baseline documentation (facility drawings)
 - Critical Power data/on-line diagrams
 - Project management information (schedule, critical events, deliverables, SOW, etc.)
- Configuration control data, such as ECPs, NCPs, NORs, etc.
- Audit data, such as audit plans and reports

In addition, IPTs/solution providers shall maintain status accounting reports (internal and contractor-supplied) in their PSLs. In certain cases the IPTs/solution providers may be required to restrict access to such reports, as determined by project management.

3.5.2.5.5 Contractor Data Accessibility

IPTs/solution providers will require CSA data and periodic reports as a part of systems acquisition. Procedure 3.2.2.2, Procurement Requirements for CM, provides guidance in developing contractor CM requirement to procure NAS systems and services.

Additionally, developmental contractors usually create an internal information management system to maintain records of the most current versions of documents, their electronic equivalents, and the revision history of components, parts and assemblies. Such information may be accessed in near real time, if contractually required. During systems development, FAA CM monitoring activities may involve review of contractor CSA data to ensure compliance with contractual CM requirements and documented CM plans and processes. The information may include the following:

- Specification revision/SCN level/ history
- Drawing revision level/history
- Software version level/ history
- CI component indentured listing
- Program contracts listing
- Tracking active changes in process and change history
- Approved changes to configurations with change identification and effectivity
- Implementation/incorporation status of approved changes
- Documentation revision activity

In addition, support element(s) update activity may be available in the contractor's CSA data such as:

- Technical manual and other related document preparation/revision
- Spares purchase and distribution
- Support equipment design, purchase, or modification
- Retrofit/modification kit development
- Configuration of units in the field
- As-built record for HWCIIs and CSCIs
- Maintenance histories
- Tracking of audit or other action items

ACM is available, as needed, for consultation and guidance to IPTs, regional offices, other solution providers and contractors regarding CSA data accuracy and accessibility.

3.6 Configuration Verification and Audits

Configuration audits assess the integrity of the configuration item before the product configuration is baselined. Configuration audits verify that a product's requirements have been met and that the product design meeting the requirements has been accurately documented. They also verify compliance with specifications, drawings, and other documentation. The primary purpose of the formal configuration management audits addressed in this section is to establish or update a controlled CM baseline. While other activities may be called CM "audits", these procedures cover only formal CM audits.

This section contains three subsections:

- Section 3.6.1, Functional Configuration Audits (FCA), describes the planning, coordination and conduct of functional CM audits. FCAs are primarily concerned with the design of the product.
- Section 3.6.2, Physical Configuration Audits (PCA), describes the planning, coordination and conduct of physical CM audits. PCAs are concerned with the "as-built" product. Successful completion of the Physical Configuration Audit establishes the product baseline.
- Section 3.6.3, Other Configuration Management (CM) Audits, describes CM audit procedures to verify facility baselines, facility space and power panels. This section also addresses procedures to document the recovery of a system configuration that has been lost.

3.6.1 Functional Configuration Audits (FCA)

This procedure describes the mandatory requirements and supplemental guidance for performing FCAs. It includes organizational roles and responsibilities.

3.6.1.1 Purpose

The procedure for performing an FCA is described below. The FCA is used to provide a systematic comparison of specification requirements with the results of tests, analyses, or inspections. It is accomplished as part of the process that verifies that a product's requirements have been met and that the product design meeting those requirements has been accurately documented before a product configuration is baselined.

3.6.1.2 Scope

This procedure applies to IPTs, regional offices, and other solution providers at the point when they begin activities to establish the product baseline.

3.6.1.3 Responsibilities

- IPTs, regional offices, and other solution providers are responsible for overall FCA coordination and guidance in the audit planning, conduct, recording, approval and follow-up activities. They ensure that configuration audits are included in the contractual requirements and allocate sufficient resources for this activity. If the audit is conducted at an FAA facility, the organization provides resources, clearances, and appropriate technical support for the audit.
- The Quality Assurance group assigns a Quality Reliability Officer (QRO) to the system acquisition. The QRO provides inspection and other quality records containing dates, times, and places of all inspections, demonstrations, and tests with an indication of whether the QRO witnessed these activities. The QRO also provides information of all known unique manufacturing processes, special tooling, and special test/inspection equipment. The QRO monitors the status of any uncovered deficiencies and deficiency corrections.
- For systems/subsystems that are installed and/or accepted at the Technical Center or a specified FAA site, local representatives provide technical expertise to the audit in terms of operation and installation.
- NAS Configuration Management and Evaluation Staff (ACM) reviews documentation, as requested by the IPT/PT, and may assist in the planning and conduct of the FCA. Depending on audit requirements, ACM may supply a representative to the audit team.
- The IPT, regional office or other solution provider develops an audit plan if none is contractually required. The plan is then coordinated with the contractor and audit team members for concurrence.

3.6.1.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.5
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 8 Initiate Acquire and Build Activities • 18 Establish/Update Facility Baseline • 22 Conduct Functional Configuration Audit (FCA) • 45 Develop/Implement Corrective Action Plans • 101 Perform Configuration Status Accounting

3.6.1.5 Procedure

The FCA determines whether the actual performance of each configuration item complies with its controlling specifications. It verifies that the functional, design (if applicable) and proposed product baselines are consistent and that the system-level requirements are traceable as shown through the documentation and test results.

