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NASA Procedural Requirements

NPR 8810.1A

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2013

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COMPLIANCE IS MANDATORY FOR NASA EMPLOYEES

Center Master Planning

**Responsible Office: Facilities Engineering and Real Property
Division**

Table of Contents

Preface

- P.1 Purpose
- P.2 Applicability
- P.3 Authority
- P.4 Applicable Documents and Forms
- P.5 Measurement/Verification
- P.6 Cancellation

Chapter 1. Introduction

Chapter 2. Responsibilities

Chapter 3. Center Master Planner Process and Requirements

- 3.1 Overview
- 3.2 Process Summary
- 3.3 Plan Development
- 3.4 Plan Documentation
- 3.5 Plan Communication

Chapter 4. Agency Review and Concurrence Process

- 4.1 Initiation
- 4.2 Basic Sequence
- 4.3 The Master Plan

Appendix A. Definitions

Appendix B. Acronyms

List of Figures

Figure 3-1 The Center Master Planning Process

Figure 4-1 The Agency Review and Concurrence Process

Preface

P.1 Purpose

The purpose of this NPR is to define requirements for NASA's Center Master Plans (CMPs). It contains NASA procedural requirements for Center master planning for real property. It provides responsibilities, procedures, and guidance for developing, documenting, communicating, and concurring with CMPs.

P.2 Applicability

This NPR is applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers. This language applies to the Jet Propulsion Laboratory, a Federally Funded Research and Development Center, other contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, grants, or agreements.

P.3 Authority

- a. The National Aeronautics and Space Act, as amended, 51 U.S.C. § 20113(a).
- b. NPD 1000.0A, Governance and Strategic Management Handbook.
- c. NPD 1000.3, The NASA Organization.
- d. NPD 1001.0, 2011 NASA Strategic Plan.
- e. NPD 8800.14, Policy for Real Estate Management.
- f. NPD 8810.2, Master Planning for Real Property.

P.4 Applicable Documents and Forms

- a. 16 U.S.C. 470, National Historic Preservation Act of 1966.
- b. NPD 8820.2, Design and Construction of Facilities.
- c. NPR 8510.1, Cultural Resources Management.
- d. NPR 8820.2, Facility Project Requirements.
- e. NPR 8580.1, Implementing the National Environmental Policy Act and Executive Order 12114.
- f. NPR 8590.1, Environmental Compliance and Restoration (ECR) Program.

P.5 Measurement/Verification

Compliance with this NPR will be verified in the master plan documents submitted to Headquarters.

P.6 Cancellation

NPR 8810.1, Master Planning Procedural Requirements, dated April 28, 2005.

/S/

Dr. Woodrow Whitlow, Jr.
Associate Administrator
Mission Support Directorate

Chapter 1. Introduction

1.1 Each Center shall develop and maintain a CMP in accordance with NPD 8810.2, Master Planning for Real Property. The CMP is a living document and must be kept current with substantial changes to the Agency's and Center's mission, real property assets, and funding.

1.2 As defined in NPD 8810.2, Master Planning for Real Property, the CMP establishes the Center's concept for the orderly management and future development of the Center's real property assets, ensuring that the future real property development of the Center effectively and efficiently supports the portions of NASA's missions assigned to the Center.

1.3 The CMP helps Center and Agency leadership prioritize, select, and advocate for the right implementation choices. It is also a central communication tool for coordinating the efforts of those involved in facilities planning, orienting architecture/engineering firms to how projects fit into the larger plan, aligning internal staff with the parameters for developing and implementing Construction of Facilities (CoF) projects, and providing appropriate information to external communities.

Chapter 2. Responsibilities

2.1 The Director, Technical Capabilities and Real Property Management Division (TCRPMD), within the Office of Strategic Infrastructure (OSI), Mission Support Directorate (MSD), shall provide leadership on the development, management, and dissemination of NASA Master Plans and advocacy for master planning in accordance with the responsibilities delineated in NPD 8810.2, Master Planning for Real Property.

