

A Primer on Facility Program Development

This guide has been developed to provide the UMBC community with an overview of the capital facilities programming process and the planning steps required to turn an idea for a new or renovated facility into a reality.

When do you need this guide?

If your department, college, or division has determined that it does not have sufficient space, in terms of quantity and/or programmatic suitability, and the probable cost to solve the facilities-related problem exceeds one million dollars, state capital funds will most likely be required. In this case, you need to review this guide for insight into the types of information you will be required to provide to justify the project and define the facility requirements.

If your project idea is for one of the self-supporting (i.e. auxiliary) units such as Parking Services, Residential Life, Student Affairs, or Recreation, you may still need to review this guide if the project involves major construction. UMBC's most recent example of a project in this category is The Commons.

What is the capital facilities programming process?

UMBC has limited available resources to fund facilities improvements. In most cases, the university will seek state capital funds for any project estimated to exceed one million dollars. Typical facilities projects that fall into this category include construction of a new building, renovation of an existing building, construction of a building addition, installation of new or upgraded campus-wide utility system, and construction/renovation of other major campus infrastructure components (e.g. roads).

For facilities projects in which state capital funds are being requested, all state agencies are required to prepare and submit to the Department of Budget and Management (DBM) a Facility Program in support of requests for allocation of design, construction, and equipment capital funds. The Facility Program is comprised of two documents, the "Part I –Project Justification and Scope" and "Part II – Detailed Project Description". The Part I describes the facilities need, justifies the proposed solution, outlines the scope, and forms the basis of the cost estimate for the proposed project. The Part II outlines the architectural, engineering, and planning objectives and provides the basis for a detailed cost estimate for the proposed project.

The Part I is required to be submitted to the University System of Maryland (USM) no later than the first week of April and to DBM no later than June 30th of the calendar year in which the project first appears in the Governor's five year capital budget request. The Part II is required to be submitted to USM no later than the first week of February and to DBM no later than March 1st of the calendar year in which funds will be allocated in the upcoming fiscal year.

