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Maintenance, Logistics and Facilities
Facilities Management NWSPD 30-41

FACILITIES PLANNING AND PROGRAMMING

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This Instruction implements Planning and Programming areas contained in National Weather Service Policy Directive 30-41, *Facilities Management*, dated September 9, 2002.

SUMMARY OF REVISIONS: Minor revisions include replacing the term Project Management Development, Approval and Management with National Oceanic and Atmospheric Administration (NOAA) Administrative Order (NAO) 217-104, Facility Capital Planning and Project Management Policy, dated May 5, 2005.

Signed 01/07/2013
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Planning and Programming

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1 Introduction

This instruction provides details and implements the planning and programming phase contained in the National Weather Service Policy Directive (NWSPD) 30-41, Facilities Management. These processes include development of system requirements, programming studies, and design documents leading to building of future facilities to achieve a low life cycle cost.

2 Purpose

The purpose of this document is to provide planning and programming instruction to implement NWSPD 30-41, Facilities Management. In addition, guidance provided in NAO 217-104, Facility Capital Planning and Project Management Policy establishes a coherent and consistent process for the selection of capital investments for construction and repair and for the management of approved facility construction and repair projects.

3 Scope

This document covers the planning and programming phases in the Facility Capital Planning and Project Management process. Details of design and construction are covered in NWSI 30-4102 and 30-4103 respectively. This instruction provides guidance for NWSH, Regional Headquarters and National Centers.

4 General Instruction

4.1 Planning

The most important responsibilities of a project manager are planning, integrating and executing plans. Detailed planning is required to prioritize control of resources and schedule. Details of the NAO 217-104 project planning process is amplified in paragraph 5.

4.2 Programming

Architectural programming is the thorough and systematic evaluation of the interrelated values, goals, facts, and needs of a client's organization, facility users, and the surrounding community. A well conceived program leads to high quality design. A programming study is performed by an Architect and Engineering (AE) firm. The AE firm validates square footage allocated to each functional area. Results of the programming study are presented to the Assistant Administrator (AA) for Weather Service and Facility Oversight Committee (FOC) at key decision points.

4.3 Space Requirements

Office space requirements should be generated by the customer based on:

1. Organizational structure/hierarchy.
2. Number and grade of employees based on official records verified by the Human Resources Office.
3. Space allocation per employee based on grade and whether or not the position is supervisory. NOAA has an established standard for space allocation per grade for general office space. The General Services Administration (GSA) also has established a standard for office space allocation that could be used.

4.4 Adjacency Requirements

The user will define the adjacency and functional requirements for each unit of the organization. This is usually done by developing bubble diagrams that reflect the adjacency requirements for each unit of the organization.

4.5 Mission Unique Requirements

Mission unique requirements such as computer rooms and research labs will be determined based on input from the user and technical experts in their respective field. The AE assisting NWS in developing the space program will assign specialists or users in such areas to assist the customer in determining requirements for each space. In the case of laboratories, space programs will be based on the type of research, procedures, frequency, specific equipment needed to conduct the research, and utility requirements for the equipment. Environmental requirements for the laboratory should be established and defined in the programming document.

4.6 Net and Gross Area

Upon establishment of an agency space allocation program, referred to as the net area, factors are applied to establish usable area and agency gross area. To arrive at the usable area for office buildings, GSA typically adds 20 percent for circulation and 20 percent for office support. Another approach to arrive at the usable area is to multiply the net area by a factor that ranges from 1.1 to 1.4 depending on the typical area of each office. The smaller the office, the higher the factor (See *GSA Facilities Standards for the Public Buildings Service,* PBS-P100, Chapter 3, Page 62). The space allocation program should reflect the user's values, goals, facts and needs. It should also establish a standard of quality for architectural and engineering systems to be incorporated into the new facility. This is particularly critical for mission unique spaces such as computer rooms and laboratories.

Gross area is calculated based on an efficiency factor that varies based on the facility type. For example, office buildings typically have an efficiency factor of 75 percent. Thus to arrive at the gross area, the usable area is divided by 0.75. (See *GSA Facilities Standards for the Public Buildings Service,* PBS-P100, Chapter 3, Page 62).

4.7 Budget Formulation/Cost Estimating

Based on the developed space allocation program, gross areas, quality desired, and mission unique systems, a cost estimate should be developed by the AE consultant. The cost estimate is based on the 16 divisions of specifications. Depending on the nature or type of projects, above standard or mission unique systems may have to be priced separately. This is valid in major projects developed through GSA. Other than the facility construction, the programmer should be aware of other costs over and above the construction cost, and should budget for them. This includes AE design fees, environmental assessment fees, acquisition and Grants Office procurement, third agency procurement, design and construction management fees (such as fees for the US Army Corps of Engineers, or GSA) land cost, commissioning, furniture, and physical (relocation) cost and inflation. Because of the time gap between budget submission and appropriation of funds, the facilities program cannot afford to be incorrect in its estimates. Success is achieved, in part, due to comprehensive and accurate cost estimation. Some estimates turn out to be more accurate than others. When estimates are inaccurate, they are usually lower than expected. In these situations, an objective variance analysis is performed to identify the inaccuracies (e.g., mechanical, electrical, site preparation), determine causes (e.g., changes in

scope, inflation, and incorrect assumptions), assess the impacts, seek alternatives, and document the process for future reference. Methods of estimation are re-evaluated periodically to ensure accuracy and soundness of basis, even if the current method is still sound. For example, the algorithm currently used by the facilities program to estimate program planning and management support is currently being re-examined because the content and mix of the construction budget have changed since that model's development.

