ORDER

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1800.66

11/29/99

Consolidated Reprint
Includes Change 1

SUBJECT: CONFIGURATION MANAGEMENT POLICY

1. PURPOSE. This order directs the use of the configuration management (CM) policy contained in the Acquisition Management System (AMS) and applicable portion of Order 1800.8F, National Airspace System Configuration Management. This order also provides the structure for CM policy and guidance and provides for the transition from Order 1800.8F.

2. DISTRIBUTION. This order is distributed to the division level in the Offices of the Associate Administrators for Air Traffic Services and Research and Acquisitions; to the division level in the Offices of Acquisition, Air Traffic System Development, Aviation Research, Communications, Navigation, and Surveillance Systems, System Architecture and Investment Analysis, Business Management, System Capacity, and Independent Operational Test and Evaluation; to the division level in the Air Traffic Service, Airway Facilities Service, and Air Traffic System Requirements Service; to the branch level in the regional Airway Facilities and Air Traffic Divisions; to the division level at the Aeronautical Center and the Technical Center; and a standard distribution to all Airway Facilities field offices.

3. BACKGROUND. Order 1800.8F was in the process of being revised when the AMS was issued as FAA policy in April 1996. Since that time, the CM policy has been revised and reviewed for inclusion in AMS and this order. The revised CM policy is comprised of a set of specific policy statements, a configuration management life-cycle process description, a series of national procedures, and supporting office of primary interest (OPI) documentation. Each level of the CM policy and the related implementation processes and procedures represents an increasing level of detail and is designed to make it easier to keep the process, procedures, and supporting documentation current and applicable. The national CM procedures are under development. Order 1800.8F will not be cancelled until the revised policy, process, and procedures are all developed, approved, and incorporated in the AMS and other areas of the FAA Acquisition System Toolset (FAST). At that time, CM policy will reside identically in both this directive and the FAST. Since the full hierarchy of documents has not been completed, applicable portions of Order 1800.8F remain in effect until specifically superceded. In addition, since not all offices have access to FAST, a copy of the policy located on FAST is attached to this order. The hierarchy of policy documents is described below:

a. The policy consists of a series of implementation elements geared toward FAA specific organizations, functions, and responsibilities. Following a general category that is the basis for all other sections, the policy addresses the role and responsibilities of National Airspace System (NAS) level CM, acquisition level CM, regional CM responsibilities, and operational CM activities.

b. The National Life-Cycle CM Process describes the detailed activities and organizational responsibilities represented during the life cycle of CM operations in the NAS.

c. The National Procedures consist of standard operating guidelines, structured around the basic CM tenets of: management responsibility, life-cycle CM planning and management, configuration identification, change management, status accounting, configuration verification and audits, and commercial off-the-shelf/nondevelopmental item. These procedures standardize CM in the NAS and are the basis for detailed OPI operating procedures and documentation.

Distribution:A-W (TS/RA/SU/UA/AR/ND/SD/BZ/SC/TQ/AT/AF/RS) -2; A-X (AF/AT) -3; A-YZ-2; A-FAF-O (Std)

Initiated By: ACM-20

CHANGE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1800.66 CHG 1

12/13/00

SUBJ: CONFIGURATION MANAGEMENT POLICY

1. **PURPOSE.** This change transmits the following new sections of Part Two, Configuration Management Handbook, of CM Policy: Section I, NAS CCB Charter and Operating Procedures, and Section III, National CM Procedures. This change also transmits a revision to Part Four of CM Policy, Acronyms and Definitions.

2. **CANCELLATIONS.** Order 1800.8F, NAS Configuration Management, dated May 1991; Order 1800.57, National Airspace System (NAS) Configuration Control Board (CCB), dated December 1985; and Order 6030.29, Assignment and Dissemination of FAA Equipment Type Designation Numbers for the Air Traffic Control and Navigation System, dated June 1968, are hereby canceled.

3. **EXPLANATION OF CHANGES.**

   a. CM Policy is designed to have a four-part structure and components are being integrated into the overall structure as they are completed and approved. This change incorporates the newly completed National CM Procedures and the revised NAS CCB Charter and Operating Procedures into CM Policy.

   b. The National CM Procedures consist of 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 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.

   c. The National CM Procedures address forty-one separate topics that define the rules by which a level of standardization is maintained for CM in the Agency. The procedures promote the effective practice of CM as a discipline supporting the acquisition and operation of NAS systems. The National CM Procedures are to be used by an organization in developing a CM program suitable to its mission and consistent with national CM policy requirements.

   d. The revised NAS CCB Charter and Operating Procedures are included as Part Two, Section I of CM Policy. The NAS CCB endorsed the revised Charter and Operating Procedures on September 18th. (The NAS CCB Charter and Operating Procedures are subject to joint approval by ARA-1 and ATS-1.) This change administratively incorporates the revised NAS CCB Charter and Operating Procedures into CM Policy.

   e. Part Four of CM Policy, Acronyms and Definitions, is revised to incorporate changes resulting from the addition of the National CM Procedures.

   f. The Table of Contents and Document Overview of CM Policy are revised to reflect incorporation of the National CM Procedures and the NAS CCB Charter and Operating Procedures.

DISPOSITION OF TRANSMITTAL. After filing the attached pages, this change transmittal should be retained.

Distribution: A-W (TS/RA/SU/UA/AR/ND/SD/ BZ/SC/TQ/AT/AF/RS) –2; A-X (AF/AT) –3; A-YZ-2; A-FAF-O (Std)
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Part One: **Statements of Policy**

Specific policy elements that establish an association to the NAS, acquisition, regional, and maintenance/operational activities in the FAA.

- General CM Policy
- NAS Level CM Policy
- Acquisition Level CM Policy
- Regional Level CM Policy
- Operational Level CM Policy

Part Two:

- **NAS CCB Charter and Operating Procedures**
- **National Process**
  FAA life-cycle CM process that integrates CM and activities across organizations and functions
- **National CM Procedures**
  Corporate and standard operating plans and procedures that describe how to implement the Policy Statements in Part One

Part Three: **CM Standards and Standardization**

Significant industrywide and FAA documents that establish engineering and technical requirements for the FAA CM process, procedures, methods, and information management

Part Four: **Acronyms and Definitions**

PART ONE - CONFIGURATION MANAGEMENT (CM) POLICY ELEMENTS

SECTION I: General Configuration Management Policy

I-1 National policy for configuration management in the FAA consists of a multi-layered structure - policy, process, and procedures, with each layer providing an increasing level of detail. This structure provides high-level configuration management requirements, and the detail for how these requirements are to be met. Policy, process, and procedures shall be followed unless specifically designated as optional or discretionary.

I-2 Configuration management shall apply to all systems, subsystems, and components of the National Airspace System, including the documentation describing the NAS. Configuration management control begins with baselining of requirements documentation and ends with decommissioning of equipment in the operational NAS.

I-3 The configuration management discipline shall be applied to hardware, including power systems, software, firmware, documentation, test and support equipment, facility space, spares, training and courseware, and manuals. A Configuration Control Board (CCB) shall ensure that documentation associated with an approved change to a NAS system is updated to reflect the appropriate baseline. Affected documentation may include training material, courseware, and other National Airspace Integrated Logistics Support documentation.

I-4 The activities that constitute the configuration management discipline are planning and management, configuration identification, change management, status accounting, and configuration verification and audit. Integrated Product Teams, regions, and other solution providers shall evaluate, select, and tailor specific configuration management activities and develop the processes necessary to perform configuration management in their specific product environment. All IPT's, regions, and other solution providers, including the NAS CCB, shall perform the planning, identification, change control, status accounting, and audit activities.

I-4.1
Configuration Management Planning and Management

This activity includes planning, coordinating, and managing all tasks necessary to implement configuration management principles and to conduct configuration management activities. Configuration management planning and management occurs throughout all life-cycle phases. Documentation of the planning process and development of the Configuration Management Plan formalizes involvement and ensures continuity of configuration management practices at all levels of management.

I-4.2
Configuration Identification

IPT's, regions, and other solution providers shall identify configuration items and shall develop appropriate configuration documentation to define each configuration item. This activity

includes the development of a product top-down structure that summarizes the total units and configuration documentation for the system or configuration item, and the assignment of unique identifiers, which identify units, and groups of units, in a product. Configuration identification and product information shall be maintained and readily available to all FAA decisionmakers. Baselined documentation shall be provided to the appropriate program, IPT, or national program support library, and shall be maintained with all necessary links to the CM Information Management System. To ensure configuration management information is available to all decisionmakers and CM practitioners in the FAA community, the central configuration management authority shall be responsible for providing the necessary facilities and electronic tools to document, monitor, and CM information in the NAS.

I-4.3
Configuration Change Management

IPT's, regions, and other solution providers shall implement a systematic and measurable change process that is consistent with national configuration management policy, and shall document it in their approved CCB Charter and Operating Procedures. The implemented change process shall ensure proposed changes are properly identified, prioritized, documented, coordinated, evaluated, and adjudicated. Approved changes shall be properly documented, implemented, verified, and tracked to ensure incorporation in all systems and spares. The NAS CCB shall approve all CCB Charters. The IPT, region, or solution provider CCB shall approve Operating Procedures.

I-4.4
Configuration Status Accounting

IPT's, regions, and other solution providers shall develop and maintain configuration information for their configuration items or products in a systematic and disciplined manner in accordance with this policy and National Configuration Management Process and Procedures. Status accounting information includes developing and maintaining site configuration data and the incorporation of modification data on systems and configuration items. This configuration information must be available for use by decisionmakers over the life cycle of the product.

I-4.5
Configuration Verification and Audit

IPT's, regions, and other solution providers shall verify that a product's requirements have been met and the product design meeting those requirements has been accurately documented before a product configuration is baselined. Verification takes the form of a functional configuration audit and a physical configuration audit. The functional configuration audit provides a systematic comparison of requirements with the results of tests, analyses, or inspections. The physical configuration audit determines whether the product is consistent with its design documentation. In addition, operational systems must be periodically validated to ensure consistency between a product and its current baseline documentation. Verification of the incorporation of modifications is a critical function of this activity. This validation includes verification of facility baselines and conduct of system audits after commissioning.

I-5
Configuration Control Boards

A Configuration Control Board with an approved Charter and Operating Procedures shall be the official agencywide forum used to establish configuration management baselines and to approve/disapprove subsequent changes to those baselines. Proposed changes to configuration management baselines must be submitted to the appropriate Configuration Control Board on the agency-approved case file - NAS Change Proposal (NCP) form. A Configuration Control Board shall document its approval/disapproval decision on the agency-approved Configuration Control Decision (CCD) form.

I-6
CCB Charters and Operating Procedures

CCB Charters and Operating Procedures shall be maintained to reflect the addition of new programs, the additions/deletions of configuration items, and changes to CCB membership. The central configuration management authority shall assist IPT's, regions, and other solution providers with the development of Charters and Operating Procedures. All CCB Charters shall be coordinated with the configuration management authority and shall be approved by the NAS CCB.

I-7
Commercial Off-The-Shelf, Non-Developmental Items, and Commercially Available Software

After FAA acceptance, Commercial Off-The-Shelf (COTS), Non-Developmental Items (NDI), and Commercially Available Software (CAS) systems shall be maintained under configuration control. This control shall entail the management of a performance specification, and a data package, if available. Control will require the establishment and maintenance of records indicating the version of COTS/NDI/CAS at specific locations. When identifying COTS as a proposed solution, IPT's and other solution providers shall analyze and consider the impacts of vendor modification of COTS/NDI/CAS products during vendor production and routine vendor maintenance. Appropriate constraints and notification requirements of vendor changes shall be incorporated into purchase agreements to enable management of product changes to the maximum extent possible.

I-8
Local Changes

Local changes affecting baselined NAS systems in the in-service management phase of a program shall be evaluated by appropriate IPT's and shall be authorized only by the responsible CCB.

SECTION II: NAS Level Configuration Management Policy

II-1
The NAS Configuration Control Board shall manage NAS technical documentation not identified for control by the Joint Resources Council, baseline Interface Requirements Documents, and approve IPT, regional, and other solution provider CCB Charters and updates. The NAS Configuration Control Board shall also adjudicate and resolve problems regarding NAS system requirements among IPT's or other solution providers.

II-2
The NAS Configuration Control Board shall approve changes to NAS technical documentation, and shall ensure the traceability of requirements from the NAS level to the system and subsystem level. This responsibility begins with the approval of the technical architecture by the Joint Resources Council at the investment decision and continues throughout the life cycle of the program.

II-3
The central configuration management authority shall be responsible for coordinating the development and establishment of corporate configuration management policy. This role shall include monitoring, oversight, evaluation, and enforcement of corporate CM policy. A cross-functional team comprised of FAA senior managers shall serve as a forum for addressing and resolving issues, and for implementing solutions to issues that affect configuration management in the FAA. This cross-functional team shall advise the central configuration management authority and shall assist in the implementation of configuration management policy.

II-4
The central configuration management authority shall maintain a mechanism for assigning FAA type numbers, specification numbers, and Interface Requirements Document and Interface Control Document identifiers, which shall be used to identify systems, interface documentation, and system documentation.

II-5
The central configuration management authority shall publish NAS-MD-001 on a periodic basis using data available from the CM information management system. All Configuration Control Boards shall follow the direction given by the central CM authority regarding the type, content, and availability of information in the information management system to ensure validity of data to be included in the report.

SECTION III: Acquisition-Level Configuration Management Policy

III-1
IPT leaders and those charged with providing solutions to approved NAS and IPT-level requirements shall be responsible for:

- implementation of configuration management plans and processes;

- complete documentation of configuration management transition plans and activities for field organizations; and

- life-cycle management of products/solutions assigned to their Configuration Control Board.

The inclusion of configuration management principles in all acquisition contracts for NAS equipment is critical to this role.

III-2
IPT Configuration Control Boards shall approve or disapprove proposed changes to configuration items under their purview for the life cycle of the configuration item. Unless otherwise approved by the NAS Configuration Control Board, operational and acquisition managers shall co-chair IPT CCBs.

III-3
Configuration Control Boards must analyze changes completely and must coordinate changes that impact other configuration items within the IPT. Proposed changes shall be referred to the NAS CCB if they exceed the approval authority of the IPT CCB or other solution provider CCB.

III-4
In accordance with their Charter and Operating Procedures, IPT, Regional, and NAS Configuration Control Boards must have the authority to approve and the ability to implement changes. Funding shall be available and allocated to a change proposal in order for it to be approved.

III-5
IPT's and other solution providers shall establish baselines for all systems that are operational or that are scheduled for operation in the NAS. The baseline process begins with establishment of the system/subsystem functional baseline and concludes with the establishment and maintenance of the product baseline. Establishing and documenting site configurations and creating baseline documentation for FAA facilities shall be included in this responsibility.

SECTION IV: Regional Configuration Management Policy

IV-1
Regional Configuration Control Boards (RCCB) shall be responsible for controlling changes to site-specific regional transition plans and drawings, facility as-built equipment layout drawings, critical power panel designations, and regional unique equipment, as identified in the approved RCCB Charter.

IV-2
Regional configuration management personnel shall validate the baselined facility space and power panel documentation for accuracy. The regional configuration management plan shall identify the baselined facilities subject to verification and audit and will include the audit interval.

IV-3
The regional configuration management plan shall document the regional configuration management program, including the methodology and processes used to accomplish regional CM tasks.

SECTION V: Operational Configuration Management Policy

V-1
Approved changes to operational NAS configurations shall be incorporated by all field activities as soon as possible, but not later than 6 months from the release of the modification and availability of parts. The NAS Operational Support Program and the AF Modification Tracking Programs shall receive notice of the incorporation of the modification within 10 working days of the installation of the modification or change. Site configuration records shall be updated and the central configuration management authority shall be notified of the action item closure. If approved changes require additional time to incorporate beyond the timeframe specified above, the configuration control decision that documents approval of the change shall specify the estimated time for incorporation or implementation.

V-2
Proposed changes and modifications to NAS operational configurations must be evaluated and processed in accordance with the approved CCB Charter and Operating Procedures and coordinated with or implemented by the NAS Operational Support Program. After being processed through the appropriate management and organizational levels, the designated IPT/AOS prescreening organization shall review proposed changes in accordance with the IPT Configuration Control Board Charter and Operating Procedures.

V-3
Changes and modifications may be made to operational NAS configurations to correct safety or emergency operational conditions, after approval by the designated official in accordance with Airway Facilities and Air Traffic policy. Documentation of all emergency modifications shall contain either a proposed change description/case file or be followed-up with a case file placed in the change control process within 5 working days. This documentation shall be forwarded to the appropriate IPT Configuration Control Board in accordance with the IPT's CCB Charter and Operating Procedures

V-4
Acquisition organizations and IPT's shall provide the NAS Operational Support Organization with detailed documentation describing the operational baseline at the time of commissioning. This documentation consists of the contractually agreed to as-built lists, updated to reflect the configuration at the time of commissioning, and the serialization/revision/version status of all hardware, software, and firmware. This documentation is in addition to the functional, allocated, and product configuration documentation maintained by the IPT. IPT's and other solution providers must also ensure that sites and field offices receive the contractually provided manuals. Documentation describing the operational baseline must be maintained as long as the system is operational in the NAS.

PART TWO – CONFIGURATION MANAGEMENT (CM) HANDBOOK

SECTION I: NAS CCB Charter and Operating Procedures

(19) 20x

FEDERAL AVIATION ADMINISTRATION (FAA)

NATIONAL AIRSPACE SYSTEM (NAS)

CONFIGURATION CONTROL BOARD (CCB)

CHARTER

Supporting the Life Cycle Management

of the

National Airspace System

September 5, 2000

Submitted by _____
Alan Moore, AAF-1
NAS CCB Co-Chair

Submitted by _____
John Scardina, ASD-1
for NAS CCB Co-Chair

Approved _____ 11/17/00
Associate Administrator for
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Approved _____ 11/17/00
Associate Administrator for
Air Traffic Services, ATS-1

NAS CCB Signature Page

SIGNATURES ON FILE

Program Director, NAS Operations, AOP-1	Date
Program Director, NAS Transition and Integration, ANS-1	Date
Program Director, Operational Support, AOS-1	Date
DOD Liaison, ARS-7	Date
Director, Air Traffic Service, AAT-1	Date
Director, William J. Hughes Technical Center, ACT-1	Date
Associate Administrator for Information Services, AIO-1	Date
Director, FAA Logistics Center, AML-1	Date
Director, Office of Communication, Navigation and Surveillance Systems, AND-1	Date
Director, Free Flight Phase One, AOZ-1	Date
Director, Air Traffic System Requirements Service, ARS-1	Date
Program Director, Architecture & System Engineering, ASD-100	Date
Director, Office of Independent Operational Test & Evaluation, ATQ-1	Date
Director, Office of Air Traffic Systems Development, AUA- 1	Date
Director, Office of Aviation Research, AAR-1	Date
Assistant Administrator for System Safety, ASY-1	Date

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Federal Aviation Administration
National Air Space
Configuration Control Board

----- Charter -----

1.0 INTRODUCTION

1.1 Purpose

This charter establishes the National Airspace System (NAS) Configuration Control Board (CCB) and assigns the CCB responsibilities. This charter also identifies the responsibilities for configuration control of Configuration Items (CI).

1.2 Authority

The NAS CCB is the senior board responsible for establishing and maintaining the NAS-level baseline. The NAS CCB also serves to resolve disputes forwarded from subordinate level Life Cycle Support CCBs, and may be called upon to examine technical issues, associated with change, with wide-ranging impact. The Authority of the NAS CCB is established in the CM Policy of the Acquisition Management System (AMS) and FAA Order 1800.66, Policy Statements II-1 and II-2. (See figure 1-1 for CCB structure and hierarchy)

Change Control Board (CCB) Structure

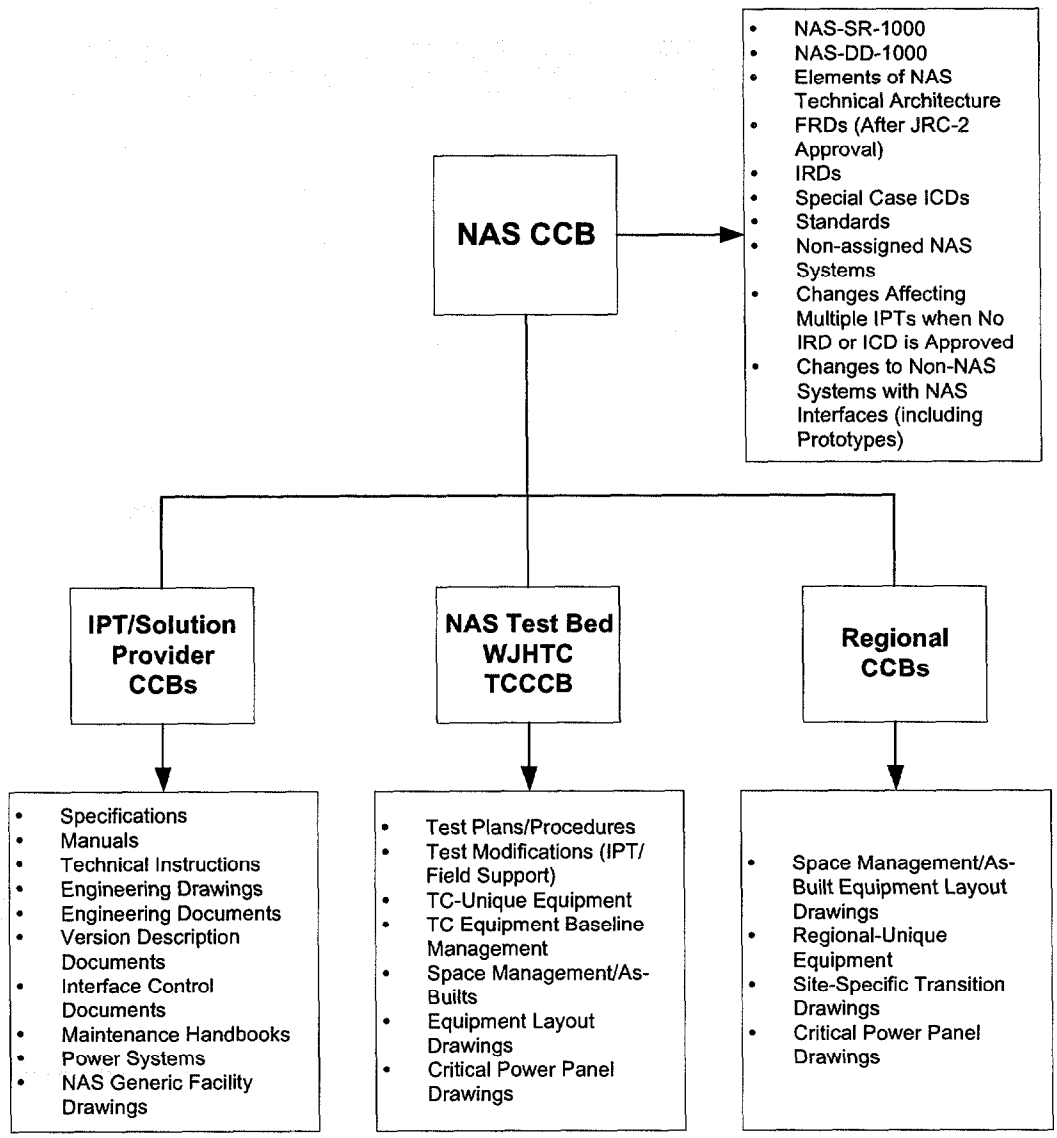

Figure 1-1

2.0 NAS CCB RESPONSIBILITIES

The responsibilities of the NAS CCB are:

a) Identifying and controlling changes to the NAS baseline for Configuration Items (CIs) identified in Appendix A;

b) Review, approve, disapprove, or defer NCPs coming before the NAS CCB

c) Examining technical Issues not submitted as formal changes but which either 1) relate directly to strengthening the application of CM principles; or 2) serve to prepare a recommendation to the Joint Resources Council (JRC)

d) Baselining the Technical Architecture Requirements;

e) Baselining of Interface Requirement Documents (IRDs);

f) Adjudicating differences and resolving issues elevated from other Life Cycle Support CCBs;

g) Ensuring traceability of NAS level documentation/baselines to program level documentation/ baselines;

h) Providing an Agency-wide forum for the discussion of technical issues (as opposed to cost, schedule or benefits issues) at the discretion of the Co-Chairs;

i) Ensure through Configuration Status Accounting (CSA) that all approved changes are tracked and documented;

j) Ensure that the Master Configuration Index (MCI, NAS-MD-001) is kept updated to reflect the current status of NAS CCB Configuration Items listed in Appendix A;

k) Approval authority for all other FAA Life Cycle Support CCB charters;

l) Approving and implementing the NAS CCB Operating Procedures and all changes;

m) Keeping this Charter current and submitting changes for approval to ARA-1 and ATS-1;

n) Adjudicating changes to Systems and CIs not assigned to subordinate level Life Cycle Support CCBs;

o) Approving ICDs for which an IRD is not already approved;

p) Approving changes when an IRD or ICD is not approved and the change impacts more than one IPT.

3.0 NAS CCB PARTICIPANTS

The participants and their responsibilities are as follows. A pre-designated alternate may be selected.

a. Co-Chairs. The Co-Chairs are responsible for adjudicating proposed changes presented to the CCB, assigning action items for items at the CCB as necessary, approving CCB operating procedures; designating NAS CCB ad hoc members; and approving advisors, consultants or technical specialists.

b. Executive Secretary. The Executive Secretary is responsible for determining the NCPs that are ready for disposition at the CCB, scheduling meetings (in coordination with the NAS CCB Co-Chairs), and preparing and distributing the agenda and CCB package. The Executive Secretary assists the Co-Chair to ensure orderly conduct of the meetings and prepares the draft minutes for approval at the next CCB. The Executive Secretary provides change processing and status accounting services to the CCB, this includes reporting on pending NAS Change Proposals (NCPs) (FAA Forms 1800-2), Change Control Decision (CCD) (FAA Forms 1800-49) closure, and action items assigned at the NAS CCB.

The Program Director, Configuration Management and Evaluation, ACM-1, or designated representative, shall serve as the Executive Secretary.

c. Permanent Members

(1)	AAF-1	Director, Airways Facility Service (Co-Chair)
(2)	ASD-1	Director, System Architecture and Investment Analysis (Co-Chair)
(3)	AAR-1	Director, Office of Aviation Research
(4)	AAT-1	Director, Air Traffic Service
(5)	ACT-1	Director, William J. Hughes Technical Center
(6)	AIO-1	Associate Administrator for Information Services
(7)	AML-1	Director, FAA Logistics Center
(8)	AND-1	Director, Office of Communication, Navigation and Surveillance Systems
(9)	ANS-1	Program Director, NAS Transition and Integration
(10)	AOP-1	Program Director, NAS Operations
(11)	AOS-1	Program Director, Operational Support
(12)	AOZ-1	Director, Free Flight Phase One Program Office
(13)	ARS-1	Director, Air Traffic System Requirements Service
(14)	ARS-7	DOD Liaison
(15)	ASD-100	Program Director, Architecture and System Engineering
(16)	ATQ-1	Director, Office of Independent Operational Test & Evaluation
(17)	AUA- 1	Director, Office of Air Traffic Systems Development
(18)	ASY-1	Assistant Administrator for System Safety

d. Ad Hoc Members. Ad Hoc Members represent government organizations that are not permanent members of the NAS CCB, which may be impacted by changes being decided by the NAS CCB. Their function shall be to ensure that proposed changes are consistent with the technical and policy positions of their organizations.

e. Technical Advisors and Consultants These personnel will be invited to attend NAS CCB meetings to provide specialized technical or program management information.

4.0 NAS CCB RECOMMENDATIONS AND DECISIONS

The NAS CCB shall review and approve, disapprove, or defer the proposed NCPs. The Co-Chairs may poll the members for their position. However, the NAS CCB Co-Chairs make the final decision. The NAS CCB shall not approve proposed changes that are not funded. In making decisions or recommendations regarding proposed changes, the NAS CCB shall consider improvements on the basis of safety, operational effectiveness, logistics supportability, lifecycle cost savings, and affordability. The NAS CCB provides final approval for proposed baseline changes unless a JRC controlled parameter in the Acquisition Program Baseline (APB) (such as cost, schedule, performance or benefits) is affected. In this case the baseline change is initially approved by the NAS CCB, and a recommendation is forwarded from the NAS CCB to the JRC for final approval. Decisions by the Co-Chairs may be disputed and if not resolved by the NAS CCB will be raised to the Associate Level (ARA-1 and ATS-1) for adjudication.

4.1 Configuration Control Decisions (CCD)

The Executive Secretary prepares the Configuration Control Decision (CCD), which documents the decisions made and actions assigned by organization, for Co-Chairs signature. The following actions may be taken on an NCP:

a. **Approve.**

b. **Disapprove.** The reasons for disapproval shall be stated in the CCD and meeting minutes.

c. **Approve with changes.** Identify those changes in the CCD and meeting minutes, referencing the resolution of comments section of the NCP.

d. **Defer.** State the reason for deferral and associated action items, and date when the item will be brought to the board again. Adjudication of an NCP shall not be indefinitely deferred.

4.2 Consideration of Technical Issues not Submitted as an NAS Change Proposal (NCP)

The NAS CCB Co-Chairs may decide to consider technical issues not submitted as an NCP.

The Co-Chairs may assign technical actions to any NAS CCB member. The CCB Executive Secretary will provide action item tracking. The Co-Chairs will decide if any decision documentation beyond the usual NAS CCB minutes is required, and will assign an action item to prepare any such documentation.

4.3 Co-chair adjudication outside of Board

The NAS CCB Co-Chairs have the authority to adjudicate an NCP outside the regularly scheduled CCB. All change requests processed outside the normal CCB process shall be recorded in the minutes of the next scheduled CCB. Questions and concerns regarding CCB decisions shall be addressed to the Executive Secretary, who will present them to the NAS CCB Co-Chairs.

4.4 Disputes

Any disputes with the decision rendered by the Co-Chairs shall be registered either at the CCB meeting or in writing to the Co-Chairs and Executive Secretary within 5 working days after the distribution of the minutes.

5.0 CHANGES TO THE CHARTER

Changes to this Charter, as recommended by the NAS CCB, require approval of ARA/ATS.

6.0 DELEGATION OF NAS CCB AUTHORITY

The NAS CCB Co-Chairs can authorize, in writing, to the CCB Executive Secretary, other individuals to act as a chairperson. The pre-designated Co-Chairs are the Deputy Director for Systems Architecture and Investment Analysis, ASD-2, and the Deputy Director of Airways Facilities, AAF-2. NAS CCB permanent members can delegate specific authority via advance notice to the NAS CCB Executive Secretary. Additionally, when time critical or urgent processing of proposed change requests are necessary, the NAS CCB Co-Chairs may approve or disapprove changes without benefit of a CCB meeting or member review. All change requests processed outside the normal CCB process shall be documented and communicated to permanent members as soon as practicable, or at the next regularly scheduled meeting. Questions and concerns regarding CCB decisions are addressed to the CCB Executive Secretary and will be presented to the NAS CCB Co-Chairs.

6.1 Delegation of Authority to Life Cycle Support CCBs

NAS CCB approval of the charters for other Life Cycle Support CCBs, effectively delegates authority and responsibility for managing the Configuration Item Baselines identified in Appendix A of the Life Cycle Support CCB charter (except for ICDs when no IRD is in place). This includes responsibility for definition and implementation of change management and control procedures for these CIs.

APPENDIX A: CONFIGURATION ITEMS

The Configuration Items listed below fall within the purview of the NAS CCB. This Appendix may be amended at any time with written approval of the Co-Chairs.

-The NAS System Requirements Specification (NAS-SR-1000)*
-The NAS Design Document Specification (NAS-DD-1000)*
-Interface Requirements Documents
-NAS Level Requirements
    -Elements of the NAS Technical Architecture
    -Final Requirements Documents (FRD) approved or baselined at JRC-2
-Non-assigned NAS Systems and Configuration Items (CIs)
-Interfaces of Non NAS Equipment and Prototypes to NAS Equipment
-Standards

Interface Control Documents are the responsibility of the IPTs but may be elevated to the NAS CCB for adjudication when:

a) An approved IRD is not in place
b) Issues remain unresolved at the IPT level

*** Until superceded by Elements of the NAS Technical Architecture**

APPENDIX B: ACRONYM LIST

AFSS	Automated Flight Service Stations
ARTCCs	Air Route Traffic Control Centers
ATCT	Air Traffic Control Tower
AMS	Acquisition Management System
APB	Acquisition Program Baseline
CCB	Configuration Control Board
CCD	Configuration Control decision
CI	Configuration Item
CM	Configuration Management
CSA	Configuration Status Accounting
DOCCON	Documentation and Configuration Identification System
FRD	Final Requirements Document
ICD	Interface Control Document
IPT	Integrated Product Team
IRD	Interface Requirements Document
JRC	Joint Resources Council
JRC-2	Joint Resources Council Investment Decision
NAS	National Airspace System
NCP	NAS Change Proposal
PSF	Power Systems and Facilities
RDB	Requirements Data Base
SEC	Systems Engineering Council

NATIONAL AIRSPACE SYSTEM

CONFIGURATION CONTROL BOARD

OPERATING PROCEDURES

September 5, 2000

Approved _____
Alan Moore, AAF-1
NAS CCB Co-Chair

Approved _____
John Scardina, ASD-1
NAS CCB Co-Chair

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1.0 INTRODUCTION

The National Airspace System (NAS) Configuration Control Board (CCB) is responsible for top level Configuration Management (CM) of the NAS for the agency. This includes Configuration Management of the NAS Technical Architecture, traceability of requirements from the NAS documentation/baselines to the program documentation/baselines, and delegation of CCB authority for lower level CM baselines to the appropriate solution providers. The NAS CCB serves as the final decision making authority for technical CM decisions, e.g. CV4400, TARDIS, that are not accomplished at other CCBs.

1.1 Purpose

This document describes the standard operating procedures for the NAS CCB as chartered by the "National Airspace System Configuration Control Board Charter".

1.2 Scope

This procedure applies to the operation of the NAS CCB for the adjudication and tracking of the implementation of approved Configuration Items (CI), as identified in Appendix A of the NAS CCB Charter, changes to those CIs (within the scope of its charter), consideration of other NAS technical issues, and approval of all subordinate CCB Charters. Issues that are not within the scope of the CCB charter will be referred to the appropriate FAA body or organization.

1.3 Guiding Principles

The NAS CCB is comprised of organizations that are impacted by changes to the NAS infrastructure. The members of the NAS CCB collectively identify all significant implications relative to the disposition of proposed changes to NAS CCB CIs. Utilizing procedures defined in this document, the Board reviews proposed changes, which affect interface requirements, and changes to systems, which affect the NAS Level Requirements or NAS Architecture. The CCB may also consider other technical issues as directed by the Co-Chairs.

2.0 DEFINITIONS

Configuration Management (CM) – A discipline applying technical and administrative direction and surveillance to identify and document the functional and physical characteristics of an item; control changes to those characteristics; and record and report change processing and implementation status.

Configuration Control Board (CCB) - The official FAA authorized vehicle to approve CM baselines and subsequent changes. There are several levels of CCBs: the NAS; the IPT or other solution provider; those that manage software baselines or testing facilities; and the Regions. The configuration items controlled by each CCB are identified in the respective CCB charters.

Configuration Item (CI) - An aggregation of hardware/software/firmware/documentation, which satisfies an end use function and is designated for Configuration Management by the FAA.

National Airspace System (NAS) - The common network of U.S. airspace; air navigation facilities; equipment and services; airports and landing areas; aeronautical charts; information and services; rules regulations and procedures; technical information; and manpower and material. System components shared jointly with the military are included.

NAS-MD-001- National Airspace System Master Configuration Index (MCI), subsystem baseline configuration and documentation listing.

NAS Level Requirements - The aggregation of shall statements found in NAS CCB CIs.

Case File/NAS Change Proposal (NCP) (FAA FORM 1800-2) - The approved form used to request change to a NAS baseline, including adding new systems. Copies of the form and instructions on how to fill it out are found in NAS-MD-001 and the FAA CM Web page (faa.gov/cm).

Configuration Control Decision (CCD) (FAA FORM 1800-49) - The approved form used to document a decision and implementation, as appropriate, for a Case File/NCP. Copies of the form and instructions on how to fill it out are found in NAS-MD-001 and the FAA CM Web page (faa.gov/cm).

3.0 ORGANIZATION AND RESPONSIBILITIES

The NAS Configuration Control Board is comprised of Co-Chairs, Executive Secretary, permanent members (or pre-designated alternates), Ad Hoc members, and Technical Advisors and Consultants. Responsibilities are detailed in the NAS CCB Charter.

4.0 NAS CCB ORGANIZATIONAL RELATIONSHIPS

The Joint Resources Council (JRC) establishes and manages Acquisition Program Baselines (APBs), which define cost, schedule, performance, and benefit parameters for programs over the full lifecycle of the program. Final Requirements Documents (FRD), which are approved at JRC-2 as part of the Investment Decision, are configuration managed by the NAS CCB. The NAS CCB will evaluate all technical changes to the FRD and make recommendations to the JRC.