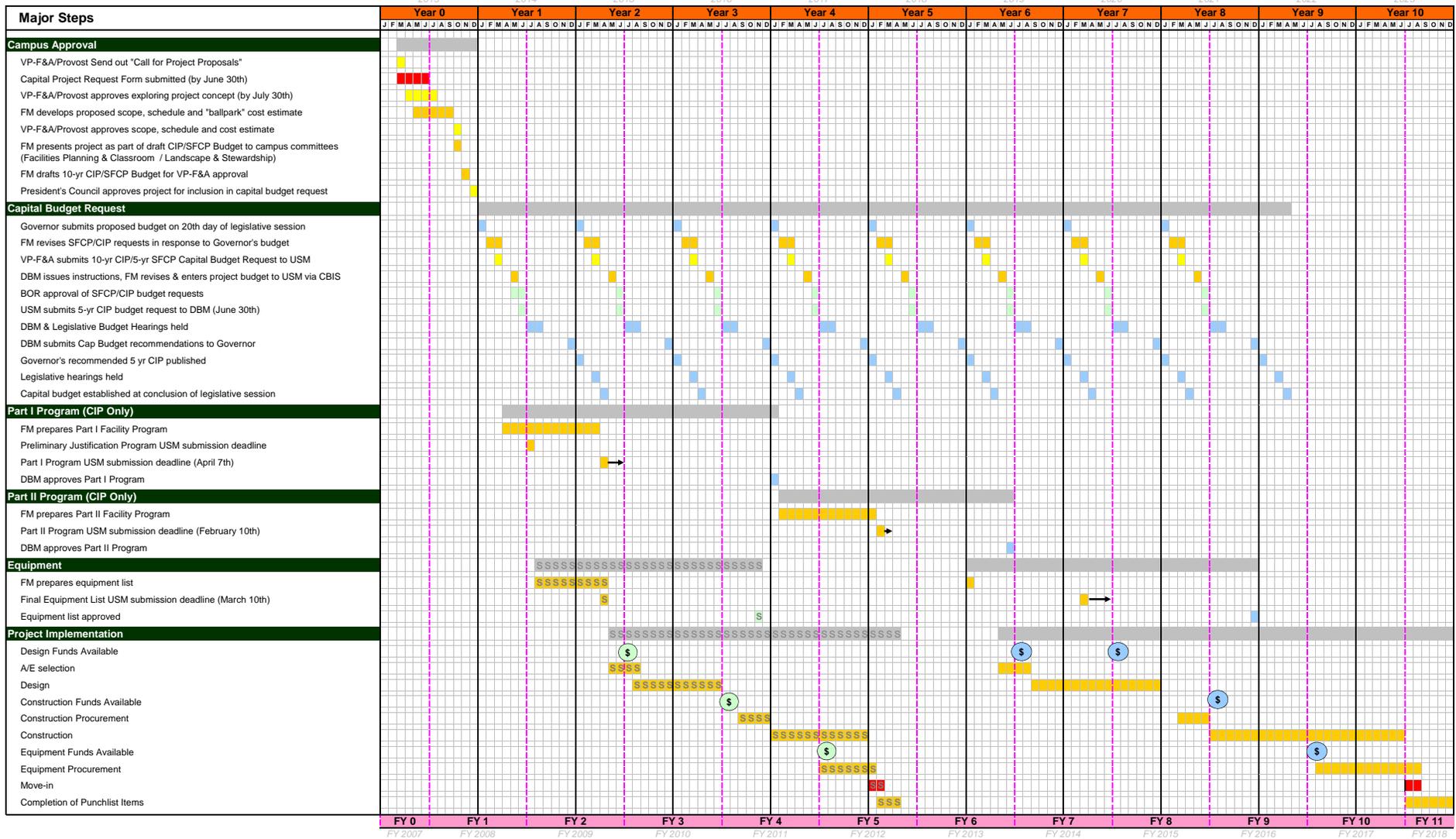
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Prior to the submission of the Facility Program, the university must request from the USM Board of Regents that the project be included in the university's five-year capital budget request, which is then submitted to the state. Typically, the time between the university's first capital budget request and the completion of the project is ten years (see Figure 1).

Development of the required facilities program documentation and the process to solicit state capital funds requires a major commitment by the university. Therefore, the campus first must evaluate each proposed project carefully to evaluate the need and assess its relative priority against other campus priorities. It is only after campus administration has determined that there is a compelling need and approved the inclusion of the project in a future capital budget request that program development will begin.

Figure 2 outlines the typical process to get a project funded with state capital funds approved by the campus, system, and state. The preliminary project concept review and development of the Facility Program are coordinated by the assigned Planner in UMBC's Department of Planning & Construction Services, Facilities Management.

The essential first step is for the department, college, or division to gather information which will justify the need for the project and define the parameters of the solution.

