REPORT OF THE
AUDITOR OF PUBLIC ACCOUNTS

Final Report: Review of Deferred Maintenance in the Commonwealth

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 37

COMMONWEALTH OF VIRGINIA
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EXECUTIVE SUMMARY

The Commonwealth of Virginia has a $1.626 billion deferred maintenance backlog for 5,269 of the 10,449 buildings inventoried in the Facility Inventory and Condition Assessment System (FICAS). As agencies assess the remaining buildings, the statewide backlog will increase. The buildings assessed and included in the next six year capital plan are usually an agency or institution's top priority projects. However, all needs are not included in the plan. There are many buildings, new and old, not represented in the capital plan that may have unfunded needs. Therefore, we are unable to predict the extent that the deferred maintenance backlog will increase once agencies assess all buildings. Assessing the remaining buildings is critical to continuing this initiative.

FICAS demonstrates the value of having a centralized database with building condition assessment information that will provide the Governor and General Assembly, once it is fully populated, with a cost effective capital planning tool. The Commonwealth can use this tool to ensure that available funding will provide the maximum return on our facility investments. However, costs in FICAS include construction costs up to the subcontractor level only and generally do not include design costs, general contractors' overhead, agency administration, or any special conditions required for projects. These soft costs may increase the cost by 20 to 30 percent.

According to the Appropriations Act, upon completion of the initial implementation phase of FICAS, the Auditor of Public Accounts will transfer responsibility and oversight of FICAS to the Department of General Services on or about May 1, 2006. We have concerns over whether General Services has the resources to administer FICAS and the Facility Assessment Program. Over the years, General Services has taken large budget cuts, which have prevented them from accomplishing their many responsibilities related to building maintenance and construction. To be successful, General Services needs adequate funding to administer FICAS and the Assessment Program. Without the proper personnel and resources, FICAS will fail.

In addition, to be successful, the Commonwealth must implement the recommendations from this report in conjunction with the recommendations in our interim report. Ultimately, if the Commonwealth continues to ignore the issues with the current capital outlay and maintenance processes, the deferred maintenance backlog will accelerate and no accountability will continue to exist for most agencies. We recommend that the Governor and General Assembly consider the following:

- implement the recommendations from our Interim Report on Deferred Maintenance in the Commonwealth and the Review of the Commonwealth's Capital Outlay Process;
- direct General Services and Planning and Budget to establish policies and procedures for maintaining and updating building condition information to support a statewide Facility Assessment Program;
- approve sufficient funding for General Services to establish an Assessment Program and administer FICAS;
- reorganize General Services and its divisions to ensure competent and productive leadership of FICAS and the Assessment Program;
- as an alternative to reorganizing General Services, create a new Department of Capital Asset Management to oversee the statewide assessment and capital outlay programs; and
- direct the State Council of Higher Education for Virginia to work with Planning and Budget to have one uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request capital outlay.

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CHAPTER 1

INTRODUCTION

The 2004 Special Session of the General Assembly directed the Auditor of Public Accounts to conduct an audit to determine the amount of deferred maintenance in the Commonwealth and propose options to fund the backlog of deferred maintenance and the ongoing major maintenance needs of the Commonwealth. We have completed this audit in two phases. The first phase of the review included significant recommendations to reengineer the current capital outlay and maintenance processes in the Commonwealth. We also identified the means to adequately determine the deferred maintenance costs in the Commonwealth. The second phase included oversight of the collection, analysis, and prioritization of the building assessment data needed to audit deferred maintenance costs. It also included the acquisition of software to develop and implement a facility inventory and condition assessment system throughout all state agencies and institutions to gather information on the maintenance and capital renewal needs of all Commonwealth owned buildings. See APPENDIX A for the detailed study language.

In addition to the audit of deferred maintenance, the Auditor of Public Accounts conducted a "Review of the Commonwealth's Capital Outlay Process," issued November 2004. There were significant issues directly related to the capital outlay and maintenance process in the Commonwealth. This audit resulted in four audit recommendations to improve the capital outlay process. In response to this audit, the General Assembly enacted legislation to form a study committee to determine how to implement our recommendations. See APPENDIX A for the detailed study language.

The following is a summary of the first phase of the "Interim Review of Deferred Maintenance in the Commonwealth" issued December 2004.

Summary of Interim Review of Deferred Maintenance in the Commonwealth

During the interim review of deferred maintenance in the Commonwealth, we identified that there is no complete inventory of all Commonwealth-owned buildings, their components, and their current physical condition. In addition, the Commonwealth does not provide agencies and institutions with any policies or guidance on how to maintain facilities. We determined the Commonwealth's current capital outlay and maintenance processes are not functioning as intended and will continue to accelerate the growing deferred maintenance backlog if not reformed.

We recommended that the Governor and General Assembly consider the following:

- reforming the operating, maintenance, and capital outlay budget processes especially for facility maintenance, renewal, and renovation;
- establishing a standard condition level for state-owned facilities and requiring agencies and institutions to develop a program to achieve this level;
- eliminating the Maintenance Reserve Program and establishing a reserve fund for each agency that owns buildings for continuous maintenance;
- requiring agency and institution management to provide information that they have properly performed operating and continuous maintenance; and
- establishing a Capital Preservation and Renewal Reserve Fund to accumulate long-term funding for capital renewal activities by relating the funding to financing instruments used to fund capital improvements, renovations, or new building construction. Requiring the agencies and institutions to demonstrate that they have only used the funds for the purposes intended and not used the funding on other facilities, programs, or activities.

An additional problem identified in the interim review included how the Commonwealth approaches building ownership as if the buildings have an infinite life. Most agencies do not analyze the benefits of replacing an old building with a newer, more efficient building. Also, not only are the Commonwealth's buildings deteriorating; they do not fulfill the needs of the agencies' and institutions' current missions. Technological advancements, programmatic and social changes, and economic fluctuations over the years have changed the way the Commonwealth does business and the resources needed to do business. To assist agencies with capital planning and understanding their needs, we were to procure and implement a facility inventory and condition assessment system during the first quarter of 2005. This report will discuss the statewide implementation of the facility inventory and condition assessment system.

Summary of Review of the Commonwealth's Capital Outlay Process

During this audit, 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 capital outlay process could provide decision makers with more accurate information and increase budget and accountability oversight without adding substantial cost to the process. The four areas where changes in the process could occur are as follows:

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.

We have included a complete listing of the audit recommendations from the Interim Review of Deferred Maintenance and the Capital Outlay Review at APPENDICES B and C.

Definitions

During our interim review of deferred maintenance, we developed definitions of various terms to ensure consistency and accuracy when discussing the issues surrounding deferred maintenance. We included this list of definitions in APPENDIX D and have added additional definitions, which we will use throughout this report. See APPENDIX D for a complete list of definitions.

CHAPTER 2

FACILITY INVENTORY AND CONDITION ASSESSMENT SYSTEM

Why a Facility Inventory and Condition Assessment System?

As part of the review, the Auditor of Public Accounts acquired software and personnel training to develop and implement a facility inventory and condition assessment system for all state agencies and institutions. We determined that the best method of collecting this information was through facility condition assessments and that the results of these assessments should reside in an automated central system. To help increase consistency and reliability of the assessment data, each participant in the program received training on how to perform assessments and use the system.

