

CAPITAL PROJECT GUIDELINES

**For Ann Arbor Campus
General Fund Academic & Administrative Units**



**Office of the Provost &
Executive Vice President for Academic Affairs**

Last updated: April 2013

CONTENTS

About the Capital Projects Process	3
Who Should Follow These Guidelines.....	3
When to Follow These Guidelines.....	4
Process Overview & Timeframes	5
Important Things to Note	5
Unit Submission: How to Apply.....	6
Annual Submission Deadline: SEPTEMBER 15th	6
Submission Instructions.....	6
Provost’s Office Review & Decision on Institutional Priorities	7
Facility Tours.....	8
Prioritization of Capital Needs	8
Project Funding & Timing Discussions	9
Funding Principles	9
Finance & Capital Projects Committee Discussions.....	10
Funding Plan Review.....	11
Initiating a Programming Study/Conceptual Design with Architecture, Engineering and Construction (AEC)	12
Provost’s Office Involvement.....	12
Institutional Approvals.....	12
President’s Approval.....	12
Board of Regents Approval.....	12
Appendix A – Funding Sources & Financing Options.....	13
Appendix B – AEC Overview	15
AEC’s Role.....	15
Working with AEC in the Design Phases & Beyond.....	16
Project Cost Considerations and Variables	16

ABOUT THE CAPITAL PROJECTS PROCESS

The process of renovating existing buildings and constructing new buildings at the University of Michigan (U-M) is complex and on-going. A new research lab may be required to recruit a world-renowned faculty member; a significant change in pedagogy or research technology may require redesigning any number of teaching or research facilities; new programs may require additional space; or a building may have reached the end of its useful life and need to be replaced. All of these capital project needs are important to the University and can drive the need for a major renovation, a building addition, or a new building.

These guidelines were designed to provide a consistent, transparent process for submitting your unit's capital project needs to the Provost's Office to ensure that they are reviewed and considered along with other institutional needs.

QUESTIONS?

For questions about this document or the capital projects process, please contact the Provost's Office at space.utilization@umich.edu.

Who Should Follow These Guidelines

These guidelines apply to all General Fund academic and administrative units seeking Provost support for a major capital project on the Ann Arbor campus only. They do not apply to auxiliary units (e.g., Athletics, Housing, Parking and Transportation, University Unions), the U-M Health System (i.e., U-M Hospitals, Health Centers), or the Dearborn or Flint campuses.

When to Follow These Guidelines

Most major capital project needs are required to follow the capital projects process described in this document, although there are a few exceptions to this rule. The distinguishing factor is typically based on the estimated cost of the project and/or the impact to the broader campus. The list below defines when capital project needs are or are not required to follow the process.

Estimated Cost	General Guideline
<i>Less than \$2M</i>	In general, units have autonomy in planning and initiating new construction or renovation projects that are estimated at less than \$2 million and do not need to follow these guidelines..
<i>\$2-5M</i>	If a project is estimated at \$2-5 million, units must share their capital need and vision with the Provost's Office before the projects are initiated. In some cases, the Provost's Office may ask your unit to follow the guidelines and formally submit the capital project need for consideration.
<i>Over \$5M</i>	If a project is estimated at over \$5 million, units are required to follow these guidelines and formally submit their capital projects needs to the Provost's Office for consideration.
<i>Less than \$10M & 100% unit-funded</i>	If a project is estimated at less than \$10 million and the unit has all funding in place for the project, either through unit reserves or signed gift agreements, the unit can proceed with the project without going through the formal capital projects submission and review process. We do ask, however, that units discuss the project with the Provost's Office before the project is initiated to ensure that the project aligns with institutional needs and priorities.
<i>Special situations</i>	<p>Some projects have broader campus impact and require discussion with the Provost's Office before the project begins to ensure that it aligns with institutional needs and priorities, regardless of estimated cost. These projects include:</p> <ul style="list-style-type: none"> • New classrooms, vivaria, clinical trial space, computer server rooms, food venues, and libraries • Space conversions (e.g., converting classrooms to office space) • Renovating space that is used campus-wide use (e.g., classrooms or Rackham auditorium) • Changes that affect a building's exterior • Changes in land use • Projects that require financing with debt service

Process Overview & Timeframes

The following information provides a high-level overview of the capital projects submission, review, and approval process, and general time frames for each phase. This document describes each phase in greater detail and includes other important information related to capital project planning.

