

**STATE OF WASHINGTON**

# **PREDESIGN MANUAL**

**(FOR MAJOR PROJECTS AND THOSE GREATER THAN \$1 MILLION)**

**OFFICE OF FINANCIAL MANAGEMENT  
BUDGET DIVISION**

**July 2014**



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## ABOUT THE MANUAL

### CAPITAL CONSTRUCTION PREDESIGN

Chapter 506, Laws of 2007 (SHB 2366) states, “Capital construction projects funded in the state’s capital budget require diligent analysis and approval by the governor and the legislature.” The Office of Financial Management (OFM) therefore regularly updates this manual to provide a framework for preparing and conducting predesign studies. This update includes the requirements for those projects \$1 million and greater that may require a predesign study. It is also the model by which studies will be evaluated during the budget review process.

If you have questions about this manual or a predesign study, contact your OFM capital budget assistant.

### LOOK FOR THE SIGN TO FIND ITEMS REQUIRED FOR SUBMITTAL

Use this symbol to help you quickly find predesign submittal requirements.

### LOOK FOR THE SIGN FOR NEW ITEMS

This symbol flags new or revised requirements or tools from the previous manual. Changes in the manual are:

- Greenhouse gas (GHG) emissions reduction policy. Senate Bill 5560 added policy related to greenhouse gas emissions to state funding for infrastructure and economic development programs. This policy is defined in RCW 70.235.070 and was required to be implemented beginning in calendar year 2010: “When distributing capital funds through competitive programs for infrastructure and economic development projects, all state agencies must consider whether the entity receiving the funds has adopted policies to reduce greenhouse gas emissions. Agencies also must consider whether the project is consistent with:
  - 1) The state’s limits on the emissions of greenhouse gases established in RCW 70.235.020;
  - 2) Statewide goals to reduce annual per capita vehicle miles traveled by 2050, in accordance with RCW 47.01.440, except that the agency shall consider whether project locations in rural counties, as defined in RCW 43.160.020, will maximize the reduction of vehicle miles traveled; and
  - 3) Applicable federal emissions reduction requirements.”
- Project proposal form for higher education projects, required for the scoring process. Contact the capital budget analyst for higher education for the latest version of this form.

## SECTION 1

# GENERAL INFORMATION ABOUT PREDESIGNS

## 1.1 INTRODUCTION TO THE PREDESIGN STUDY

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### Purpose of Predesign Study

Key to the success of any capital project is a clear and accurate understanding of the specific facility need or problem to be addressed and a thoughtful analysis of the options. The predesign process is a decision-making tool for large, stand-alone (between \$1 million and \$5 million) and major (more than \$5 million) capital budget expenditures. The intent of a predesign study is to investigate facility alternatives for public service delivery or administration. It should assess which alternative best solves a specific problem and at what cost. This will assist decision makers in determining whether the project should proceed to design and construction. Predesign is the beginning of a project, not a result of a design concept already selected.

### Types of Studies

One of three types of predesign studies may now be required, depending upon the project scope and cost. It is **highly recommended** that you schedule an initial scoping meeting with your OFM capital budget analyst and your predesign consultant (if selected) to confirm the predesign requirements and expectations for your project.

1. **Stand-alone project studies** – those programmatic projects selected by the Legislature or OFM estimated to cost between \$1 million and \$5 million (\$2 million and \$10 million for higher education). Projects within this range that are particularly time sensitive, have high risk, or are of particular interest to decision makers may be required to undertake a predesign study. These studies are similar to those required for major projects. However, depending upon the project scope, not all predesign sections in this manual required for major projects need to be completed. Agencies, in consultation with OFM, should determine which sections of the predesign study apply to a project and complete those sections only.
2. **Major projects of \$5 million or more:**
  - (a) **Limited scope studies** – those projects of limited scope, such as infrastructure projects, which are estimated to cost more than \$5 million and generally are completed in one biennium. These studies are similar to those required for major projects. However, depending upon the project scope, not all sections required for major projects must be completed. Agencies, in consultation with OFM, should determine which sections of the predesign study apply, given the project scope, and complete those sections only.
  - (b) **Comprehensive predesign studies** – those projects with an estimated cost of \$10 million or more and typically span two to three biennia. These projects are required to have a comprehensive predesign study as described herein.
3. **Modified predesign** – Section 4, Chapter 506, Laws of 2007 (SHB 2366) states, “The office of financial management shall design and implement a modified predesign process for any space request to lease, purchase, or build facilities that involve (a) the housing of new state programs, (b) a major expansion of existing state programs, or (c) the relocation of state agency programs.”

These modified predesigns are not applicable to major projects with an estimated project cost of \$5 million or more. These major projects are required to have a predesign study described in this manual, in accordance with Chapter 43.88 RCW. Information about the modified predesign can be found at <http://www.ofm.wa.gov/budget/facilities/modifiedpredesign.asp>.

## **What Questions do Predesigns Answer?**

During the predesign process, the agency or institution answers questions designed to ensure full understanding of the viable alternatives to resolve the facility need that has been identified. The facility needs should be directly related to the delivery of public services. These questions include refinement of the scope, project management, schedule, quality, budget and location of a project through answering questions of who, why, what, where, when and how much.

## **What does Predesign Involve?**

The predesign study involves data collection, analysis, organization, communication and evaluation through which all viable alternatives and elements of the selected facility's design are explored. It includes the establishment of an agency's or institution's programmatic, qualitative and financial needs, schedule requirements, and limitations for a project. It should explore the facility's physical attributes, as well as the design response to meet service delivery and facility user needs. In addition, predesign should evaluate the delivery system to be used and the recommended funding method.

While the predesign is a solid foundation from which to begin design, it does not impose constraints that cannot be altered during the design process if additional information becomes available.

Reasonable flexibility, within legislative intent, during the design and construction process is expected and encouraged. Scope changes must be communicated to your OFM capital budget analyst.

## **Benefits of Predesign**

Experience shows that high-quality predesign studies provide a number of benefits:

- Better planning by agencies and institutions yields better results.
- Better communication for funding requests is fostered.
- Agencies and institutions have an opportunity to discover alternatives that had not been previously considered.
- Agencies and institutions make more informed decisions with more complete information.
- Risks can be identified and minimized through a more rigorous process.
- Agencies and institutions can improve internal program planning, and cost or schedule issues not previously known (such as utility extensions and geotechnical issues) can be explored before large sums of money are invested.
- An opportunity is presented to review total project budgets prior to the design phase.
- Long-term planning offers the best potential for cost savings.
- A comprehensive analysis of the best construction delivery method such as design-bid-build, GC/CM, or design build can be analyzed.
- Funding alternatives best suited for the particular project can be analyzed and recommended.

## **When is a Predesign Study Required?**

Predesign studies are required for all projects exceeding \$5 million (\$10 million for higher education), as appropriated by the Legislature. Stand-alone project predesign studies may be required for selected projects between \$1 million and \$5 million (\$2 million and \$10 million for higher education), and will be selected by OFM or the Legislature on a case-by-case basis.

## **Use of Consultants**

Typically much of the work to produce a predesign study is undertaken by the agency or institution, but it is common for professional consultants to be hired to complete some of the required technical aspects. All portions of the work related to programming and institutional needs should be produced by agency or institution staff.

Typically, it is assumed that stand-alone predesign studies will not require consultants. However, because the requirement for undertaking a predesign study on projects between \$1 million and \$5 million (\$2 million and \$10 million for higher education) will be included in proviso language with the appropriation for the entire project (design and construction), OFM may allot minimal design funding (schematic design funds) to assist agencies without internal technical expertise.

## **Audiences**

Various audiences use the predesign documents. Interested parties include the project design team, agency or institution project staff and management, agency or institution executive management, the Legislature, OFM, Department of Enterprise Services (formerly General Administration), and the public. With this in mind, this manual has been prepared to promote consistency in predesign studies, both for major projects and those costing between \$1 million and \$5 million (\$2 million and \$10 million for higher education).

## **Overview**

The Predesign Study should provide the following information, at a minimum, regardless of which options analyzed in the study are selected. Please refer to the following chart for the required components of the Predesign Study for the types of projects described.



**FIGURE 1**  
**PREDESIGN STUDIES BY PROJECT SCALE AND SCOPE**

	Stand-Alone Projects	Major Projects	
	Projects between \$1 million and \$5 million (\$2 million and \$10 million for higher education)	Infrastructure projects and projects of limited scope greater than \$5 million	Projects greater than \$10 million
<b>When Required</b>	Required by OFM and/or the Legislature on a case-by-case basis.	Required	Required
<b>Funding</b>	Funded through appropriation. No additional funding expected or provided. Applies to projects funded for design and construction in one biennium.	Agency includes predesign costs as part of total funding request. Applies to projects funded for design and construction in one biennium.	Agency requests predesign funding for upcoming biennium, followed by design and construction funding requests the following two biennia. In some instances, predesign and design may be appropriated in the same biennium.
<b>Completion Date</b>	To be completed prior to the release of the allotment for design.	To be completed prior to the release of the allotment for design.	July 1 of even-numbered years or prior to the release of the allotment for design, whichever comes sooner.

REQUIRED COMPONENTS		
Projects between \$1 million and \$5 million (\$2 million and \$10 million for higher education)	Infrastructure Projects and Projects of Limited Scope Greater than \$5 million	Projects Greater than \$10 million
Description of the service delivery needs to be met: the problem	Description of the service delivery needs to be met: the problem	Description of the service delivery needs to be met: the problem
Thorough explanation of scope of work	Thorough explanation of scope of work	Thorough explanation of scope of work
N/A	N/A	Analysis of potential and recommended project site(s)
Analysis of existing building conditions for remodels and upgrades	Analysis of existing infrastructure conditions and maintenance impacts, including an engineer's report analyzing the problems and identifying potential solutions	Analysis of existing building conditions for remodels and upgrades
Project budget in CBS002	Project budget in CBS002	Project budget in CBS002
N/A	Cost/benefit information for major decisions involving economic trade-offs	Cost/benefit information for major decisions involving economic trade-offs
N/A	Discussion of relevant master plans and other planning documents that affect the project	Discussion of relevant master plans and other planning documents that affect the project
Complete set of conceptual or preliminary drawings (prior to schematic design phase)	Complete set of conceptual or preliminary drawings (prior to schematic design phase)	Complete set of conceptual or preliminary drawings (prior to schematic design phase)
N/A	Analysis of how future needs and growth are accommodated	Analysis of how future needs and growth are accommodated
N/A	Discussion and recommendation on the project delivery and agency project management process to be used	Discussion and recommendation on the project delivery and agency project management process to be used
N/A	Operating and maintenance impacts	Thorough analysis of the operating impacts, including FTEs and operating and maintenance costs
N/A	An alternatives analysis of the project's life cycle costs. Use OFM's Life Cycle Cost Tool (LCCT) to generate the executive report.	An alternatives analysis of the project's life cycle costs. Use OFM's Life Cycle Cost Tool (LCCT) to generate the executive report.



## Predesign Study Funding Standards

Agencies may request an appropriation to assist them in conducting a major predesign study. Stand-alone predesign studies should be completed by the submitting agency or institution with no additional funding expected or provided. Appropriations should be made through the budget process prior to proceeding with a predesign to cover costs and establish legislative intent for the project. The contents section of this manual describes the sections of the study that such funds will finance.

Major project predesigns are generally about 1 percent of the total project budget, depending upon the magnitude and complexity of the project. See below for additional funding guidelines.

**MAJOR PROJECT PREDESIGN STUDY FUNDING STANDARD**  
**PROJECT COST IN MILLIONS**

Type of Project	\$5–\$10	\$10–\$20	\$20–\$40	More than \$40
<b>Complicated</b>	1.25%	1.00%	0.70%	0.60%
<b>Standard Design</b>	1.15%	0.85%	0.60%	0.50%
<b>Uncomplicated</b>	1.00%	0.70%	0.50%	0.40%

Note: Percent is based on total estimated project cost and is more applicable to new facilities. Infrastructure preservation/replacement projects should require less funding.

## 1.2 PREDESIGN REVIEW PROCESS

### Timing of Submittal

The predesign study, if approved, helps establish the project budget for design and construction funding. For major projects to qualify for design consideration in the capital budget, the predesign study should be submitted no later than July 1 of even-numbered years. For projects between \$1 million and \$5 million, the stand-alone predesign study must be submitted prior to release of the allotment for design of the project. This can occur at any time.

### Review and Approval Authority

RCW 43.88.110 as amended by Section 4, Chapter 162, Laws of 2014 (SHB 2613) requires that “The office of financial management, prior to approving allotments for major capital construction projects valued over five million dollars, with the exception of projects at institutions of higher education as defined in RCW 28B.10.016, which may be valued up to ten million dollars, shall institute procedures for reviewing such projects at the predesign stage that will reduce long-term costs and increase facility efficiency. The procedures shall include, but not be limited to, the following elements:

- (a) Evaluation of facility program requirements and consistency with long-range plans;
- (b) Utilization of a system of cost, quality, and performance standards to compare major capital construction projects; and
- (c) A requirement to incorporate value-engineering analysis and constructability review into the project schedule.”

The 2013-15 capital budget (Section 7004, Chapter 19, Laws of 2013, Second Special Session) also requires that the predesign study be submitted to OFM for review and approval:

“To ensure that major construction projects are carried out in accordance with legislative and executive intent, appropriations in this act in excess of \$5,000,000 shall not be expended or encumbered until the office of financial management has reviewed and approved the agency's predesign. The predesign document must include, but not be limited to, program, site, and cost analysis, including life cycle cost, in accordance with the predesign manual adopted by the office of financial management. The results of life cycle cost analysis shall be a primary consideration in the selection of a building design. Construction shall proceed only upon providing to the office of financial management the life cycle costs. To improve monitoring of major construction projects, progress reports must be submitted by the agency administering the project to the office of financial management and to the fiscal committees of the house of representatives and senate. Reports must be submitted on July 1st and December 31st each year in a format to be developed by the office of financial management.”

## **Review Process**

The fact that an agency or institution has received funding to undertake a predesign study does not guarantee that the subject project will be approved to continue to the design or construction phases. The review and approval that would be undertaken of a predesign by OFM and/or the Legislature is an ongoing process to determine the future of the project.

Before starting the predesign, an agency should arrange a meeting with its assigned OFM capital budget analyst to discuss scope, funding, schedule, alternatives and document expectations. Regular status meetings also may be scheduled. Near completion of the final predesign draft, the agency should schedule a presentation to start the formal review process with OFM. During the OFM review process, changes or additional information may be required before the predesign is approved by OFM. Agencies and institutions should make appropriate allowance for the time and cost involved in this process. If approval of the predesign study is not granted, the project will not be included in the Governor's proposed budget for consideration by the Legislature.

OFM has developed an internal review process for conducting predesign evaluations. The Budget Evaluation Study Team (BEST) review will be used on selected predesigns. Independent, qualified multi-disciplined teams using value engineering methodology will conduct the reviews. The OFM budget staff evaluates other predesign studies in-house.

Predesign study review by either OFM budget staff or an independent BEST leads to a better study. The result is more cost-effective designs; early identification and resolution of issues; lower costs; and improvements in safety, security and aesthetics.

OFM has structured both the in-house review and BEST review of predesign studies to analyze:

- **Prevention of project scope creep** – Reviews are designed to ensure the inclusion of all needed program elements and to eliminate unnecessary elements to meet the project intent or scope. Scope creep occurs when missing items in a project are discovered late in design development, resulting in costly changes and additions to the project scope. Developing a comprehensive study and performing a thorough review of the study helps to establish an appropriate budget for the project right from the start.

- **Space and quality standards** – Reviews analyze both facility space requirements and proposed construction materials to ensure compliance with established standards. In some designs, the program allocating space does not meet the project’s real needs or is used inefficiently. By analyzing the predesign study, the functional requirements of the project can be adjusted without detracting from the essential function.
- **First cost and life cycle cost analysis** – Reviews provide the opportunity for cost savings while still meeting project objectives. The greatest opportunity exists to change designs during the review of a predesign study, which can affect not only the first cost, but also small increases that can significantly reduce the life cycle costs.

Agencies must submit an analysis of the project’s life cycle costs using OFM’s Life Cycle Cost Tool (LCCT). Additional information about the LCCT can be found in Sections 1.3 and 2.3, and Appendix F.



## 1.3 OTHER CONSIDERATIONS

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### Building Quality Standards

The predesign process should clearly document and justify the building quality standards. Because quality is directly related to performance and cost, project budgeting and design should take into account the level of performance acceptable for the facility and its systems.

### Sustainable Design Principles



Executive Order 13-03 required development of sustainable design principles so agencies could apply such principles to the siting, design, and construction of new facilities. These principles are to be considered during predesign and design in an effort to minimize the impacts of state facilities on the environment by reducing energy use, greenhouse gas emissions, water use and waste. The [Sustainable Design Principles](#) were developed by DES’ Engineering and Architectural Services, Energy Program. You can access this file at:

<http://www.des.wa.gov/services/facilities/Construction/Pages/default.aspx>.

### Energy Conservation

The cost of energy consumed by energy management systems and renewable energy systems must be considered in addition to the initial cost of constructing these systems.

Chapter 39.35 RCW requires that the design and use of energy systems in publicly owned and leased facilities include consideration of renewable energy resources (solar, wood or wood waste), other nonconventional fuels, and energy management systems. State law also provides for energy efficiency measures in public buildings and specifies DES’ duties in implementing conservation measures in state facilities. For assistance, contact the Energy Program, DES Division of Engineering and Architectural Services, at (360) 407-9372 or (360) 902-7272.

