AMS CHANGE REQUEST (CR) COVERSHEET

Change Request Number: 15-20
Date Received: 9/10/15
Title: AMS Policy Changes to Sections 2.3, 2.4 and 4.11

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Guidance and Policy must be submitted with separate CR coversheets.

- (•) Policy

Or

- ( ) Procurement Guidance
- ( ) Real Estate Guidance
- ( ) Other Guidance

Summary of Change: his change request pertains to sections 2.3, 2.4, and 4.11 of the AMS.

The AMS Section 4.11 has been changed to state that the information security guidance for the acquisition planning phases is provided by the Information Security Guidance for System Acquisitions (ISGSA).

The AMS Section 2.3 has been changed to document that in addition to sustainment actions and new service delivery ideas, cloud service is also another option to address service shortfalls. Also the activities for NAS Conops Change paragraph has been extended to include identification and characterization of information security factors.

The AMS Section 2.4, including Figure 2.4-1, has been changed to incorporate a description of the information system security assessment prescribed for the CRD acquisition planning phase in the Information Security Guidance for System Acquisitions (ISGSA).

Edit flowchart to match image in 2.4
http://fast.faa.gov/flowcharts/grid.cfm?p=lmp_crd

Reason for Change: The AMS Section 4.11 is being changed to introduce the ISGSA into the AMS as the information security guidance for investment initiatives with an information service component. The AMS Section 2.3 is being changed to document the current practice of considering cloud service as an option to address service shortfalls. The AMS Section 2.4 is being changed to indicate that information security requirements and other Concept

Requirements and Definition (CRD) artifacts need to be supported by an information security assessment.

Development, Review, and Concurrence: The change to the AMS Section 4.11 Security has been developed in consultation with the AEB Security Risk WG to ensure it is consistent with the ISGSA. The changes to the AMS subsections 2.3 and 2.4 have been made in response to a request from and in consultation with AAP-130, and the changes ensure these subsections are consistent with the Information Security Guidance for System Acquisitions (ISGSA).

Target Audience: Service organizations seeking to acquire new information systems or seeking to make AMS investments on existing information systems or services.

Briefing Planned: Yes.

ASAG Responsibilities: Review and comment.

Section / Text Location: AMS sections 2.3, 2.4 [and corresponding flowchart], and 4.11
http://fast.faa.gov/docs/acquisitionManagementPolicy/AcquisitionManagementPolicy2.3.pdf
http://fast.faa.gov/docs/acquisitionManagementPolicy/AcquisitionManagementPolicy2.4.pdf
http://fast.faa.gov/flowcharts/grid.cfm?p=lmp_crd
http://fast.faa.gov/docs/acquisitionManagementPolicy/AcquisitionManagementPolicy4.11.pdf

The redline version must be a comparison with the current published FAST version.

○ I confirm I used the latest published version to create this change / redline

or

◉ This is new content

Links: N/A

Attachments: Redline and final documents.

Other Files: None.

Redline(s):

Section Revised: 2.3.1 What Must Be Done

Acquisition Management Policy - (~~7~~10/2015)

2.3 Service Analysis and Strategic Planning Revised 4/2013
2.3.1 What Must Be Done Revised 1/2015
2.3.2 Outputs and Products Revised 4/2013
2.3.2.1 Service Analysis and Strategic Planning Revised 4/2013
2.3.2.2 NAS ConOps Change Development and Decomposition Revised 4/2013

2.3 Service Analysis and Strategic Planning Revised 4/2013

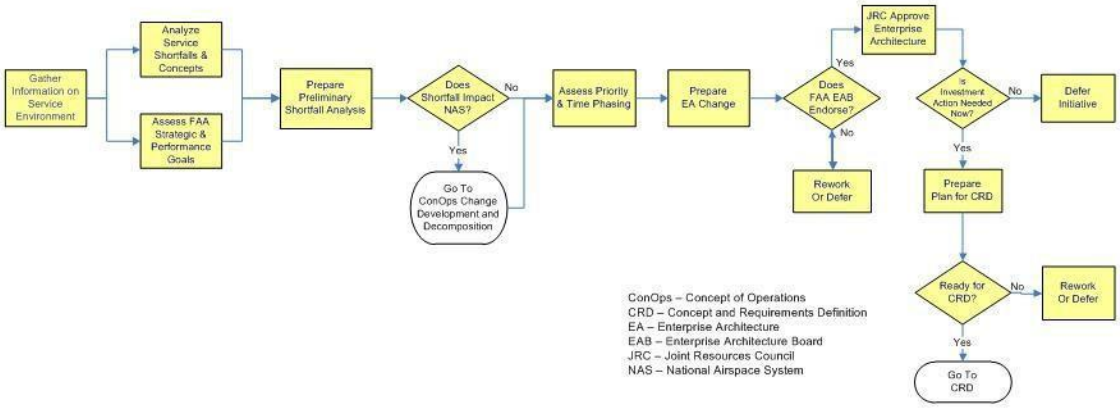
Service analysis and strategic planning determines what capabilities must be in place now and in the future to meet agency goals and the service needs of customers. Results are captured in the "as is" and "to be" states of the enterprise architecture, as well as the roadmaps for moving from the current to the future state. Results are also captured in line-of-business business plans and service organization operating plans, which specify how each will manage its RE&D, F&E, and OPS resources over time. These plans integrate new investment initiatives with the operation and support of fielded assets and other necessary actions to optimize service delivery. Continuing analysis keeps planning current with changes in the service and operational environment.