2.2 The Director, TCRPMD, reviews and concurs on each newly prepared or significantly modified CMP in coordination with the customer Mission Directorates and Headquarters Mission Support Offices, as appropriate, and shall:

- a. Provide a report to the Center Director on the outcome of the review. The report delineates issues and concerns found during the course of the review.
- b. Convey to the Center Director within 30 days either Agency concurrence with the CMP or a list of outstanding issues. NASA Headquarters concurrence of a CMP is not to be construed as approval of any specific facilities project identified within the CMP.

2.3 The Center Director shall be responsible for the development and maintenance of the Center's Master Plan. The Center Director shall have responsibility for, and cannot delegate, approving and signing the Center's Master Plan or significantly modified CMP.

2.4 In addition, the Center Director shall:

- a. Designate an organization to be responsible for maintaining the CMP at the Center.
- b. Ensure that the siting and development of all Center facilities, particularly in conjunction with the CoF program, are coordinated with and are consistent with the CMP. Overall responsibilities are described in NPD 8810.2, A Master Planning for Real Property.
- c. Ensure that the CMP accurately reflects the Agency strategy and Agency's and Center's missions, goals, and implementation. The Center Director will review the CMP at least annually to validate the CMP and ensure that it aligns with the Agency's and Center's missions and objectives.
- d. Work with Headquarters to set the goals and scope of the planning process and to understand what implementation funding level to plan to.
- e. Ensure the involvement of all appropriate stakeholders in the development of the CMP. Stakeholders include Center and program leadership, NASA program customers, tenants, institutional stewards at the Center and Agency, the workforce, and the external community.

2.5 Per NPD 8810.2, Master Planning for Real Property, Associate Administrators for each Mission Directorate shall ensure that their staff participates in the development of the CMPs at the Centers that support their programs. Such participation will ensure conformance to Agency and Mission Directorate strategies and ensure cross-Center and cross-directorate alignment.

2.6 Center Master Planners shall develop, document, maintain, and communicate a CMP in accordance with the requirements in Chapter 3.

Chapter 3. Center Master Planner Process and Requirements

3.1 Overview

3.1.1 Those directly engaging in the CMP (herein referred to as "master planners") shall develop, record, and communicate a comprehensive plan according to the requirements of this chapter.

3.1.2 Master planners shall develop, record, and convey CMPs, where:

- a. Development is inclusive, thorough, analytical, equitable, traceable, and sustainable.
- b. Documentation is comprehensive, traceable, predictive, and compliant with applicable guidance.
- c. The plan is conveyed in a clear, accessible, accountable, and traceable fashion.

3.2 Process Summary

3.2.1 As illustrated in Figure 3-1, master planners shall integrate a comprehensive facility strategic process that interrelates many separate objectives, the master plan itself, and implementation projects with a Center's real property assets. In the figure, the "Mission and Guidance" element describes the vision and requirements that are defined in the plan "Where we are going." The infrastructure element at the bottom of the diagram represents the Center's real property assets and informs the master plan section "What we have." Having defined the desired and current states, the master planner performs a gap analysis and captures the result as "How we get there." Thus the master plan can inform the development and prioritization of implementation projects, with master plan strategies and objectives as the criteria against which facility projects are prioritized and facility programs are formulated. Implementing these projects, in turn, changes the Infrastructure element. As this will change the gap analysis over time, the planning process is iterative and must be revalidated or revised.

