

Pennsylvania State System of Higher Education Facilities Manual

Volume VI-C University Master Planning

Requirement

The quality of education provided on a university campus is in large part dependent upon the quality of the facilities where the instruction is conducted. The cost of education is also in large part dependent upon the quality of facilities at a university. Facilities master planning provides an effective and orderly method for erecting and maintaining university facilities to conduct a quality education program at a reasonable price.

The Board of Governors (BOG Policy 2000-02) requires each State System of Higher Education university to maintain a current facilities master plan for programming the renovation and construction of capital facilities projects for the university and its branch campuses. In order to prepare an effective master plan, data which addresses the university's strategic goals and academic objectives which form the basis for the university's existence, must be incorporated in a plan for erecting and maintaining supportive physical facilities. The facilities master plan shall therefore, address the following contents: a strategic review, functional analysis, physical analysis, solution development and planning documentation. The plan shall also address the following issues or trends: organization, financial capabilities, enrollment, academic quality, academic programs, space allocation, site parameters, building architecture, and technology utilization.

The master plan document shall address the components and issues as short-term (0 to 5 years), mid-term (5 to 10 years), and long-term (10 to 20 years). Assumptions/premises upon which each component or issue is based shall be clearly identified in the documentation. The assumptions used in the additional System's strategic planning document shall be used as a basis for the plan. Assumptions for the short-term shall include maintaining the enrollment and complement bands. Funding for both the educational and general and capital budgets will not exceed the rate of inflation and/or the historic funding rates, and funding will be allocated based on the approved funding formula. In accordance with BOG Policy 2000-02, the plan shall be updated annually. Annual updates may be as brief as a review of the data to verify the information is current, to a complete change in course of action chosen to develop the plan.

Basic Planning Data

Prior to hiring the consultant for assisting in development of the solution and plan documentation, the university should review their strategic and academic planning, and provide the information or review results to the following areas.

Strategic Review

The strategic review shall include:

- The university's mission statement, strategic plan, and realistic financial plan to implement the strategic plan;
- A market enrollment analysis which includes a demographic analysis, enrollment management analysis, peer institution study, and marketability analysis; and
- Identification of the university's academic programs including validation and prognosis of the existing programs, its academic goals, and alignment of programs both with its goals and with available facilities.

Functional Analysis

The functional analysis shall include:

- Utilization of existing facilities, which addresses facilities operations and utilization for the university's programs; and
- A facility space assessment which addresses inventory of existing space by category and space requirements compared to System space planning guidelines.

Technology

The technology issues will address:

- Campus communication systems;
- Computer networking/campus network wiring; and
- Classroom technology.

Organizational Review

The organizational review shall include:

- Identification of planned organizational changes expected during each of the planning periods;
- Review of the administration or policy changes that would impact the results of the plan; and
- Examination of the regulatory requirement that impact implementation of the plan or that guide the structuring of the plan.

Financial Capabilities

The financial capabilities review shall include:

- A review of income and the sources of income the university has available for realistically implementing the strategic plan, academic program and the physical facilities plan, including fund raising, bond loan capabilities, grants, etc.;
- A review of the university's current expenses, debt service, and financial reserves; and
- A projection of the expected increase/decrease in expenses resulting from implementing the plan.

Enrollment

The review of enrollment shall address:

- The projection for future enrollment based on historic trends and demographic projections;
- The recruitment capabilities of the university;
- The retention history, and projections used to develop the plan; and
- Identification of current and projected enrollment target groups.

Academic Quality

The academic quality review shall include:

- Ranking or reputation with peer or aspirant institutions;
- Accreditation history;
- Adequacy of the library and other academic support services;
- Student faculty ratio; and
- Faculty recruitment/retention program.

Academic Programs

The academic program review should include information concerning:

- A brief history of enrollment, by program;
- Projected or anticipated changes in programs; and
- Program match with current and projected market and available university resources.

Contents of the Facilities Master Plan

The facilities master plan shall contain, in written form, the following contents. The information contained in this section is usually obtained with the help of a consultant.

Physical Analysis

The physical analysis shall include:

- The interface and relationship between the campus and the community with regard to land use and zoning, pedestrian and vehicular circulation, physical barriers, and campus image; and
- Identification of the existing buildings and building systems emphasizing appropriateness of use, utility services, building density, functional relationship and accessibility according to ADA criteria.