The IPT, region, or solution provider shall ensure that the contract requires an audit plan, either as a separate document or as a section of the contractor’s configuration management plan. Table 3.6.1.5-1 provides a sample template for an audit plan. In developing the audit plan, the contractor may require input from the IPT/region/solution provider organization with respect to availability of representatives from the designated audit team organizations and (if the audit is to take place at an FAA facility) of facility resources. Scheduling audits depends on factors such as complexity and criticality of the system being audited, availability of input from product assurance disciplines, extent of the contractor’s role according to contract requirements, availability of the requirements traceability matrix, and size and scope of documentation to be sampled.

The IPT/region/solution provider organization shall review the audit plan for feasibility and technical accuracy. If revisions are deemed necessary, the organization shall notify the contractor to revise the plan accordingly. Once the plan is approved, the organization shall ensure that all required audit team members are notified and available. These organizations typically include the Logistics Center and the Technical Center

The documentation will vary from system to system. It may include specifications, Interface Control Documents, manuals, drawings, test plans and procedures, test reports, the CM Plan and/or Audit Plan, the design review data package, provisioning or spare parts lists, requirements traceability matrix, and other contract deliverables.

Additional documentation originated by the IPT, region or solution provider may be required. These include Interface Requirements Documents, QRO test reports, contract modifications, Independent Validation and Verification (IV&V) reports, minutes from technical reviews, the CCD log, Program Technical Reports, Hardware Discrepancy Reports, and lists of outstanding changes. (NOTE: since the planning for the Physical Configuration Audit occurs at the same time as the planning for the Functional Configuration Audit, and since the planning for both audits are contained in the same document, these steps apply to the Physical Configuration Audit [Section 3.6.2] as well.)

The IPT/region/solution provider organization shall assemble the audit team, ensuring that selected members are available for the scheduled audit. The team members agree upon an audit agenda and the tasks to be performed.

Whether the audit is to take place at an FAA facility or a contractor facility, the organization shall ensure that the appropriate facility resources (including conference room space for the audit team) are available. Audits are generally held at contractor facilities; however, the requirements of a particular project may dictate that the audit is best held at an operational facility, the Technical Center, the Aeronautical Center, or a key site.

After the audit team and the facility have been prepared, the IPT/region/solution provider organization shall conduct the audit. The audit shall ensure the following criteria have been met:

- The controlling development specifications exist at the functional and as-built levels, and that the system-level specifications are baselined
- Each CI requirement can be traced to the system-level specifications
- The test results verify that each CI fulfills its functional, interface, and performance requirements.

The audit team shall examine outstanding variances against specific configuration items, reviews functional tests, and verifies requirements are traceable from the controlling system-level and allocated specifications to the specifications forming the product baseline. In some cases, the performance of parameters cannot be adequately tested; whenever that occurs, the audit team ensures that sufficient simulation and/or analysis is conducted to verify those parameters. The audit team also examines minutes from technical design reviews and other management reviews to determine that action items from those reviews have been dispositioned.

When the FCA is completed, the audit team shall prepare a report of the audit results. This report will indicate whether the audit is approved without conditions, approved with contingencies, or disapproved. The report shall catalog any uncovered deficiencies and provides conclusions and recommendations. The report shall also include FCA minutes, which are co-signed on a daily basis by the organization and the contractor.

If the audit is approved without conditions, the IPT/region/solution provider organization shall notify the contractor of the approval. If the audit is approved with contingencies, corrective actions will be performed. Corrective actions are generally tasked to the contractor, although in some cases the organization may undertake corrective actions as well. After corrective actions are completed, the QRO and other appointed representatives shall validate that the actions have been fulfilled. The organization shall then notify the contractor of certification.

Identification of major discrepancies such as unbaselined specifications, invalid or unverified requirements and uncorrected test failures shall require that the audit be disapproved. In such cases a recovery plan is necessary. The organization, in conjunction with the contractor, shall develop a recovery plan for correcting issues listed by the audit, using guidance from audit team members and experts from other disciplines as needed. The recovery plan shall include a schedule for conducting another audit after required testing has been completed. After the plan has been approved and steps to perform the recovery have been completed, the organization and the contractor begin this procedure again (without the planning steps, which have already been fulfilled) to perform the audit.

Procedural steps follow. Figure 3.6.1.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Develop Audit Plan	<ul style="list-style-type: none"> • The IPT/region/solution provider organization shall guide the development, modification and approval of the audit plan to include both FCA and PCA activities. The plan contains information such as scheduling, resources, the audit team, agenda, audit tasks, logistics, reporting, documentation to be used, and checklists. • The audit plan may be a separate document, or it may be a section of the Configuration Management Plan.