Phase	General Time Frames
1 Units submit capital needs to the Provost's Office.	Sept. 15 th (annual submission deadline)
2 The Provost and Provost's Capital Projects Review Committee review new and existing needs. The Provost decides the institutional priorities.	Oct – Dec
3 The Vice Provost for Academic & Budgetary Affairs informs units of the status of their submissions.	Dec – Jan
4 The Provost and Vice Provost for Academic & Budgetary Affairs share capital project priorities with the Finance & Capital Projects Committee and discuss unit funding plans and next steps for high priority needs. Units with needs that are deemed a high priority are informed of next steps based on these discussions.	Feb – varies
5 Units that receive Provost approval to explore their capital needs further begin a programming study with AEC, depending on the timing defined by the Provost's Office.	Varies

Important Things to Note

Before exploring a capital project need, it is important to keep the following items in mind.

- All capital project work, including programming studies, conceptual designs, cost estimates, etc., must be coordinated through and managed by Architecture, Engineering and Construction (AEC). (Refer to *SPG 507.04*.) Units are not permitted to procure external consultants on their own.
- AEC will not provide cost estimates or start capital project program and site studies without first ensuring that the Provost's Office is aware of and supports proceeding with the study.
- The Provost's Office is actively involved in capital project planning whenever central funding is used or multiple units are involved in a project. A Provost's Office representative participates as a member of the project/facility planning committee to ensure that institutional needs are met.
- All projects estimated at \$1 million or higher require Board of Regents' approval. U-M Facilities & Operations manages the Regents' approval process, in partnership with Architecture, Engineering and Construction (AEC). Since the \$1 million threshold encompasses both large and small projects, smaller projects in the \$1-2 million range are "fast tracked" through the approval process.

UNIT SUBMISSION: HOW TO APPLY

Annual Submission Deadline: **SEPTEMBER 15th**

Units interested in submitting their capital needs to the Provost's Office for consideration must submit a formal statement of need on or before September 15th. This is considered a firm deadline and is needed to enable the Provost's Office to review all campus needs collectively before making decisions on institutional priorities.

NOTE: If your unit submitted a capital project need previously and the need has not yet been addressed, you do not need to resubmit the need each year. The Provost's Office revisits both new and existing needs during the annual review process. If, however, significant changes have occurred since your last submission, we encourage you to submit a brief summary of the changes only on or before the September 15th deadline.

Submission Instructions

To ensure that each capital project submission is considered fairly, we ask that you:

1. Submit your statement of need and any supporting facility photos electronically to **space.utilization@umich.edu on or before September 15th**.
2. Limit the length of your statement of need to **no more than 15 pages** (excluding photos). You can use any document layout or format that you choose.
3. Ensure that your submission addresses the following items and includes specific examples to help explain the context of your unit's overall need.
 - a. *Description of your facility challenges*
 - What is driving this capital project need at this time? (e.g., changes in programming, pedagogy, or research; increased enrollments; faculty or student recruitment and retention; ability to compete with peer institutions)
 - How are your existing facilities affecting:
 - Your unit's ability to meet its core mission?
 - Faculty, student, or staff success?
 - Your unit's ability to compete with peer institutions?
 - How has your unit worked around your facility challenges to date? (e.g., repurposing existing space to other uses, using another unit's space, leasing space, optimizing and/or reconfiguring existing space)
 - What are the challenges of continuing to address the problem in the same manner?
 - How will your unit continue to operate if this capital need is not addressed at this time?