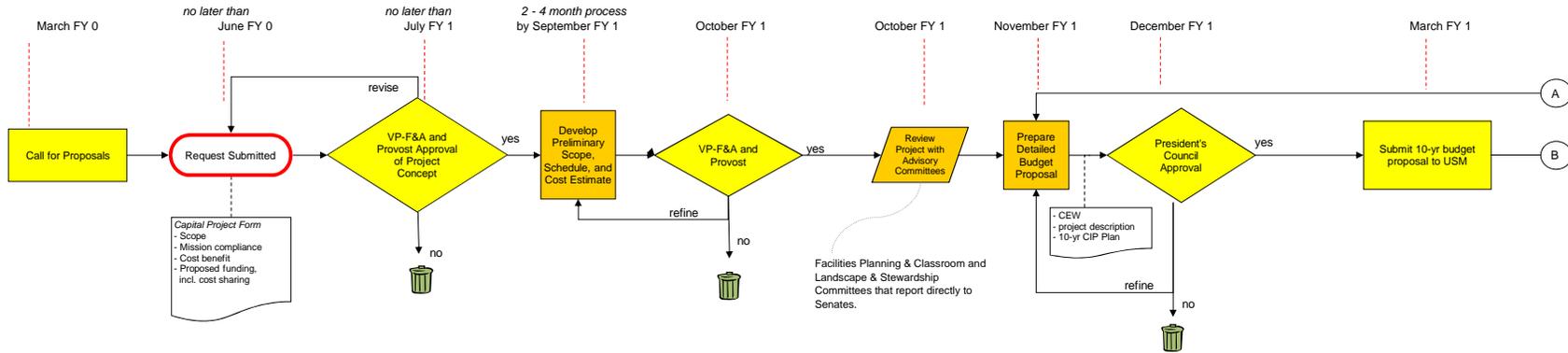


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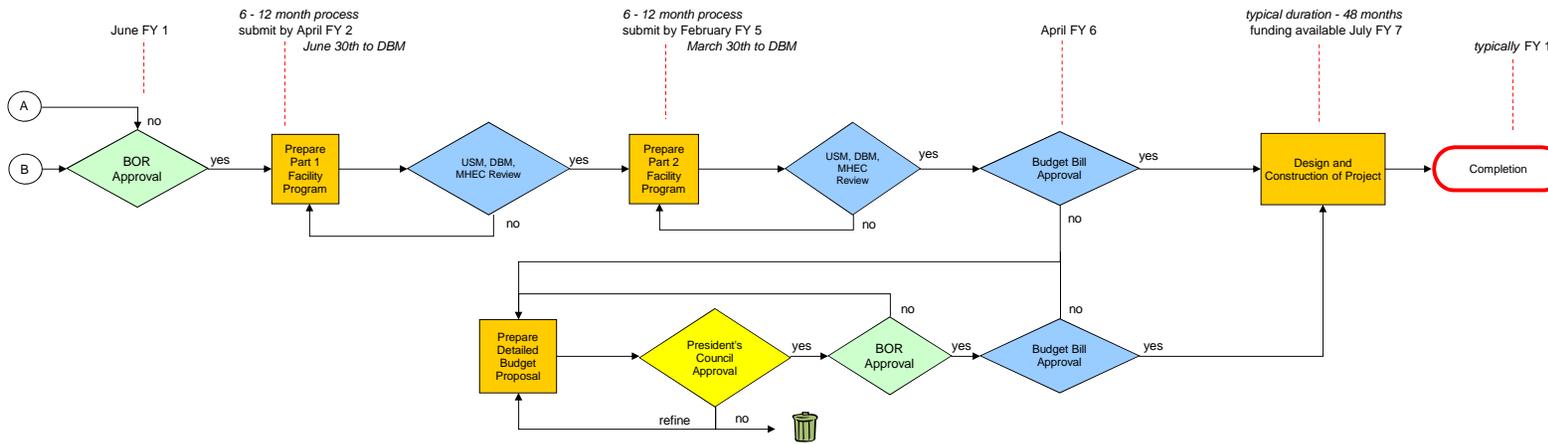
- Durations for design, construction, and equipment procurement are highly dependant upon the scope
- Project funding may be allocated over 1 to 4 years depending upon the scope and size.
- Schedules assume that the CIP project is introduced in year 5 of the 10-yr CIP and the SFCP project is introduced in year 2 of the 5-yr SFCP plans submitted in March FY 1.

| | | | |
|---------------------------------------|----------------------------|--------------------------------|--|
| Year 0 Calendar Year | Facilities Management task | System Funded Project specific | Funding Allocation for CIP Projects |
| FY 0 Fiscal Year | Campus Administration task | Project Beginning / End | Funding Allocation for SFCP Projects |
| J F M A M J J A S O N D Months | USM/Board of Regents task | Total Duration of Phase | Difference between USM deadline and State deadline |
| | State task | | |

Figure 1: Typical Timeline - Capital Facilities Programming Process & Project Implementation for UMBC Projects Funded by the State's Capital Improvement Program (CIP)& through the University System of Maryland's System Funded



Campus Approval



USM & State Approval

Project Implementation

Figure 2: Flowchart outlining the approval, planning, and implementation process for major facilities projects at UMBC funded through the State's Capital Improvement Program.