4.8 Economic Analysis/Engineering Economics

Every WFO construction project undergoes a comprehensive economic analysis. OMB Circular A-104 prescribes a method for economic analysis to be used when considering leasing versus direct Government purchase and ownership when acquiring the use of assets. Software known as The Automated Prospectus System (TAPS), developed by the General Services Administration (GSA), is utilized to implement OMB Circular A-104. The NWS uses TAPS to determine the least cost approach among all viable alternatives. Examples of alternatives considered by the TAPS economic analysis include operating lease, capital lease, modification of existing structures, and building an office on leased property.

5 Facility Capital Planning and Project Management Policy

Policy established as NOAA NAO 217-104, applies to all major investments by NOAA in facility construction, renovation and repair. Investments may be in the form of modernization, replacement, consolidation, renovation and/or repair (including for health/safety/environmental compliance). Facility construction, renovation, and repair projects undergo two major life-cycle phases. The Strategy Execution and Evaluation System replaced the Program Planning Budgeting Execution System for budgeting.

The Selection Phase includes:

1. Business Case Analysis
2. Capital Investment Review
3. Scoping

The Management Phase includes:

4. Planning and Design
5. Construction and Occupancy
6. Operations and Maintenance (O&M)

The Facility Capital Planning and Project Management Policy assigns responsibility, identifies decision points (DP) for incremental approvals, and includes a requirement for thorough cost estimating. The overall goal is to provide a coherent and consistent process for construction project development, approval, and management. Appropriate internal coordination is promoted before construction projects are undertaken and funds are expended. Each of the DP milestones is accompanied by specific deliverables or sets of documentation.

5.1 Phase One: Business Case Analysis

A business case analysis is prepared and submitted for each major investment proposed over the period covered by the NOAA 5-year plan. The Office of Management and Budget Exhibit 300 will be the format used to document the business case analysis. Each proposed major investment is categorized as:

Modernization/replacement/consolidation; or

Repair, including health/safety/environmental compliance.

5.2 Phase Two – Capital Investment Review

All proposed major investments will be assessed by the NOAA Facilities Investment Management Board (FIMB) against alignment with NOAA's Mission, Goal, and Strategic Plan Objectives. The Capital Investment Review concludes with inclusion in the NOAA Program and DOC Step One Notification.

5.3 Phase Three – Scoping

Construction/Replacement/Renovation investments require project requirements definition for siting analysis and space, the National Environmental Policy Act process and concept design. In the scoping phase, the project manager procures an environmental contractor to conduct the National Environmental Policy Act process on the preferred site, and an AE pre-design contractor to prepare massing studies and conceptual design. An economic analysis is prepared and the project cost is updated. The conclusions and recommendations are placed in a project book and forwarded the FOC for review. Then, an informational briefing is presented to assure the FOC that the project is ready for AA signature approval. A DP-2 decisional briefing to the AA results in a signed letter attesting to satisfactory compliance with authorized tasking and permission to proceed to DP-3, Engineering and Architectural Design. The remaining DP approvals are typically signed by the FOC Chairman.

5.4 Phase Four – Planning and Design

The architecture and engineering contract is awarded, and the formal planning and design of the building/facility are completed. The project cost and schedule are updated and a revised Operation and Maintenance cost estimate is developed. This phase of the project is covered in more detail in NWDI 30-4102. At the completion of phase four tasks, the Chairman, FOC reviews the project and recommends approval to proceed to the construction phase, DP-4.

5.5 Phase Five – Construction and Occupancy

The development/construction contract is signed. Acquisition of furniture, fixtures, and equipment is initiated. Move-in completes the Construction and Occupancy phase. This phase of the project is covered in more detail in NWDI 30-4103. In this phase, the construction contractor is procured and leads to approval to proceed to occupancy.

5.6 Phase Six – Operations and Maintenance

The O&M plan is implemented. The real property disposal process is initiated to declare any vacated property as excess.

6 Schedule

The schedule should be developed by the project manager or the programmer based on a realistic expectation for the time frame needed for the programming, design and construction of the facility. This should be closely coordinated with the user to reflect their limitations, constraints, desires, and climatic/environmental limitations. For example, a schedule for a project in Alaska should reflect the short construction season. A schedule for a project in Florida should reflect the summer and fall hurricane season restrictions. It is imperative that the schedule is consistent with the funding flow for the project per fiscal year.

7 Procurement Strategy

Contracting strategies include the traditional method of an AE developed design followed by procurement of a low-bid construction contractor, or contracting for the design and construction in one procurement as a design-build procurement. Another option is having the building delivered through a design build process (build to suit lease-back) through GSA. The Project Manager should consider whether to procure the services based on low-bid or best-value. The procurement strategy should be designed in coordination with the ASC, to fit the needs of the project. This should happen in the Programming Phase of the project. Factors that play a role in procurement strategy are the location, nature and complexity of the project, speed of delivery, and the availability of contractors.

8 References

The following references contain greater detail:

1. NWS Policy Directive 30-41, Facilities Management.
2. NAO 217-104, Facility Capital Planning and Project Management Policy.
3. The Architect's Handbook for Professional Practice, 13th Edition, 2001.
4. GSA Facilities Standards for the Public Buildings Service (PBS-P100), page 62.
5. OMB Circular A-104 prescribes a method for economic analysis to be used when considering whether to use leasing in place of direct Government purchase and ownership when acquiring the use of assets.
6. The Automated Prospectus System (TAPS), developed by the General Services Administration (GSA), is used to implement OMB Circular A-104.