Industry best practices (e.g., technology and service demand forecasting, portfolio management, customer surveys) are employed during service analysis to align service outcomes with actions and activities necessary and sufficient to realize benefits for the FAA and its customers. Service analysis may lead to the refocus, reduction, or elimination of ongoing investment programs, and may identify new and more productive ways of doing business. It may also identify alternative paths for achieving service goals in a dynamic environment, and may identify opportunities for improving FAA strategic planning when the service environment evolves in ways not anticipated. Some investment opportunities may require research and development to demonstrate operational concepts, reduce risk, or define requirements before proceeding further in the lifecycle management process.

2.3.1 What Must Be Done Revised 1/2015

Figure 2.3-1-1 portrays the key activities of service analysis and strategic planning. These activities develop the information necessary for determining which service shortfalls or new ideas for improving service delivery are approved for inclusion in agency strategic planning documents. When a service shortfall impacts the National Airspace System, it enters the NAS ConOps change development and decomposition process (see Figure 2.3.1-2) to determine how it fits within the National Airspace System.

Figure 2.3-1-1 Key Activities of Service Analysis and Strategic Planning

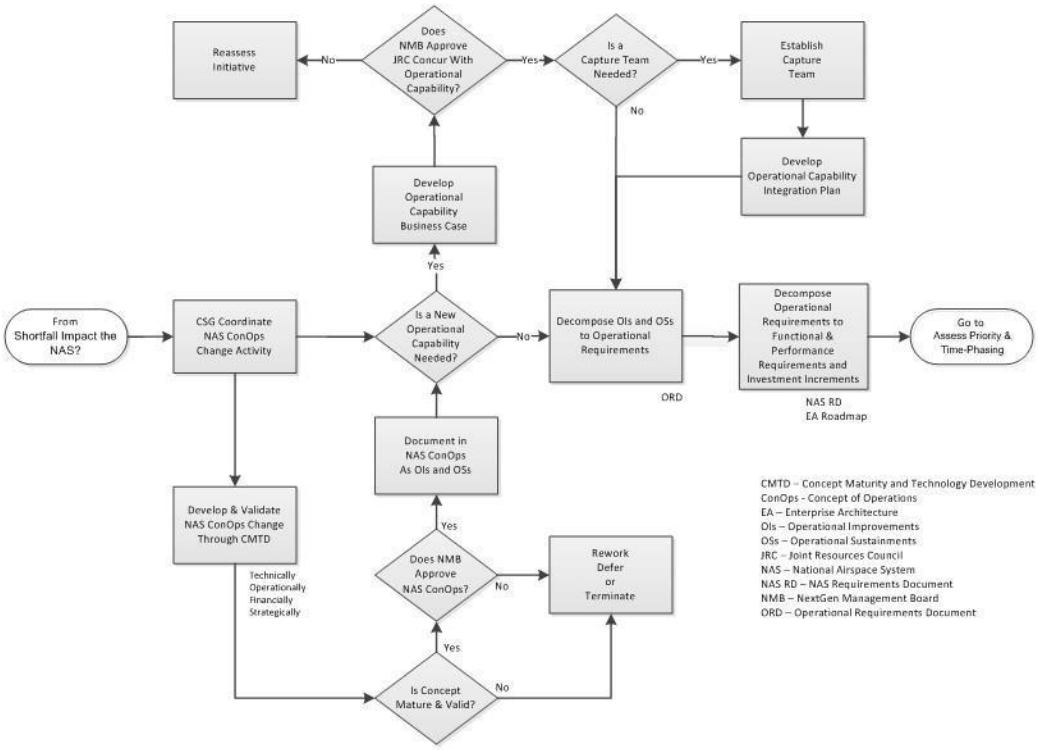


- **Gather Information on the Service Environment.** Service organizations analyze forecasts for aviation service needs and stay abreast of opportunities for improving service delivery as a basis for determining and prioritizing service needs and shortfalls. A continuing dialog with and feedback from customers (e.g., commercial air carriers, general aviation, air transport industry, state and local airport authorities) and users (air traffic and technical operations) are crucial, as is the supportability and operational outlook for fielded assets.
- **Analyze Service Shortfalls and Concepts.** Lines of business use service environment performance information to identify shortfalls and ideas for improving service delivery within their domain. Aviation research by NASA and other industry and government organizations may also identify emerging service shortfalls or technological opportunities for improving service delivery. This activity identifies business, technology, organizational, process, and personnel issues that affect service outcomes, as well as assumptions, risks, and dependencies.
- Assess FAA Strategic and Performance Goals. Service shortfalls or new ideas for improving service delivery should support current services or fulfillment of FAA strategic and performance goals. When they do not, the shortfall or new idea must be shown to have sufficient merit to warrant inclusion in agency strategic planning documents. Agency strategic plans and performance goals may also define service shortfalls that must be addressed in lower-level agency planning.
- **Prepare Preliminary Shortfall Analysis.** The service organization analyzes the shortfall or new idea as a foundation for understanding the problem and its urgency and impact. The shortfall is the difference between future service need and current capability. A service shortfall is usually addressed by a sustainment action for existing assets or a new service delivery idea including cloud services ~~or concept~~ for predicted gaps. A new idea or concept should deliver existing services more efficiently or provide new services of value to the FAA and aviation industry. At this stage, the service shortfall is expressed as levels of service improvement, not by specific performance values.
- **Does Shortfall Impact the National Airspace System?** A new service need or shortfall that impacts the National Airspace System is assessed by means of the NAS ConOps Change Development and Decomposition Process (see Figure 2.3.1-2) to determine whether or how the NAS ConOps should be changed. Once NAS needs or shortfalls have been appropriately included in the NAS ConOps as operational improvements or sustainments, they move forward with non-NAS shortfalls to determine how they should be integrated within the FAA enterprise architecture.
- **Assess Priority and Time-phasing.** A new service shortfall or need must be shown to have sufficient merit to warrant inclusion in the enterprise architecture when evaluated against other service needs of the agency. The line of business works with the Technical Review Board (NAS) or the Architecture Review Board (non-NAS) and other lines of business to determine how a new service need, technology refresh, or sustainment activity should be planned, time-phased, and integrated within the architecture relative to all other agency service needs. This activity may require rework of existing shortfalls and improvements already in the architecture.
