# REVIEW OF THE
# COMMONWEALTH'S CAPITAL OUTLAY PROCESS

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Auditor of Public Accounts
COMMONWEALTH OF VIRGINIA

## CAPITAL OUTLAY REVIEW

The buildings, infrastructure, land, parks, and other facilities owned by the Commonwealth of Virginia represent a real property investment of $13.3 billion. For many Commonwealth citizens, this is the face of state government. The Commonwealth's real property environment has many stakeholders and involves a vast and diverse inventory of assets, which the Commonwealth uses for a wide variety of missions. Since 1999, the Commonwealth has spent $3 billion on capital projects and $246 million on maintenance projects. In fiscal year 2004, the Commonwealth has spent $680 million on capital projects and $30 million on maintenance projects

The manner in which the Commonwealth invests and monitors the acquisition, construction, improvement, and maintenance of these assets is a significant endeavor. This effort is especially critical in the current budget environment. Funding needs for this investment varies as well. Currently, the Commonwealth funds the majority of capital outlay with the issuance of bonds.

We compared the Commonwealth capital outlay process to general business practices and suggested best practices for government. We identified four areas where changes in the process could provide decision makers with more accurate information and increase budget and accountability oversight without adding substantial cost to the process.

1. Under the current capital outlay appropriation process, the Commonwealth approves and commits funding to an entire project based on a conceptual design. This practice can increase the need for modifications to the original cost estimation and project scope after project approval. A phased-in approach may help mitigate some of the risks involved and result in more accurate project cost estimations.

2. After a project receives approval and becomes part of the capital budget, unless there is a significant change, the project remains in the Appropriation Act at the full amount with no change until completed, which may be several years. Except for legislative inquiry, there is no comprehensive reporting of progress or funding status on previously approved projects. Further, agency or institution management can request and receive administrative approval to transfer funds among projects without the General Assembly's knowledge.

3. Consideration of the Total Life Cycle Cost occurs during project planning and not during the final design phase. If an agency makes major changes during the final design phase, this exercise may be ineffective.

4. The Bureau of Capital Outlay Management's (BCOM) role in the capital outlay process is often confused with General Services' role as the Capitol Square area project manager. As a result, the role of BCOM has become unclear, and neither agencies nor institutions can clearly articulate the value BCOM adds to the process. Because BCOM has not defined its role, it continues to require information it may not need to perform its function. The Director of General Services should consider whether BCOM should provide only limited oversight on projects, assume a traditional role of project manager, or have some other responsibilities.

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## *CAPITAL OUTLAY PROCESS*

Within the Commonwealth, the procurement of professional and construction services related to capital outlay is subject to the Virginia Public Procurement Act. While all agencies have responsibility for the use of funds budgeted to them for capital outlay, some agencies must obtain approvals from the Bureau of Capital Outlay Management (BCOM) as they proceed through the construction process. BCOM is part of the Department of General Services (General Services) and develops state polices and procedures on the procurement of professional and construction services. For the purposes of this report, we will refer to these agencies as "Centralized Agencies."

The General Assembly granted some agencies permission to develop their own policies and procedures to manage the capital construction process for non-general fund projects. These agencies include the University of Virginia, Virginia Polytechnic Institute and State University, Radford University, the College of William and Mary, Old Dominion University, Christopher Newport University and the Virginia Port Authority. We refer to these agencies as "Decentralized" agencies. Decentralized Agencies do not submit plans and drawings, contracts, or change orders for BCOM approval on non-general fund projects, but instead perform their own reviews and approval of plans and change orders. For fiscal year 2004, Decentralized Agencies accounted for $372 million and Centralized Agencies accounted for $338 million in capital expenditures.

## *WHAT IS CAPITAL OUTLAY?*

Capital Outlay is the process by which agencies of the Commonwealth obtain real property. It involves both a legislative process to approve the disbursement of funds and an administrative process to manage the acquisition or construction of the property.

Agencies account for costs related to real property assets in the Commonwealth's capital budget or operating budget. The cost, size, and scope of a project determine whether a project is included in the operating or capital budget.

For budgeting purposes, capital projects are any projects that fall into the following categories:

- Acquisition – buying land or land with buildings (no monetary limits)
- Construction – building a structure greater than 5,000 square feet or greater than $250,000 in total project costs, including additions to existing buildings
- Improvements – renovating, repairing, or altering a building with a cost greater than $500,000
- Equipment – permanent or long term in nature used in an operation or activity (no precise criteria exist to help determine whether the equipment is an operating or capital expense)

Also included in the capital budget are maintenance reserve projects, which generally cost between $25,000 and $500,000, and seek to maintain the facility for its present use. Agencies submit projects for inclusion in the Maintenance Reserve Budget at the time of their capital budget requests.

The on-going operational costs of real property are part of the operating budget. Projects funded in the operating budget are not subject to the state's capital outlay review process, but must meet other requirements.

BCOM publishes the Construction and Professional Services Manual, which sets forth the standards, policies, terms, conditions, and procedures for all Centralized Agencies and institutions in procuring the design and construction of all structures on state property including renovations, modifications, and additions to existing facilities.

For Centralized Agencies, the three key players in the process are the Commonwealth agencies and institutions conducting capital outlay projects, the Department of Planning and Budget (Planning and Budget), and BCOM. Each agency maintains its own capital plant and must plan for future building needs. Planning and Budget compiles agency requests and assists in developing budget requests to the General Assembly. In this role, Planning and Budget collects data from each agency and, with the assistance of BCOM, determines the feasibility of funding each project. The project then goes through the budgetary process. Once a project is included in the final budget, Planning and Budget monitors its progress and allots the appropriation for each capital project as needed. BCOM reviews initial budget submissions to determine if the agency can construct the project as requested. BCOM also monitors projects throughout their life by reviewing and approving agency submissions as required by the Construction and Professional Services Manual.

Decentralized Agencies have published their own Higher Education Capital Outlay Manual (HECOM) by adapting the Construction and Professional Services Manual to meet their needs. This manual sets forth the standards, policies, terms, conditions, and procedures for Decentralized Agencies in procuring the design and construction of all structures, including renovations, modifications, and additions to existing facilities. As with Centralized Agencies, Planning and Budget compiles agency requests and assists in formulating budget requests to the General Assembly. However, the primary difference between Centralized Agencies and Decentralized Agencies is that Decentralized Agencies perform their own review; therefore, a BCOM review is not required.

## *CONSTRUCTION PROCESS*

Every building has a life cycle. It is born, matures, lives to an old age, and can even expire. The cycle is the same for the private, as well as the public sector. A building is born out of a need. It matures through planning, development, and construction. The building lives its life by service to the owner for the purpose for which it was constructed. Death of a building may occur through obsolescence, accident, or neglect. Construction projects occur at different points in a building's life cycle, including the initial construction of the new building, renovations, and expansion. We will discuss the implementation of a construction or capital project in the following phases: Planning and Approval; Design; Bid; Construction; and Occupancy/Closeout. During these phases, the primary stakeholders to the project are the owner, architect/engineer, and contractor or builder. Their cooperation and coordination is critical to successful project completion. We summarize steps in the construction process in Appendix A.