The NAS CCB is responsible for ensuring traceability from NAS CCB-controlled Configuration Items to specific IPTs and program documents. This traceability is currently provided by the Documentation and Configuration Identification System (DOCCON). Future traceability will also be provided by the Technical Architecture. The boundary between the responsibility of the NAS CCB and the individual program is defined through identification of Configuration Items in Appendix A of the NAS CCB's Charter and the IPT CCB's Charter. The IPTs are responsible for the Case Files/NCPs for CIs that cross CCB responsibilities, unless the Case File/NCP cannot be resolved at the IPT level, at which time it is sent to the NAS CCB for adjudication. NCPs for systems not covered by existing CCBs (non-allocated) are the responsibility of the NAS CCB. An example of a CI that may cross CCB responsibilities is an Interface Control Document (ICD). Baselining or changing an ICD would be the responsibility of the NAS CCB only if the IPT CCBs involved could not resolve any associated issues or an approved IRD for that system was not in place. The senior IPT or the IPT with the more mature effected system would initiate the ICD or changes to same.

When a national CM baseline is to be established, the JRC is typically approached for program approval and adoption of the program APB. Before approval, a casefile shall be submitted which identifies which NAS-level requirements that are to be satisfied by the program. Case File and NCP forms and their instructions can be found in NAS-MD-001 and on the FAA CM Web page. These NAS requirements are resident in the FRD. The Case File will identify all documentation that comprises the program. If the corresponding Case File/NAS Change Proposal (NCP) is approved by the NAS CCB, a recommendation of approval is made to the JRC by the NAS CCB. Contingent upon approval and adoption of the new program by the JRC, the program is established in the national Master Configuration Index. The JRC at this time designates a funding level to accomplish the program. Any changes to the JRC baselined technical documentation will require a new Case File/NCP, and if applicable, an updated FRD.

Changes to program baselines are typically accomplished as follows:

If there is a proposed change to the program baseline affecting a NAS CCB configuration item, as defined in the NAS CCB Charter, a Case File/NCP is submitted for processing by the NAS CCB. The NAS CCB reviews the proposed change and can approve, modify, or reject the change based upon the technical merit of the proposed change. If this also requires a change to a JRC controlled parameter in the APB (such as cost, schedule, performance or benefits), the NAS CCB will produce an NCP synopsis for the JRC. Upon approval by the JRC, the CCD is formally signed and approved.

An example of where it would be appropriate to go to the NAS CCB is the proposed establishment of a national baseline for existing region-unique equipment. The NAS CCB can be asked to consider issues such as: verification that a national requirement exists; verification that a plan for life-cycle support is formalized; determination of the impact of nationalization on the NAS Architecture. If additional funding is required, the JRC is approached with the NAS CCB's NCP synopsis.

5.0 PROCEDURES

The following procedures apply to the operation of the NAS CCB.

5.1 Meetings

5.1.1 Scheduling

The CCB Executive Secretary will schedule NAS CCB meetings, as approved by the Co-Chairs, on a bimonthly basis. The Checklist found in Appendix 1 shall be used to prepare for CCB meetings. Frequency of meetings is determined by the availability of issues to be considered by the board. If no issues are ready for consideration at a particular meeting, it will be cancelled with cc:Mail notification provided before the deadline for Agenda distribution. The CCB Executive Secretary will provide the meeting time and location no later than two weeks prior to the CCB.

5.1.2 Issue Briefs

The CCB Executive Secretary shall schedule an Issue brief prior to the pre-brief. The issue brief shall be for sponsors of NCPs and other issues on the agenda and other interested parties to discuss and resolve issues. Unless granted a waiver by the Executive Secretary, each proposed issue must have an advocate at the issue meetings to present a short summary of the proposed issues and to answer any questions. The issue brief shall be no less than five working days before the CCB

5.1.3 Pre-Briefs

The CCB Executive Secretary will arrange pre-briefs for both Co-Chairs. The objective of the pre-briefs is to inform the Co-Chairs of the proposed issues for

the next CCB meeting. Co-Chairs may decide to adjudicate items at the pre-brief. If all items are disposed of at the pre-brief, the CCB will be cancelled.

5.1.4 Agenda Preparation and Distribution

An agenda and CCB package will be sent by the Executive Secretary or designee to the membership at least one week before the scheduled CCB. The Agenda may be distributed in hard copy or electronically. The criteria for selection as an agenda item are:

a. All stakeholders (must evaluators) have had an opportunity to comment;
   -Time critical NCPs may be taken to the CCB without all must evaluation responses.
b. Funding is available;
c. All nonconcurs and concur with comment are appropriately resolved or addressed;
   -If comments cannot be resolved, the item may be taken to the CCB for resolution.

5.1.5 Conduct of Meetings

The CCB Executive Secretary will lead the CCB meetings. Each issue considered by the board must have an advocate present to provide a summary of the proposal, to discuss the resolution of any issues, and to answer any questions. The Co-Chairs reserve the right to defer an item if no advocate is present.

5.1.6 Preparation and Dissemination of Minutes

The CCB Executive Secretary will prepare CCB meeting minutes for signature by the Co-Chairs. At the option of both Co-Chairs, signature of the minutes may be delegated to the CCB Executive Secretary. Meeting minutes, at a minimum, will include discussion, decisions, a copy of any signed CCDs, other assigned actions and a list of attendees.

5.2 Decision Making

The Co-Chairs may poll the CCB permanent members to assess the prevailing opinion and to ensure that any objections have been considered. The actual decision is made by agreement of the Co-Chairs. The following decisions can be made on issues brought before the NAS CCB:

a. **Approve.**

b. **Disapprove.** The reasons for disapproval shall be stated in the CCD and meeting minutes.

c. **Approve with changes.** Identify those changes in the CCD and meeting minutes, referencing the resolution of comments section of the NCP.

d. **Defer.** State the reason for deferral and associated action items, and date when the item will be brought to the board again. Adjudication of an NCP shall not be indefinitely deferred.

5.2.1 NAS Change Proposals (NCPs)

Decisions on NCPs are made by both Co-Chairs and can be made independent of a convened CCB if there are not any outstanding issues.

5.2.2 Configuration Control Decisions (CCDs)

CCDs shall contain the specific actions that are necessary to implement NCPs. Each action shall be assigned to a specific organization and shall have an assigned due date. Both Co-Chairs shall sign the CCD.

5.2.3 Implementation and Closure

The Executive Secretary will periodically review CCDs to verify implementation and closure and bring special cases to the attention of the Co-Chairs. The NAS CCB Executive Secretary shall provide a bimonthly report to all NAS CCB Members of all open NCPs/CCDs. The NAS CCB Executive Secretary shall ensure all pertinent Case File/NCP/CCD and action item(s) data are entered into the appropriate CM database.

5.2.4 Disputes

The NAS CCB is the highest level CCB dealing with the NAS in the FAA. Any disputes with the decision rendered by the Co-Chairs shall be registered either at the CCB meeting or in writing to the Co-Chairs and Executive Secretary within 5 working days after the distribution of the minutes. The Executive Secretary shall note any pending disputes to the Co-Chairs. If the dispute can not be resolved at the NAS CCB, the Co-Chairs will raise the dispute to the Associates (ARA-1 and ATS-1) for adjudication.

PART TWO – CONFIGURATION MANAGEMENT (CM) HANDBOOK

SECTION II: National Configuration Management Process

SECTION OVERVIEW

GENERAL

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

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

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

USING THIS SECTION

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

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

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

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

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

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

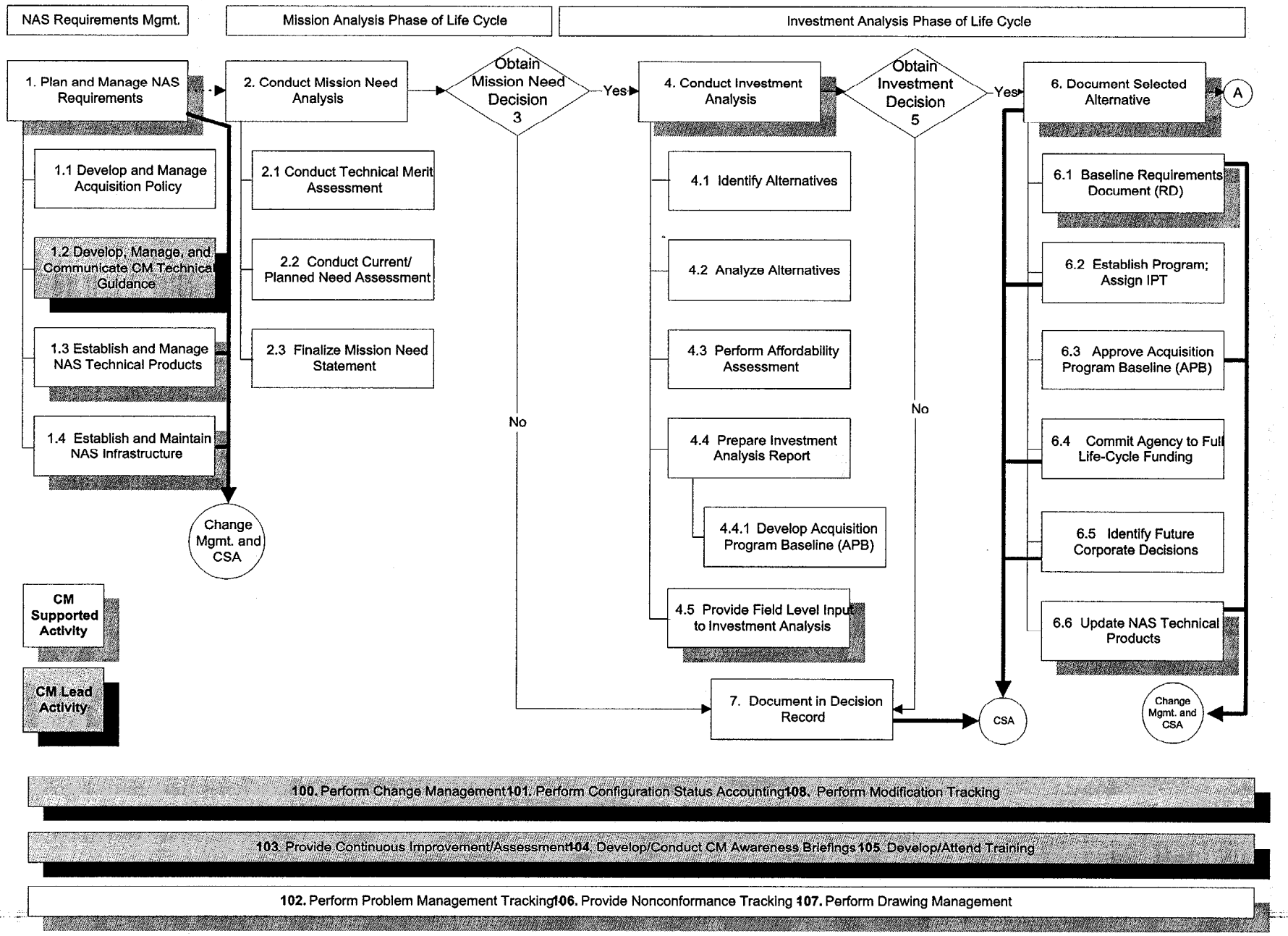
The ***Change Management and Implementation*** area was designed to identify those activities that occur during the processing of a change. (This flow was designed from a future-looking perspective, so you will not see NAS Change Proposal (NCP) specifically called out; however, the current change vehicle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

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

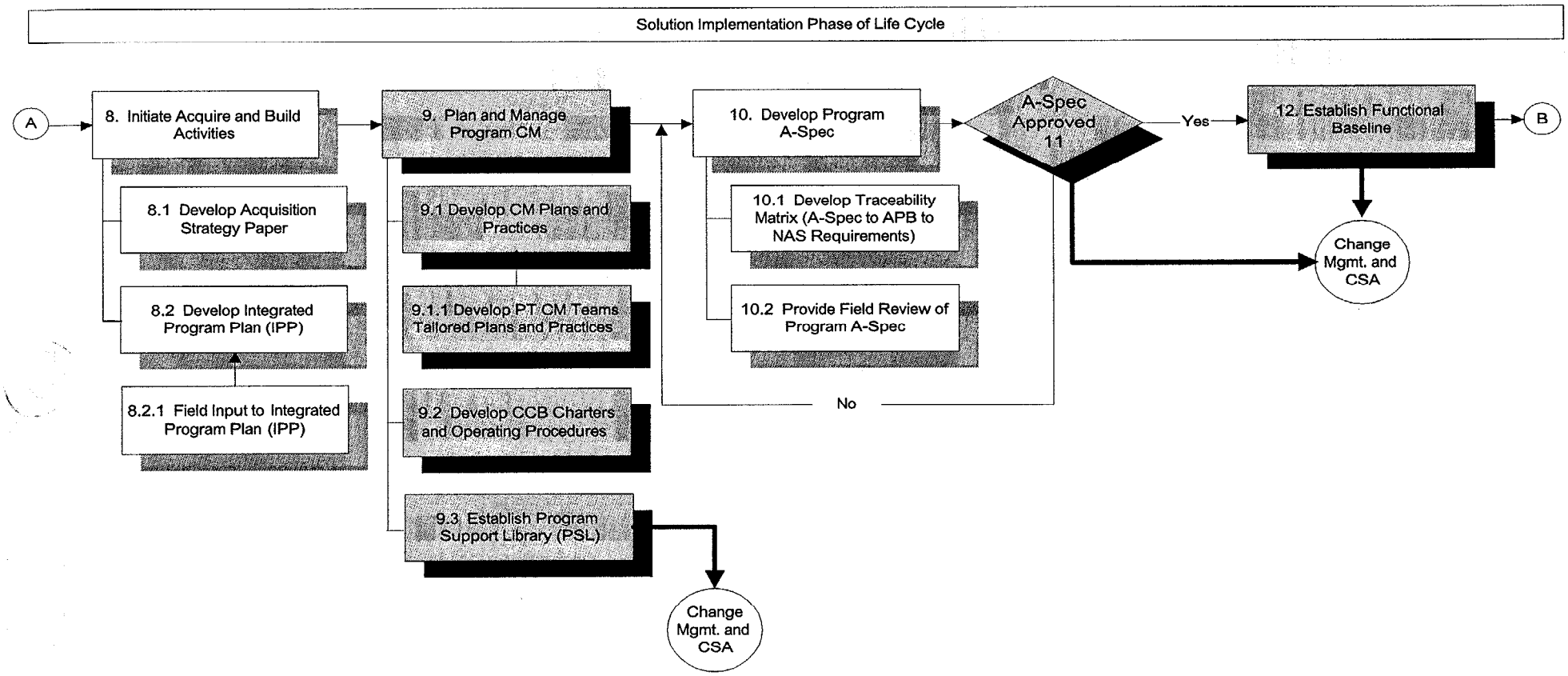
The ***Configuration Verification and Audit*** area expands on those audit activities that typically occur during the production phase (functional/physical configuration audits) and facility audits.

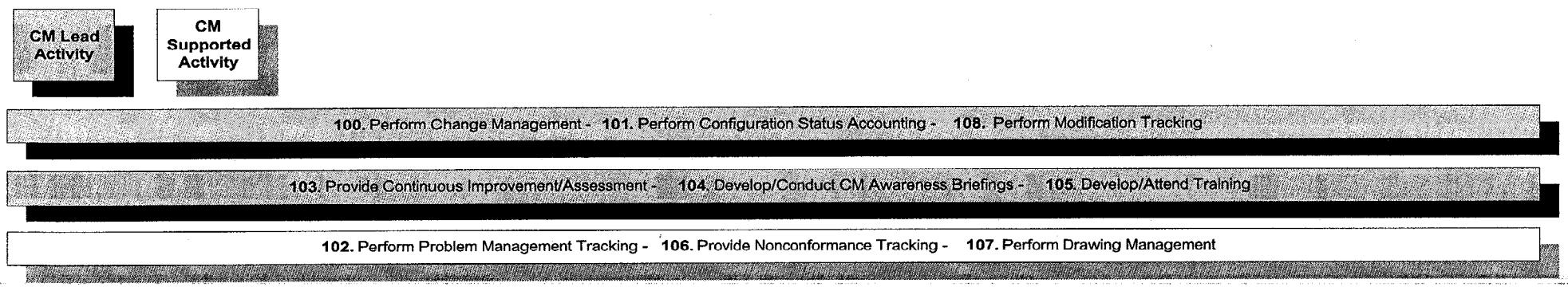
The drawing processes are addressed from two perspectives. ***Drawing Management – CM Perspective*** was designed to integrate the drawing management activities associated with getting vendor drawings accepted and the engineering document management (EDM) activities used to manage FAA drawings. ***Drawing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

Life-Cycle CM Process

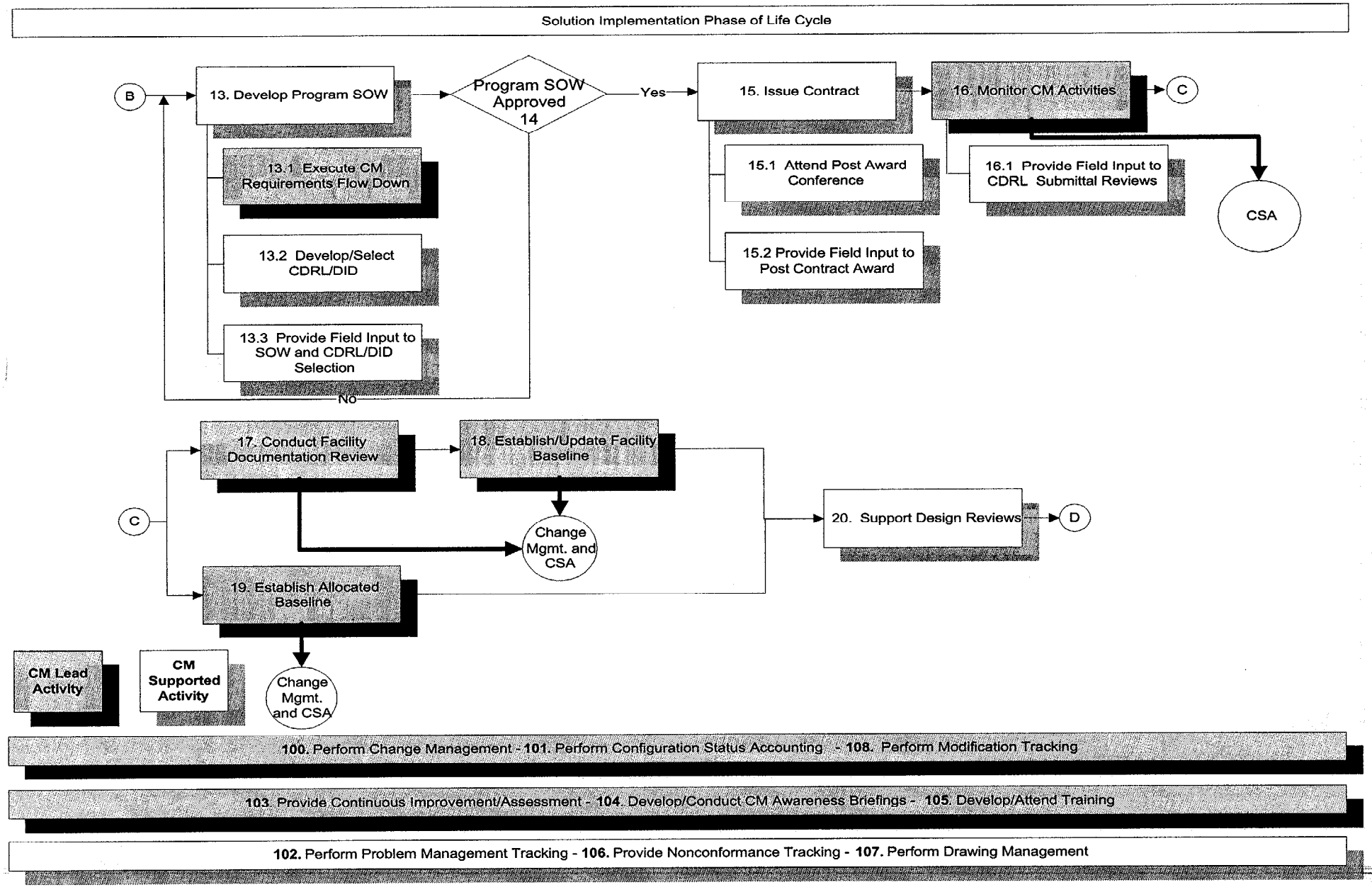


Life-Cycle CM Process





Life-Cycle CM Process



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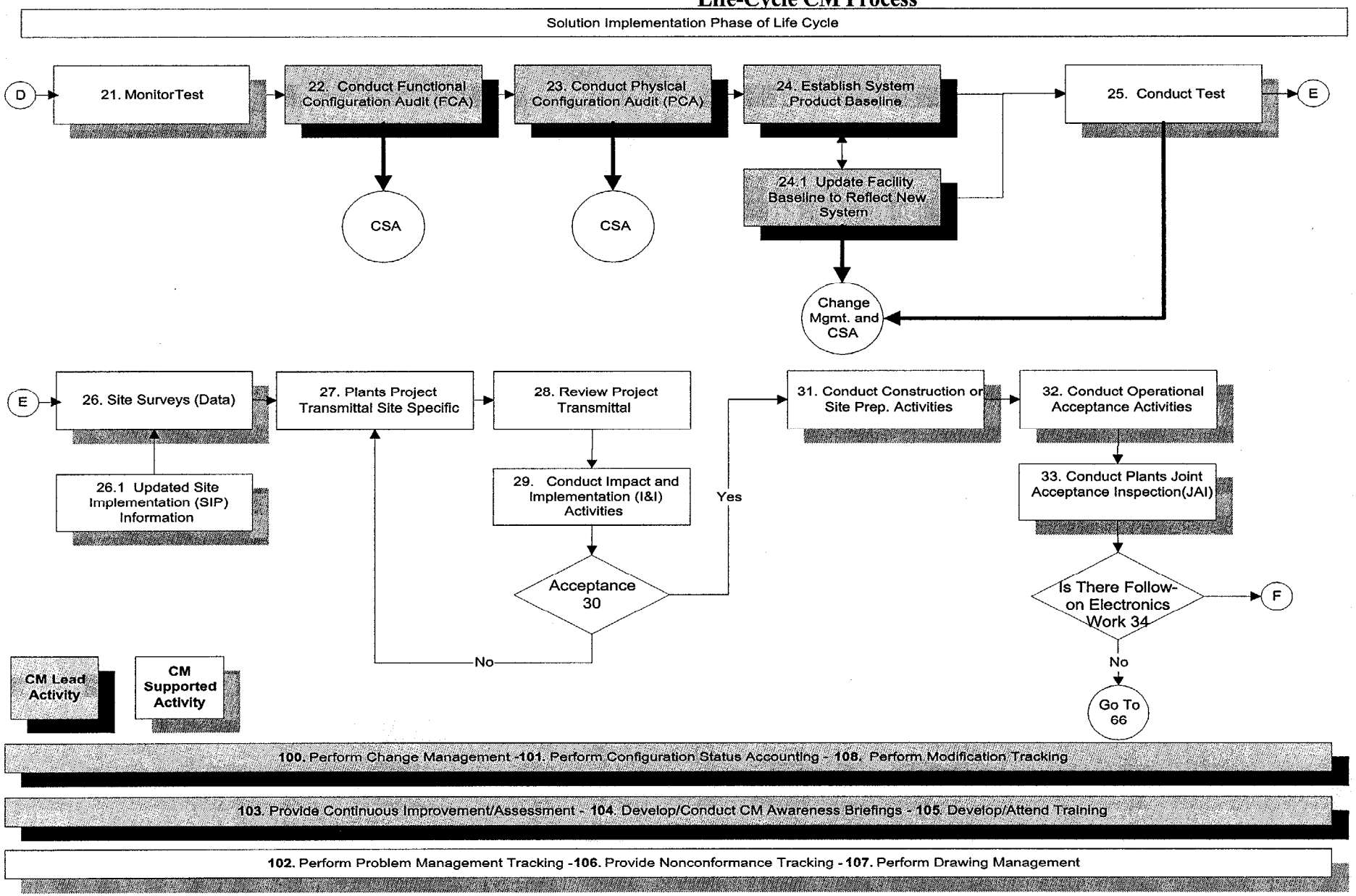
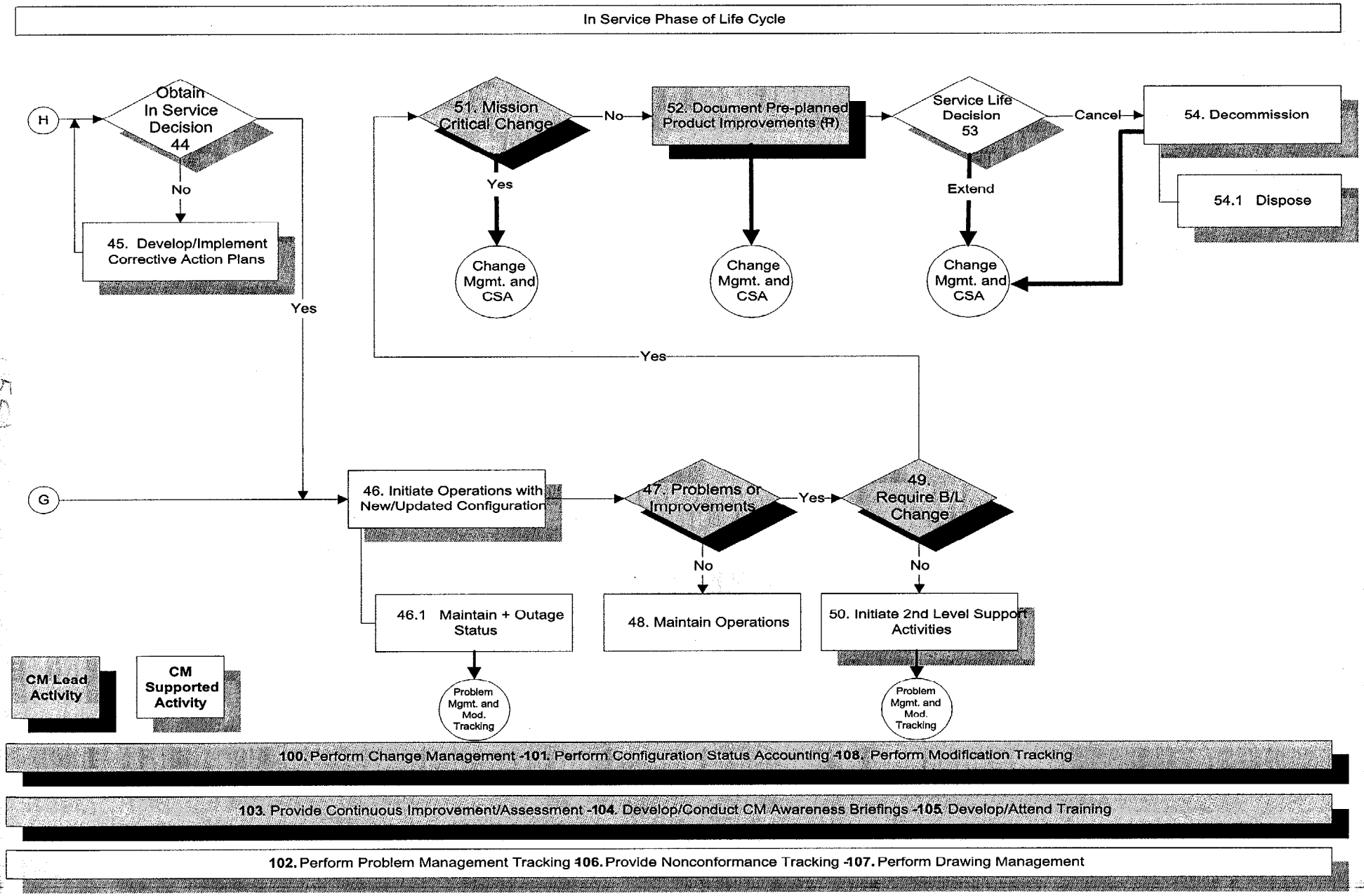


Life-Cycle CM Process



Life-Cycle CM Process

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

Life-Cycle CM Process

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

ID	Type	Action	Definition/Responsible Org.
			Responsible Org.: CM Organization (Lead CM Organization phase dependent)
108	Spanning Activity	Perform Modification Tracking	The process of installing and documenting implementation of a modification . This includes updating the national automated tool and the site records. **Responsible Org.**: Regional CM, AML, IPT's

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Life-Cycle CM Process

CM LIFE-CYCLE PROCESS INPUT/OUTPUTS FOR

CM *LEAD* ACTIVITIES

KEY:

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

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

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Life-Cycle CM Process

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

Life-Cycle CM Process

CM LIFE-CYCLE PROCESS INPUT/OUTPUTS FOR

CM *SUPPORTED* ACTIVITIES

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

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

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Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

CM LIFE-CYCLE PROCESS INPUT/OUTPUTS FOR

CM *ASSOCIATED* ACTIVITIES

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

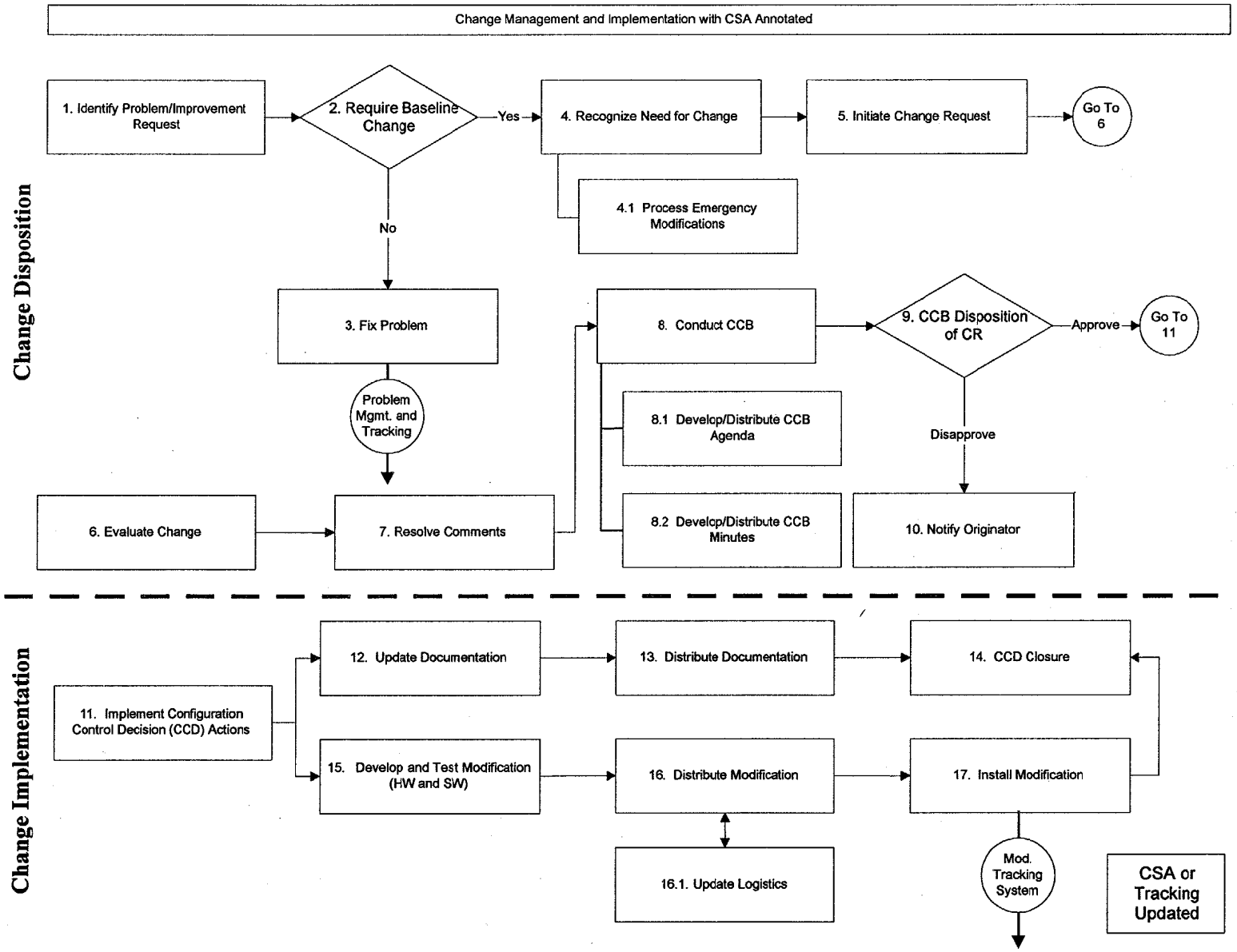
Life-Cycle CM Process

Tailorable	INPUT	LC Phase	Process #	CM Tasks (per Process Flow)	Resp. Org.	OUTPUT	Detailed Flow Impacted				
							Change Mgmt.	Change Imp.	Drawing Mgmt.	CSA	Audit/Ver-ification
		IA	6.3	Approve Acquisition Program Baseline (APB)	JRC						
		IA	6.4	Commit Agency to Full Life-Cycle Funding	JRC						
		IA	6.5	Identify Future Corporate Decisions	JRC						
		IA	7	Document in Decision Record	JRC (Supported by ACM-1)						
		SI	27	Plants Project Transmittal Site Specific	ANI EC and IC, ANS, AOS						
		SI	28	Review Transmittal Process	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate non-FAA						
		SI	29	Conduct Impact and Implementation (I&I) Activities	SMO – Local, IPT or Appropriate HQ Org. – National						
		SI	30	Acceptance	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate non-FAA						
		SI	34	Is There Follow-on Electronics Work	ANI EC and IC, ANS, AOS						
		SI	35	Electronics Project Transmittal Site Specific (if Applicable)	ANI EC and IC, ANS, AOS						
		SI	36	Review Project Transmittal	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA						
		SI	37	Conduct Impact and Implementation (I&I) Activities	SMO – Local, IPT or Appropriate HQ Org. – National						
		SI	38	Acceptance	SMO, SSC, AXX-470, AXX-500, Local AT, appropriate Non-FAA						
		SI	46.1	Maintain + Outage Status	AXX-470						
		SI	48	Maintain Operations	AXX-470						

DETAILED PROCESS PACKAGE

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

Life-Cycle CM Process



Life-Cycle CM Process

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

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Life-Cycle CM Process

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

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

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION INPUT/OUTPUT MATRIX

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

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

Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION INPUT/OUTPUT MATRIX

INPUT		OUTPUT

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

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

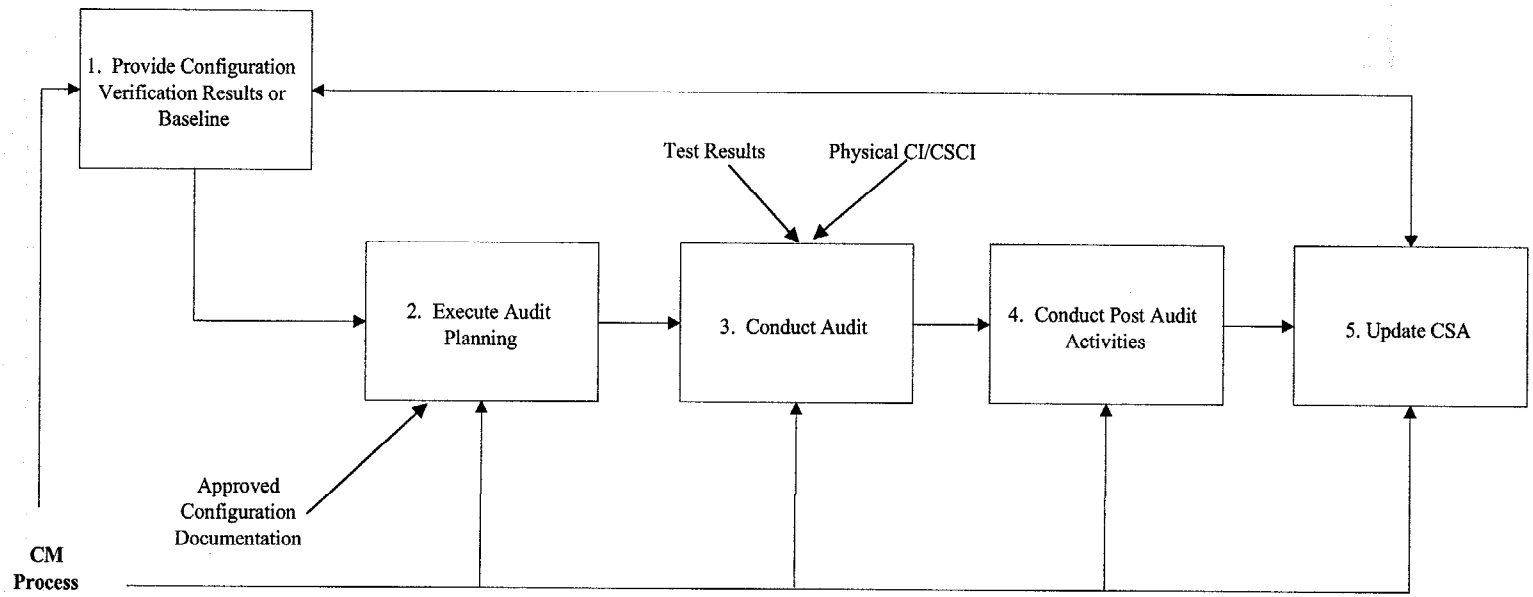
Life-Cycle CM Process

CHANGE MANAGEMENT and IMPLEMENTATION INPUT/OUTPUT MATRIX

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

Life-Cycle CM Process

Configuration Verification and Audit Process Flow



Life-Cycle CM Process

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

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Life-Cycle CM Process

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

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Life-Cycle CM Process

CONFIGURATION VERIFICATION and AUDIT INPUT/OUTPUT MATRIX

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

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

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

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

Life-Cycle CM Process
Configuration Status Accounting Process Flow

CONFIGURATION STATUS ACCOUNTING
Tasks

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

Approved Configuration Documentation →

Change Identification, Document Disposition →

Configuration Verification →

Change Verification & Validation →

Action Items →

→ Status

→ Configuration Information

→ Performance Measurement

Life-Cycle CM Process

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

Life-Cycle CM Process

CONFIGURATION STATUS ACCOUNTING DEFINITION MATRIX			
ID	Type	Action	Definition

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

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

Life-Cycle CM Process

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

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

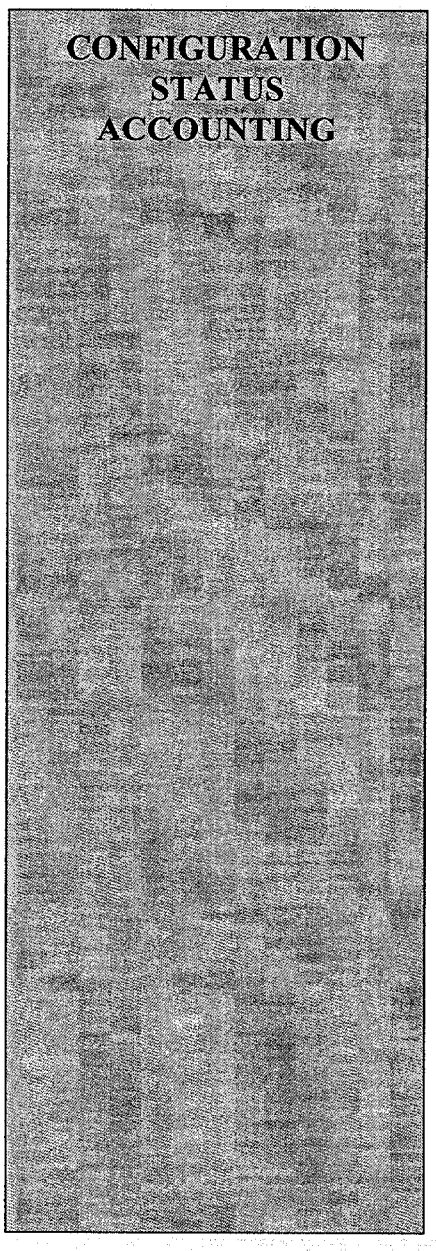
8	Activity	Record the digital data file(s) identifiers and document representations of all revisions/versions of each document and software that has been delivered, or made accessible electronically, in support of the contract.	For each release, the digital identifiers (as described in the contract or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