### LEED Requirements

Chapter 39.35D RCW requires all state-funded projects with buildings over 5,000 square feet or more that have not entered the design phase prior to July 24, 2005, to be designed, constructed and certified to have at least a LEED silver standard. For assistance, contact the Energy Program, Division of Engineering and Architectural Services, at DES.

LEED requirements should not be used as a cost-cutting tool. Savings from energy measures will be realized in operating budget savings in the future.

### **Life Cycle Cost Analysis**



Executive Order 13-03 requires agencies to perform a Life Cycle Cost Analysis (LCCA) for construction of buildings with an area of 5,000 square feet or more. In addition, Section 7039 of the 2013-15 Capital Budget (Chapter 19, Laws of 2013, Second Special Session) requires agencies to develop life cycle costs for any project valued more than \$5 million. These directives ensure that project design teams consider the total cost of owning and operating the building and/or specific system components. The results of the life cycle cost analysis shall be a primary consideration in the selection of a system or building design.

Agencies should coordinate with their OFM Capital Budget Analyst to verify LCCA requirements pertaining to the predesign submittal. OFM has created a Life Cycle Cost Tool (LCCT) to be used for the analysis; the LCCT with instructions can be found at <http://ofm.wa.gov/budget/forms.asp>.

### **Building Commissioning (Cx) and Enhanced Commissioning (ECx)**



As noted by DES on the [Building Commissioning](#) web page, “Commissioning is the process of ensuring that systems are designed, installed, functionally tested and are capable of being operated and maintained to perform according to the design intent.” Depending on the complexity of the building or system design, the commissioning agent should be integral to the project team early in the design phase, utilized during construction, and retained through operational training.

The energy and resource conservation benefits of installing high-performing building systems come with the need to provide better training to building operators. Well-trained facility staff will result in reduced utility and operating costs, fewer occupant complaints, and a healthier work environment for tenants. As stated in the [Life Cycle Cost Analysis and Energy Efficiency Report](#) written by the Capital Projects Advisory Review Board in December 2013, “A longer post occupancy phase, commonly referred to as enhanced commissioning, is critical to achieve the long-term desired performance outcomes and optimal building operation.” Agencies should consider some form of enhanced commissioning services for monitoring building energy performance and additional training to facility staff, as needed, to ensure the building systems continue to operate as originally designed.

### **Coordination on Information Technology**

During the predesign process, agencies should coordinate their IT requirements with the Office of the Chief Information Officer (OCIO) including completion of a conceptual review of before the agency budget submittal. Some projects may also be subject to oversight by the Technology Services Board (TSB), which focuses primarily on information technology (IT) strategic vision and planning; enterprise architecture; policy and standards; and major project oversight. Members include legislators, business leaders, agency directors, and a union representative.

### **Coordination with Department of Archeology and Historic Preservation**

[Executive Order 05-05](#) requires the Department of Archeology and Historic Preservation (DAHP) and affected tribes to review capital construction projects to determine potential impacts to cultural resources. During the predesign study, agencies must notify DAHP and affected tribes of potential sites for the project. A letter from DAHP on the impact of potential sites on cultural resources must be included in the study.

## SECTION 2

# CONTENTS OF A PREDESIGN STUDY

## 2.1 SECTIONS OF A PREDESIGN STUDY

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### **Predesign is Eight-part Report with Appendix**

The predesign for a major project should build upon the information generated in the agency's or institution's capital planning process. Stand-alone predesign studies may include all sections, but the report should indicate the reason that a particular section has been omitted.

The sections of a major predesign study allow for flexibility in required content based on the needs of the project. For example, an addition to a building may not need an analysis of several sites or a new geotechnical study. An infrastructure preservation project of little complexity may focus more on existing conditions and less on program analysis.

The following pages contain a generic model for a complete predesign study when requesting approval for major projects. When a section is not applicable, justification of the omission must be provided. A predesign checklist (located in Appendix A) is provided to help ensure that the submission contains all relevant information.

Any other information the agency or institution believes would be helpful also should be included as an appendix to the document. OFM may require additional information for unique projects.

## 2.2 EXECUTIVE SUMMARY



The executive summary section presents essential and high-level information about the project to agency or institution management and stakeholders. It clearly states the problem and solution, and summarizes material presented in subsequent sections. An extensive technical or contextual background should not be necessary to understand the executive summary.

The summary should also be contained in the Project Proposal Form. See the Capital Projects Evaluation System Instructions or contact OFM's capital budget assistant for higher education.

## 2.3 PROJECT ANALYSIS



The project analysis section describes the operational needs, alternatives, scope of the preferred alternative, prior planning, implementation approach and schedule. It also includes the delivery method to be used. If an alternative methods contracting process – design-build or general contractor/construction manager (GC/CM) – is recommended, it should be documented and justified in this section, and corresponding costs should be included in the budget analysis section.

### **Operational Needs**

This subsection contains a discussion of statutory and other requirements that drive the operational program and service delivery issues. When developing the predesign, describe the agency's mission, goals and objectives, and discuss how the predesign supports them. Describe how the operational needs tie to the statewide goals and objectives developed by Results Washington.

Explain the connection among the agency's strategies, related activities, statewide results and the redesign. For information on strategic planning, refer to Part I of the operating budget instructions.

Other items to consider include:

- The statutory or judicial requirements that drive the project's operational programs, and how these affect the need for space, location or physical accommodations.
- A description and spreadsheet that detail population projections (growth or decline) and assumptions. Distinguish between mandatory and non-mandatory requirements for changes. For example, a mandatory caseload or enrollment change arises from an explicit statutory requirement for state-funded services. (A change in the demand or the need for a service is not mandatory unless the recipients of that service or benefactors of the activity are entitled by statute or rule.)
- A summary of the agency's or institution's approved operational program for the project. Detailed information belongs in the report appendix.
- Answers to the questions: Where did the approval for the program originate? What divisions or programs will be part of the project? How many FTEs are involved? Who will pay? (Also see the project budget analysis section.)

## **Exploring Alternatives**

Explore and summarize alternatives that have been or will be considered to meet the project's operational program and service delivery requirements. Frame the discussion using the following categories, if applicable, over a 10-year time frame:

- Co-location and/or consolidation;
- Renovation;
- Rearrangement of uses or users (adjacency needs, back-filling scenarios);
- Leasing;
- Other operational options that may affect need, such as new federal loans, sentencing changes or governor's initiatives affecting enrollment; and
- No action.

Be sure to address the "no action" alternative. Describe the consequences to public service delivery, stakeholders and client groups of not building, remodeling or renovating. Describe the connection of each alternative to the agency's or institution's mission, strategies, related activities and statewide results. Other categories may be added as needed.

The best predesigns are persuasive at the agency level and within the broader statewide context that the Governor and Legislature must consider in making decisions. A stronger case is made by predesigns that discuss the value and benefits of measurable outcomes intended to benefit the state.

## **Selecting Alternative**

Based on a thorough analysis of operational needs and proposed alternatives, select the preferred alternative. Describe reasons for the proposed solution to the service delivery issue. Include a description of the anticipated results from the proposed project.





The selected alternative should be further analyzed for life cycle costs to evaluate options for the type of building systems to be utilized in the project. Use the Life Cycle Cost Tool (LCCT) found at <http://ofm.wa.gov/budget/forms.asp> to perform an analysis on three building options. The first option should be the baseline that evaluates a code-minimum option related to building envelope and energy systems that meets the programmatic requirements of the owner. The baseline option is most likely the least initial cost alternative. The second and third options should evaluate project alternatives to improve building performance and energy consumption. The analysis should include a detailed description of the different systems evaluated in each alternative. The lowest life cycle cost should be a primary consideration with the selected alternative.

## **Scope and Project Description of Preferred Alternative**

Provide additional detail on the scope of the preferred alternative. What is it? Is it new space or remodeled space and systems? Is it a new building or renovation of an existing building with new space added? Where is it? When is it proposed? Ensure that the scope of the preferred alternative is consistent with the capital budget instructions, such as equipment criteria, use of surge space, etc. The summary statement is a description that will stay with the project through completion and occupancy. This statement can also serve as an introductory paragraph to appropriation language and be used in capital budget request forms.

In the alternative discussion, address different levels of funding options. If the request is for a new building with a cost of \$30 million, what would \$20 million provide? What would not be provided?

## **Issues Identification**

Expand on the issues identified in the project request report submitted with the agency's 10-year plan, particularly those needing further study. The issues might include IT, energy conservation, telecommunications and transportation demand management, architectural and engineering programming, general design concepts, sustainable building practices and operational savings. Conduct a sustainable design charrette to discuss and clarify sustainable design opportunities. Provide a summary of the charrette in the appendix of the predesign document.

## **Prior Planning and History**

Include any relevant history of the project, including previous versions that did not go forward to predesign, design or construction. (Many projects have been the wrong project for a particular time.) If applicable, provide a summary of the history of repair costs and the current state of repair of the building(s) or facilities involved.

## **Stakeholders**

Discuss all other agencies, organizations, and stakeholders affected by or involved in this project such as local and tribal governments, agencies with regulatory jurisdiction, users of the facility, etc.

## **Project Description**

Detail the project information, including:

- Agency name – name of agency requesting funding
- Agency code – three-digit agency code number
- Project number – eight-digit project identifier assigned to the project in CBS
- Project title – title conveying location, project type and scope
- Agency contact – name, address and phone number of person(s) responsible for preparation of the predesign study who can answer questions about its contents

- Mission – brief mission statement of the agency/institution as it relates to requested facility
- Goals – goals that will be met by the project
- Administration – policy, program and service sectors
- Facility – technical and facility needs
- Existing facilities – other existing facilities that will be affected by this project
- Previous action taken – project planning and request history
- Explain if the project is in the current 10-year plan or if it has been in prior versions
- Legislative or executive intent – results of previous legislative, executive or agency action that affect the project

## Implementation Approach

This subsection serves as the organizing framework for decision making. Discuss the overall direction for further work on the project by:

- Identifying roles and responsibilities for the project. *Caveat: Be sure your project predesign team includes people who understand the operating impacts, both from a budget standpoint and from a building operations and maintenance standpoint.*
- Identifying in-house staffing requirements for the proposed project.

Co-location projects should have had the following factors considered:

- Central source for customer service;
- Efficiencies by reducing staff travel time and combining similar activities;
- Reduction in capital costs; and
- Reduction in operating costs by sharing costly technical systems and programs.

## Project Management

Identify the preferred management method of design and project delivery method for construction to meet the project schedule. Costs should be developed to reflect the proposed project management approach. The predesign study should address the following issues:

**Management organization** – Describe the agency’s or institution’s ability to manage the design and construction of the project. An assessment of the existing resources – including the technical capability and staff experience in reviewing and approving design and construction work – should be included. Define the needed FTEs and outline duties of agency staff and contract consultants. Identify any costs for consultant services or additional staff, such as DES resources.

**Methods of delivery** – Identify one or more techniques to be used, such as design-build, phased construction, GC/CM, or conventional design/bid/build. Each of these methods has an influence on the quality, cost and timeliness of providing the required facilities. The predesign study should provide justification for the use of alternative methods of project delivery. The agency or institution must provide advantages to the project for the selected method.

**Schedule** – Provide a milestone schedule (i.e., Gantt chart) for the project, including key dates for budget approval, design, bid, construction, equipment installation, testing, startup and full operation. If a correctional facility is required by statute to open by a specific date, include this date on the schedule. Project phases, long lead items and critical path milestones should be identified. The schedule should reflect the recommended method of contracting.

Include beginning and end dates of all key events of the project and all proposed phases. Highlight the anticipated substantial completion and occupancy dates. Note the midpoint of construction (the date midway between the date of commencement and the date of substantial completion). This date is important because it will be used later for tracking cost inflation and budget impacts of delaying or accelerating a construction proposal.

Describe factors that may place the project schedule at risk, such as an environmentally sensitive location, possible presence of archaeological or historical assets, or possible contamination of the site or buildings undergoing renovation. Describe the permitting climate and whether local government ordinances or neighborhood issues (such as location or parking compatibility) could affect the schedule.

## 2.4 PROGRAM ANALYSIS

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The program analysis section identifies the requirements of all spaces to be included in the design of the proposed project alternative. The requirements should not be unnecessarily restrictive in nature but clearly express the needs of the agency or institution. This section also analyzes all existing program spaces that will have an effect on the proposed project. See Appendix B for details about the programming process.

### Assumptions

Describe any assumptions used in defining the program for the proposed alternative. Typically, the program will dictate design decisions made early in the process. For example, a rooftop observatory in a new science building will dictate the location of other programs in the building. Similarly, access to an unobstructed view of the sky and the proximity of development to the building will need to be taken into consideration.

### Existing Facilities Inventory

If existing facilities are affected by the proposed project (such as demolition or renovation), include the following:

- Are the current facilities included in State Facility Inventory System (FIS)?
- Are they accurately coded?
- What is the condition as shown on the FIS?

### Space Needs Assessment

In concert with the agency/institution's facility six-year plan, conduct a space needs assessment for this project with the following minimum steps:

- Calculate the project space needs by using currently recognized space planning guidelines, such as DES's Space Allocation Guidelines or the Facilities Evaluation and Planning Guide for four-year higher education facilities. Identify the guidelines used.
- Compare the space needed to the space currently assigned and space proposed to be retained by the affected programs. Put in table form with explanatory notes as needed.
- Review the facility six-year plan and determine the deficits of space for program functions that justify the capital project.

- Determine the impact of the project on the agency's or institution's overall space needs (refer to facility six-year plan).
- Explain whether the agency has discussed space needs with DES.

## **Space Requirements**

In developing the space requirements, consider:

- Function of each space included in the program;
- Relationships of the functions;
- Condition assessment/serviceability of existing spaces;
- Efficiencies of proposed and existing spaces;
- Special requirements;
- Voice, data and video communications;
- Energy management systems and power supplies; and
- ADA requirements.

## **Future Requirements**

Describe any future phases or other facilities that will affect this project.

## **Codes and Regulations**

List all codes and regulations applicable to this project, such as:

- State and local building codes
- Energy codes (Chapter 39.35 RCW)
- Environmental regulations, including the Growth Management Act and local, state and federal laws and regulations (such as shoreline and wetlands)
- Sustainability/green building criteria (Chapter 39.35D RCW)
- Local ordinances or special comprehensive plan requirements
- Greenhouse gas emissions reduction policy (RCW 70.235.020)

## **2.5 SITE ANALYSIS**

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### **Evaluating Potential Sites**

The site analysis section evaluates the factors to be considered in siting the proposed project alternative. It should include a list of potential site locations and identify factors such as zoning, accessibility, public transportation, geotechnical considerations, etc. See Appendix C for details.

### **Minimizing Costly Mitigation Requirements**

Identify the site studies that are available, have been completed, or are under way. Link this information with the history of the site. Identify all potential sites considered for this project, and for each site consider the following:

- Ownership of the site
- Acquisition issues, including timing
- Stakeholders (when the local jurisdiction will be contacted and whether community stakeholder meetings are a part of the process)

- Easements, both existing and required for new development
- Location, description and dimensions, including soil type, climate and topography
- Setback requirements
- Adjacent facilities and site features
- Issues with the surrounding neighborhood
- Utility extension or relocation issues
- Green space and natural amenities that need to be preserved or accorded special treatment
- Environmental issues and site mitigation, including history of possible contamination
- Wetlands and shoreline impacts, including a wetlands delineation and the need to fill wetlands
- Shoreline jurisdiction issues
- Requirements for the State Environmental Policy Act and National Environmental Policy Act
- Environmental impact statement requirement
- Other regulatory requirements, such as hydraulic project approval and U.S. Army Corps of Engineers permits
- Parking and access issues, including site access, improvements required by local ordinances, local road impacts and parking demand
- Impact on surroundings and existing development with construction lay-down areas and construction phasing
- Historical and/or archaeological assets. (Review the project with DAHP and affected tribes to determine potential impacts to cultural resources.)
- Site compatibility with sustainability and LEED criteria and possible costs
- Regulatory factors:
  - ◆ zoning codes
  - ◆ local requirements
  - ◆ environmental regulations
  - ◆ building codes and requirements
- Energy conservation.

## **Acquisition Process**

If the site has already been acquired, describe the site selection process.

## **Projects Without Selected Sites**

For projects without a site, contact your OFM capital budget analyst to discuss this section. Projects without specific sites require site selection criteria and process. Estimates for site acquisition should be included in the total project costs and based on justifiable data.

## **Preferred Site(s)**

Provide the advantages and disadvantages for each site and describe reasons for the preferred site. Provide cost estimate comparisons of the alternatives.

## **2.6 PROJECT BUDGET ANALYSIS**



The project budget analysis section contains a narrative of the major assumptions used in preparing the cost estimate, an outline specification of materials and methods and the completed project cost estimate. See Appendices D and E for more details.

The following items are to be included:

- Written outline of major assumptions used in preparing the cost estimate.
- Detailed estimates from consultants and a basic summary of the project based on the major systems or components (Uniformat).
- Project cost estimate for traditional design/bid/build projects and for alternative public works methods such as design-build or GC/CM. See Appendix E for guidelines for preparing capital project cost estimates.
- Description of existing program and facilities.
- Most appropriate alternative to solve problem and consequences of not proceeding with the preferred alternative.
- Other alternative(s) studied, including economic trade-offs.

### **Relate Budget to Scope of Work**

Relate the budget to the proposed scope of work. A scope of work may not be extended for the sole purpose of remedying a deferred maintenance condition. However, funds for the deferred maintenance part of a renovation project may be applied from an agency's or institution's infrastructure savings account or omnibus minor works list.