Solution Development

The solution development component for implementing the strategic plan shall address:

- The development potential of the university real estate and the opportunities and constraints for future development;
- The evaluation of options, including strategies and costs for implementing identified options citing the criteria used for the evaluation; and
- The feasibility of the university's ability financially to achieve implementation of the options.

Space Allocations

The space allocations shall address current space deficiencies (as determined by comparison of existing space with the State System of Higher Education space guidelines) with consideration of:

- Alignment of needs with availability;
- Projected changes in needs;
- Size/configuration of classrooms and laboratories;
- Number and design configuration of residence rooms; and
- Availability of athletic/recreation facilities.

Site

The review of the site issues should address:

- Campus image/entries/open space/landscaping plan/open spaces/landscaping plan/visibility of the university;
- Interfaces with neighbors and growth potential;

- Adjacent land uses/neighborhood context;
- Physical characteristics/topography/climate;
- External control such as zoning, building code enforcement, support services, i.e., fire protection, utilities, etc.;
- Campus land use or zones;
- Vehicular and pedestrian circulation include accessibility according to ADA standards;
- Parking;
- Campus history; and
- Architectural significance.

Buildings

The buildings, as a whole, should be addressed to include:

- Functional location appropriateness, including images/entries;
- Appropriateness of use;
- Compatibility of use;
- Flexibility and growth capacity/potential;
- Adequateness of space;
- Physical conditions and architectural compatibility/finishes;
- Code compliance;
- Accessibility by customers, employees, and services entities;
- Building circulation; and
- Maintenance condition/maintenance backlog, energy efficiency, building condition, hazardous materials, etc.

Infrastructure

The adequacy and location of the supporting infrastructure should be addressed to include:

- Existing and required for plan implementation;
 - a. storm sewer
 - b. sanitary sewer
 - c. water system
 - d. gas service
 - e. electrical system
 - f. roads
 - g. parking
 - h. telecommunications networks
 - I. fire alarm system
 - j. others
- Code compliance;
- Flexibility and growth capacity/potential;
- Physical condition; and
- Maintenance/repair/renovation/replacement requirements.

Process

An orderly, effective, and efficient process for gathering data and preparing plan documents that satisfy the System's requirements for a facilities master plan is shown in Figure 1. As stated in an article appearing in the fall 1993 issue of the *Facility Manager* magazine entitled "Planning for Master Planning: Setting Realistic Expectations," by John R. Reeve, AIA, and Marion B. Smith, AIA:

If a master plan responds only to the existing site and its buildings, it is reacting to the status quo rather than anticipating what the college wants to be and how it must change to get there. Rather, the master plan must anticipate the future by considering facility needs generated by the college’s mission statement, strategic plan, and corresponding academic program. The strategic plan is the critical step in establishing the framework for the master plan; if it is not in place already, it should be the first step in the master planning process.