Through a Best Value Acquisition, the Auditor of Public Accounts acquired and deployed Vanderweil Facility Advisors' ***Facility Inventory and Condition Assessment System*** **(FICAS)**, on June 6, 2005. ***Vanderwiel Facility Advisors (VFA)*** is a privately-held corporation headquartered in Boston, Massachusetts. This report will discuss VFA's contract proposal and implementation of FICAS.

FICAS is the central repository for the Commonwealth's facility inventory and condition assessment data. FICAS is a web-enabled Oracle database application, which is a configurable "out of the box" application hosted by VFA and requires licensed users to have only a web browser and internet connection to use the application. During phase one of this project, the Auditor of Public Accounts chose to implement this system in a hosted environment to minimize the cost and burden on our information technology staff. Also, implementing this system in a hosted environment allowed the Commonwealth to deploy the system rapidly. This was essential to the success of the program given the relatively short timeframe available for implementation. This deployment method gave the Commonwealth the opportunity to test the system and see its full potential before making a larger investment of purchasing and maintaining the system.

FICAS as an asset database allows for the oversight of the collection, analysis, and prioritization of the data needed to audit deferred maintenance costs. This statewide system can maintain and analyze data for planning and budgeting of facility maintenance and life cycle needs. In addition, FICAS includes pertinent information to assist in evaluating and developing funding options to address the current backlog of deferred maintenance. It can also predict funding requirements for future renewal needs. This system can operate independently or it can interface with other computerized maintenance management or financial management systems.

FICAS demonstrates the value of having a centralized database with building condition assessment information that will provide the General Assembly, once it is fully populated, with a cost effective capital planning tool. The Commonwealth can use this tool to ensure that available funding will provide the maximum return on our facility investments.

What can FICAS do?

FICAS is a comprehensive asset portfolio tool that allows for the collection, storage, and reporting of facilities and infrastructure condition data. FICAS has the capabilities to maintain a complete physical assessment and inventory of facility systems and their components including, but not limited to, heating, ventilation, and air conditioning (HVAC); plumbing; electrical; building envelope including windows, doors, roof, and walls; life safety systems such as fire alarms, sprinklers, and security systems; infrastructure including roads, site utilities, and water and wastewater plants; and other systems pertinent to a facility. FICAS maintains key factors describing each asset such as name, identification number, location, use, historical and replacement value, acquisition date, make, model, and asset condition.

FICAS has a built-in cost estimator that calculates costs using the full set of line items and building assemblies of the RSMeans cost database. RSMeans is a nationally recognized company that establishes costs tailored for geographical location and labor type. VFA updates the cost database annually based on RSMeans' published information. This ensures that cost estimates are current and account for fluctuating construction costs.

Based on condition assessment information, FICAS can estimate the cost of correcting deficiencies using the cost estimator embedded in the system. A ***deficiency*** is any inadequate or non-functional need of a facility or equipment identified during an assessment completed by qualified personnel. The system allows definition and assignment of priorities to deficiencies and classification of deficiencies into routine, major, and deferred maintenance categories. Based on the dollar amount of deficiencies and the replacement value of the building, the system can calculate a ***facility condition index (FCI)***. The FCI is a ratio to measure the condition of the facility. The higher the ratio, the worse the condition of the building is.

Through financial modeling, the system can project the life cycle costs of each asset for component renewal and replacement. Finally, the system can project funding levels for items over a designated period of time and show the effects on the facility condition index of funding at different levels. FICAS provides the foundation for informed decision making in regards to facilities and infrastructure condition, multi-year capital budgeting, and capital project planning.

How does data get into FICAS?

The Commonwealth must know what the capital and maintenance needs are for all buildings in order to effectively and adequately complete their capital planning processes. Populating FICAS is the first step in understanding the Commonwealth's needs. There are various ways to collect and enter data into FICAS. We chose two methods: detailed facility condition assessments and life cycle assessments.

Facility condition assessments **(FCA)** are physical periodic inspections by qualified personnel to fully determine and document the condition of a facility or item of equipment and to identify repair, rehabilitation, and replacement needs and costs. It is a means to producing a comprehensive inventory of all facilities and their components, including permanent pieces of equipment, and a list of all deficiencies with cost estimates for each. Finally, the assessment establishes the life cycle renewal needs of each building and its components.

Life cycle assessments (LCA) are physical inspections of a facility by qualified personnel to inventory and collect information about the building's capital components, size of the building, and age of the building and equipment. This type of assessment allows the personnel to quantitatively adjust the lifespan of the components to reflect its real condition. The entered assessment information creates a cost model to estimate the existing deferred maintenance and future renewal requirements for the capital components.

As part of the contract, VFA provided the life cycle assessment (LCA) tool as a data collection mechanism. VFA originally developed this tool to assist engineering professionals while performing facility condition assessments. The LCA tool is a means to collect and capture basic building information such as the asset name, asset number, gross square feet, agency, location, and year built. This tool features a selection of drop-down menus for system names, which will automatically populate the system costs and create a cost model for the building, which feeds into the life cycle renewal predictions. The assessor first completes the LCA tool, and then VFA imports the tool into FICAS. This import allows the assessor to change or review the cost model created and building systems selected and anticipate replacement years for each system within a building.

The intention of this LCA tool is to provide a quick snapshot of a building, the systems within that building, and the condition of those systems. This tool assists the agencies and institutions as a means of collecting and identifying those systems that are deficient and the costs associated with the requirements of those systems. The cost estimates developed through the tool are rough estimates of the costs to correct those deficiencies. This tool is ideal for completing "target" assessments. Targeted assessments allow agencies to determine which buildings warrant a detailed facility condition assessment. In addition, this tool provides enough data to make funding and planning decisions for the Commonwealth.

Agencies and institutions had the option of choosing which method they would use to gather condition information on their facilities. Agencies made the choice based on the accuracy of the data, the costs involved in each method, and whether they had the resources necessary to perform the assessments. The facility condition assessments are 99 percent accurate and provide the deferred maintenance backlog in detail at the building and component system level. The life cycle assessments are 93 to 95 percent accurate for all buildings combined. However, the life cycle assessment is only 57 percent accurate at the individual building level. This method estimates the magnitude of the backlog but does not provide the specific details that support it. Performing facility condition assessments is the most accurate and consistent method to determining the condition of all buildings.

Facility condition assessments are more time consuming and require a higher skill level than the life cycle assessments. As a result, the facility condition assessment cost approximately twice what the life cycle assessments cost per square foot. Agencies and institutions can perform facility condition or life cycle assessments using internal agency staff or by hiring a vendor. Several agencies have stated that they did not have the staff to perform the assessments or had to divert funds from maintenance activities or other sources to hire vendors to perform the assessments. From these options, agencies and institutions accomplished their assessments by performing a combination of facility condition and life cycle assessments using internal and external assessors.

We included a chart that summarizes these assessment methods in APPENDIX E and the level of effort to complete each method in APPENDIX F.