Procedure Step	Procedure Description
2. Review Audit Plan	<ul style="list-style-type: none"> The IPT/region/solution provider organization shall review the audit plan for feasibility and technical accuracy.
3. Audit Plan Satisfactory?	<ul style="list-style-type: none"> If the audit plan is not satisfactory, continue with Step 4. If the audit plan is satisfactory, proceed to Step 5.
4. Revise Audit Plan	<ul style="list-style-type: none"> The IPT/region/solution provider shall ensure the audit plan is revised in accordance with organizational recommendations. Proceed to Step 2.
5. Schedule Audit	<ul style="list-style-type: none"> The organization, in accordance with the audit plan and in conjunction with the contractor, shall schedule the audit. Scheduling may be modified from that given originally in the audit plan depending on such factors as whether the testing at the CI level has been completed on time, whether the facilities are available, or whether the audit team members are available, etc.
6. Provide Audit Material	<ul style="list-style-type: none"> The IPT/region/solution provider shall ensure contractor documentation required for the audit is available.
7. Assemble Audit Team	<ul style="list-style-type: none"> The organization shall assemble the audit team to conduct the audit.
8. Audit at FAA Facility?	<ul style="list-style-type: none"> If the audit is conducted at an FAA facility, continue with Step 9. Otherwise proceed to Step 10.
9. Prepare FAA Facility	<ul style="list-style-type: none"> The organization shall ensure that appropriate resources for the audit are available, including conference room space for the audit team. Proceed to Step 11.
10. Prepare Contractor Facility	<ul style="list-style-type: none"> The organization shall ensure the contractor provides appropriate resources for the audit, including conference room space for the audit team.
11. Conduct Audit	<ul style="list-style-type: none"> The organization shall conduct the audit in accordance with the audit plan.

Procedure Step	Procedure Description
12. Record Audit Results	<ul style="list-style-type: none"> • The organization shall record results of the FCA. The report contains an approval/disapproval rating. • For an approval with contingencies, the report shall list corrective actions to be performed, a schedule to perform them, and a plan to validate them. • The report shall include a description of all required changes to established baselines in NAS-MD-001.
13. Audit Approved Without Conditions?	<ul style="list-style-type: none"> • If the audit is unconditionally approved, continue with Step 14. If the audit receives contingent approval or is disapproved, proceed to Step 15.
14. Provide Audit Certification	<ul style="list-style-type: none"> • The organization shall notify the contractor of FAA approval via certification.
15. Audit Approved?	<ul style="list-style-type: none"> • If the audit receives contingent approval, continue with Step 16. Otherwise proceed to Step 19.
16. Perform Correction Actions	<ul style="list-style-type: none"> • The organization shall ensure the contractor performs corrective actions to fix each uncovered deficiency.
17. Validate Corrective Actions	<ul style="list-style-type: none"> • The QRO and other representatives appointed by the organization shall determine whether corrective actions are satisfied.
18. Corrective Actions Fulfilled?	<ul style="list-style-type: none"> • If corrective actions were satisfactorily completed, continue with Step 14. Otherwise continue with Step 16.
19. Develop Recovery Strategy	<ul style="list-style-type: none"> • For disapproved audits, the organization, in conjunction with the contractor shall develop a recovery strategy. • The strategy shall include a schedule to fix deficiencies and a plan for a new audit. • After the recovery strategy is approved, the process for recovery may involve considerable effort. When the organization and the contractor reach concurrence that major deficiencies have been corrected, continue with Step 5.

Table 3.6.1.5-1. Sample Audit Plan Template: Typical Content

Audit Plan Section	Section Content
a. Cover Page	Includes the document title, effective date, and document control number.
b. Table of Contents	Lists title and page number of all titled sections and subsections, followed by titles and page numbers of all figures, tables, and appendices.
c. Section 1 – Introduction	Includes the following: <ul style="list-style-type: none"> • Purpose and scope of the plan • Brief description of the system to be audited • Description of the plan's major features and objectives.
d. Section 2 – Schedule and Personnel	Provides a schedule of audit activities, lists personnel (Government and contractor) participating in the audit, and describes the extent of personnel participation.
e. Section 3 – Configuration Items to be Audited	Lists the configuration items to be audited.
f. Section 4 – Audit Description	Describes the functional and physical audits to be performed. Includes audit tasks, logistics, documentation to be used, and checklists.
g. Section 5 – Audit Procedures	Provides procedures to be followed in the course of the audit.
h. Section 6 – Contractor Support	Describes the extent to which the contractor supports the audit. Includes personnel, equipment, facilities, etc.
i. Section 7 – Audit Reports	Contains the report summarizing audit results (developed following audit completion).