### **Effective Utilization of Space**

Before budgeting for new space, ensure that all existing space is effectively used before new space is proposed. This will require an update of the agency's or institution's space inventory. If existing space is available to meet program requirements, renovation or reuse is an alternative approach to satisfy the program requirements. Include a description of how space could be backfilled or renovated to reduce overall space needs. Provide justification for not using existing space or space left vacant that could meet the program needs.

### **Cost Planning Versus Cost Estimating**

Cost **planning** is different than cost **estimating**. Cost planning occurs before designs have been prepared. It relies on historical or standard industry data to predict the project's overall costs. It answers the question, "Within what range will the project budget fall after the project is fully designed?" Cost estimating measures only the project actually described in drawings and specifications. The predesign is the first step in preparing reasonable and justifiable cost estimates. Identify dollars/square feet and compare to industry standards.

### **Projects Outside Cost Control Ranges**

For projects outside a recognized cost control range (see Appendix E), additional information is required to explain why the range is inappropriate or too general for the proposed facility. Contact your OFM capital budget analyst to discuss such a project.

### **Funding Sources**

Follow these steps:

- Identify the fund sources and proposed funding sequence for construction (such as federal funds and private donations).

- If alternative financing will be used, provide a comprehensive financing plan that documents the flow of revenues and expenditures for all fund sources and demonstrates that sufficient fund balance exists in the dedicated accounts used for payment of any debt service.
- If the proposed project will bring in revenues, provide a business plan that details the strategies and assumptions for revenue generation.

## **Funding Methods**

An analysis of the preferred funding method should be documented, including the advantages of the method over other methods analyzed. For example, why use 6320 or COP for this project?

## **2.7 MASTER PLAN AND POLICY COORDINATION**



The master plan and policy coordination section details the relationship of the proposed project to the applicable agency or institution or controlling plans (such as Thurston County or Capitol Campus master plans or agency master plan). Identify the date of the controlling plan. Proposed changes to the master plan as a result of the predesign study should be described in this section, along with a proposed schedule for adoption.

Agencies or institutions lacking well-developed strategic objectives or a capital master plan should start with their mission or scope statement as the source document for determining these objectives.

### **Thurston County Master Plans**

If applicable, describe how the proposed project does or does not conform to the master or campus plans for the state Capitol, including any revisions.

### **Other Significant State Requirements**

Describe how the proposed project adheres to requirements such as:

- Chapter 12, Laws of 2005 (ESSB 5509) requiring all state-funded buildings over 5,000 square feet to be designed, constructed and certified to at least a LEED silver standard;
- state Growth Management Act of 1990;
- revisions to the state's policy on indoor air quality; and
- state Clean Air Act of 1991.

## **2.8 FACILITY OPERATIONS AND MAINTENANCE REQUIREMENTS**



The facility operations and maintenance requirements section defines the impact of the proposed project on the operating budget for the agency or institution. Items such as staffing, operations and maintenance of the facility's mechanical and electrical systems, utilities and internal rents should be described in this section.

### **Operating Budget Impacts**

Show operating costs over five biennia in a table format. Estimate the project's effects on operating budgets, including staffing levels and corresponding salaries, building repair, replacement and maintenance.

- What are the operating budget impacts during the project? Provide a staffing plan that includes in-house staffing (both operating and capital) requirements (FTEs) for the project.

- What are the operating budget impacts when the project is completed? Identify projected increases or decreases in operational costs. Operational costs should be detailed in a table showing existing operational costs, projected costs and the net differences.
- How will additional operational costs be funded after the project is complete?

## 2.9 PROJECT DRAWINGS AND DIAGRAMS

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The project drawings/diagrams section contains conceptual (pre-schematic) drawings of the proposed capital construction project in enough detail to describe the project. Site diagrams illustrating various alternative sites and site layouts should also be provided. Drawings/diagrams should be **conceptual or pre-schematic only**. Schematic-level documents are neither desirable nor required for predesign.

### Site Plans

Diagram the spatial needs of the project requirements, including building footprint, massing, elevations, parking, access, circulation and open spaces and any special constraints and requirements (such as highway turnoffs, pedestrian bridges and relationships to other buildings).

### Building Plans

Provide generalized spaces representing program elements organized in realistic relationships (conceptual drawings).

### Building Volumes

Provide generalized block diagrams representing building massing and configuration as they relate to the site and surrounding structures.

## 2.10 APPENDIX

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At a minimum, the appendix should include the predesign checklist. Agencies also may include additional supporting information in the appendix, including but not limited to:

- The agency strategic plan, relevant excerpts or site maps from the agency master plan, or local jurisdiction comprehensive plans
- The agency greenhouse gas emissions reduction policy
- Agency performance standards for the project
- Details on programs, divisions or units
- Life Cycle Cost Analysis – Executive Report (generated in the LCCT)
- The electronic file (LCCT) should be included with the predesign submittal.



## APPENDIX A

### PREDESIGN CHECKLIST

The predesign checklist should be completed by the agency and included with the predesign. Are the following in the predesign? If not, the item should be noted “not applicable.”

- ☐ Executive Summary
- ☐ Project Analysis
  - Discussion of operational needs
  - Discussion of alternatives
  - Summary of LCCA results using the LCCT
  - Discussion of selected alternative
  - Identification of issues
  - Prior planning and history
  - Stakeholders
  - Project description
  - Implementation approach
  - Project management
  - Schedule
- ☐ Program Analysis
  - Assumptions
  - Functions and FTEs
  - Spatial relationships between the facility and site
  - Interrelationships and adjacencies of functions
  - Major equipment
  - Special systems such as environmental, information technology, etc.
  - Future needs and flexibility
  - Sustainability, energy use and greenhouse gas emissions reduction
  - Applicable codes and regulations
- ☐ Site Analysis
  - Potential sites
  - Building footprint
  - Site considerations such as physical, regulatory and access issues
  - Acquisition process
- ☐ Project Budget Analysis
  - Assumptions
  - Detailed estimates
  - Funding sources
  - Project cost estimate
  - Funding methods
  - Sign-off by agency

- ☐ Master Plan and Policy Coordination
  - Impacts to existing plans
  - Adherence to significant state policies
- ☐ Facility Operations and Maintenance Requirements
  - Assumptions
  - Operating costs in table form
  - Staffing plan (capital and operating)
- ☐ Project Drawings/Diagrams
  - Site plans
  - Building plans
  - Building volumes
  - Elevations
- ☐ Appendix
  - Predesign checklist
  - Project budget unit cost detail
  - Sustainable design charrette summary
  - Copy of policies adopted in accordance with RCW 70.235.020 on the state's limits on the emissions of greenhouse gases
  - A letter from DAHP on the impact of potential sites on cultural resources
  - Additional information as needed
  - Executive report from the life cycle cost analysis

## APPENDIX B

### PROGRAM ANALYSIS SECTION DETAIL

This section includes the program requirements to be considered in the design of the facility. The requirements should be compatible with the expected use of the facility and conform to all codes and regulations. A predesign program addresses both the agency's or institution's wants, needs and interests for the project, as well as the design parameters, constraints and requirements of interest to the designer. These documents are the primary vehicle of communication between the agency or institution and the design team at the onset of the design effort.

Projects that range in cost between \$1 million and \$5 million may not require the level of programming those projects greater than \$5 million typically do. However, the process described in this appendix should be examined to ensure that the proposed project has been adequately programmed and the user's requirements have been addressed.

The process of programming is valuable to both owners and designers as a systematic and analytical process and as a decision-making tool. This is accomplished by thoroughly examining the facts and factors that influence design solutions, and by reducing financial risk.

The program documents should conform with and enhance the previously prepared master plan (if applicable) and statement of purposes and goals. The program is a statement of requirements to be considered in the design of the facility. The requirements should not be unnecessarily restrictive in nature, but should clearly express the needs of the agency or institution.

Program documents should describe the following:

- Functions that will be housed in the proposed facility;
- Number, grouping and nature of the people involved, including staff and support personnel, expressed as FTEs;
- Spatial relationship between the facility and the site;
- Interrelationship of the various functions to be housed in the facility;
- Major items of furniture and equipment to be used in the facility;
- Any special environmental provisions that are required in the facility;
- Future needs and flexibility requirements;
- Special systems such as voice, data and video communications or utility needed; and
- Energy use and sustainability (LEED) of the facility.

Program documents vary in levels of detail. The type of document most suitable for the predesign phase will include a comprehensive description of all issues that can be identified, regardless of the size of the project.

#### B1. THE PROGRAMMING PROCESS

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While there are many ways to structure the programming process, it generally involves these steps:

- data collection
- data analysis

- data organization and development of concepts
- communication of data and concepts
- evaluation of the resulting program

## **Sources of Information**

The first task is to collect the information — facts, opinions, projections and speculations — needed to develop the performance criteria. There are four important sources: the owner, the users, external requirements and standards, and the programmer's own experience.

**Owner** – The program must reflect the owner's needs and aspirations, goals, organization and procedures.

**Users** – In some projects, the owner is not the project's ultimate user. In these situations, it is important that the programmer understands that the needs and aspirations of the owner and users may be different and that both must be recognized in the design.

**External Requirements and Standards** – Planning and zoning ordinances, building codes, the state's energy conservation and green building policies in designing public facilities, and other regulations all affect facility requirements. At the same time, planning and design standards (such as floor area requirements for auditorium seating, viewing standards for projected media, utility requirements for laboratories, and toilet requirements for ADA accessibility) will lead to certain program requirements. Parking standards and agency commute trip reduction standards can also greatly affect building configurations.

**Programmer's Experience** – The programmer's experience with the facility type, owner, or situation faced by the owner can be invaluable in presenting options beyond the owner's familiarity. Experienced programmers understand that guidance to owners is central to effective programming and will provide this guidance during the process.

## **B2. PROGRAMMING STANDARDS**

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The state of Washington has established standards for the allocation of space for various building types: state office buildings, higher education facilities and military facilities.

### **State Office Buildings**

DES has developed space allocation standards, which contain standards and instructions to agencies for state-owned and leased office space. Agencies preparing predesign documents for office buildings are required to follow these standards or provide justification for deviation. The state has established four basic goals for space allocations:

- Space allocations should be based on functional programming, which will be completed before the acquisition of space.
- The state supports the use of the open landscape concept and will strive for a ratio of 90 percent of the personnel in open landscape and 10 percent in private offices.

- It is the responsibility of the occupying agency to provide furniture for leased and owned facilities. The state's goal is to use systems furniture where feasible to ensure the most efficient and effective use of space. Variances to systems furniture may be appropriate if justified by the functional requirements of the tenants.
- A space planning layout efficiency factor of 80 percent or greater is the goal for the allocation of assignable square feet.

Spaces in existing facilities that are being renovated may not conform to the space standards, since efficiency in the design of spaces may be restricted by existing structural elements. However, every effort should be made to conform to these standards available at

<http://des.wa.gov/SiteCollectionDocuments/Facilities/RES/SpaceAllocation.pdf>.

## **Higher Education Facilities**

For higher education facilities, the Interinstitutional Committee of Space Officers developed the Facilities Evaluation and Planning Guide (FEPG) as a model for four-year colleges and universities in preparation of capital requests. The guide addresses two elements of the programming process for higher education facilities: (1) evaluation of current capacity of physical facilities, and (2) projection of long-range facilities needs.

The FEPG can be found in the Higher Education Coordinating Board archives website maintained by the Washington Student Achievement Council at

<http://www.wsac.wa.gov/sites/default/files/FacilitiesEvaluationandPlanningGuide.pdf>, or by contacting your OFM Capital Budget Analyst for a copy. An alternative to the FEPG space and programming standards may be used and should be clearly identified. An example of an acceptable alternative standard would be in the case of a multi-institutional project.

## **Military Facilities**

Military facilities must be in compliance with the U.S. Department of Defense regulations for the planning, programming and budgeting of Army and Air National Guard facilities.

## **Programming Techniques**

A number of techniques can be used in data collection, analysis, organization, communication and evaluation. Some are rudimentary; others are more sophisticated than may be required by the project. The preferred technique depends on the project complexity and experience of the consultant.

## **Securing Commitment**

Effective programming is far more than a mechanical process. It includes securing owner and user commitment to the resulting programming requirements. It is one thing to hold meetings, conduct interviews, research codes and standards, and write and communicate a proposal. It is a much more difficult task to get the stakeholders to participate and support a project, especially if they are not involved in furnishing data or participating in criteria development.

As always, the key to commitment is early and ongoing involvement. The programming process should involve all the key participants, including those who are responsible as the project moves

forward to construction and those who must supply approvals. Meetings should be structured to allow ample time for discussion and consensus. The programming process should be carefully documented with progressive commitment to results as it proceeds.

## **Programming and Budgeting**

The program describes the scope (how much of what) and quality (the level of performance and amenity) to be accommodated. Scope and quality, as well as the site and schedule, are key factors in establishing cost. Programming and budgeting should be seen as both simultaneous and reciprocal.

### **B3. STEP-BY-STEP PROGRAMMING PROCESS**

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The following is an example of how the typical programming process works:

**IDENTIFY THE BASIC ELEMENTS** and set up a structure for collecting information and making decisions.

- Set up the structure and techniques to obtain information from owners, managers, community groups and users (any persons with necessary knowledge or significant influence);
- Interview the key decision makers and users;
- Prepare an outline of the program;
- Organize the material into small parts related to the owner's interests and to the ways in which the designer will proceed; and
- Key all information to the outline.

**DOCUMENT AND EVALUATE** the present building condition (if one exists), how much space is used by each entity/employee, what works well, and what does not.

- Inventory all spaces in drawings and text format;
- Inventory all furnishings and equipment that are used or will be needed;
- Have occupants and decision makers evaluate the present spaces; and
- For renovation projects, occupants and decision makers should participate in identifying areas and features to retain or to change.

**PREPARE A SPACE REQUIREMENTS OUTLINE** for the program.

- Use an acceptable standard format;
- Include basic spatial criteria such as dimensions, proportions and volumes;
- Include services and storage requirements, access, flexibility and utility requirements for each space; and
- Reference more detailed requirements (state standards).

**DESCRIBE OVERALL BUILDING REQUIREMENTS** related to use, purpose and general requirements.

- List the range of users and uses, such as parking, access, security, degree of public access or privacy for various components, as well as symbolic and aesthetic requirements; and
- Revise the outline program as required.

**DESCRIBE THE ROLE** of the project in the surrounding landscape or community.

- Include zoning and environmental impacts;
- Include symbolic and aesthetic goals;
- Consider pedestrian and vehicular access to the site; and
- Identify neighborhood and growth management impacts and concerns.

**DEFINE FUNDAMENTAL FUNCTIONAL, SPATIAL AND VISUAL RELATIONSHIPS** among components of the project.

- Include relationships between or among components or departments;
- Include relationships between the building components and the outside community or visitors;
- Describe any grouping requirements, such as security, public access or super-cleanliness (such as clean room labs); and
- Use diagrams, sketches or other methods that suggest scale and relationships.

**IDENTIFY MEASURES** to allow for growth and change.

- Identify elements subject to change, both in the short and long term. Assess probabilities of change and indicate where expansion, contraction or alteration should be provided in design;
- Note technology and space needs that could change (such as mechanical and electrical systems, labs and computers); and
- Identify energy and utility systems that allow for efficient expansion.

**SUMMARIZE KEY REQUIREMENTS** of governing codes and regulations.

- Identify and list applicable codes and regulations; and
- Cover major program requirements or constraints.

**DEFINE ENERGY, ENVIRONMENTAL AND SUSTAINABILITY REQUIREMENTS.**

- Define the LEED criteria to obtain at least the LEED silver standard as required by Chapter 39.35D RCW for any buildings over 5,000 square feet. Conduct eco-charettes to incorporate green building concepts into the project;
- Indicate energy conservation or environmental protection measures to be pursued in design (beyond those required by Chapter 39.35 RCW);
- Include climate and microclimate information;
- Identify the owner's decision criteria (time frames for analysis, discount rate, etc.); and
- Identify available utility assistance programs for designing and constructing an energy efficient facility (energy partnership).

**DEVELOP A DETAILED ROOM OR SPACE PROGRAM.**

- Area and configuration requirements;
- Physical access (ADA) and adjacency requirements;
- Loading and special structural requirements;
- Lighting and acoustic requirements;
- Security and safety requirements;

- Mechanical, electrical and service requirements;
- Aesthetic requirements; and
- Special requirements.

#### **PREPARE A SUMMARY PROGRAM.**

- Summarize program requirements;
- Include schedule and budget requirements; and
- Indicate how the program will be approved, revised and updated.

#### **PRESENT THE PROGRAM.**

- Complete all the sections of the predesign as outlined in the Predesign Manual;
- Ensure that computer systems used for collecting, analyzing and storing data are compatible with the owner's systems;
- Organize documentation into relatively small distinct packages so parts may be updated without revising the whole; and
- Gear presentation content and media to audience and purpose.



## APPENDIX C

### SITE ANALYSIS SECTION DETAIL

Site analysis is a vital step in the project design process. It consists of evaluating an existing or potential site as it relates to the program, budget and schedule for the entire project.

Projects that range in cost between \$1 million and \$5 million may not require the level of site analysis that programmatic projects greater than \$5 million typically do. However, the process described in this appendix should be examined to ensure that the proposed project site is adequate and the user's requirements have been addressed.

Finding suitable sites with the confidence that all relevant acquisition, governmental, environmental and engineering issues have been explored is a challenge. Occasionally, utility-serviced sites can be found that are free of environmental constraints and easements, are reasonably priced, and have good access. Generally, however, site selection is very dynamic and full of variables.

A site analysis during a predesign study provides direction for design and site selection based on program requirements, as well as sensitive use of the land.