b. <i>Supplemental information</i>	<p>Please share any supplemental information that supports your narrative. Examples include:</p> <ul style="list-style-type: none"> ▪ Trends in student enrollments, faculty headcounts, patient visits (if applicable), or visitors (for public goods, if applicable) over the past few years ▪ Trends in research expenditures (or other measures of research productivity) over the past few years ▪ Relevant comparisons between your unit and peer institutions (e.g., enrollments, faculty, square footage, research expenditures) ▪ Faculty or student recruitment or retention issues that are directly related to the limitations of your current facilities
c. <i>Desired solution</i> (no more than ½ page)	Please share your unit’s vision for what facility solution(s) would best address your needs.
d. <i>Funding plan</i> (no more than ½ page)	<p>Please share your thoughts on how your capital need would need to be funded.</p> <ul style="list-style-type: none"> ▪ Does your unit have reserves that could be applied toward a capital project? ▪ Have you started any type of fundraising to support this project? ▪ Would this capital need require some level of central funding to support the project?
e. <i>Photos</i>	You may include up to 20 photos of your existing facilities to help describe the challenges you face. Please insert the photos into a PowerPoint or Word file and include a brief description of each photo, including the building and room number.

PROVOST’S OFFICE REVIEW & DECISION ON INSTITUTIONAL PRIORITIES

After receiving all capital need submissions, the Provost and Provost’s Capital Projects Review Committee review each new capital need carefully to determine institutional priorities. Existing needs that have not yet been addressed are also revisited.

The Provost’s Capital Projects Review Committee serves in advisory role to the Provost and is comprised of the following members:

- Office of the Provost – Vice Provost for Academic & Budgetary Affairs and Asst. Vice President for Academic & Budgetary Affairs (responsible for capital planning)
- Office of the Vice President for Research – Vice President
- Academic units – Two deans representing academic units and one faculty member

Facility Tours

As part of the review process, the Provost's Capital Projects Review Committee typically requests on-site tours of the unit buildings that have capital needs. The tours are invaluable in providing committee members with a first-hand view of a unit's facility challenges and enabling members to ask questions about the facility and the unit's programs to help them better understand the unit's situation. When possible, facility tours are arranged during the summer months, prior to the September 15th deadline.

Prioritization of Capital Needs

The Provost's Capital Projects Review Committee reviews and discusses each capital need individually, considering how the unit's facility challenges are affecting its core academic and research mission; its faculty, student, and staff success; its ability to compete with peer institutions; the urgency to address the need at this time; and more. The committee then prioritizes all new and existing needs, identifies opportunities for units to partner on potential solutions, and recommends priorities to the Provost for consideration.

The Provost also reviews each capital need and makes the final decision on institutional priorities, seeking input from the President and/or Chief Financial Officer (CFO), if appropriate. The Vice Provost for Academic & Budgetary Affairs typically communicates the Provost's decision to units on behalf of the Provost.

New capital needs are prioritized against existing needs (i.e., those that were submitted in previous years, but have not yet been addressed) and are placed into one of four categories:

<i>High priority</i>	Capital project needs in this category will move forward as funding becomes available. In particular, they are candidates for central resources, although the availability of external funds from the requesting unit is also a factor in determining timing. The fact that a need is in this category does not mean that it will be pursued immediately. Typically, there are more high priority projects than there are currently available resources.
<i>Priority</i>	Capital project needs in this category are important to the institution's goals, but are less likely to receive central funds. Thus, these needs typically require the unit to pursue external funding sources for at least a substantial portion of the cost.
<i>Lower priority</i>	Capital project needs in this category are consistent with institutional goals, but are not a high enough priority to qualify for central funding at the present time. They will only move forward if the unit is able to secure external funding.
<i>Not a priority</i>	Capital project needs in this category will not be implemented.

PROJECT FUNDING & TIMING DISCUSSIONS

The speed at which a capital project need is initiated is directly related to funding. Capital projects cannot move forward until all funding has been identified and is in place, so this is often the point where the process can slow down (sometimes quite a bit).

NOTE: For detailed information on capital project funding and financing options refer to “Appendix A – Funding Sources & Financing Options,” later in this document.