Requirements for populating FICAS

To satisfy a legislative mandate and assist the Auditor of Public Accounts, the Directors of the Departments of General Services and Planning and Budget issued criteria on June 16, 2005 defining which facilities are the subject of data collection. The Directors of both agencies were prompt in developing and issuing these criteria prior to a statewide forum held by the Auditor of Public Accounts to discuss agency participation in the system. These criteria not only defined those facilities for which condition assessments are not necessary but provided guidance on which facilities to assess.

These criteria required all state agencies and higher education institutions to record the following information in FICAS by September 1, 2005:

1. An inventory record for every facility for which they are responsible.

2. Condition information obtained through either a life cycle assessment or facility condition assessment for every facility for which they have made a capital request for the 2006 - 2012 period.

The detailed memo issued by the Directors of General Services and Planning and Budget is at APPENDIX G.

Agencies and institutions had only a short time to comply with these requirements due to the legislative mandate to audit and report on the data by December 2005. To allow the Auditor of Public Accounts the time necessary to audit this information, the Directors set September 1 as the deadline for entering inventory and assessment data in FICAS.

Agencies responded optimistically to the system and the requirements, seeing it as a positive step towards the Commonwealth becoming committed to maintaining and funding maintenance for their facilities. During the period of June 16 through September 1, agencies received training and access to FICAS, contracted with vendors to perform assessments, and performed assessments using their own staff. Most agencies were able to meet the demands during this time.

However, some agencies struggled to perform the assessments with limited staff or to find third party assessors that could perform the assessments with such short notice. As a result, we extended the deadline to September 30. Some agencies still did not meet this deadline and continue to record and update data in FICAS. In addition, because agencies rushed to get the inventory and assessments in FICAS, there are inaccuracies and inconsistencies in the data. As we identify these issues, agencies continue to correct and revise the data. See Chapter 3 for discussions on these issues.

Training and Licensing of FICAS

As a part of the deferred maintenance audit, the Auditor of Public Accounts had to acquire the necessary training for the state agencies and institutions to implement and populate FICAS. There were two different types of training sessions available. The facility condition assessment and data collection training taught participants how to use and perform a life cycle assessment using VFA's LCA tool. The facility managers and planners training focused on what to do once the assessment data is in the system. This training provided an overview of the different modules, such as funding and reporting, explained how to optimize each module, and provided guidance on how to use the information to make capital renewal decisions.

Once an employee attended training and received authorization, they could access FICAS. Since VFA hosts FICAS, each user has an individual user license. The Auditor of Public Accounts entered into a software license agreement for the application. Each user pays a licensing fee under this agreement, which includes the maintenance associated with the system. There are a total of 208 users of FICAS.

How will agencies benefit and use the system?

FICAS provides the Commonwealth with a capital planning and asset management solution to strategically apply funding and maximize cost savings. The assessment information allows capital planners to analyze existing building conditions and make informed decisions that affect the building's future condition. In addition, it allows for development of multi-year capital plans to generate "what-if" scenarios to arrive at realistic forecasts based on actual building assessments.

FICAS includes a funding and renewal module which allows the user to create multi-year forecasts by building, location, agency, or statewide. The renewal module predicts the long-term costs for capital maintenance. The renewal module provides a user with the costs of replacing an asset's systems during its life beyond the costs of correcting the existing deficiencies. The renewal costs use the building's current system conditions and cost model. The funding report module forecasts budgetary needs and allows a user to understand and analyze the fiscal implications of different scenarios. The funding module will allow a user to identify the cost savings associated with funding options that will vary the funding amounts, timing, and the facility condition.

FICAS is not only beneficial for the agency's budget analyst or facility planners, but also to statewide planners such as the Department of Planning and Budget and the State Council of Higher Education for Virginia. FICAS has the flexibility to assist statewide planners in making decisions on a statewide basis for funding and completing capital renewal projects. FICAS allows planners to conduct experiments with "what-if" scenarios by creating projects. FICAS has a project module that enables a user to analyze alternate approaches to correcting requirements in order to determine the best "financial" package. Within the project module, users can add soft costs to the construction costs. Currently, agencies and institutions submit all capital requests through an Access database to the Department of Planning and Budget. When using the project module, agencies and institutions can reduce time and effort by creating projects on-line in FICAS.

FICAS can provide the Commonwealth with a much needed method to collect and analyze capital maintenance and renewal information. However, this system will not make a difference in the Commonwealth unless the underlying policies and procedures are reformed. As stated in our Interim Report titled "Review of Deferred Maintenance in the Commonwealth," we found many deficiencies in the Commonwealth's approach to maintaining capital assets and funding maintenance and capital projects.

The Commonwealth appears to approach building ownership as if the buildings have an infinite life. Agencies continue to repair, renovate, and replace portions and components of a building until it is practically ready to fall down or is completely inefficient. Most agencies do not analyze the benefits of replacing an old building with a newer, more efficient building. FICAS will assist agencies, statewide budget analysts, and finance committee staff in making financially sound decisions when determining the funding needs for capital requests. FICAS will position the Commonwealth to help reduce and prevent the continuation of a deferred maintenance backlog. We discuss the need for new policies and procedures in Chapter 5.

Functionality of FICAS

FICAS organizes data into levels of hierarchy that parallel the Commonwealth and the agency's organizational structure. The levels of hierarchy include: Commonwealth; Agencies; Locations; Assets; Assemblies; Rooms; Requirements; and Actions. This hierarchy is how the system distinguishes and shows relationships between a facility and its components.

Requirements are a facility need, including deferred maintenance, code compliance issues, functional requirements, and capital improvements. A ***priority*** is the severity of a requirement and the scheduled time frame for correcting the deficiency. A user assigns a priority to each requirement to determine when to correct a deficiency. We tailored the priorities and the time frame for correcting the deficiency in FICAS to coincide with the Commonwealth's budgetary cycle. We defined ***deferred maintenance*** in FICAS as any requirement assigned priorities one, two, or three. The chart below defines each priority.

Summary of Requirement Priorities	
1	Currently critical (immediate)
2	Potentially critical (within 12 months)
3	Necessary - not yet critical (within 13-24 months)
4	Recommended (within 25-72 months)
5	Does not meet current codes / standards

For every requirement, there is an action. An ***action*** is a strategy for correcting a requirement, which includes the needed work and an estimate of the construction cost. For every asset in FICAS there is a facility condition index and a requirements index. The facility condition index (FCI) is a ratio comparing the total value of a set of requirements (Priorities 1 - 3) to the current replacement value of the facility to measure the condition of the facility at a specific time. The requirement index (RI) is identical to the FCI, except it considers all requirements (Priorities 1 - 5) in calculating the condition of the facility at a specific time. The higher the ratio, the worse the condition of the building is.

There are several additional terms that are pertinent to determining deferred maintenance costs. Those terms include the current replacement value, cost models, and life cycle costs. ***Current Replacement Value (CRV)*** is the cost to replace the facility with the cost of replacement defined as the requirement to duplicate the internal and external building envelope providing the same level of functionality based upon accurate local labor and material costs. To determine the current replacement value, one must multiply the cost model's cost per unit by the gross square feet.