- **Prepare Enterprise Architecture Change.** The service organization prepares change documents reflecting the service need or shortfall and submits them to the FAA Enterprise Architecture Board for endorsement. NAS service needs and shortfalls are expressed as operational improvements and operational sustainments.

- **Does FAA Enterprise Architecture Board Endorse the Change?** The FAA Enterprise Architecture Board determines whether and how to integrate new service needs within the enterprise architecture and its roadmaps. In making this determination, the board analyzes and assesses the new service need against all other service needs of the FAA using such criteria as contribution to agency strategic goals, monetary or performance benefits, compatibility with the enterprise architecture, risk, and political sensitivity. The decision to endorse and place a new service need, improvement, or sustainment within the enterprise architecture validates that this service need is an agency priority and warrants further action.
- Joint Resources Council Approves the Enterprise Architecture. The Joint Resources Council approves the FAA Enterprise Architecture annually. No service need can proceed further in the AMS lifecycle management process unless it is in the enterprise architecture approved by the JRC. Emergency needs not contained in the JRC-approved architecture may be presented to the FAA Enterprise Architecture Board by exception.
- **Rework or Defer.** Service needs, shortfalls, improvements, and sustainments not approved for inclusion in the enterprise architecture are reworked or deferred according to the direction of the FAA Enterprise Architecture Board or Joint Resources Council, as appropriate.
- **Is Investment Action Needed Now?** The investment increment enters concept and requirements definition at the appropriate time as determined by its time-phasing in the appropriate enterprise architecture roadmap.
- **Defer Initiative.** Investment action is deferred when action is not needed now to meet agency plans and schedules.
- Prepare Plan for Concept and Requirements Definition. NAS Systems Engineering Services (NAS) or Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS) works with the implementing and operating service organizations to prepare a plan for concept and requirements definition. This plan (1) specifies how tasks will be accomplished; (2) defines roles and responsibilities of participating organizations; (3) defines outputs and exit criteria; (4) establishes a schedule for completion; and (5) specifies needed resources. By signing the plan for concept and requirements definition, organizations that will do the work agree to provide the necessary resources.
- **Ready for Concept and Requirements Definition?** The FAA Enterprise Architecture Board makes the decision to enter concept and requirements definition or directs other action.
- **Rework or Defer.** The investment initiative is reworked or deferred when planning or organizational support is not sufficient to enter concept and requirements definition.

Figure 2.3.1-2 NAS ConOps Change Development and Decomposition Process

(Applies to the NAS only)



- **Concept Steering Group Coordinates NAS ConOps Change Activity.** The Concept Steering Group reviews the preliminary shortfall analysis to determine whether the service shortfall or new idea is addressed in the NAS ConOps. New shortfalls or ideas that are already within the scope of the NAS ConOps move to decomposition into operational requirements and investment initiatives after determining whether they should be incorporated into a new or existing operational capability. For shortfalls and ideas not addressed in the NAS ConOps, the Concept Steering Group coordinates discussion with the sponsor and the lines of business to determine what development or validation activity is needed.
- **Develop and Validate NAS ConOps Change Through Concept Maturity and Technology Development.** New ideas for improving NAS service or eliminating a shortfall must be validated to be technically and financially feasible, strategically aligned with agency goals and objectives, and have significant operational benefit to warrant inclusion in the NAS ConOps. The Concept Steering Group coordinates activity to develop and validate new ideas and concepts. Typically, the concept maturity and technology development process is applied to the point where technical risk is sufficiently low and potential benefits sufficiently high to justify inclusion. This activity includes ~~a~~ safety and security assessments to identify and characterize any safety hazards and information security factors associated with the idea or concept.
- **Is Concept Mature and Valid?** The NAS ConOps is a stable document that evolves over time. Only the best high-value new concepts and ideas are added. The Concept Steering Group assesses development and validation results and records their findings and recommendations in a memorandum to the NextGen Management Board, which approves all changes to the NAS ConOps.