### *Planning/Approval Phase*

Recognition of a need is the first step in the life cycle of a new building. An organization continually needs to assess the status of current facilities and the ability to meet current and future needs of the organization. Understanding the current condition of facilities is crucial to this function. The organization must plan for future requirements of facilities to accomplish long-range plans. Merging these requirements provides a plan for future construction, retooling of current facilities, or remodeling of current facilities to meet future needs.

Senior management must identify specific projects that will be required to meet the needs of the organization. This forward vision is critical to the continued success of the organization. Lead times for construction or remodeling are required to accomplish this task. The organization must consider total

building life cycle costs of any capital project to determine the source of funds, the method of construction and maintenance, and the long-term upkeep of the building. The organization must define parameters that will govern a go/no-go decision on a project. The Board of Directors or the head of the organization provides ultimate project approval.

Upon approval, the owner must decide on a construction method. The selected construction method will impact the design and construction of the project. For example, the organization may engage a design professional and then hire a separate contractor or hire a single entity with responsibility for both the design and construction of the project.

In the public sector the Planning/Approval phase is more open and subject to public influences. The Commonwealth's agencies and institutions submit their Six Year Capital Outlay Plan to Planning and Budget. Agencies and institutions develop this plan and prioritize projects based on their need for new space, renovation of current spaces, or improvements to facilities. Planning and Budget then considers the needs of the individual agency against the needs of the Commonwealth. Also submitted at the time of the Six-Year Plan are the agency's maintenance reserve requests. As mentioned previously, maintenance reserve projects are projects between $25,000 and $500,000 in value and their intent is the maintenance of the facility for its present use. The Commonwealth accounts for capital projects and maintenance reserve projects in its capital budget. Agencies should include routine, recurring maintenance in their operating budget and must consider future maintenance costs of new construction in planning future operating budgets.

Planning and Budget reviews these submissions and requests additional information on projects considered for inclusion in the Governor's budget submission. For Centralized Agencies, BCOM also reviews submissions as requested by Planning and Budget to determine if the agency can build the project for the amount requested based on the project scope. The Treasury Board reviews projects with potential debt issues to determine debt-related implications. Planning and Budget compiles this information and submits it to the Governor, who then selects which projects to propose to the General Assembly for inclusion in the capital budget (see Appendix B for a timeline of the appropriation process). The General Assembly conducts hearings on the capital budget, adjusts the proposed projects, and submits a revised budget to the Governor. The Governor then approves, amends, or vetoes the budget. The General Assembly issues the Appropriations Act, which contains the approved capital and operating budgets, and is the Commonwealth's official financial operating plan.

Agencies request permission from the Governor to initiate the project. Centralized Agencies and higher education institutions request this approval through Planning and Budget and BCOM. In this request, the agency includes budget information for the project. At this point, Planning and Budget allots part of the funds for the design of the project; BCOM issues authority to begin the design of the project. Decentralized Agencies submit a HECOM 2 form to Planning and Budget, and begin their own process to design and build the building. Upon project initiation, Planning and Budget allots and releases funds consistent with the construction contract. Prior to commencing construction, an agency must have an environmental impact study performed and submit results to the Department of Environmental Quality for review.

When developing their capital budget submissions to Planning and Budget, agencies and institutions may either propose projects individually or group together similar projects and submit them one "umbrella project." The common nature of the projects can reduce planning costs. However, umbrella projects can create some administrative challenges, which may result in negating cost benefits. These challenges include difficulty in adapting common designs to various locations and appropriately tracking and assigning costs to sub-projects. Since 1999, the Commonwealth has spent $778 million on umbrella projects.

The Appropriation Act allows the Governor to authorize certain capital projects without going through General Assembly approval and the legislative process. These projects must be: 1.) emergency projects; 2.) projects fully funded by auxiliary funds (paid for by fees); or 3.) projects funded by gifts.

*Design Phase*

The design phase is similar for the Decentralized and Centralized Agencies, as well as the private sector. The primary difference is the BCOM review of drawings required for Centralized Agencies. The specific intent of BCOM reviews during the design phase is to ensure the project meets the building code and reduce unforeseen changes later in the process.

In the design phase, the owner hires design professionals such as architects and engineers (A/E), as needed, depending on the scope of the project. The owner and A/E work together to clarify building requirements such as building size, systems needed, and the number, size, and use of rooms. The primary objective is to design the building to meet the needs of the organization in the most economic manner with consideration given to future needs and facility maintenance. The A/E and owner consult to begin developing plans for the project. As needed, the A/E will engage necessary professionals such as area or subject manner specialists required to design the project.

Using the information obtained, the A/E develops the schematic drawings, which include basic building layout, systems and an estimate to construct the project. The owner must approve the schematic drawings before the A/E proceeds with the design. At this point, the owner can request an independent review of the plans, known as a Value Engineering Review. This review evaluates the plans from a buildability and energy use standpoint. The A/E may incorporate the recommendations of the review into the final working drawings though the agency may elect not to follow the recommendations. The Commonwealth requires a Value Engineering Review on projects with an estimated value greater than $5 million.

The next set of drawings, the preliminary drawings, are more detailed and show how the systems of the building will integrate. The owner then reviews and approves the preliminary drawings. Review at this point is critical to ensure that the design meets the needs of the owner because changes made later could add significant costs to a project. Agencies update the estimates of costs to construct at each stage of design.

The final set of drawings is the working drawings. The working drawings are detailed drawings and specifications that the owner will use to bid the project and the contractor will use to build the project. The A/E also identifies required inspections, which become part of the specifications for the project. BCOM reviews both Centralized and Decentralized Agencies' working drawings to issue the project's building permit. During this time, other parties may need to review the plans, such as local authorities providing utilities, fire protection, and historic reviews. At this point, the A/E has completed his work, the owner has approved the working drawings and final specifications; and the project is ready for the Bid Phase.

*Bid Phase*

During the Bid Phase, the owner selects a contractor by open invitation or by presentation of the project to selected contractors. The owner provides plans to all bidders on a project. If contractors decide to submit a proposal to build the project, they develop a proposed schedule of completion for the project and a pricing proposal including direct costs of labor, materials, plant and subcontractors, overhead charges, and profit. The owner must evaluate each submittal, select the successful contractor, and finalize the contract. The owner must also consider the available funding for the project in selecting a contractor.

For most steps, the Bidding Phase is similar for Decentralized and Centralized Agencies and the private sector. However, one difference between the three is that Centralized Agencies must obtain BCOM approval, as well as agency approval before awarding the contract. BCOM can delegate this approval authority to an agency that has a certified Virginia Construction Contracting Officer (VCCO) available to review the contract. A VCCO is a procurement professional who has received training through BCOM and passed a series of exams. An additional difference in the Bidding Phase between the private and public sector is that all Commonwealth agencies must advertise to solicit contract bidding from all qualified contractors, not a select few.