The ***cost model*** is the relevant cost information for each system in an asset. A cost model identifies each asset system and its projected lifetime in years, the cost of that system, its percentage of the current replacement value, and the percent renewed at the end of its lifetime. Cost models calculate an asset's cost per unit, which ultimately determines the current replacement value. Cost models also play an intricate part in the component renewal costs for the life cycle of the asset.

Life Cycle Costs are the anticipated expenses for each stage in the life of a facility and its components. Life cycle costs typically include capital investment costs, financing, operations and maintenance, repair and replacement, salvage costs, facility alterations and improvements, and functional use costs. Only system renewal costs are standard when using the UNIFORMAT II RSMeans cost estimating software in FICAS. The user can factor in the other life cycle costs manually while creating a project in the project module. FICAS uses life cycle analysis to project funding requirements for future budgetary needs.

The most powerful aspect of FICAS is its capability to generate and produce future funding and component renewal reports. Within the funding module, agencies and institutions can model different funding scenarios for a portfolio, group of assets, or an individual facility. Planners can generate statewide funding scenarios to determine the total expected cost of major maintenance and capital renewal for the Commonwealth.

The two main reports generated through the funding module are the Funding FCI and RI report and the Comparison of Options. The Funding FCI report graphs annual budgets and their effect on the facility condition over a period of time. The user defines the parameters and then FICAS generates funding forecasts for budgetary needs. FICAS calculates the funding based on the predicted costs that will occur based on the current requirement backlog and renewal forecast. Within this module, the user can select from the five funding options to analyze the fiscal implications of adapting one funding strategy to another. In addition, a user can determine how effective a funding strategy is at reducing the costs of deferred maintenance. The Comparison of Options table summarizes the lifetime costs of different funding options and their resulting FCI and RI at the end of the period.

Within the funding module, the renewal forecasts predict the long-term costs of capital renewal by forecasting the renewal costs for replacing asset systems. FICAS provides planners with four different options to analyze renewal costs and predict how to distribute the costs over the years. These options include annual, moving average, trend based, and average. Using this graph will help multi-year planners to determine predicted versus actual expenditure allocation to various assets and their components. See Chapter 4 for examples of these graphs and supporting information.

CHAPTER 3

AUDIT OF DEFERRED MAINTENANCE

Summary of Audit

Our main objective in this audit was to develop a process to determine the amount of deferred maintenance and assist both the Governor and General Assembly with a means to set priorities to address the deferred maintenance backlog. According to our interim report, a survey sent to all agencies and institutions in 2004 identified at least a $1.088 billion backlog of deferred maintenance. Through the building assessment process and population of FICAS, we have determined that as of December 2, 2005 there is **$1.626 billion** in deferred maintenance in FICAS, with a total of $2.038 billion in requirements. Deferred maintenance is requirements with a priority of one through three. Total requirements include priorities one through five.

As discussed in Chapter 2, the data collection, recording, and audit of the inventory and assessment information in FICAS occurred in a very short period of time. Below is a timeline of events:

Significant dates and deadlines	Action
Jan. 1, 2005	Develop statement of needs and system functionality requirements for Best Value Acquisition.
Feb. 2, 2005	Issued Best Value Acquisition for Facility Inventory and Condition Assessment System.
April 7, 2005	Awarded Best Value Acquisition to Vanderweil Facility Advisors (VFA).
April 26, 2005	FICAS Data Configuration project management meeting with the Auditor of Public Accounts and the Deferred Maintenance Task Force.
May 2005	Held five assessor training sessions and one manager training session in both Roanoke and Richmond for Deferred Maintenance Task Force.
June 6, 2005	Facility Inventory and Condition Assessment system went "live" on the web.
June 16, 2005	The Departments of General Services and Planning and Budget set forth criteria through a memorandum to all state agencies and institutions in accordance with the Appropriations Act. This memorandum required agencies and institutions to use FICAS and complete at a minimum a life cycle assessment for all capital request submitted to the Department of Planning and Budget for the fiscal years 2006 - 2012.
June 17, 2005	Held Statewide forum for all agencies and institutions to explain the project and provide them with the necessary information to participate.
June 30, 2005	Deadline for submitting agency plans for completing FCAs or LCAs. Also, deadline for submission of FICAS security officer and user access forms.
July 15, 2005	Deadline for detailed listing of buildings where and when an FCA or LCA is to be completed.
July 2005	Held five assessor and three manager training sessions for all state agencies and institutions.
Aug. 1, 2005	Held one assessor training session for the Virginia Community College System.
Sept. 1, 2005	Deadline for completing at a minimum life cycle assessments for existing facilities that have a capital request submitted to the Department of Planning and Budget for the fiscal years 2006 - 2012.
Sept. 1, 2005	Held two manager training sessions for all state agencies and institutions.
Sept. 30, 2005	Extended September 1 deadline for agencies and institutions to record assessment results in FICAS.
Oct. 2005	Compile, analyze, and prioritize data from FCA using FICAS.
Oct. 11, 2005	VFA copied FICAS site for audit purposes.
Dec. 2005	Issue Final Report on Deferred Maintenance.

For purposes of this audit, VFA made a copy of FICAS as of October 11, 2005. By this date, the majority of the LCA tools and existing agency data were in the system, with one major exception. The Department of Mental Health, Mental Retardation, and Substance Abuse Services' assessment data did not get in FICAS until after this date. Mental Health hired a vendor to perform detailed assessments of their buildings. This information is currently available in FICAS. The October 11, 2005 copy of FICAS allows the Auditor of Public Accounts to audit a snapshot in time because the information in FICAS continually changes as agencies enter and update building assessment data. Throughout this report, all references to information in FICAS are as of October 11, 2005 unless otherwise noted.

The Commonwealth owns over 10,449 buildings, which includes approximately 128.2 million square feet of building space. The buildings have a replacement value in FICAS of $9.2 billion. The chart below gives the significant vital statistics of the Commonwealth's facility portfolio in FICAS.

Vital Statistics of FICAS as of October 11, 2005	
Total amount of deferred maintenance	$1,492,383,978
Total number of buildings	10,449
Total square footage	128,180,246
Average age of building	1969 (36 years old)
Total replacement value of assessed buildings	$9,240,241,351
Number of requirements	48,630
Total cost of requirements	$1,844,071,744
Total number of users	208
Total number of state employees trained	273

Amounts include construction costs only, no soft costs.

The assessment data populated in the system brings to light the ever growing backlog of deferred maintenance. As of December 1, 2005, there were 5,269 buildings that received a detailed facility assessment, life cycle assessment, or data extrapolations. There were 5,384 buildings that had no assessment because they were not in the capital plan for 2006 through 2012. The assessed buildings comprise the total backlog of deferred maintenance of $1.49 billion. Of this backlog, there are approximately $1.1 billion in requirements that need immediate attention. The $1.1 billion consists of those requirements assigned a priority one. Approximately half of those requirements with a priority one are for heating ventilation, cooling, and electrical systems. The chart below shows the requirements by priority and their total costs.