- **Does NextGen Management Board Approve NAS CONOPS?** The NextGen Management Board approves changes to the NAS ConOps. Changes are presented to the Joint Resources Council. Any JRC concerns or issues are resolved to ensure approved concepts are beneficial *and* affordable and supported by both management bodies.
- Document Changes in NAS ConOps as Operational Improvements or Sustainments. Service shortfalls and new concepts are documented in the NAS ConOps as operational improvements and operational sustainments.
- **Is a New Operational Capability Needed?** Grouping and managing operational improvements and sustainments with a high degree of interdependency may result in a high-value operational capability for the agency and aviation community. In such cases, one or more operational improvements will be organized and managed as a portfolio to ensure all essential elements of the operational capability are obtained and deployed.
- **Develop Operational Capability Business Case.** Advanced Concepts and Technology Development works with the ATO Program Management Office and Investment Planning & Analysis to develop a business case for the operational capability. The business case contains a rough estimate of the costs and benefits associated with developing and deploying the operational sustainments and improvements necessary to enable the operational capability. The PMO coordinates with ATO service organizations to derive rough cost estimates for the work required to develop and deploy the investment increments necessary to achieve the operational capability. These same organizations derive a rough monetized estimate of benefits that will accrue to the FAA and aviation community when the operational capability is fully deployed. A preliminary assessment of risk, priority, affordability, and political sensitivity complete the business case.
- **Does NMB Approve and JRC Concur With the Operational Capability?** The NextGen Management Board decides whether to approve and establish the operational capability. The decision is based on the business case, contribution to agency strategic and performance goals, and affordability. The operational capability is implemented through its constituent investment increments approved and baselined individually by the Joint Resources Council. Obtaining these capabilities may require establishment of a capture team to integrate and coordinate activity by multiple program offices or service organizations providing the investment increments necessary to achieve the overall operational capability. By concurring with the NextGen Management Board decision, the Joint Resources Council acknowledges the operational capability and its constituent investment increments are agency priorities. The business case for the operational capability is a determining factor at future investment decisions for increments necessary to achieve the operational capability.
- **Reassess Initiative.** If the NextGen Management Board does not approve the operational capability, it may terminate the effort or recommend other activity to amend the concept or reduce risk. Any issues or concerns of the Joint Resources Council must be resolved before the operational capability is implemented.
- **Is a Capture Team Needed?** The NextGen Management Board decides whether to establish a capture team to coordinate the development, integration, and deployment of investment increments necessary to achieve an operational capability. In making this decision, the board evaluates the complexity and risk associated with the operational capability and the availability of resources. The capture team brings together cross- agency empowered representatives from each organization that must develop and deploy an investment increment

to achieve the operational capability. The objective is informed, integrated, and coordinated decision-making by all parties.

- **Establish Capture Team.** Each line of business that must contribute to achieve the operational capability provides an empowered representative to the capture team. The capture team monitors development, integration, and deployment of all elements of the operational capability, as well as plan and oversee a post-implementation evaluation to confirm that forecast benefits are being achieved or to define and implement corrective action when they are not.
- **Develop Operational Capability Integration Plan.** The team works with the portfolio manager to develop an Operational Capability Integration Plan (OCIP) that specifies responsibilities and agreements among all team members and organizations. The OCIP also defines the lifecycle plan, performance goals and measures, and operational benefits that will accrue from implementation of the operational capability.
- **Decompose Operational Improvements and Operational Sustainments to Operational Requirements.** A cross-organizational team with members from all lines of business and led by Advanced Concepts and Technology Development decomposes the NAS ConOps narrative of operational improvements and operational sustainments into NAS operational requirements. These requirements are recorded in the NAS Operational Requirements Document.
- **Decompose Operational Requirements to Functional and Performance Requirements and Investment Increments.** A cross-organizational team decomposes NAS operational requirements to NAS functional and performance requirements. These requirements are specified with sufficient detail for allocation to investment increments that will be undertaken to achieve the operational improvements and sustainments in the NAS ConOps. The goal is clear and unambiguous traceability of requirements from the NAS ConOps to the NAS Operational Requirements Document to the NAS Requirements Document and then to the program requirements document of specific investment increments. Each investment increment enters concept and requirements definition at the appropriate time as determined by their time-phasing in the enterprise architecture roadmap.

2.3.2 Outputs and Products **Revised 4/2013**

2.3.2.1 Service Analysis and Strategic Planning **Revised 4/2013**

- Preliminary shortfall analysis that describes qualitatively the service need, shortfall, and legacy assets;
- Enterprise architecture change notices, products, and amendments;
- Updates to the enterprise architecture; and
- Plan for concept and requirements definition.

Key work products are verified and validated according to the FAA AMS Verification and Validation Guidelines before the CRD readiness decision.

2.3.2.2 NAS ConOps Change Development and Decomposition **Revised 4/2013**

- White papers, research reports, and outputs from concept maturity and technology development;
- Updates to the NAS ConOps;
- Operational capability business case;
- Operational capability;
- Capture team;
- Operational Capability Integration Plan;
- Updates to the NAS Operational Requirements Document; and
- Updates to the NAS Requirements Document.