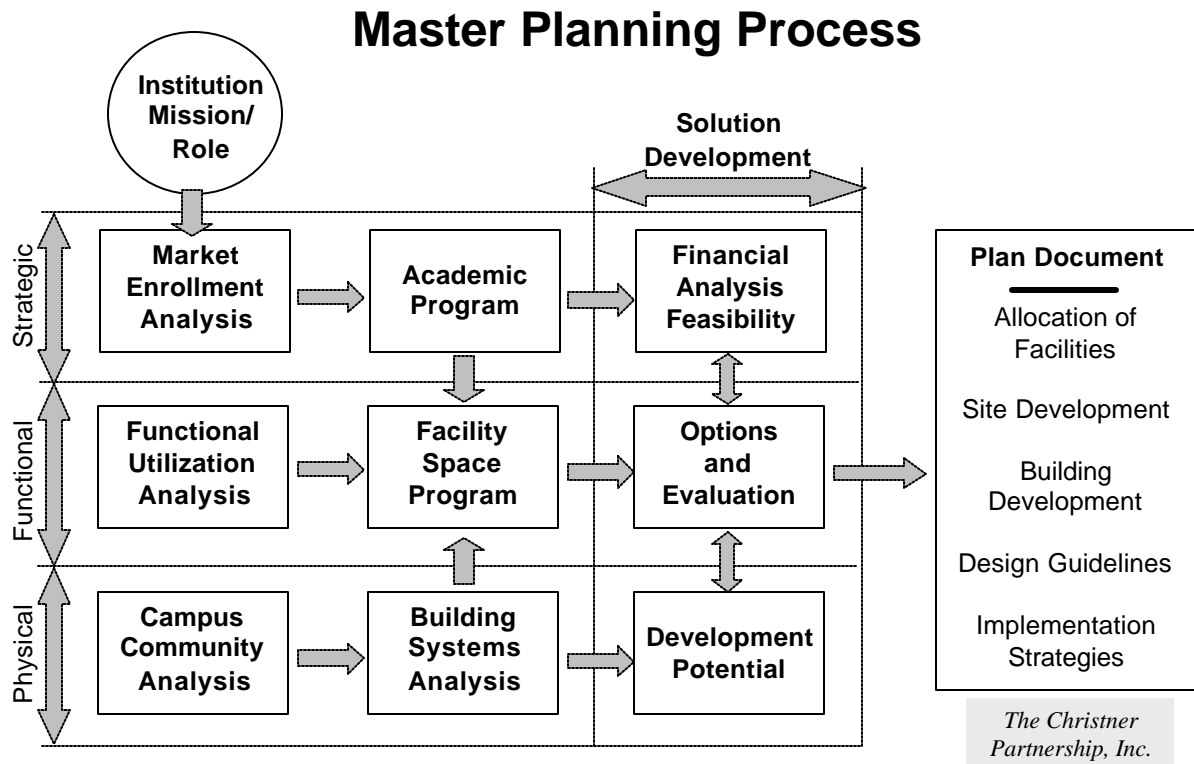


Figure 1

The institution mission/role and information and required data in the first two columns of the strategic and functional line in Figure 1 are collected and/or prepared by the university. The data is analyzed and subsequently organized into written documents. The information and required data in columns one and two of the line entitled “physical” are usually collected by the professional firm selected to facilitate the process and prepare the solution development and plan documents components for the plan.

With the columns one and two data gathered for each of the three components—strategic, functional, and physical—synthesis of the information can begin leading to the development of potential solutions in column three by the professional. The potential solutions can be evaluated and referred in an iterative process. For example, options may be tested against financial implications and the overall development picture. The plan, usually prepared by the professional, should show how the buildings are to be used, how the site should be developed, the design guidelines for future facilities, and the timing and cost implications for each planning period.

Planning Participants

Development of the facilities master plan requires participation from all sectors of the university staff, students, faculty, and council of trustees. The assignments of individuals to specific positions will vary

from university to university. In order to develop an effective plan, a cadre of the top leadership must serve on all of the component groups as shown in Figure 2. Cohesion of the participating committees through joint participation by the university leadership on the various committees is essential to develop a meaningful plan.

The Association of Higher Education Facilities Officers (APPA) recommends use of four committees with participation as shown below.

University Master Planning

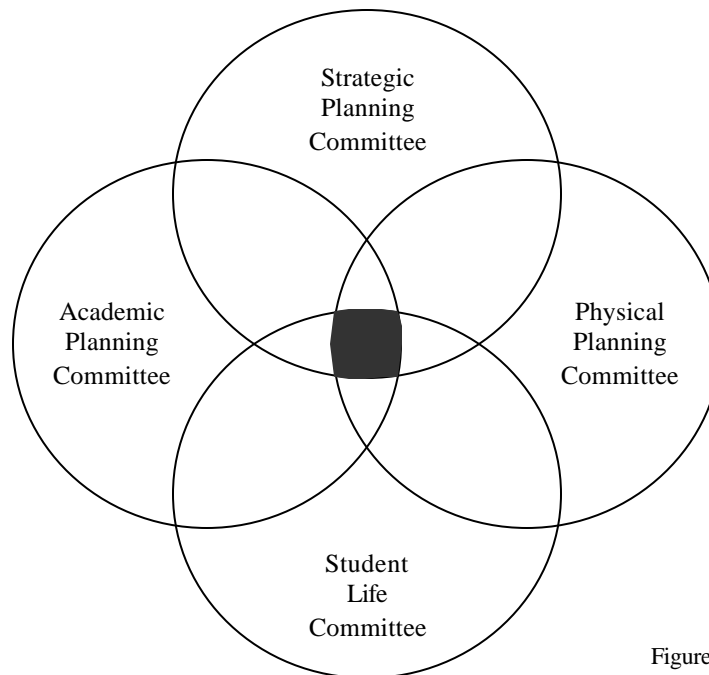


Figure 2

The Strategic Planning Committee

The strategic planning committee should be charged to develop the university's mission statement, and the goals and objectives for accomplishing the mission. Committee members should include council of trustees representatives, senior administrative officers, the chair of the academic planning committee, chair of committee on student life, the chairman of the faculty senate, leaders of student government organizations, and chair of the physical planning committee.