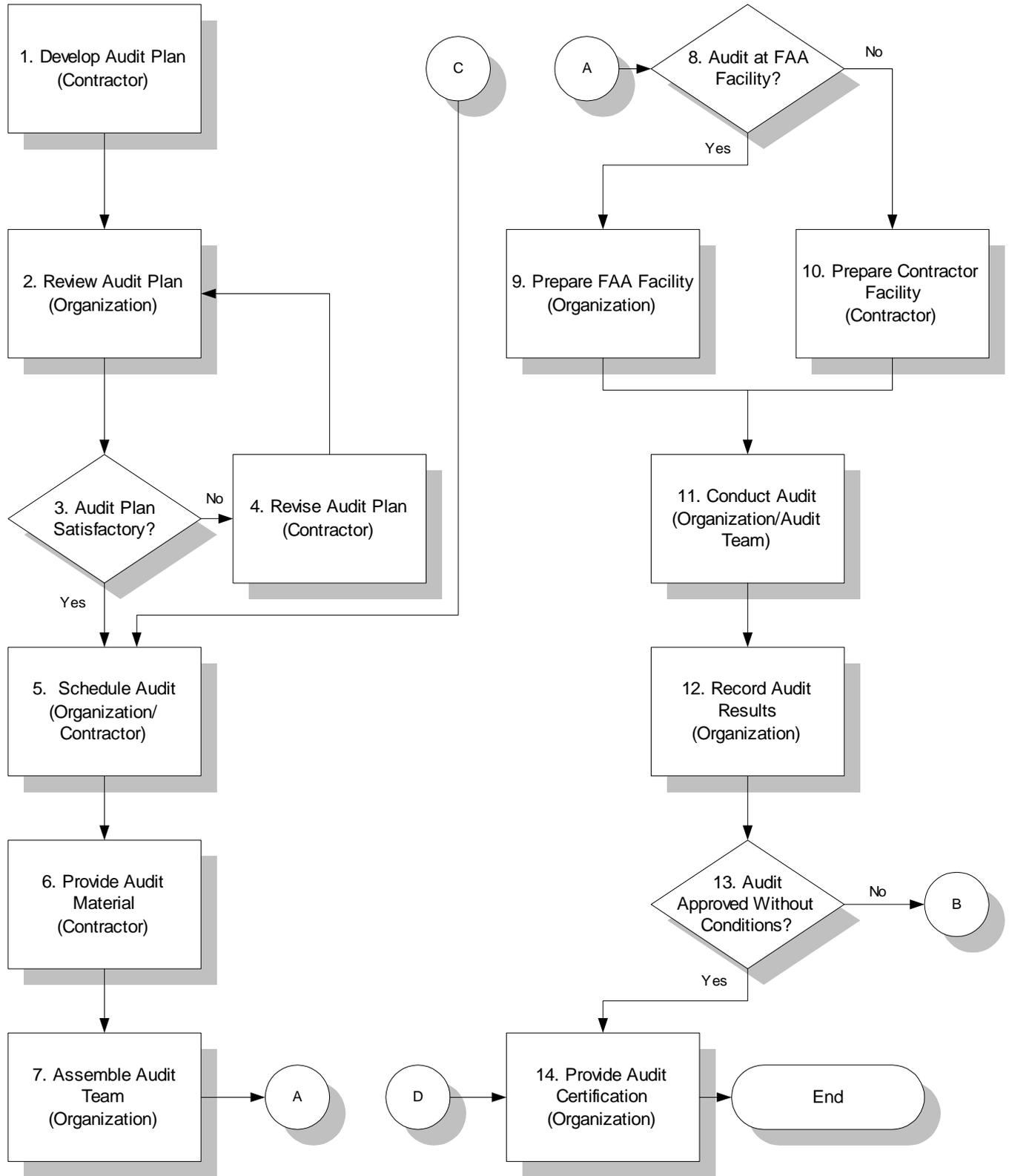


Figure 3.6.1.5-1. Functional Configuration Audits (Page 1 of 2)