Funding Principles

With all capital projects, units are responsible for creating a funding plan that covers the entire cost of the capital project (including temporary relocation during the project) and recurring operating costs (utilities, maintenance, etc.) of the new building or additional space. Each unit must ensure that funding required by their plan is available and can be committed in support of the project before a project is approved to proceed.

In most cases, capital projects are funded using the unit’s fund balances that are available for use (i.e., unrestricted funds), gifts, or grants. Given how unpredictable the economic climate is and will likely continue to be, central funding may or may not be available to subsidize capital projects.

As your unit considers its funding plan, it is important to keep the following key funding principles and assumptions in mind:

- Every proposed capital project must have a funding plan to support the design, construction, and operating costs, as well as the costs associated with any interim moves, of the renovated new or expanded asset from the unit’s own financial resources.
- Any commitments from non-unit funds (Provost’s Office, Dean, Vice President, etc.) must be approved in writing.
- Any central University commitments used for the completion of any project will be reimbursed first if the funding sources for the project exceed the final costs of the project.
- All gift agreements must be signed and executed.
- The unit is responsible for supplying the cash needed during the project until the gift arrives. Units with gift agreements that are pledged but not yet available in cash to pay for construction costs may need to request “bridge funding” using University debt financing. If the Provost, Treasurer, and CFO agree that debt financing can be used, the unit is responsible for paying the interest expense on the debt. The interest expense must be included as a cost in the unit’s funding plan.
- All grant agreements and contracts must be signed and executed.

Finance & Capital Projects Committee Discussions

The Provost shares the prioritized capital needs with the Finance & Capital Projects Committee and, for projects deemed a “high priority”, discusses each potential project’s funding plan and timing.

The Finance & Capital Projects Committee is comprised of leadership and representatives from the offices listed below, and discusses (at a high level) the capital project need and scope, the unit’s funding plan, the availability and feasibility of central funding or debt financing (if needed), opportunities for and feasibility of fundraising, alignment of project budgets vs. funding, opportunities for State of Michigan capital outlay submissions, and more.

Once the Provost and Finance & Capital Projects Committee agree that a capital project need has all funding in place and that the scope, budget, and funding align, the need can move forward. Needs can only move forward when all funding is in place.

The Finance & Capital Projects Committee representatives include:

*Office of the Provost &
Exec. Vice President for
Academic Affairs*

- Provost
- Vice Provost for Academic & Budgetary Affairs
- Asst. Vice Provost for Academic & Budgetary Affairs (responsible for capital and space planning)

*Office of the Exec. Vice President
& Chief Financial Officer*

- Chief Financial Officer
- Treasurer
- Assoc. Vice President for Facilities & Operations
- Director, Assoc. Directors, and Ass. Director of Architecture, Engineering and Construction

*Office of the Vice President &
Secretary of the University*

- Secretary of the University

*Office of the Vice President
for Development*

- Vice President for Development
- Assoc. Vice President for Development

*Office of the Vice President
for Government Relations*

- Vice President for Government Relations

Funding Plan Review

To ensure that a unit's funding plan is feasible, the Provost's Office turns to the Treasurer for input. If the funding plan includes gift agreements, the Office of Development is also involved.

NOTE: Both the Treasurer's Office and the Office of Development are available to assist units as they develop their funding plans.

Office of the Treasurer Review

The Office of the Treasurer provides consulting on financing principles and options in constructing a viable funding plan. This office can also assist in determining prevailing rates, terms and principles in the established debt policy for the University. The Treasurer considers the following information when reviewing a unit's capital project funding plan:

- Does the project leverage external funds, such as a gift or grant?
- Is the funding plan feasible?
- Are the assumptions conservative or aggressive?
- Are the assumptions based on one good year or is there a historical pattern that supports the assumptions?
- Is there a strategy for incremental costs like staffing, maintenance, utilities, moving, storage, temporary space, and interest?
- How strapped will the unit be to support unexpected program initiatives or operating expenses that arise after the capital project is approved?
- Does the unit have unrestricted fund balances that can be applied to the capital project?
- For projects that require University debt financing, does the proposing unit have the financial capacity to pay the debt service, as well as any new net operating costs from the renovation, construction, or asset acquisition (for major technology or equipment)?
- Is the funding plan sufficient to cover the life cycle repair and improvement costs of the new or expanded facility?

