



NASA Procedural Requirements

NPR 8831.2F
 Effective Date: October 07,
 2015
 Expiration Date: October 07,
 2020

COMPLIANCE IS MANDATORY

[Printable Format \(PDF\)](#)

Request Notification of Change (NASA Only)

Subject: Facilities Maintenance and Operations Management (Updated w/Change 1 on September 2, 2016)

Responsible Office: Facilities Engineering and Real Property Division

| [TOC](#) | [Change History](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [Chapter4](#) | [Chapter5](#) | [Chapter6](#) | [Chapter7](#) | [Chapter8](#) | [Chapter9](#) | [Chapter10](#) | [Chapter11](#) | [Chapter12](#) | [AppendixA](#) | [AppendixB](#) | [AppendixC](#) | [AppendixD](#) | [AppendixE](#) | [AppendixF](#) | [AppendixG](#) | [AppendixH](#) | [AppendixI](#) | [ALL](#) |

Chapter 2. Resources Management

2.1 Introduction

2.1.1 This chapter discusses resources management as it relates to facilities maintenance. It covers NASA directives, policy, resources management requirements, maintenance funding levels, the Annual Budget Call by the NASA Headquarters CFO, currently called Planning, Programming, Budgeting, and Execution (PPBE), and reimbursable funds.

2.2 Publications

2.2.1 Table 2-1 lists NASA Headquarters publications that apply to facilities maintenance resources management.

Table 2-1 NASA Headquarters Instructions, Procedures Guides, and Manuals

Publication	Title
NPD 7330.1	Approval Authorities for Facility Projects.
NPD 8800.14	Policy for Real Estate Management.
NPR 8800.15	Real Estate Management Program.
NPD 8810.2	Master Planning for Real Property.
NPR 8810.1	Center Master Planning.
NPD 8820.2	Design and Construction of Facilities.
NPR 8820.2	Facility Project Requirements (FPR).
NPD 8831.1	Management and Operations of Institutional and Program Facilities and Related Equipment

2.3 Maintenance Funding Levels

2.3.1 In NPD 8831.1, NASA Headquarters recognizes the annual funding level of 2 to 4 percent of CRV recommended by the Federal Facilities Council, NRC (Appendix C.4, resource 1), as a reasonable funding target necessary to maintain facilities in a steady-state condition. This level is recognized as an adequate standard until an independent analysis of facilities condition assessment trends indicates otherwise. The minimum Baseline Services Level (BSL) annual funding requires 1.6 % of Active Facilities CRV (June 21, 2010). An O&M Cost Study was done in 2014 to determine, by modeling actual facilities, what NASA should be spending to sustain and operate facilities, based on "recommended" requirements. (See Chapter 9.)

2.3.2 Funding Level Scope. Only Center-funded work of facilities maintenance and repairs should be included in the 2 to 4 percent of CRV annual funding level. Figure 2-1 identifies the facilities maintenance expenditures that are to be allocated to the 2 to 4 percent of CRV goal. The percentage goal does not include DM, service requests (because they are for new work), grounds care, central utility plant O&M, and nonfacilities maintenance work as described in section 2.3.4.