#### C1. IDENTIFY POTENTIAL SITES

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Several tools are available to assist in site selection. These include review of topographic information, zoning restrictions, tax assessments, road maps and aerial photographs; discussions with major landholders, local planning officials, commercial concerns and developers of other facilities; drive-by inspections; consultation with realtors; and archaeological and environmental assessments.

Only the most promising sites require further evaluation as part of the predesign study. Drawings and written descriptions of the existing conditions should be prepared to fully describe the site. There may be more than one site that requires limited technical evaluation.

#### C2. SITE PROGRAMMING PROCESS

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Site analysis evaluates a program (see Appendix B) and site together to determine their compatibility. Determination of the program's spatial needs requires analysis of the following program elements:

**BUILDING FOOTPRINT.** The site coverage for a building – its “footprint” – depends on:

- Total gross area of the building (see Program Analysis section).
- Number of floors – based on programmatic requirements, site area and zoning requirements.
- Configuration of the building.

**PARKING REQUIREMENTS.** Often the biggest site requirement is the area necessary for parking. This requirement may be a function of the program, or it may be set by zoning ordinances or other local regulations establishing parking ratios for land uses.

**CIRCULATION AND OPEN SPACE REQUIREMENTS.** Areas for pedestrian/vehicular circulation, access, and common open space are also major components of the program. The portion of the site allocated to circulation and open space will depend on land values, site configuration and design objectives.

**SPECIAL CONSTRAINTS AND REQUIREMENTS.** Special site issues may take the form of utility easements, setbacks, right-of-way, retention ponds, recreation areas, and vista and sight line requirements, as well as floodplain areas and ecological preserves.

### **C3. SITE EVALUATION**

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If multiple sites for a particular project are being evaluated, detailed technical and comparative analysis of the sites may be required to determine total site development costs. These costs often have a significant impact on the decision to select one site over another. The following issues need to be considered when evaluating potential sites.

#### **Physical Issues**

- **Climate.** Identify major climate factors such as wind direction, solar orientation, temperature, humidity and precipitation.
- **Topography.** Identify documentation that categorizes the topography and soils in the locations of each site. Use existing documentation to determine the estimated risk of construction on these sites. In some cases, limited geotechnical services are also appropriate.
- **Limited Geotechnical Work.** Perform limited geotechnical investigation of candidate sites that have questionable soil characteristics. Make a preliminary determination of the site stability and bearing capacity of the soil; and review other natural features such as surface or groundwater characteristics.
- **Utilities.** Determine availability of domestic water, its sources, and whether water rights are needed. Also determine availability of sewer, gas, power, telephone and any other utilities required by the project.
- **Environmentally Sensitive Conditions.** Determine sensitive environmental characteristics, such as steep slopes, unstable soils, floodplains, bogs, creeks, wetlands, habitat and certain wildlife, which may limit the development of the site.
- **Archaeological Assessment.** Determine if an assessment has been or needs to be conducted.
- **Conduct Hazardous Materials Inventory.** Review the property title and site records for history of underground or surface storage of hazardous materials. Also, review documentation from regulatory agencies – including the Environmental Protection Agency, Washington State Department of Ecology, county and local fire departments, and power companies – for listings and permit applications, solid waste permits, reports of hazardous substance spillage, and registrations of underground storage tanks. If toxic wastes exist, determine the magnitude and type of contamination and propose a feasible method of disposal.

#### **Regulatory Issues**

- **Review Zoning Requirements.** Review with the county or city the general plan and zoning classification for each candidate site and identify any inconsistencies with current zoning.
- **Review Local Requirements.** Review with the county, city or appropriate government agency any local requirements such as design review, land use permits, etc.
- **Building Codes and Requirements.** Analyze all applicable building codes that could have adverse cost impacts or cause delays in the permit process during design and construction.
- **Parking.** Review requirements for parking on the site. Evaluate surface versus garage parking options for each site.

## Access Issues

- **Site Accessibility.** Determine the probable impact of the project on traffic flows and identify required improvements. With the assistance of appropriate agencies, review available traffic information on volumes, existing road system and plans for road improvements, and discuss possible enhancements that may be required. Determine potential auto and bus routes and other pertinent information. Conceptually analyze site access routes for buses, autos and pedestrians. Identify right-of-ways or additional land that may be required to provide access to the site.
- **Utilities.** Research connection requirements of all utilities and identify connection requirements and costs. Utilities include water, gas, telephone, electricity and cable service.
- **ADA Access.** Identify how this project fits into the overall objectives of the agency for program accessibility required by the federal Americans with Disabilities Act (ADA). Identify spaces in existing structures that should be remodeled to improve program access under the ADA. Identify special access requirements of clients and employees that may require accommodation exceeding code requirements. In addition, evaluate the placement, alignment and elevation of the facility as they relate to access and parking areas.

## C4. SCHEDULING AND BUDGETING

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In developing a budget and schedule for the project, the following questions should be addressed:

- Is the site under the agency/institution's control and, if not, when will it be?
- If the agency/institution has an option on the site, how long will it be in force? Can it be renewed?
- Are there easements or other restrictions (highway, railroad, utility, etc.) on the full use of the site? How long will it take to resolve them?
- What regulatory approvals are required before construction can begin? Who grants approvals and what information is required? How much will approvals cost? How long will it take to prepare the necessary materials and how long will the review process take?
- What can be said about the community acceptance in which the project will be reviewed and approved? Will the project be controversial?
- Are there other funding cycles (federal funding) that may affect the schedule?

Once the site analysis is complete, conceptual drawings and diagrams are prepared to determine usability of sites, points of vehicular access, easements, topography and existing structures that will impact the project. Conceptual cost estimates should be developed for each site under consideration (see Project Budget Analysis Section 2.6). Both on- and off-site development costs should be escalated to the time of probable construction.

The predesign study must explain whether the preferred site conforms to the State Capitol Master Plans or similar long-range facilities plans encompassing the selected site. Also, explanation is needed on how the site promotes regional transportation policies as required by the Growth Management Act of 1990.

On the basis of the above information, the predesign study should include a recommendation for the best site for the project.

## APPENDIX D

# PROJECT BUDGET ANALYSIS SECTION DETAIL

## D1. THE PROJECT BUDGET

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The most important cost estimate given during the course of a project's life is the first one — this is the number everyone remembers. Project budgets are very difficult to establish during the predesign phase because the definitive design is not yet final. However, a realistic budget can be developed to reflect the following:

- **Project Scope.** The gross built area, volume and the location of the project, together with occupancy type and number of occupants in the building, set the stage for construction cost. This requires accurate identification of the functional space requirements of the agency or institution (see Appendix B).
- **Site.** Identify costs of developing the site and accommodating the building (see Appendix C).
- **Schedule.** It is necessary to establish an accurate project timeline in concert with legislative funding schedules. The schedule may affect costs due to inflation factors and market conditions. Use standard escalation factors provided by OFM.
- **Quality and Performance Levels.** Building and systems quality levels must be established to achieve an adequate budget.

The construction budget sets the stage for project design and is the framework within which all design decisions will be made. The predesign budget is an estimate based on the best information known at the time. **It is not a guarantee of funding or final costs.**

## D2. COST ESTIMATING FORMATS

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To achieve consistency in evaluating agency or institution requests, a standardized format of cost reporting has been developed by OFM. Decisions affecting project costs are made throughout the budgeting, predesign and design processes using the following methods.

### Unit Costs

During the initial budgeting phase, construction budget estimates may be prepared using single-unit costs based on broad accommodation parameters, such as cost per student, cost per bed, or cost per square foot of gross floor area or cubic foot of building volume. Any of these or similar measures may effectively generate an approximate project construction cost. Efficiency ratios and conversion factors for transforming net-to-gross floor areas, together with the cost per square foot of net usable area, may be useful in preparing estimates.

This information can then be tested in the predesign phase using costs per square foot of functional activities programmed for each space; for example, cost per square foot of wet laboratories versus that for offices and clerical spaces. Costs also vary based on basic criteria and design parameters of the building systems and components to be selected. Square foot building estimates are used at the budgeting phase only. As more information becomes available during predesign, schematic, design development and construction document phases, cost estimates become more detailed.

## Uniformat

In the predesign phase, it is normal to use cost information based on the elements of each building subsystem to prepare the estimates. This method of system estimating is called the “Uniformat” system or Uniform Building Component Format. The table below illustrates the cost control and estimating system based on Uniformat down to Level 3. Level 2 cost estimating is required of all predesign document estimates. As the project moves forward into design, further detail based on the Uniformat structure should be used. For example, a Level 4 estimate should be prepared prior to bidding the project.

The Uniformat system allocates funds to the various functional areas of a facility and allows the designer to make early cost comparisons among alternatives.

Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements
<b>A - Substructure</b>	A10 Foundations	A1010 Standard Foundations A1020 Special Foundations A1030 Slab on Grade
	A20 Basement Construction	A2010 Basement Excavation A2020 Roof Walls
<b>B - Shell</b>	B10 Superstructure	B1010 Floor Construction B1020 Roof Construction
	B20 Exterior Enclosure	B2010 Exterior Walls B2020 Exterior Windows B2030 Exterior Doors
	B30 Roofing	B3010 Roof Coverings B3020 Roof Openings
<b>C - Interiors</b>	C10 Interior Construction	C1010 Partitions C1020 Interior Doors C1030 Fittings
	C20 Stairs	C2010 Stair Construction C2020 Stair Finishes
	C30 Interior Finishes	C3010 Wall Finishes C3020 Floor Finishes C3030 Ceiling Finishes

Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements
<b>D - Services</b>	D10 Conveying	D1010 Elevators & Lifts D1020 Escalators & Moving Walks D1090 Other Conveying Systems
	D20 Plumbing	D2010 Plumbing Fixtures D2020 Domestic Water Distribution D2030 Sanitary Waste D2040 Rain Water Drainage D2090 Other Plumbing Systems
	D30 HVAC	D3010 Energy Supply D3020 Heat Generating Systems D3030 Cooling Generating Systems D3040 Distribution Systems D3050 Terminal & Package Units D3060 Controls & Instrumentation D3070 Systems Testing & Balancing D3090 Other HVAC Systems & Equipment
	D40 Fire Protection	D4010 Sprinklers D4020 Standpipes D4030 Fire Protection Specialties D4090 Other Fire Protection Systems
	D50 Electrical	D5010 Electrical Service & Distribution D5020 Lighting & Branch Wiring D5030 Communications & Security D5090 Other Electrical Systems
<b>E - Equipment &amp; Furnishings</b>	E10 Equipment	E1010 Commercial Equipment E1020 Institutional Equipment E1030 Vehicular Equipment E1090 Other Equipment
	E20 Furnishings	E2010 Fixed Furnishings E2020 Movable Furnishings
<b>F - Special Construction &amp; Demolition</b>	F10 Special Construction	F1010 Special Structures F1020 Integrated Construction F1030 Special Construction Systems F1040 Special Facilities F1050 Special Controls & Instrumentation
	F20 Selective Building Demolition	F2010 Building Elements Demolition F2020 Hazardous Components Abatement

## **Agency/Institution Request – Cost Estimate**

For the predesign study, the project cost estimate tool described in Appendix E is used for traditional design-bid-build projects and alternative public works methods. This tool assists in developing and illustrating costs at different stages in project development, and allows projects to be compared uniformly and consistently. The tool also facilitates communications among all members of the project team, the agency or institution, OFM and the Legislature, and allows study teams (BEST, value engineering, designers, consultants and reviewers) to quickly identify and focus on the various cost areas and provide a basis for estimating life cycle costs.

To achieve consistency, the information required on the project cost estimate is divided into seven standard categories:

1. Acquisition
2. Consultant Services
3. Construction Contracts
4. Equipment
5. Artwork
6. Other Costs
7. Project Management.

Agencies/institutions should also include a written outline of all cost assumptions and descriptions of the building systems used in preparing the costs. Appendix E contains brief instructions for completing the project cost estimate.

## APPENDIX E

# GUIDELINES FOR PREPARING CAPITAL PROJECT COST ESTIMATES

The capital project cost estimate is a tool to assist agencies and institutions in creating a project construction budget. It can also be a tool to help agency and institution management, as well as executive and legislative decision makers, understand the costs and other parameters associated with a project. And in a similar manner, it can measure capital construction performance at the agency/institution level and through a statewide perspective.

The project cost estimate is not an accounting tool. It does not create lines of cost codes and associated funds for payment of the various budgeted items.

Cost planning is different from cost estimating. Cost **planning** occurs before design begins and relies on historical or standard industry data to predict the project's probable cost. It answers the question, "Within what range will the project budget fall after the project is fully designed?" On the other hand, cost **estimating** refines the probable project cost from drawings and specifications. The project cost estimate is a cost-estimating activity that is created through more defined project information.

The project cost estimate provides both a detailed and summarized cost estimate for capital projects and identifies the principal assumptions used for cost estimates. Every project is unique; consequently, the list of cost items on the project cost estimate is not inclusive. Cost items other than those listed on the estimate can be included, if known, or subsequently identified as more information about the project becomes available. Costs specific to each project must be developed based on the need for that project.

The official project cost estimate tool is the one provided and maintained by OFM. Use of any other form or model will result in automatic rejection by OFM of the predesign submittal.

### Sources of Cost Estimates

Cost estimates originate from the agency's technical staff, outside consultants, or the Division of Engineering and Architectural Services (E&AS) at the Department of Enterprise Services. Cost information may be derived from historical information from the agency or E&AS on projects similar to that being considered or from unit cost/square foot cost information from industry standard estimating guides (such as R.S. Means, Dodge or other national standards). Quantity takeoff estimates may be based on specifically determined project components and design configurations (such as shown in architectural drawings and specifications).

Cost estimates are refined as more project-specific information becomes known from predesign or design activities. Refined cost estimates should include the following:

- **More Specific Determinations of Project Size, Complexity and Quality.** As more detailed quantity takeoff estimation becomes available, cost estimates should be prepared using this technique as much as possible. Even if unit cost figures must still be used, they should be broken down into the smallest reasonable cost categories. Ultimately, detailed construction cost estimates can be prepared from the final design documents.



- **Further Identification of the Attendant Costs of the Construction Program.** Evaluate the inclusion of items such as those shown in the capital project cost estimate. Denote and provide costs for items that are not shown on the form. Many such issues do not become apparent until predesign and preliminary design activities are conducted.

**Design and Consulting Services Costs.** Basic design services costs are automatically calculated on the cost estimate tool. These fees are computed from an OFM-derived fee schedule multiplier on the maximum allowable construction cost (plus contingency) for the project. The fee schedule considers the building type, complexity and estimated construction cost. Basic design services do not necessarily include all the design disciplines or activities required for a particular project. Additional design services that are frequently required for public works projects can be added to the project cost estimate. Guidelines for determining architect/engineer fees for public works building projects are available at <http://www.ofm.wa.gov/budget/instructions/capital.asp>.

**Base Month Cost Adjustments.** The cost adjustment factors provide escalation multipliers that are applied to the aggregate cost categories indicated on the cost estimate summary section of the project cost estimate. Escalation factors are determined by OFM and automatically calculated on the elements of the cost estimate based on the inflation rate applied to the estimated time from the base month and the design or construction event.

### **Project Schedule Estimates**

The Project Schedule by Phase/Activity chart below provides a historically based estimate of the duration of activities of the design and construction, expressed as a function of project value. Other scheduling considerations also are identified. In addition, the overall schedule must account for the anticipated budget approval cycle, funding cycles and other activity cycles particular to each agency. The planning cycle itself affects the project development schedule.

The project scheduling process requires careful and detailed planning. Consider not only the desired start/finish dates, but also the intermediate milestones to be achieved. Evaluate schedule requirements for activities occurring before the milestones. Creating even the most preliminary project schedule will involve at least two points in time: project start and project completion.

Depending on the individual situation, milestones may be established by choice or predetermined by external constraints such as weather.

Actual project durations depend on the adequacy of programming and planning, complexity of the design, use of concurrent activity, streamlining of the agency approval process, and the regulatory environment.

**Project Schedule by Phase/Activity**  
**Duration Listed in Weeks**

Project Phase/Activity		Major Projects >\$10 million	Major Projects of Limited Scope >\$5 million	Stand-Alone (Minor) Projects \$1 –\$5 million
<b>Predesign</b>				
Scoping		4	3	1
A/E Selection		4	3	3
Perform Study		28	15	8
<b>Subtotal (Predesign)</b>		<b>36</b>	<b>21</b>	<b>12</b>
<b>Consultant Selection</b>				
A/E Selection		8	4	0
A/E Fee Negotiation		2	2	0
A/E Agreement and NTP		1	1	1
<b>Subtotal (Consultant Selection)</b>		<b>11</b>	<b>7</b>	<b>1</b>
<b>Design</b>				
Schematic Design		15	13	5
Schematic Design Approval		3	2	1
Value Engineering Study*		3	2	0
Design Development		25	11	5
Design Development Approval		4	2	1
<b>Contract Documents</b>				
Construction Documents		30	20	10
Constructability Review *		3	2	0
Construction Documents Approval		4	3	2
Permitting*		16	8	4
Printing/to Bid		1	1	1
<b>Subtotal (Design &amp; Documents)</b>		<b>82</b>	<b>52</b>	<b>25</b>
<b>Construction</b>				
Bid Period		4	4	3
Contract Award		2	2	1
Contract Notice to Proceed		2	1	1
<b>Subtotal (Bid to Award)</b>		<b>8</b>	<b>7</b>	<b>5</b>
Construction Time		90	60	25
FF&E Procurement*		12	4	0
Punch List/Closeout		8	6	3
Commissioning *		8	6	2
<b>Subtotal (Construction)</b>		<b>98</b>	<b>66</b>	<b>28</b>
<b>Approximate Project Time (Predesign not included)</b>				
<b>Total in Weeks</b>		<b>199</b>	<b>132</b>	<b>59</b>
Total in Months		50	33	15
Total in Years		3.8	2.5	1.2
<b>* Can overlap with other tasks; not included in subtotals</b>				

## Using the Project Cost Estimate System

### GETTING STARTED – ACCESSING THE COST ESTIMATING TOOL

The Cost Estimating Tool (formally the C-100) used to produce the predesign cost estimate for budget submittal can be accessed by the agency or institution. Consultants should contact DES through their agency or institutional contact for access to the system. For estimating work done outside the Cost Estimating System, the updated C-100 form is available at <http://ofm.wa.gov/budget/forms.asp>. Cost estimates for project submittals are still required to be entered into CBS.