Both Centralized and Decentralized Agencies have a variety of methods available to manage the construction process. Agencies must determine their own level of expertise and can manage the construction themselves if they have knowledgeable personnel on staff. Alternatively, agencies may elect to hire a firm to coordinate and administer the construction contract for the agency. In this case, the agency has two contracts; a construction contract with the contractor and a contract management contract with the contract management firm. Depending on the level risk assumed, an agency may choose to enter either a contract management or contract management at risk contract. Centralized and Decentralized Agencies must obtain approval from General Services' Division of Engineering and Buildings to enter into construction management at risk and design build contracts. The contracts for a construction manager and the construction contract are fixed price contracts.

Agencies select a contractor based on criteria established in the contracting process. If the low bid is equal or less than the agency's construction estimate, then the agency may award the contract. If the low bid exceeds the agency's estimate of construction cost by ten percent or less, a Centralized Agency may 1) accept the bid if funds are available within the approved total project budget; 2) request authorization from BCOM to negotiate with the low bidder; or 3) reject all bids, reevaluate the design, and re-bid the project. If the low bid exceeds the agency's estimate of construction cost by more than ten percent the agency may 1) request authority to infuse additional funds and award the contract; 2) request authority from BCOM to negotiate with the low bidder; or 3) reject all bids. Finally, the agency awards the contract and requests a building permit. A Decentralized Agency has the same options in the contracting process; however, BCOM authorization is not required. The agency, A/E, and the contractor will incorporate into the contract any changes in the working drawings or specifications made during negotiations.

*Construction Phase*

Bricks and mortar are the highlights of the construction phase, the time of contract performance by the Contractor. The contractor has responsibilities in three basic areas during construction: monitoring and control; resource management; and documentation and communication. Monitoring and control consists of tracking the progress of the project against the construction schedule. The contractor must ensure each trade or subcontractor completes his work on schedule and ensures that the work is in agreement with the plans, specifications, and budget. The contractor is also responsible for safety on the worksite and environmental impacts. Independent inspections are critical to confirming that the construction process is progressing in accordance with the contract and include tests for concrete footing strength or certification of steel beams. Also required are inspections by various governmental agencies to ensure the contractor is properly following building code regulations such as inspections of the water or electrical services. The A/E identifies the required inspections and includes them in the specifications for the project.

The second area of the contractor's responsibility is resource management. Proper resource management ensures contractors are managing materials and labor efficiently and appropriately to ensure completion on time. Changes in the construction plan may be necessary; however, all stakeholders must closely review and manage the plan to maintain the project budget. Some parties agree to "settle up" at the end of construction for all change orders or choose to negotiate each change at the time of the modification.

The final responsibility for the contractor is to document and communicate with the owner the project status and any current or potential problems. The owner's responsibility during the construction period is to monitor the work against the plan provided by the contractor. The owner should be observing the progress and comparing his own observation to the contractor's communications. Further, the owner must monitor the progress of construction and tracking time against the construction schedule and budget. He must approve change orders in consultation with the design professional. Communication with the contractor is essential.

In the Commonwealth, each agency manages the construction process in accordance with the contract. Vigilance over this process will control costs and avoid delays. As with the private sector, an agency can have its own personnel monitor the contract. If the agency does not have knowledgeable staff, they can hire a third party contractor management firm to monitor the construction contract. The building code requires inspections at various points in the construction process. The A/E should have identified these inspections and included in the project specifications. As needed, the agency may have inspectors on staff or may hire independent inspectors to verify construction is in accordance with building codes and with the contract. General Services has created optional statewide contracts for various inspection services that may be required in the construction process. The agency can hire inspectors using these contracts or they can contract separately for these services. Agencies maintain reports of the inspections.

Centralized Agencies provide BCOM with copies of the standard forms used to track and manage the project including monthly payments, budget adjustments, and change orders (see Appendix C for a listing and description of BCOM forms). Decentralized Agencies use HECOM forms to track and manage the project, which are similar to BCOM forms, but reviewed at the agency level and sent to BCOM.

The Change Order Process provides a means to manage and review changes during the construction period. Both Decentralized and Centralized Agencies may request a change order for a modification of requirements or needs. The contractor can also submit change orders to request adjustments including materials substitution and time extensions or due to unforeseen site conditions. Agencies may approve change orders to the contract until the cumulative changes have increased the total contract by more than 25 percent or $50,000, whichever is larger. At that point, the Governor must approve any further changes. All changes in project scope, including change in building size, also require the Governor's approval. The Director of Department of General Services reviews and approves Centralized Agency change orders for the Governor. In some cases, agencies must also request the allotment of funds by Planning and Budget to pay for the change orders.

Effective management of the design process and close control during the construction period should reduce the need for changes. The cost of changes may be included in the original contract and include items such as additional paving areas or use of similar materials. Agencies must negotiate costs at the time of the change and cannot wait until the end of construction and consider all change orders at that time. The A/E reviews all change orders and recommends whether the changes are necessary.

During the year, each agency must update BCOM on the status of Capital Outlay projects in April and September. They provide the status of projects in the construction process and the status of the construction contract. The Appropriations Act requires BCOM to submit this report to the Senate Finance and House Appropriations Committees. Agencies must also report information to Planning and Budget at year-end to carry forward funds into the next fiscal year including spending amounts, contracts amounts, project status, and justification for the carrying forward of funding. During construction, agencies should account for all project expenditures in the agency's Construction in Progress account.

The major difference between the public and private sector is the involvement of the central authority for collecting interim information and approving changes.