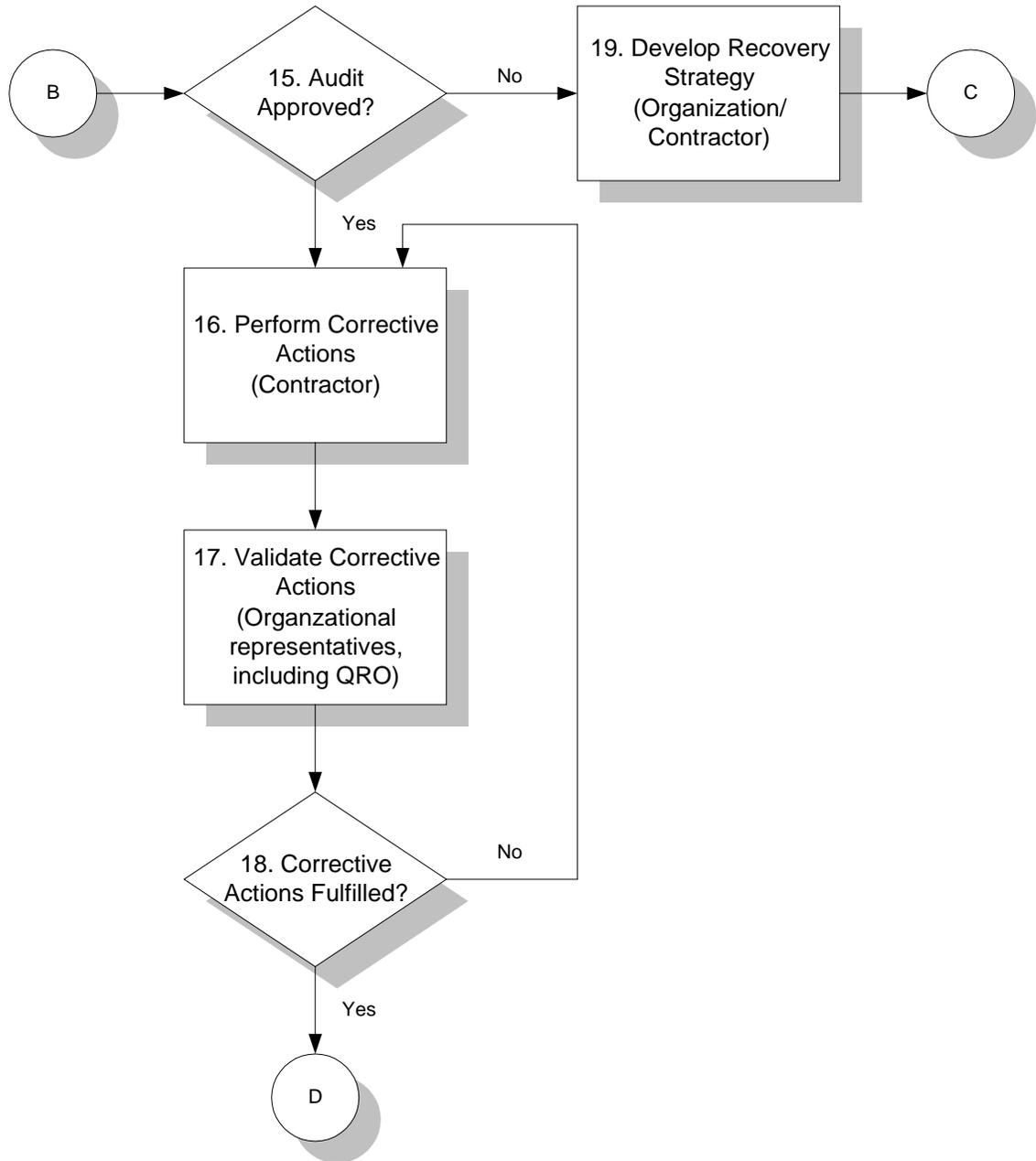


Figure 3.6.1.5-1. Functional Configuration Audits (Page 2 of 2)

3.6.2 Physical Configuration Audits (PCA)

This procedure describes the mandatory requirements and supplemental guidance for performing PCAs. It includes organizational roles and responsibilities.

A PCA cannot be completed and a product baseline established without successful completion of a Functional Configuration Audit (FCA). This does not mean that a PCA cannot be conducted concurrently with an FCA.

3.6.2.1 Purpose

The procedure for performing a PCA is described below. The PCA is used to verify that a product is consistent with its design documentation. It is accomplished as part of the process that verifies that a product's requirements have been met and that the product design meeting those requirements has been accurately documented before a product configuration is baselined.

3.6.2.2 Scope

This procedure applies to IPTs, regional offices, and other solution providers at the point when they begin activities to establish the product baseline and formally process changes to the baseline configuration.

3.6.2.3 Responsibilities

- IPTs, regional offices, and other solution providers are responsible for overall PCA coordination and guidance in the audit planning, conduct, recording, approval and follow-up activities. They ensure that configuration audits are included in the contractual requirements and allocate sufficient resources for this activity. If the audit is conducted at an FAA facility, the IPT/region/solution provider organization provides resources, clearances, and appropriate technical support for the audit.
- The Quality Assurance group assigns a Quality Reliability Officer (QRO) to the system acquisition. The QRO provides inspection and other quality records containing dates, times, and places of all inspections, demonstrations, and tests with an indication of whether the QRO witnessed these activities. The QRO also provides information of all known unique manufacturing processes, special tooling, and special test/inspection equipment. The QRO monitors the status of any uncovered deficiencies and also deficiency corrections.
- For systems/subsystems that are installed and/or accepted at the Technical Center or a specified FAA site, local representatives provide technical expertise to the audit in terms of operation and installation.
- NAS Configuration Management and Evaluation Staff (ACM) reviews documentation as requested by the IPT/PT, and may assist in the planning

- and conduct of the PCA. Depending on audit requirements, ACM may supply a representative to the audit team.
- The IPT, regional office or other solution provider develops an audit plan if none is contractually required. The plan is then coordinated with the contractor and audit team members for concurrence.

3.6.2.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statement I-4.5
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 8 Initiate Acquire and Build Activities • 18 Establish/Update Facility Baseline • 23 Conduct Physical Configuration Audit (PCA) • 45 Develop/Implement Corrective Action Plans • 101 Perform Configuration Status Accounting

3.6.2.5 Procedure

The PCA ensures that all of a system’s configuration items are identified consistently within a hierarchical framework and that all configuration items are correctly represented by appropriate documentation, i.e. drawings, specifications. It verifies physical items through a detailed review of actual subassemblies, assemblies and individual components, drawings, technical manuals and manufacturing assembly sheets. It verifies software by ensuring that the source code representation of each CI carries the identification contained in the index and that the index is complete and accurate. Verification of software comprises source code, object code, and the media carrying the code.