Key work products are verified and validated according to the FAA AMS Verification and Validation Guidelines before the CRD readiness decision.

2.3.3 Who Does It? Revised 4/2013

2.3.3.1 Service Analysis and Strategic Planning Revised 1/2015

Organization(s)	Responsibilities
Service organizations	• Conduct service analysis • Prepare preliminary shortfall analysis reports • Prepare EA change notices, products, and amendments
Advanced Concepts and Technology Development Office (ANG-C), NextGen Lifecycle Integration Office (ANG-D)	• Assists NAS service organizations when preparing service analysis outputs and products
Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS)	• Assists non-NAS service organizations when preparing service analysis outputs and products
Lines of Business	• Prioritize LOB service shortfalls and new ideas • Determine whether a service shortfall impacts the National Airspace System • Work with the Technical Review Board to time-phase operational improvements and operational sustainments in the NAS architecture roadmaps
Technical Review Board	• Works with the lines of business to time-phase operational improvements and operational sustainments in the NAS architecture roadmap
Architecture Review Board	• Works with the lines of business to prioritize non-NAS service shortfalls and needs
FAA Enterprise Architecture Board	• Manages the FAA Enterprise Architecture

2.3.3.2 NAS ConOps Change Development and Decomposition Revised 4/2013

Organization(s)	Responsibilities
Service organization with shortfall/concept, Advanced Concepts and Technology Development Office (ANG-C), NextGen Lifecycle Integration Office (ANG-D)	□ Develop information needed to assess impact of shortfall/concept on the NAS ConOps
Service organization with shortfall/concept, Advanced Concepts and Technology Development Office (ANG-C), Investment Analysis and Planning (IP&A)	□ Develop and validate shortfalls and new concepts technically, operationally, strategically, and financially
Advanced Concepts and Technology Development Office (ANG-C), CSG, service organization with shortfall/concept	□ Present shortfall/concept to the NextGen Management Board for inclusion in the NAS ConOps
NAS Systems Engineering Services Office (ANG-B), Advanced Concepts and Technology Development Office (ANG-C), NextGen Lifecycle Integration Office (ANG-D)	□ Document shortfall as operational improvements or sustainments in the NAS ConOps
ANG-B/C/D, PMO/LOB	□ Determine need for new operational capability
ANG-C, ANG-5, PMO/LOB, IP&A	□ Develop operational capability business case □ IP&A reviews the business case for the Joint Resources Council
ANG-C, ANG-5, PMO/LOB	□ Contribute to and participate in the decision to create a new operational capability
ANG-C/D, PMO/LOB	□ Determine the need for a capture team to plan and oversee a new operational capability
ANG-C/D, PMO/LOB, operating organization	□ Contribute to and establish a capture team
ANG-C, AJV-7, LOBs, service organizations	□ Decompose operational improvements and sustainments in the NAS ConOps into operational requirements and investment increments
ANG-B/C/D, operating	□ Decompose NAS operational requirements into NAS

organization, capture team (if applicable)	functional and performance requirements

2.3.4 Who Approves? Revised 4/2013

2.3.4.1 Service Analysis and Strategic Planning Revised 4/2013

Artifact	Approval Authority
Preliminary shortfall analysis	NextGen Lifecycle Integration Office, Director of the service organization with the need
Enterprise architecture products and amendments	FAA Enterprise Architecture Board
Plan for concept and requirements definition	Vice Presidents (ATO) or Directors (non-ATO) of the service organization with the service need and the operating service organization and the FAA Enterprise Architecture Board chairperson
FAA Enterprise Architecture	Joint Resources Council

2.3.4.2 NAS ConOps Change Development and Decomposition Revised 4/2013

Artifact	Approval Authority
NAS ConOps	NextGen Management Board
Operational Capability Business Case	NextGen Systems Analysis and Modeling (ANG-5)
Operational capability	NextGen Management Board (JRC concurs)
Capture team	NextGen Management Board
Operational Capability Integration Plan	NextGen Management Board
NAS Operational Requirements Document	ATO Operational Concepts, Validation & Requirements (AJV-7)
NAS Requirements Document	NAS Systems Engineering Service (ANG-B)

2.3.5 Concept and Requirements Definition Readiness Decision Revised 4/2013

The concept and requirements definition readiness decision occurs when an enterprise architecture roadmap indicates action must be taken to address a critical service shortfall or opportunity. At this decision, the FAA Enterprise Architecture Board verifies: (1) the service shortfall, operational improvement, or operational sustainment is in an enterprise architecture roadmap; and (2) planning and resources for concept and requirements definition are in place. The readiness decision is the gateway between service analysis and strategic planning and concept and requirements definition.

2.3.5.1 Entrance Criteria Revised 4/2013

The following are required for the concept and requirements definition readiness decision:

- Service shortfall, operational improvement, or sustainment is in an enterprise architecture roadmap and represents a compelling need of the FAA; and the
- Plan for concept and requirements definition is approved by the FAA Enterprise Architecture Board.

2.3.5.2 Decision Actions Revised 4/2013

The FAA Enterprise Architecture Board makes the decision to enter concept and requirements definition.