Information to Be Provided by Department/College/Division

Department/College/Division Overview

- Mission statement
- Accreditation reports
- Examples of existing research, departmental accolades/contributions/awards
- How do the research/programs/services benefit UMBC and Maryland?
- Current goals

Future Goals

- Strategic Plan
- Goals for the next five and ten years

Historic Data – for past five years

- FTE and headcount of faculty, staff, and student employees (review OIR figures)
- Credit hours and FTE enrollment by FY for undergraduate and graduate students (review OIR figures)
- Undergraduate enrollment counts for declared major, additional major, minor, and certificate program (review OIR figures)
- Graduate enrollment counts for PhD, masters, and post-baccalaureate programs (review OIR figures)
- Degrees awarded, both undergraduate and graduate (review OIR figures)
- Fall semesters' weekly student contact hours (WSCH) summarized by lab and lecture, as well as by undergraduate and graduate
- Amount of assigned space (review Facilities Management data)

Current Data

- FTE and headcount of faculty, staff, and student employees (review OIR figures)
- Credit hours and FTE enrollment by FY and semester for undergraduate and graduate students (review OIR figures)
- Undergraduate enrollment counts for declared major, additional major, minor, and certificate program (review OIR figures)
- Graduate enrollment counts for PhD, masters, and post-baccalaureate programs (review OIR figures)
- Degrees awarded, both undergraduate and graduate (review OIR figures)
- Most recent fall semester's weekly student contact hours (WSCH) summarized by lab and lecture, as well as by undergraduate and graduate
- Numbers and types of undergraduate and graduate level courses offered each semester and year
- Locations in which classes are held
- Amount of assigned space (review Facilities Management data)
- Floorplans indicating assigned areas (review Facilities Management data)
- Existing space (i.e. office and research) assignments of faculty, staff and graduate students

Projected Data – next five and ten years

- FTE and headcount of faculty, staff, and student employees
- Weekly student contact hours (WSCH) summarized by lab and lecture, as well as by undergraduate and graduate
- FTDES by undergraduate and graduate, as well as any relevant subcategories

Peer Data

- Do our official peer institutions have similar programs and how do they compare?
- Which institutions have similar departments and/or facilities to which you aspire?
- For these aspirational institutions:
 - faculty, staff, and student employee data (i.e. FTE and headcount)
 - undergraduate and graduate student data (i.e. FTDES, enrollment count, credit hours)
 - facilities data (i.e. nsf/gsf of buildings, numbers and types of classrooms, labs, etc.)

Service Delivery Goals

- What are your service delivery goals?
- What programs are provided?
- What are the functions?

Service Delivery Challenges

- Identify the challenges to successful service delivery.
- How do these challenges impact the department/college/division's delivery of services and conduct of operations?
- When did these challenges first arise?
- What are the root causes of these challenges?
- Have the challenges increased or decreased over the last five years? If so, how? Provide metrics/data demonstrating how service delivery challenges have changed over the last five years.
- If nothing changes, what will happen? Predict what the results will be in five and ten years.
- How seriously do the operational and service delivery deficiencies affect the ability of the department/college/division and university to attain its mission?
- If the root causes are related to the amount, condition, or location of existing assigned space, see the next section.

Facility Problems

- List the current facility problem.
- Identify factors influencing existence and/or magnitude of the facilities problems.
- Provide data showing existence and magnitude of stated deficiencies over last five years.
- How do the problems contribute to operational and service delivery deficiencies?
- How do these facility problems prevent or hinder delivery of program or service?
- How do these facility problems encumber the department from meeting its current and future goals?