Life-Cycle CM Process

CONFIGURATION STATUS ACOUNTING INPUT/OUTPUT MATRIX

INPUT

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

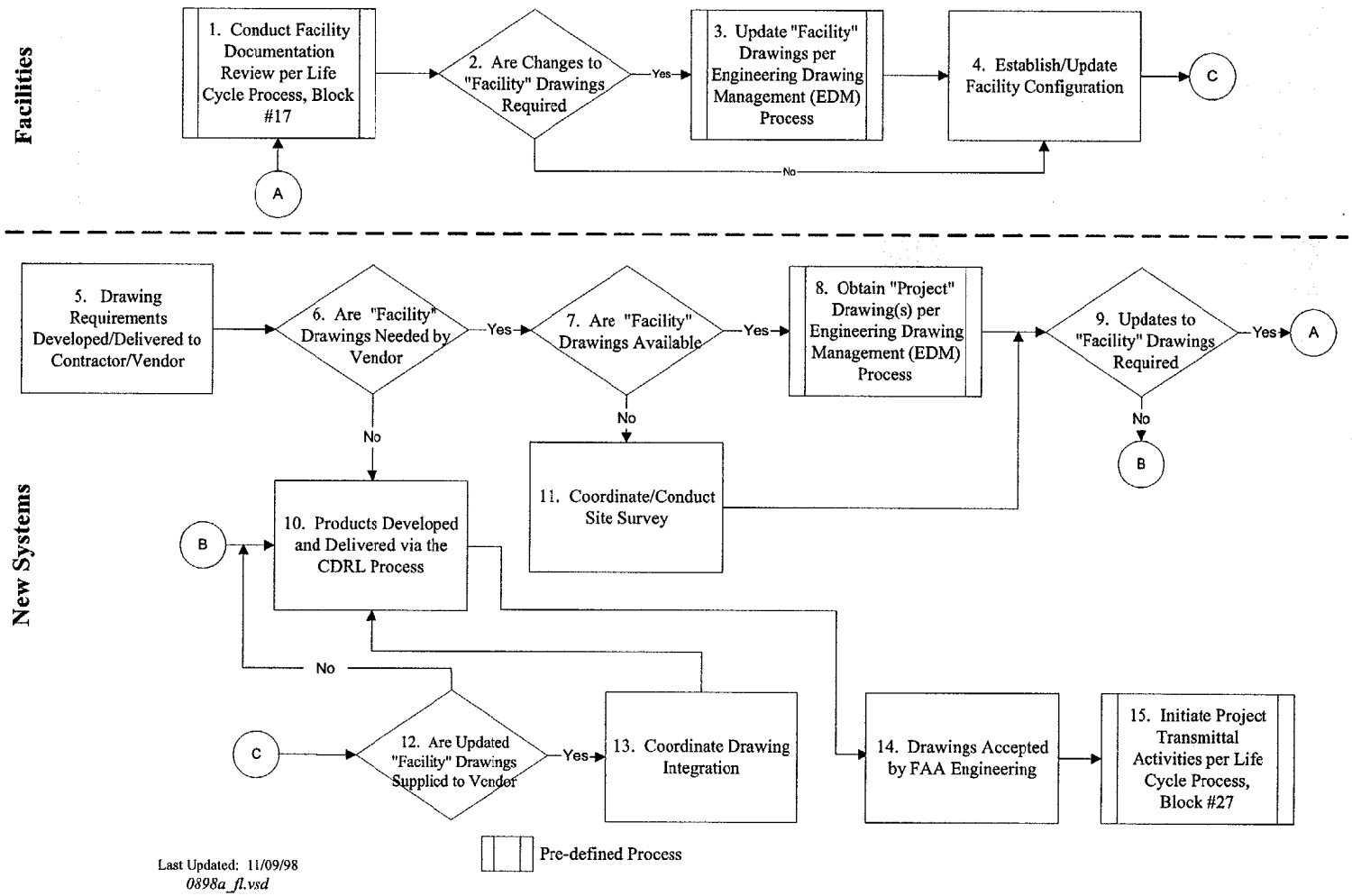


OUTPUT

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

Life-Cycle CM Process

Configuration Management Drawing Process



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Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

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

Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT INPUT/OUTPUT MATRIX

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

Life-Cycle CM Process

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT INPUT/OUTPUT MATRIX

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

CONFIGURATION MANAGEMENT DRAWING MANAGEMENT INPUT/OUTPUT MATRIX

Life-Cycle CM Process

- Vendor Drawings Acceptance Certification

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

- Project Transmittal

Life-Cycle CM Process

EDM DRAWING FLOW

Background

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

Overview

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

Field Revision

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

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

New Drawing -> As Built

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

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

Project Copy -> As Built

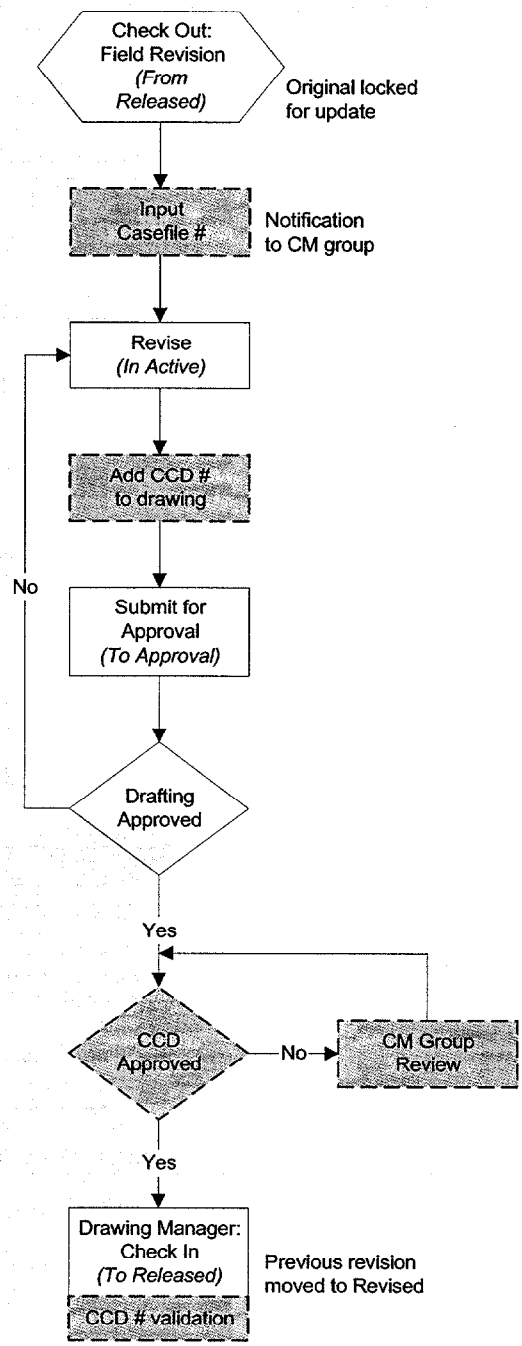
The Project Copy process manages concurrent design updates to a single Released drawing. This is a two-phase process that starts with a design phase

Life-Cycle CM Process

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

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

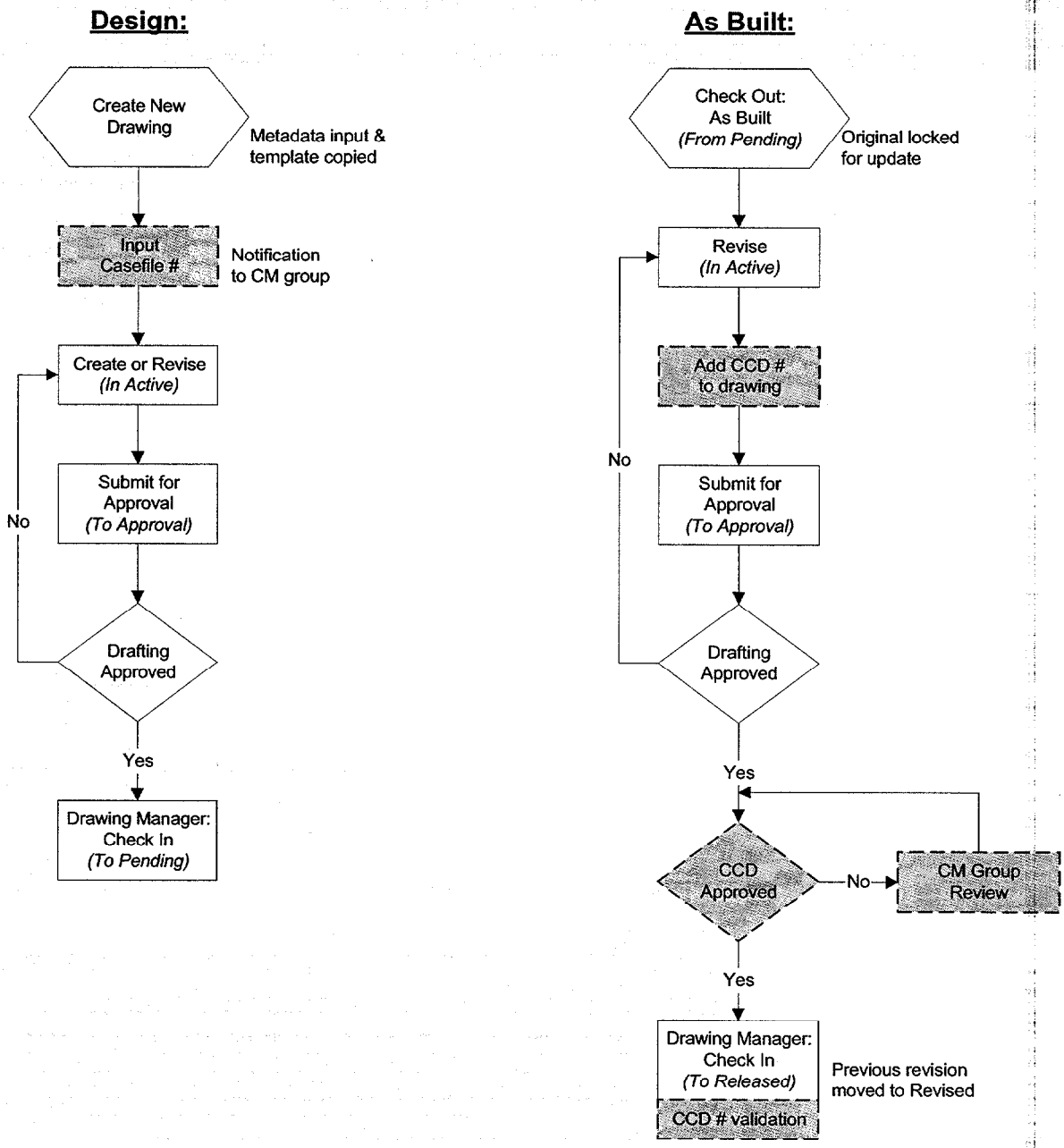
Life-Cycle CM Process
Field Revision



Legend:

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

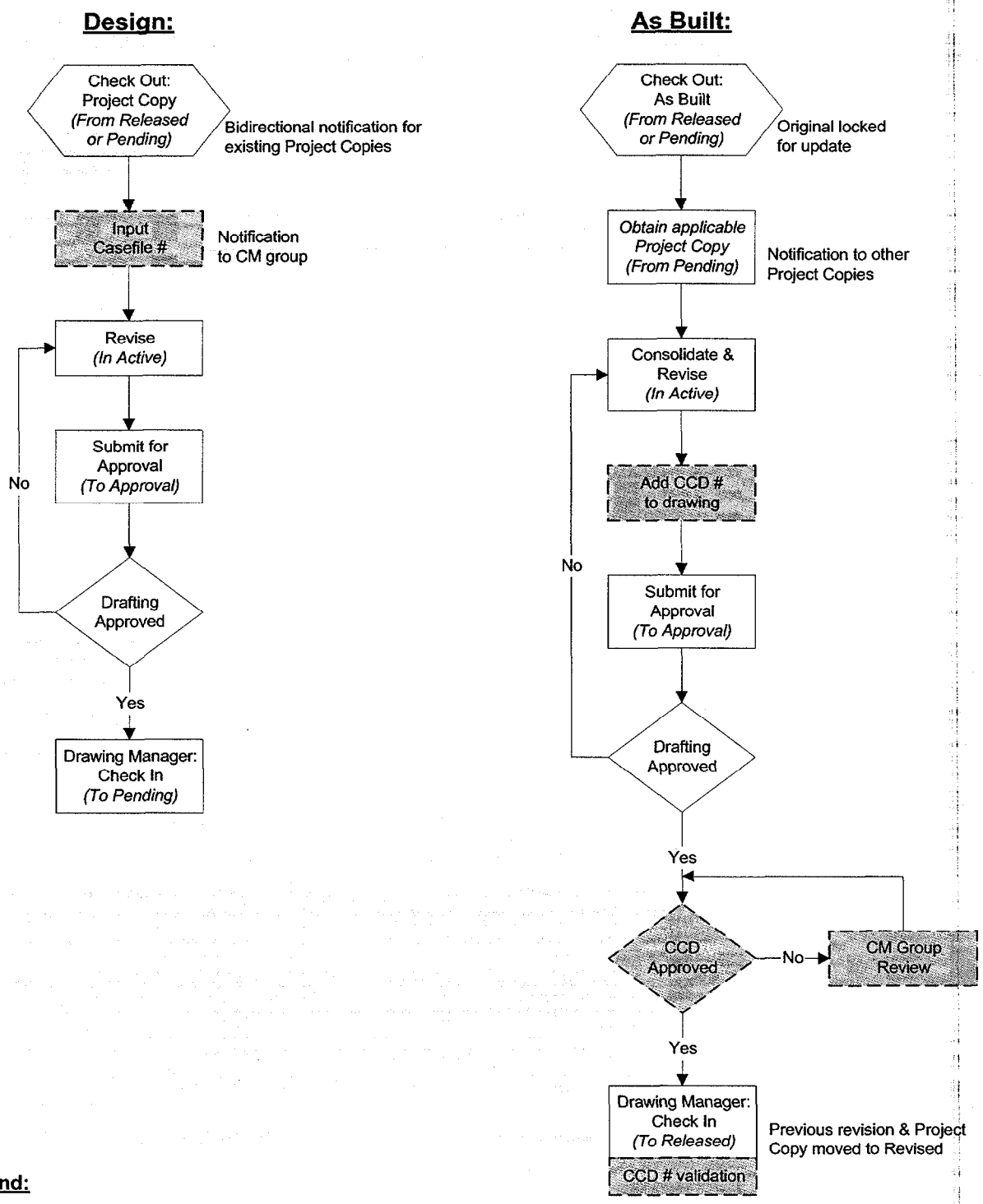
Life-Cycle CM Process
New Drawing -> As Built



Legend:

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

Life-Cycle CM Process
Project Copy -> As Built



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.

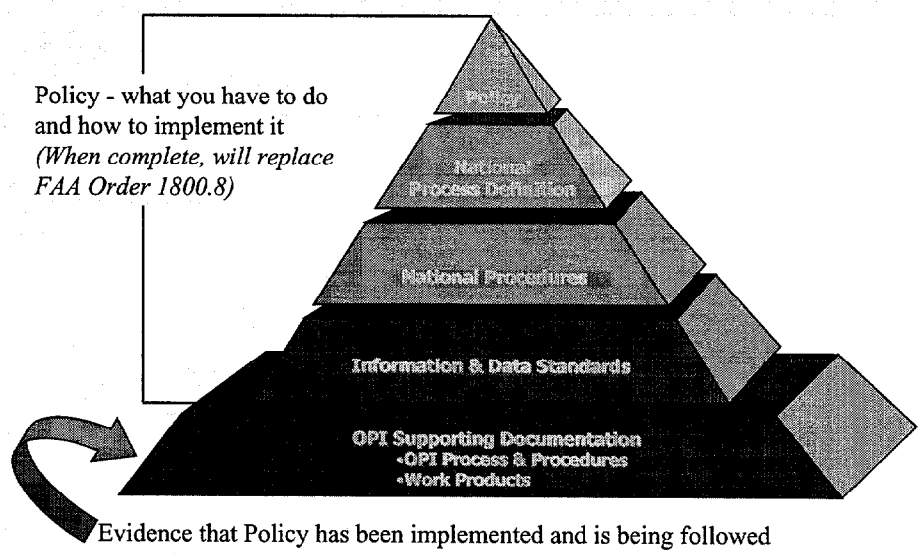


Figure 1.0, National CM Procedures Relationship to the Agency's CM Information Hierarchy

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

3.1 MANAGEMENT RESPONSIBILITIES
- *3.1.1 Roles, Responsibilities and Relationships*
- *3.1.2 Establishing and Maintaining CM Policy*
- *3.1.3 Monitoring, Oversight, and Evaluation*

3.2 LIFE CYCLE CM PLANNING AND MANAGEMENT
- *3.2.1 Establishing and Maintaining a Configuration Control Board (CCB)*
- *3.2.2 Solution Provider Responsibilities*
  - 3.2.2.1 CM Plans and Processes
  - 3.2.2.2 Procurement Requirements for CM
- *3.2.3 Regional Responsibilities*
  - 3.2.3.1 Regional CM Plans and Processes
  - 3.2.3.2 Regional COTS Procurements

3.3 CONFIGURATION IDENTIFICATION
- *3.3.1 Maintaining the MCI and Publishing NAS-MD-001*
- *3.3.2 Fundamentals of Configuration Identification*
  - 3.3.2.1 Selecting Configuration Items
  - 3.3.2.2 Developing Configuration Documentation
  - 3.3.2.3 Developing Product Top-Down Structure
  - 3.3.2.4 Assignment and Marking of Unique Identifiers
  - 3.3.2.5 Data Management
- *3.3.3 Establishing and Maintaining Baselines*
  - 3.3.3.1 NAS Functional Baseline
  - 3.3.3.2 Functional Baselines
  - 3.3.3.3 Product Baselines
  - 3.3.3.4 Operational Baselines
  - 3.3.3.5 Facility Baselines
- *3.3.4 Assigning Corporate Identifiers*
  - 3.3.4.1 Assignment of System-Level Specification, Interface Requirements Document (IRD) and Interface Control Document (ICD) Numbers
  - 3.3.4.2 FAA Equipment Type Designation Number Request

3.4 CONFIGURATION CHANGE MANAGEMENT
- *3.4.1 CCB Structure for Systems in the NAS*
- *3.4.2 NCP/CCD Process*
  - 3.4.2.1 Originate Change
  - 3.4.2.2 NCP Evaluation
  - 3.4.2.3 Configuration Control Board (CCB) Decision Process
  - 3.4.2.4 Configuration Control Decision (CCD) Closure
  - 3.4.2.5 Instructions for NCP/CCD Forms
  - 3.4.2.6 Withdrawing Case Files or NCPs
  - 3.4.2.7 Amending NCPs
  - 3.4.2.8 Transferring a NCP
  - 3.4.2.9 Amending Approved CCDs
  - 3.4.2.10 Emergency Modifications
- *3.4.3 Change Management Metrics*
- *3.4.4 Requirements Traceability*
  - 3.4.4.1 User and NAS-Level Traceability
  - 3.4.4.2 System-Level Traceability
  - 3.4.4.3 Sub-Tier Traceability

3.5 CONFIGURATION STATUS ACCOUNTING
- *3.5.1 National CM Information Management System*
- *3.5.2 Data Accessibility*

3.6 CONFIGURATION VERIFICATION AND AUDITS
- *3.6.1 Functional Configuration Audits (FCA)*
- *3.6.2 Physical Configuration Audits (PCA)*
- *3.6.3 Other Configuration Management (CM) Audits*

3.7 COTS CM
To Be Determined

Revised: 09-15-00

2 Applicable References

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

Reference	Date	Document Owner
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 RequirementsTraceability 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: • 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

Reference	Date	Document Owner
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 Baselining	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.

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- 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.

ROLES AND RESPONSIBILITIES			LEVEL OF CM (FROM POLICY)				
ORGANIZATION/ FUNCTIONAL ROLE	RELATED AGENCY ORGANIZATIONS	CM RESPONSIBILITIES	GEN	NAS	ACQ	REG	OPS
Team (CMCT)		• 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.					
• Configuration Management Staff	ACM-20	Staff support to ACM-1 in support of its agency configuration management mission. In this capacity ACM-20: • 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

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	GEN	NAS	ACQ	REG	OPS
		• 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.					
• 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
• 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 Baselining".	X	X		X	
• 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		

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	GEN	NAS	ACQ	REG	OPS
		• 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					
• Office of Acquisitions	ASU	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.	X		X		
• FAA Logistics Center	AML	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.	X	X	X		X
• FAA Technical Center	ACT	The FAA Technical Center is responsible for: • 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	IPT/solution providers are responsible for: • 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	GEN	NAS	ACQ	REG	OPS
		• 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.					
• 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	GEN	NAS	ACQ	REG	OPS
• 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: • 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	GEN	NAS	ACQ	REG	OPS
• 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		
• Survey Team	Various	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). 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."				X	

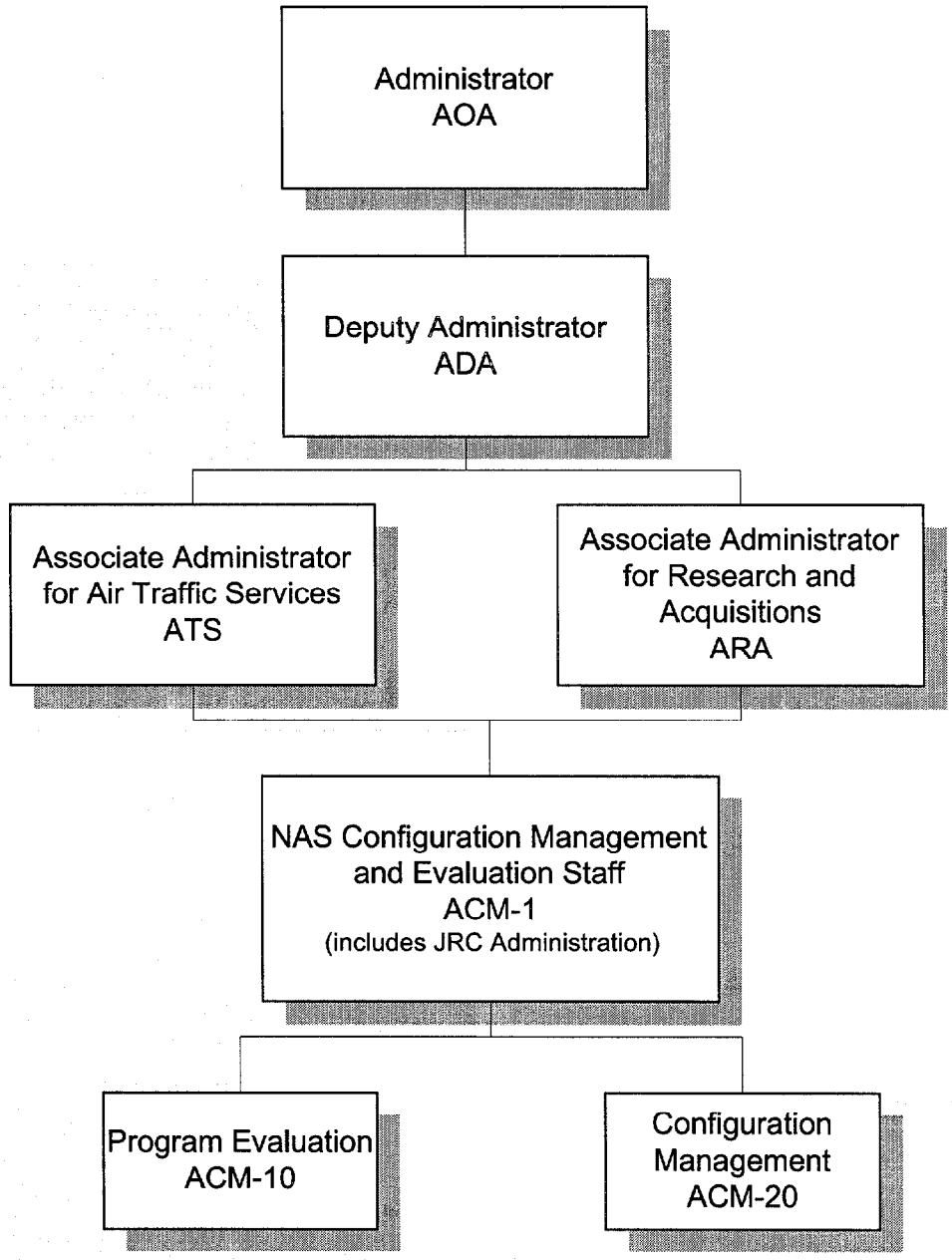

Figure 3.1.2.3.1-1. Central CM Authority and Organizational Hierarchy

3.1.1.3.1 References

Reference	Reference Paragraph/Activity Number
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	Statement II-3
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• *Acquisition Management System*	
• Order 1100.127, *Standard Regional Airway Facilities Division Organizations*	
• FAA Order 6032.1 (with Change 1 and 2), *Modifications to Ground Facilities, Systems, and Equipment in the National Airspace System*	
• *The National Configuration Management Standard Process Document for Conducting Formal Configuration Audits of Operational Facilities*	
• *The National Configuration Management Standard Procedure Document for Facility Baselining*	

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 changed 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• II-3
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• The originating organization shall develop proposed revisions to existing CM policy.
2. Perform Initial Analysis	• 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?	• 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?	• 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)	• 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	• 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?	• 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	• 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?	• 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?	• 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	• ACM shall assemble the appropriate subject matter experts to develop a comprehensive change package.

Procedure Step	Procedure Description
12. Develop Change Package	• 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	• 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?	• Issues that cannot be resolved by comment resolution activities or by the CMCT shall be forwarded to the CMSG for resolution.
15. Perform Arbitration	• The CMSG shall determine if a revision can be incorporated.
16. Submit to Approving Authority	• 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	• ACM shall initiate publication procedures in accordance with applicable guidance provided for publishing changes to orders and AMS.

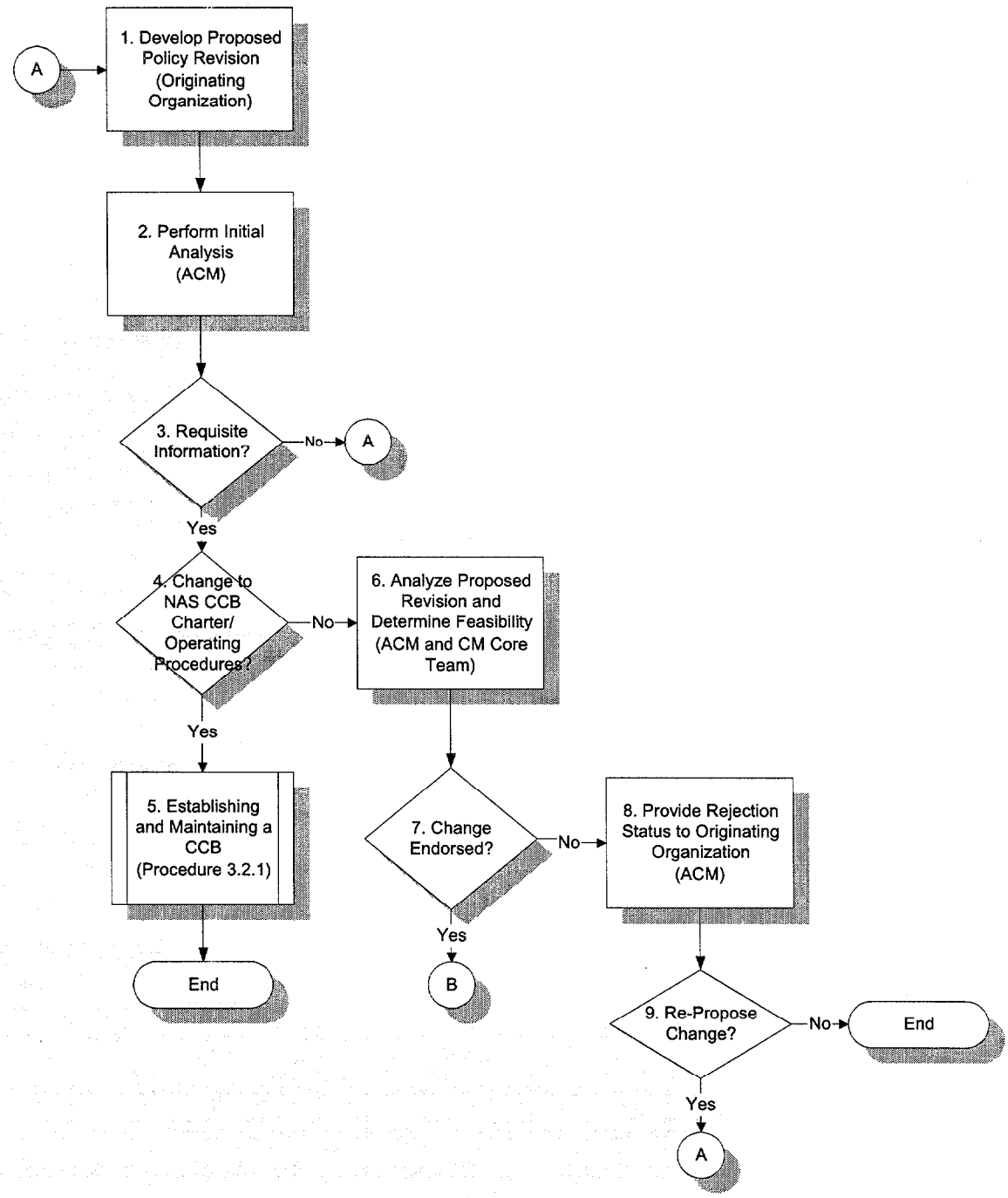

Figure 3.1.2.5-1. Establishing and Maintaining Policy (Page 1 of 2)

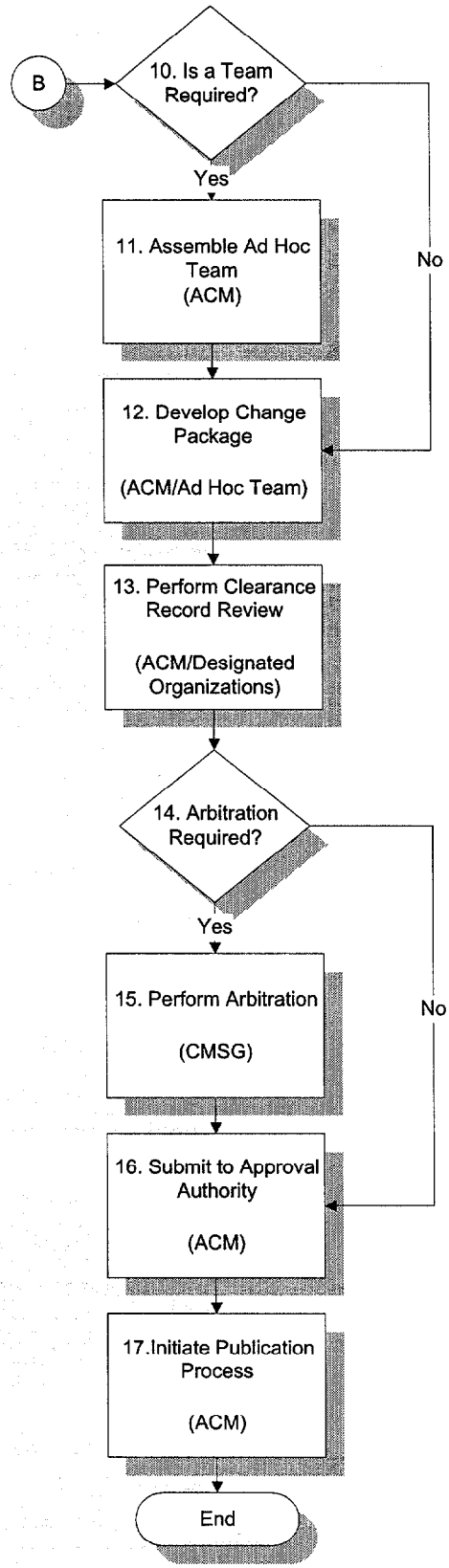

Figure 3.1.2.5-1. Establishing and Maintaining Policy (Page 2 of 2)

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, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement II-3
FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
1. Assess CM Process Compliance	• 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: – 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.
2. Organizational Discrepancy?	• 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.
3. Record Results	• ACM shall record resolution of issues in the discrepancy log. This step is the termination point of the procedure.
4. Policy Update Required?	• 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)	• 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	• The organization shall develop a plan to correct the discrepancy. • The corrective action plan includes, as appropriate, implementation steps, materials, training, proposed schedule, etc. The organization may confer with ACM in determining the appropriate corrective actions.
7. Review Corrective Action Plan	• ACM shall review the corrective action plan with the organization to ensure that it is accurate and feasible.
8. Concurrence Reached?	• If ACM concurs with the recommended corrective actions, continue with Step 9. Otherwise proceed to Step 14.
9. Perform Corrective Actions	• 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	• ACM shall assess the performance of the corrective actions to determine whether they have been satisfactorily completed.
11. Actions Successful?	• If the actions have been satisfactorily performed, proceed to Step 3. Otherwise continue with Step 12.