### LOGGING ON TO CBS TO ACCESS COST ESTIMATING TOOL

1. **Open** Internet Explorer and enter the login address [http://bass.ofm.wa.gov/BASSLogon\\_pr/](http://bass.ofm.wa.gov/BASSLogon_pr/) (or [https://fortress.wa.gov/ofm/bass/BASSLogon\\_pr/](https://fortress.wa.gov/ofm/bass/BASSLogon_pr/) for those using Fortress) in the address bar of the browser. *(If in a training session, skip this step.)*

2. **Use** your login ID and password to log in to BASS. *If you do not have a login ID and password, a security form is available in the BASS library at the appropriate site listed on page 4.*

User ID - <Agency Number>00<First Name

10500training

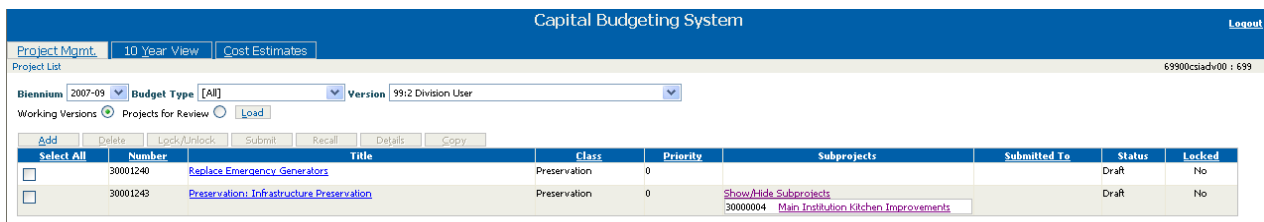
Password - <First Name>

Training

3. **Select** the **Tool** icon for **CBS** (Capital Budgeting System).



The Project Management tab is the default screen upon selection of the CBS icon.



The screenshot shows the 'Capital Budgeting System' interface. At the top, there are tabs for 'Project Mgmt.', '10 Year View', and 'Cost Estimates'. Below these, there are filters for 'Biennium' (2007-09), 'Budget Type' ([All]), and 'Version' (99:2 Division User). A 'Working Versions' section has radio buttons for 'Projects for Review' and 'Load'. Below this is a table with columns: 'Select All', 'Number', 'Title', 'Class', 'Priority', 'Subprojects', 'Submitted To', 'Status', and 'Locked'. The table contains two rows of data.

Select All	Number	Title	Class	Priority	Subprojects	Submitted To	Status	Locked
<input type="checkbox"/>	30001240	<a href="#">Replace Emergency Generators</a>	Preservation	0			Draft	No
<input type="checkbox"/>	30001243	<a href="#">Preservation: Infrastructure Preservation</a>	Preservation	0	<a href="#">Show/Hide Subprojects</a> 30000004 <a href="#">Main Institution Kitchen Improvements</a>		Draft	No

### COST ESTIMATES TAB

The cost estimating tool will help estimate the cost of a project, building, non-building and infrastructure.

The Cost Estimate list screen provides three view options:

1. **Unassociated** – View only cost estimates that are not attached to a project.
2. **Associated** – View only cost estimates that are attached to a project.
3. **Show All** – View all cost estimates on one screen.

**Capital Budgeting System** Logout

Project Mgmt. | 10 Year View | **Cost Estimates**

Cost Estimate List 69900ciadv00 : 699

---

Agency: 699 Budget Period: 2007-09 Version: 98 Project #: Project Title:

Search Criteria

Unassociated ☐ Associated ☐ Show all ☒ Biennium: 2007-09 Budget Type: Regular Version: 98:1 Division User Show Cost Estimates

Add Rename Copy Delete

Select All	Estimate Number	Estimate Title	Contact Name	Analysis Date	Project Associated To
<input type="checkbox"/>	446	Kitchen Remodel		01/10/2008	30000001 <a href="#">Associate/Change</a>
<input type="checkbox"/>	470	Replace Building Roofs on Units 1 & 4		01/11/2008	<a href="#">Associate/Change</a>
<input type="checkbox"/>	476	Replace HVAC Systems in Units 7 & 8		01/11/2008	<a href="#">Associate/Change</a>

### Action Buttons:

- **Add** – Select to add a new unassociated cost estimate.
- **Rename** – Select to rename a cost estimate. Button is available when one cost estimate check box has been selected.
- **Copy** – Select to copy a cost estimate. Button is available when one cost estimate check box has been selected.
- **Delete** – Select to delete a cost estimate. Button is available when one or several check boxes of unassociated cost estimates have been selected. Button is not available when one or many of the cost estimates are associated to a project.

### Cost Estimate Display Grid:

1. **Select All** – Header and checkboxes below header. The underlined ‘Select All’ title will mark all displayed cost estimate with a checkmark. After the ‘Select All’ title is chosen, the ‘Deselect All’ title is displayed. Checkboxes to the left of the cost estimate number allow for individual project selection.
2. **Estimate Number** – Is a read-only system assigned number. A unique cost estimate number is assigned by the system when a cost estimate is added or copied. Cost estimates can have the same title, but will be assigned unique cost estimate numbers.
3. **Estimate Title** – Selecting the estimate title will navigate the user to the cost estimate’s summary page.
4. **Contact Name** – Displays the contact name entered on the cost estimate detail tab. If a cost estimate contains multiple detail tabs, ‘Variable’ will be displayed for contact name.
5. **Analysis Date** – Displays the analysis date entered on the cost estimate detail tab. If a cost estimate contains multiple detail tabs, ‘Variable’ will be displayed for analysis date.
6. **Project Associated To** – Displays the project number (if a cost estimate has been associated to a project) and the Associate/Change link. Selecting the Associate/Change link provides the ability to associate a cost estimate to a project or change the association of a cost estimate to a project. The Associate/Change link will display a list of available projects for selection.

## TO CREATE A PREDESIGN COST ESTIMATE

Within a cost estimate, the **Tab** key will advance you to the next field and the **Enter** key will save changes made to a tab.

1. From the **Cost Estimate** tab – Select the **Unassociated** circle and the **Show Cost Estimates** button.

2. Select the **Add** button. Enter a **Cost Estimate Title** and then select the **OK** button. Enter name of the project in the Predesign Study.

The screenshot shows the 'Capital Budgeting System' interface. At the top, there are tabs for 'Project Mgmt.', '10 Year View', and 'Cost Estimates'. Below these, there's a search criteria section with 'Unassociated' selected and 'Show Cost Estimates' button. A dialog box titled 'Title Input -- Web Page Dialog' is open, prompting the user to 'Please enter a new Cost Estimate title.' The text 'Kitchen Foundation Repair Main Building' is entered in the input field. 'Ok' and 'Cancel' buttons are at the bottom of the dialog.

The cost estimate details summary page is now displayed. On this page, a Detail Page Name must be added before any cost estimate dollars can be entered. *Note: Within a cost estimate, detail tabs cannot have duplicate titles.*

The screenshot shows the 'Cost Estimate Details' page in the 'Capital Budgeting System'. The top navigation bar includes 'Project Mgmt.', '10 Year View', and 'Cost Estimates'. Below this, there's a summary section with 'Add a detail page' and 'Detail Page Name' field containing 'Foundation Repair'. The main content area is a detailed summary table with various categories and their associated costs.

Contact Info	
Contact Name	Agency
Contact Number	
Statistics	
Gross Sq. Ft. 0	MACC Cost per Sq. Ft.
Usable Sq. Ft. 0	Escalated MACC Cost per Sq. Ft.
Space Efficiency	A/E Fee Class
Construction Type	A/E Fee Percentage
Remodel?	
Schedule	
Predesign Start Date	Predesign End Date
Design Start Date	Design End Date
Construction Start Date	Construction End Date
Duration of Construction	
Cost Summary -- Escalated	
Escalated Costs Grand Total	0
Acquisition	
Acquisition Total	0
Consultant Services	
Pre-Schematic Design Services 0	
A/E Basic Design Services	
Extra Services 0	
Other Services 0	
Design Services Contingency 0	Consultant Services Total 0
Construction	
General Contractor Construction Management (GCCM) Risk Contingency 0	
General Contractor Construction Manager (GCCM) or Design Build Costs	
Construction Contingencies 0	
Sales Tax 0	
Non Taxable Items 0	Construction Total 0
Maximum Allowable Construction Cost (MACC) 0	
Maximum Allowable Construction Cost (MACC) Escalated 0	
Equipment	
Equipment 0	
Sales Tax 0	
Non Taxable Items 0	Equipment Total 0
Artwork	
Artwork Total	0
Other Costs	
Other Costs Total	0
Agency Project Administration	
Agency Project Administration Total	0
Additional Details	
Alternative Public Works Project	Project Administration by
Base Month and Year	State Construction Inflation Rate 3.50%
Project Admin Impact to GA that is NOT Included in Project Total 0	

3. **Enter Detail Page Name** – Enter Page Name. The **Detail** tab with the newly added title appears. Below the **Detail** tab, the main page is now displayed.

Capital Budgeting System

Project Mgmt. | 10 Year View | Cost Estimates | Logout

Cost Estimate List > Cost Estimate Details

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Foundation Repair

Summary | Foundation Repair | View Report

Detail Page Name: Foundation Repair

Construction Type: [Select One]

Analysis Date: 1/16/2008

Contact Name: [Text Field]

Tax Rate: [Text Field] %

Gross Sq. Ft.: [Text Field]

Rentable Sq. Ft.: [Text Field]

Escalated Cost per Sq. Ft.: [Text Field]

Remodel? ☐ Yes ☒ No

A/E Fee Class: undefined

Contingency Rate: [Text Field] %

Art Requirement Applies: ☐ Yes ☒ No

Higher Ed Institution: ☐ Yes ☒ No

Predesign Start Date: 2008 1

Design Start Date: 2008 1

Construction Start Date: 2008 1

Construction Duration: 0 Months

Base Month and Year: 2008 6

MACC

Current Project Total

Save | Save & Continue

4. Select the cost estimates “Construction Type” from the drop-down list.

Construction Type: [Select One]

Analysis Date: [Select One]

Contact Name: Archive Building

Tax Rate: [Text Field]

Project: [Text Field]

Location: [Text Field]

5. Verify that the **Base Month and Year** is not prior to today’s date. If the Base Month and Year are in the past, **select** the correct time period for the cost estimate. The base month/year are the month and year upon which the cost estimate is based, and inflation is calculated from the selected month and year forward.

Construction Duration: 0 Months

Base Month and Year: 2008 2

MACC

Current Project Total

Save | Save & Continue

6. Select the **Save** button found at the bottom left side of the screen.

The Cost Estimate and Detail tabs are saved. Your screen now displays the cost estimate detail sub tabs: Main, Acquisition Costs, Consultant Services, Construction Contracts, Equipment, Artwork, Project Management and Other Costs.

Capital Budgeting System Logout

Project Mgmt. 10 Year View Cost Estimates

Cost Estimate List > Cost Estimate Details 69900ciadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Foundation Repair

Summary	Foundation Repair	View Report
Main 0	Acquisition Costs 0	Consultant Services 0
	Construction Contracts 0	Equipment 0
		Artwork 0
		Project Management 0
		Other Costs 0

Updated Successfully

Detail Page Name: Foundation Repair

Construction Type: Archive Building

Analysis Date: 1/16/2008 Projected Life of Asset:  Years

Contact Name:  Contact Number:  ext.

Tax Rate:  % Location used for tax rate:  [Location Finder](#)

Gross Sq. Ft.:  Usable Sq. Ft.:

Rentable Sq. Ft.:  Space Efficiency: 0%

Escalated Cost per Sq. Ft.:  Escalated Cost per Sq. Ft. Explanation:

Remodel? ☐ Yes ☒ No Management Reserve:  %

A/E Fee Class B:  A/E Fee Percentage: 0%

Contingency Rate:  % Contingency Explanation:

Art Requirement Applies: ☐ Yes ☒ No Project Administration by: GA

Higher Ed Institution: ☐ Yes ☒ No Alternative Public Works: ☐ Yes ☒ No

Predesign Start Date: 2008 1 1 Predesign End Date: 2008 1 1

Design Start Date: 2008 1 1 Design End Date: 2008 1 1

Construction Start Date: 2008 1 1 Construction End Date: 2008 1 1

Construction Duration: 0 Months State Construction Inflation Rate: 3.50 %

Base Month and Year: 2008 2

MAEC: 0 MAEC (escalated): 0

Current Project Total: 0 Escalated Project Total: 0

## SUB TABS

### Main Page Sub Tab

The main page captures relevant information for a single cost estimate detail.

1. **Detail Page Name** – Displays the Cost Estimate Detail Page title. To change the detail tab title, type or modify the field text and save.
2. **Construction Type** – Establishes the Architect/Engineer (A/E) fee class and associated basic design fee schedule. (Note: A construction type must be selected prior to moving off the main page. Depending on the construction type selected, some fields contained on the cost estimate will not be displayed. For example, when a non-building type of Fish Hatchery Infrastructure is selected from the Construction Type drop-down list, the Cost Estimate Main Page will not display fields specific to a building construction type.)
3. **Analysis Date** – Defaults to today's date.
4. **Projected Life of Asset** – The number of years the asset is estimated to be useful. See SAAM [30.50.10](#) for more information.
5. **Contact Name** – The person who will answer questions about the cost estimate.
6. **Contact Number** – The phone number of the contact person who will answer questions about the cost estimate.
7. **Tax Rate** – The sales tax rate for the location of the project. Converts to a percentage: If 10 is entered, it becomes 10%.
  - a. **Location used for tax rate** – Enter the cost estimate sales tax rate location. The system provides a link to look up the current rate for a specified location.

- b. **Gross Square Feet** – Gross square feet of building area contained in the project based on American Institute of Architects Document D101, the Architectural Area and Volume of Buildings. This field is not visible if a non-building construction type has been selected.
- c. **Usable Square Feet** – Usable square feet of the structure (also known as net square feet or assignable square feet). This field is not visible if a non-building construction type has been selected. Usable square feet cannot be greater than gross square feet.
- d. **Rentable Square Feet** – Rentable square feet of the building. This field is not visible if a non-building construction type has been selected.
- e. **Space Efficiency** – System calculation. Usable square feet divided by gross square feet. If usable square feet is greater than gross square feet, an error message is displayed. This field is not visible if a non-building construction type has been selected.

### Efficiency Guidelines

SPACE TYPE	PERCENT BUDGET RANGE
<b>General Government</b>	
Office Buildings	72 – 78
Computer Facilities	60 – 65
Library Facilities	75 – 80
Auditorium	65 – 75
Cafeteria	65 – 70
Medical	50 – 60
Parking	90 – 95
Warehouse	90 – 95
Laboratory Facilities	55 – 60
<b>Higher Education</b>	
Teaching/Classrooms	65 – 70
Offices/Administration	75 – 80
Teaching/Laboratories	60 – 65
<b>K-12 Facilities</b>	<b>80 – 85</b>

- 8. **Escalated Cost per Square Feet** – System calculation. Maximum allowable construction cost (MACC – Escalated) divided by gross square feet. This field is not visible if a non-building construction type has been selected.
- 9. **Escalated Cost per Square Feet Explanation** – This field is not visible if a non-building construction type has been selected. Used to explain cost per square foot, when cost per square feet amount exceeds standard amount.
- 10. **Remodel?** – Question defaults to “No.” This field is not visible if a non-building construction type has been selected. *Note: If construction is a remodel, the A/E Fee Percentage and A/E Basic Design Services calculations are increased by 3 percent.*
- 11. **A/E Fee Class** – Assigned by the system based on the construction type selected.



12. **A/E Fee Percentage** – Percentage is based on the A/E fee class and if the project is a remodel.

13. **Contingency Rate** – An allowance for uncertainties associated with estimating costs for design services and construction. Typical range is 3 to 5 percent of the MACC. The maximum contingency rate for new construction projects is 5 percent, and 10 percent for remodels. This converts to a percentage: If 5 is entered, it becomes 5 percent. Do not include additional contingency in the construction cost items or design service fees.

If additional contingency is needed above the 5 percent for new construction and 10 percent for remodels, those funds must be added separately within the Consultant Services tab for Design and in the Construction Contracts tab for Construction. An explanation is required for any additional contingency amount entered into the estimate.

14. **Contingency Explanation** – An explanation must be provided for the contingency rates above 5 percent for new construction or above 10 percent for remodels.

15. **Art Requirement Applies** – Question defaults to “No.” If “Yes” is selected, the artwork allowance will be calculated by the system and displayed on the Cost Estimate Detail tab titled Artwork.

16. **Project Administration by** – Selections available are DES or agency. If the project will be administered by the Department of Enterprise Services (DES) Division of Engineering and Architectural Services (E&AS), select the DES option from the drop-down list box. For the request of capital appropriations for costs to an agency for project management, select ‘Agency’ from the drop down list.