Section Revised: 2.4 Concept an Requirements Definition
2.4.1 What Must Be Done

Acquisition Management Policy - (~~7~~10/2015)

2.4 Concept and Requirements Definition **Added 4/2013**

All investment opportunities that require funding outside the scope of an approved acquisition program baseline undergo concept and requirements definition. This includes upgrades or replacements to existing capability without approved investment funding.

Concept and requirements definition translates priority operational needs in the enterprise architecture into preliminary requirements and a solution concept of operations for the capability needed to improve service delivery. It also quantifies the service shortfall in sufficient detail for the definition of realistic preliminary requirements and the estimation of potential costs and benefits. Finally, concept and requirements definition identifies the most promising alternative solutions able to satisfy the service need, one of which must be consistent with the conceptual framework in the enterprise architecture.

Planning for concept and requirements definition begins when a roadmap in the enterprise architecture specifies action must be taken to address a priority service or infrastructure need. These needs typically relate to existing or emerging shortfalls in the "as is" architecture or essential building blocks of the "to be" architecture. Should a service organization wish to pursue an investment opportunity not in an enterprise architecture roadmap, it must first develop architectural change products and amendments and get endorsement from the FAA Enterprise Architecture Board and approval by the Joint Resources Council.

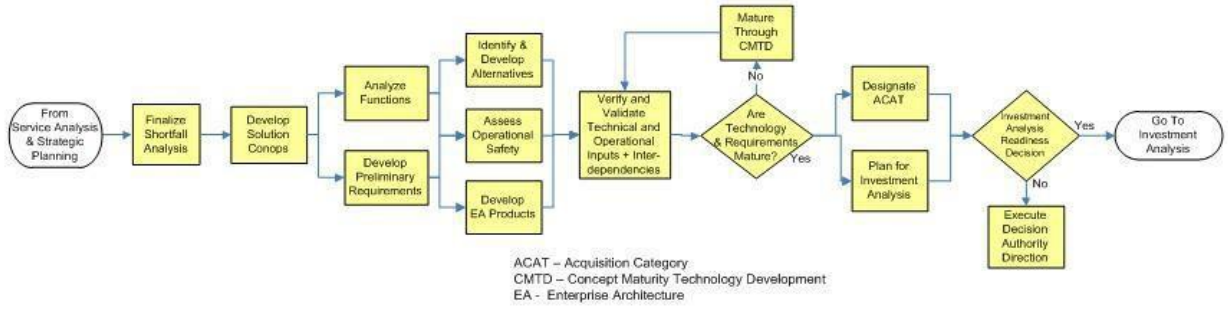
The FAA may undertake research activity or employ research by other agencies or industry to define the operational concept, develop preliminary requirements, demonstrate and refine computer-human interfaces, reduce risk, or achieve customer buy-in to potential solutions to service need.

When the investment initiative entering concept and requirements definition is an element of an operational capability (NAS only), the capture team responsible for achieving the operational capability (if established) participates in and contributes to CRD activity. The capture team is populated with representatives from each service team or program office that will provide an increment of the overall operational capability. These team members ensure all preliminary alternatives emerging from concept and requirements definition for each investment increment fit within the strategy for obtaining the capability and can provide the necessary performance and functionality.

A nonmateriel solution that emerges during concept and requirements definition may proceed to solution implementation upon approval of implementation and resource planning, provided it satisfies the need, can be achieved within approved budgets, and is acceptable to users and customers. This determination is made by the Vice President or Director of the service organization with the service need with the concurrence of the FAA Enterprise Architecture Board.

The key activities of concept and requirements definition are shown in Figure 2.4-1. They apply to all investment initiatives seeking investment funding, whether a stand-alone investment initiative or an element of a complex operational capability.

Figure 2.4-1 Key Activities of Concept and Requirements Definition



2.4.1 What Must Be Done Revised 1/2015

NOTE: The plan for concept and requirements definition must be approved by the Vice Presidents (ATO) or Directors (non-ATO) of the service organization with the service need and the operating service organization and by the FAA Enterprise Architecture Board chairperson before the start of any CRD activity (see AMS Section 2.3.1). Roadmap planning in the enterprise architecture specifies when concept and requirements definition activity must begin.

- Finalize Shortfall Analysis. The service organization or program office updates, refines, and quantifies the preliminary shortfall identified during service analysis in sufficient detail to serve as the basis for (1) clearly understanding the nature, urgency, and impact of the service need; (2) defining preliminary requirements; (3) determining realistic and economic alternative solutions; and (4) quantifying likely program costs and benefits.
- Develop Solution Concept of Operations. The solution concept of operations describes how users will employ the new capability within the operational environment and how it will satisfy service need. The solution ConOps defines the roles and responsibilities of key participants (e.g., controllers, maintenance technicians, pilots); explains operational issues that system engineers must understand when developing requirements; identifies procedural issues that may lead to operational change; and establishes a basis for identifying alternative solutions and estimating their likely costs and benefits. More than one solution concept of operations may be required if proposed alternative solutions differ significantly from each other.
- Analyze Functions. The service organization or program office translates stakeholder needs in the shortfall analysis, solution concept of operations, and NAS Requirements Document (NAS only) into high-level functions that must be obtained to achieve the desired service outcome. These are then decomposed into sequentially lower level functions. For NAS investment initiatives, this decomposition may have been done during service analysis when operational improvements and sustainments in the NAS ConOps were decomposed into functional and performance requirements and investment increments.
- Perform Preliminary Information System Security (ISS) Assessment. Service organizations assess the investment initiative to determine: (1) ISS risk factors for input to the ACAT determination, (2) ISS requirements for the preliminary program requirements document,

(3) a rough ISS cost estimate for each alternative solution, and (4) a rough estimate of annual operational benefits gained from implementing security requirements.