*Occupancy/Closeout Phase*

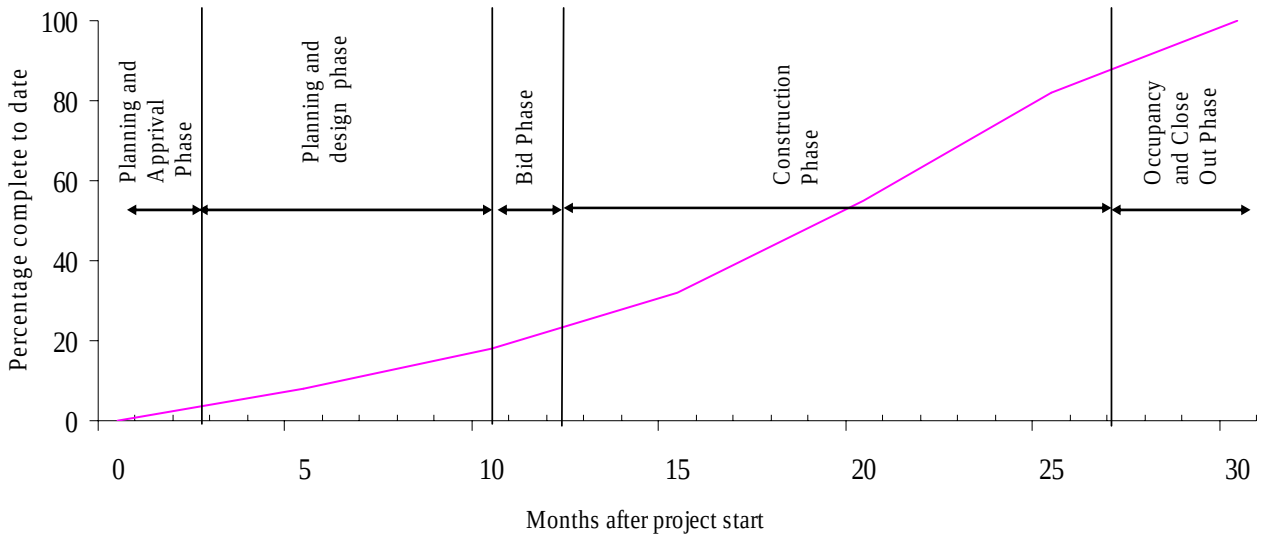
Occupancy is an end, as well as beginning. It is the end of the construction or acquisition of the new or remodeled facility and the beginning of the building's life for its purpose use. The contractor has completed construction and final inspections have taken place. BCOM performs the final inspections on all buildings in the Commonwealth for both Centralized and Decentralized Agencies. When the contractor transfers the building to the owner, the owner should insure the building and assume maintenance responsibility. Part of the turnover from the contractor to the owner is to provide all operations manuals for the systems in the building and manufacturers suggested maintenance schedules. The contractor and the A/E provide the owner with as-built drawings, so the final drawings reflect how the building is completed. These drawings will be very important for future expansion and remodeling. At this point, the agency should capitalize the building and begin depreciation for financial statement purposes. The owner moves in and uses the building to meet his business needs.

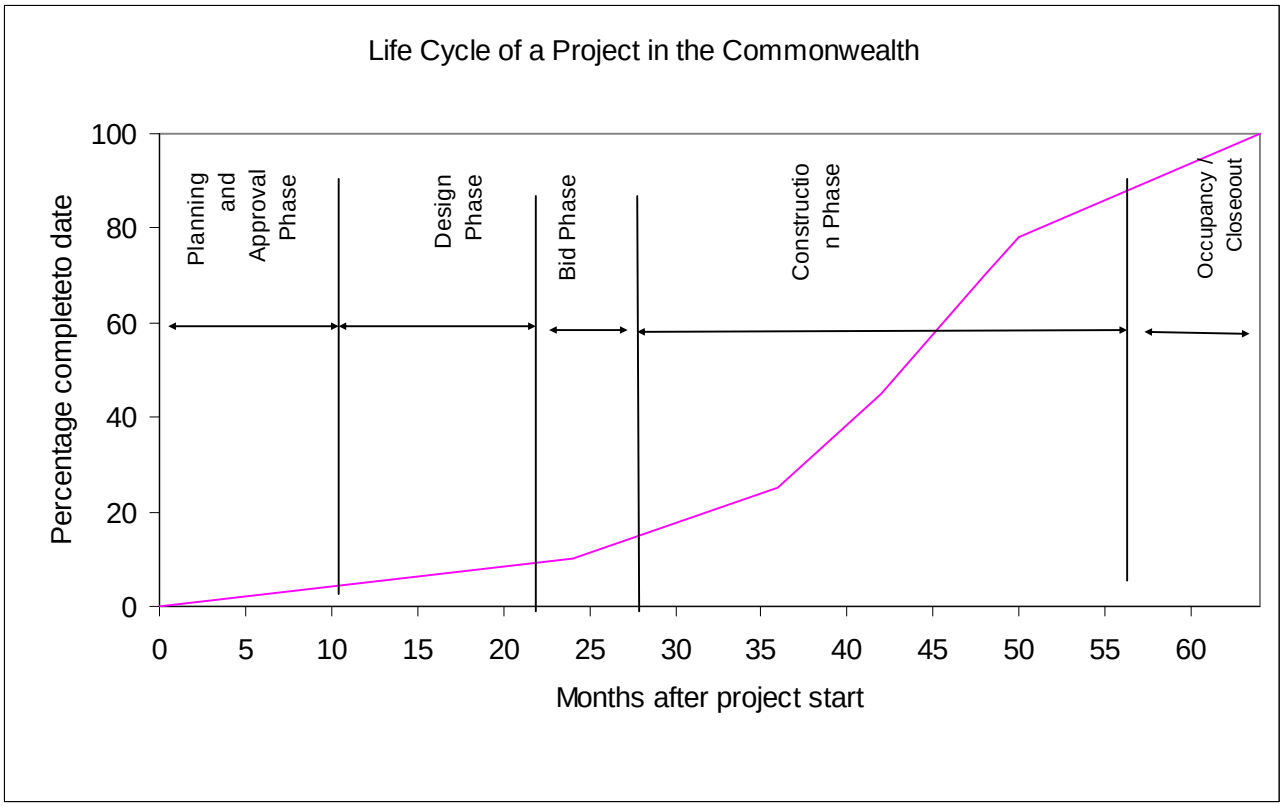
The organization must continue to assess the facilities against its ongoing and future needs. They must budget for maintenance and plan for the replacement of systems as they reach the end of their useful life, such as roofs and mechanical systems. Monitoring and planning for these items can help to prevent emergency repairs and replacement of such systems.

Commonwealth agencies make final reports to BCOM and Planning and Budget to close both the project and the funding. Over the course of the building life cycle, agencies should include regular maintenance in their regular operating budgets and plan for the replacement of major systems through the maintenance reserve budgeting process.

The following charts illustrate the differences in the life cycle of a construction project between the public and private sectors. We attribute the time variance, particularly apparent in the Planning and Approval Phase, to the public nature and accountability inherent to the governmental process.

**Typical Life Cycle of a Project**






*Observations for Improving and Streamlining the Capital Outlay Process*

In reviewing this process and comparing the Commonwealth's procedures to general business practices and suggested best practices for government, it becomes apparent that potential changes should occur. These changes should provide more accurate information for decision makers and increase budget and accountability oversight without adding substantial cost to the process.

*Planning Approval versus Project Approval*

Under the current capital outlay appropriation process, the Commonwealth approves and commits to an entire project based on a conceptual design. The sophistication of the conceptual design may vary; however, it normally includes architectural and preliminary engineering renderings, site and floor plans, and general estimations of project costs.

A common problem with this approach arises after the approval and during the development of project plans in sufficient detail to hire a contractor where cost estimation and project scope undergo a much more intense and detailed review. Further, economic conditions may change between the approval and this design-planning phase. Economic changes such as interest rate or inflation fluctuation can significantly affect the cost of construction.

Since the projects have approval and financing, the agency or institution's management find themselves in the position of having to make what could be rather radical changes to the scope of the project. For example, an institution may discover that interest rates have gone up, inflation in the construction market is rising, or the overall cost of the project exceeds the appropriation. At this point, management can either proceed with the project and hope to obtain additional funding, or reduce the scale of the project. Often, the

solution is the reduction of the project's scope. The converse of this example can also occur and management could increase the scope of the project if costs are lower than anticipated.