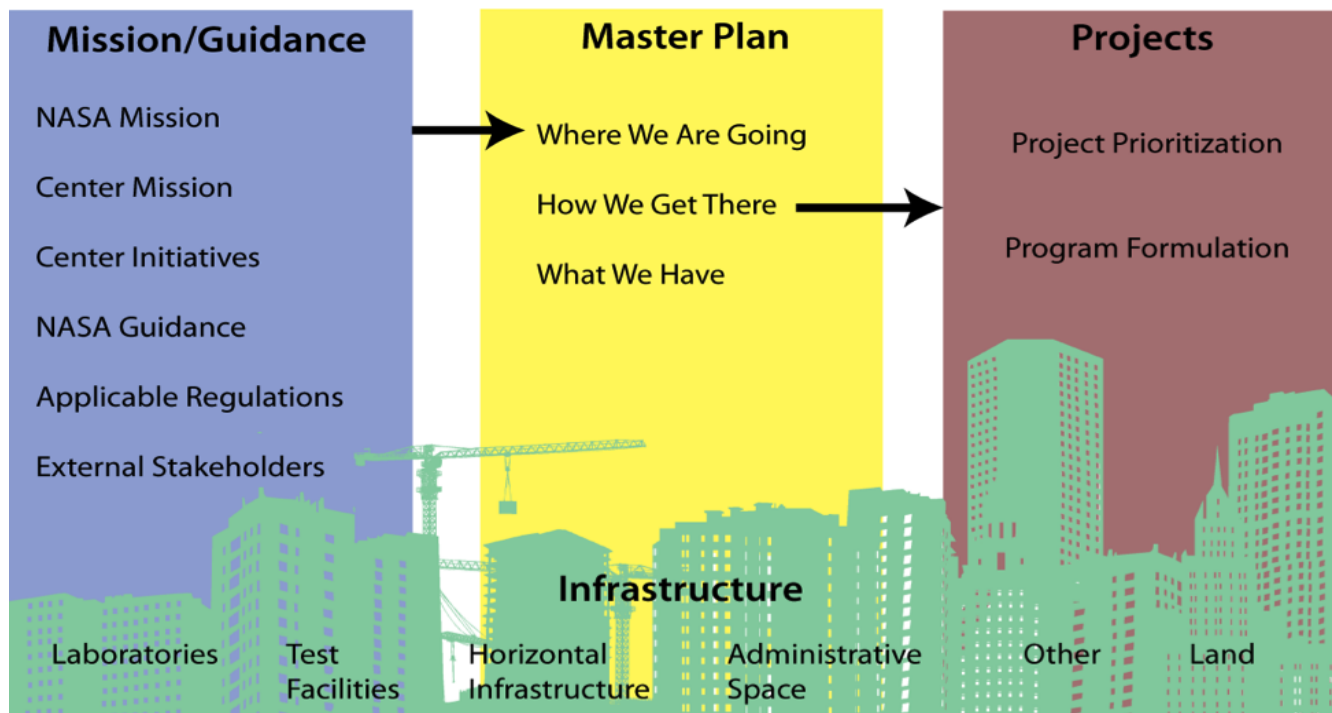


Figure 3-1 The Center Master Planning Process

3.3 Plan Development

3.3.1 Master planners shall:

- Encourage all identified stakeholders to participate in plan development, including as a minimum representatives of mission programs, Center and Headquarters institutional stewards, onsite staff, onsite tenant organizations, and the external community.
- Take appropriate steps to understand and document current conditions (capabilities, opportunities, constraints) and current and projected requirements.
- Use an analytical process to identify gaps between current conditions and requirements and develop an appropriate range of alternatives to address those gaps.
- Strive for equity by defining evaluation criteria that span the full range of stakeholder interests and using these criteria in a consistent fashion to evaluate and select among alternatives.
- Document the development process sufficiently to demonstrate that resulting proposals are responsible choices among alternatives in accordance with Agency risk management practices.
- Strive to address plan requirements in a sustainable fashion (using resources responsibly and maintaining a resilient, productive, safe, secure, and healthy work environment).
- Ensure that realistic costs of projected plan investments fit within the funding profile direction from TCRPMD.