Office of Development Review

The University Office of Development provides consulting on fundraising objectives and reviews the final fundraising plan to ensure its viability. The Office of Development considers the following information when reviewing a unit's capital project funding plan:

- Are the fundraising expectations realistic?
- Has a proper fundraising feasibility analysis been conducted?
- Does this fundraising need conflict with other fundraising priorities?
- Has the appropriate donor coordination taken place?

INITIATING A PROGRAMMING STUDY/CONCEPTUAL DESIGN WITH ARCHITECTURE, ENGINEERING AND CONSTRUCTION (AEC)

Once a project has all funding in place and has been approved to proceed, the unit may begin working with Architecture, Engineering and Construction (AEC) to officially explore the capital project further and begin program studies and conceptual designs, as a starting point. It is important to note that:

- All capital projects must be coordinated through and managed by AEC. Units are not permitted to procure architectural firms, general contractors, or other consultants on their own.
- AEC will not provide cost estimates or start capital project program and site studies without first ensuring that the Provost's Office is aware of and supports proceeding with the study.

NOTE: For more information on AEC's role in the capital projects process, refer to "Appendix B – AEC Overview" later in this document.

For more information on AEC's project management process, refer to www.aec.bf.umich.edu/about.us/AEC%20Process%20Overview.pdf

PROVOST'S OFFICE INVOLVEMENT

Once the Provost has determined institutional priorities for General Fund capital projects, the Provost's Office remains involved throughout the capital projects process (as members of the unit's planning committee) to ensure that institutional interests and needs are met and to approve programming and designs. This is particularly the case when central funding is used to support a capital project and when multiple units are partnering on a project.

INSTITUTIONAL APPROVALS

Before a capital project can officially begin, the President and Board of Regents must first approve the project.

President's Approval

The President is informed of major capital project needs that are being explored and determines the projects that she or he will forward to the Board of Regents for consideration and approval.

Board of Regents Approval

Board of Regents approval is required at three key points in the overall capital projects process. A capital project cannot move forward without these Board of Regents approvals:

- Approval to proceed with the capital project and appoint an architectural firm to develop the schematic design
- Approval of the schematic design
- Approval to bid and award the construction project

AEC prepares all materials for the Board of Regents approvals. The Executive Vice President and Chief Financial Officer submits the request for approval to the Board of Regents on behalf of the University.

APPENDIX A – FUNDING SOURCES & FINANCING OPTIONS

The following sources or combination of sources are typically used to fund capital projects, depending on availability:

<i>Unit reserves, gifts, & grants</i>	Typically, there are more high priority capital needs than there are currently available central funding resources, so units are expected to contribute to capital projects, whenever possible. This includes using unit reserves (if available) and securing external funding (gifts or grants) to support their capital need.
<i>Central resources</i>	Given the unpredictable economic climate, central resources are often limited and may or may not be available for a capital project. If central resources are available, the Provost’s Office and Treasurer’s Office will work with the unit to ensure that the funding is committed.
<i>Capital renewal funding</i>	The Provost manages a capital renewal fund that was established specifically to renovate and reprogram existing buildings to address major infrastructure needs and to renew and extend its useful life. The Provost may choose to apply capital renewal funding toward projects that meet these criteria.
<i>Debt financing</i>	<p>The University has limited debt capacity and approval of external financing requires a rigorous funding plan (operating forecast and capital plan) that demonstrates the University unit’s capacity to pay the debt service. Approval of the use of debt capacity is made by the CFO in consultation with the Finance & Capital Projects Committee. In any given period, the University may have a greater or lesser debt capacity depending on the capital projects in progress, market conditions, and the relationship of new capital activity to the University’s competitiveness and overall financial condition.</p> <p>Key principles of debt financing include:</p> <ul style="list-style-type: none"> ▪ The Treasurer’s Office is responsible for obtaining the most cost-effective financing possible by strategies that include the pooling of overall capital needs and issuing various forms of debt to meet these aggregate needs. ▪ The Treasurer’s Office manages the actual payments of each debt issue to assure an event of default will not occur. ▪ Each Unit will be assigned an internal payment schedule with fixed interest rates to decrease volatility in budgeting for debt. Adjustments will be made periodically to credit or assess units for any variations between the budgeted interest rate and the actual interest rate. Over the course of the financing, units will pay the actual cost of the debt. <p><i>NOTES: Only the Treasurer is allowed to secure debt financing on behalf of the University. For more information, refer to SPG 519.01.</i></p> <p><i>For more information on debt financing, refer to “General Guidelines for Debt Financing” on the Treasurer’s Office web site at www.finance.umich.edu/treasury/debt</i></p>