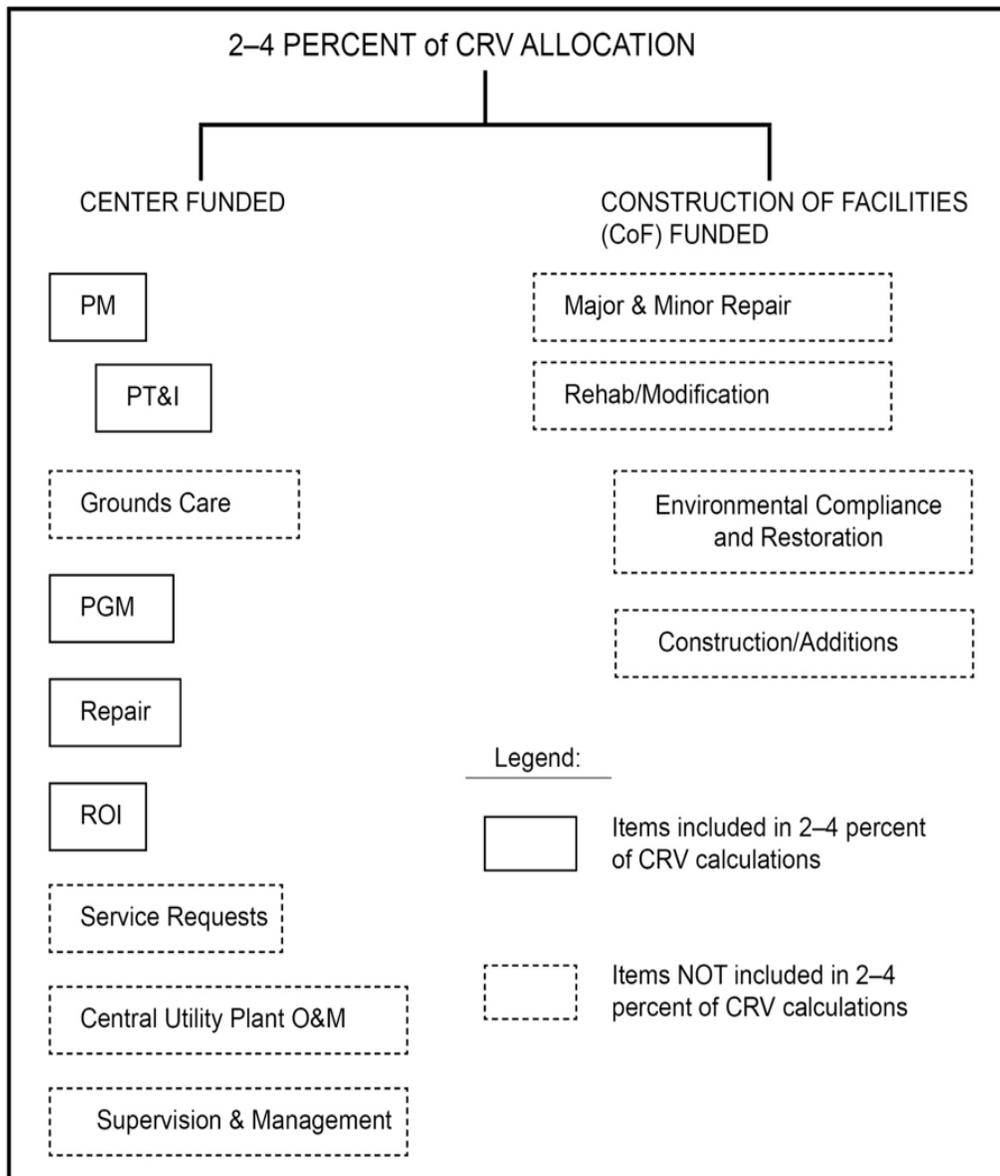


Figure 2-1 Expenditures Allocable to 2 to 4 percent of CRV Standard

2.3.3 Funding Thresholds. NPR 8820.2 specifies facility project funding sources and thresholds. Table 2-2 summarizes the facilities maintenance work-type funding thresholds.

Table 2-2 Facilities Maintenance Funding Thresholds

Facilities Maintenance Work Elements	Center Funding Limitations
Preventive Maintenance	None
Predictive Testing & Inspection	None
Grounds Care	None
Programmed Maintenance	None
Central Utility Plant O&M	None
Repair 1,2,3	None
Trouble Calls	
- Routine 1	Not to exceed \$1 million
- Emergency 1,2,3	None
Replacement of Obsolete Items 1,2,3	None
Service Requests (A New Work Requirement)1	Not to exceed \$1 million

Note: 1. Limitation is per project or per incident. For facilities work estimated to cost \$100,000 or more, NASA Form 1509, Facility Project - Brief Project Document, documentation is required. 2. Projects over \$1 million require review and approval by HQ through the 1509 process to ensure projects are funded from the correct appropriation. 3. Typically, Emergency Repair, Repair, and ROI projects are systems or components of a major system, per Definitions in Appendix A. A typical ROI example is the replacement of a chiller or air handler for an existing HVAC system."

2.3.4 Nonfacilities Maintenance Work. The following types of nonfacilities maintenance work, although related to facilities maintenance and sometimes performed by facilities maintenance organizations, are not counted toward the NRC-recommended 2 to 4 percent of CRV calculations:

- a. Custodial and interior pest control.
- b. Refuse collection, recycling, and disposal.
- c. Operations such as fire protection and security.
- d. Mobile equipment operation and maintenance.
- e. Environmental operations, remediation, recycling, and disposal.
- f. Research and development (R&D) shop support, such as model fabrication.
- g. Management and supervision overhead.
- h. Maintenance of noncollateral equipment (NASA Equipment Management Systems (NEMS) tagged equipment).
- i. Facilities alterations.
- j. Facilities construction.

2.4 Facilities Maintenance Budget

2.4.1 NASA uses the PPBE process as the method for aligning the Agency's resources to support its mission and Vision. The Annual Budget Call is an internal name used to describe part of the budgeting phase. The Annual Budget Call is issued by NASA's Office of the Chief Financial Officer (OCFO) and requests time-phased work programs expressed in terms of dollars and other resources required to accomplish NASA objectives for the budget year. This serves as the basis for developing the NASA operating budget to support appropriation of funds by Congress, for apportionment requests to Office of Management and Budget (OMB), to distribute resource authority within NASA, and to plan for the efficient and effective use of resources in attaining mission goals.