Academic Planning Committee

The academic planning committee should be responsible for determining present and future requirements for the educational programs to be conducted at the university. Preparation of market studies to indicate growth potential and non-growth areas for individual academic disciplines should be prepared under the committee's direction. Studies dealing with special instructional strengths or thrusts, library development, quality of programs, special policy matters, realistic enrollment projections by academic discipline, and other issues influencing or affecting the educational process should also be prepared under their tutelage. The committee should be chaired by the vice president or head of academic affairs. Committee members should include academic deans, faculty, and student leadership.

Committee on Student Life

The committee on student life should be responsible for developing an inventory and assessment of student facilities relative to student study, social, recreational, athletic, and health-related needs. The chair of the committee should be the vice president or dean of student life. Committee members should include student body leadership, faculty representatives, and a senior campus administrative officer.

Physical Planning Committee

The physical planning committee should be tasked with preparation of the master plan, as well as with the planning and programming of capital facilities, and maintenance and repair projects to support the educational and student life programs. The chair of the committee should be the vice president for finance and administration or business affairs. Committee members should include the director of facilities and appointed students, faculty, and staff.

University Master Planning Product

The resulting document produced from the facilities master planning process should include the following written plans and summaries.

- A site development plan addressing land utilization, a site master plan for locating future buildings, an acquisition plan for future real estate acquisitions, and a landscape master plan for the campus.
- A building development plan (capital facilities program) that identifies the renovations and new construction projects and the schematic/concepts of the building interiors required to implement the plan during the first five-year period.
- The design guidelines for construction or renovation of facilities for the campus, which include the concepts for planning and programming campus facilities, architectural considerations and vocabulary for guiding design of future projects for the main campus and branch campuses, the landscape concepts to be used, and the utility systems and infrastructure concepts to be incorporated into future projects to produce coordinated development of campuses.
- The implementation strategies for effecting the plan, including capital project programming requirements within the short-, mid-, and long-term time frames with project cost estimates and phasing schedules, as required.

The plan should be recorded electronically compatible with CADD for ease in updating and revising as changes occur.

Master Plan Review and Endorsement

Background

Board of Governors' Policy 1995-01 stipulated that each System University will complete a Facilities Master Plan prior to April 2000. BOG Policy 2000-02 subsequently repealed BOG Policy 1995-01. BOG Policy 2000-02 requires that the Facilities Master Plan be continuously maintained as a "planning document that specifies the facilities and their existing or planned locations required to conduct the mission of each State System university based upon the academic, financial, and strategic priorities of the university, as endorsed by the State System." Volume VI-C of the System's Facilities Manual addresses the requirement and the contents for System facilities master plans. This section addresses the process for review and approval of facilities master plans.

Review and Approval Process

The assumptions used in, and the summary of the results of the preparation of the basic planning data (Volume VI-C, page 1) shall be submitted for Office of the Chancellor review and concurrence prior to the start of the physical analysis and solution development phase (Volume VI-C, page 4) of the process. An outline guide for the submission is shown in figure 1. A summary paragraph should be included under each area outlined in figure 1.

After receipt of Office of the Chancellor concurrence, the physical analysis and solution development phase may proceed. The Office of the Chancellor shall be invited to participate in the scheduled reviews of the physical and development phases, and shall receive a detailed briefing of the concepts used in the draft plan before it is finalized for presentation to the Board of Governors.

After review and concurrence of the plan concepts by the Office of the Chancellor, the plan concepts will be presented to the Capital Facilities Committee of the Board of Governors for information and agreement.

**State System of Higher Education
Facilities Master Plan
Basic Planning Data Outline—Executive Summary**

_____ University of Pennsylvania Date: _____

Strategic Review Findings	Financial Capabilities
Functional Analysis Findings	Enrollment
Technology Impact	Academic Quality
Organizational Review Findings	Academic Program
	Concepts Guiding the Plan Development

Figure 3

Annual Update Review

An annual update to each university’s master plan will be submitted with the university’s capital appropriation budget request. The update should address the changes made to the items in Figure 3 and the resulting impact on capital project planning and programming. The Office of the Chancellor will review the update and comment on issues when not in concurrence with the changes.