Central Interest Earnings for Deferred Maintenance & Infrastructure Projects

Central interest earnings are used from time to time to fund deferred maintenance and infrastructure projects. Approval of this funding source is made through the Finance & Capital Projects Committee with agreement from the Provost and CFO.

Facilities and Operations maintains an inventory of condition assessments for all assets owned by the University. A deferred maintenance plan related to those assessments is prepared and monitored by Facilities and Operations. Projects are prioritized based on numerous factors related to risk, the assets' importance for academic, research, or student life, and other factors. The CFO determines annually how much of the central interest earnings can be applied to deferred maintenance and the Finance & Capital Projects Committee reviews these plans. Units should consult with staff from Facilities and Operations if they have questions about the deferred maintenance needs in their facilities and how they will or will not relate to new capital activity.

State of Michigan capital outlay

Each year, the State of Michigan requires state agencies, universities, and community colleges to submit five-year capital master plans to the Department of Management and Budget and the Joint Capital Outlay Subcommittee. Each plan must include prioritized capital project requests, special maintenance needs, and other information about their facilities. Plans are typically submitted each October.

Although the State of Michigan requests annual submissions of capital project needs, State funding is not always available to support these needs. Funding amounts, availability, and timing vary from year-to-year, and are directly related to the State budget situation. In addition, when the State of Michigan provides capital outlay funding to the University, it requires the University to contribute funding to the capital project(s) as well. Due to the unpredictable nature of the State of Michigan Capital Outlay program and requirement for universities to match State capital outlay funds, the University depends on other primary sources of funding to fund its capital projects.

At U-M, the Provost's Office identifies and prioritizes the projects that should be considered for the State of Michigan Capital Outlay program, and submits the information to the AVP for Facilities and Operations and the CFO. The Provost's Office identifies projects for State of Michigan Capital Outlay consideration based on priority to the institution and priority to the State of Michigan, and may seek input from the VP for Government Relations when determining priority. Typically, only one project is submitted for consideration. The Provost's Office identifies projects based on facilities discussions with units that may occur during annual budget meetings and on knowledge of projects that have been discussed with the Finance & Capital Projects Committee.

APPENDIX B – AEC OVERVIEW

U-M Architecture, Engineering and Construction (AEC) is responsible for managing the design and construction activities for all University of Michigan capital projects on the Ann Arbor, Dearborn, and Flint campuses. Primary project management responsibilities include selection of all consultants and construction contractors, and leadership throughout all stages of design and construction.

AEC's Role

As specified in SPG 507.04, the Executive Director of AEC approves all requests for architectural and related engineering services on behalf of the University. Units are not allowed to procure architectural firms, general contractors, or other consultants on their own and must also go through AEC for all program studies, site studies, preliminary cost estimates, etc. after first receiving Provost's Office approval to begin these preliminary studies.

AEC provides comprehensive planning and management for capital projects, as described below.