2.4.2 Annual Budget Call by NASA's OCFO. Each year, NASA's OCFO issues guidance to the Centers for submitting their budget requests. The OCFO coordinates this through the Mission Directorates and the Mission Support Offices.

2.4.3 Annual Budget Call Fiscal Years. Each Annual Budget Call covers a 7-year period consisting of past year, current year, and budget year, defined as follows, plus 4 future years:

- a. Prior Year. The fiscal year immediately preceding the current year. Prior year costs are actual, not estimated.
- b. Current Year. The fiscal year immediately preceding the budget year.
- c. Budget Year. The fiscal year for which estimates are being submitted.

2.4.4 Requirements Development and Costing

2.4.4.1 All Centers should establish and maintain facilities maintenance classification codes with all work classified to be used with their CMMS. One of the uses of the classification is for budgeting. The Annual Budget Call requests budget estimates. Thus, it is possible to prepare the budget by aggregating the actual expenditures of prior-year historical data and the current-year-to-date accounting data. The current-year-to-date figures can then be extrapolated to the full current year using the current-year Annual Work Plan (AWP). The budget year requirements can then be projected by comparing the prior and current-year work requirements with the budget year from the 5-Year Facilities Maintenance Plan and adjusting the estimates using the standard inflation factors supplied by NASA Headquarters. Through this process, information is available for preparing the budget documentation for submittal.

2.4.4.2 In accordance with the requirements of section 2.3, Maintenance Funding Levels, Centers should, as a goal, work toward a budget for facilities maintenance and repair of 2 to 4 percent of CRV funding. Figure 2-1 identifies the facilities maintenance expenditures that are to be allocated to the 2 to 4 percent of CRV goal. Per section 2.3.2, Funding Level Scope, the 2 to 4 percent does not include DM, service requests, grounds care, central utility plant O&M, and nonfacilities maintenance work as described in section 2.3.4, Nonfacilities Maintenance Work.

2.4.4.3 Because estimated funding requirements are prepared 14 to 19 months in advance of the budget year, many things can occur to change the budget estimates before Annual Budget Calls are executed. The following are some examples:

- a. Congressional decisions reflected in the final authorization and appropriations acts.
- b. Changes in the Center resource requirements (possibly due to emergency conditions).
- c. Change in restraints imposed by NASA Headquarters.

2.4.5 Annual Budget Call Submittal. The Centers submit their responses to the Annual Budget Call requests through the Mission Directorates and the Mission Support Offices.

2.5 Reimbursable Services

2.5.1 Many Centers' facilities maintenance organizations perform work on facilities occupied by agencies other than NASA for which the cost is reimbursed by the occupying agencies. They also perform nonfacilities maintenance work that should be reimbursed by the requesting customers. For specific information on policies and procedures for obtaining reimbursement related

to NASA facilities occupied by another agency, refer to NPR 9090.1. This reimbursable work is not included in the annual facilities maintenance budget that the Centers submit to NASA Headquarters. However, reimbursable work should be included in the Center AWP. The annual budgets and the AWPs address the total facilities maintenance workload, regardless of fund source.

2.5.2 Types of Reimbursable Services

2.5.2.1 Customer-Requested Work. Centers should perform the following types of work with funds provided by the customer requesting the work to avoid impacting the limited funds available for facilities maintenance:

- a. Construction, addition, and modification work below the \$1 million CoF threshold.
- b. Service Request work.
- c. Nonfacilities maintenance work (see section 2.3.4, Nonfacilities Maintenance Work).

2.5.2.2 Tenant and Other Occupying Agencies Services. The Centers provide three basic types of services to tenants and other occupying agencies on a reimbursable basis. These services are described in the following sections:

a. Occupancy Services. Occupancy services are essential, Center-wide support services. Services such as facilities maintenance, utilities costs, and janitorial services are a function of the square footage of the buildings occupied. Other services may be related to the number of personnel resident at the Center. Typically, the rate for occupancy services should be constant during each fiscal year to allow Center customers to budget for the services. The interagency agreements should state when the rates are scheduled to change.

b. Demand Services. Demand services provide technical support or specific deliverable products not available within the capabilities of the customer. Typically, demand services are specifically requested by the user and are user unique. Each demand service is separately priced; if possible, the unit price should be constant during each fiscal year to allow Center customers to estimate their fund requirements and to budget for the funds. Demand services are often requested in writing and are classified by specific functional area. The following are examples of demand services:

- (1) Service requests.
- (2) Engineering design services.
- (3) Construction projects.
- (4) Heavy equipment services.

c. Other Services. Other services are those paid directly by the customer at the time of use, such as food services, or billed periodically based on use, such as metered utilities. Few, if any, facilities maintenance services are billed at the time of use.