E&AS provides project management services to state agencies as required by RCW 43.19.450. E&AS project management services are funded separately from the agency’s capital budget request (except when the project funding is not appropriated or the funding is from a non-state source). Services that are essential and/or mandated activities are defined as core services and are included in E&AS’s responsibilities list for general public works.

DES may negotiate agreements with agencies for additional fees to manage projects financed by contracts or other alternative financing means, or for projects greater than \$20 million or for the non-state-funded portion of projects with mixed funding sources.

Additional fees for engineering and architectural services should be included in the cost estimate. Contact E&AS at 360-902-7272 for an estimate of project management costs.

In addition, for agencies using E&AS for project management and planning to use formal alternative public works procedures such as Design-Build or General Contractor/ Construction Management (GC/CM), additional project management costs may be required and should be included in the capital budget request. Contact E&AS for an estimate of these supplemental project management costs.

17. **Higher Education Institution?** – Question defaults to “No.” If “Yes” is selected, the higher education artwork allowance is calculated on the Artwork sub tab.

18. **Alternative Public Works?** – Question defaults to “No.” A selection of “Yes” allows for the entry of costs associated with the GC/CM or Design/Build types of contracts.

19. **Predesign Start Date** – Selection drop-down list box for both the year and month predesign will start.
20. **Predesign End Date** – Selection drop-down list box for both the year and month predesign will end. The selected year/month cannot be prior to the selected predesign start year and month.
21. **Design Start Date** – The selected year/month cannot be prior to predesign start year and month.
22. **Design End Date** – The selected year/month cannot be prior to design start year and month.
23. **Construction Start Date** – The selected year/month cannot be prior to design start year and month.
24. **Construction End Date** – The selected year/month cannot be prior to construction start year and month.
25. **Construction Duration in Months** – System calculation is based on the year/month of the first construction start date to the year/month of last construction end date. It is the construction end date minus construction start date divided by 365 days divided by 12 months.
26. **State Construction Inflation Rate** – Currently maintained by the system at 3.08 percent. This rate is the current projected inflation rate based on the construction cost index published by Global Insight.
27. **Base Month and Year** – Defaults to June and the first fiscal year for the selected biennium of the new cost estimate. For example, the 2013-15 budget will default to June 2012. Uses previously entered base month and year date when using an existing cost estimate. Base month and year cannot be a date in the past.
28. **Maximum Allowable Construction Cost (MACC) *Not Escalated*** – System calculation. Amount totals from the cost estimate detail construction contracts tab, for total of site work + total related project costs + total facility construction.
29. **Maximum Allowable Construction Cost (MACC) *Escalated*** – System calculation. Amount totals from the cost estimate detail construction contracts tab, for total site work (escalated) + total related project costs (escalated) + total facility construction (escalated).
30. **Current Project Total** – System calculation. Cost estimate detail grand total, the sum of all sub tabs for a detail, total acquisition costs + total consultant services + total construction contracts + total equipment + total artwork + total project management + total other costs.
31. **Escalated Project Total** – System calculation. Cost estimate detail grand total (escalated), the sum of all the sub tabs for a detail, total (escalated) acquisition costs + total (escalated) consultant services + total (escalated) construction contracts + total (escalated) equipment + total (escalated) artwork + total (escalated) project management + total (escalated) other costs.

## Acquisition Sub Tab

**Acquisition Costs** include not only the cost of purchasing or leasing a site and/or facilities, but also all attendant costs necessary to prepare the property for agency use. The costs of site improvements, right-of-way, or conditions on the purchase/lease must be considered under the cost of acquisition if such items are required to prepare the property for its intended purpose. Although many of these costs may be deferred to a construction cost, they should be considered during the site evaluation process.

Item	Base Amount	Escalation Factor	Escalated Cost
Purchase/Lease Cost	<input type="text" value="0"/>		
Appraisal and Closing Costs	<input type="text" value="0"/>		
Right of Way Costs	<input type="text" value="0"/>		
Demolition Cost	<input type="text" value="0"/>		
Pre-Site Development	<input type="text" value="0"/>		
<a href="#">Add new item above</a>			
<b>Totals</b>			
Total	0		Escalated Total 0

### 1. Various Acquisition Costs

2. **Add new item above** – Button will add a new Acquisition Cost line item row for a custom acquisition cost to be entered. *Note on customizing a cost estimates cost items: Each cost estimate detail tab allows for the addition of cost item rows for non-standard activities. These user-defined items can be added manually to each project phase of a detail tab. A title for the newly added row must be entered to save the item for the cost estimate. User-defined rows are not required to have amounts entered to save, allowing for the creation of cost estimate templates. To delete a user-defined row, first **delete** the title and **select** the save button. User-defined rows with blank titles will be deleted from the cost estimate.*

3. **Base Amount Total** – System calculation. Total acquisition costs.

4. **Escalation Factor** – System calculation. Factor is 1.

5. **Escalated Total** – System calculation. Total acquisition costs multiplied by escalation factor.

## Consultant Services Sub Tab

**Consultant Services** are costs associated with architect and engineering (A/E) services from private consulting firms. **Basic Design Services** fees are automatically calculated by the cost estimating tool based on the selection for “Building Type.” Several subheadings are included in the Consultant Services section as a suggested listing of extra services that may be required to design the project.

Agencies may add specific A/E services to fully capture all services needed for a successful project. Extra service costs include costs to comply with completing the Predesign Manual requirements and the environmental impact statement, which is a study of the present and future impact of the project on the environment, residents and the economy. Agencies should review State Environmental Policy Act Rules WAC 197-11 for more information. Refer to OFM's Guidelines for Determining Architect/Engineer Fees for Public Works Building Projects <http://www.ofm.wa.gov/budget/instructions/capital.asp> for details.

Capital Budgeting System Logout

Project Mgmt. | 10 Year View | Cost Estimates

Cost Estimate List > Cost Estimate Details 69900ciadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

Summary | Foundation Repair | View Report

Item	Base Amount	Escalation Factor	Escalated Cost	Override Amount	Override Explanation
<b>1 Pre-Schematic Design Services</b>					
Programming/Site Analysis	0				
Environment Analysis	0				
Predesign Study	0				
Add new item above					
<b>Sub Total</b>	0	1	0		
<b>2 Construction Documents</b>					
A/E Basic Design Services	0			0	
Add new item above					
<b>Sub Total</b>	0	1	0		
<b>3 Extra Services</b>					
Civil Design (Above Basic Services)	0				
Geotechnical Investigation	0				
Commissioning (Systems Check)	0				
Site Survey	0				
Testing	0				
Leadership Energy & Environment Design List(LEED)	0				
Voice/Data Consultant	0				
Value Engineering Participation & Implementation	0				
Constructability Review Participation	0				
Environmental Mitigation Services (EIS)	0				
Landscape Consultant	0				
Add new item above					
<b>Sub Total</b>	0	1	0		
<b>4 Other Services</b>					
Bid/Construction/Closeout	0			0	
HVAC Balancing	0				
Staffing	0				
Add new item above					
<b>5 Design Services Contingency</b>					
Design Services Contingency	0				
Add new item above					
<b>Sub Total</b>	0	1	0		
<b>Totals</b>					
<b>Total</b>	0		<b>Escalated Total</b>	0	

Save | Save & Continue

### Pre-Schematic Design Services

1. Various design services necessary to generate the predesign document
2. Add new item above – button, must provide description
3. Sub Total

### Construction Documents

1. A/E Basic Design Services – System calculation. Up to bidding (69 percent)
2. Bid/Construction/Closeout – System calculation. (31 percent)
3. Add new item above – button, must provide description
4. Sub Total

**Extra Services**

1. Various Consultants and Activities above Basic Services Contracted through the Architect/Engineer (A/E)
2. Add new item above – button, must provide description
3. Sub Total

**Other Services**

1. Various consultants and activities not contracted through the A/E. Typically the owner contracts directly for these items.
2. Add new item above – button, must provide description
3. Sub Total

**Design Services Contingency**

1. Design Services Contingency – System calculation
2. Add new item above – button, must provide description. *Note: If used, be prepared to explain reasoning*
3. Sub Total
4. Consultant Services Total
5. Escalated Consultant Services Total

**Construction Contracts Sub Tab**

**Construction Contracts** cost estimates are displayed using the UNIFORMAT II – Standard Classification for Building Elements and Related Sitework System (ASTM Standard E 1557). Using UNIFORMAT II ensures consistency in the economic evaluation of building projects over time and from project to project.

**Sitework** costs are associated with site preparation and utility improvements external to the building footprint.

**Related Project Costs** include on- and off-site mitigation improvements imposed by local building/development jurisdictions.

The elements listed on the cost estimate under ‘**Facility Construction**’ are the UNIFORMAT II components common to most buildings. Project-specific elements can be entered as well.

Capital Budgeting System

Logout

Project Mgmt. | 10 Year View | Cost Estimates

Cost Estimate List > Cost Estimate Details

69900ciadv01 : 699

Agency: 699   Project Number: Unassociated   Project Title: Unassociated   Estimate Title: Kitchen Foundation Repair Main Building

Summary
Foundation Repair
View Report

Main	Acquisition Costs	Consultant Services	Construction Contracts	Equipment	Artwork	Project Management	Other Costs
0	0	0	0	0	0	0	0

Item	Base Amount	Escalation Factor	Escalated Cost
<b>1 Site work</b>			
G10 - Site Preparation	<input type="text" value="0"/>		
G20 - Site Improvements	<input type="text" value="0"/>		
G30 - Site Mechanical Utilities	<input type="text" value="0"/>		
G40 - Site Electrical Utilities	<input type="text" value="0"/>		
G60 - Other Site Construction	<input type="text" value="0"/>		
<a href="#">Add new item above</a>			
<b>Sub Total</b>	0	1	0
<b>2 Related Project Costs</b>			
Offsite Improvements	<input type="text" value="0"/>		
City Utilities Relocation	<input type="text" value="0"/>		
Parking Mitigation	<input type="text" value="0"/>		
Stormwater Retention/Detention	<input type="text" value="0"/>		
Wetland Mitigation	<input type="text" value="0"/>		
<a href="#">Add new item above</a>			
<b>Sub Total</b>	0	1	0
<b>3 Facility Construction</b>			
A10 - Foundations	<input type="text" value="0"/>		
A20 - Basement Construction	<input type="text" value="0"/>		
B10 - Superstructure	<input type="text" value="0"/>		
B20 - Exterior Closure	<input type="text" value="0"/>		
B30 - Roofing	<input type="text" value="0"/>		
C10 - Interior Construction	<input type="text" value="0"/>		
C20 - Stairs	<input type="text" value="0"/>		
C30 - Interior Finishes	<input type="text" value="0"/>		
D10 - Conveying	<input type="text" value="0"/>		
D20 - Plumbing Systems	<input type="text" value="0"/>		
D30 - HVAC Systems	<input type="text" value="0"/>		
D40 - Fire Protection Systems	<input type="text" value="0"/>		
D50 - Electrical Systems	<input type="text" value="0"/>		
F10 - Special Construction	<input type="text" value="0"/>		
F20 - Selective Demolition	<input type="text" value="0"/>		
General Conditions	<input type="text" value="0"/>		
<a href="#">Add new item above</a>			
<b>Sub Total</b>	0	1	0
<b>4 MACC</b>			
MACC Non-escalated	<input type="text" value="0"/>		
MACC Escalated	<input type="text" value="0"/>		
<b>7 Construction Contingencies</b>			
Management Reserve	<input type="text" value="0"/>		
Allowance for Change Orders	<input type="text" value="0"/>		
<a href="#">Add new item above</a>			
<b>Sub Total</b>	0	1	0
<b>8 Non Taxable Items</b>			
<a href="#">Add new item above</a>			
<b>Sub Total</b>	0	1	0
<b>Sales Tax</b>			
Sales Tax - Non Escalated	<input type="text" value="0"/>		
Sales Tax - Escalated	<input type="text" value="0"/>		
<b>Totals</b>			
<b>Total</b>	0	<b>Escalated Total</b>	0

[Save](#)
[Save & Continue](#)

## Site work

1. G10 Site Preparation
2. G20 Site Improvements
3. G30 Site Mechanical Utilities
4. G40 Site Electrical Utilities
5. G50 Other Site Construction
6. Add new item above – button, must provide description
7. Sub Total

### **Related Project Costs**

1. Offsite Improvements
2. City Utilities Relocation
3. Parking Mitigation
4. Stormwater Retention/Detention
5. Wetland Mitigation
6. Add new item above – button, must provide description
7. Sub Total

### **Facility Construction (section not displayed for non-building construction types)**

1. A10 Foundations
2. A20 Basement Construction
3. B10 Superstructure
4. B20 Exterior Closure
5. B30 Roofing
6. C10 Interior Construction
7. C20 Stairs
8. C30 Interior Finishes
9. D10 Conveying
10. D20 Plumbing Systems
11. D30 HVAC Systems
12. D40 Fire Protection Systems
13. D50 Electrical Systems
14. F10 Special Construction
15. F20 Selective Demolition
16. General Conditions
17. Add new item above – button, must provide description
18. Sub Total

### **MACC**

1. **MACC Non-escalated** – Total Site Work + Total Related Project Costs + Facility Construction
2. **MACC Escalated** – Total Site Work (escalated) + Total Related Project Costs (escalated) + Facility Construction (escalated)

### **GC/CM Risk Contingency**

*Section displays only if Alternative Public Works (and a building construction type) have been selected on cost estimate main page.*

1. GC/CM Risk Contingency – Maximum amount of 5 percent of the MACC may be added to the GC/CM MACC (but not the A/E fees).
2. Sub Total

### **GC/CM or Design Build Costs**

*Section displays only if Alternative Public Works (and a building construction type) have been selected on cost estimate main page.*

1. **GC/CM Fee** – Estimate for the fixed percent fee bid by the GC/CM multiplied by the MACC.
2. **Bid General Conditions** – Estimate for temporary work and fees performed by or paid by the GC/CM to accomplish the scope of work.

3. **GC/CM Preconstruction Services** – Maximum amount of 5 percent of the MACC may be added to the GC/CM MACC (but not the A/E fees) for participation in preconstruction design meetings, life cycle cost design considerations, value engineering, scheduling, design cost estimating, constructability review, project management services, devising alternative construction options for cost savings and planning for sequencing of the work.
4. Sub Total

#### **Construction Contingencies**

1. Allowance for Change Orders – System calculation
2. Add new item above – button, must provide description. *Note: If used, be prepared to explain reasoning.*
3. Sub Total

#### **Non Taxable Items**

1. Non Taxable Items
2. Add new item above – button, must provide description

#### **Sales Tax**

1. Sales Tax – Non Escalated
2. Sales Tax – Escalated
3. Construction Contracts Total
4. Escalated Construction Contracts Total

#### **Equipment Sub Tab**

Equipment includes the costs of equipment and furnishings integral to the project. Equipment is not considered consumable and is obtained through contracts or the Contracting and Purchasing Program in the Department of Enterprise Services. Furnishings include items such as furniture, office equipment and other purchased items. Special construction items include the purchase and installation of office furniture, shelves, movable partitions and any special program items that are not considered consumables and have a life expectancy of one year or more. See Section 4 of the 2015–2025 Capital Budget Instructions <http://www.ofm.wa.gov/budget/instructions/capital.asp>. for further guidance regarding allowable uses of long-term financing, bonds, or COPs.

1. E10 Equipment
2. E20 Furnishings
3. F10 Special Construction
4. Add new item above – button, must provide description
5. Sub Total

#### **Non Taxable Items**

1. Add another user defined item – button, must provide description
2. Sub Total

#### **Sales Tax**

1. Sales Tax – Non Escalated
2. Sales Tax Escalated

#### **Totals**

1. Equipment Total
2. Escalated Equipment Total



## Artwork Sub Tab

Most major capital projects are subject to allowances for artwork, per RCW 43.17.200 and RCW 28B.10.027 for higher education. The artwork amount is not escalated.

Capital Budgeting System

Project Mgmt. 10 Year View Cost Estimates

Cost Estimate List > Cost Estimate Details 69900ciadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

Summary Foundation Repair X View Report

Main	Acquisition Costs	Consultant Services	Construction Contracts	Equipment	Artwork	Project Management	Other Costs
0	0	0	0	0	0	0	0

Item	Base Amount	Escalation Factor	Escalated Cost
Project Artwork	0		
Higher Ed Artwork	0		
Add new item above			
Totals			
Total	0		Escalated Total 0

Save Save & Continue

Sales Tax
Sales Tax - Non Escalated 0
Sales Tax - Escalated 0
Totals
Total 0 Escalated Total 0

Save Save & Continue

1. Project Artwork
2. Higher Ed Artwork
3. Add new item above – button, must provide description
4. Art Work Total
5. Escalated Artwork Total

## Project Management Sub Tab

The items listed on the Project Management page are based on the type of project administration selected on the main page. If 'DES' is selected, the DES Project Management row is displayed and the DES amount is calculated. If 'agency' is selected, project management funds are system-calculated. Project administration by DES costs are not included in the cost estimate project total. If a user-defined item is added, the user-added row costs are added to the project total. Project administration by agency costs is included in the cost estimate project total.