The results in the previous paragraph point out two problems within the current capital outlay appropriation process. The first problem is the approval of a project without reasonably accurate project costs. The second problem is the process for ongoing oversight of project management. We address this second issue later in this section.

The capital outlay appropriation process should be a two-step process. The first step involves the approval of the planning phase of the project; developing an estimate of the total cost of the project. The second step involves approving the construction of the project. Using this two-step approach not only provides decision makers with the opportunity to fully understand the scope and cost of a project from a financial and cash management approach, the Commonwealth and its agencies and institutions have a more accurate picture of debt and cash flow needs since the project approval process would be closer to the actual construction contract award. This approach could also give both the General Assembly and the Executive Branch agencies and institutions some increased short-term flexibility in approaching construction.

As an example, the General Assembly could approve the planning of a capital outlay project and provide for contingent approval of construction if the project meets its plans, scope, costs, and other factors. If these conditions are not met, the project must undergo the second phase project review and appropriation process.

The General Assembly may wish to amend the capital outlay appropriation process to require a two-step process, which would consist of approval of the project planning phase and a final project approval phase after receiving detailed scope, plan, and cost estimates. For smaller projects, the General Assembly may wish to allow permitting a contingent approval for both phases where the project approval occurs when the scope, plan, and cost estimates are within certain guidelines.

*Increasing Project and Appropriation Monitoring*

Under the current capital outlay appropriation process, a project receives approval and goes into the Appropriation Act under the capital outlay portion of the Act. The project shows the appropriation amount and the source of funding. Unless there is a significant change, the project does not appear in the Appropriations Act again, and it may be several years between appropriation and completion. Except for legislative inquiry, there is no comprehensive reporting of progress or funding status on previously approved projects. Additionally, if an agency or institution has several related projects, management can request and receive administrative approval to transfer funds among projects without the General Assembly's knowledge.

As capital outlay, projects have defined construction and funding cycles that should be part of the information in the Appropriation Act. A minimal change to improve oversight would be showing not the total of the appropriation, but the estimated remaining cost of the project, including any scope or plan changes, compared to the unexpended appropriation. If the cost exceeds the remaining appropriation, the Act should reflect the transfer or other sources to make up the difference.

Changing to an approach, which shows the unexpended appropriation versus the total amount, as currently in the Act, would provide the General Assembly some sense of progress on the project. Coupling this change with our earlier recommendation would make the process a two-step review and provide added information to understand changes in the scope, plan, and cost of the project.

The General Assembly may wish to require that capital outlay appropriations show the unexpended amount for each project until completed.. Further, either in the Budget Bill or in supporting information provided by the Governor, the General Assembly may wish to annually request the estimated remaining cost of the project, including any scope or plan changes, compared to the unexpended appropriation.

*Improving Total Life Cycle Costing Information*

Section 2.2-1503.2 of the Code of Virginia requires that as part of the capital outlay appropriations process agencies and institutions provide the total cost of a project. The Capital Outlay Manual requires consideration of life cycle costs in planning a project. Total Life Cycle Costing is a mechanism to evaluate beyond just the cost of construction and debt service and the operating and long-term maintenance cost of project. Often, certain design and anticipated usage considerations can significantly affect the operating cost of a project. Where such considerations are optional or other alternatives exist, selecting one of the other design considerations can significantly reduce the long-term cost of the project.

The current capital outlay appropriations process makes the Total Life Cycle Costing determination nearly meaningless since the determination does not consider the final design or plan. As stated earlier, major changes in the scope and plan may occur and lead to funding constraints, which may have negative long-term impact on the operations of the project.

We are working on a separate project related to deferred maintenance; however, we believe that having accurate Total Life Cycle Costing for a capital project from its inception is an important step toward addressing future maintenance needs. Further, we believe that Total Life Cycle Costing with an operating and staffing analysis should occur when making capital outlay decisions related to the renovation and renewal of existing structures.

The General Assembly may wish to require that agencies and institutions provide a Total Life Cycle Costing determination on the final approved designs for all capital construction, in addition to the determination provided at approval. If the General Assembly elects to take a two-step approach to the current capital outlay appropriations process, then they may wish to receive the Total Life Cycle Costing determination at the time of project approval.

*Role and Duties of BCOM*

BCOM's role in the capital outlay process is often confused with General Services' role as the Capitol Square area project manager. Additionally, BCOM has recently begun to charge a fee for their services. As a result, the role of BCOM is unclear, and neither the agencies nor institutions can clearly articulate the value BCOM adds to the process.

BCOM's roles and duties include setting direction, reviewing for building code compliance, and issuing the certificate of occupancy. Although BCOM acts in an oversight capacity, BCOM receives a great deal of information during the capital outlay process, creating the perception that they are managing the process. BCOM collects and shares the data with Planning and Budget, but does not evaluate the all the information it receives. In fact, many of the policies and procedures reflect the gathering of information as a manager, rather than as a reviewer. BCOM needs to assess the information it receives and clarify its role. Managers need information to understand what is happening and may either create or receive the data. However, a reviewer goes to the site and reviews to determine compliance, and does not need to accumulate the same information as a manager.

Because BCOM has not defined its role, it continues to require information it may not need to perform its function. Additionally, it has not fully considered the additional time and cost of requiring and obtaining information it may not need to perform its redefined role and duty. Finally, if BCOM's role may be limited, the Commonwealth may wish to examine securing these services in another manner than having staff.

The Director of General Services should work with BCOM and develop a working definition and strategy for the group to meet its role and duties. The Director may wish to use the best practices of other organizations to determine how BCOM should operate in the future. The Director should consider whether BCOM should provide only limited oversight on projects, assume a traditional role of project manager, or have some other responsibilities.

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We have completed our review of the capital outlay process in the Commonwealth of Virginia and submit this report: **Review of the Commonwealth's Capital Outlay Process**.

## Objectives

We had three objectives in our review of the Commonwealth's Capital Outlay process. :

1. Review and document the processes used in the Commonwealth for the construction of capital assets.

2. Understand the roles and responsibilities of the Governor, General Assembly, Department of General Services' Bureau of Capital Outlay Management, the on site responsibilities of centralized and decentralized agencies and institutions in the management of the capital outlay process.

3. Determine how the Commonwealth's capital outlay process compares with private industry practices and other best practices for capital construction.

## Scope

We reviewed the Code of Virginia and the Appropriations Act to identify key agencies in the capital outlay process and to understand their legislatively mandated roles.

We reviewed the processes developed by the key agencies governing the capital outlay process, and interviewed their personnel. We also reviewed the Department of Planning and Budget's procedures for developing the capital budget, the Bureau of Capital Outlay Management's Capital Outlay Manual, and the Higher Education Capital Outlay Manual to understand the capital outlay process from inception to completion.

We analyzed information on construction projects gathered from the Department of Planning and Budget, the State Comptroller' statewide and agencies and institution accounting systems, reviewed

individual construction project files at the Department of General Services, and agencies and institutions managing construction projects. We made inquiries of agencies managing capital outlay projects to determine how they were performing their role and their understanding of the roles of the other agencies in the Capital Outlay Process.