- Develop Preliminary Requirements. The service organization prepares preliminary requirements in consultation with the NAS Systems Engineering Services organization (NAS) or the Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS). Preliminary requirements specify only function and performance, and do not define a solution. They must be expressed such that the degree to which different solutions satisfy them can be measured and evaluated. Research and analysis or even prototyping during service analysis may be necessary to define preliminary requirements adequately. When the investment increment is an element of an operational capability, preliminary program requirements must be derived from and traceable to operational capability requirements, when applicable.
- Identify and Develop Alternatives. The service organization or program office surveys the marketplace to identify feasible and economic solutions. Both material and non- material alternatives are evaluated. One candidate solution must be the hypothesized "best" alternative in the enterprise architecture. Key factors are safety, security, operational cost efficiencies, technological maturity, and impact on the workforce and enterprise architecture. Alternatives should be qualitatively different from each other. Low risk, cost-effective, and operationally suitable commercial or non-developmental solutions are preferred. Alternatives may not meet 100 percent of preliminary requirements. Rough lifecycle costs are developed for each alternative and compared to the monetized shortfall as a basis for determining whether it should be retained or eliminated from consideration. Rough lifecycle costs are also calculated for sustaining the legacy case in service. When a new capability involves information processing and storage, use of cloud computing is considered and results of the cloud suitability assessment are documented.
- Assess Operational Safety. The service organization works with ATO Safety and Technical Training to assess operational safety of the proposed initiative. This assessment identifies, assesses, and documents operational hazards and risks associated with alternative solutions. No alternative is pursued whose operational risk cannot be mitigated to an acceptable level at affordable cost.
- Develop Enterprise Architecture Products. The service organization engages with the appropriate architecture organization to develop required products and amendments. These include the operational (business rule) and systems (engineering) view families.
- Verify and Validate Technical and Operational Inputs and Interdependencies. Key technical and operational work products are verified and validated to be complete and mature as the basis for proceeding to the investment analysis readiness decision. This includes the solution ConOps, preliminary requirements document, safety and security risk assessments, architecture products, and interdependencies with other investment increments.
- Are Technology and Requirements Mature? NAS Systems Engineering Services (NAS) or Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS) evaluates preliminary requirements and the technology base of alternative solutions to ensure they are sufficiently mature for further progression in the AMS lifecycle management process. The objective is to have only low-risk investment initiatives entering investment analysis and solution implementation. Additional research and development may be prescribed when technological risk is too high or when requirements are not mature or the investment initiative may be deferred or terminated.

- Mature Through Concept Maturity and Technology Development (NAS only). The Technical Review Board recommends further development for NAS initiatives when technological risk is too great or requirements are not sufficiently known. Prescribed activity may take the form of simulation, analysis, operational prototyping, or field demonstration in a controlled operational environment. See the Guidelines for Concept Maturity and Technology Development for more information.
- Designate Acquisition Category. The service team or program office prepares an acquisition category determination request based on preliminary financial data, as well as subjective assessments of complexity, risk, political sensitivity, safety, and security. The request is vetted through NAS Systems Engineering Services (NAS) or Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS) and submitted to the Acquisition Executive Board for a designation.
- Plan for Investment Analysis. The plan for investment analysis: (1) defines scope and assumptions; (2) describes alternatives and their associated rough lifecycle costs; (3) describes planned activities and specifies how tasks will be accomplished; (4) defines output and exit criteria; (5) establishes a schedule for completion; (6) defines roles and responsibilities of participating organizations; and (7) estimates resources needed to complete the work. By signing the plan for investment analysis, the organizations that will conduct the analysis agree to provide the resources necessary to complete the work. This activity includes development of the investment analysis readiness decision package and pre-briefings to decision-makers.

2.4.2 Outputs and Products **Added 4/2013**

- Solution concept of operations;
- Preliminary program requirements document;
- Architecture products and amendments;
- Realistic alternatives with rough cost estimates;
- Detailed shortfall and functional analyses;
- Safety risk assessment;
- Shortfall analysis report;
- Acquisition category designation request; and
- Investment analysis plan.

Key work products are verified and validated according to the FAA AMS Verification and Validation Guidelines before the investment analysis readiness decision.

2.4.3 Who Does it? **Added 1/2015**

Organization(s)	Responsibilities
Implementing service organization	• Leads and completes all activities and outputs of concept and requirements definition unless otherwise specified in the plan for CRD • Prepares the acquisition category designation request

NAS Systems Engineering Services Office (ANG-B), Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS)	Provides engineering services in such areas as specialty engineering, safety and security analysis, and architecture products Validates technical and operational products of CRD Assesses maturity of solution technology and requirements
NAS Lifecycle Integration Office (ANG-D), Program Management Office, lines of business, operating service organization, Office of Information & Technology, Strategy & Performance Service, EA Division (non-NAS)	Assists the implementing service organization in completing CRD activities Maintains guidance and acquisition aids for service analysis and concept and requirements definition
Capture team (NAS only)	• Monitors and oversees CRD activity when the investment initiative is an element of an operational capability • Ensures alternatives can provide the performance and functionality necessary to achieve the overall operational capability

Detailed roles and responsibilities of participating organizations for each CRD activity and output or product are found in the Service Analysis and Concept and Requirements Definition Guidelines.