Procedure Step	Procedure Description
12. Advise Organization	• 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?	• 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	• 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?	• 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

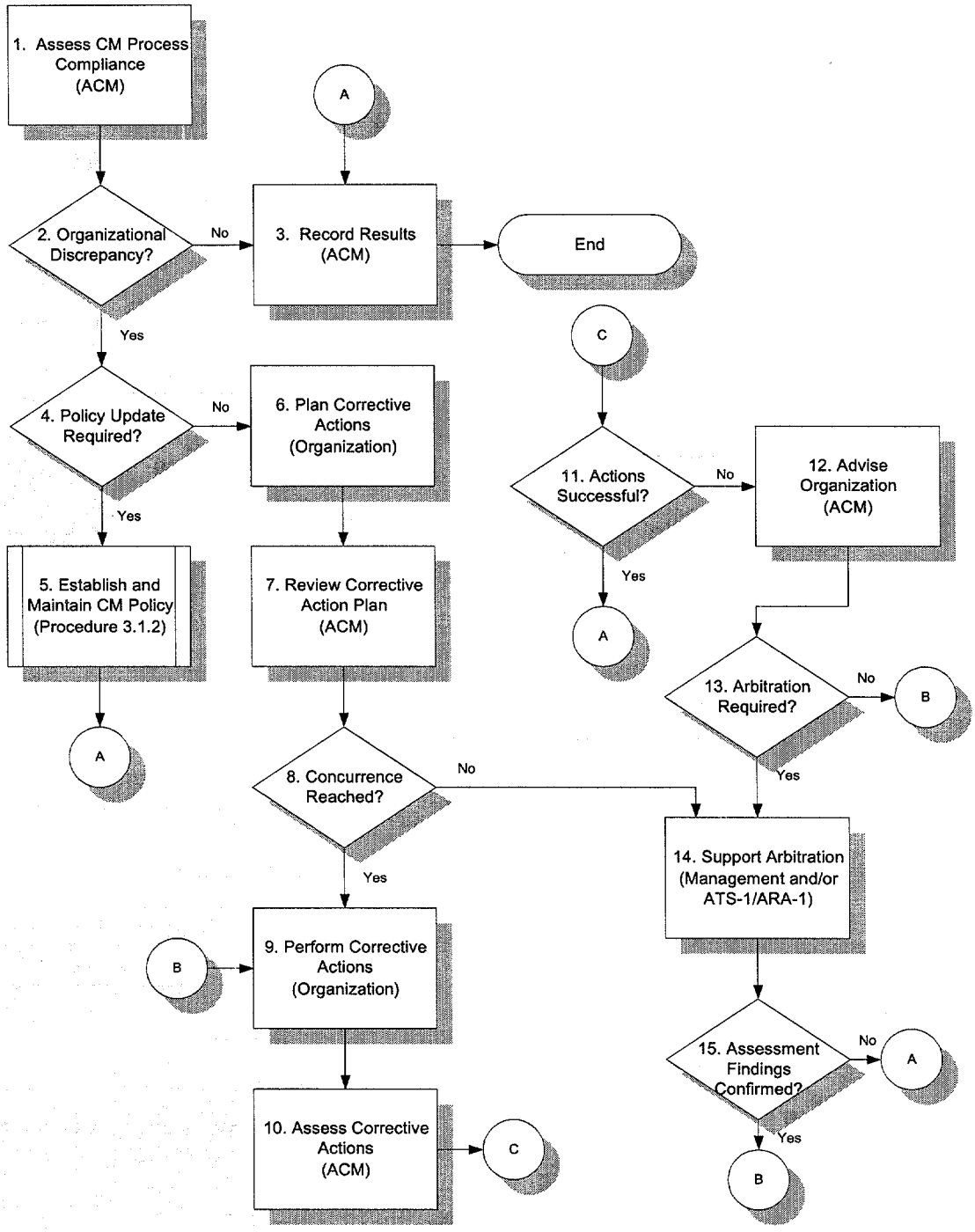

Figure 3.1.3.5.1-1. Monitoring, Oversight, and Evaluation

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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.3, I-5 and I-6

Reference	Reference Paragraph/Activity Number
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• 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	

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 <u>CCB Charter Approval</u>

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	• 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	• 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?	• 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	• 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	• 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
	• The IPT, region or other solution provider shall attend the scheduled NAS CCB in support of the charter's approval.
6. CCB Charter Approved?	• 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	• ACM shall distribute the approved charter (or revision) to the appropriate Agency organizations.

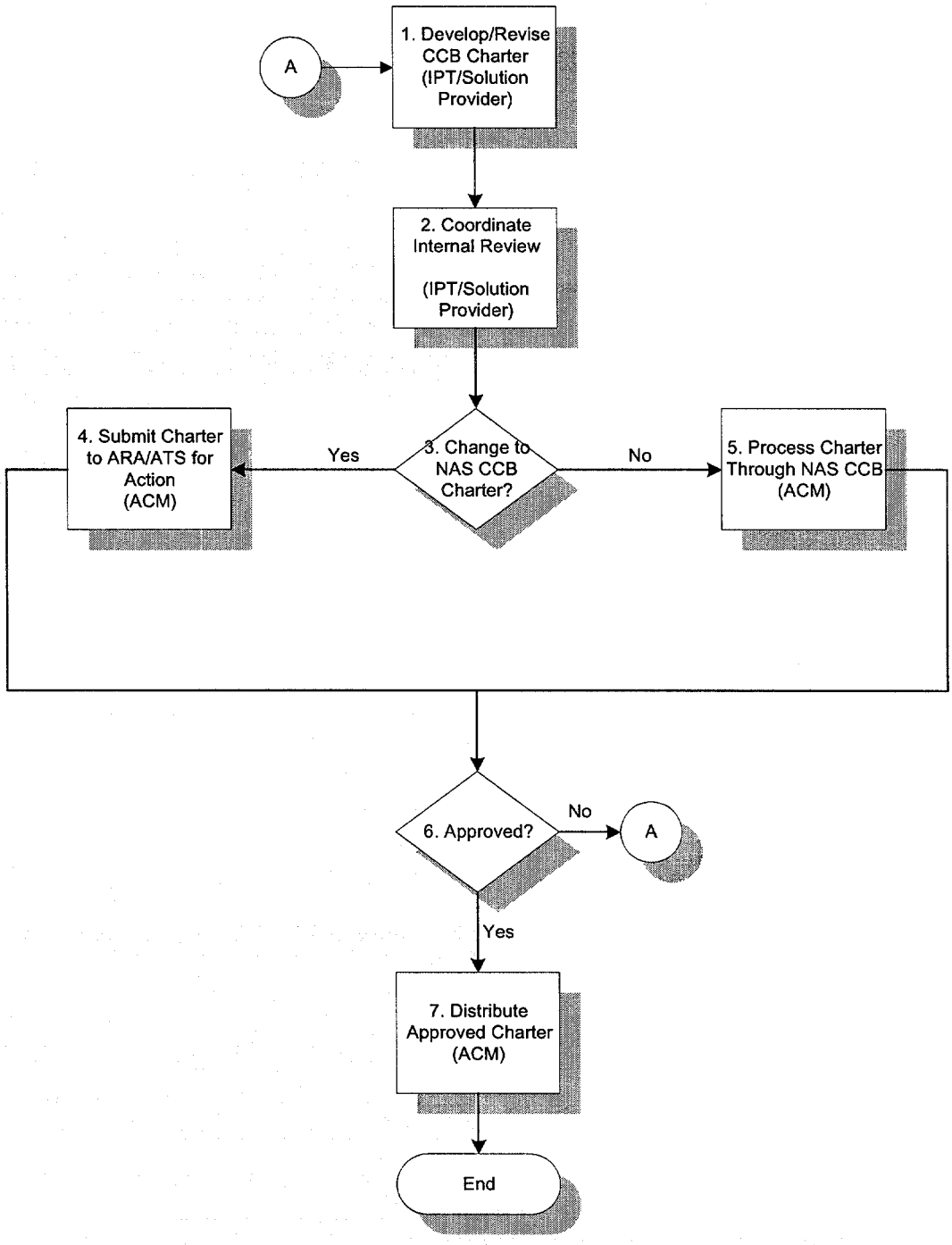

Figure 3.2.1.5.1-1 CCB Charter Approval

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	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. Responsibilities of the various CCB members, which are summarized below, are included in this section. 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.) 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. 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. 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.

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	• 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	• 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?	• 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)	• 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	• 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. • The IPT, region, other solution provider or NAS CCB shall meet to approve the new (or revised) operating procedures.
6. Operating Procedures Approved?	• 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	• The CCB shall distribute the approved operating procedures to the appropriate organizations, including the CCB members and, for subordinate CCBs, ACM.

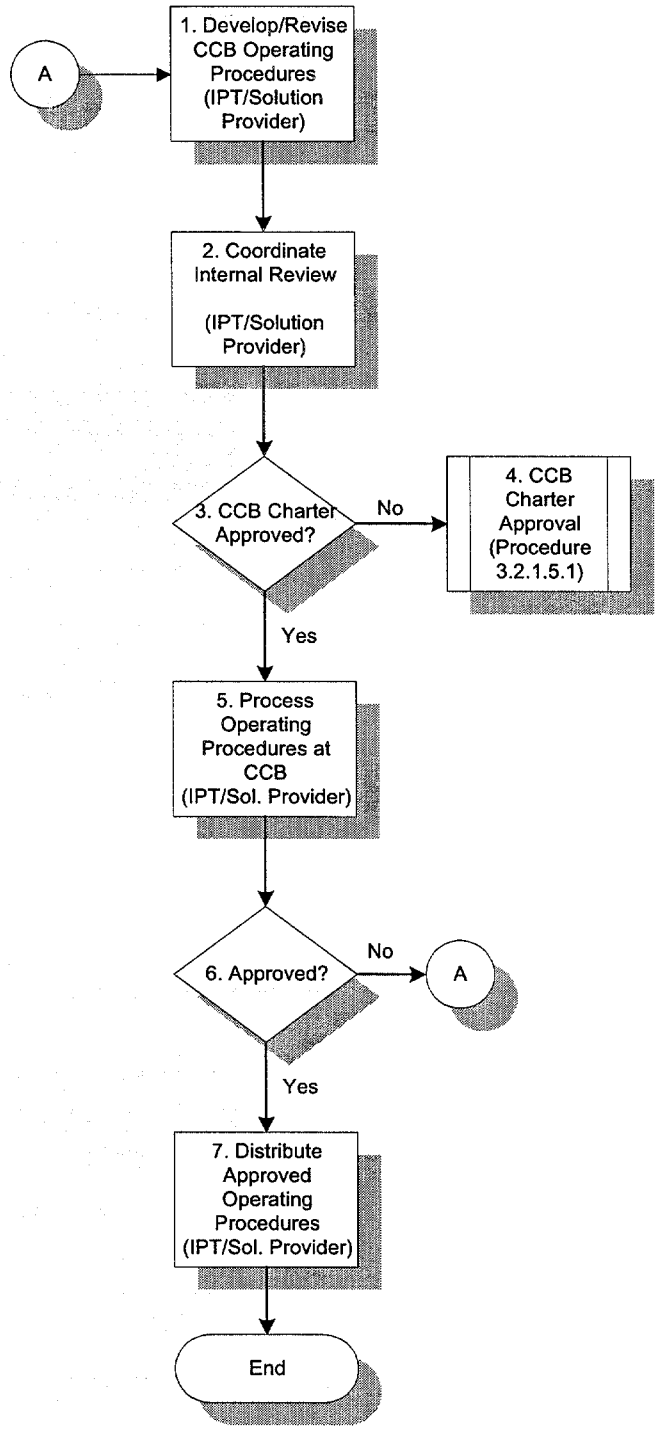

Figure 3.2.1.5.2-1 CCB Operating Procedures Approval

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.1 and III-1
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• 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)	• The IPT/solution provider shall designate an author or a group of authors to write the planning documents.
3. Develop Documentation	• 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	• 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?	• 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	• The author(s) shall revise the CM plan and other documents in accordance with the review comments.
7. Review Required?	• 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	• The organizational CCB shall review the CM documentation.
9. Documentation Approved?	• If the organizational CCB approves the CM plan and additional documents, continue with Step 10. Otherwise proceed to Step 12.
10. Disseminate CM Documentation	• The IPT/solution provider shall disseminate the CM documents to IPT team members and ACM.
11. Allocate Resources	• 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	• 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	• 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
14. Approve Product Team CM Planning Documentation	• The PT CM planning documentation shall be reviewed and approved in accordance with the IPT's CM process and procedures.

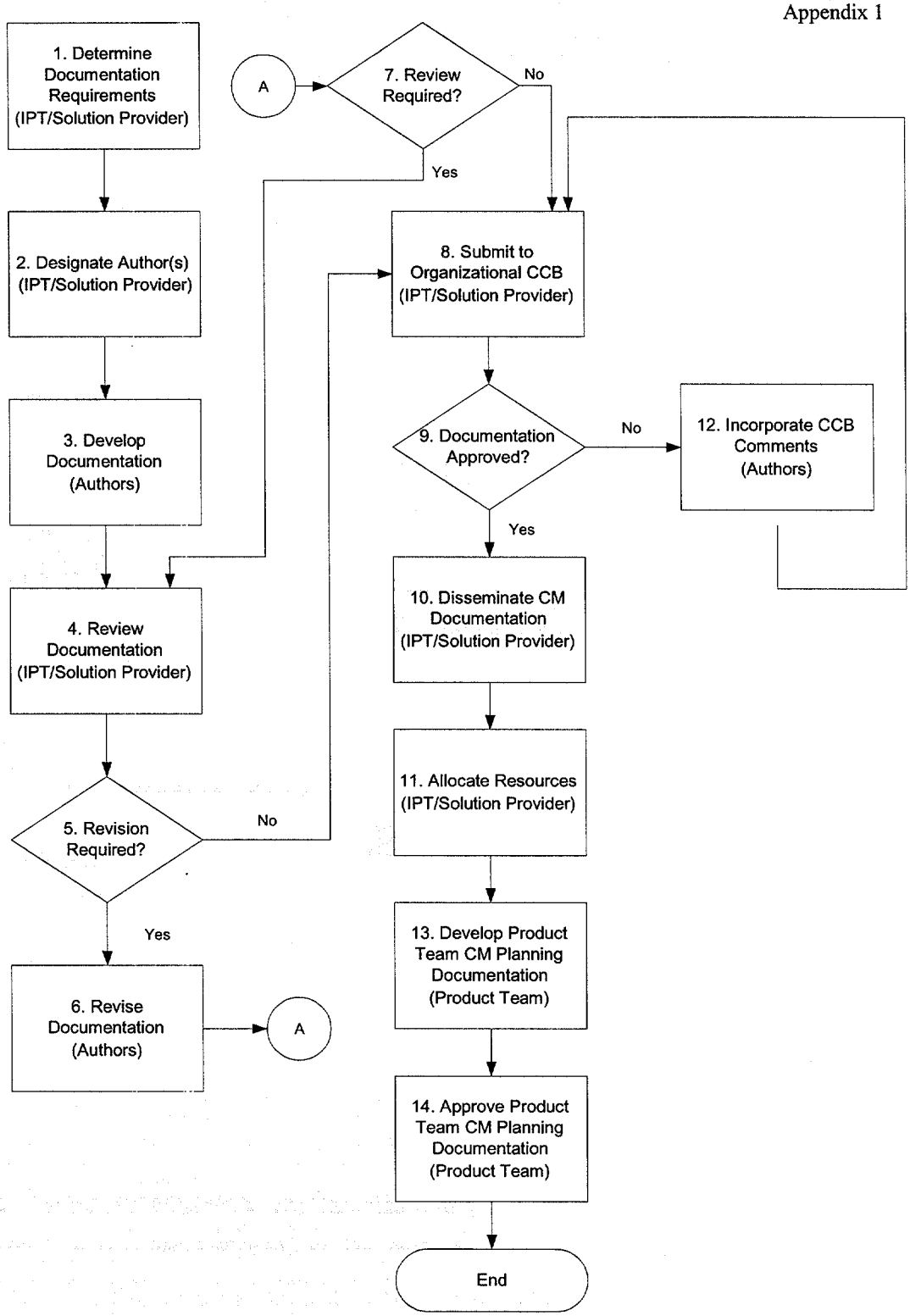

Figure 3.2.2.1.5-1. CM Plans and Processes

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: • 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: • 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: • 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: • Data identification • Data version control • Digital data transmittal • Data access control
h. Section 6 – Configuration Identification	Describes the following: • 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: • 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: • 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.1 and III-1

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, 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
• FAA Order FAA-G-2100, *Electronic Equipment General Requirements*	

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	• 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)	• 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	• 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	• 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)	• 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	• The IPT/solution provider shall develop input for the SOW consistent with the product CM plan.
7. Develop CM CDRL and DID Input	• The IPT/solution provider shall develop CM CDRLs and applicable DIDs that are needed to fulfill the identified requirements.
8. Respond to Proposal	• The offerors provide their proposal response as specified in the RFO.
9. Review Proposal Responses	• The IPT/solution provider shall evaluate offeror proposals to determine which offeror best meets the identified requirements (including CM requirements).
10. Select Contractor	• 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	• Based on the SSO's decision, ASU will draw up the contract and issue it to the winning contractor.
12. Conduct Post-Award Conference	• 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?	• 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	• The IPT/solution provider shall develop any action plans required to resolve issues that arise from the Post-Award conference.

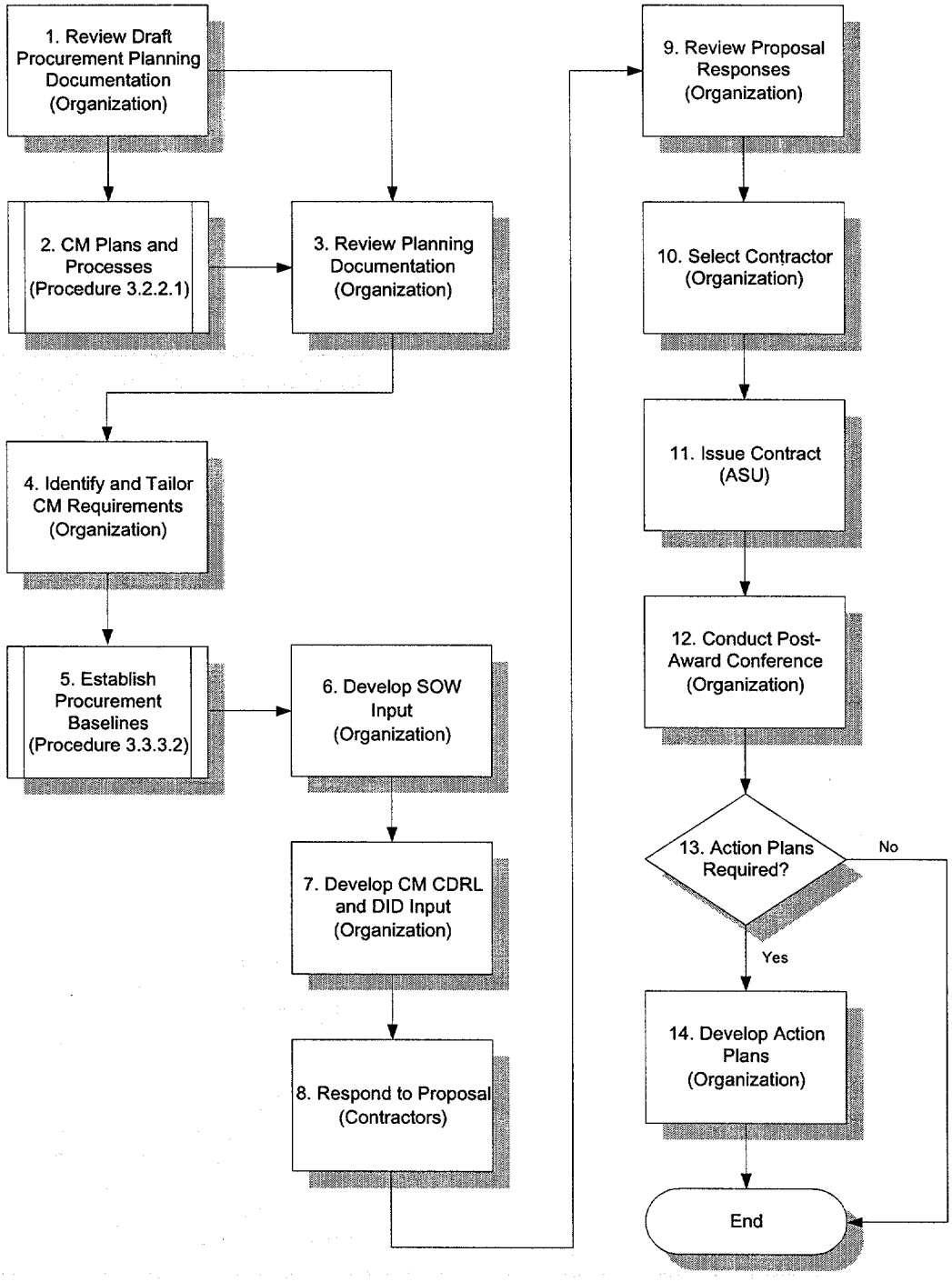

Figure 3.2.2.2.5-1. Procurement Requirements for CM

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.1 and IV-3
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
1. Determine Documentation Requirements	• 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.
2. Designate Author(s)	• 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
3. Develop Documentation	• 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.
4. Review Documentation	• 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?	• 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	• The author(s) shall revise the CM Plan and other documents in accordance with the review comments.
7. Review Required?	• 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	• The regional CCB (RCCB) shall review the CM documentation.
9. Documentation Approved?	• If the RCCB approves the CM Plan and additional documents, proceed to Step 10. Otherwise continue with Step 12.
10. Disseminate CM Documentation	• The region shall disseminate the CM documents to the appropriate personnel and to the CM authority.
11. Allocate Resources	• The region shall provide resources, including training, specified by the CM plan and other documentation for the CM process.
12. Incorporate RCCB Comments	• The designated author(s) shall incorporate comments from the RCCB review into the CM Plan and additional documentation. Continue with Step 8.

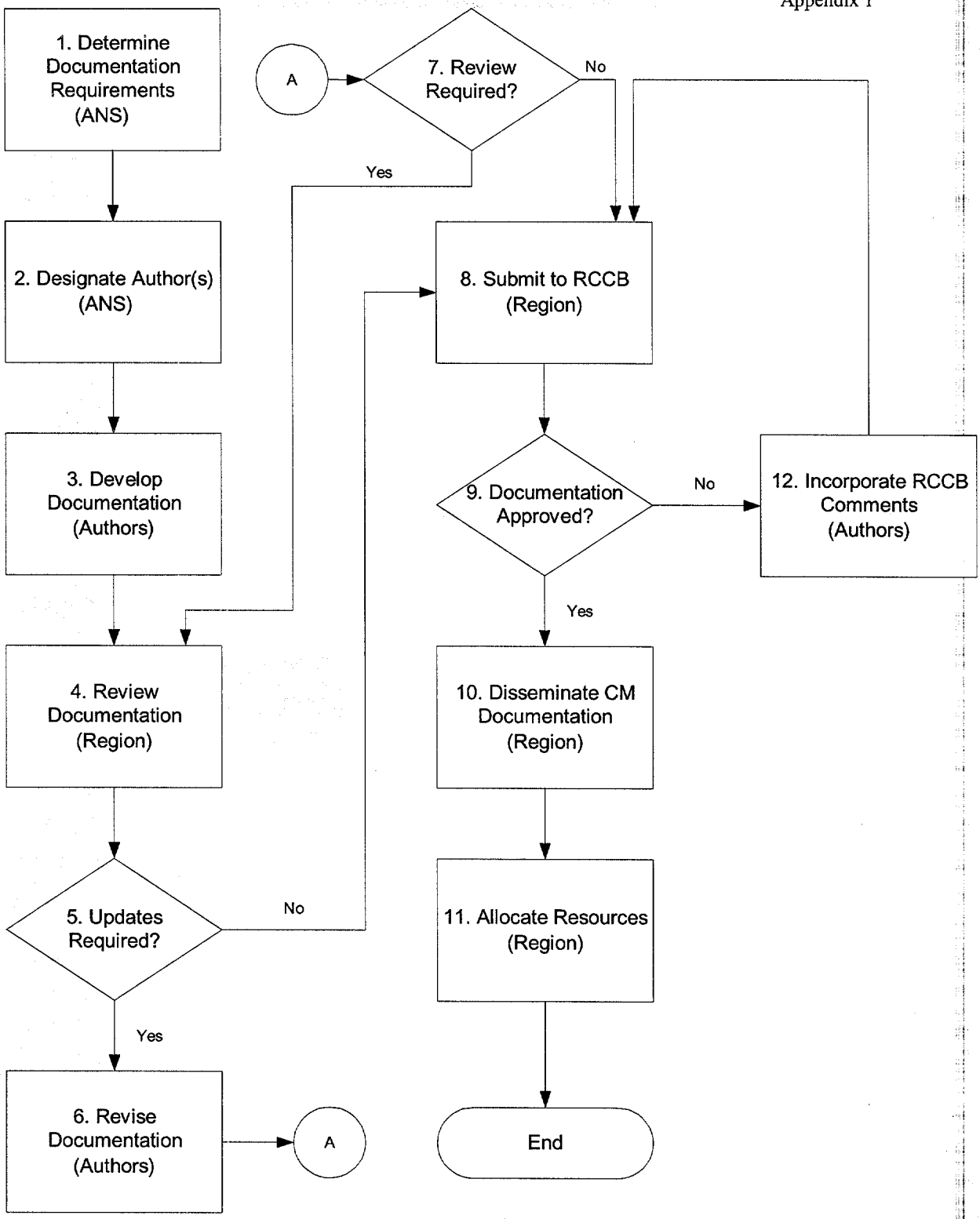

Figure 3.2.3.1.5-1. Regional CM Plans and Processes

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: • 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: • 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: • 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: • Data identification • Data version control • Digital data transmittal • Data access control
h. Section 6 – Configuration Identification	Describes the following: • 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: • 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: • 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

l. 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-3, I-8, III-5,
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• 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)	• 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)	• 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?	• 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)	• 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)	• ACM shall enter configuration item(s) associated with the NAS approved solution into the MCI.

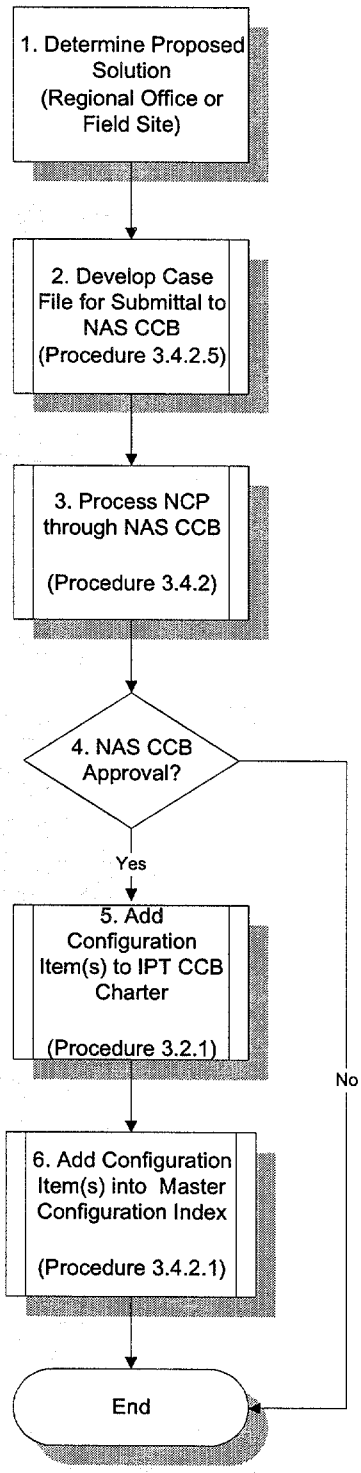

Figure 3.2.3.2.5-1. Regional Commercial-Off-The-Shelf Procurements

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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements II-2 and II-5
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 1.4 Establish and Maintain NAS Infrastructure • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 108 Perform Modification Tracking
• NAS-MD-001, *National Airspace System Master Configuration Index Subsystem Baseline Configuration and Documentation Listing*	
• ATC-88-1092, *DOCCON General User's Reference Guide*	

(217)

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
1. Process NAS Change Proposal (NCP)/Configuration Control Decision (CCD) (Procedure 3.4.2)	• 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.
1. Update and Maintain MCI	• 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
	• 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	• 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?	• If reports or queries based on MCI data are required, proceed to Step 4. Otherwise, proceed to Step 5.
4. Query/Report from DOCCON	• 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?	• 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	• 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).

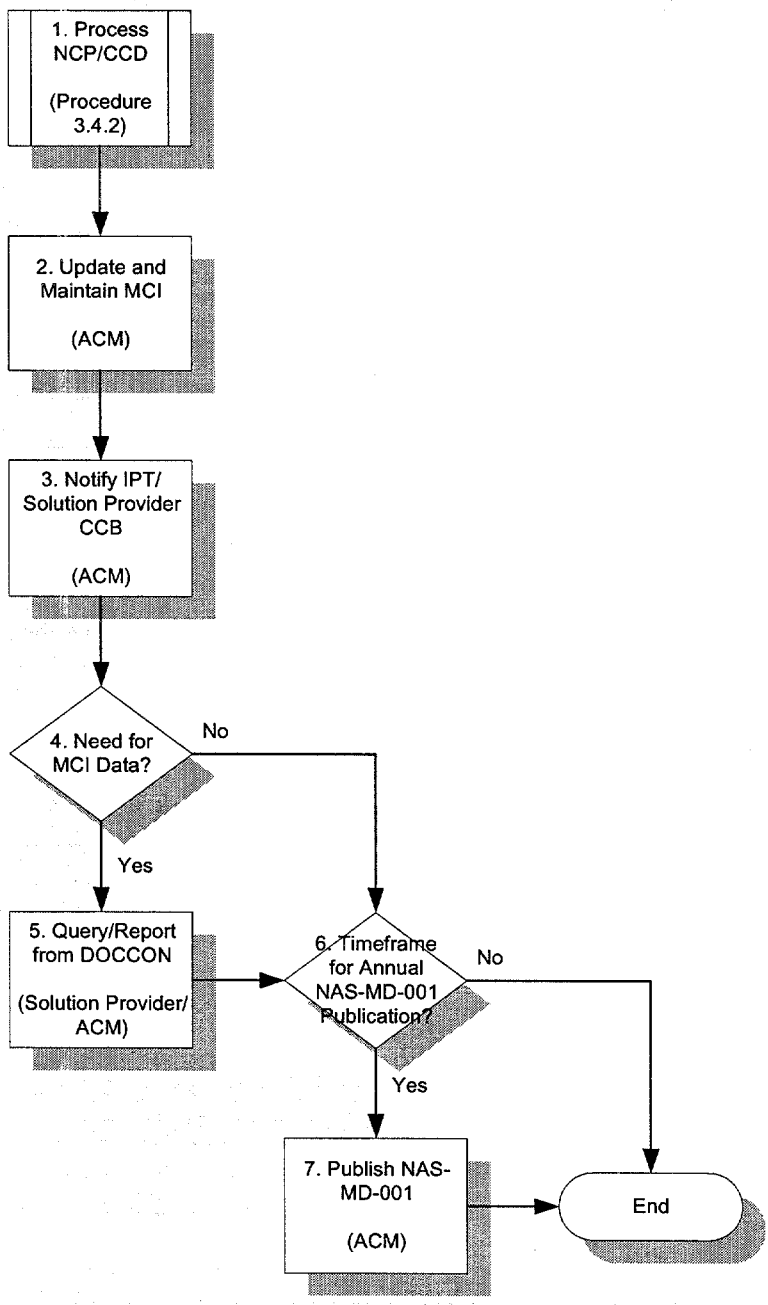

Figure 3.3.1.5-1 Maintaining the MCI and Publishing NAS-MD-001

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.2 and II-5

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
1. Establish Program and Program Identification(s)	• 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.
2. Plan Acquisition Strategy (Procedure 3.2.2.1)	• 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	• 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)	• 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.

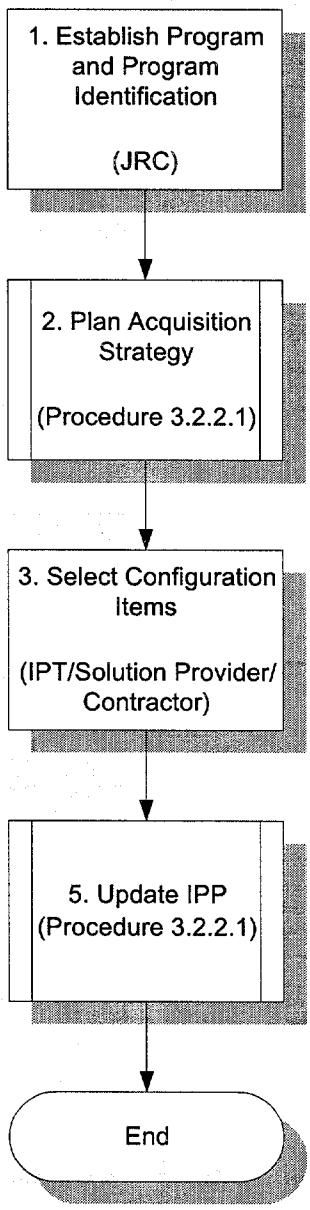

Figure 3.3.2.1.5-1. Selecting Configuration Items

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.2, III-5, V-4
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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)	• An IPT/solution provider shall select configuration items in accordance with procedure 3.3.2.1.
2. Develop Baseline Documentation	• 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)	• 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)	• 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)	• 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. • Refer to procedure 3.3.1, Maintaining the MCI and Publishing NAS-MD-001.
6. Catalog/Store Documentation (Procedure 3.5.2)	• 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)	• 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.

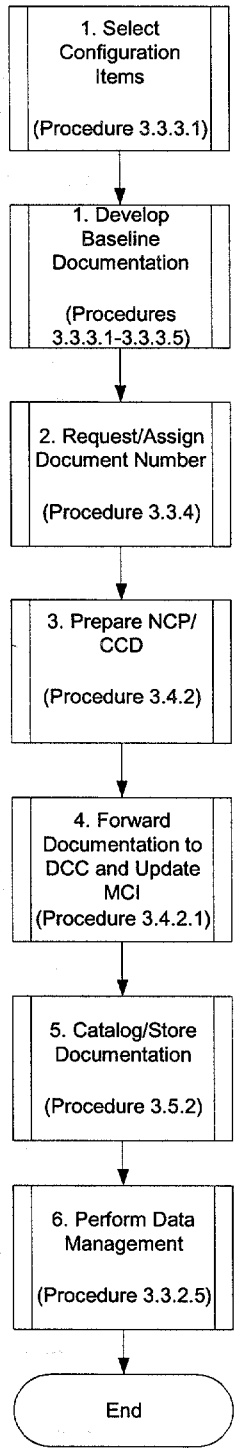

Figure 3.3.2.2.5-1. Developing Configuration Documentation

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.2
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 1.4 Establish and Maintain NAS Infrastructure

Reference	Reference Para./Activity #:
• FAA-G-2100, *Electronic Equipment, General Requirements*	

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
1. Establish Program	• 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.
2. Add Program to NAS Structure in MCI (Procedure 3.4.2.1)	• 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)	• 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	• The IPT/solution provider shall generate the work breakdown structure for the contract based on the top-tieir configuration items identified in the previous step.
5. Itemize Lower-Level Configuration Items	• 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	• 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)	• 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.

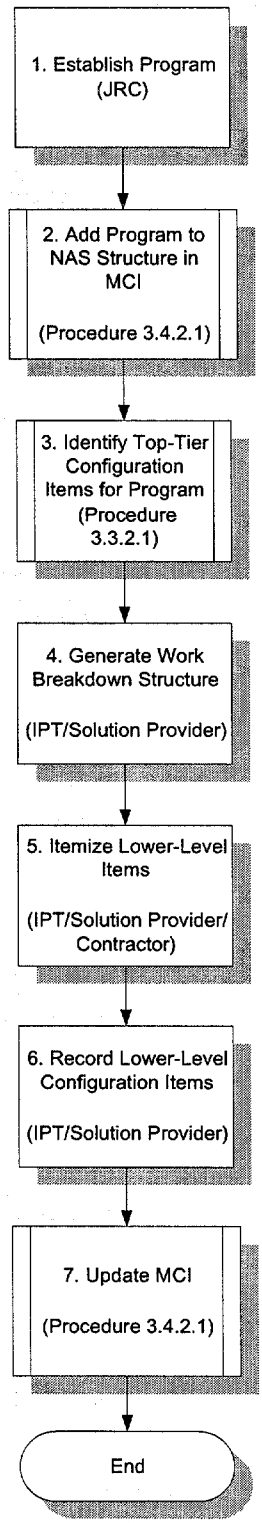

Figure 3.3.2.3.5-1. Developing Product Top-Down Structure

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.2 • Statement V-4
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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 • 18 Establish/Update Facility Baseline • 19 Establish Allocated Baseline • 24 Establish System Product Baseline
• 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 aregenerated 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.2
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-2, II-1, II-2

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• 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	

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	• JRC1 • Congressional Mandates • New/Additional/ Deletion of Need(s)
FRD	ARS	ATS	NAS CCB	ATS	• 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
1. Capture NAS Functional Baseline	• 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.
2. Assess JRC Decisions, User Desires, CONOPS	• 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.

	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.
3. Update the NAS Functional Baseline	• 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. • The FRD and NAS-Level Requirements shall be configuration controlled by NAS Configuration Management and Evaluation Staff (ACM).
4. Update and Distribute NAS Functional Baseline Products	• 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.

	• If requirements are not impacted, assess for other impacts.
8. Initiate Case File	• 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.
12. Comments Against the NCP?	• 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.
13. Conduct Comment Resolution	• ARS, supported by appropriate subject matter experts (SME), shall resolve comments and coordinate

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.