Summary of Requirements Priorities		
1	Currently critical (immediate)	$1,149,284,423
2	Potentially critical (within 12 months)	142,229,613
3	Necessary - not yet critical (within 13-24 months)	200,869,942
4	Recommended (within 25-72 months)	279,821,649
5	Does not meet current codes / standards	71,866,117
	Total	**$1,844,071,744**

Amounts include construction costs only, no soft costs.

The basic building blocks for an effective capital plan start with knowing what you own and where your investments reside. In order to demonstrate the seriousness of obtaining this basic information, the Departments of General Services and Planning and Budget issued the inventory and assessment requirements. The agencies and institutions quickly populated the FICAS database by performing life cycle assessments, facility condition assessments, importing existing assessment data, and entering the agency's inventory according to the requirements. From the time agencies received training at the end of July to the deadline of September 1, there were only five weeks to enter and review the data in FICAS. Many of the agencies and institutions were under tight schedules for completing the requirements; however the majority of them were able to meet the deadlines. We acknowledge the deadlines were demanding given the tasks of receiving training and completing life cycle or facility condition assessments for all capital requests for the fiscal years 2006 - 2012. Because agencies and institutions had to meet the requirements in a compressed time period, the risk of inaccuracies and inconsistencies in the data increases.

Prior to implementing FICAS statewide, the Auditor of Public Accounts worked with a control group of agencies that made up the Deferred Maintenance Task Force. The Deferred Maintenance Task Force included representatives from various areas of state government with consideration of not only large agencies and institutions with facilities, but agencies and institutions that have public safety and health facilities. These agencies participated and assisted in the Best Valuation Acquisition process to acquire FICAS. Several of these agencies have been very involved in assisting and providing input through this project. Those agencies include Department of Corrections, Department of General Services, and George Mason University. These agencies assisted the Auditor of Public Accounts in determining the data configuration of FICAS.

The Auditor of Public Accounts held a statewide forum in June 2005, to give all state agencies and institutions the opportunity to participate in this project. At the same time, the Departments of General Services and Planning and Budget released their requirements to populate the system. This memorandum instructed all state agencies and institutions to use FICAS and complete at a minimum, a life cycle assessment for any existing facility for which the agency had presented a capital outlay renovation or improvement to the Department of Planning and Budget for the period 2006 - 2012. This memorandum set the tone for the Commonwealth's attempt to understand the maintenance and capital needs of all state agencies and institutions.

The data populated in the system is from both detailed facility condition assessments and life cycle assessments. Agencies could enter assessment information in the system in various ways, such as importing existing assessment data from an outside vendor, entering new assessment data performed by a vendor or internal staff, or uploading life cycle assessments using the LCA tool. For a detailed listing of the type of assessments completed by each agency see APPENDIX H.

Our audit encompasses all state agencies and institutions that own or lease facilities for which they are responsible. We determined which agencies to perform extensive audit testing on based on preliminary analysis of the data within FICAS. This audit included assessment observations, LCA tool reviews, existing assessment data import analysis, and analytical reviews of assessment data entered into FICAS. The following chart includes a summary of the agencies that performed life cycle assessments and that we selected to perform detailed testing.

Agency	Total LCA Square foot assessed	Total LCA Cost of Requirements	Total DPB capital request funding requirements
Department of Juvenile Justice	534,056	$ 44,785,310	$ 20,330,000
James Madison University	1,080,996	93,524,186	288,190,000
Mary Washington University	392,989	16,873,683	39,952,500
Virginia Commonwealth University	1,794,638	75,389,944	150,709,819
Virginia Community College System	8,123,498	146,563,239	177,047,298
Virginia State University	653,225	72,921,800	92,987,000
Virginia Polytechnic Institute and State University	1,424,869	108,225,808	306,287,000
University of Virginia	1,620,620	108,478,731	129,998,000
University of Virginia College at Wise	112,110	5,042,442	38,300,000
University of Virginia Medical Center	1,243,256	26,696,075	85,730,000

Amounts include construction costs only, no soft costs.

In addition to the detailed testing and the data import analysis discussed above, we completed additional analytical procedures for all other agencies and institutions that have data in FICAS. These procedures included reviewing the asset size, year constructed, asset numbers, asset use, cost models assigned, system name, requirements, actions, and costs. From these analytical procedures, we determined that many agencies did not review their assessment data once it was in FICAS to ensure that the data was accurate and complete. Many of these agencies used third party vendors to perform assessments. The review process is a key control for agencies that upload or import assessment data to ensure accuracy and quality. Because of this lack of review and the short time available to enter inventory and assessment data, we identified many discrepancies and inconsistencies in FICAS.

We found several problems that arose during the use and loading of the LCA tool. The LCA tool allows assessors to select the locations for a particular agency using a look up table. We found that VFA had not properly set up the location look up table in some of the tools affecting a limited number of buildings. Therefore once VFA imported the LCA tool into FICAS, it did not appear in the correct location. In addition, there is one heating and cooling system that did not have an expected life entered in the look up table, resulting in no renewals for that system when VFA loaded the tool in FICAS. There were only a few agencies that selected this system when completing the tool. We also found the requirements and requirements costs doubled within FICAS once the tool is imported for some tools.

We found that the assessors did not apply the methodology to complete the LCA tool consistently. VFA executed a program to correct these inconsistencies. However, the program VFA executed did not correct all inconsistencies and created others. VFA is in the process of correcting and determining the cause for all the errors identified through our audit. VFA is creating a new version of the LCA tool to correct any deficiencies within the tool.

In addition to those issues discussed above, we found the following issues through our analytical procedures:

- VFA loaded 540 of 553 LCA Tool submissions by September 30, 2005. VFA has since uploaded the remaining tools into FICAS;

- internal assessors did not properly save the LCA tool, which resulted in errors when VFA loaded into FICAS;

- agencies did not select the correct cost model for an asset to properly inventory the asset in FICAS;

- agencies and third party vendors did not enter basic building information, such as year constructed and asset size correctly into FICAS;

- agencies and third party vendors did not select the appropriate asset type for parking lots and other infrastructure assets. They selected the asset as a building when it should be a parking lot or infrastructure;

- agencies did not enter asset numbers for FAACS, VAPS, and PLATS for each asset in FICAS;

- agencies did not select the appropriate city cost index cost factor for assets; and

- we found 57 duplicate assets in FICAS. In addition, there were 24 assets that did not have an asset number assigned to the asset.

Many agencies could not determine what the discrepancies were within the requested time period. However, they continue to review and correct this information in FICAS. We requested that the agencies make corrections in FICAS by December 31, 2005. Overall, we feel the inconsistencies noted above do not materially affect the total deferred maintenance costs in the Commonwealth and the information in FICAS is reliable.

Building Condition Information

As we reviewed the data collected and the cost models created in FICAS, we found many issues that need addressing before assessing the Commonwealth's entire facility portfolio. Those issues noted include gaps in methods and policies. We discuss the need for policies in Chapter 5. The gaps in methods noted include the differences in completing a life cycle assessment versus a detailed facility condition assessment. The life cycle tool is less accurate and open to interpretation with varying results compared to facility condition assessments. This tool is very subjective based on the assessor and his expertise. However, it does provide a quick inexpensive method to estimate the magnitude of the problem and identify where to perform detailed assessments. Based on the instructions given by VFA, there were different interpretations on how to complete this life cycle tool.