- Predict how stated deficiencies will worsen in the next five and ten years.
- If conditions remain the same or worsen, project the consequences as it relates to the goals, functions, programs, and/or delivery of services.

Proposed Facility Solution

- What do you think is the appropriate facility solution?
- What will this proposed solution solve or do?
- How will the proposed solution remedy the service delivery challenges?
- How will the proposed solution positively impact the department/college/division?

In addition to the information gathered by the department, college, or division, these may be required:

- Facilities audit - to identify and document conditions of existing facilities
- Concept feasibility study – to determine whether the proposed solution is possible and at what cost

Throughout this department planning and information gathering phase, Facilities Management's Planner will work closely with the department, college or division to guide the planning process. Once campus approvals for the project have been secured, the Planner will transform all compiled information into the state-required Facility Program documentation.

The following sections provide an overview of the requirements of the Part I and Part II documents.

Part I - Project Justification and Scope

The Part I of the Facility Program is comprised of these basic components: Project Overview, Project Justification, and Project Scope

Project Overview

Included in this section is a summary description of the institution and its mission, as well as those of the department, college, and/or division being served by the proposed project. We must demonstrate how the project will further the mission of the department, college, division, and university, as well as benefit the state.

Examples must be specific and demonstrative:

- X department provides Y number of graduates per year of which Z% stay in Maryland working in the field of W, which is a burgeoning industry for the state. With the approval of this project, X department will be able to do V.
- X department is working in the field of Y conducting research which will revolutionize the production of Z leading to UMBC and the state being considered the foremost expert in Y. With the approval of this project, UMBC will be able to hire V number of new faculty and support U number of graduate students in this area of research bringing in an estimated \$T in grant revenue. Or...Our continued success in Y will attract new companies to the region and positively contribute to Maryland's economy.

Project Justification

Here is where we prove why the proposed project is needed and worthy of state funding.

First, we provide a summary statement of the proposed project and what the project will do for the institution.

In order to justify the project, the state requires qualitative and quantitative data supporting claims of existing and projected problems related to the campus facilities that the project will address. In all cases, we must provide five year histories of data, as well as five and ten year projections.

Here are some examples of specific facilities problems:

- Insufficient amount or poor quality instructional, research, office space
- Operational inefficiencies resulting from functions located in several buildings due to space not being available in a single building
- Outdated building systems (e.g. HVAC system fails to adequately cool, heat, ventilate)
- Deteriorated building condition (e.g. roof and envelope failure)

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- Building layout and condition is inadequate to be competitive with peer institutions
- Campus-wide utility systems lack capacity to support needs or are deteriorating, risking catastrophic failure
- Road and sidewalk configuration results in safety issues

We must define and measure the consequences of the facility, operational, and service delivery deficiencies. We must answer the question: How do the stated problems result in these deficiencies?

Some examples of consequences include the inability to:

- teach the number of required courses due to the unavailability of properly outfitted classrooms and teaching labs
- retain and hire high quality faculty due to the unavailability or quality of research labs, office space, etc
- win research grants due to condition of existing facilities
- conduct certain types of research, deliver certain types of service, etc. because of building condition problems, building layout, lack of utilities, etc.
- retain and attract high quality students to program because of quality and/or quantity of teaching labs
- support and/or expand high priority (or new) programs due to unavailability or quality of space or insufficient utility system capacity to support activities
- keep building maintenance and operational costs at desired levels due to chronic building envelope and system failures requiring constant and/or costly repairs
- develop synergy of faculty and students since existing program elements and/or functions are spread across campus in different buildings
- deliver high quality services since operations are spread across campus in different buildings causing service delays, hardship to customers, higher operating costs from need to duplicate roles in different buildings, etc.

To support these claims, we must present five year histories of qualitative and quantitative data, as well as five and ten year projections. Data must document and support the stated consequence and magnitude of the deficiencies. The type of data needed depends upon the stated deficiency.