2.4.4 Who Approves? Added 4/2013

Artifact	Approval Authority
Acquisition category	Acquisition Executive Board approves, JRC concurs
CRD outputs and products	Approval authorities are found in the Service Analysis and Concept and Requirements Definition Guidelines.

2.4.5 Investment Analysis Readiness Decision Added 4/2013

The investment analysis readiness decision determines whether the solution ConOps, preliminary requirements, architecture products and amendments, and preliminary alternatives are sufficiently mature to warrant entry into investment analysis. The decision is made within context of all ongoing and planned investment activities to sustain and improve service delivery. It ensures proposals for new investment are consistent with overall corporate needs and planning.

2.4.5.1 Entrance Criteria **Added 4/2013**

The following are required for the investment analysis readiness decision:

- Preliminary program requirements document;
- Realistic alternative solutions;
- Architecture products and amendments;
- Approved shortfall analysis report;
- Signed plan for investment analysis.

The full list of work products that may be required for the investment analysis readiness decision is found on the JRC Secretariat website.

2.4.5.2 Joint Resources Council Actions **Added 4/2013**

The Joint Resources Council makes the decision to enter investment analysis.

Section Revised: 4.11 Security

Acquisition Management Policy - (~~7~~10/2015)

4.11 Security Revised 1/2014

4.11 Security Revised 1/2014

Introduction

Service organizations and program offices must allow sufficient time and resources to address security laws, policies, and orders including the cost of implementing required security controls into acquired components. Security policy within the FAA is divided into information security; physical, facility, and personnel security; and sensitive information and personally identifiable information. There is overlap between the disciplines (for example, physical security is employed to protect classified materials), so all areas of security policy must be evaluated to ensure full compliance with the various orders and policies.

Information Security Policy

The Federal Information Security Management Act, 2002 (FISMA), Office of Management and Budget Circular A-130, Management of Federal Information Resources, National Institute of Standards and Technology (NIST) guidance, and other federal, departmental, and agency-level guidance and standards as amended, describe information system security (ISS) needed for all FAA information systems. FAA information systems reside in one of three domains: national airspace system (NAS), mission support/administrative, and research and development. They may consist of government-owned/managed components, contractor-owned/managed components, or combinations of these types. They are segregated into infrastructure for air traffic operations and infrastructures for information technology administrative support. The infrastructures exchange information via authorized security gateways.

FAA ISS requirements are derived from NIST special publications and federal information processing standards. Because the NAS is classified as critical infrastructure, NAS systems must comply with additional ISS requirements as defined by Air Traffic Organization Policies. These ATO policies can be found on the FAA's Website under policy and guidance and are designated with the letters "JO".

To receive a successful in-service decision, all FAA investment programs must undergo a security authorization that assesses outputs and products against mandatory security requirements. The security authorization process is defined in FAA Order 1370.82, Information Systems Security Program. The Security Authorization Handbook details the process for compliance with ISS requirements during solution implementation and in-service management. Investment programs mustshould consult the Security Authorization Handbook and coordinate with the ISS manager for their line of business the Information Security Guidance for System Acquisitions (ISGSA) at each planning phase of the AMS lifecycle to ensure information security requirements and related information are included in acquisition artifacts, and to ensure the investment program is on track for a successful security authorization.

Physical, Facility and Personnel Security Policy

The FAA must conform with national policy related to physical security of the aviation infrastructure including leased and owned facilities, the security of all information associated with operation of the

FAA and aircraft operations, and personnel security. The FAA is also obligated to protect proprietary information to which it has access. Physical security is directly applicable to aviation industry operations and activities, and to supporting infrastructure such as communications, sensors, and information processing. FAA Order 1600.69, Facility Security Management Program, establishes both policy and guidance for physical security.

FAA Orders 1600.1, Personnel Security Program, establishes both policy and guidance for FAA personnel security. In addition, detailed guidance to implement personnel and physical security with respect to contractors is in FAA Order 1600.72, Contractor and Industrial Security Program.

Sensitive Information and Personally Identifiable Information Policy

The FAA is required by Executive Orders 13526 to protect classified national security information from unauthorized disclosure. Systems containing or processing classified data are managed by the FAA Office of Security and Hazardous Materials Safety in accordance with FAA Order 1600.2, Safeguarding Classified National Security Information. The FAA is also required under 49 CFR Part 15 to protect sensitive unclassified information from public disclosure. FAA Order 1600.75 Protection Sensitive Unclassified Information provides both policy and guidance.

The Privacy Act of 1974 and the E-Government Act of 2002 (Public Law 107-347) mandate protection of an individual's right to privacy and the prevention of unauthorized dissemination of personal information. FAA Order 1280.1, Protecting Personally Identifiable Information, establishes both the policy and guidance. In addition it establishes the position of FAA Privacy Officer with respect to information technology.