Generally a life cycle assessment does not provide the information necessary to determine the current backlog of deferred maintenance because it does not consider the current condition of the facilities. It anticipates the replacement year for each system it is calculating using values for life cycle and percentages used. However, if used properly, VFA's Life Cycle Assessment tool can estimate deferred maintenance.

One of the methodologies taught during VFA's training is that the assessor was to determine the years remaining and the percent deficient for the building and its systems to enter in the LCA tool. Once the assessor determined the years remaining and the percent deficient, the formula driven spreadsheet calculated the requirement costs. This requirement represents the cost to bring the system up to its proper working condition given its current stage in its life. If the system is ready for immediate replacement, that replacement is deferred maintenance. FICAS then uses this requirement cost in calculating total deferred maintenance. When completing the tool using this methodology, these requirements factor into the FCI. The LCA tool also predicts the next renewal action for each system, which is not a requirement and, therefore, not considered deferred maintenance.

The second methodology taught during VFA's training is that the assessor leaves the years remaining and the percent deficient blank if the building has exhausted its useful life. The problem with completing the tool using this method is the costs appear at the time of the next renewal for that particular system instead of as a current requirement. When done this way, the need for replacement does not factor into the FCI, skewing the condition of the building and undervaluing deferred maintenance.

We found agencies completed the LCA tool using both methodologies. To consistently show the need for immediate replacement of a system at the end of its useful life, VFA developed a program to create requirements in FICAS for systems at the end of their useful life for those buildings where agencies used the second methodology in preparing the LCA tool. VFA ran this program before creating the copy of FICAS for our audit, therefore including those requirements in the amounts reported in this report. Although the LCA tool provides a consistent method for collecting and calculating the costs, it is flexible and subjective and can have varying results. However, the LCA tool provided a cost effective alternative to detailed facility condition assessment for the initial purpose of determining the amount of deferred maintenance in the Commonwealth. We recommend that in the future, the Commonwealth use the LCA tool only to identify places were detailed assessments are needed, but to eventually phase out the LCA tool and require periodic detailed facility assessments on every Commonwealth-owned building.

Recommendation #1: We recommend that the Commonwealth only use the LCA tool to identify buildings on which to perform detailed assessments. Eventually, the Commonwealth should require periodic detailed facility condition assessments on every Commonwealth-owned building.

We found that agencies and institutions that completed detailed assessments had more complete and accurate data in FICAS. Agencies and institutions used either internal sources or third party assessors to perform these detailed assessments. Several agencies that did not have the staff or technical expertise to complete detailed assessments used the statewide contract procured through the Department of General Services. This contract has six vendors that can perform facility condition assessments. However, the contract did not provide for a mechanism to get the assessment data in FICAS.

These third-party facility assessors could obtain certification in the use of VFA's application, have access to FICAS, and enter condition data directly. The other alternative was to hire a third-party vendor other than VFA and negotiate a fee to import the data into FICAS. EMG Corporation is currently the only vendor that has obtained the necessary license to complete assessments and enter directly into FICAS for other state agencies and institutions. EMG has completed various detailed assessment for agencies throughout the Commonwealth, including the Library of Virginia, George Mason University, Norfolk State University, and J. Sargeant Reynolds Community College.

The only agency that did anything different was the Department of Corrections. They hired VFA to complete detailed assessments for twenty-four correctional centers and then extrapolated the results to thirty-two other correctional centers. The extrapolation process involved correctional centers built on similar models at roughly the same time. Twenty-four prisons served as the models. From these twenty-four prisons, VFA modeled 32 other prisons using the same building deficiencies. VFA, in conjunction with Corrections, modified the modeled assessment data for any known differences between the facilities, such as renovations. The only other information that VFA modified was the construction date, building number, and size if the actual differed from the modeled center.

In our interim report, we recommended a life cycle cost analysis not only during the planning phase of a building, but once the building reaches the point when it is time to replace major systems and no later than when the cumulative costs of the needed repairs and replacements reach 60 percent of the current replacement value of the building. Based on the assessment information in FICAS, we found that there are 572 buildings that have an RI of .60 or higher. The RI at this level means the repair and replacement needs of the facility have reached 60 percent of the current replacement value. These buildings have a total current replacement value exceeding $696 million and reside at the following agencies:

Agency	Number of Buildings with an RI equal to or greater than 0.60
Christopher Newport University	3
College of William And Mary	1
Department for the Blind and Vision Impaired	1
Department of Conservation and Recreation	7
Department of Corrections (DOC)	118
Department of General Services (DGS)	1
Department of Juvenile Justice	20
Department of Mental Health, Mental Retardation, and Substance Abuse Services (DMHMRSAS)	17
Department of Military Affairs	2
Department of State Police	2
Department of Transportation (VDOT)	293
Frontier Culture Museum of Virginia	1
George Mason University (GMU)	31
James Madison University	13
Longwood University	1
Mary Washington College	4
Radford University	2
Science Museum of Virginia	2
University of Virginia	2
Virginia Community College System (VCCS)	20
Virginia Museum of Fine Arts	1
Virginia Polytechnic Institute and State University	6
Virginia State University	24
Total	**572**

These buildings range in age with construction dates between the years 1790 to 1999.

Year Constructed	Number of buildings
Pre - 1949	74
1950 – 1959	139
1960 – 1969	146
1970 – 1979	111
1980 – 1999	102
Total	**572**

There are several agencies with a larger number of these buildings. The Department of Corrections has 118 buildings with an RI greater than 0.60. Of these buildings, 37 are guard towers, 16 are administrative buildings, nine are officer housing, and the remainder are various buildings such as housing, kitchens, storage sheds, maintenance facilities, medical, and laundry. These buildings are located through out all of the correctional centers.

The Department of Juvenile Justice has 20 buildings with an RI greater than 0.60. Most of these buildings are cottages located at the Bon Air juvenile correctional facility and the Reception and Diagnostic Center. The Department of Mental Health has 17 various buildings with an RI greater than 0.60, with ten of those buildings located at the Central Virginia Training Center.

The Department of Transportation has the largest number of building with an RI greater than 0.60. Transportation has 293 of these buildings spread across the state. Of these, 22 are area superintendent offices; 129 are chemical, equipment or general storage buildings; 37 are fuel and oil stations or houses; 25 are pump and well houses; and 18 are spreader racks.

George Mason University has 31 various buildings with an RI greater than 0.60 with all but one of those building on the Fairfax campus. The Virginia Community College System has 20 various buildings with RI greater than 0.60 across the state, but 10 of those buildings are on the Virginia Western Community College campus. Virginia State University has 24 buildings with RI greater than 0.60. Most of these buildings are for classroom use.