We performed research to identify private industry and other best practices for capital construction. We used these various sources to develop a best practices model with which to compare the Commonwealth's procedures.

We discussed this report with the Departments of General Services and Planning and Budget and the University of Virginia and incorporate their comments after Appendix C.

AUDITOR OF PUBLIC ACCOUNTS

JP/kva
kva:

Appendix A

***CONSTRUCTION PROCESS MATRIX***

| Optimum Construction Process | Private Industry Practice | Centralized Agencies of the Commonwealth | Decentralized Agencies of the Commonwealth |
|---|---|---|---|
| *Planning / Approval Phase* | | | |
| Organization identifies needs | x | x | x |
| Assess current status of facilities | x | x | x |
| Decide on specific projects to meet needs | x | x | x |
| Determine funding source and availability | x | x | x |
| Determine the land/location of the building | x | x | x |
| Select construction method | x | x | x |
| Agencies must get approval of Director of DEB to use design build method | | x | x |
| Determine total building life cycle cost including capital and operational costs | x | @ | @ |
| Develop and submit capital budget (project budget and maintenance reserve plan) | x | x | x |
| Approval by Board of Directors or head of organization. | x | x | x |
| Governor prepares budget for submission to General Assembly. General Assembly approves, removes, or adjusts Governor's proposed projects. Governor approves or vetoes Capital Budget received from the General Assembly. | | x | x |
| *Design Phase* | | | |
| Hire design professionals - Architects and Engineers (A/E), as needed, depending on project | x | x | x |
| Clarify building requirements (size, uses, rooms, classrooms, facilities) | x | x | x |
| Design building to meet the needs of the organization in the most economic manner with consideration given to future facility maintenance | x | x | x |
| Consultations between organization and A/E | x | x | x |
| Architect engages necessary professionals required to design the project (Area or Subject Matter Experts) | x | x | x |
| A/E develops Schematic Drawings (Drawings to lay out basic building , systems and cost estimates) | x | x | x |
| Schematic Drawings approved by organization | x | x | x |
| A/E submits Schematic Drawings to BCOM for review and approval using BCOM forms. BCOM Manual provides guidance as to drawings and submittals required. | | x | |
| Value Engineering review of the project. | x | x | x |
| Value Engineering review Required on projects with estimated value of greater than $5,000,000 | | x | x |
| A/E develops Preliminary Drawings (More detailed than preliminary drawings, including a cost estimate) | x | x | x |
| Preliminary Drawings approved by organization | x | x | x |
| A/E submits Preliminary Drawings to BCOM for review and approval using BCOM forms. BCOM Manual provides guidance as to drawings and submittals required. | | x | |
| A/E develops Working Drawings (Detailed drawings used to bid and build the project) | x | x | x |

| Optimum Construction Process | Private Industry Practice | Centralized Agencies of the Commonwealth | Decentralized Agencies of the Commonwealth |
|---|---|---|---|
| Working Drawings approved by organization | x | x | x |
| A/E submits Working Drawings to BCOM for review and approval using BCOM forms. BCOM Manual provides guidance as to drawings and submittals required. | | x | |
| A/E identifies required inspections. These become part of the specifications for the project | x | x | x |
| If applicable, review by local authorities who provide water, sewer, power, and fire protection to the building. | x | x | x |
| Working Drawings and final Specifications are completed and ready for the Bid process | x | x | x |
| *Bid Phase* | | | |
| Advertise project and request bids | x | x | x |
| Make plans available for review by prospective bidders | x | x | x |
| Contractors submit bid, which includes cost of construction and a proposed schedule of construction | x | x | x |
| Negotiate contract for construction with contractor | x | x | x |
| Organization awards contract | x | x | x |
| In addition to agency approval, BCOM approves the contract award | | x | |
| *Construction Phase* | | | |
| Organization monitors the contract progress | x | x | x |
| In addition to the agency monitoring contract progress, BCOM reporting is required. Agencies must use BCOM forms and provide information to BCOM and Planning and Budget. | | x | |
| Quarterly and annual reports to keep BCOM/Planning and Budget informed as to the status of the project | | x | x |
| Organization obtains required permits for construction from the responsible building authority. BCOM is the Building Official for State Buildings and issues the Building Permit for state buildings | x | x | x |
| Contractor provides a finalized Schedule of Construction | x | x | x |
| Change Orders – agreement on change / responsibility identified / cost agreed upon | x | x | x |
| Contractor responsibilities: monitoring and control; resource management; documentation; communication. | x | x | x |
| Meeting with organization (monthly pay meeting to agree on progress and review bill. | x | x | x |
| Contractor provides work site management (control of work site could be an issue) | x | x | x |
| Required inspections completed and documented | x | x | x |
| Final inspection by building code officials. BCOM performs final inspection for state projects. | x | x | x |

| Optimum Construction Process | Private Industry Practice | Centralized Agencies of the Commonwealth | Decentralized Agencies of the Commonwealth |
|---|---|---|---|
| *Occupancy / Closeout Phase* | | | |
| Occupy building | x | x | x |
| Assume maintenance responsibility (Contractor provides manuals, maintenance schedules) | x | x | x |
| Closeout procedures and reporting added by BCOM (Necessary to closeout public funding) | | x | |
| Capitalize project costs and begin depreciation of building | x | x | x |
| A/E and Contractor provide as built drawings and required documentation for the construction process (Important for future work to be done on the building) | x | x | x |
| Continue to assess the needs of the owner and how it meets the requirements of the owner | x | x | x |
| Determine status, budget for and schedule for replacement of systems as they approach the end of their useful life (i.e., roof, HVAC, carpet) Agencies should accomplish this task through the Maintenance Reserve budgeting process and their own facilities monitoring process | x | @ | @ |

@ - Although the Commonwealth has policies in place, the potential for process improvement exists.

Appendix B

***SAMPLE TIMELINE FOR THE BUDGET PROCESS***

Biennial budgeting: Key dates for agencies' six-year capital budget submissions

| *Date* | *Action* |
|---|---|
| April<br>*(odd numbered years)* | Agencies notified of which high-priority projects in existing six-year plan to prepare detailed narrative justifications and schematic information. |
| May to August<br>*(odd numbered years)* | Agencies conduct issue assessments and revise strategic plans. |
| May<br>*(odd numbered years)* | Agencies submit six-year capital requirements including maintenance reserve requests and capital leases. |
| June<br>*(odd numbered years)* | Agencies submit detailed information for high-priority projects authorized in April. |
| July<br>*(odd numbered years)* | Agencies (1) are notified of other projects in their May six-year plan to prepare detailed narrative justifications and schematic information; and (2) submit information on existing capital leases. |
| August<br>*(odd numbered years)* | Planning and Budget validates maintenance reserve subprojects that meet criteria. |
| September<br>*(odd numbered years)* | Agencies submit: (1) detailed information for projects authorized in July; (2) annual maintenance reserve plan; and (3) financial feasibility studies for revenue bond projects. |
| December<br>*(odd numbered years)* | Governor submits Executive Budget to the General Assembly |
| April<br>*(even numbered years)* | Biennial Budget enacted effective July 1 |
| Fall<br>*(even numbered years)* | Agencies submit capital requests for emergency projects or to supplement projects that have been bid, but have insufficient funds |
| December<br>*(even numbered years)* | Governor submits Executive Budget amendments to the General Assembly |
| March<br>*(odd numbered years)* | Amendments to biennial budget enacted, effective upon passage. |