<i>Project programming</i>	Support and feasibility studies.
<i>Project initiation</i>	Development of an initial project budget, verification of funding requirements, development of a project schedule, leadership in selection of external architectural/engineering firms for the project's design, negotiation of contracts with design professionals, completion of appropriate reports for the Board of Regents and/or State of Michigan, etc.
<i>Design management</i>	Coordination with internal U-M departments (Plant Operations, Plant Utilities, Building Services, OSEH, Transportation, ITCOM, etc.), management of cost estimates preparation, facilitation of design reviews by external agencies, preparation of monthly status reports to users, etc.
<i>Construction management</i>	Preparation of detailed project schedules, necessary bid documents, and contracts; procurement of construction services; management of contractors and other construction professionals; coordination of project compliance; management of change directives; coordination with internal and external groups; monthly reporting; management of project budget and schedule; coordination with users on user-activation and move-in activities, etc.
<i>Other services</i>	<p><u>Cost benchmarking</u> - For many projects, AEC works with external firms to benchmark the estimated costs of a particular project against projects similar in size and scope at other institutions in the United States. The information is shared with the Provost's Office, unit, CFO and other groups that have a vested interest in sponsoring or supporting the project and ensures that the cost estimates are aligned with comparable benchmarks.</p> <p><u>Operating cost estimates</u> - AEC, in cooperation with Plant Operations and other resources, determines the approximate long-term operating cost estimates for each project. Factors that influence operating costs include the types and degree of energy efficient materials used in the project, the expected product life-cycle of materials and quality of products used, etc.</p>

Working with AEC in the Design Phases & Beyond

AEC oversees all capital projects through multiple design phases, and unit involvement is critical to each phase to ensure that unit needs are met and are within the overall project scope and budget. AEC typically works with a facilities planning committee (FPC), comprised of unit leadership, faculty, and staff, as well as representatives from the Provost's Office and other central units.

The FPC works closely with AEC in the following phases of a planning and executing a capital project:

<i>Conceptual & schematic design</i>	During this phase, the FPC, AEC project manager, and architects work closely to develop the general building program to better understand user requirements for the space, the spatial relationships within a building, and building site requirements. Project costs are estimated, and may result in changes to the project scope to fit within the project budget.
<i>Design development</i>	During this phase, the FPC and user working groups visualize the spaces and their functions to help the AEC project manager and architects develop more detailed drawings, floor plans, and infrastructure needs (mechanical, plumbing, and electrical) for the building. Project costs are estimated again, and may result in changes to the project scope to fit within the project budget.
<i>Construction documents</i>	During this phase, the architects develop the design further to produce actual construction drawings. Materials and finishes are also determined at this time. The result of this phase is a package that can be sent to an estimator and to contractors for bidding. Even at this phase, the project scope may need to change to fit within the project budget. Items to potentially change or eliminate will have been predetermined and prioritized throughout the entire design process, with close involvement from the FPC.
<i>Bid, Award, & Construction</i>	Once construction documents are complete, AEC sends the project out for bid and awards the project to a general contractor. AEC continues to manage the project through completion, in partnership with the general contractor, who manages the detailed construction work and contractors involved in the project. AEC continues to work closely with the unit should any questions or issues arise during construction.

NOTE: For more detailed information on the entire AEC project management process, refer to www.plantext.bf.umich.edu/about.us/AEC%20Process%20Overview.pdf

Project Cost Considerations and Variables

Every capital project is different, and as a result, project costs can vary greatly. To ensure that project cost estimates reflect costs associated with our geographic area and other variables that are unique to each project, it is important that AEC provide initial cost estimates.

Some variables that can affect a cost estimate include:

- State laws
- Labor rates

- Project timing
- Fees
- Code requirements
- Expedited -“phased” or “fast-tracked” projects
- Unit-requested changes
- Leadership in Energy and Environmental Design (LEED) certification
- Quality of interior and exterior finishes
- Energy efficiency goals
- Infrastructure needs
- Project site needs
- Inclusion/exclusion of furniture and/or major equipment in the defined project

For example, if a project is scheduled during a time when several other construction projects are underway in our geographic area, the project is competing for labor, materials, and other resources, which can drive up the cost. Projects that are “phased” or “fast-tracked” to achieve an earlier completion date typically result in the need to pay additional costs due to overlaps in design and construction. Projects that have several user changes after the schematic design phase affect the budget and schedule and increases the overall cost of the project. Building code requirements may require specific work that must be adhered to and included in the project that may also add to the cost of a project.