

APPENDIX XV

150. CM IN THE NAS LIFE CYCLE

150.1 CM in the NAS life cycle. It is FAA's policy to develop and implement the techniques of Configuration Management in order to achieve required NAS performance, operational efficiency, reliability, maintainability, and safety. The NAS life cycle is complex in that there is a current system which is to be transformed over time into the desired system. Embedded within the overall NAS is a diverse set of subsystems each executing its assigned portion of the NAS mission and each with its own, unique subsystem life cycle. These individual subsystem life cycles must be coordinated and managed in order that the NAS life cycle be effectively concluded. From time to time groups of subsystem life cycles must be synchronized so that incremental capabilities may be introduced into the operational NAS. As a result, interfaces among subsystems must be controlled not only when allocation of functionality to subsystems is defined, but throughout each of the otherwise unsynchronized life cycles of each subsystem.

The three basic NAS life cycle phases, requirements determination, acquisition, and operational support, provide the framework for CM activity. The requirements determination phase determines the operational requirements through mission analyses, technology application studies, and concept analyses. During the acquisition phase, NAS functional requirements are allocated to major subsystem components; and subsystem equipment, software, and firmware are designed, developed, produced, installed, and commissioned. The operational phase covers the time when each project enters operational service until it is removed from service. This phase provides operational service in the most efficient, cost-effective manner possible. While CM is applied throughout the life cycle, its specific application is dependent upon the life-cycle phase being considered. Note, however, that for the NAS, each of the three phases is always in execution: requirements are continually being updated, subsystems are continually being acquired, and the operational NAS is in continuous operation. As a result, all the CM activities described here are always in simultaneous execution. During the requirements determination phase, CM not only provides the mechanisms to control the operational requirements and performance/system specifications, but also ensures discipline early in the development process. As development progresses and technical requirements are clarified, the need for visibility into the functional and physical characteristics of end products increases, as does the need to formally control changes to those characteristics.

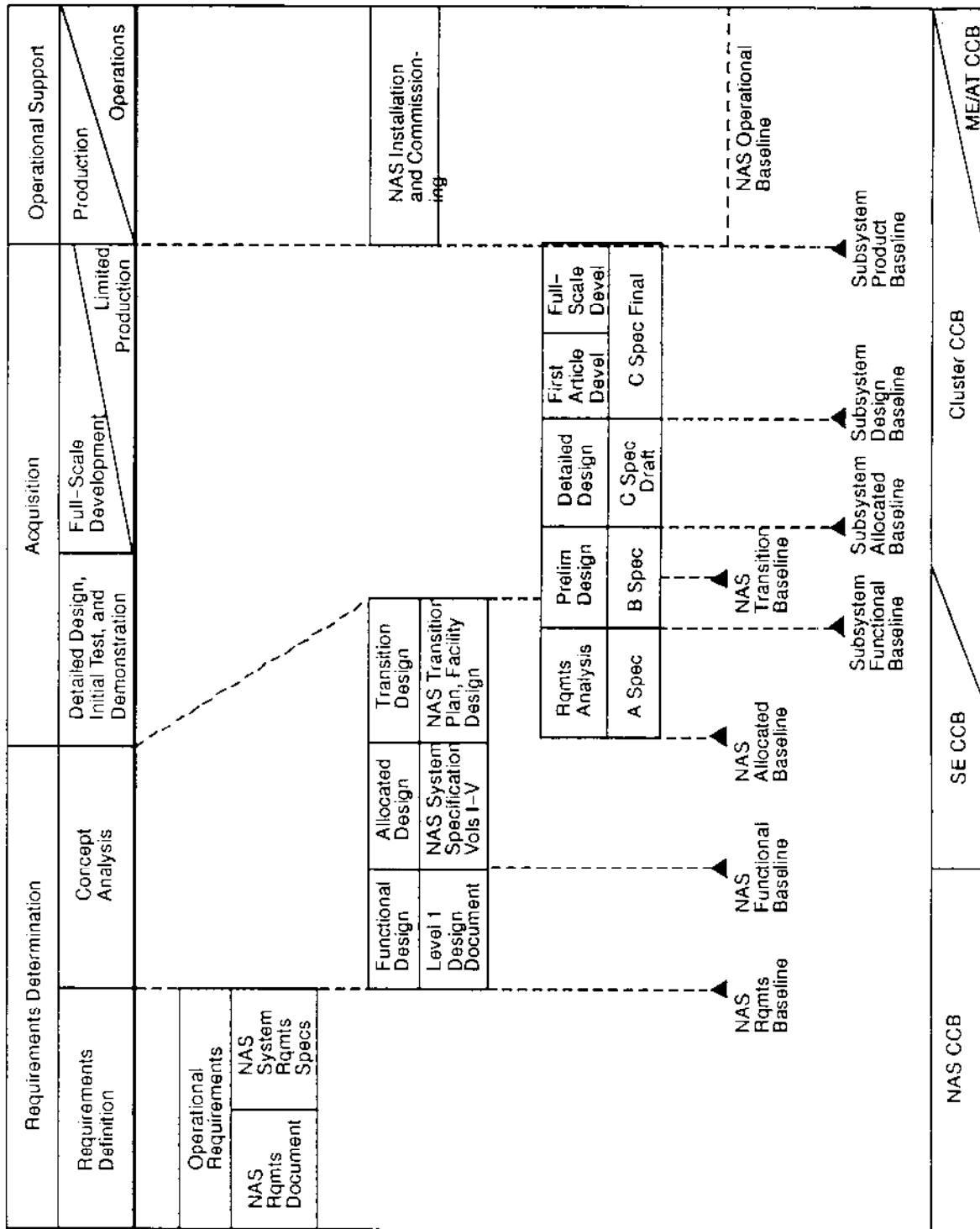
Configuration management for the NAS is based on the life cycle management approach to NAS Plan implementation which involves transitioning from functional NAS operational requirements to an overall NAS design. Functional requirements are allocated to individual projects within the NAS, each of which has its own baselines. The project products are integrated into the

existing NAS upon completion of production, and they are operationally maintained until removed from service. The NAS life cycle is depicted in Figure 21.

The Configuration Management system established by a contractor influences the NAS life cycle. Contractor configuration management response flows from the acquisition life cycle phase to support the operational life cycle phase. Baselines shall be consistent and traceable to operational requirements.

150.2 Software development interface. FAA-STD-026 establishes requirements for a uniform software development process which is applicable throughout the system life-cycle. It includes the generation of different types and levels of software and documentation, the application of development tools, approaches and methods and project planning and control.

The life cycle established in FAA-STD-026 is directed to software development. When the standard is invoked along with FAA-STD-021, the FAA-STD-021 life cycle shall be followed. The allocated baseline shall be established following PDR instead of SSR to keep the baselines consistent.



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Figure 21 NAS Life Cycle Model

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