Appendix C

***BUREAU OF CAPITAL OUTLAY MANAGEMENT FORMS***

| Number | Title | Notes |
|---|---|---|
| CO-2 | Request for Authority to Initiate Capital Outlay Project | Budget information on project submitted Resubmitted with each change in the budget for the project. |
| CO-2.3 | A/E Fee Proposal Worksheet | A/E submits information to agency |
| CO-2.3A | A/E Fee Proposal Worksheet | A/E submits information to agency |
| CO-3 | A/E Contract for Professional Services | Contract with the A/E submitted with any Memorandum of Agreement |
| CO-3.1 | Open End A/E Contract | Contract with A/E, for a period, may involve several small projects (Term Contract) |
| CO-3.1a | Project Order | Project work order for an Open End contracted A/E |
| CO-3.2 | A/E Contract for Selected Services | Contract with A/E for specific services, usually emergency procurement in nature |
| CO-4 | Application for Approval of Schematics | Submitted with Schematic drawings for approval |
| CO- 5 | Application for Approval of Preliminary | Submitted with Preliminary drawings for approval |
| CO-5a | Notification of Availability or Preliminary | Notice to localities that may have an interest in the proposed building that preliminary drawings are complete (For example, to local fire marshal for locality that will be providing fire fighting protection to the building) |
| CO-6 | Working Drawing Approval | Submitted with Working Drawings for approval |
| CO-6a | Inspection Statement | Identifies firms that will be conducting inspections required in the building code |
| CO-6b | Special Inspection List | Attached to CO-6a if special inspections required |
| C0-7 | General Conditions of the Contract | General conditions of the construction contract |
| CO-7a | Instructions to Bidders | Standard instructions to bidders on a construction contract |
| CO-8 | Application for Approval to Award Contract | Request permission to award construction contract (May be signed by VCCO if available at agency) |
| CO-8b | Opinion of A/E Performance (Design Phase) | Evaluation of A/E performance |
| CO-9 | Contract Between Owner and Contractor | Construction Contract |
| CO-9a | Workers' Compensation Certificate | Submitted by contractor certifying compliance with workers compensation laws |
| CO-9b | Post Bid Modification | Alterations to the working drawings made after bidding of the project, but prior to award of the contract |
| CO-9.1 | Notice of Award | Notice for award of contract |
| CO-9.2 | Notice to Proceed | Issued by agency to contractor to start work |
| CO-10 | Standard Performance Bond | Submitted by the contractor with documentation of the performance bond |
| CO-10.1 | Standard Labor and Material Payment Bond | Submitted by the contractor with documentation of the labor and material bond |
| CO-11 | Contract Change Order | Submitted for any change to the contract If the change requires approval of Governor, the form is submitted for approval. If the change does not require approval of the Governor, submitted for information purposes only., |

| Number | Title | Notes |
|---|---|---|
| CO-11a | Change Justification | Provides justification back-up for any change order |
| CO-11a/e | Change Order to A/E Contract | Submitted for changes to the contract with the Architect/Engineer |
| CO-12 | Schedule of Values, Request for Payment | Submitted at contract award, at each request for payment, and at end of contract (Gives progress of the project) |
| CO-13 | Affidavit of Payment of Claims | Submitted by the contractor |
| CO-13.1 | A/E Certificate of Completion | Submitted by the Architect/Engineer after completion of final Inspection |
| CO-13.1a | A/E Certificate of Substantial Completion | Submitted by A/E after substantial completion inspection |
| CO-13-1b | Final Report of Structural Inspections | Submitted by A/E after substantial completion inspection (Indicates that all required inspections completed) |
| CO-13.1c | PM or PI Certificate of Substantial Completion | Issued by Inspector of the construction after substantial completion inspection (Indicates that construction is complete) |
| CO-13.2 | Contractor Certificate of Inspection | Submitted by the contractor that the project has been completed in accordance with the contract |
| CO-13.2a | Certificate of Substantial Completion by Contractor | Submitted by the contractor stating that the project is substantially complete |
| CO-13.3 | Certificate of Use and Occupancy | Issued by BCOM (Permission for occupancy of the building) |
| CO-13.3a | Application for Certificate of Occupancy and Use | Submitted by the agency after substantial completion inspection and before occupancy |
| CO-14 | Completion Report | Submitted by the agency within 12 months of occupancy (Indicates completion of the project) |
| CO-14a | A/E Performance | Performance evaluation of the A/Er |
| CO-14b | Contractor Performance | Performance evaluation of the contractor |
| CO-15 | Application of Review Delegation | Request by University for authority to review construction drawings and specifications |
| CO-16 | Contractors Qualification | Submitted by the contractor in bid or prequalification process to detail qualifications |
| CO-17 | Building Permit | Permit to do construction on state property |
| CO-17a | Application for Building Permit | Submitted by agency at time of award of contract in order to request permit to do the construction on state property |
| CO-7.1 | Demolition Permit | Permit to demolish a building on state property |

# AGENCY RESPONSES

The agencies responding to this report have provided additional information about the capital outlay process, which we considered and did not include in our report. We do not believe that this additional information alters our recommendations. We thank the agencies for providing this information in their responses.

# COMMONWEALTH of VIRGINIA

## *Department of General Services*

James T. Roberts
Director

November 19, 2004

202 North Ninth Street
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Richmond, Virginia 23219-3402
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Mr. Walter J. Kucharski
Auditor of Public Accounts
James Monroe Building
P.O. Box 1295
Richmond, VA 23218

Dear Walt:

Thank you for the opportunity to review a second draft of your report titled "Capital Outlay Review".

We find the descriptions contained in the report of the steps associated with the state capital outlay processes in Virginia to be generally accurate. I hope you will consider the following comments helpful in expanding and clarifying the report:

While the report describes many of the processes, it provides little information on the underlying statutes and policies involved. For example, we can find no explanation of the Department of General Services' Bureau of Capital Outlay Management (BCOM)'s fundamental, mandated responsibility to protect life, health and safety in enforcing the Building Code in the Commonwealth's public buildings. If that role is indeed "confused and unclear", as one of the report recommendations asserts, we would respectfully ask that you include data or analytics to substantiate that conclusion. This would assist us in responding to the recommendations for improving communications and data collection.

I would also encourage consideration of including a more complete discussion of the myriad other issues associated with state capital construction projects.

Again, thank you for sharing this information with us. As always, we will be happy to address any questions or provide assistance on these and other matters of mutual concern.