For steps describing audit planning, refer to the Functional Configuration Audit procedure in Section 3.6.1. (Planning for the two audits occurs at the same time and is normally documented in a single plan or section of a Configuration Management Plan.)

The IPT/region/solution provider organization shall assemble the audit team, ensuring that selected members are available for the scheduled audit. The FAA role on this audit team is of greater significance than that for the FCA, particularly

when compared to the contractor's role. The team members agree upon an audit agenda and the tasks to be performed.

Whether the audit is to take place at an FAA facility or a contractor facility, the IPT/region/solution provider organization shall ensure that the appropriate facility resources (including conference room space for the audit team) are available. Resources shall include access to the actual equipment (for hardware) and hands-on contact with listings, specifications, and the media carrying the software code. Often a manufacturer's technician is required to assist in the disassembly and reassembly of system components. PCAs are generally held at contractor facilities; however, the requirements of a particular project may dictate that the audit is best held at an operational facility, the Technical Center, the Aeronautical Center, or a key site.

After the audit team and the facility have been prepared, the IPT/region/solution provider organization shall conduct the audit. The audit shall ensure that the following criteria have been met:

- All system's CIs and their corresponding as-built documentation are identified consistently and uniquely within the documentation
- Each system CI conforms to its product specification documentation
- The contractor's change process and database of change activity is transferable and adaptable for FAA use and maintenance.

The audit team shall verify that the configuration index/family tree diagram specifies the hierarchical relationship of all system CIs, that all CIs are identified in relation to the system, and that there is a product specification for each CI. The audit team uses all available drawings as part of the verification process. (NOTE: for commercially available items, drawings may not be available.)

For Hardware Configuration Items (HWCIs), the audit team shall examine name plates and verify manuals and available drawings. Available drawings are sampled to verify conformance to standards specified by the contract. The audit team shall also ensure that the manufacturers or integrators hardware release process provides decomposition of any part, at any level, in terms of subordinate part numbers and next higher assembly of any specified part number.

For Computer Software Configuration Items (CSCIs), the audit team shall examine the different representations (source code, object code, listing, specifications, and related representations). The audit team shall verify that source listings comply with invoked editing standards (or industry standards, if no editing standards have been specified) and that CSCI design history is documented in Software Development Folders (or equivalent documentation). In addition, the audit team shall verify that a list of error conditions and messages exists, that software versions are appropriately identified, and that the software change control process has adequate security to guard against unauthorized changes.

The audit team shall examine the change process, verifying that the contractor's change control system is sufficient to control processing and formal release of changes. For software changes, the audit team shall examine the contractor's change management tools and databases. If these tools or databases are not transferred to the FAA, the audit team should check for potential problems in maintaining configuration control over CIs.

When the audit is completed, the audit team shall prepare a report of audit results. This report shall indicate whether the audit is approved without conditions, approved with contingencies, or disapproved. The report shall catalog any uncovered deficiencies and provides conclusions and recommendations. The report shall also include PCA minutes that are co-signed on a daily basis by the IPT/region/solution provider organization and the contractor.

If the audit is approved without conditions, the organization shall notify the contractor of the approval. If the audit is approved with contingencies, the corrective actions shall be performed. Corrective actions are generally assigned to the contractor, although in some cases the procuring activity may undertake corrective actions as well. After the corrective actions are completed, the QRO and other appointed representatives shall validate that they have been fulfilled. The organization shall then notifies the contractor of certification

Identification of major discrepancies, such as use of unreleased drawings or unapproved parts, shall require that the audit be disapproved. In such cases a recovery plan is necessary. The IPT/region/solution provider organization, in conjunction with the contractor, shall develop a recovery plan for correcting the issues listed by the audit, using guidance from audit team members and experts from other disciplines as needed. The recovery plan includes a schedule for conducting another audit. After the plan has been approved and steps to perform the recovery have been carried out, the organization and the contractor begin this procedure again (without the planning steps, which have already been fulfilled) to perform the audit.

Procedural steps follow. Figure 3.6.2.5-1 is a graphical representation of these steps.

Procedure Step	Procedure Description
1. Functional Configuration Audit (Procedure 3.6.1)	<ul style="list-style-type: none"> The IPT/region/solution provider organization shall perform Procedure 3.6.1 to conduct a Functional Configuration Audit. Successful completion of the FCA is a pre-requisite to completion of the Physical Configuration Audit. Although, FCAs and PCAs may be conducted concurrently.