3.4 Plan Documentation

3.4.1 Master planners shall ensure the CMP:

- a. Addresses all real property assets, including land and improvements at all sites the Center owns or manages, whether constructed or occupied by NASA or others and whether stewarded by a program or institution.
- b. Addresses all identified requirements, whether current or projected, qualitative or quantitative, in ways that make the requirements and the evaluation criteria transparent.
- c. Incorporates sufficient flexibility to address current conditions, planned future needs, and unplanned but predictable changes (e.g., funding adjustments or changes in resources or schedule) to ensure that proposals remain responsive across a range of future circumstances.
- d. Meets statutes, regulations, and policies including, but not limited to, NPR 8580.1, Implementing the National Environmental Policy Act and Executive Order 12114; and NPR 8590.1, ECR Program.
- e. Aligns with the Center's National Historic Preservation Act Section 110 and 106 planning processes/documents, especially regarding reutilization and demolition of eligible facilities.

3.5 Plan Communication

3.5.1 Master planners shall ensure the CMP has the following characteristics:

- a. Conveys Center plans in a clear and logical fashion, making Center intentions, evaluation criteria, and proposals evident to the full range of stakeholders.
- b. Makes appropriate information available to stakeholders with minimum difficulty.
- c. Conveys Center plans with sufficient specificity to ensure that they are readily understood and their implementation can be measured over time.
- d. Records current circumstances and the program of needs clearly and fully enough that plan implementation can be traced against baseline and provides accountability.

Chapter 4. Agency Review and Concurrence Process

4.1 Initiation

4.1.1 Master planning is an iterative process in which a completed CMP is reassessed at least annually to determine whether the plan is achieving the goals originally established at the outset of the planning process. Either the Center or Headquarters may request an update based on their collective determination that the current plan is out of date. In addition, a change in mission or other conditions may require a re-examination of the goals to be achieved by the CMP. The following circumstances shall dictate a reexamination of the CMP.

- a. A change in the Agency Facilities Strategy.
- b. A significant change in the Center's mission assignments.
- c. Advances in technology that change facilities requirements.
- d. Significant changes occurring in the surrounding community.
- e. Funding levels vary significantly from Agency planning guidance.
- f. A five-year time lapse.

4.1.2 In the event that none of the above circumstances prompts an update to the CMP within five years, the Center Director shall review the CMP and determine whether the CMP needs to be updated or verify in writing to the Director of Technical Capabilities and Real Property that the plan remains a valid basis for continued development.

4.2 Basic Sequence

4.2.1 As illustrated in Figure 4-1, the development of a master plan occurs within the context of a larger process. The process begins with the initiation of the planning process and proceeds with a consultation on the initial concept and resources with Headquarters, development of the plan, briefing of stakeholders, and full submission as explained below. The interim products include a briefing of the Future Development Concept to Headquarters leadership with supporting information. The final product is a technical document commonly known as the Center Master Plan. By the end of the process, the planning team will have developed products that include, but are not limited to, the following:

- a. A leadership briefing summarizing the plan.
- b. An executive summary describing the process and results of the CMP.
- c. A Capital Investment Program Plan (CIPP), a spreadsheet delineating implementation proposal funding sources, costs, and dates.
- d. A Web or paper-based document detailing all pertinent information (with links to supporting

documents and analyses as appropriate).

e. Other supporting tables summarizing plan baselines and projected outcomes.