Sincerely,

James T. Roberts

C: The Honorable Sandra D. Bowen

# COMMONWEALTH of VIRGINIA

**Richard D. Brown**
Director

*Department of Planning and Budget*

200 N. Ninth St., Room 418
Richmond, VA 23219

November 22, 2004

Mr. Walter J. Kucharski
Auditor of Public Accounts
James Monroe Building
P. O. Box 1295
Richmond, VA 23218

Dear Walt:

Thank you for letting the Department of Planning and Budget (DPB) review the final draft of the Capital Outlay Review Report.

As we discussed when we met with your staff, we do not think the report accurately portrays the reporting on the progress or funding status of capital outlay projects or appropriation transfers among projects.

First, all capital outlay projects recorded in CARS, including projects authorized in prior biennia or under § 4-4.01 m of the General Provisions of the Appropriation Act, are reviewed at the close of each fiscal year to identify unobligated appropriation balances that can be reverted and projects that have been completed and should be closed out. Agencies must submit the DPB Form A "Capital Project Review Summary" to assist with this review. Among other things, the Form provides a status of the project and the budget and the estimated completion date. A copy of the instructions disseminated to agencies on June 8 is attached.

Second, DPB uses the DPB Form A information to update the statewide capital outlay performance measures. The establishment of performance measures for capital projects was first required by Section 4-5.05d2 of Chapter 814, the 2002 amendments to the 2000 Appropriation Act. This section directed DPB staff to develop performance measures for the capital outlay process effective July 1, 2001. The purpose of these measures is to assess whether state agencies are successful in completing capital outlay projects on schedule and within budget.

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Six measures are used to assessment capital outlay project performance. They are:

1. Time from project authorization to hiring of architect,
2. Time from project authorization to project completion,
3. Cost changes from original cost estimate to final project cost,
4. Number of change orders,
5. Total cost of change orders, and
6. Average cost per change order.

These measures were published in Six-Year Capital Outlay Plan Six Year Capital Outlay Plan (2004 - 2010) released on November 19, 2003).

Finally, the Department of Accounts issues a monthly CARS report (PCN00110) that shows the lifetime appropriation, allotment, and expenditure data for the life of all capital projects. This report shows transfers into and out of a project. In addition, DPB, in accordance with §4-8.01 of the Appropriation Act, provides monthly reports on all transfers, including capital, from one agency to another pursuant to §4-1.03.

Again, thank you for allowing us to comment on the draft.

Sincerely,

Richard D. Brown

Attachment
c: The Honorable John M. Bennett

UNIVERSITY of VIRGINIA
OFFICE OF THE VICE PRESIDENT FOR MANAGEMENT AND BUDGET

November 22, 2004

Mr. Walter Kucharski
Auditor of Public Accounts
P.O. Box 1295
Richmond, Virginia 23218

Re: Review of the Commonwealth's Capital Outlay Process

Dear Mr. Kucharski:

The University appreciates the opportunity to comment on the Review of the Commonwealth's Capital Outlay Process report. While we have comments on all four recommendations, we are concerned about the proposed two-step approval process outlined under the **"Planning Approval versus Project Approval"** recommendation. We acknowledge that it is difficult to determine project budgets without detailed designs. We can see how a two-step process could give the Commonwealth more control over its cash flow commitments. We can also see how the process could give the General Assembly a greater decision making role when estimates indicate a project's budget is insufficient. But we believe a two-step process will 1) not save money, 2) require agencies, central administration, and the General Assembly to spend more effort and time on each project since two submittals will be required instead of one, 3) penalize those projects that can be built within the original scope and budget, and 4) cause delays in project schedules, which in turn will result in inflationary cost increases.

The last point requires elaboration. A major issue with the two-step process will be the coordination of project schedules with legislative schedules. If an estimate is received in August or September, an agency could submit a request for project approval to the upcoming General Assembly session. Even if an estimate is received as late as December, a request could be submitted to the General Assembly in January. If, however, an estimate is not received until late January, an agency would have to wait twelve months for the next General Assembly session to consider project approval.

The two-step process will also result in delays for general fund projects when estimates indicate a project will be over budget. In such cases, agencies will have to stop design until permission is received from the General Assembly to either increase the budget or reduce the scope. Proceeding with the original design on the assumption that additional funding will be made available will result in redesign costs, if the funding is not be provided. Under the current process, agencies have more flexibility since they can decide whether it is more beneficial to proceed with the project on its original schedule and budget, but with a reduced scope, or whether it is best to stop the design and wait for

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additional funding. For nongeneral fund projects, the two-step process should not result such delays since agencies can assume that requests for supplemental authorizations will most likely be approved.

The two-step process strikes us a being similar to the approach used in the 1980s when the General Assembly separately funded the planning and construction phases of general fund projects. At that time, agencies tended to assume that when the General Assembly funded planning it would also fund construction to avoid spending funds on projects that were never built. In fact, beginning in the 1990s, we found that SCHEV would not support requests for planning funds for this very reason.

If the Commonwealth elects to establish a two-step process, we ask that consideration be given to:

1) Restricting the two-step process to general fund projects

2) Allowing contingent project approval for all projects regardless of their size when estimates indicate that the original scope can be built for the original budget

3) Basing project approval on schematic estimates, or perhaps on preliminary estimates, but not on working drawing estimates

We have two comments on the **"Increasing Project and Appropriation Monitoring"** recommendation. Including appropriation balances for existing capital outlay authorizations in the appropriations acts will increase the length of the capital outlay sections. For example, the 2004 Appropriations Act includes 23 projects for the University of Virginia's three agencies. Including all active authorizations will increase the number of projects to 92. If this recommendation is accepted, it would be helpful if the older authorizations were separated from the actions of the current biennium. With regard to providing additional information to the General Assembly, a good source would be the Form "A"s that agencies must complete each June to reappropriate remaining capital outlay authorization balances. The form requires agencies to indicate the date a project was initiated, the original budget, the current budget, expenditures to date, and remaining commitments.

We are not sure why there is an **"Improving Total Life Cycle Costing Information"** recommendation since we are not aware that this is an issue. We believe that most, if not all, agencies and design professionals routinely consider life cycle costs in the design of capital outlay projects. However, if this recommendation is adopted, the process should be as efficient as possible to minimize added reporting requirements and time delays since both will add costs.

With regard to the **"Roles and Duties of BCOM"** recommendation, we think the role of BCOM should be flexible in that the extent of its services should vary with the

capabilities of each agency. For example, some agencies may require substantial assistance while others may require minimal assistance, or perhaps, no assistance.

Finally we would like to point out three clarifications. First, Value Engineering Studies are conducted at the preliminary design stage, and not at schematics. Second, the Appropriations Act allows institutions of higher education to spend up to $1 million on maintenance reserve projects. Finally, the limits listed in the capital outlay categories do not include those for decentralized agencies.

Once again, the University appreciates the opportunity to comment on the report. Please do not hesitate to call if you have any questions.

Sincerely;

Colette Sheehy
Vice President for Management and Budget

CS:TL