Procedure Step	Procedure Description
2. Schedule Audit	<ul style="list-style-type: none"> • The organization, in accordance with the audit plan and in conjunction with the contractor, shall schedule the audit. • Scheduling may be modified from that given originally in the audit plan depending on such factors as whether the testing at the CI level has been completed on time, whether the facilities are available or whether the audit team members are available, etc.
3. Provide Audit Material	<ul style="list-style-type: none"> • The IPT/region/solution provider shall ensure contractor documentation required for the audit is available.
4. Assemble Audit Team	<ul style="list-style-type: none"> • The organization shall assemble the audit team to conduct the audit.
5. Audit at FAA Facility?	<ul style="list-style-type: none"> • If the audit is conducted at an FAA facility, continue with Step 6. Otherwise proceed to Step 7.
6. Prepare FAA Facility	<ul style="list-style-type: none"> • The organization shall ensure appropriate resources are available for the audit including conference room space for the audit team. Proceed to Step 8.
7. Prepare Contractor Facility	<ul style="list-style-type: none"> • The IPT/region/solution provider shall provide appropriate contractor resources are available for the audit including conference room space for the audit team.
8. Conduct Audit	<ul style="list-style-type: none"> • The organization shall conduct the audit in accordance with the audit plan.
9. Record Audit Results	<ul style="list-style-type: none"> • The organization shall record results of the PCA. The report contains an approval/disapproval rating. • For an approval with contingencies, the report shall list the corrective actions to be performed, a schedule to perform them, and a plan to validate them.
10. Audit Approved Without Conditions?	<ul style="list-style-type: none"> • If the audit is unconditionally approved, continue with Step 11. If the audit receives contingent approval or is disapproved, proceed to Step 12.
11. Provide Audit Certification	<ul style="list-style-type: none"> • The organization shall notify the contractor of FAA approval via certification.

Procedure Step	Procedure Description
12. Audit Approved?	<ul style="list-style-type: none"> • If the audit receives contingent approval, continue with Step 13. Otherwise proceed to Step 16.
13. Perform Correction Actions	<ul style="list-style-type: none"> • The IPT/region/solution provider shall ensure the contractor performs the corrective actions to fix each uncovered deficiency.
14. Validate Corrective Actions	<ul style="list-style-type: none"> • The QRO and other representatives appointed by the IPT/region/solution provider organization shall determine whether the corrective actions are satisfied.
15. Corrective Actions Fulfilled?	<ul style="list-style-type: none"> • If the corrective actions were satisfactorily completed, proceed to Step 10. Otherwise proceed to Step 13.
16. Develop Recovery Strategy	<ul style="list-style-type: none"> • For disapproved audits, the organization, in conjunction with the contractor, shall develop a recovery strategy. • The strategy shall include a schedule to fix deficiencies and a plan for a new audit. • After the recovery strategy is approved, the process for recovery may involve considerable effort. When the organization and the contractor reach concurrence that major deficiencies are corrected, continue with Step 2.