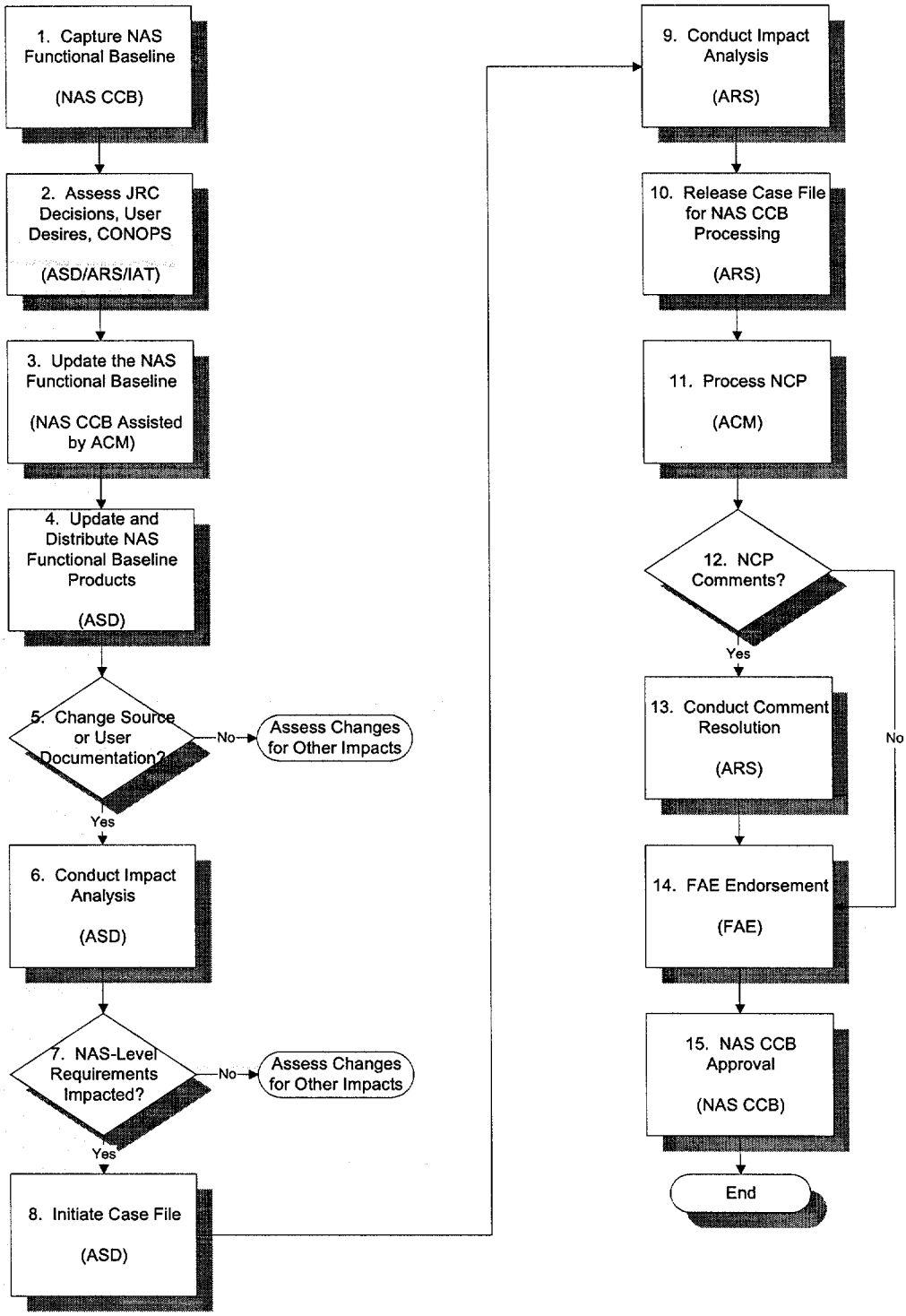

Figure 3.3.3.1.5-1 NAS Functional Baseline

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.2, III-5
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.2, III-5
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• 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	• 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)	• 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)	• 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)	• 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)	• 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.

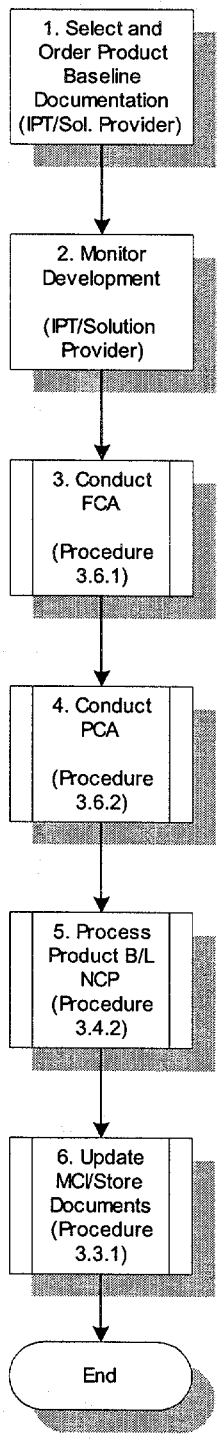

Figure 3.3.3.3.5-1. Product Baselines

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.5, V-4
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
1. Maintain All Baseline Documents	• 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.
2. Create New FAA CM Documents	• 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.
3. Create/Maintain Site CM Tools	• 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)	• 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	• 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	• 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.

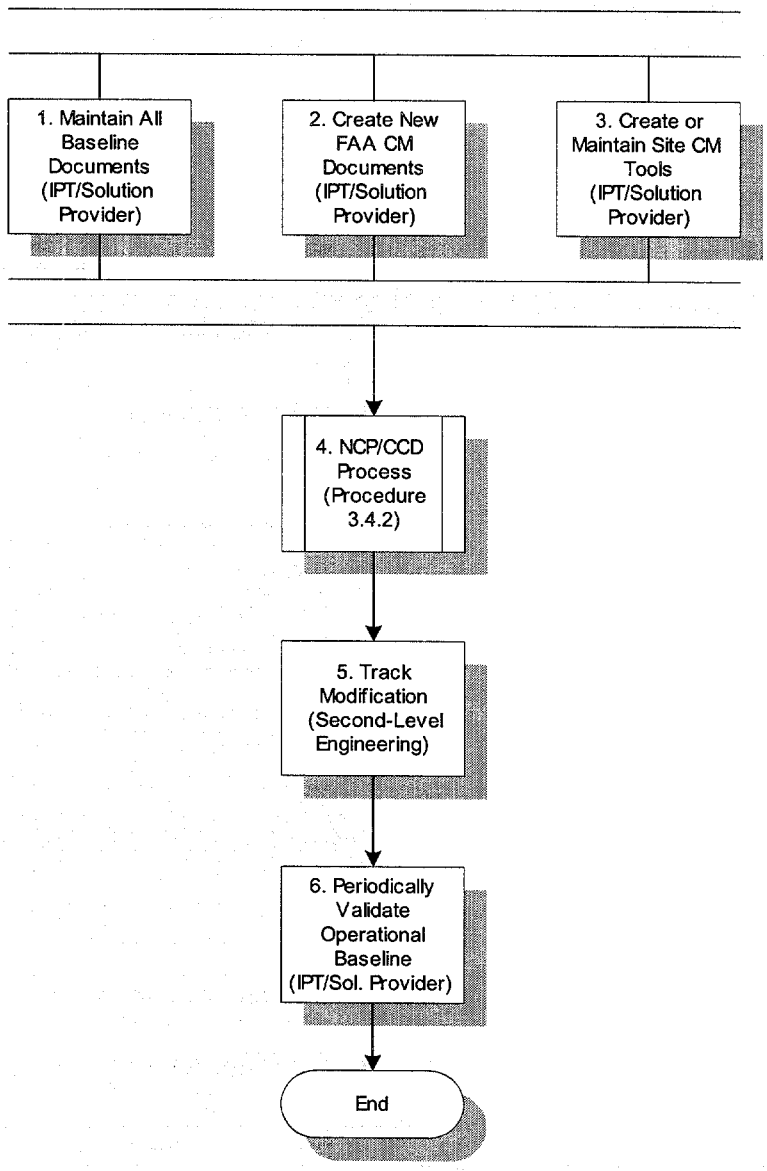

Figure 3.3.3.4.5-1. Operational Baselines

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.2, IV-2

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 17 Conduct Facility Documentation Review • 18 Establish/Update Facility Baseline • 101 Perform Configuration Status Accounting
• *National Configuration Management Standard Procedure Document for Conducting Formal Configuration Audits of Operational Facilities*	
• *National Configuration Management Standard Procedure Document for Facility Baselining*	

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 Baselining* .

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	• 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?	• 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)	• 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?	• 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)	• 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)	• 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	• The regional CM authority shall capture the baseline documentation by entering it into the regional configuration status accounting system.
8. Action Items Specified?	• If the verification of the Facility Baseline has specified action items for site personnel and contractors, continue with Step 9.
9. Resolve Action Items	• 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	• 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.

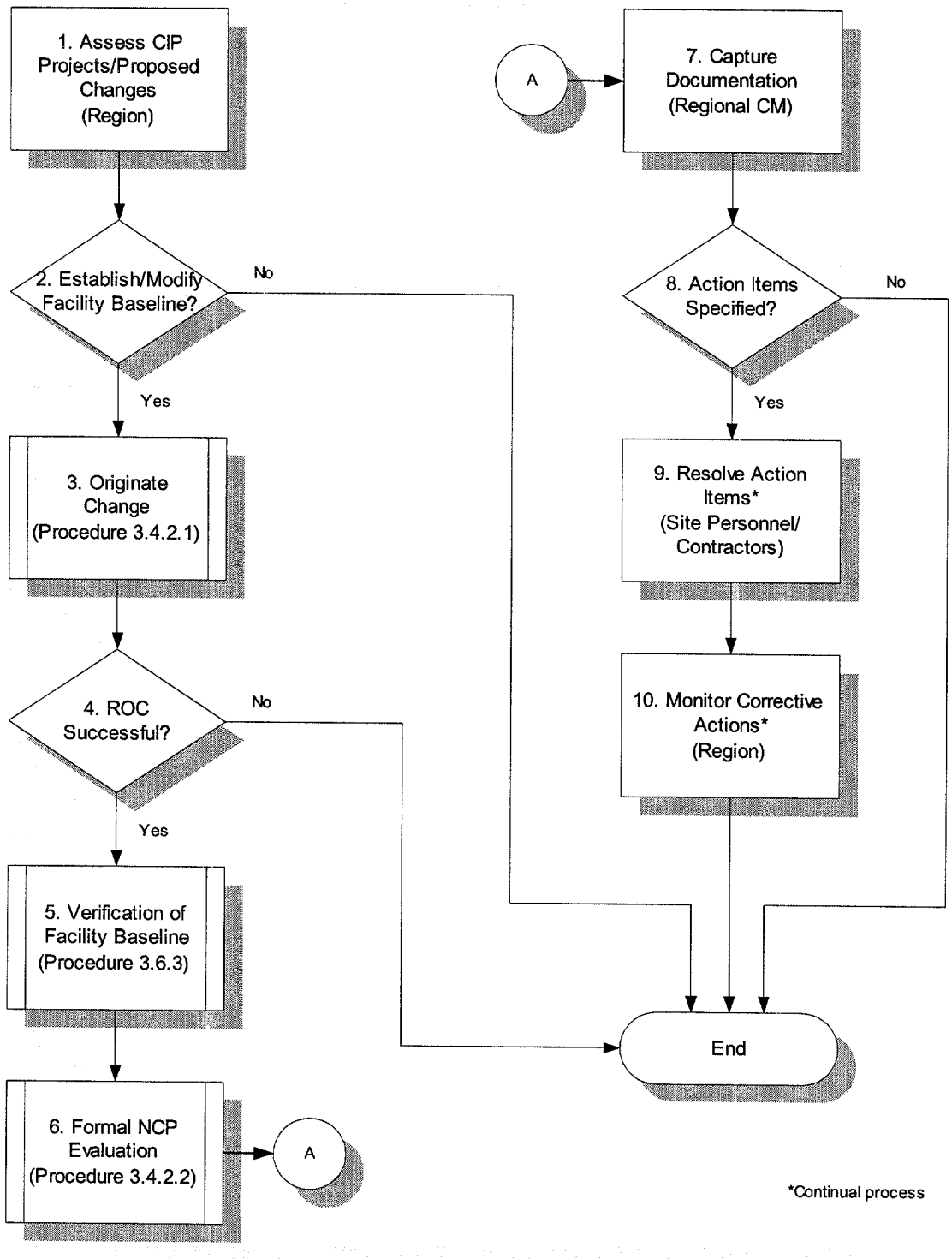

Figure 3.3.3.5.5-1. Facility Baselines

Reference	Reference Paragraph/Activity Number
• FAA-STD-025d, *Preparation of Interface Documentation*	

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	• 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	• 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	• 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	• ACM shall assign a specification, IRD or ICD number through its internal tracking system as appropriate and notify the requestor.

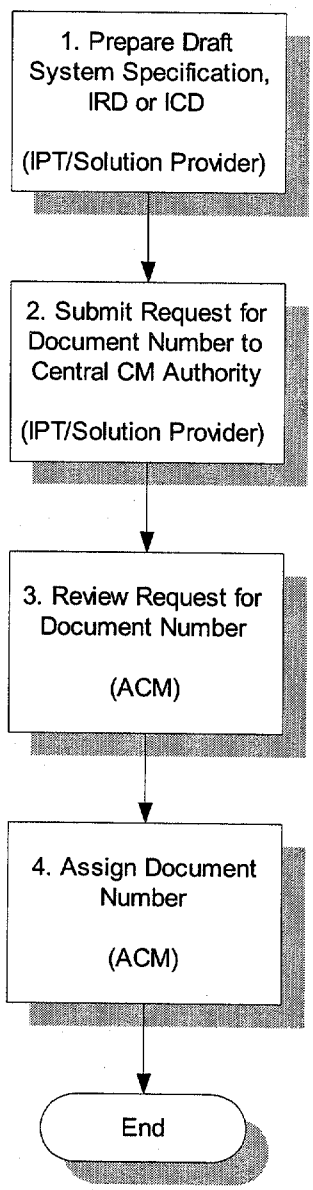

Figure 3.3.4.1.5-1. Assignment of System-Level Specification, IRD and ICD Numbers

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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement II-4
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management	• 1.4 Establish and Maintain NAS Infrastructure • 16 Monitor CM Activities • 13 Development of the Program SOW
• FAA-G-2100F, Electronic Equipment, General Requirements	• Section 3.3.3, Nameplates and Marking
• 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
1. Develop Procurement Requirements for Type Number Assignment (Procedure 3.2.2.2)	• 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).
2. Submit Request for Type Number	• 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
	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.
3. Review Request and Assign FAA Type Number	• 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.)

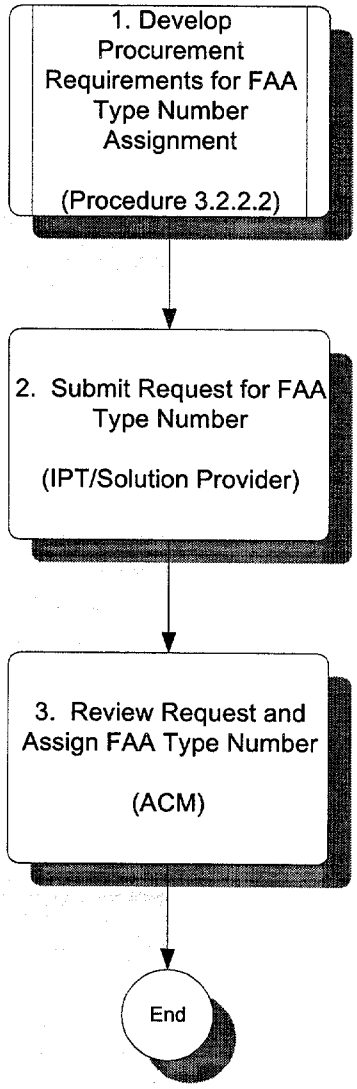

Figure 3.3.4.2.5-1. Assigning FAA Type Numbers

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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• 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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 1.4 Establish and Maintain NAS Infrastructure • 100 Perform Change Management • 101 Perform Configuration Status Accounting

Reference	Reference Paragraph/Activity Number
• 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	

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.

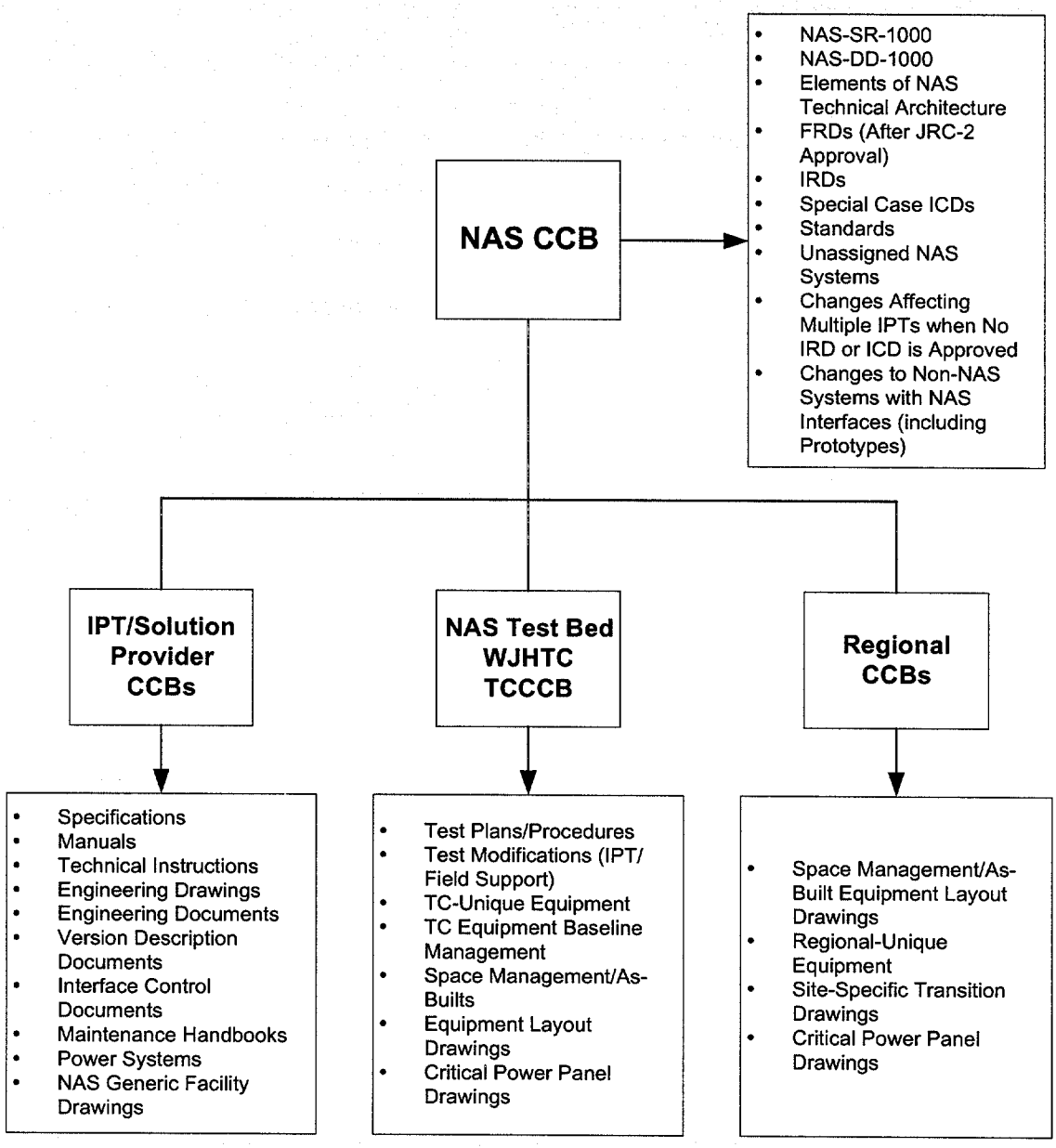

Figure 3.4.1.5-1 NAS CCB Charter Hierarchy

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• NAS-MD-001, Revision 17, *National Airspace System Master Configuration Index: Subsystem Baseline Configuration and Documentation Listing*	• 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	• 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?	• 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	• 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)	• 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?	• If the change is an emergency modification, continue with Step 6. Otherwise proceed to Step 7.
6. Emergency Modifications (Procedure 3.4.2.10)	• 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)	• 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?	• 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?	• 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)	• 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)	• 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)	• 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.

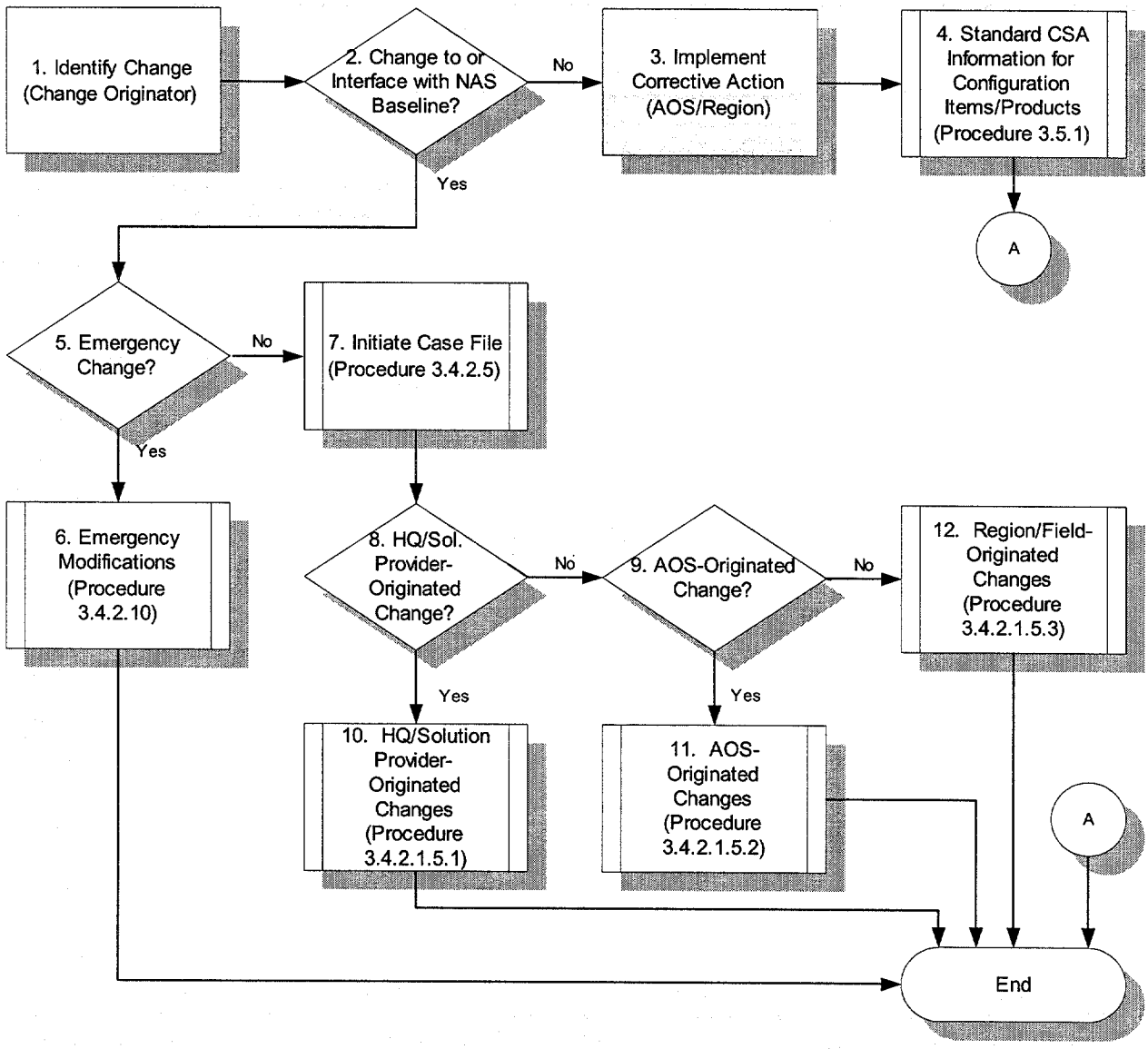

Figure 3.4.2.1.5-1. Originate Change

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)	• The change originator shall follow the steps for case file initiation given in Procedure 3.4.2.1.
2. Supervisor Review	• 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?	• 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	• 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?	• 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?	• 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	• 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	• 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?	• If comments were generated from the prescreening(s), continue with Step 10. Otherwise proceed to Step 12.
10. Resolve Comments	• 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	• 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?	• 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	• 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?	• 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	• 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	• 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)	• The case file shall be submitted for formal evaluation. Continue with the NAS Change Proposal Evaluation procedure (Procedure 3.4.2.2).

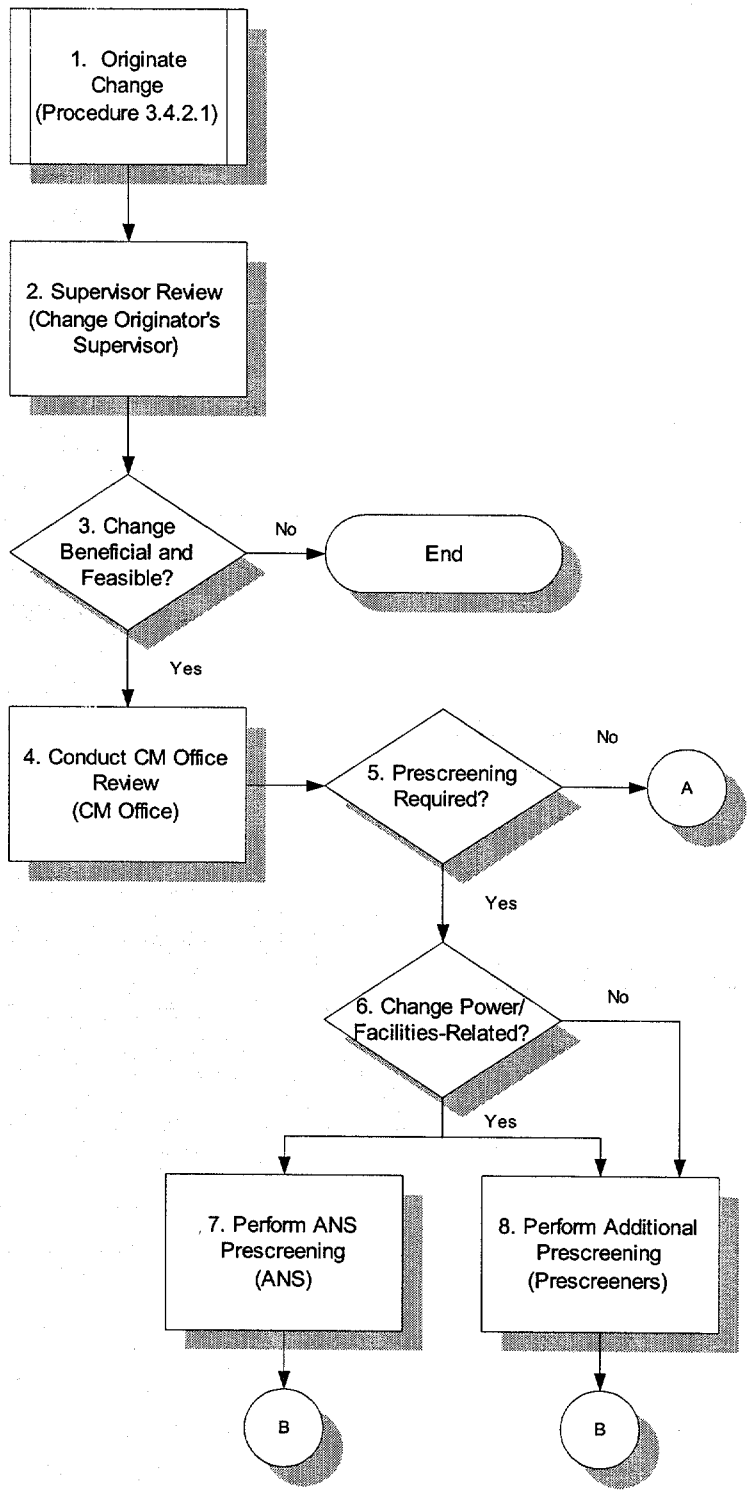

Figure 3.4.2.1.5.1-1 HQ/Solution Provider-Originated Changes (Sheet 1 of 2)

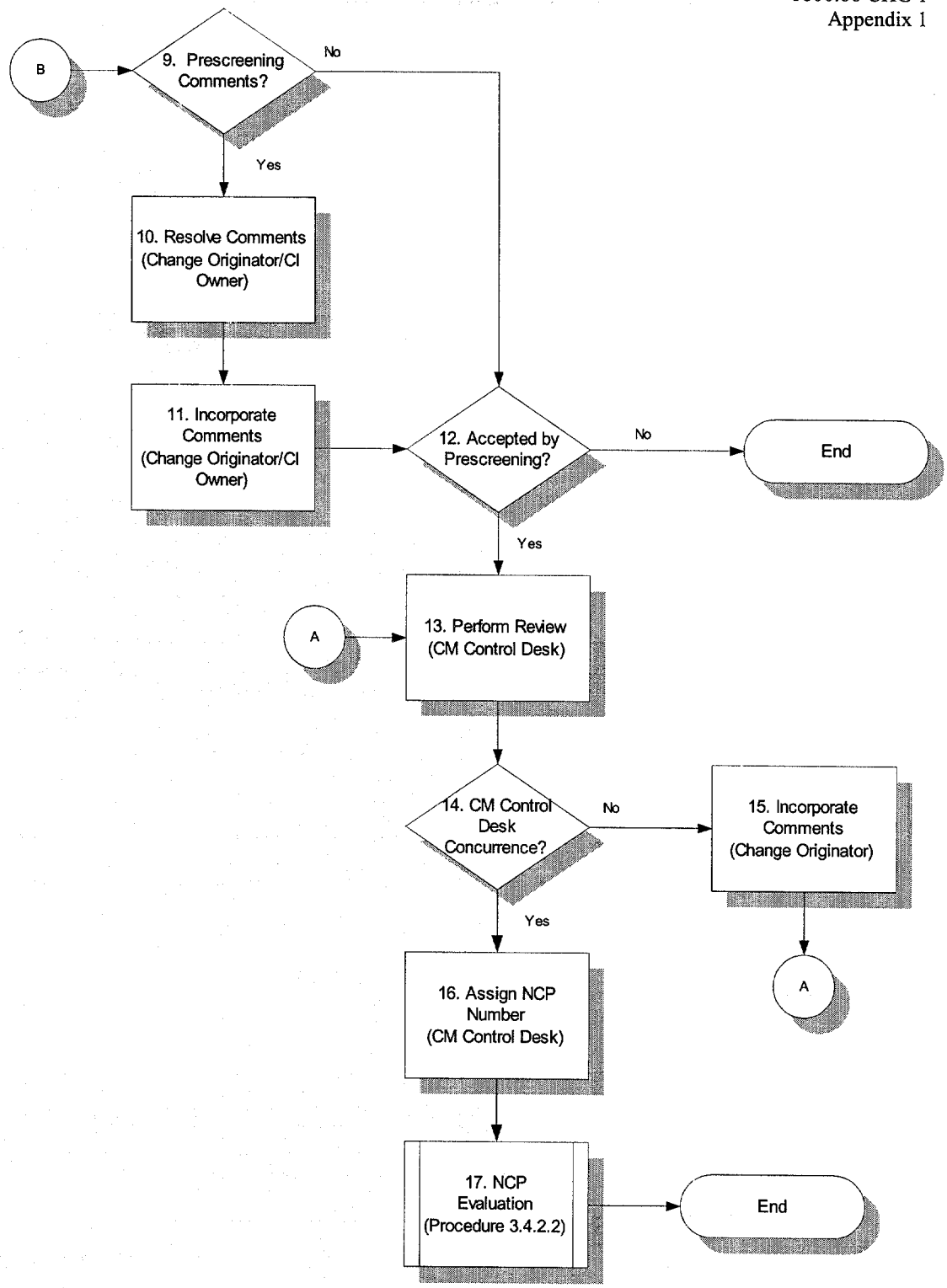

Figure 3.4.2.1.5.1-1 HQ/Solution Provider-Originated Changes (Sheet 2 of 2)

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)	• The change originator shall follow the steps for case file initiation given in Procedure 3.4.2.1.
2. Conduct Peer Review	• 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?	• 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	• 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?	• 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	• The AOS NCP coordinator shall review the case file to ensure that it is complete and includes a worksheet.
7. Coordinator Approval?	• If the coordinator approves the case file, proceed to Step 9. Otherwise continue with Step 8 to obtain additional information.
8. Provide Additional Information	• 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	• 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?	• 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	• 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	• 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)	• The case file shall be submitted for formal evaluation. Continue with the NAS Change Proposal Evaluation procedure (Procedure 3.4.2.2).

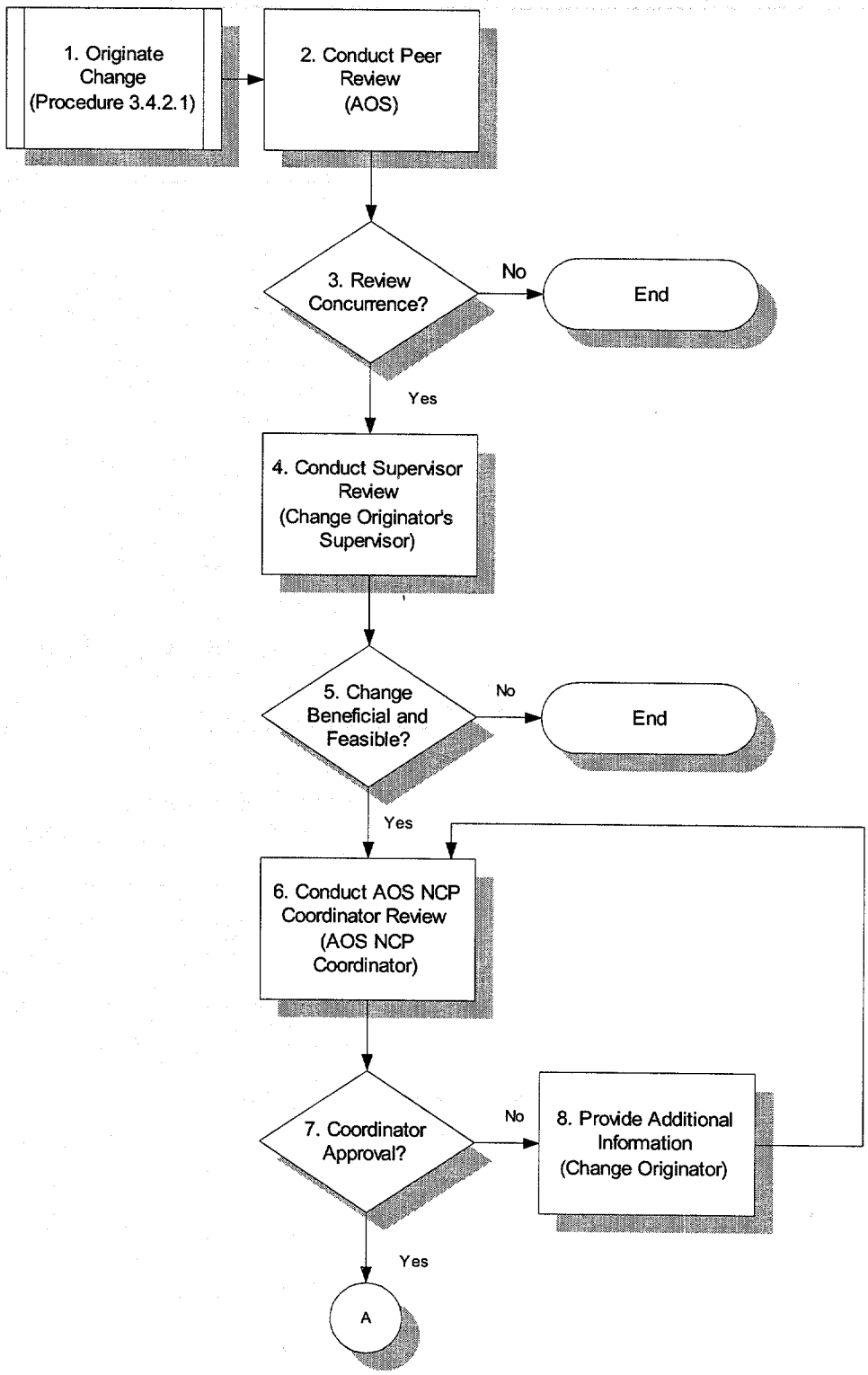

Figure 3.4.2.1.5.2-1 AOS-Originated Changes (Sheet 1 of 2)

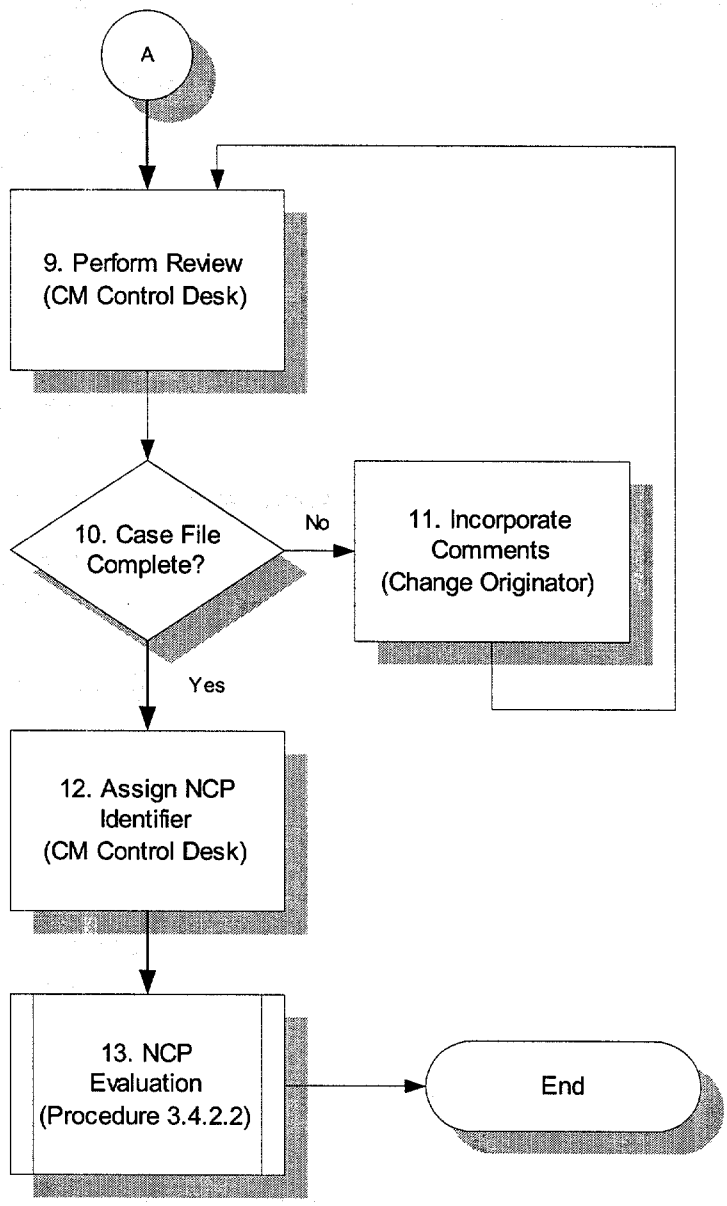

Figure 3.4.2.1.5.2-1 AOS-Originated Changes (Sheet 2 of 2)

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)	• The change originator shall follow the steps for case file initiation given in Procedure 3.4.2.1.
2. Supervisor Review	• 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?	• 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	• The SMO and/or ADO technical staff shall review the case file to verify its benefit and feasibility.
5. Change Beneficial and Feasible?	• 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	• The Regional Coordinator shall review the case file for completeness.
7. Regional Coordinator Validation?	• 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	• 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?	• 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	• 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	• 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?	• 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?	• 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?	• 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	• 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	• 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?	• If *significant* comments were generated from the prescreening(s), continue with Step 18. Otherwise proceed to Step 20.
18. Resolve Comments	• The change originator shall discuss/coordinate prescreening comments with the prescreening evaluator.
19. Incorporate Comments	• 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?	• 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	• 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	• 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?	• 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	• 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	• 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)	• The case file shall be submitted for formal evaluation. Continue with the NAS Change Proposal Evaluation procedure (Procedure 3.4.2.2).