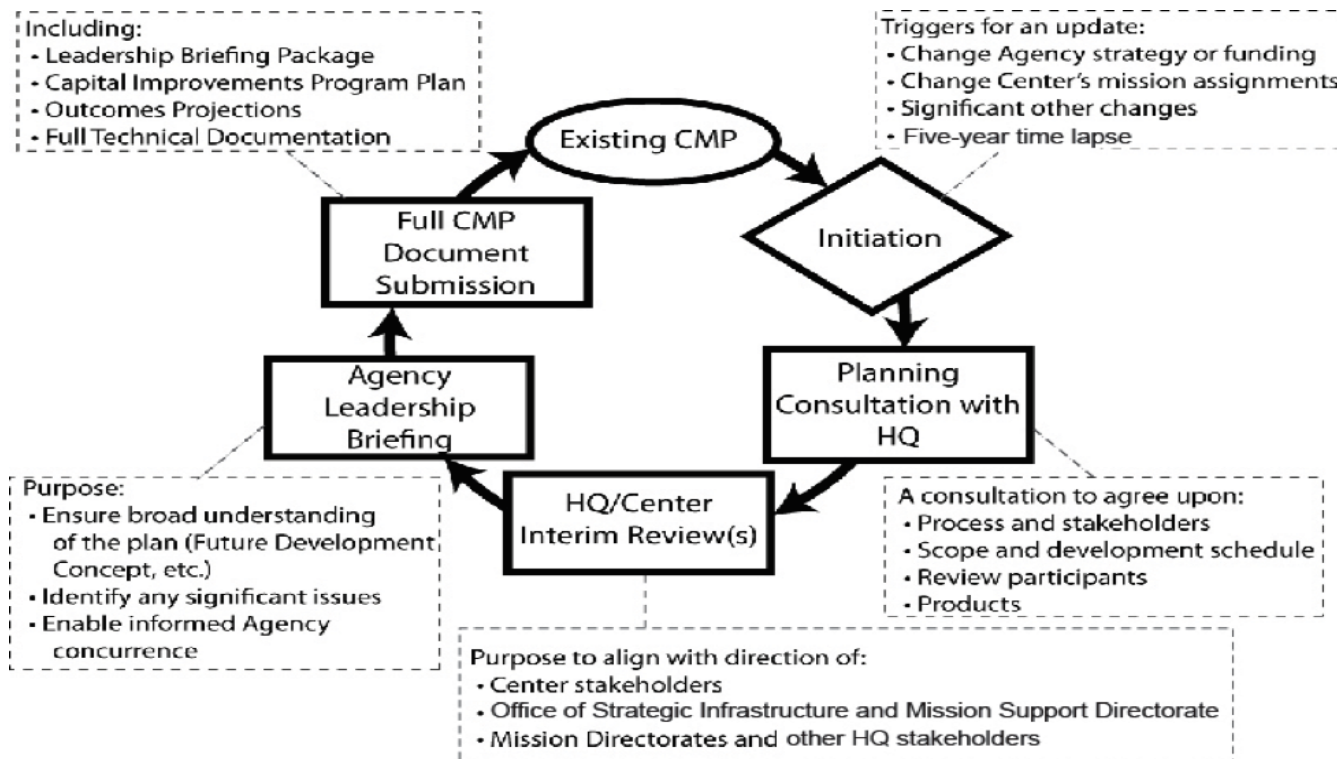


Figure 4-1 The Agency Review and Concurrence Process

4.2.2 Formulation Planning

4.2.2.1 A successful CMP begins in coordination with stakeholders. The planning process is initiated with a planning session with TCRPMD.

4.2.2.2 The planning starts with an agreement between TCRPMD and the individual Centers about the approach to the CMP, including scope (products to be developed), planned investment profile, schedule, participants (civil servant or contractor), and stakeholders. The approach will outline the general strategy for developing the plan.

4.2.3 Interim Review(s)

4.2.3.1 In accordance with plans made in consultation during formulation planning, Centers shall conduct one or more interim reviews to ensure coordination with mission programs (at Center and Agency levels) and institutional leadership to enable a responsive Future Development Concept briefing.

4.2.4 Future Development Concept Briefing

4.2.4.1 With Headquarters concurrence on the approach, the Center then develops the Future Development Concept and briefs it at Headquarters. This briefing ensures broad alignment before detailed technical documentation is developed.

4.2.4.2 The Future Development Concept responds to the Center's goals and objectives and articulates the overall plan for changes to physical infrastructure. The Future Development Concept

should also consider:

- a. Acquisitions (in-house or contract) to develop or expand capabilities.
- b. Partnerships with other organizations.
- c. Optimal utilization of intellectual capital inside and outside the Center.
- d. Environmental and cultural resources reviews and analyses.
- e. Significant changes in management structure.
- f. Changes in the Center's context with the host community.