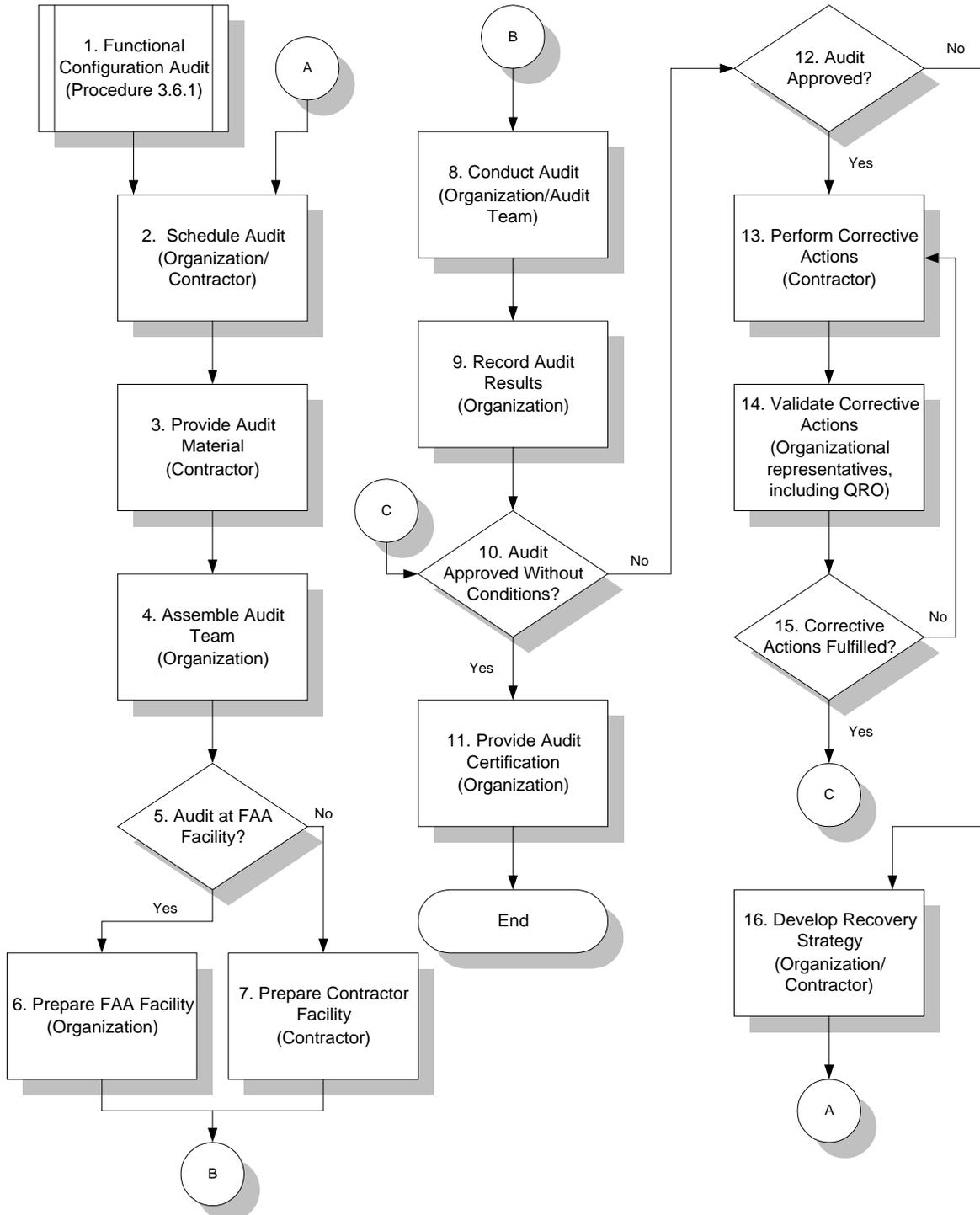


Figure 3.6.2.5-1. Physical Configuration Audits

3.6.3 Other Configuration Management (CM) Audits

3.6.3.1 Purpose

This procedure identifies the audit activities that are conducted to establish facility space and power panel baselines, and to perform system configuration recovery audits. These audits are visibly different from the FCA/PCA of a system at a contractor’s facility. However, the basic CM principles of planning and managing, identifying what is to be controlled, determining the documentation set, identifying changes, reporting status and establishing the baseline remain essentially unchanged.

3.6.3.2 Scope

This procedure applies to any FAA organization that requires the establishment and subsequent maintenance of a formal baseline. This is especially true for Regional baseline activities and the management of lab facilities at the WJ Hughes Technical Center, and test activities at the FAA Logistics Center. This procedure is related to procedure 3.3.3.5, Facility Baselines that describes the entire process for establishing and maintaining a facility baseline.

3.6.3.3 Responsibilities

Specific organizational responsibilities vary greatly and depend on the type of audit activity and the purpose. In all cases, auditing organizations are responsible for performing the basic planning activities described in sections 3.6.1 and 3.6.2 must be performed.

- IPT/solution providers are responsible for performing audits to determine the actual configuration of fielded equipment in order to develop a new modification or system upgrade.
- Maintenance organizations are responsible for performing detailed system audits to assess the status of the installation of modifications.

3.6.3.4 References

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part One – Configuration Management (CM) Policy Elements 	<ul style="list-style-type: none"> • Statements I-4.5, IV-2

Reference	Reference Para./Activity #:
<ul style="list-style-type: none"> • FAA Order 1800.66, Appendix 1, <i>Configuration Management in the National Airspace System</i>, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process 	<ul style="list-style-type: none"> • 18 Establish/Update Facility Baseline • 24.1 Update Facility Baseline to Reflect New System • 26 Site Surveys (Data) • 45 Develop/Implement Corrective Action Plans • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 107 Perform Drawing Management
<ul style="list-style-type: none"> • <i>National CM Standard Procedure for Conducting Formal Configuration Audits of Operational Facilities</i> 	
<ul style="list-style-type: none"> • <i>National CM Standard Procedure for Facility Baselineing</i> 	

3.6.3.5 Procedure

3.6.3.5.1 Facility Space and Power Audits

The standard procedures referenced above for the conduct of audits at operational facilities and for facility baselining describe the procedures, coordination activities, reports, data requirements and follow-up activities for these audits. Key to the performance of these audits is the baselining or update of documentation and the reporting of the data to the national level. This facilitates the use of the data by FAA decision-makers. The data must also be managed on a continuous basis by the appropriate CCB. The standard procedure referenced above for critical power connections and panel breaker assignments provides the methodology for establishing and maintaining facility critical power panel baselines.

3.6.3.5.2 System Configuration Verification/Recovery Audits

This type of audit may be required due to the following conditions:

- the failure to incorporate all approved modifications into a fielded system resulting in system failure or incompatibility,
- the need to determine the quantity and locations of a component about to become obsolete,
- the transition of a nonstandard system, for maintenance or training purposes.

Before a management decision can be made, additional information must be made available to the decision-makers. While not unlike an FCA or PCA in

content or format, these audits are usually conducted by the government or contracted by the government.

The requesting government organization shall be responsible for developing an audit plan documenting participant roles and responsibilities and detailing the scope of the audit. The basic planning functions are described in procedures 3.6.1 and 3.6.2. The requesting organization shall be responsible for providing a current product baseline prior to the conduct of the audit. The audit team then conducts an actual system hardware/software and documentation review. Participants in the audit can be extensive and are usually determined by the location of the equipment (i.e., operational sites, FAA Technical Center, FAA Logistics Center), the purpose of the audit, and the level of maintenance activity on the system.

The NCP process shall be used to establish or update the new baseline configuration.

3.7 Commercial Off-The-Shelf (COTS) Configuration Management (to be written)

This section describes COTS/NDI CM implications and provides guidance for performing configuration management on systems comprised of COTS/NDI products.