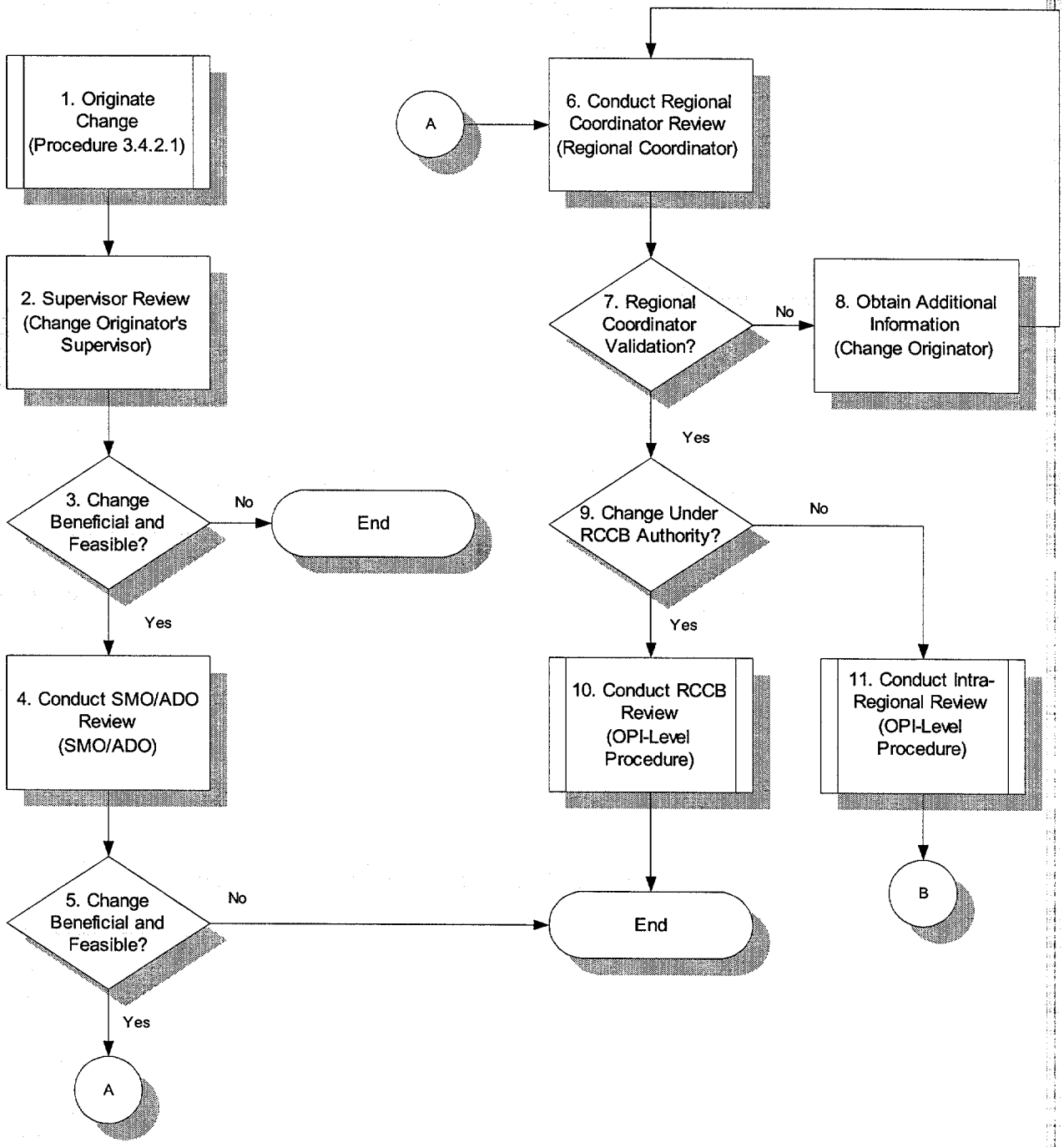

Figure 3.4.2.1.5.3-1 Field/Region-Originated Changes (Sheet 1 of 3)

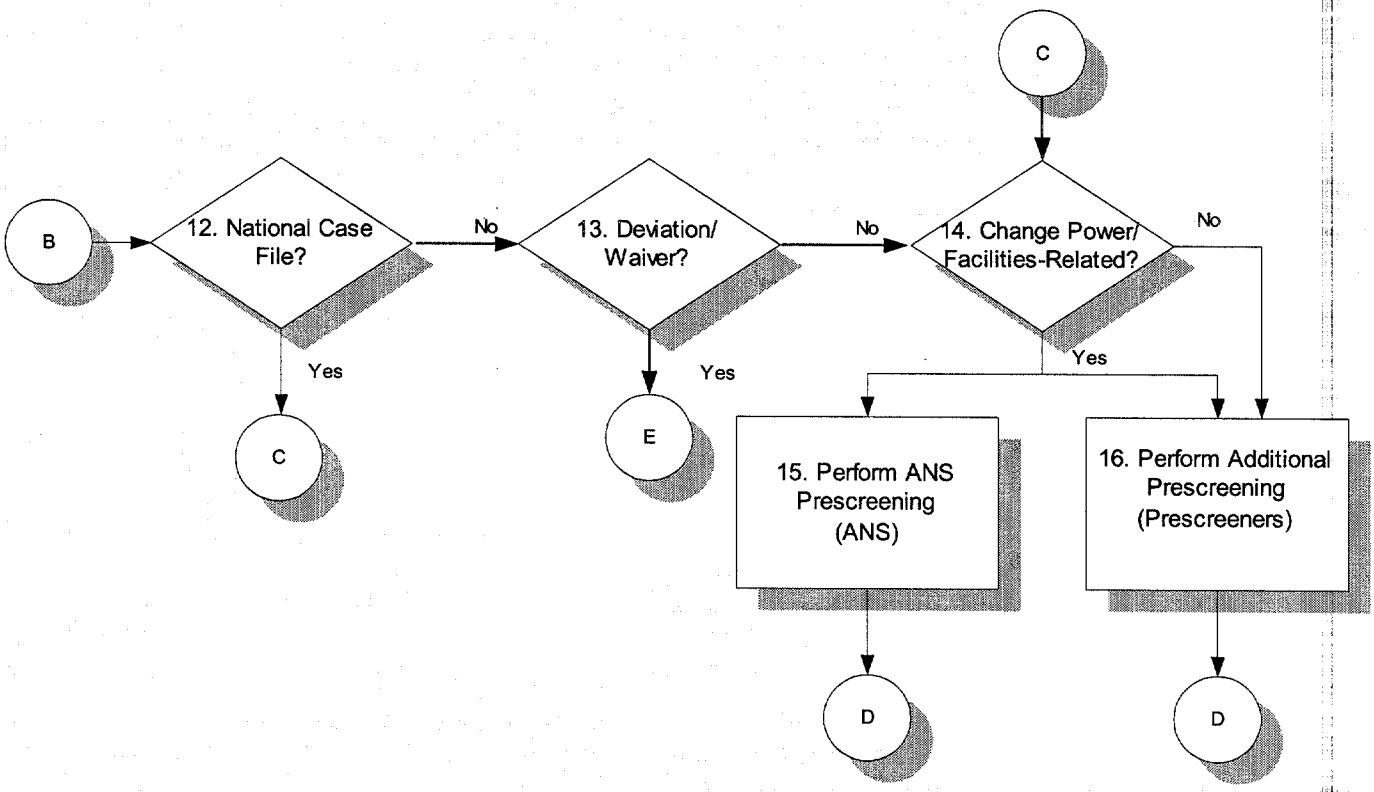

Figure 3.4.2.1.5.3-1 Field/Region-Originated Changes (Sheet 2 of 3)

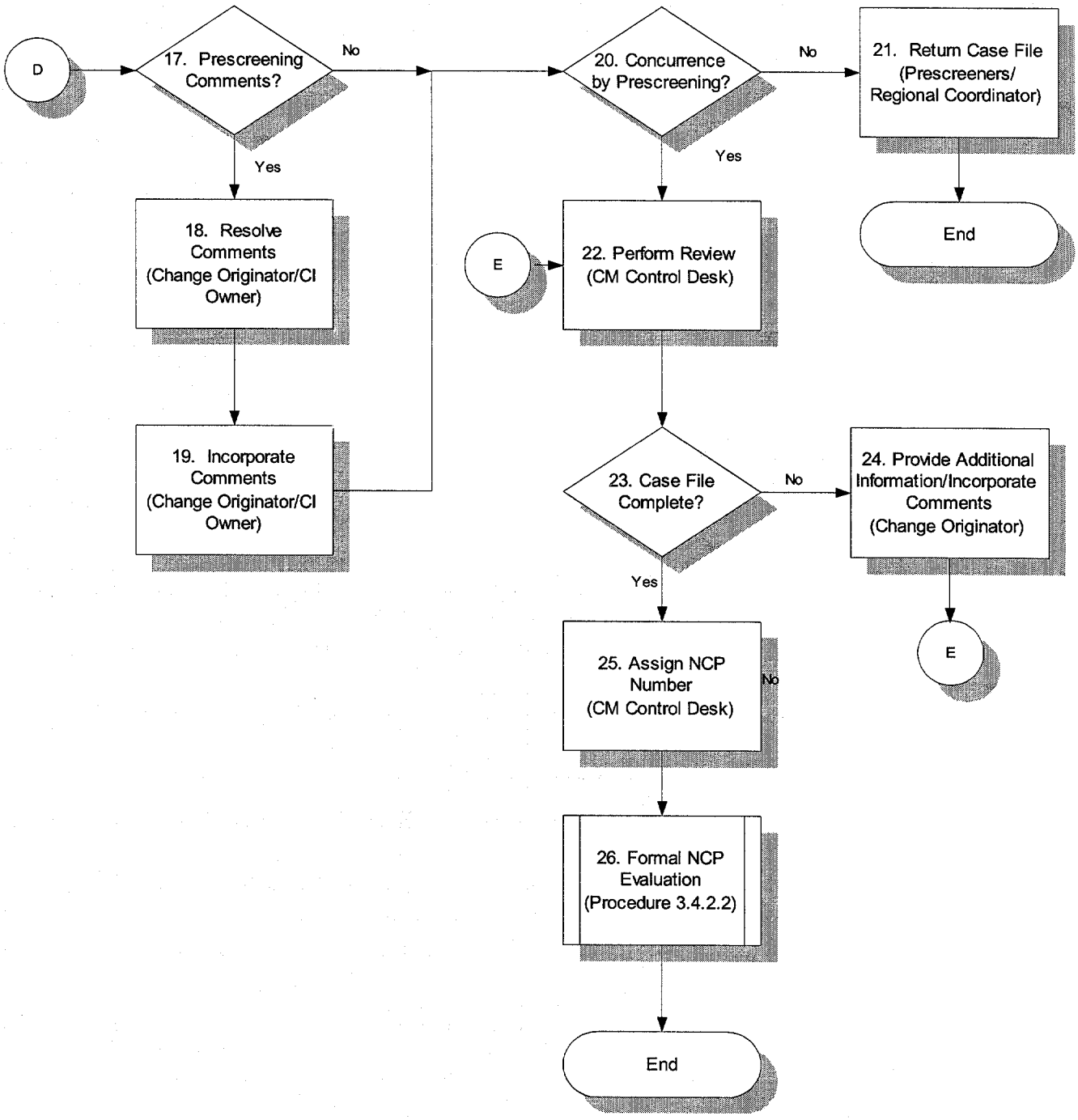

Figure 3.4.2.1.5.3-1 Field/Region-Originated Changes (Sheet 3 of 3)

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**
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.3, I-4.4 and I-8 • Statements III-3 and III-4
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 100 Perform Change Management • 101 Perform Configuration Status Accounting

Reference	Reference Paragraph/Activity Number
• ATC-88-1092, *DOCCON General User's Reference Guide*	

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
1. Originate Change (Procedure 3.4.2.1)	• The CM Control Desk shall assign an NCP number to a case file upon successful completion of mandatory

Procedure Step	Procedure Description
	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.
2. Assign Must Evaluators	• 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: – 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.
3. Schedule Must Evaluation Review	• 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: – Routine priority NCPs – 30 calendar days – Time-Critical priority NCPs – 14 calendar days – Urgent priority NCPs – 10 calendar days

Procedure Step	Procedure Description
	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. • 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.
4. Distribute Must Evaluation Package	• 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: - A copy of the NCP - Must Evaluator memorandum that identifies: – 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.
5. Conduct Must Evaluation Review	• 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
	• 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.
6. Collect Must Evaluation Responses	• 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
	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"). • A copy of the Late Must Evaluation memorandum and other notes shall be included in the case file/NCP documentation.
7. Actionable Comments?	• 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.
8. Issue Resolution of Comments Package	• 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: - 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
	- 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.
9. Resolve Must Evaluation Comments	• 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
	submit it to the CCB CM Office upon completion. Each CCB's operating procedures shall specify any unique requirements for completing the ROC.
10. Resolution Completed?	• 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?	• 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)	• 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	• 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
	discussion of any resolution problems.
14. Schedule NCP for CCB Action	• 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)	• See Procedure 3.4.2.3 for CCB process steps leading to review and disposition of NCPs.

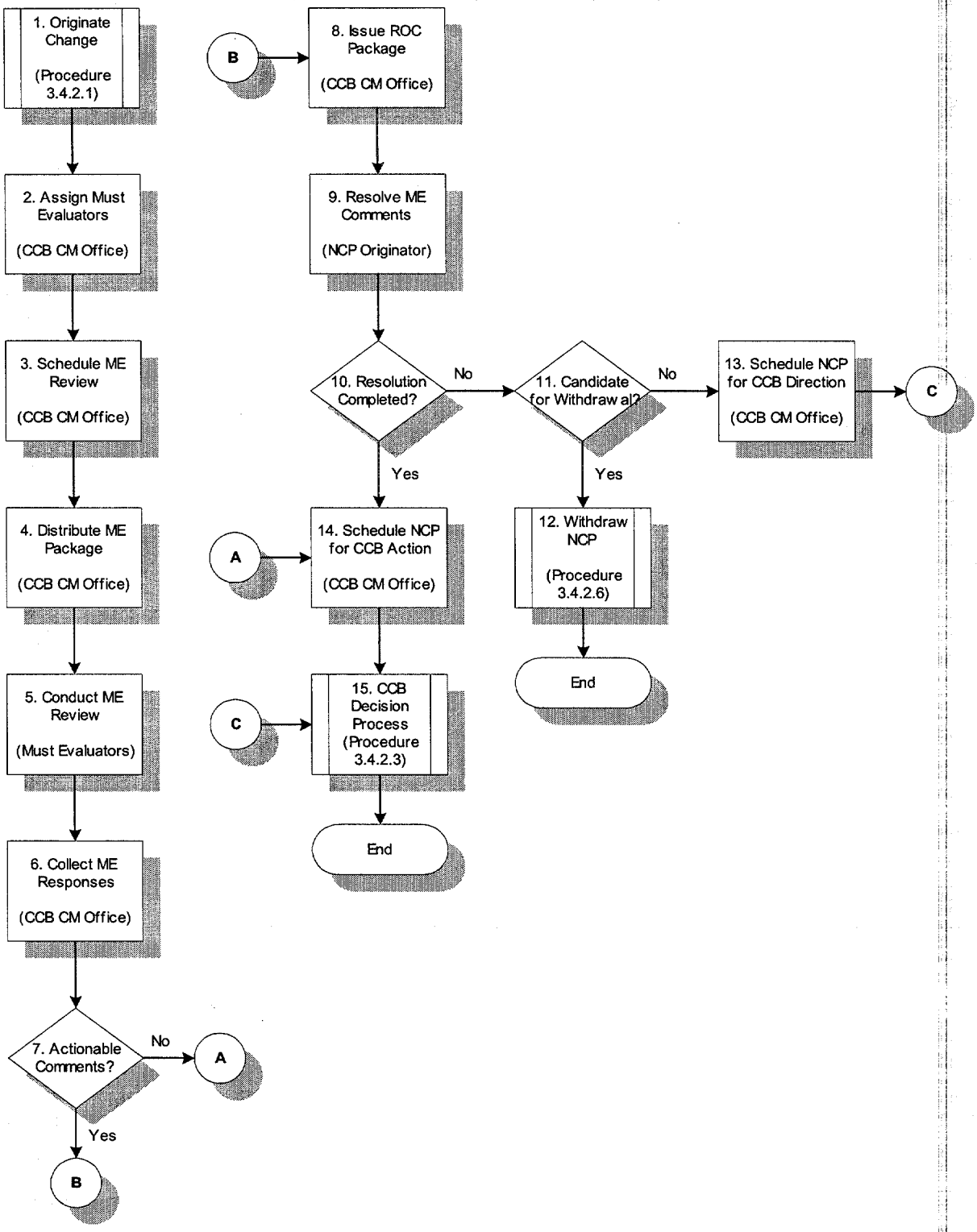

Figure 3.4.2.2.5-1 NCP Evaluation

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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• 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
• FAA Order 1800.66, Appendix 1,	• 100 Perform Change Management

Reference	Reference Paragraph/Activity Number
Configuration Management in the National Airspace System, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 101 Perform Configuration Status Accounting
• ATC-88-1092, *DOCCON General User's Reference Guide*	

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
1. NCP Evaluation (Procedure 3.4.2.2)	• The CCB CM Office shall declare an NCP ready for CCB.
2. Schedule 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.
3. Distribute CCB Agenda Package	• 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
	• 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.
4. Conduct CCB Meeting	• 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
	NCP on the agenda, the CCB chairperson(s) shall make a disposition decision; the CCB chairperson(s) may approve, disapprove or defer an NCP. • 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
	• 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.
5. Issue CCB Minutes	• 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
	normally listed in the meeting minutes of the next regularly scheduled CCB. • 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.
6. NCP Deferred?	• NCPs shall not be deferred indefinitely. Proceed to Step 7 for NCP deferrals and Step 8 for all others.
7. NCP Deferrals (Procedure 3.4.2.3.5.1)	• Deferred NCPs shall be processed in accordance with Procedure 3.4.2.3.5.1.
8. Appeal CCB Decision?	• 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.
9. CCD Appeals (Procedure 3.4.2.3.5.2)	• Appealed NCP/CCDs shall be processed in accordance with Procedure 3.4.2.3.5.2. Proceed to Step 12.
10. NCP Approved?	• Proceed to Step 11 for approved NCPs and Step 12 for disapproved NCPs.
11. Issue Implementing Directive	• 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)	• 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.

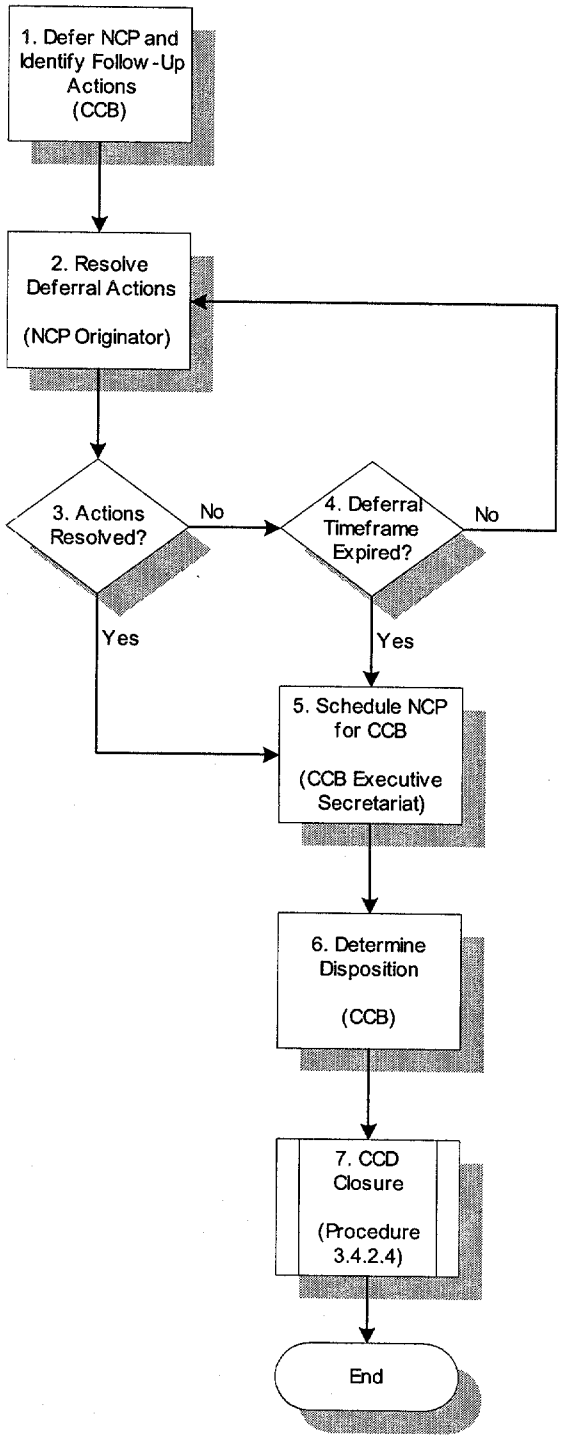

Figure 3.4.2.3.5.1-1 NCP Deferrals

Procedure Step	Procedure Description
	• 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?	• If the appeal is granted, proceed to Step 10. Otherwise, proceed to Step 5.
5. Continue Appeal?	• 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	• 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	• 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	• 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?	• If the appeal is granted, proceed to Step 10. Otherwise proceed to Step 11.
10. Prepare Revised NCP/CCD Package	• 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)	• 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.

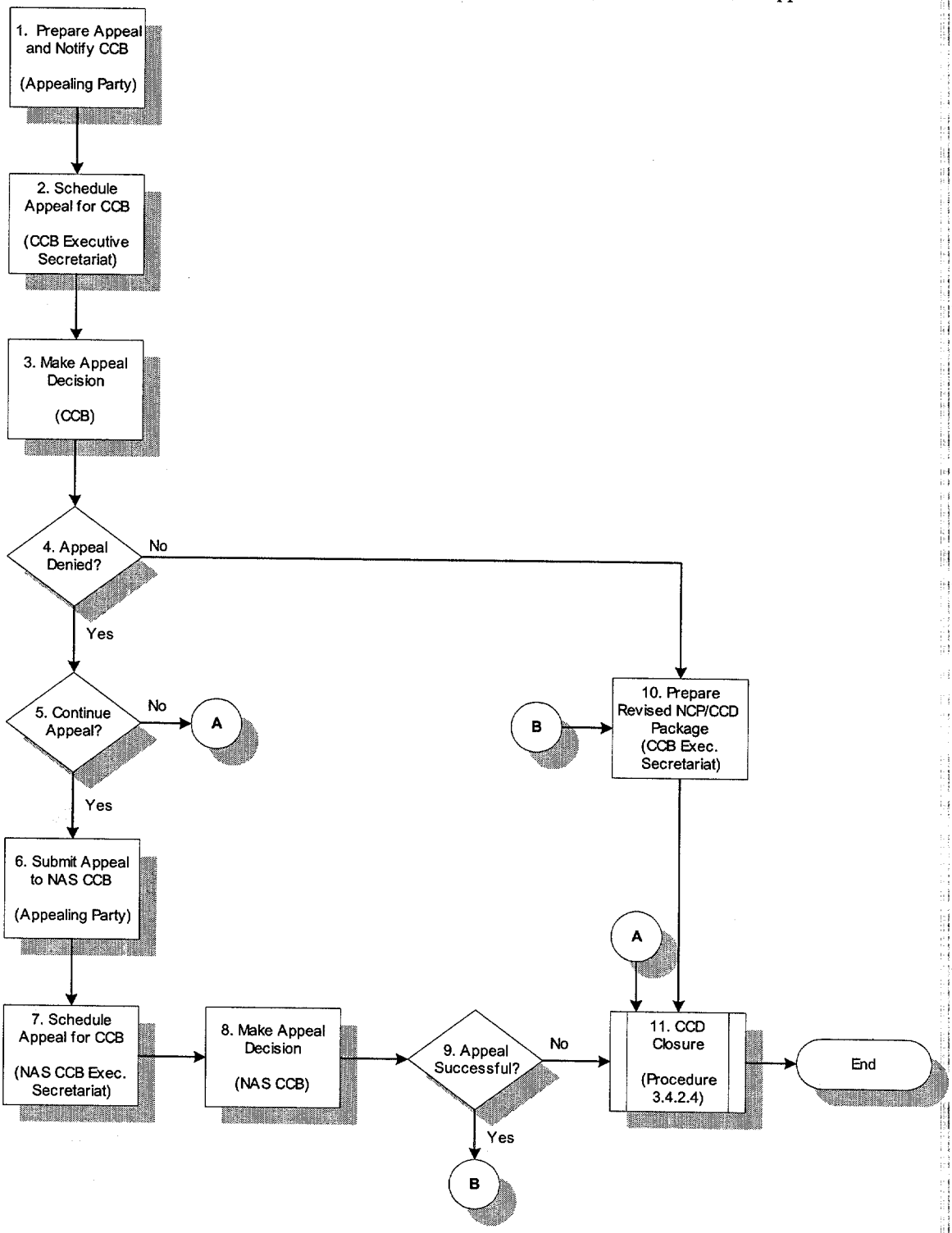

Figure 3.4.2.3.5.2–1 CCD Appeals

References

Reference	Reference Paragraph/Activitiy Number
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• 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
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 14 CCD Closure • 100 Perform Change Management • 101 Perform Configuration Status Accounting • 108 Perform Modification Tracking
• FAA Order 6032.1A (with Change 1 and 2*), Modifications to Ground Facilities, Systems, and Equipment in the National Airspace System*	
• ATC-88-1092, *DOCCON General User's Reference Guide*	

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.

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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 primarilyof 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)	• 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?	• For approved changes, proceed to Step 3. Otherwise, proceed to Step 11.
3. CCD Direct Documentation Action?	• 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)	• 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?	• 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)	• 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
	• 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?	• 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)	• 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?	• 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	• 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)	• 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.

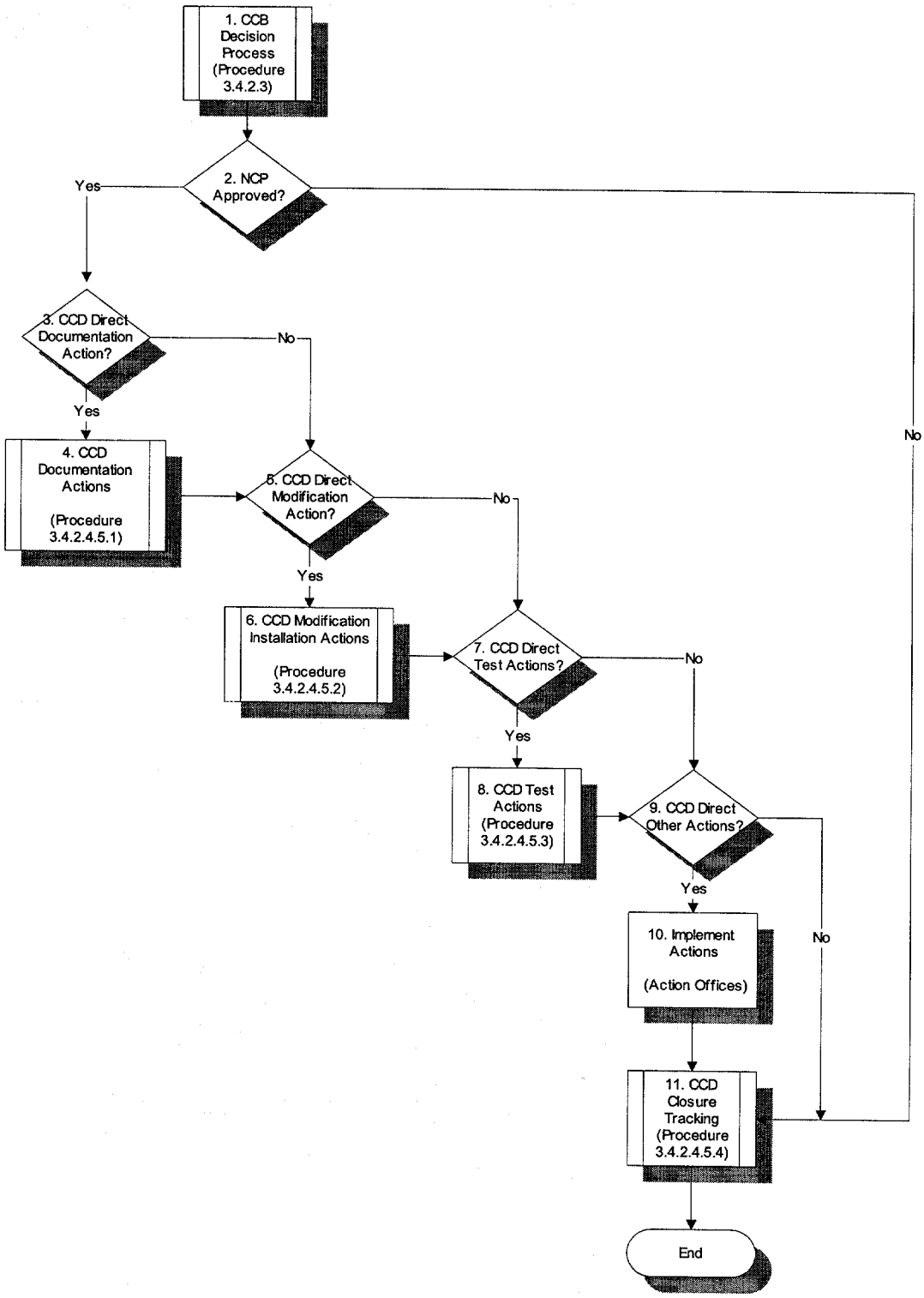

Figure 3.4.2.4.5-1 Overview of CCD Closure Process

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	• 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	• 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
	Publishing NAS-MD-001. • The documentation action office shall submit the signed CCD Action Completion Verification Grid indicating closure of the documentation action to the CCB CM Office. • 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.
3. Create Document Record	• Upon receipt of new or revised 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. • 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	• 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)	• 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.

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)	• 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?	• If yes, proceed to Step 3. Otherwise, proceed to Step 11.
3. Complete Actions and Forward Signed CCD Grid	• Upon CCD approval, designated action offices shall initiate preparatory steps for each assigned action (e.g., writing documentation updates).

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	• 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?	• For national scope changes, proceed to Step 3. Otherwise, proceed to Step 4.
3. Perform Engineering Study	• AOS shall perform an engineering study for a national change before release of a modification kit.
4. Monitor Modification Installation Status	• 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	• 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	• 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	• 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)	• 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.

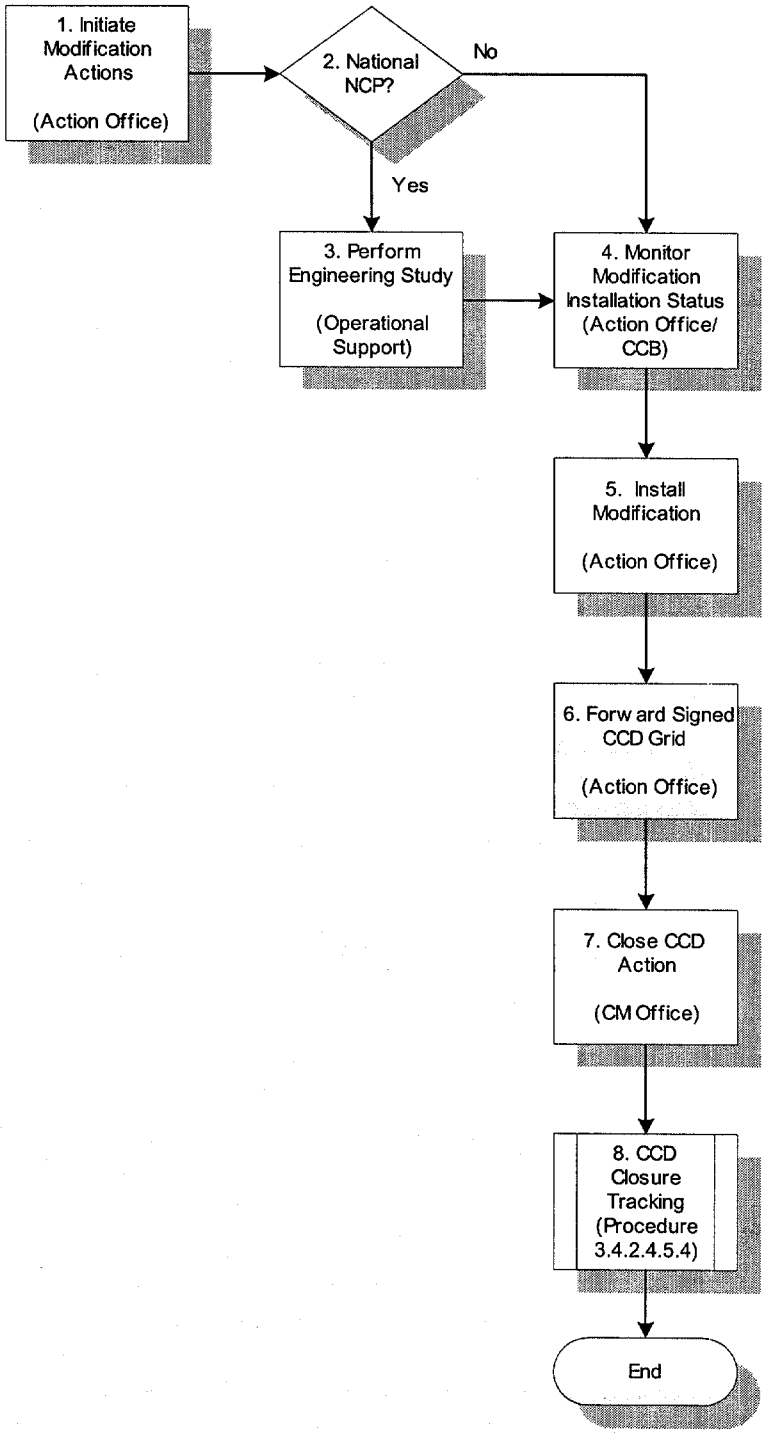

Figure 3.4.2.4.5.2-1 CCD Modification Installation Actions

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	• 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	• The action office shall conduct the test as prescribed by the approved CCD.
3. Test Extension Required?	• 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	• 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	• 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	• 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	• 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)	• 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.