Capital Budgeting System

Project Mgmt. 10 Year View Cost Estimates

Cost Estimate List > Cost Estimate Details 69900ciadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

Summary Foundation Repair X View Report

Main	Acquisition Costs	Consultant Services	Construction Contracts	Equipment	Artwork	Project Management	Other Costs
0	0	0	0	0	0	0	0

Item	Base Amount	Escalation Factor	Escalated Cost
GA Project Management	0		
Add new item above			
Totals			
Total	0		Escalated Total 0

Save Save & Continue

1. DES Project Management – Displayed only if “Project Administration by” is DES main page.
2. Agency Project Management – Displayed only if “Project Administration by” is agency main page.
3. Add new item above – button, must provide description
4. Project Management Total
5. Escalated Project Management Total

## Other Costs Sub Tab

**Other Costs** include lease purchases, temporary utilities and anticipated security and/or escort services integral to the completion of a capital project. Costs of required permits and local jurisdiction fees (including building permit, plan check, impact and other permit fees) as appropriately imposed should be itemized in this section. (Do not include costs for permits, fees or bonds associated with the provisions of the general conditions of the public works construction contract since those costs are included in the estimates for the MACC.)

Capital Budgeting System Logout

Project Mgmt. | 10 Year View | **Cost Estimates**

Cost Estimate List > Cost Estimate Details 69900csiadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

Summary | **Foundation Repair** | View Report

Category	Amount
Main	0
Acquisition Costs	0
Consultant Services	0
Construction Contracts	0
Equipment	0
Artwork	0
Project Management	0
<b>Other Costs</b>	<b>0</b>

Item	Base Amount	Escalation Factor	Escalated Cost
Mitigation Costs	0		
Hazardous Material Remediation/Removal	0		
Historic and Archeological Mitigation	0		
<a href="#">Add new item above</a>			
<b>Totals</b>			
Total	0	Escalated Total	0

[Save](#)

1. Various items not typically included in design fees or construction
2. Add new item above – button, must provide description
3. Other Costs Total
4. Escalated Other Costs Total

## Summary Tab

Capital Budgeting System Logout

Project Mgmt. | 10 Year View | **Cost Estimates**

Cost Estimate List > Cost Estimate Details 69900csiadv01 : 699

---

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

**Summary** | Foundation Repair | View Report

Add a detail page  
Detail Page Name  Add

Biennium: 2009-11  \* Changing biennium may change formulas and inflation rates.

Contact Info		
Contact Name	Jane Smith	Agency 699
Contact Number	555-555-5555	
Statistics		
Gross Sq. Ft.	25,300	MACC Cost per Sq. Ft. 0
Usable Sq. Ft.	22,300	Escalated MACC Cost per Sq. Ft. 0
Space Efficiency	88%	A/E Fee Class B
Construction Type	Archive Building	A/E Fee Percentage 0%
Remodel?	No	
Schedule		
Predesign Start Date		Predesign End Date
Design Start Date	1/2008	Design End Date 1/2008
Construction Start Date	1/2008	Construction End Date 1/2008
Duration of Construction	0 months	
Cost Summary -- Escalated		
		Escalated Costs Grand Total 0
Acquisition		
		Acquisition Total 0
Consultant Services		
Pre-Schematic Design Services	0	
A/E Basic Design Services	0	
Extra Services	0	
Other Services	0	
Design Services Contingency	0	Consultant Services Total 0
Construction		
General Contractor Construction Management (GCCM) Risk Contingency	0	
General Contractor Construction Manager (GCCM) or Design Build Costs	0	
Construction Contingencies	0	
Sales Tax	0	
Non Taxable Items	0	Construction Total 0
Maximum Allowable Construction Cost (MACC)	0	
Maximum Allowable Construction Cost (MACC) Escalated	0	
Equipment		
Equipment	0	
Sales Tax	0	
Non Taxable Items	0	Equipment Total 0
Artwork		
		Artwork Total 0
Other Costs		
		Other Costs Total 0
Agency Project Administration		
		Agency Project Administration Total 0
Additional Details		
Alternative Public Works Project	N	Project Administration by GA
Base Month and Year	2 / 2008	State Construction Inflation Rate 3.50%
Project Admin Impact to GA that is NOT Included in Project Total	0	

The Cost Estimate Summary page displays the summarized costs of one or more cost estimate detail tabs. If only one detail tab exists for the cost estimate, the summary page will display the totals of the individual detail tab.

Note: It is important to save each page to ensure system calculations are updated as changes occur.

### View the Cost Estimate Report CBS003

The cost estimate must be viewed to print a report from CBS. For a selected cost estimate, the report will display the summarized data of the cost estimate detail page(s) and then display each individual cost estimate detail. If a cost estimate contains only one detail page, the summary section will be the same as the detail data on the report.

1. From the **Cost Estimate** tab, select the **Cost Estimate** title on the Cost Estimate List screen for the report you wish to view.
2. On the Cost Estimate Details page, select the **View Report** tab.

Capital Budgeting System Logout

Project Mgmt. 10 Year View Cost Estimates

Cost Estimate List > Cost Estimate Details 69900csiadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

Summary Foundation Repair X View Report

Add a detail page  
Detail Page Name  Add

Biennium 2009-11 Save \* Changing biennium may change formulas and inflation rates.

Contact Info

A print preview box will be displayed with the report details.

Capital Budgeting System Logout

Project Mgmt. 10 Year View Cost Estimates

Cost Estimate List > Cost Estimate Details 69900csiadv01 : 699

Agency: 699 Project Number: Unassociated Project Title: Unassociated Estimate Title: Kitchen Foundation Repair Main Building

Summary Foundation Repair X View Report

Add a detail page  
Detail Page Name  Add

Biennium 2009-11 Save \* Changing biennium may change formulas and inflation rates.

Print Preview Box:

http://qabass.ofm.wa.gov/BASSWEB\_qa/OnlineReporting/ViewPDFReport.as...

OFM 699 - Community and Technical College System  
Cost Estimate Summary  
2009-11 Biennium

Cost Estimate Number: 2  
Cost Estimate Title: Kitchen Foundation Repair Main Building  
Report Number: CBS003  
Date Run: 1/15/2008 12:12PM

Contact Info  
Contact Name: Jane Smith  
Contact Number: 555.555.5555

Statistics

Gross Sq. Ft.:	25,300
Usable Sq. Ft.:	22,300
Space Efficiency:	88%
MACC Cost per Sq. Ft.:	129
Escalated MACC Cost per Sq. Ft.:	129
Remodel?	No
Construction Type:	Archive Building
A/E Fee Class:	B
A/E Fee Percentage:	9.05%

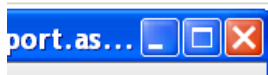
Schedule

	Start Date	End Date
Pre-design:		
Design:	01-2008	01-2008
Construction:	01-2008	01-2008
Duration of Construction (Months):	0	

Cost Summary Escalated

Acquisition Costs Total		45,000
Pre-Schematic Design Services	2,000	
Construction Documents	203,446	
Extra Services	0	
Other Services	96,403	
Design Services Contingency	15,062	
Consultant Services Total		316,941
Site work	628,000	
Related Project Costs	0	
Facility Construction	2,630,000	

3. Select the **Printer Icon** on the upper left-hand side of the print preview box.
4. Select the **OK** button on the printer destination/criteria box. The report prints to your local printer.
5. **Close** the print preview box by selecting the red 'X' in the upper right-hand side.



## APPENDIX F

# LIFE CYCLE COST ANALYSIS



Consideration of a project's life cycle cost is a requirement for most capital projects when public funds are used. A life cycle cost analysis (LCCA) is a method for assessing the total cost of ownership for a new facility or a building system. It takes into account all costs of acquisition, initial capital investment, ongoing operating and maintenance costs, and other costs as needed if beneficial to the analysis being performed. The purpose of an LCCA is to estimate the total costs of project alternatives and to select the design that ensures the new facility or building system provides the lowest total cost of ownership consistent with the project's intended quality, function, and lifespan.

Section 7039, Chapter 19, Laws of 2013, Second Special Session (2013-15 Capital Budget) requires OFM to provide a life cycle cost model to be used for the analysis, provide assistance in using the model, and update the model annually including assumptions for inflation rates, discount rates and energy rates. The model developed by OFM is the Life Cycle Cost Tool (LCCT) and can be found with instructions at <http://ofm.wa.gov/budget/forms.asp>. The LCCT produces an executive report that summarizes the analysis and shows the cost-comparison between three separate design solutions for the project.

Agencies should coordinate with their OFM Capital Analyst to verify LCCA process and required components of the LCCA.

### Projects Requiring a Life Cycle Cost Analysis

Projects that meet the criteria below, and begin predesign or design phases in the 2015-17 biennium (or later) will be subject to LCCA requirements as established by Executive Order 13-03 that requires consideration of life cycle and operating costs in public works projects.

- Projects with a total project cost of over \$5,000,000
- Projects with new building square footage of greater than 5,000 square feet

### Life Cycle Cost Tool (LCCT)

The LCCT is an excel spreadsheet with standard rates and methodologies intended to compare project cost alternatives using the same parameters for each alternative. The LCCT has project-specific "Input" tabs where the cost for each project alternative is entered. These costs include values for the initial project cost estimate, first year energy consumption, first year energy costs, first year maintenance costs, and useful life of system components. Energy consumption and costs can be entered as total building values or specific to each building component which should depend on the level of detail of the current project cost estimate. The costs entered into the "Input" tabs are used to calculate the total life cycle cost using OFM's standard rates which will be updated biennially. The results of the analysis are displayed on the "Executive Report" tab.

The LCCT inputs for capital costs align with the Uniformat II estimating format which also aligns with the Construction Contracts tab in the Capital Budgeting System. The LCCT allows for a variable level of cost detail consistent with Uniformat II detail levels 1-4. The "1<sup>st</sup> Construction Costs" for the selected alternative as displayed on the Executive Report should align with the most current project cost estimate when submitted to the agency and/or OFM for review.

## Life Cycle Cost Tool (LCCT) vs Energy Life Cycle Cost Analysis (ELCCA)

The LCCT is an economic analysis or cost comparison tool. As such, energy modeling and integrated design techniques are not performed within the LCCT; however, these design processes are necessary to achieve a high-performance building or building system. Three viable project alternatives must be evaluated in the LCCT. The alternative representing the lowest life cycle cost should be a primary consideration in making design decisions for the project.

The Energy Life Cycle Cost Analysis (ELCCA) is a process that encourages energy efficiency by evaluating the total cost of ownership for energy using systems: heating, cooling, lighting, building envelope, and domestic hot water. An ELCCA is required for projects having 25,000 square feet or more of usable floor space. ELCCA guidelines can be found at <http://des.wa.gov/services/facilities/Energy/ELCCA/Pages/default.aspx>.

The primary difference between the LCCT and the ELCCA is that the LCCT must quantify all costs associated with a project whereas the ELCCA includes a process focused primarily on evaluating energy using systems. The ELCCA guidelines define the procedures and methods for performing the energy analysis which includes a work plan, reporting requirements, and review process. When an ELCCA is required for a project, the results can and should be utilized to enter values into the LCCT.

The LCCT is the formalized budget communication tool that will be reviewed by both capital and operating budget analysts to better understand the design alternatives as they relate the initial capital investment with the forecasted operating and maintenance costs.

## Process and Submittal Requirements

The life cycle cost analysis should be performed by or under the supervision of an architect or engineer licensed in the State of Washington with experience in high-performance building design and energy modeling techniques. As the design progresses and more project details are identified, the detail level within the LCCT will be expanded to allow for more thorough energy cost reporting specific to the systems selected throughout the design. After the project is completed, a final LCCT will be submitted to align with the final construction cost for each system installed to measure system performance with the design assumptions. The table below summarizes the submittal requirements by project phase. Agencies should coordinate with their OFM capital analyst for additional guidance.

Project Phase	Cost Estimate & Life Cycle Cost Tool Detail Level	
	Required Submittal to Agency (min)	Required Submittal to OFM (min)
<b>Predesign</b>	Uniformat Level 2	Uniformat Level 2
<b>Design</b>	<u>Schematic Design</u> Uniformat Level 2	<u>Schematic Design</u> N/A
	<u>Design Development</u> Uniformat Level 3	<u>Design Development</u> N/A
	<u>Construction Documents</u> Uniformat Level 4	<u>Construction Documents</u> Uniformat Level 4
<b>Construction</b>	N/A	<u>As-Builts = Actual Costs</u> Uniformat Level 4

## APPENDIX G

### GLOSSARY OF TERMS

**Acquisition** – This type of project includes the acquisition of land, structures and buildings. These are fixed assets that have no relationship to the addition or improvement to, or the repair or replacement of, existing fixed assets. Examples of an acquisition are purchase of a tract of land or a building.

**Addendum** – A written or graphic instrument issued by the architect before execution of the construction contract that modifies or interprets the bidding documents by additions, deletions, clarifications or corrections.

**Addition** – An addition expands or extends an existing fixed asset. An example of an addition is the construction of a new wing for a correctional institution. New construction attached to an existing structure as an extension is an addition. Generally, additions involve alterations within existing buildings to make connections.

**Additive Alternate Bid** – An amount stated in the bid to be added to the amount of the base bid if the corresponding change in work, as described in the bidding documents, is accepted.

**Alternate Financing** – Proposals that cover a wide range of financial contracts that call for the development or use of space by state agencies through a contractual arrangement with a developer or financing entity. Financing may involve the sale of debt obligations (certificates of participation, or COPs, through the State Treasurer) or funding from a private developer. Title to the property involved may transfer to the state either upon exercise of an option or at the termination of the contract.

**Alternative Analysis** – Involves identifying ways of meeting the functional requirements of the program, including construction solutions to a problem or whether to lease, buy, build or use some other financing techniques. This requires using approaches such as cost-benefit or lifecycle costing analysis to determine comparable costs of alternatives.

**Alternative Public Works** – Refers to public works processes authorized under Chapter 39.10 RCW and includes General Contractor/Construction Manager (GC/CM) and Design-Build. To use these procedures, the project must meet the criteria (including project size) stipulated in Chapter 39.10 RCW.

**Architect/Engineer (A/E)** – A party to a contract to provide professional architectural and/or engineering design services to an agency or institution.

**Artwork Allowance** – The cost of artwork for original construction of any building, excluding storage sheds, warehouses or buildings of a temporary nature, as provided in RCW 43.17.200. Universities and colleges must compute artwork allowances on the cost of original construction and on the cost of major renovation or remodeling work exceeding \$200,000, as provided in RCW 28B.10.027. Agencies should compute artwork allowances for original construction on the basis of one-half of 1 percent of the inflated maximum allowable construction cost (MACC).

**Associated (Annual) Cost** – These costs should include ongoing expenses not included in Maintenance and Operations. These expenses should include all new program and staff costs reasonably assigned to the program housed in the facility. The method of calculation using escalation and discount rates is the same as Maintenance and Operations. Agencies should indicate the base annual associated costs.

**Base Bid** – An offer to do construction work for payment, the acceptance of which constitutes a contract between the contractor who made the bid (the bidder) and the agency or institution which accepted it,



exclusive of adjustments for additive alternates. Also known as a proposal or a tender, and often called a prime bid when made by a construction company that hopes to become the prime contractor, or a sub-bid when made by a company that hopes to become a subcontractor.

**Basic Design Services** – Consist of those services described in the Guidelines for Determining Architect/Engineer Fees for Public Works Building Projects in Washington State. These design services include normal architectural, structural, mechanical, electrical and civil engineering services.

**BEST (Budget Evaluation Study Team) Study** – Review of a project’s predesign study by an independent qualified multi-disciplined team using the value engineering (VE) methodology.

**Bond** – An obligation by which one party (surety) agrees to guarantee performance by another of a specified obligation for the benefit of a third person or entity (obligee). Examples include bid bond and performance and payment bond.

**Building Renewal** – Improvements to facilities (less than \$1 million), usually to the building envelop or within the building footprint, to prevent deterioration and maintain use of the facility.

**Change Order** – A written authorization provided to a contractor approving a change from the original plans, specifications or other contract documents, as well as a change in the cost. With the proper signatures, a change order is considered a legal document.

**Claims Review Board** – A method of resolving disputes other than by arbitration or litigation.

**Clerk of the Works** – An outdated term for a representative of the architect or owner who oversees construction, handles administrative matters and ensures that construction is in accordance with the contract documents. Currently referred to as the owner’s on-site representative.

**Commencement Date of Construction** – The start of the construction period, which is generally characterized by the mobilization of construction forces on the project site.

**Commissioning and Training** – The process for achieving, verifying and documenting that the performance of a building and its various systems meet design intent, together with the operational needs of the owner and occupants. The process extends through all phases of a project, from initial concept to occupancy and operation, and includes training of maintenance personnel.

**Constructability Review** – The cost for an independent consultant or contractor to determine if a unique or unusual project can be physically built as designed. This is to reduce construction change orders and claims. This review should be conducted at 75–95 percent completion of the construction documents.

**Construction Document Phase** – The phase of services in which the architect prepares the construction documents from the approved design development documents and assists the agency/institution in preparation of the bidding documents.

**Construction Management (CM)** – Involves a contractual arrangement in which an owner employs an agent/consultant called a construction manager to coordinate and manage all the construction trades. The additional management expertise is usually used on larger, more complex construction projects. However, an owner on a smaller project may acquire a construction manager for his or her construction expertise to act as the “eyes and ears” for the owner on the project.

**Consultant** – A person or entity which provides advice or services to an agency/institution.



**Contingency** – The need for cost contingency is generated by a lack of information at a particular point for the task being estimated. Appropriate contingency amounts are dependent on the degree of risk present and the extent of the technical challenge of the task. The design contingency legitimately covers uncertainties in a project and should be reduced through each phase of the design. Construction contingencies should be limited to 5 percent on new construction and 10 percent on remodeling work. Contingencies should not be considered as opportunities for extra work or to change original budget decisions.

**Contract Documents** – The drawings, specifications, conditions, agreement and other documents prepared by the designer that illustrate and describe the work of the construction contract, and the terms and conditions under which it will be done and paid.