Here are a few examples of facilities problems, the consequences they cause, and the types of data needed to support claims:

1. Insufficient or poor quality research laboratory space. The consequence is that the department cannot retain and attract faculty and graduate students in the program areas required to support the department's mission or goals. The types of data needed include:
 - Narrative describing the department's mission and goals
 - Narrative describing how the department's mission and goals satisfies the university strategic plan

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- Narrative describing nature of the departments current and future field(s) of research
 - List of current and aspirational peer institutions offering the same program
 - Describe what these peer institutions have over what we have
 - Past and projected faculty, staff, and student numbers (FTE and headcount)
 - Detailed lab requirements (e.g. wet lab, computer lab, specifics) to support research
 - Past and projected revenue from grants or other outside funding
 - Accreditation reports confirming that there is a deficiency
 - Evidence that faculty have turned down job offers because of facility condition
 - Evidence that applying graduate students have gone to other universities because of facility condition
 - Records showing that GRE scores have declined in the past five years as a result of poor quality or insufficient research and office space
 - Maintenance records and operations/maintenance costs
2. Insufficient or poor quality teaching space. The consequence is that the department cannot retain and attract undergraduate students OR the university cannot develop new high priority instructional programs OR students have to attend for additional semester(s). The types of data needed include:
- If program-specific deficiency:
 - Narrative describing the department's mission and goals
 - Narrative describing how the department's mission and goals satisfies the university strategic plan
 - Narrative describing nature of the departments current and future instructional programs/goals
 - List of current and aspirational peer institutions offering the same program
 - If university wide:
 - Narrative describing which and how departments suffer
 - Past and projected faculty, staff, and student numbers (FTE and headcount)
 - Weekly student contact hours broken down by lab and lecture and program
 - Detailed teaching class/lab requirements to support program/university
 - accreditation reports confirming that there is a deficiency
 - evidence that faculty have turned down job offers because of facility condition
 - evidence that applying students have gone to other universities because of facility condition
 - records showing that standardized test scores or enrollment figures have declined in the past five years
 - data showing that returning student enrollment figures have dropped
 - maintenance records and operations/maintenance costs
 - comparison of audiovisual or other functional requirements, available at other universities, are not available in current classrooms/teaching labs

Explain how the project will reverse these problems, allow the department/university to meet its goals or otherwise serve their client, and how the state will benefit.

Explain why it is not viable to employ one of these other options:

- do nothing
- remain in existing building
- eliminate or reduce program offerings
- renovate existing building (in the case of a new building project)
- add on to existing building (in the case of a new building or renovation project)
- lease additional space

Present the preferred solution giving detailed information justifying why it is the best and only viable solution.

If new space is proposed, outline how the vacated space will be used by the campus.

Project Scope

Identify and describe the project site.

Describe what we need in the proposed new or renovated building/addition or new utility infrastructure:

- major functions
- how many faculty, staff, students are to be housed
- proposed number and size of each space
- utility system requirements

With regard to space, show how the type and amount of space was determined to be required using faculty, staff, and student data, applying state space allowance calculations or other accepted standards.

If phasing is required, demonstrate how this will be done.

Part II – Detailed Project Description

The Part II of the Facility Program provides sufficient project details to guide the design process and allow DBM to evaluate and critique the scope and budget.

We must describe the project in much more depth such that prospective architectural and engineering firms can understand our needs and vision.

We will delineate architectural, engineering, and planning objectives to be considered during design through:

- Description of the site: boundaries, features, utilities, adjacent buildings, limitations, etc.
- Definition of required space allocations based upon functional requirements.
- Description of each space in the proposed building/addition/renovation: size, number, occupancy, function, system requirements, finishes, furniture, equipment, etc.
- Graphical representation of functional relationships between individual building areas or rooms: adjacent, in proximity, distant, etc.

Both narratives and graphic illustrations will be provided. A “space sheet” will be developed for each type of space.

For more information, go to this link:

<http://dbm.maryland.gov/agencies/capbudget/Documents/CapitalBudgetInstructions/facilityprogmanual.pdf>