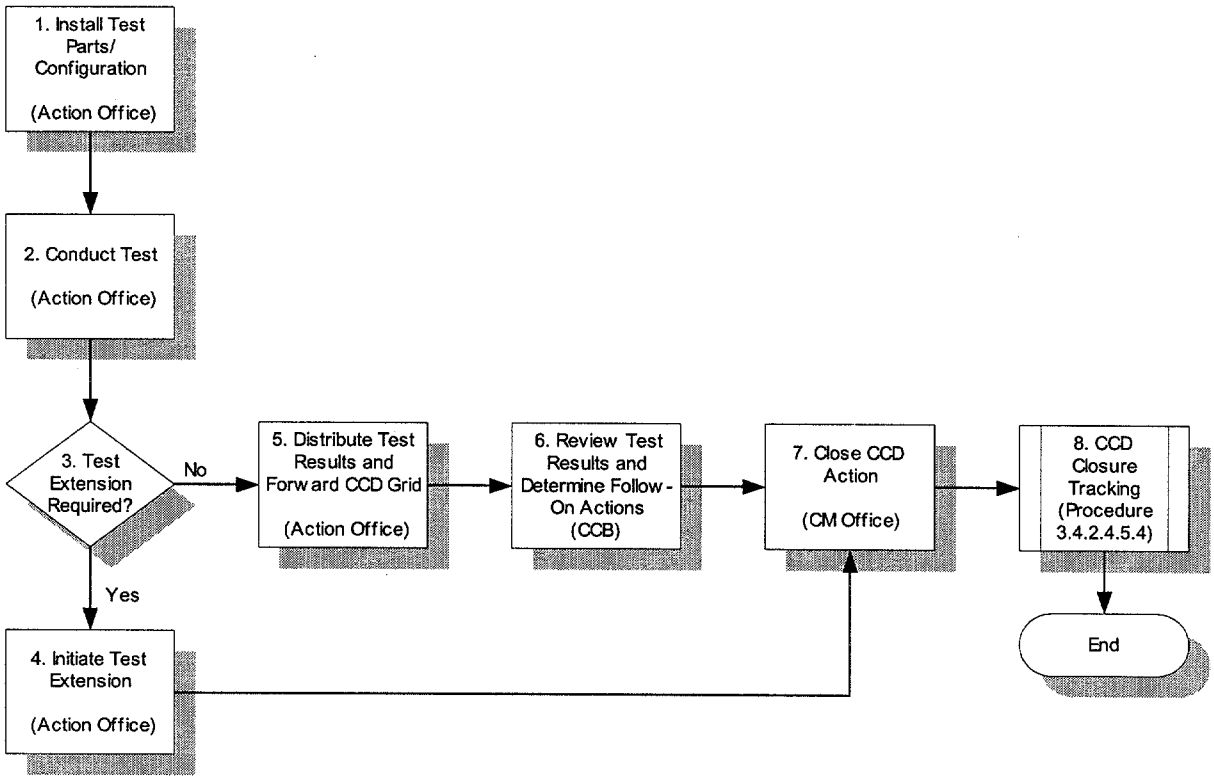

Figure 3.4.2.4.5.3-1 CCD Test Actions

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)	• 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?	• If yes, proceed to Step 3. Otherwise, proceed to Step 11.
3. Complete Actions and Forward Signed CCD Grid	• Upon CCD approval, designated action offices shall initiate preparatory steps for each assigned action (e.g., writing documentation updates).

Procedure Step	Procedure Description
	• 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	• 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	• 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?	• If all CCD actions are closed, proceed to Step 11. Otherwise, proceed to Step 7.
7. Identify Delinquent CCD Actions	• 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	• 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	• 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	• 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	• 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.

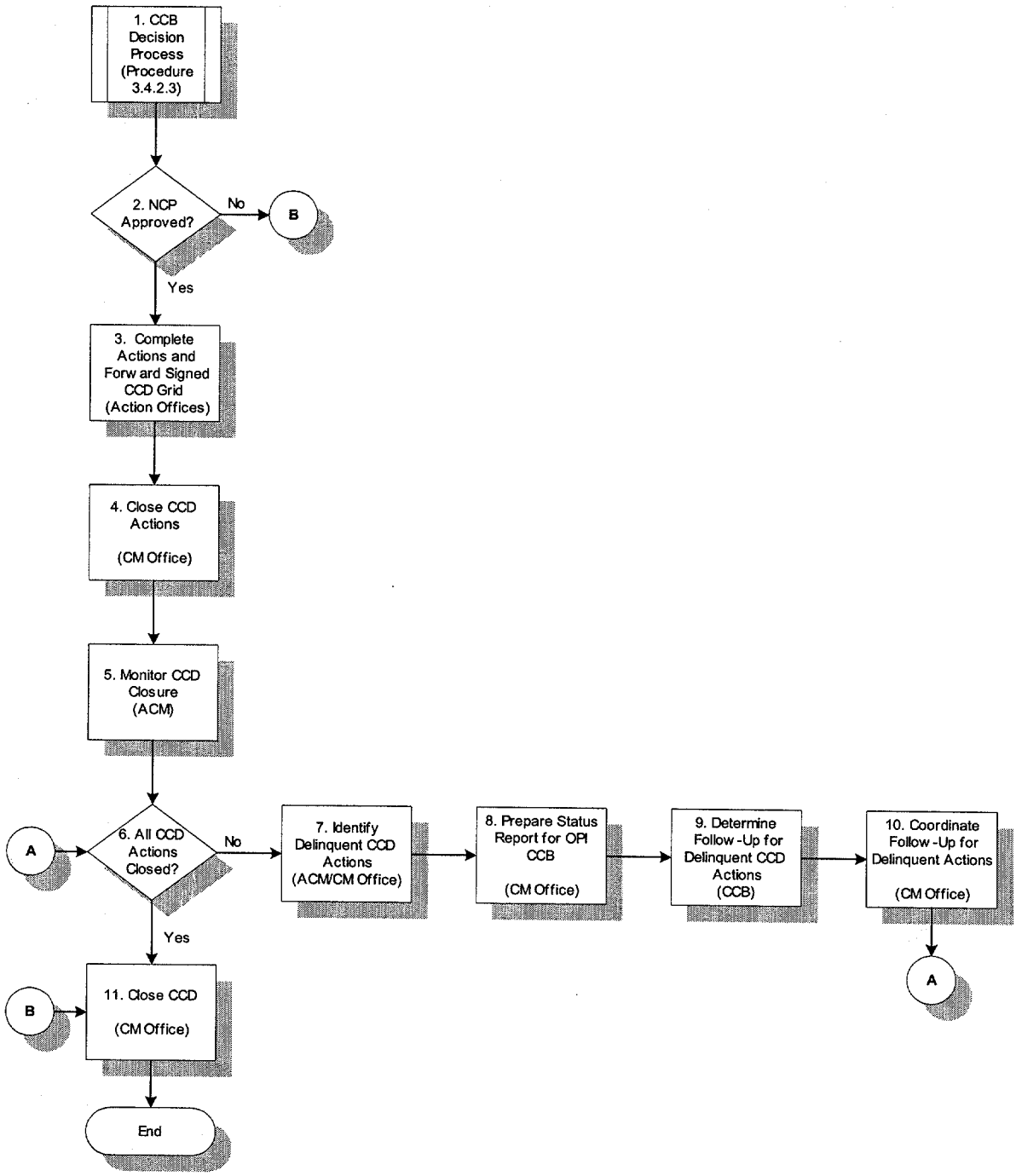

Figure 3.4.2.4.5.4-1 CCD Closure Tracking

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.3 and V-1
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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

(PLEASE TYPE OR PRINT NEATLY)

Page 1 of _____

1.Case File Number

2. **FOR CM USE** Case File Received Date NCP Issuance Date NCP Number

3. Scope of Change

☐ Local ☐ National
☐ Test

4. Reason For Change

☐ Safety ☐ Technical Upgrade ☐ Systems Interface
☐ Requirements Change ☐ Design Error ☐ Parts Unavailability
☐ Baseline ☐ Other

5 Priority

☐ Normal
☐ Time-Critical
☐ Urgent

6. Justification of Time Critical/Urgent Priority

7. Supplemental Change Form
☐ ECR/ECP ☐ TES ☐ 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
☐ CPFS ☐ SPEC ☐ MTBK ☐ _____
☐ TI ☐ DWG ☐ IRD/ICD

13. Baseline Document Number(s)

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.

FAA FORM 1800-2 (5-99) Supersedes Previous Edition NSN:0052-00-801-6005

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

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: AABBBBBCCCC) 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			Recurring			
		1. Effect on product configuration documentation	Non-recurring	Unit	Quantity	Total (recurring)	Total
☐	☐	a. Performance					
☐	☐	b. Technical data/drawings					
☐	☐	c. Nomenclature change					
		2. Effect on NAS Integrated Logistics Support (NAILS)					
☐	☐	a. NAILS plans					
☐	☐	b. Maintenance concept, plans & procedures					
☐	☐	c. Logistics support analyses					
☐	☐	d. Interim support programs					
☐	☐	e. Spares and repair parts					
☐	☐	f. Tech manuals/programming Media					
☐	☐	g. Facilities					
☐	☐	h. Support equipment					
☐	☐	i. Operator training					
☐	☐	j. Operator training equipment					
☐	☐	k. Maintenance training					
☐	☐	l. Maintenance training equipment					
☐	☐	m. Contractor maintenance					
		3. Effect on operational Deployment					
☐	☐	a. Safety					
☐	☐	b. Reliability					
☐	☐	c. Maintainability					
☐	☐	d. Service life					
☐	☐	e. Operating procedures					
☐	☐	f. Electromagnetic interference					
☐	☐	g. Implementation schedule					
☐	☐	h. Critical single point failure items					
		4. Other considerations					
☐	☐	a. Interface					
☐	☐	b. Other affected equipment					
☐	☐	c. Physical constraints					
☐	☐	d. Computer programs and resources					
☐	☐	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			Case File/NCP Costs (Savings)				
YES	NO	Factor		Recurring			
		4. Other considerations (Continued from previous page)	Non-recurring	Unit	Quantity	Total (recurring)	Total
☐	☐	f. Testing Impacts					
☐	☐	g. Parts control					
☐	☐	h. Life cycle costs					
☐	☐	i. Remote Maintenance Monitoring System (RMMS)					
		5. Miscellaneous (as required)					
☐	☐	a.					
☐	☐	b.					
☐	☐	c.					
☐	☐	d.					
☐	☐	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 prescreener 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 i 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	9. Date	10. Signature and Title
_ Approval		_____ CCB Co-Chair
_ Disapproval		_____ CCB Co-Chair

FAA Form 1800-49 (5-99) Supersedes Previous Edition NSN: 0052-00-908-1002

Figure 3.4.2.5.5-3 CCD Form (Sheet 1 of 2)

NAS CONFIGURATION CONTROL DECISION

CCD ACTION COMPLETION VERIFICATION

CCB _____

NCP/CCD NO. CASEFILE NO. Page 2 of _____

11. ACTION OFFICE

NAME	ROUTING SYMBOL	DATE
AUTHORIZING OFFICIAL:		

FAA Form 1800-49 (5-99) Supersedes Previous Edition NSN: 0052-00-908-1002

Figure 3.4.2.5.5-3 CCD Form (Sheet 2 of 2)

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• 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	• 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	• 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.

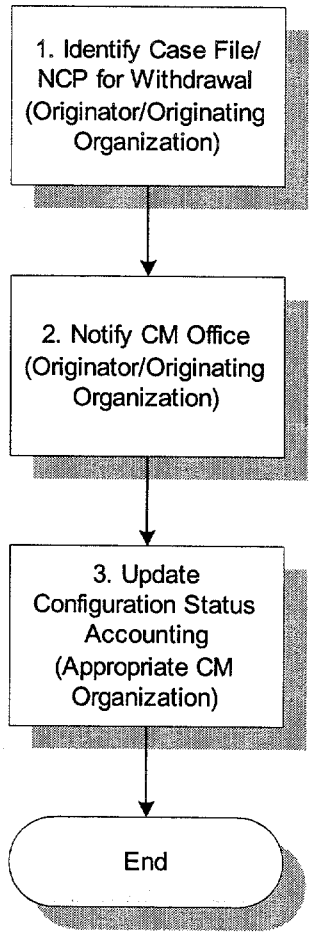

Figure 3.4.2.6.5-1 Withdraw Case File/NCP

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• The originator or originating organization shall identify the NCP to be amended.
2. Notify CM Office	• 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	• 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	• 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)	• 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)	• 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)	• CCD closure shall be performed in accordance with the procedure described in Section 3.4.2.4.

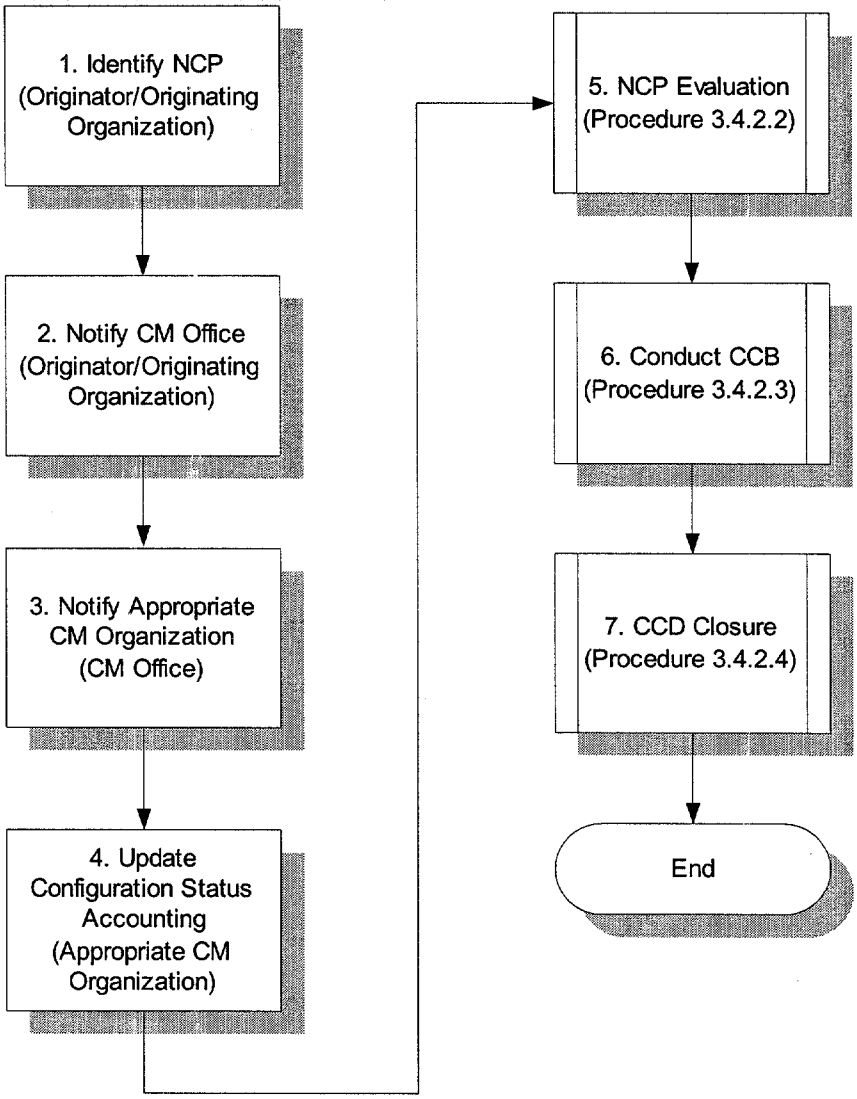

Figure 3.4.2.7.5-1. Amending NCPs

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• 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 ACMfor 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	• 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	• 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	• 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.

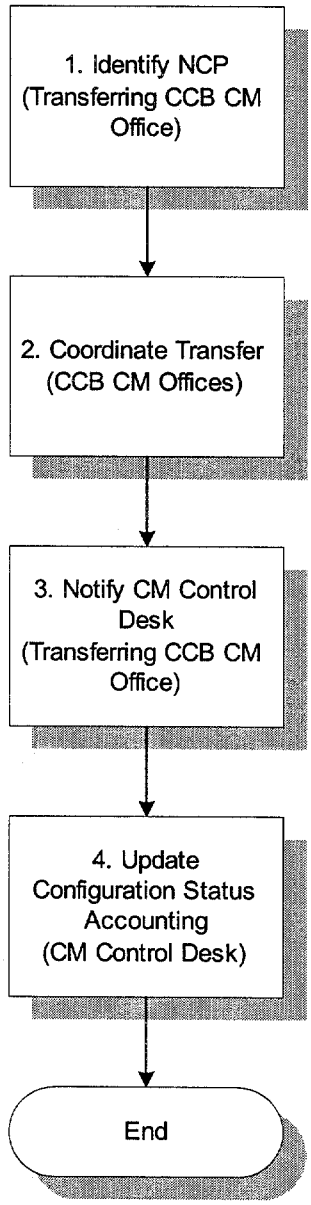

Figure 3.4.2.8.5-1 Transferring a NAS Change Proposal (NCP)

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• The organizational CM office shall identify the CCD to be updated.
2. Clerical Error?	• If the update is a clerical error (typo, misspelling or punctuation), continue with Step 3. Otherwise proceed to Step 4.
3. Update CCD Form	• 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)	• The corresponding NCP shall be amended, following the procedure described in Section 3.2.4.7.
5. Redraft CCD Form	• The organizational CM office shall redraft the CCD form.
6. Submit CCD Form	• The organizational CM office shall submit the updated CCD form to the CCB Chairs for approval.

Procedure Step	Procedure Description
7. CCD Approved?	• If the Chairs approve the CCD, proceed to Step 9. Otherwise continue with Step 8.
8. Rework CCD	• The organizational CM office shall update the CCD in accordance with the CCB Chairs' directions. Proceed to Step 6.
9. Sign CCD	• The CCB Chairs shall re-sign the CCD.
10. CCD Closure (Procedure 3.4.2.4)	• Any changes mandated by the updated CCD shall be performed in accordance with the CCD closure procedure (described in Section 3.4.2.4)

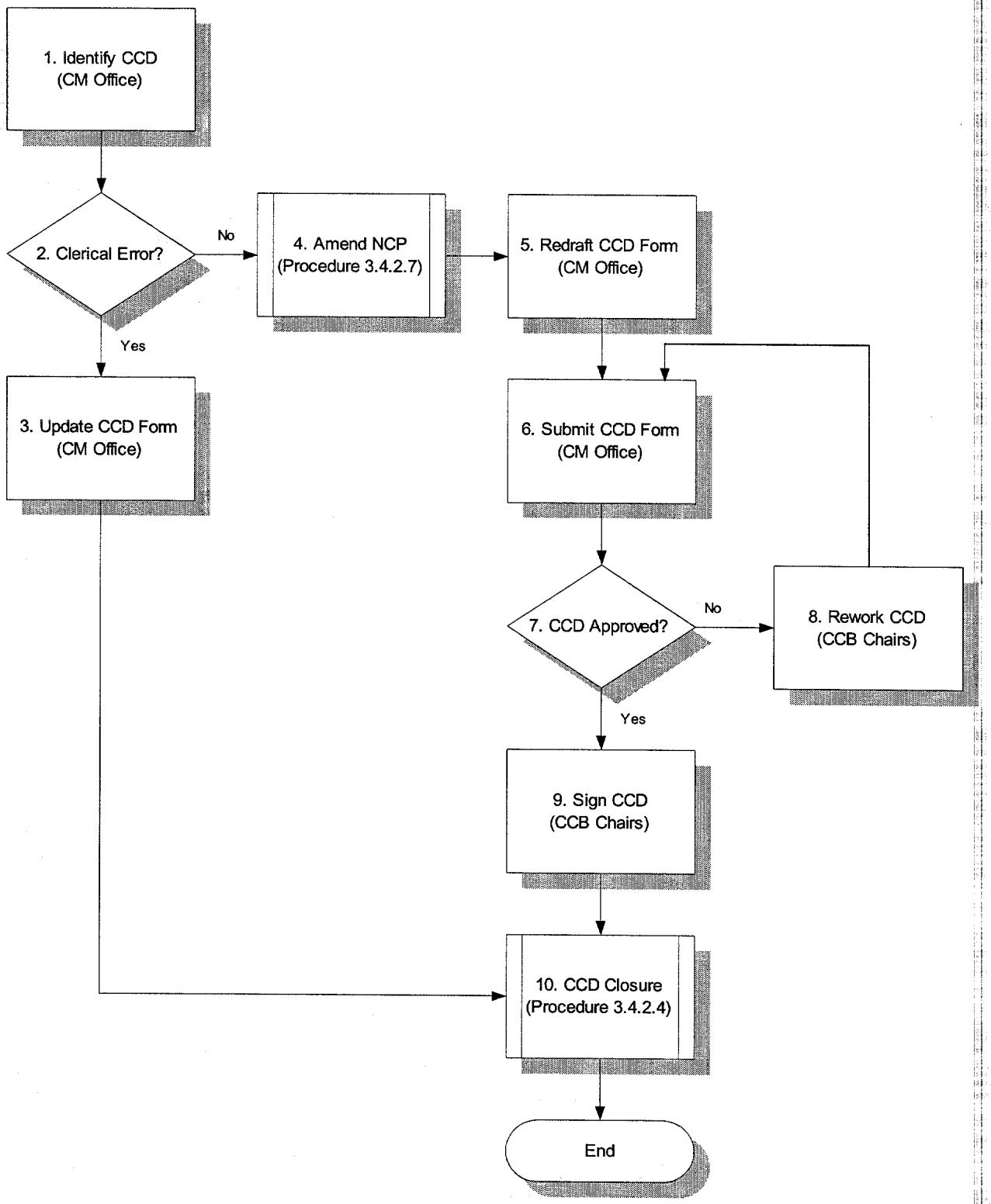

Figure 3.4.2.9.5-1. Amending Approved CCDs

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.3 (primary) • Statements IV-1, V-2, and V-3 (secondary).
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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 #:
• Order 6032.1A, *Modifications to Ground Facilities, Systems, and Equipment*	• 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
1. Initiate Request for Emergency Modification	• Field personnel shall initiate an emergency modification to be approved by the SMO Manager.

Procedure Step	Procedure Description
2. Approve Emergency Modification	• 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	• 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 *Order 6032.1A, Modifications to Ground Facilities, Systems, and Equipment*.
4. Originate Change (Procedure 3.4.2.1)	• 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)	• 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)	• 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)	• 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.

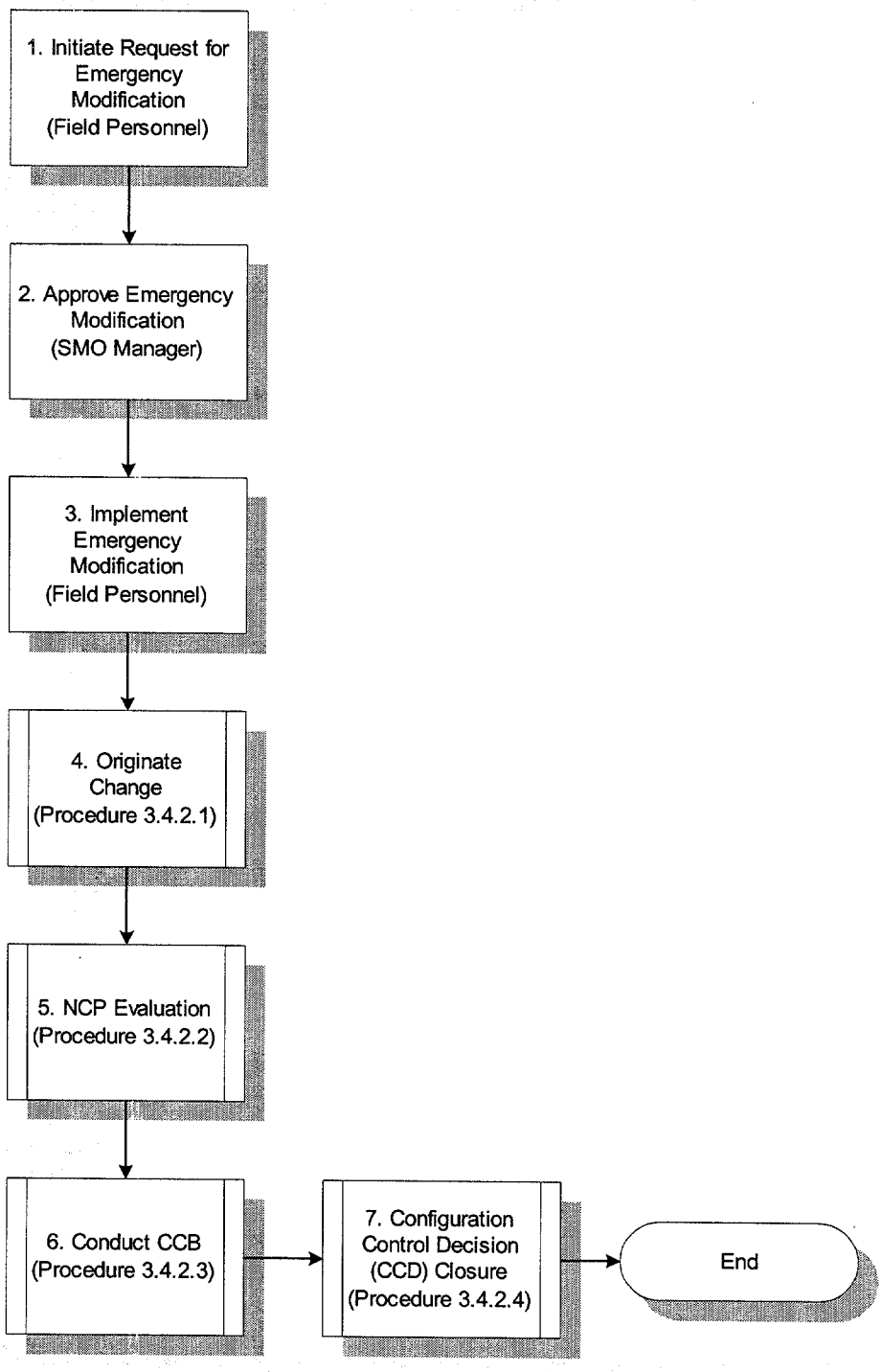

Figure 3.4.2.10.5-1 Emergency Modifications

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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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement II-3.
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• ACM shall schedule measurement activities on a periodic basis.
2. Perform Process Analysis	• 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?	• 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	• ACM shall determine the database queries that are required to provide the information derived in Step 2.
5. New Information Requested?	• 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	• 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?	• 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.

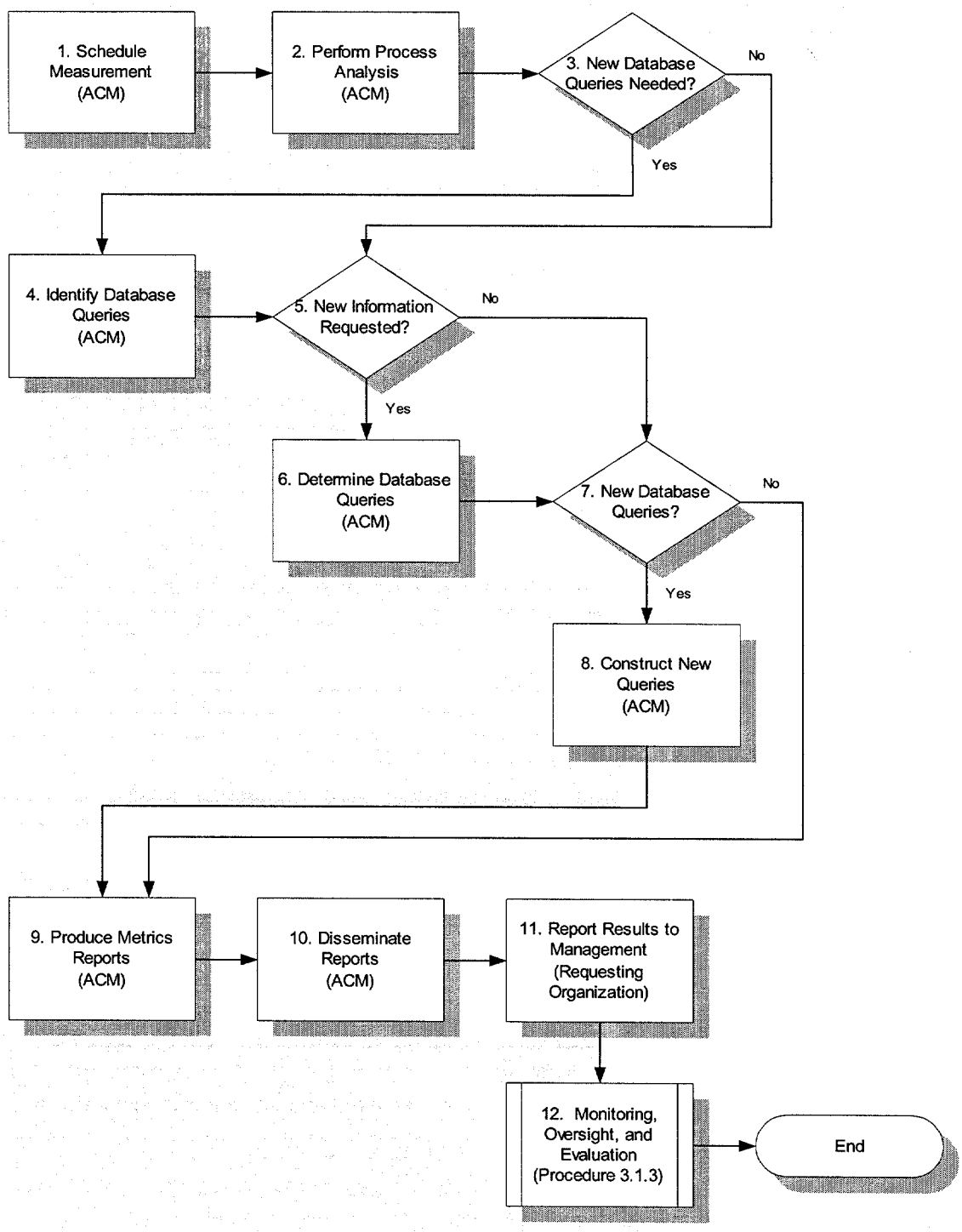

Figure 3.4.3.5-1 Change Management Metrics

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.

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Procedure Step	Procedure Description
8. Construct New Queries	• 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	• ACM shall run the database queries to produce metrics reports.
10. Disseminate Reports	• ACM shall disseminate the reports to personnel within the organization and to other requesting organizations.
11. Report Results to Management	• The organization shall report the measurement results to its management.
12. Monitoring, Oversight, and Evaluation (Procedure 3.1.3)	• 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

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-2, II-1, II-2
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• 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	
• *Technical Architecture Process Definition Document*	

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.

- 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-2, II-1, II-2
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• 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	
• *Technical Architecture Process Definition Document*	
• *ARS Role in Requirements Management During Solution Implementation Phase*	
• *Management and Control of ATS Requirements*	
• *ATS Requirements Traceability Process. ARS Guidance Document*	

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-2, II-1, II-2, III-1, III-5

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• *ATS Requirements Traceability Process. ARS Guidance Document*	

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).

NAS Life Cycle Phase	National CM Process Activity
Mission Analysis Phase	• No CM Activities Generating Status Accounting Data
Investment Analysis Phase	• Document Selected Alternative • Baseline Requirements Document • Establish Program; Assign IPT • Approve APB • Commit Agency to Full Life Cycle Funding • Identify Future Corporate Decisions • Update NAS Technical Products
Solution Implementation Phase	• Perform Change Management • Establish/Update Program Support Library • Approved A-Specification (or Equivalent) • Establish/Update Functional Baseline • Monitor CM Activities • Conduct Facility Documentation Review • Establish/Update Facility Baseline • Establish/Update Allocated Baseline • Conduct FCA/PCA • Establish/Update System Product Baseline
In-Service Phase	• Perform Change Management • Perform Problem Management Tracking • Perform Non-conformance Tracking • Perform Modification Tracking

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.	• 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.	• 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 documen-tation. They are temporary or limited departures from baselines but shall be tracked, followed and archived.	• 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) • 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.	• 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.	• 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: • 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
	change against the release and traceability is maintained.	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. • 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 superceded 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.
Effectivity and Installation Status of Engineering Changes	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.)	• 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
Digital Data Identifiers and Document Representations	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.	As appropriate, digital identifiers for each of the "Minimum Status Accounting Information" items listed above.

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.2
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two, Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• CCB Membership • ACM • National Requirements Organizations	• All FAA • Contractors	3.3.3
Change Management	• Must Evaluators	• All FAA • Contractors[1]	3.4.2
CCB Charters/Operating Procedures	• CCB Membership • ACM	• All FAA	3.2.1
CM Plans and Procedures	• Sponsoring Organization • Interfacing Organization(s) • ACM	• All FAA	3.2.2
Verification and Audits	• Sponsoring Organization • Interfacing Organization(s)	• All FAA	3.6
Facility Baselines (space allocation)	• SMO (Office of Primary Responsibility) • Baselined Facility	• All FAA • Contractors	3.6.3
Critical Power	• SMO (Office of Primary Responsibility) • Baselined Facility	• All FAA • Contractors	3.6.3
Requirements Traceability	• Sponsoring Organization • National Requirements Organizations	• 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

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 HWCIs 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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.5
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process	• 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	• 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	• The IPT/region/solution provider organization shall review the audit plan for feasibility and technical accuracy.
3. Audit Plan Satisfactory?	• 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	• The IPT/region/solution provider shall ensure the audit plan is revised in accordance with organizational recommendations. Proceed to Step 2.
5. Schedule Audit	• 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	• The IPT/region/solution provider shall ensure contractor documentation required for the audit is available.
7. Assemble Audit Team	• The organization shall assemble the audit team to conduct the audit.
8. Audit at FAA Facility?	• If the audit is conducted at an FAA facility, continue with Step 9. Otherwise proceed to Step 10.
9. Prepare FAA Facility	• 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	• The organization shall ensure the contractor provides appropriate resources for the audit, including conference room space for the audit team.
11. Conduct Audit	• The organization shall conduct the audit in accordance with the audit plan.

Procedure Step	Procedure Description
12. Record Audit Results	• 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?	• 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	• The organization shall notify the contractor of FAA approval via certification.
15. Audit Approved?	• If the audit receives contingent approval, continue with Step 16. Otherwise proceed to Step 19.
16. Perform Correction Actions	• The organization shall ensure the contractor performs corrective actions to fix each uncovered deficiency.
17. Validate Corrective Actions	• The QRO and other representatives appointed by the organization shall determine whether corrective actions are satisfied.
18. Corrective Actions Fulfilled?	• If corrective actions were satisfactorily completed, continue with Step 14. Otherwise continue with Step 16.
19. Develop Recovery Strategy	• 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: • 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).