**Contractor** – A person, firm or corporation who or which, in the pursuit of an independent business undertakes to, or offers to undertake, or submits a bid to, construct, alter, repair, add to, subtract from, improve, move or demolish for another any building, excavation or other structure, project, development or improvement attached to real estate or to do any part thereof.

**Corrective Maintenance** – Unscheduled “call-in” requests for repair or replacement of equipment, systems or facilities that have failed.

**Cost /Benefit Analysis** – An analysis in which consequences of the investment are measured in or converted to economic terms and qualitative benefits.

**Cost Estimating** – An element of basic services in an A/E agreement that includes an estimate of construction cost from quantity surveys and unit costs of building elements for the project. Costs will reflect the level of design elements presented in the design documents, plus appropriate construction estimating contingencies to encompass unidentified scope ultimately included in the program. Interactive cost estimating is additional work beyond basic services in which additional design alternatives are estimated. Independent cost estimating, if needed, covers cost estimates by an independent third party contracted by the owner and used to validate cost estimates prepared by the A/E.

**Deferred Maintenance** – Ordinary maintenance activities left unperformed due to a lack of resources or perceived low priority, where deferral of the maintenance activity results in a progressive deterioration in facility conditions or performances. The cost of the deterioration, including capital costs, operating costs and productivity losses, is expected to increase if the maintenance activity continues to be deferred.

**Design/Bid/Build** – A method of project delivery subject to provisions in Chapter 39.04 RCW in which the agency/institution contracts directly with a single entity responsible for the design of a project and competitively bids the construction services for the construction project.

**Design/Build** – A method of project delivery subject to provisions in Chapter 39.10 RCW in which the agency or institution contracts directly with a single entity that is responsible for both design and construction services for a construction project.

**Design/Code Plan Check (ICBO)** – The cost for design document plan check that is performed by the International Conference of Building Officials only when required by local code officials. This requirement should be identified in the permit review process.

**Design Development Phase** – The phase of the A/E’s services in which the consultant prepares the design development documents, from the approved schematic design studies, for submission to the agency/institution for approval.

**Design Service Contingency** – Includes an allowance for uncertainty in scoping and pricing additional services, covers variability in estimating reimbursables, includes design fees for owner-directed changes and includes design fees for changes during construction that are beyond the scope of basic services and are not a result of errors or omissions by the A/E. The total amount for design service contingency ranges from 5 to 10 percent of total consultant services cost, depending on the complexity of the project.

**Designer** – A party to a contract to provide professional design services to an owner, often an architect or a professional engineer. Also, one (individual or corporate) who performs the design function in construction as a package deal, turnkey project or development management project.

**Discount Rate** – The discount rate reflects the time value of money. This should be the approximate cost to the state for long-term debt (bonds).

**Economic Life** – Economic life in the context of cost/benefit analysis refers to the span of years necessary to compare similar costs of operating and maintaining alternative solutions. It may not equate to the time required to fully depreciate the structure. The economic life span should be the same for each alternative for a project. Economic life is the period of time, extending from the date of installation to the date of retirement for the intended service, over which a prudent owner expects to retain the property to obtain a minimum cost.

**Energy Consumption Analysis** – Required for major facilities, an energy consumption analysis is prepared by a professional engineer or architect. It evaluates all energy systems and components by demand and type of energy, including the internal energy load imposed by its occupants, equipment and components, and the external energy load imposed by the climatic conditions of its location.

**Energy LCCA Review** – As required by Chapter 39.35 RCW, the Department of Enterprise Services will review the Energy Life Cycle Cost Analysis (ELCCA) for a project. The review fee will not exceed \$2,000.

**Energy Management System** – A system that identifies opportunities to improve energy efficiency, including a measure that allows: (a) energy consumers to obtain information about their energy usage and the cost of energy; (b) interactive communication between energy consumers and their energy suppliers; (c) energy consumers to respond to energy price signals and manage their purchase and use of energy; or (d) for other kinds of dynamic, demand-side energy management.

**Equipment** – See Appendix E for equipment definitions and criteria.

**ESCO** – An acronym for energy service company, this refers to a firm that contracts with a facility owner or a utility to acquire, design, install, maintain and/or finance energy conservation, co-generation or renewable energy projects. ESCO's primarily develop, own and operate energy projects with no technical or financial risk to the facility owner or utility. The ESCO can guarantee the energy savings, utility payments and overall cost of the project.

**Extra Services** – Professional services that may, if authorized or confirmed in writing by the agency/institution, be rendered by the architect or other consultants in addition to the basic services identified in the owner-architect agreement.

**Facilities Improvements** – Initial construction, punch list items, retrofits, alterations, remodeling, renewals, tenant improvements, renovations, adaptations and code improvements, etc., for a facility.

**Facility** – A structure with walls and a roof.

**Facility Preservation** – Improving or restoring the operational and service capacity to extend the useful life of a facility without significantly affecting the programs and services housed within.

**Fast Track** – A process in which certain portions of the A/E's design services overlap with construction activities to expedite the owner's early occupancy of all or a portion of the project.

**Fixed Assets** – A fixed, physically attached and permanent improvement or real property. Fixed assets are normally those that are capitalized.

**Fixed Equipment** – The cost of objects not considered consumables (such as carpets, blinds, drapes, shop equipment, voice and data communications systems, chemical equipment, etc.) to be obtained through State Purchasing.

**Furniture, Fixture and Equipment (FF&E)** – The moveable furniture, fixtures or equipment that require no permanent connection to utilities or to the structure.

**General Contractor** – A contractor whose business operations require the use of more than two unrelated building trades or crafts whose work the contractor will superintend or do in whole or in part. A general contractor does not include an individual who does all work personally without employees or other specialty contractors as defined in this glossary. The terms "general contractor" and "builder" are synonymous.

**General Contractor/Construction Manager (GC/CM)** – A firm with which an agency or institution has selected and negotiated a guaranteed maximum allowable construction cost for a project. A competitive selection process is used through formal advertisement and competitive bid to provide services during the design phase that may include life cycle cost design considerations, value engineering, scheduling, cost estimating, constructability and alternative construction options for cost savings and sequencing of work. The GC/CM acts as the construction manager and general contractor during the construction phase. The GC/CM process is subject to provisions in Chapter 39.10 RCW.

**Geotechnical Investigation** – The cost to do soils boring, sampling and testing, and prepare recommendations. The soil boring and sampling process, together with associated laboratory tests, are necessary to establish subsurface profiles and the relative strengths, compressibility and other characteristics of the various strata encountered within depths likely to have an influence on the design of the project.

**Governmental Purposes** – Any state or political subdivision that has been delegated substantial taxing, police or condemnation power under state law.

**HVAC Balancing** – The cost to test and balance designed heating, ventilation and air conditioning systems, including water flows, at the completion of construction.

**Improvement** – A legal term referring to anything erected on and affixed to land (such as buildings, roads and fences), which legally becomes part of the land, according to common law and statutory definition.

**Initial Costs** – The same as "first cost" or the cost to provide the service or product in today's dollars for a project. This is different from life cycle costs or future costs.

**Inspection (On Site)** – The examination of work completed or in progress to determine its conformance with the requirements of the contract documents.

**Instrumentality** – An agency through which a function of another entity is accomplished, such as a branch of a governing body.

**Intangible Benefits** – Benefits that cannot be easily measured and are generally subjective. Intangible benefits often represent the value of the service the agency provides to the public by either providing new services or improving existing services. See Tangible Benefits.

**Lease Development** – A lease development project is defined as an acquisition of space in an existing privately owned building through a lease that provides for a period of occupancy greater than five years with an option to purchase, or construction of a privately financed building for purposes of state occupancy. Lease development projects represent long-term occupancy proposals but are to be requested and funded from operating funds only.

**Lease/Purchase Obligations (Real Estate)** – Lease/purchase obligations are contracts entered into by the state which provide for the use and purchase of real or personal property, and provide for payment by the state over a term of more than one year. Lease/purchase obligations are one type of lease-development alternative. (See Chapter 39.94 RCW “Financing Contracts” for more information.)

**LEED Silver Standard** – The U.S. Green Building Council leadership in energy and environmental design green building rating standard, referred to as silver standard.

**Life Cycle Cost** – The capital and operational cost of a construction item, system or building during its estimated useful life.

**Life Cycle Cost Analysis** – The identification of a total life-cycle cost of a facility project. Life-cycle cost analysis is defined as the programmatic and technical considerations of all cost elements associated with capital facility alternatives under consideration. These cost elements may include any or all of the following: Capital Investment Costs, Lease Costs, Financial Costs, Operations Costs, Maintenance Costs, Alternations Costs, Replacement Costs, Denial of Use Costs, Lost Revenue, and Associated Costs.

**Long-Term Leases** – Those agreements that extend beyond five years (the normal facility lease period). Leases beyond a five-year term will be considered when the agency has a stable and consistent program to be housed, there is a demonstrated economic advantage to the extended term and the space is used consistent with statewide utilization standards. (Contact the Department of Enterprise Services, Division of Leased and Owned State Properties, for more information.)

**Maintenance and Operations (M&O) Costs** – The costs of the regular custodial care and repair, annual maintenance contracts, utilities, maintenance contracts and salaries of facility staff performing M&O tasks. This refers to the ordinary costs required for the upkeep of property and the restoration required when assets are repaired but not replaced. Items under M&O include the costs of inspecting and locating trouble areas; cleaning and preventive work; replacement of minor parts; power; labor; materials; and minor changes in or rearrangements of existing facilities. M&O work is required to preserve or restore buildings, grounds, utilities and equipment to original conditions or such condition that they can be effectively used for their intended purpose.

**Maintenance and Operations Manuals** – The assembly, tabulation and indexing of all shop drawings and submittals on all equipment, controls and systems so that required maintenance and troubleshooting can easily be shown and understood. This is included in A/E basic services.

**Major Facility** – Any publicly owned or leased building with 25,000 square feet or more of usable floor space. Major facilities are required to have an energy consumption analysis of the operation of their energy systems.

**Major Projects** – Those projects that cost \$5 million or more, or projects that meet the following criteria: have particularly costly elements, are undertaken on a tight design budget or short design schedule, have significant policy implications to a program or involve state-of-the-art technology.

**Master Plan** – A document setting forth the concepts and guiding principles for development of campus facilities, landscaping and infrastructure.

**Maximum Allowable Construction Cost (MACC)** – A cost the owner stipulates to the design consultant before design begins. The cost is the owner’s budget for the construction cost of the project and serves as the parameter in which the design consultant agrees that the construction cost of the design will not exceed.

**Midpoint of Construction** – Date midway between the commencement date and substantial completion date.

**Minor Projects** – Those projects that cost between \$25,000 and \$1 million (\$2 million for higher education institutions) and are completed in one biennium.

**Nongovernmental Purposes** – As used in the context of use of bond/COP proceeds to pay the costs of facilities expected to be owned or used by, or to make any loan or grant to: (a) federal governmental purposes (including any federal department or agency); (b) a private nonprofit corporation (including any 501(c)(3) organization); and (c) any other private entity, such as a business corporation, partnership, limited liability company or association. (See definition for “governmental purposes.”)

**Normal Maintenance** – A systematic day-to-day process funded by the annual operating budget to control the deterioration of facilities, such as structures, systems, equipment, pavement and grounds. Planned maintenance includes the following:

- Scheduled repetitive work, such as housekeeping activities, groundskeeping, site maintenance and certain types of service contracts.
- Periodic scheduled work (preventive maintenance) that has been planned to provide adjustment, cleaning, minor repair and routine inspection of equipment to reduce service interruptions.

**On-Site Representative** – This is a full- or part-time employee who represents the owner during construction and serves as a liaison between the architect and contractor on major projects.

**Operations and Maintenance (O&M) Costs** – The costs of the regular custodial care and repair, annual maintenance contracts, utilities, maintenance contracts and salaries of facility staff performing O&M tasks. The ordinary costs required for the upkeep of property and the restoration required when assets are damaged but not replaced. Items under O&M include the costs of inspecting and locating trouble areas; cleaning and preventive work; replacement of minor parts; power; labor; and materials. O&M work is required to preserve or restore buildings, grounds, utilities and equipment to their intended running condition so they can be effectively used for their intended purpose.

**Operations and Maintenance Manuals** – The assembly, tabulation and indexing of all shop drawings and submittals on all equipment, controls and systems so that required maintenance and troubleshooting can easily be shown and understood.

**Other Services** – Professional services that may, if authorized or confirmed in writing by the agency/institution, be rendered independent of the architect or other consultants.

**Outline Specifications** – Abbreviated set of specification requirements usually included early in design process.

**Owner** – The first party to the construction contract, who pays the contractor (the second party) for the construction work. The owner is the party who owns the rights to the land upon which the work is done and who, therefore, owns the work. He/she is the client of a designer, a construction manager, a project manager or a development manager.

**Performance Bond** – A bond issued by a surety company on behalf of a contractor to guarantee to an owner the proper performance of the construction contract.

**Phased Construction** – Construction that is split into multiple phases due to fund availability and/or occupancy issues, such as completing a renovation in an occupied building.

**Predictive Maintenance** – A refinement to preventive maintenance that integrates scheduled maintenance with system monitoring and analysis (such as vibration analysis or thermal/energy analysis) to identify inefficient operation or imminent breakdown. Predictive maintenance ideally reduces the cost of maintaining components that are working adequately.

**Present Worth or Present Value** – The economic procedure to account for the time-equivalent value of past, present or future costs at the beginning of a base period.

**Preservation Project** – Projects that maintain and preserve existing state facilities and assets, and do not significantly change the program use of a facility. Examples include roof replacement and exterior renovation, utility system upgrade, and repair of streets and parking lots.

**Preventive Maintenance** – A maintenance strategy where inspections are made or actions are taken on a scheduled basis to reduce service interruptions; reduce the premature failure of facilities, systems and equipment; and continue efficient operations. Actual inspection and maintenance is performed on prescribed schedules established by manufacturer or facility manager.

**Primary Purpose** – As used in defining a project type, is the identification of the dominant driver behind the project. It is the area where the impact of not correcting the deficiency is most acute.

**Program Projects** – Projects that are intended to accomplish a program goal such as changing or improving the use of existing space, or creating a new facility or asset through construction or purchase. These projects may have a major impact on future operating budgets, such as the construction of a new prison or university branch campus.

**Programming** – The work necessary to define the scope of a project, conduct master planning for future work or delineate existing conditions. This work may require field measurements or testing and surveys of building systems.

**Project Budget** – The sum established by the agency/institution as available for the entire project, including the construction budget, acquisition costs, costs of furniture, furnishings and equipment, and compensation for professional services and all contingencies.

**Project Delivery System** – Method of how an owner plans to contract a project, such as design/bid/build, design/build, GC/CM, etc.

**Real Property** – Property that is fixed, immovable and permanent. Real property includes land, structures affixed to the land, property affixed to the structures, and in some cases, trees, etc., growing on the land.

**Reappropriation** – Unspent funds from the prior biennium approved by the Legislature and reallocated to the agency by OFM during the current biennium.

**Record Drawings** – The revised drawings that truly reflect what was constructed, including field verification.

**Reimbursable Expenses** – Amounts expended for or on account of the project that, in accordance with the terms of the appropriate agreement, are to be reimbursed by the agency/institution, such as telephone charges and travel expenses in accordance with state guidelines.



**Retainage** – Portions of cash amounts due to be paid to a contractor for work completed that is held back (retained) by the agency/institution and not paid until a later date. This may often be at substantial completion or at final completion of the work, according to the terms and conditions of the contract and any relevant legal statute, as a security for proper performance of work and fulfillment of contractor's requirements.

**Schedule of Values** – A schedule breakdown on a month-to-month basis by the contractor to show the intended percentage of completed work by the construction trades. The schedule of values is the basis for the amount of the request for payment by the contractor.

**Schematic Design Phase** – The phase of the A/E's services in which the architect consults with the agency/institution to ascertain the requirements of the project and prepares schematic design studies consisting of drawings and other documents illustrating the scale and relationships of the project components for approval by the agency/institution. The A/E also submits a preliminary estimate of construction cost based on current area, volume or other unit costs.

**Site Survey** – The process of mapping the boundary, topographic or utility features of a site, measuring an existing building or analyzing a building for use of space.

**Specifications** – The major part of a project manual (excluding the documented bidding, contract agreement and the conditions of the contract) containing the written descriptions of items of work that complement the construction drawings.

**Stand-Alone Projects** – Formerly referred to as intermediate projects are those projects that cost between \$1 million and \$5 million (between \$2 million and \$10 million for higher education). The design and construction phases typically occur in one biennium.

**Subcontractor** – A contractor who does trade work for a prime or general contractor for work included under the prime contract between the prime contractor and an owner; one who is defined as a subcontractor by the prime contract.

**Substantial Completion** – The stage of a project when progress of the work is sufficiently complete so the owner can occupy or use the work site for its intended purpose.

**Testing** – Technicians' services in acquiring and testing samples of materials such as welds, concrete strength or bearing capacity used in the project as required in the State Building Code.

**Unifomat** – A system for classifying building products and systems by functional subsystem, such as substructure, superstructure or exterior closure.

**Useful Life** – An estimate of the total time that an asset is usable and in service.

**Value Engineering (VE)** – VE is a systematic, orderly approach to defining a facility's required function, verifying the need for the function and creating alternatives for providing the function at minimum life cycle cost. Value is the lowest life cycle cost to achieve the required function. VE is a problem-solving system that emphasizes the reduction of cost while maintaining the required quality and performance of the facility. Applied in addition to the regular design process, it is required on all major projects.

**V/E Participation and Implementation** – The extra fee to be paid to the A/E for participation in the required value engineering study. Includes incremental costs to implement changes identified by the study and requested by the owner.