The Commonwealth must start performing a life cycle analysis, not only at the beginning of a building's useful life, as we recommended during the planning phase, but also at certain points during the life of the building. As a building reaches the point where it is time to replace major systems within a building or maintenance expenses become excessive, the agency should perform a life cycle analysis including functional and operational costs. This analysis should occur no later than when the cumulative cost of the needed repairs and replacements reach 60 percent of the current replacement value of the building, or a requirements index of 0.60. This analysis will determine whether it is more cost beneficial to replace the systems and continue operating in the current building or demolish or sell the old building and construct a new more efficient building. This analysis must cover a ten to 20 year operational period. If the analysis determines that it will be more beneficial to demolish or sell a building at a specific time, then the agency should make decisions for several years prior to that point as to whether certain repairs and maintenance are efficient given the impending demolition or sale of the building.

Decisions to demolish or sell involve considering more than just cost factors. Other factors include location, the economic impact of moving or operating more efficiently and employing less staff, availability of space, and the ability to fund repairs versus new construction. Agencies should consider all of these factors. Decisions cannot be mired in sentimentality and supposed historical significance. Age alone does not make a building historical.

Agencies should consider the impact on the local economy were a change to occur. However, the Commonwealth cannot continue to fund inefficient buildings and operations at the expense of taxpayers. In addition, demolishing buildings before attempting to sell makes the land more marketable and valuable. Since there are costs associated with the demolition of buildings, especially those that may require asbestos or other hazardous materials abatement, the Commonwealth should consider funding even in these circumstances.

Before funding repairs or improvements to any of these buildings, agencies and institutions should determine whether it is more economical to repair and continue to operate the building or demolish or sell the building and construct a new one. For a discussion of some of these specific buildings and the funding currently requested, see Chapter 4.

Recommendation #2: The General Assembly and the Governor may wish to consider requiring agencies to perform a life cycle cost analysis, not only during the planning phase of a building, but once the building reaches the point when it is time to replace major systems and no later than when the cumulative cost of the needed repairs and replacements reach 60 percent of the current replacement value of the building, or has an Requirements Index of 0.60.

Reconciliations

Through this review, we are attempting to establish a comprehensive inventory of all state owned buildings. The first requirement established by the Directors of General Services and Planning Budget required agencies and institutions to enter an inventory record in FICAS for every building for which they are responsible. In order to determine an accurate count of buildings for each agency, we completed reconciliations between several sources. The sources included FICAS building inventory, Virginia Agency Property System (VAPS), and the Commonwealths' Fixed Asset Accounting and Control System (FAACS) or the internal fixed asset system if the agency did not use FAACS. We found many discrepancies between these listings. The chart below lists the building count from each source for each agency tested as well as the audited number of buildings, if available. We discuss the various reasons for the differences below:

Agency	FICAS	VAPS	FAACS[1]	Audited
Department of Agriculture and Consumer Services	1	32	24	@
Department of Corrections – Southhampton CC	105	129	160	103
Department of Corrections – Wallens Ridge CC	16	17	17	16
Department of Corrections – Red Onion CC	15	17	24	17
Department of Corrections – Buckingham CC	53	53	58	53
Department of Game and Inland Fisheries	206	184	185	@
Department of General Services	34	46	62	34
Department of Juvenile Justices	215	270	276	201
Department of Military Affairs	115	203	255	@
James Madison University	156	168	#	163
Old Dominion University	103	121	#	107
Richard Bland College	21	21	#	21
University Mary Washington	57	62	#	60
University of Virginia	510	683	472*	@
UVA Medical Center	22	0	63*	@
Virginia Community College System	21	21	#	@
Virginia Commonwealth University	119	189	118*	124
Virginia Polytechnic Institute and State University	572	952	572*	575
Virginia Port Authority	43	0	165	@
Virginia State Police	66	175	178	@
Virginia State University	117	116	#	116
Woodrow Wilson Rehabilitation Center	35	35	#	35

[1] or internal system
not included in sample for FAACS reconciliation
* internal fixed asset system used
@ agency has not been able to reconcile and explain the difference between the systems

There were several agencies that at the time of issuance of this report were still working to determine why the information in these three systems differs. As they determine the differences, they will correct which ever system is inaccurate. For the agencies that were able to determine the differences, there were several reasons for these differences. Several agencies did not include all buildings in FICAS. They only recorded building larger than 2,500 square feet. We found that agencies do not maintain the information in VAPS regularly, therefore, that information was often inaccurate. In addition, we found that in FAACS there were some items such as statues, memorials, and other infrastructure classified as buildings even thought they are not actually buildings. Therefore, these items are appropriately not in FICAS.

Through the reconciliation, we found the only agencies that did not enter inventory records into FICAS for their buildings were the Schools for the Deaf and Blind and Multi-Disabled in Hampton and Staunton. These schools are currently in the process of getting this information in FICAS. To ensure consistency, agencies were to enter the inventory record for unassessed facilities using an inventory zero cost model. This created a record for the building without requiring the user to create a cost model. We also requested that agencies enter the FAACS number or internal fixed asset accounting system number, risk management number, and property lease tracking number for each building. We established fields for these asset numbers to help crosswalk the redundant and inconsistent asset systems the Commonwealth owns. As discussed in our interim report, there are four systems that create unnecessary duplication of effort for agencies in the Commonwealth: Fixed Asset Accounting and Control System (FAACS), Lease Accounting System, (LAS), Virginia Agency Property System (VAPS), and Property and Lease Tracking System (PLATS).

We found many agencies did not populate these asset number fields. Also, agencies did not select the inventory zero cost model for unassessed buildings, instead selecting a cost model developed for another asset. The problem with selecting a cost model for unassessed buildings is that it establishes a replacement value for the building. This will inflate the FCI and RI when calculating it at an agency-wide or state-wide level, which distorts the actual condition of the buildings. In addition, several agencies have duplicate records for individual assets in FICAS. The duplicates occurred when agencies created an inventory record for an asset and then completed an LCA tool for the same asset. The problem with completing both for the same asset is that the LCA tool creates the inventory record, resulting in a duplicate record. We recommend that all agencies update and review their inventory records for completeness and accuracy.

<u>Recommendation #3</u>: We recommend all state agencies and institutions complete the necessary asset number fields for inventory purposes and change those assets that were not assessed to an inventory zero cost model. In addition, agencies should delete duplicate asset records in the system.

In order to determine if agencies and institutions performed, at a minimum, a life cycle assessment on an existing facility for which the agency has presented to the Department of Planning and Budget a capital outlay renovation or improvement request for the period 2006 through 2012, we completed reconciliations between FICAS and the requests for the Capital Plan. We found agencies did not perform the minimum life cycle assessments for all capital requests submitted to Planning and Budget. The following chart summarizes the agencies and number of facilities not assessed but included in the capital plan.

Agency	Number of Buildings in the Capital Plan Not Assessed	Number of Blanket Projects Not Assessed [@]
College of William and Mary	-	3
Department of Conservation and Recreation	3	-
Department Game and Inland Fisheries	-	2
Department of General Services	5	-
Department of Motor Vehicles	1	-
Frontier Culture Museum of Virginia	1	-
James Madison University	-	1
Longwood University	-	2
Norfolk State University	-	1
Old Dominion University	-	1
University of Mary Washington	-	1
University of Virginia	2	3
University of Virginia Health Systems	-	3
Virginia Community College System	1*	1*
Virginia Commonwealth University	-	2
Virginia School for the Deaf and Blind - Staunton	16	10
Virginia School for the Deaf and Blind - Hampton	2	-
Total	**31**	**30**

* two Community College did not respond to our analysis
[@] if the same blanket project was in multiple biennium, it was counted once

Blanket projects are projects that seek to perform the same type of work on multiple buildings. Many agencies assumed that they did not have to assess buildings included under these blanket project requests. However, according to Planning and Budget and General Services requirements, the only way to not perform an assessment on a building for which the agency has requested funding during the next six years is to request an exemption from the requirement from their budget analyst. Planning and Budget is willing to exempt some of these projects on a case by case basis. Agencies and institutions must contact Planning Budget to determine whether they must complete an assessment for buildings under any blanket project.