4.2.4.3 Planners shall document the process to show that resulting proposals are responsible choices among the alternatives and to show that proposals are consistent with Agency risk management practices.

4.2.4.4 The Future Development Concept will be supported by a CIPP (listing project titles, costs, and schedules) and a Summary Data Table (recording baselines and outcome projections: staffing, enclosed area, facilities valuation, resource consumption, etc.), The Future Development Concept should be backed up by a variety of analyses that make the rationale for the approach transparent. The concept should include envisioned 5, 10, and 20 year projects and provision for measuring progress against the Agency facilities strategy, for example, estimated size renewal rate and on-site generation in line with strategy.

4.2.4.5 The Headquarters briefing offers Agency Mission Directorates and functional leadership the opportunity to understand and comment on the concept. The outcome of this briefing may be concurrence, redirection, or acceptance with additional guidance. Concurrence indicates Agency understanding and general support of the concept enabling the Center to develop the technical documentation.

4.3 The Master Plan

4.3.1 The Center Master Plan is the culmination of this planning process. The CMP describes the intent, circumstances, and the characteristics of the end state the Center would like to reach and delineates plan implementation projects over a planning horizon of at least 5, 10, and 20 years.

4.3.2 The CMP addresses the current NASA Strategic Plan, the NASA Asset Management Plan for real property, current NASA policies and guidance, applicable statutory and regulatory requirements, and other Federal Government performance objectives and initiatives.

4.3.3 When the technical documentation is complete, the Center planning team provides this documentation to the Director of the Technical Capabilities and Real Property Management Division. The final plan should honor the Future Development Concept except to the extent the analysis demanded modifying the plan. The Center team should be prepared to present the rationale for any departures from the Future Development Concept.

4.3.4 Organization

4.3.4.1 CMPs reflect the Agency strategies and includes the following sections, which may be augmented by others at the Center's discretion:

- a. Introduction
- b. Center and Mission Capabilities
- c. Center Goals and Objectives
- d. Existing Conditions
- e. Future Development Concept
- f. Development Strategy
- g. Process for Revising the Plan
- h. Appendices and References

Appendix A. Definitions

Capital Improvement Program Plan. The CIPP is a tabular listing of projects required to implement a Center Master Plan over a twenty year period. Investments are organized by date and by the nature of the investment (sustainment, renewal, or transition). The listing identifies projects by title, date, and proposed funds source, whether from NASA or other parties.

Center Master Plan. The CMP is the Center's statement of its concept for the orderly management and future development of the Center's real property assets, including land, buildings, physical resources, and infrastructure. It provides a narrative, statistical, and graphic record of current capabilities and conditions (natural features, buildings, structures, utilities, transportation systems, and other improvements), as well as necessary changes to support program and institutional activities and NASA's strategic and business planning.

Future Development Concept. The Future Development Concept is a diagram illustrating key changes proposed for a Center over twenty or more years. Briefed to Agency leadership, and together with supporting documentation, it enables Agency concurrence with the direction the Center proposes for facilities development and redevelopment prior to the more rigorous and detailed full technical master plan documentation.

Renewal. Investments intended primarily to remedy facilities degradation resulting from usage at or beyond reliable asset service life. Such renewal generally occurs through asset replacement, but in some cases through a substantial rehabilitation project.

Sustainment. Investments intended to keep a facilities asset in proper working order during its service life. Projects include maintenance, repairs, and normal component systems replacements to keep assets performing properly during their expected service life.

Transition. Investments intended primarily to respond to changes other than renewal or sustainment. Projects respond either to changes in program requirements or to natural disasters that interfere with reliable facilities performance.

Appendix B. Acronyms

CIPP	Capital Improvement Program Plan
CMP	Center Master Plan
CoF	Construction of Facilities
ECR	Environmental Compliance and Restoration
MSD	Mission Support Directorate
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OSI	Office of Strategic Infrastructure
TCRPM	Technical Capabilities and Real Property Management Division