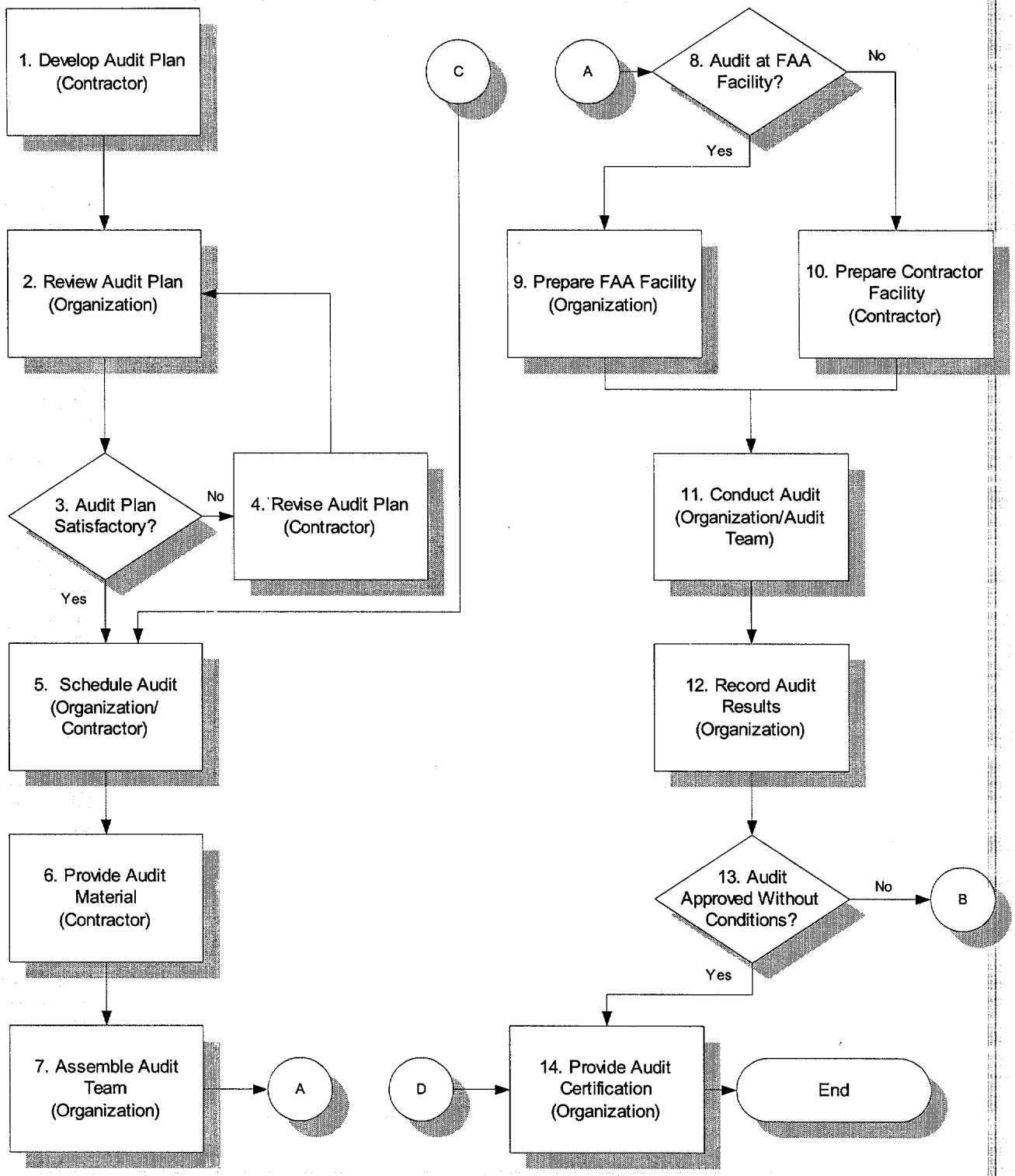

Figure 3.6.1.5-1. Functional Configuration Audits (Page 1 of 2)

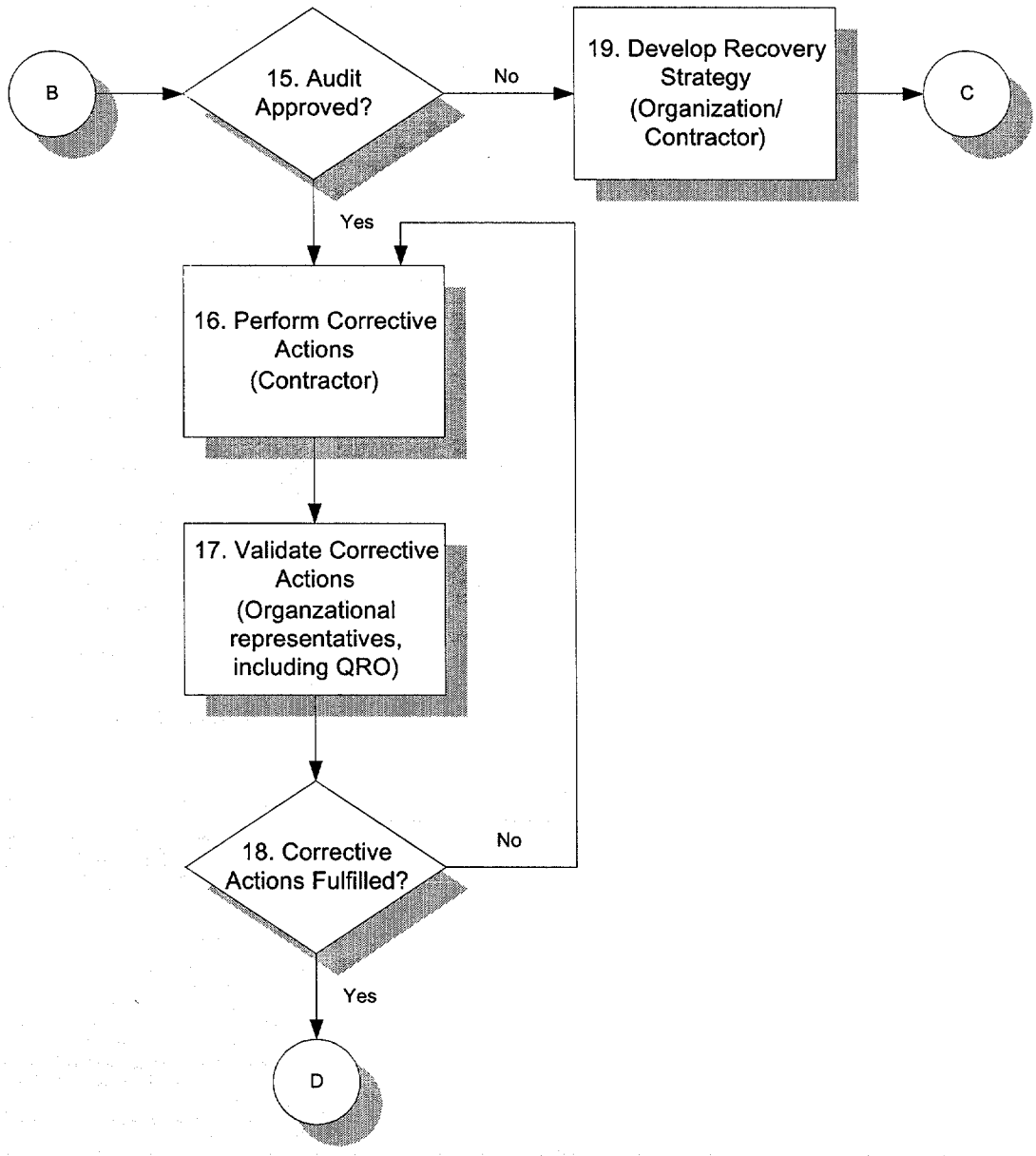

Figure 3.6.1.5-1. Functional Configuration Audits (Page 2 of 2)

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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statement I-4.5
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process	• 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)	• 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	• 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	• The IPT/region/solution provider shall ensure contractor documentation required for the audit is available.
4. Assemble Audit Team	• The organization shall assemble the audit team to conduct the audit.
5. Audit at FAA Facility?	• If the audit is conducted at an FAA facility, continue with Step 6. Otherwise proceed to Step 7.
6. Prepare FAA Facility	• 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	• 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	• The organization shall conduct the audit in accordance with the audit plan.
9. Record Audit Results	• 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?	• 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	• The organization shall notify the contractor of FAA approval via certification.

Procedure Step	Procedure Description
12. Audit Approved?	• If the audit receives contingent approval, continue with Step 13. Otherwise proceed to Step 16.
13. Perform Correction Actions	• The IPT/region/solution provider shall ensure the contractor performs the corrective actions to fix each uncovered deficiency.
14. Validate Corrective Actions	• 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?	• If the corrective actions were satisfactorily completed, proceed to Step 10. Otherwise proceed to Step 13.
16. Develop Recovery Strategy	• 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.

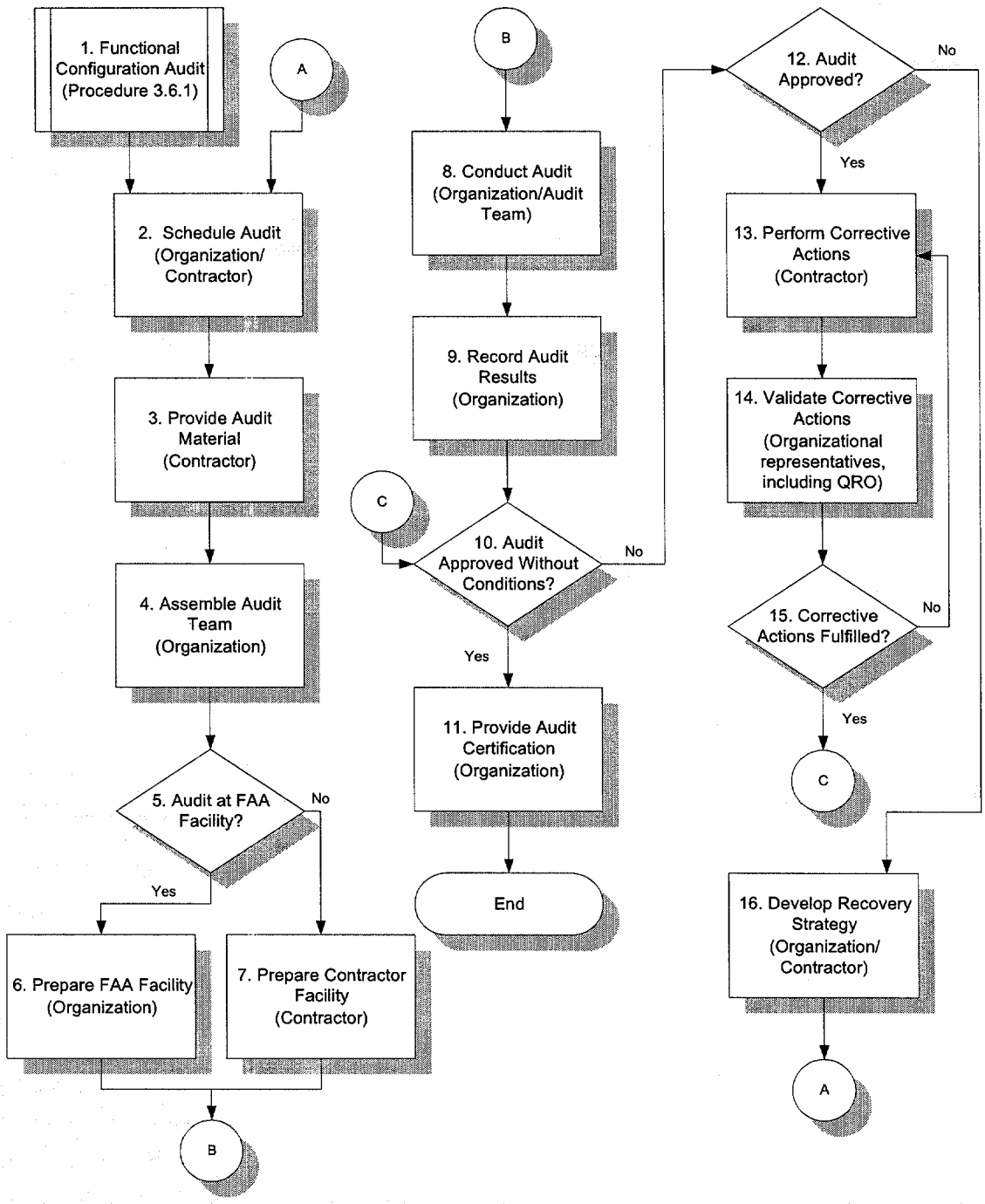

Figure 3.6.2.5-1. Physical Configuration Audits

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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 #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part One – Configuration Management (CM) Policy Elements	• Statements I-4.5, IV-2

Reference	Reference Para./Activity #:
• FAA Order 1800.66, Appendix 1, *Configuration Management in the National Airspace System*, Part Two – Configuration Management Handbook, Section II, National Configuration Management Process	• 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
• *National CM Standard Procedure for Conducting Formal Configuration Audits of Operational Facilities*	
• *National CM Standard Procedure for Facility Baselining*	

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.

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PART THREE

CM STANDARDS AND STANDARDIZATION (To be written)

PART FOUR

ACRONYMS AND DEFINITIONS

PART FOUR – ACRONYMS AND DEFINITIONS

SECTION I: Acronyms

AAF	Airway Facilities Service
ACM	NAS Configuration Management and Evaluation Staff
ACM-20	NAS Configuration Management Staff
ACQ	Acquisition
ACT	Engineering and Test
ADO	Airports District Office
AF	Airways Facilities
AF/AT	Airway Facilities/Air Traffic
AFSS	Automated Flight Service Station
AML	FAA Logistics Center
AMS	Acquisition Management System
ANI	NAS Implementation Program
ANS	NAS Transition and Integration Program
AOP	NAS Operations
AOS	Operational Support Service
APB	Acquisition Program Baseline
App	Appendix
ARA	Associate Administrator for Research and Acquisitions
ARC	Assistant Administrator for Regions and Center Operations
ARS	Air Traffic System Requirements Service
ARSR	Air Route Surveillance Radar
ARTCC	Air Route Traffic Control Center Surveillance Radar
ASD	Office of System Architecture and Investment Analysis
ASP	Acquisition Strategy Paper
A-Spec	A Level Specification
ASU	Office of Acquisitions
AT	Air Traffic
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
ATP	Air Traffic Planning and Procedures Program
ATS	Associate Administrator for Air Traffic Services
B/L	Baseline
BCATS	Bar Code Asset Tracking System
BMN	Baseline Management Notice
CAEG	Computer Aided Engineering Graphics
CAGE	Commercial and Government Entity
CAS	Commercially Available Software
CCB	Configuration Control Board
CCD	Configuration Control Decision

CDR	Critical Design Review
CDRL	Contract Data Requirements List
CI	Configuration Item
CIP	Capital Investment Plan
CM	Configuration Management
CM/DM	Configuration Management/Data Management
CMCT	CM Core Team
CMIMS	CM Information Management System
CMPP	CM Program Plan
CMSG	CM Steering Group
CONOPS	Concept of Operations
COTS	Commercial-Off-The-Shelf
COTS/NDI	Commercial-Off-The-Shelf/Non-Development Item
CPFS	Computer Program Functional Specification
CR	Change Request
CSA	Configuration Status Accounting
CSCI	Computer Software Configuration Item
DCC	Document Control Center
DID	Data Item Description
DM	Data Management
DOCCON	Documentation and Configuration Identification System
DT	Development Test
DT&E	Development Test and Evaluation
DWG	Drawing
EC	National Engineering Center
ECP	Engineering Change Proposal
ECR	Engineering Change Request
EDDA	Environmental Due Diligence Audit
EDM	Engineering Document Management
EEM	Electrical Equipment Modification
F&E	Facilities and Equipment
FAA	Federal Aviation Administration
FAA-iCMM	FAA Integrated Capability Maturity Model
FAALC	FAA Logistics Center
FAATC	FAA Technical Center
FACCODE	Facility Code
FACID	Facility Identifier
FAE	FAA Acquisition Executive
FAST	FAA Acquisition System Toolset
FCA	Functional Configuration Audit
FEM	Facility Equipment Modification
FEQ	Equipment Profile Screen in MMS
FRD	Final Requirements Document

FRDF	Facility Reference Data File
FSCM	Federal Supply Class Manufacturer
FSEP	Facility, Service and Equipment Profile
GEN	General
HQ	Headquarters
HW	Hardware
HWCI	Hardware Configuration Item
I BEAM	Integrated Baseline Establishment and Management
I&I	Impact and Implementation
IA	Investment Analysis
IAPG	Investment Analysis Process Guidelines
IAR	Investment Analysis Report
IAT	Investment Analysis Team
IAW	In Accordance With
IC	NAS Implementation Center
ICD	Interface Control Document
ICMM	Integrated Capability Maturity Model
ID	Identifier
IDEF	Integrated Definition Language
ILS	Instrument Landing System
ILS	Integrated Logistics Support
IMT	Integrated Management Team
INFO Sys	Information Systems
IOC	Initial Operating Capability
IOT&E	Independent Operational Test and Evaluation
IPDS	Integrated Product Development System
IPP	Integrated Program Plan
IPT	Integrated Product Team
IRD	Interface Requirements Document
IRT	Integrated Requirements Team
IS	In Service Management Phase (of AMS Life Cycle)
ISO	International Organization for Standardization
ISR	In Service Review
ISS	Information System Security
IV&V	Independent Validation and Verification
JAI	Joint Acceptance Inspection
JRC	Joint Resources Council
LC	Life Cycle
LCN	Logistics Control Number
LIS	Logistics Information System
LOB	Line of Business

LRU	Lowest Replaceable Unit
LSA	Logistics Support Analysis
MAR	Major Acquisition Review
MCI	Master Configuration Index
MDFM	Material Delivery Forecast Module
ME	Must Evaluator
Mgmt	Management
MMS	Maintenance Management System
MNS	Mission Need Statement
Mod	Modification
MTHB	Maintenance Technical Handbook
N/A	Not Applicable
NAILS	NAS Integrated Logistics Support
NAPRS	National Airspace Performance Reporting System
NAS	National Airspace System
NASDOCS	National Airspace Documentation
NCP	NAS Change Proposal
NDI	Non Developmental Item
NIMS	NAS Infrastructure Management System
NISC	National Airspace System Implementation Support Contractor
NMCC	National Maintenance Control Center
NOR	Notice of Revision
NRM	NAS Requirements Management
NSN	National Stock Number
O/T	Overtime
OPI	Office of Primary Interest
OPR	Office of Primary Responsibility
OPS	Operational
ORD	Operational Readiness Demonstration
P3I	Pre planned Product Improvement
PAPI	Precision Approach Path Indicator
PASS	Professional Airway Systems Specialists
PCA	Physical Configuration Audit
PDR	Preliminary Design Review
PEM	Plant Equipment Modification
PMR	Program Management Review
POC	Point of Contact
PS&F	Power Systems and Facilities
PSL	Program Support Library
PT	Product Team
PTR	Program Trouble Report

QA	Quality Assurance
QRO	Quality Reliability Officer
RAPM	Regional Associate Program Manager
RCCB	Regional Configuration Control Board
RD	Requirements Document
REG	Regional
RFO	Request for Offer
RMMS	Remote Maintenance Monitoring System
ROC	Resolution of Comments
RTCA	Radio Technical Commission for Aeronautics
RTP	Resource Tracking Program
S/N	Serial Number
SAD	Site Allocation Documentation
SAT	System Acceptance Test
SCN	Specification Change Notice
SDR	System Documentation Release
SE	System Engineering
SEMP	System Engineering Program Plan
SEOAT	Systems Engineering/Operational Analysis Team
SI	Solution Implementation Phase (of AMS Life Cycle)
SIP	Site Implementation Plan
SIR	Screening Information Request
SLEP	Service Life Extension Program
SME	Subject Matter Expert
SMO	System Management Office
SOW	Statement of Work
SPB	Site Program Bulletin
SPEC	Specification
SSC	System Service Center
SSD	System Support Directive
SSM	System Support Modification
SSO	Source Selection Official
SSU	System Service Unit
STB	Site Technical Bulletin
STR	System Technical Release
SW	Software
TC	Technical Center
TCCCB	Technical Center Configuration Control Board
TES	Technical Employee Suggestion
TI	Technical Instruction Book
TIM	Technical Interchange Meeting
TRACON	Terminal Radar Approach Control

TRR	Test Readiness Report
TSU	Technical Support Unit
VDD	Version Description Document
VRTM	Verification Requirements Traceability Matrix
WC	Work Center
WJHTC	William J. Hughes Technical Center

PART FOUR – ACRONYMS AND DEFINITIONS

SECTION II: Definitions

Note: All definitions taken directly from EIA-649 are marked with an asterisk (*).

Acquisition Strategy Paper: Documents the approach for executing a program during Solution Implementation and for managing fielded products and services during In-Service Management. The Acquisition Strategy Paper also integrates planning for all functional disciplines associated with program implementation such as systems engineering, in-service support, test and evaluation, security, quality assurance, human integration and configuration management, as appropriate.

*Application Environment: Where a product is used, for example, defense systems and facilities, energy facilities, aircraft, space systems, automobiles, pharmaceuticals, commercial products.

*Approval: The agreement that an item is complete and suitable for its intended use.

*Attributes: Performance, functional, and physical characteristics of a product.

*Baseline: (1) An agreed-to description of the attributes of a product, at a point in time, which serves as a basis for defining change. (2) An approved and released document, or a set of documents, each of a specific revision; the purpose of which is to provide a defined basis for managing change. (3) The currently approved and released configuration documentation. (4) A released set of files consisting of a software version and associated configuration documentation.

Best Commercial Practices: Business processes, procedures and automated tools used by industry or government organizations that are low risk, cost effective, and have a proven track record. Best practices are highly recommended for use by other organizations that require effective business methods.

Capability Maturity Model: A descriptive model of the stages through which organizations progress as they define, implement, evolve and improve their processes. This model serves as a guide for selecting process improvement strategies by facilitating the determination of the current process capabilities and the identification of issues most critical to quality and process improvement within a particular domain, such as software engineering or systems engineering.

Case File: The documentation prepared by an organization originating a change to a NAS CI. Prepared on FAA Form 1800-2, NAS Change Proposal, the case file is used during prescreening. A case file number is assigned by the originating office for status accounting purposes, and is the only number that identifies the proposed change until it has been forwarded for NCP number assignment.

CCB Charter: Documentation that defines an approved CCB's authority, responsibilities, membership and CIs under its jurisdiction.

CCB Executive Secretariat: Provides administrative support to the CCB. The CCB Secretariat establishes the CCB's schedule and agendas; ensures necessary action is taken in processing all proposed changes for disposition by the CCB; maintains records for the CCB; and prepares minutes and action items for CCB meetings.

CCB Operating Procedures: Detailed procedures that describe how a specific CCB manages its change management process.

*Change: See engineering change.

CM Control Desk: Performs a review of all case files (not subject to Regional CCB authority) that have completed prescreening to verify necessary supporting information (including technical, cost, benefit, performance and schedule impact) has been provided. The CM Control Desk assigns NCP numbers to case files upon completing the verification review; the CM Control Desk performs other duties related to change processing as well.

CM Plan: The documentation of an IPT or solution provider's implementation of CM within the organization including CM planning, processes and procedures commensurate with programs under its control. A CM Plan provides guidance in sufficient detail to allow tailoring of CM products for each life cycle phase.

Commercial Equipment: Manufacturer's equipment not developed under a federal developmental contract (e.g., commercially developed navigational aids).

Commercial-Off-The-Shelf (COTS): A product or service that has been developed for sale, lease or license to the general public and is currently available at a fair market value.

*Computer Software Documentation: Technical data or information, including computer listings, regardless of media, which document the requirements, design, or details of computer software; explain the capabilities and limitations of the software; or provide operating instructions for using or supporting computer software.

*Configuration: (1) The performance, functional, and physical attributes of an existing or planned product, or a combination of products. (2) One of a series of sequentially created variations of a product.

*Configuration Audit: Product configuration verification accomplished by inspecting documents, products, and records; and reviewing procedures, processes, and systems of operation to verify that the product has achieved its required attributes (performance requirements and functional constraints), and the product's design is accurately documented. Sometimes divided into separate functional and physical configuration audits.

*Configuration Change Management: (1) A systematic process that ensures that changes to released configuration documentation are properly identified, documented, evaluated for impact, approved by an appropriate level of authority, incorporated, and verified. (2) The configuration management activity concerning the systematic proposal justification, evaluation, coordination and disposition of proposed changes, and the implementation of all approved and released changes into (a) the applicable configurations of a product, (b) associated product information, and (c) supporting and interfacing products and their associated product information.

Configuration Control Board (CCB): The Agency-authorized forum for establishing configuration management baselines and for reviewing and acting upon changes to these baselines.

Configuration Control Decision (CCD): The official notification of CCB decisions/directives signed by the CCB chair(s). The CCD contains specific action items that must be completed before the CCD is considered closed.

*Configuration Documentation: Technical documentation, the primary purpose of which is to identify and define a product's performance, functional, and physical attributes.

*Configuration Identification (product definition): (1) The systematic process of selecting the product attributes, organizing associated information about the attributes, and stating the attributes. (2) Unique identifiers for a product and its configuration documents. (3) The configuration management activity that encompasses selecting configuration documents; assigning and applying unique identifiers to a product, its components, and associated documents; and maintaining document revision relationships to product configurations.

Configuration Item: An aggregation of hardware/software/firmware, or any of its discrete portions, which satisfies an end-use function and is designated for configuration management

*Configuration Management (CM): A management process for establishing and maintaining consistency of a product's performance, functional, and physical attributers with its requirements, design, and operational information throughout its life.

*Configuration Status Accounting (CSA) (product configuration information): The configuration management activity concerning capture and storage of, and access to, configuration information needed to manage products and product information effectively.

*Configuration Verification: The action verifying that the product has achieved its required attributes (performance requirements and functional constraints) and the product's design is accurately documented.

*Contract: As used herein denotes the document (for example, contract, memorandum of agreement or understanding, purchase order) used to implement an agreement between a customer (buyer) and a seller (supplier).

*Data: Recorded information of any nature (including administrative, managerial, financial, and technical), regardless of medium or characteristics.

Data Management: The preparation, approval, distribution and storage/archive of recorded information of any nature/type (administrative, managerial, financial and technical) regardless of medium or characteristics.

Design Baseline: Typically a contractor-controlled baseline permitting development of a contractual product in an orderly and disciplined manner. Contents of a design baseline may include ICDs, SDDDs and Data Base Design Documents.

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.

*Disapproval: Conclusion by the appropriate authority that an item submitted for approval is either not complete or is not suitable for its intended use.

Document Control Center (DCC): Maintained by NAS Configuration Management and Evaluation Staff (ACM), it is the principal repository and central ordering point for NAS documentation, including baselined documentation data. Items contained in the DCC include project specifications, NAS Orders and Standards and archived NCPs.

Emergency Modification: Local changes to NAS systems that are performed in accordance with Order 6032.1A immediately upon identification so that system operation is not impaired.

Engineering Study: An effort, usually conducted by a maintenance organization, to determine the actual hardware, software, training, provisioning and documentation changes required as a result of an approved NCP.

FAA Type Number: A unique alphanumeric identifier assigned to all new FAA equipment types that are to be utilized as commissioned equipment and brand name commercial equipment modified to FAA specifications.

Facility Baseline: Records and documents the physical layout of a NAS facility, describing the physical plant (including space and power), installed systems and external interfaces as CIs that must be managed. Facility baseline data is the information needed to identify and control changes as well as record configuration and change implementation status. Facility baseline data normally consists of standard facility drawings, facility engineering data and facility specifications.

Facility Reference Data File (FRDF): A file of technical reference data on the characteristics and performance of FAA facilities. This reference data serves as a historical record of facility performance from the date of establishment to the date of decommissioning. The file data is updated as appropriate to reflect relevant changes, corrections or additions to the original information.

Final Requirements Document (FRD): Establishes the functional and performance baselines and operational framework required by the sponsoring organization. The document becomes the basis for developing the requirements for the system specification and is baselined at the investment decision.

*Firmware: The combination of a hardware device and computer instructions or computer data that reside as read-only software "burned into" the hardware device; various types of firmware include devices whose software code is erasable/re-programmable to some degree.

*Functional Attributes: Measurable performance parameters including reliability, maintainability, and safety.

Functional Baseline: The approved technical documentation of a configuration item which prescribes: all necessary functional characteristics; the tests required to demonstrate achievement of specified functional characteristics; the necessary interface characteristics and its key lower level CI's, if any; and design constraints, such as, dimensions, component standardization, use of inventory items, and integrated logistics support policies.

*Hardware: Products made of material and their components (mechanical, electrical, electronic, hydraulic, pneumatic). Computer software and technical documentation are excluded.

Integrated Program Plan (IPP): Translates strategies in the Acquisition Strategy Paper into a detailed set of management, contracting, and technical actions and work activities necessary for successful implementation and management of a program over its lifecycle.

*Interface: The performance, functional, and physical attributes required to exist at a common boundary.

*Interface Control: The process of identifying, documenting, and controlling all performance, functional, and physical attributes relevant to the interfacing of two or more products provided by one or more organizations.

Interface Control Document (ICD): A formal agreement between interfacing subsystem managers and the subsystem development contractors, which documents how the interface requirements are implemented in the design of the respective subsystem/equipment item.

*Interface Control Documentation: Interface control drawing or other documentation that depicts physical, functional, and test interfaces of related or co-functioning products.

Interface Requirements Document (IRD): A formal agreement between interfacing subsystem managers, which documents the functional, performance and verification requirements for the NAS technical interfaces.

*Life cycle: A generic term relating to the entire period of conception, definition, build, distribution, operation, and disposal of a product.

Life Cycle Planning and Management: The management of systems and services over their useful life including all life cycle stages from identification of need, acquisition, operation and maintenance, support and disposal.

Master Configuration Index (MCI): A collection of configuration identification information from across the various solution providers, providing a view of that information from a national level. The MCI serves three functions: 1) to ensure the correct hierarchical representation of the NAS by identifying each NAS subsystem/facility and its relationship to other NAS subsystems/facilities; 2) to provide configuration identification data for each NAS subsystem/facility; and 3) to track the engineering and technical documentation (including drawings) for each subsystem/facility, including all approved changes to the documentation.

Meta Data: Is a summary of data that characterizes the data or points to the data, but is not the data itself.

Metrics: Measurements of indicators of the status of a project or procurement. Metrics are generally quantitative but can be qualitative as well.

Modification Installation and Tracking: The process by which approved changes to operational NAS systems are implemented, including development and release of modification kits; preparation and distribution of modification documentation; update of logistics documentation and procurement/modification of spares; incorporation of changes at designated sites by authorized field technicians; and tracking of implementation status.

Must Evaluation: After NCP number assignment, the process by which evaluators are assigned to a proposed change and review comments are collected and tracked.

NAS Architecture: An evolutionary descriptive plan for the aviation, air traffic management and air navigation system in terms of services, functions and performance provided to the users.

NAS Change Proposal (NCP): The means for baselining NAS CIs or proposing changes to baselined NAS CIs. Prepared on FAA Form 1800-2, an NCP identifies the CI to be baselined or modified, describes the recommended change and provides sufficient information so that the proposed change can be thoroughly evaluated.

NAS Facilities: Real property or buildings owned or leased by the FAA, which house FAA equipment or provide a location for NAS services.

NAS-Level Requirements: See NAS Technical Architecture.

NAS-MD-001, NAS Master Configuration Index Subsystem Baseline Configuration and Documentation Listing: 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 Systems: Hardware or software or a combination thereof that provide a solution for NAS requirements.

NAS Technical Architecture: The technical portion of the NAS Architecture, which 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 used during Investment Analysis.

NAS Technical Documentation: Any set of documents that describe the technical requirements of the National Airspace System.

National Airspace Documentation (NASDOCS): Is an internet/intranet system that provides on-line distribution of FAA documentation as well as a secure area for the development and review of this documentation prior to publication.

*Nomenclature: (1) Names assigned to kinds and groups of products. (2) Formal designations assigned to products by customer or supplier (such as model number, model type, design differentiation, specific design series, or configuration.)

*Non-conformance: The failure of a product to meet a specified requirement.

Non-Developmental Item: Any previously developed item of supply used exclusively for Government purposes by a federal agency or state, local or foreign government and no further development is required.

Non-Federal Facility: A facility owned by a state or local government, U.S. possession or territory, or private interest, which is used in NAS operations.

Office of Primary Interest: An FAA organization that generates a document or has a significant interest in the management or control of a specific document.

Operational Baseline: The approved technical documentation representing installed operational hardware and software.

*Operational Information: Information that supports the use of a product, for example, operation maintenance and user's manuals/instructions, procedures, and diagrams.

OPI Supporting Documentation: Operating procedures, documentation and work products produced by an organization that detail how that organization accomplishes its CM responsibilities. This documentation provides a greater level of detail for CM activities required by National CM Policy. Examples of OPI documentation include CM Plans, Audit Plans and test results.

*Original: The current design activity's document or digital document representation and associated source data file(s) of record (i.e., for legal purposes).

*Performance: A quantitative measure characterizing a physical or functional attribute relating to the execution of an operation or function. Performance attributes include quantity (how many or how much), quality (how well), coverage (how much area, how far), timeliness (how responsive, how frequent), and readiness (availability, mission/operational readiness). Performance is an attribute for all systems, people, products, and processes including those for development, production, verification, deployment, operations, support, training, and disposal. Thus, supportability parameters, manufacturing process variability, reliability, and so forth, are all performance measures.

*Physical Attributes: Quantitative and qualitative expressions of material features, such as composition, dimensions, finishes, form, fit, and their respective tolerances.

Post-Award Conference: A conference with the winning contractor to establish a common understanding of the contract and to identify any issues that require resolution.

Prescreening: The evaluation of case files for impacts on safety, ATC services, and other intangible benefits, as well as cost/benefits implications, to determine if the proposed change should be implemented.

Product Baseline: The initially approved documentation describing all of the necessary functional and physical characteristics of the configuration item and the selected functional and physical characteristics designated for production acceptance testing and tests necessary for support of the configuration item. In addition to this documentation, the product baseline of a configuration item may consist of the actual equipment and software.

Product Top-Down Structure: A hierarchical division of a product into its component CIs, which provides traceability of requirements and functionality.

Project Level CM: The life cycle configuration management responsibility as performed by an IPT or a region on a product or system. Project level CM includes planning, procedures and processes performed by an IPT/region for products/systems under their ownership.

Recovery Audit: An audit conducted after issues associated with a failed audit have been resolved that ensures completion of the audit process.

Recovery Plan: In cases where an audit has been disapproved, a recovery plan is prepared for correcting 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 required corrective actions have been completed.

Regional CM Coordinator: Serves as the regional focal point for configuration management including the coordination and review of case files and NCPs.

*Release: The designation by the originating activity that a document or software version is approved by an appropriate authority and is subject to configuration change management procedures.

*Released Data: (1) Data that has been released after review and internal approvals. (2) Data that has been provided to others outside the originating group or team for use (as opposed to for comment).

*Requirements: Specified essential attributes.

Requirements Traceability: Addresses the relationship between requirements at the highest level (i.e., conceptual) through the lowest level (i.e., physical); it describes the activities associated with decomposing the requirements from the highest to the lowest level and documenting them so that a full impact analysis (upward and downward) can be performed when changes are proposed.

Resolution of Comments: The process by which an NCP originator coordinates proposed solutions to comments received during Must Evaluation.

Site Survey: A review of actual equipment and infrastructure elements of a site/location conducted to gather information or establish a baseline.

Solution Providers: A term used to specify a non-IPT organization that has the responsibility for providing equipment to satisfy National Airspace requirements.

*Specification: A document that explicitly states essential technical attributes/requirements for product and procedures to determine that the product's performance meets its requirements/attributes.

*Support Equipment: Equipment and computer software required to maintain, test, or operate a product or facility in its intended environment.

Survey Team: The team of personnel who establish or re-establish facility space baselines through the performance and successful completion of a facility audit. This team is comprised of personnel who are technically capable of assessing the integrity of configuration managed documentation (i.e., as-built facility drawings and standards) against the physical layout at a facility. Generally the team is made up of a CM team lead, transition planning representative, and a facility representative.

System-Level Specification: Documents the common understanding of what the product is expected to do (its functional and performance requirements). It defines the capabilities the government expects to receive from the product or solution. This type of specification may be known by various names, may have varying levels of detail and exist in various written formats. Some common types are system, functional, performance, segment, procurement, or A-level specifications.

*Unit: One of a quantity of items (products, parts, etc.).

*Verification: The act of validating that a requirement has been fulfilled.

*Version: (1) One of several sequentially created configurations of a data product. (2) A supplementary identifier used to distinguish a changed body or set of computer-based data (software) from the previous configuration with the same primary identifier. Version identifiers are usually associated with data (such as files, data bases, and software) used by, or maintained in, computers.

APPENDIX/AMS Cross Reference Table

The numbering scheme for the CM policy statements found in the AMS and this appendix are different. The CM policy statements in AMS are found in Section 4. The numbering scheme is this appendix maintains the same numbering scheme that the policy statements had during coordination. This table shows where information found in Part One of this appendix is found in the AMS. The statements in each document are identical. When using CM policy as a reference, the statement numbers used in the AMS should be used.

Order Location	AMS Location	Order Location	AMS Location
Section I, Paragraph I-1	Section 4, Subsection 4.1, First Paragraph	Section II, Paragraph II-4	Section 4, Subsection 4.2, Fourth Paragraph
Section I, Paragraph I-2	Section 4, Subsection 4.1, Second Paragraph	Section II, Paragraph II-5	Section 4, Subsection 4.2, Fifth Paragraph
Section I, Paragraph I-3	Section 4, Subsection 4.1, Third Paragraph		
Section I, Paragraph I-4	Section 4, Subsection 4.1, Fourth Paragraph	Section III, Paragraph III-1	Section 4, Subsection 4.3, First Paragraph
Section I, Paragraph I-4.1	Section 4, Paragraph 4.1.1	Section III, Paragraph III-2	Section 4, Subsection 4.3, Second Paragraph
Section I, Paragraph I-4.2	Section 4, Paragraph 4.1.2	Section III, Paragraph III-3	Section 4, Subsection 4.3, Third Paragraph
Section I, Paragraph I-4.3	Section 4, Paragraph 4.1.3	Section III, Paragraph III-4	Section 4, Subsection 4.3, Fourth Paragraph
Section I, Paragraph I-4.4	Section 4, Paragraph 4.1.4	Section III, Paragraph III-5	Section 4, Subsection 4.3, Fifth Paragraph
Section I, Paragraph I-4.5	Section 4, Paragraph 4.1.5		
Section I, Paragraph I-5	Section 4, Paragraph 4.1.6	Section IV, Paragraph IV-1	Section 4, Subsection 4.4, First Paragraph
Section I, Paragraph I-6	Section 4, Paragraph 4.1.7	Section IV, Paragraph IV-2	Section 4, Subsection 4.4, Second Paragraph
Section I, Paragraph I-7	Section 4, Paragraph 4.1.8	Section IV, Paragraph IV-3	Section 4, Subsection 4.4, Third Paragraph
Section I, Paragraph 1-8	Section 4, Paragraph 4.1.9		
		Section V, Paragraph V-1	Section 4, Subsection 4.5, First Paragraph
Section II, Paragraph II-1	Section 4, Subsection 4.2, First Paragraph	Section V, Paragraph V-2	Section 4, Subsection 4.5, Second Paragraph
Section II, Paragraph II-2	Section 4, Subsection 4.2, Second Paragraph	Section V, Paragraph V-3	Section 4, Subsection 4.5, Third Paragraph
Section II, Paragraph II-3	Section 4, Subsection 4.2, Third Paragraph	Section V, Paragraph V-4	Section 4, Subsection 4.5, Fourth Paragraph