2.5.3 Cost Allocation. The determination of reimbursable costs should be based on the concept of full cost sharing. This concept provides for common cost sharing of services. Therefore, the costs charged to each tenant should directly reflect the tenant's portion of the total cost to NASA for the services. Cost allocations should be reviewed and recalculated annually.

2.5.3.1 Occupancy Services. The per-unit rates charged for occupancy services should be the same for all occupants, both tenants and NASA activities, for like services. The annual charges should be computed from prior-year costs with inflationary and expected use-change adjustments. Occupancy services are usually provided by the facilities maintenance organization or by facilities support services contractors.

2.5.3.2 Occupancy services are separated into those applicable to the employee population and those applicable to the floor space occupied. These costs generally are calculated as follows:

a. Population. A projected fiscal year total of all civil service and contractor employees is developed for each occupying organization. The total portion of the shared cost associated with personnel is divided by the total of all Center personnel. The result is the fiscal year per-person rate that is applied to each occupant.

b. Floor Space. The square footage should be summed for each occupant by the type of space occupied as per the following example:

- (1) Type I— Air-conditioned offices, laboratories, storage, and technical spaces.
- (2) Type II— Non-air-conditioned shops, work areas, or technical spaces (also to be used for any non-air-conditioned space other than warehouses or storage facilities).
- (3) Type III— Non-air-conditioned warehouses and storage facilities.

2.5.3.3 The total shared cost associated with floor space is divided by the weighted sum of all three types of floor space to determine the Type III base rate. The Type I and II base rates are determined by multiplying the base rate by the weighting factor for each type. The square footage totals are multiplied by the respective rates to determine the cost for each occupant. The weighting factors are determined historically from the actual cost of cleaning and maintaining each type of space.

2.5.3.4 Personnel and floor space costs are then added together to determine the total occupancy cost.

2.5.3.5 Demand Services. The cost to tenants for demand services is generally developed by adding a surcharge to the incremental Center costs incurred by the demand service work order. Since the surcharges are an integral part of Center operational costs and are routinely expensed by the Centers, they are not identified separately and are not shown on reimbursable work orders. The standard surcharges developed by each Center should consider the full cost-sharing concept. However, some costs are borne by NASA, such as acquisition and depreciation of shop equipment, which do not enter the standard surcharge and, therefore, are not reimbursed by tenants because they are within the NASA institutional budget base. Typically, monthly billings for demand services either are sent to the tenants or are charged to standing accounts.

2.5.4 Interagency Agreements. While Memorandums of Agreement (MOAs) and Memorandums of Understanding (MOUs) are helpful in defining Center and tenant services and responsibilities, they are vital in the case of reimbursable services. MOAs and MOUs avoid misunderstandings about how rates are determined and how bills are rendered, certified, and paid by the tenant. They are critical for long-range planning and budgeting because they enable the Centers to forecast their levels of reimbursement. In the case of facilities maintenance, the accuracy of the AWP depends on the accuracy of the level and type of

reimbursable work defined in MOAs and MOUs.

2.5.5 Out-lease of NASA Property. All leases of NASA property to a tenant (Federal or non-Federal) should include agreements on maintenance of the leased space. These agreements should follow the direction in section 2.5 regarding the types of services provided and the structure for charges for those services. This includes Space Act Agreement, standard leases, Enhanced-Use Leases (EUL), and other lessor agreements. Information on the agreements, procedures, and requirements for out-lease of NASA property can be found in NPR 8800.15.

| [TOC](#) | [Change History](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [Chapter4](#) | [Chapter5](#) | [Chapter6](#) | [Chapter7](#) | [Chapter8](#) | [Chapter9](#) | [Chapter10](#) | [Chapter11](#) | [Chapter12](#) | [AppendixA](#) | [AppendixB](#) | [AppendixC](#) | [AppendixD](#) | [AppendixE](#) | [AppendixF](#) | [AppendixG](#) | [AppendixH](#) | [AppendixI](#) | [ALL](#) |

| [NODIS Library](#) | [Program Management\(8000s\)](#) | [Search](#) |

DISTRIBUTION:
NODIS

This Document Is Uncontrolled When Printed.

Check the NASA Online Directives Information System (NODIS) Library
to Verify that this is the correct version before use: <http://nodis3.gsfc.nasa.gov>