Although the deadline is past, agencies and institutions should continue to complete the requirements set forth by the Departments of Planning and Budget and General Services. We have notified those agencies that have not complied with the requirements and requested they complete these assessments by December 31, 2005. The assessment data is important to both the Department of Planning and Budget and the General Assembly for the upcoming General Assembly session in 2006.

Recommendation #4: We recommend all state agencies and institutions complete the minimum life cycle assessments for all buildings with capital requests as required by the Departments of Planning and Budget and General Services by December 31, 2005.

Cost Models and Construction Data in the Commonwealth

The cost model has the relevant cost information for each system in an asset. Cost models use construction type, asset use, current systems within the envelope, system lifetimes, and an industry standard for the renewal of the systems. The primary purpose of a cost model is to establish the asset's current replacement value by developing a unit cost for the model in dollars per square foot or unit of measure for other assets and establish a basis for component renewal forecasting through life cycle analysis. The cost model is the basis for life cycle costing. Life cycle costing is an economic assessment of all significant costs of ownership of a facility. The costs come from the built-in cost estimator that calculates costs using the full set of line items and building assemblies of the RSMeans cost database. These costs only include construction costs. The costs do not include architect, engineering, management, and administration costs. We researched other states to determine how they develop their cost models and estimates for construction. We found the states of Louisiana, Maine, Minnesota, and North Carolina also use RSMeans cost estimating.

While implementing FICAS, we received feedback from various agencies that the costs within FICAS were not comparable to construction costs in Virginia. In an effort to validate the construction costs in FICAS or develop a factor by which to inflate the costs to a level comparable to Virginia construction costs, we reviewed the data accumulated by the Department of General Services' Bureau of Capital Outlay Management (BCOM).

The Building Information Tracking System (BITS) is a data collection system used by the BCOM. BITS contains data collected from the capital outlay forms used by agencies to report various milestones in the design and construction process to BCOM and the Department of Planning and Budget. The data that resides in BITS includes information on agency approval, the architect and engineer, the contractor, project costs, and other pertinent project data. The Auditor of Public Accounts requested a download of the information in BITS to analyze and potentially compare to FICAS.

Prior to using the data in the BITS system, we compared it to the Commonwealth's Accounting and Reporting System (CARS) to determine if the data in BITS is reasonable and reliable. We limited our comparison of data to a sample of five agencies. For these five agencies, we compared the construction expenditures recorded in CARS between fiscal year 1999 and fiscal year 2005 to the construction costs for projects completed in BITS for the same time period. Upon comparing the two systems, we determined that there were immaterial differences but overall the systems agreed. With this comparison we determine the data in BITS is reasonable and reliable.

Our main objective for the use of the BITS data was to compare historical cost data to the cost data collected in FICAS. The data sought included the following:

- Historical construction costs
- Cost by type of construction
- Construction only cost
- Soft cost associated with construction (all costs other than construction)
- Per square foot costs
- Cost by location of construction

We limited the scope of our inquiries to projects reported as complete with recorded construction costs and project scope information (square footage) because this information was necessary for comparison. BCOM records projects as complete in BITS when agencies submit a Capital Outlay (CO) 14 Form. We also limited projects to those projects where construction began after July 1, 2001 in order to ensure getting the most recent data due to the increases in construction costs during the past several years. After these limitations, there were only 48 projects that had sufficient data for analysis. Other projects did not have scope information or sufficient cost data for inclusion in the analysis. The total BITS database had 2,220 projects. Of these projects, 1,086 projects did not have recorded bid dates; therefore, we had no way to know when the

projects occurred. Of the remaining projects, there were 79 projects that began since July 1, 2001. Of these, only 48 projects had sufficient data for analysis. The BITS database depends on agencies submitting complete and timely information. BITS is also a relatively new information system, so abundant historical data is not available. There were not enough projects of various types and locations to gather data sufficient to draw conclusions from and compare to data from FICAS. There is no other statewide source in the Commonwealth for this information. The gaps in the construction data confirm the need for BCOM to review their role in the capital outlay process.

As stated in our report "Review of the Commonwealth's Capital Outlay Process" issued November 2004, we stated BCOM acts in an oversight capacity. BCOM receives a great deal of information during the capital outlay process, which creates the perception that they are managing the process. However, BCOM collects and shares the data with Planning and Budget, but does not evaluate all the information it receives for completeness and accuracy. BCOM does not follow up on information not submitted. 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.

Recommendation #5: We recommend the Bureau of Capital Outlay Management, in coordination with the Department of Planning and Budget, require complete and timely submission of capital outlay forms related to the completion of projects. The addition of a quality control review of the submission will enhance the value of the data and could help eliminate some duplicate Capital Outlay reporting done by agencies. This will provide the Commonwealth with a database of historical costs, that would be useful in future Capital Outlay planning and analysis.

Recommendation #6: The Directors of General Services and Planning and Budget should work with BCOM and develop a working definition and strategy for the group to meet its role and duties for the Commonwealth. Both Directors may wish to use the best practices of other organizations to determine how BCOM should operate in the future. The Directors should consider whether BCOM should provide only limited oversight on projects, assume a traditional role of project manager, or have some other responsibilities. (We made this same recommendation in our report "Review of the Commonwealth's Capital Outlay Process" issued November 2004.)

Because there was not adequate information in BITS to compare to costs in FICAS and there is no other statewide source of construction cost data, we have no way to verify the accuracy of the cost data in FICAS. However, because the cost data comes from a nationally recognized leader in construction cost estimating, we feel that the cost data is reliable. However, because the costs in FICAS are construction only, we recommend that the Departments of General Services and Planning and Budget work together to develop a cost factor that is applied to costs in FICAS to account for the soft costs involved in capital projects, such as architect and engineering fees, procurement costs, and management and administration expenses. The General Assembly should not fund projects at the level identified in FICAS, but should inflate the amounts by this factor to determine the amount of funding needed.

Recommendation #7: We recommend that the Departments of General Services and Planning and Budget work together to develop a cost factor to apply to costs in FICAS to account for the soft costs involved in a capital project. The General Assembly should fund projects in FICAS after inflating the estimated costs by this factor.

CHAPTER 4

FUNDING RECOMMENDATIONS

Overview

The language requesting this study included a requirement to provide funding alternatives for the deferred maintenance backlog. The deferred maintenance backlog theoretically represents the amount of maintenance necessary to restore existing facilities to their full operations. As part of our "Interim Review of Deferred Maintenance in the Commonwealth," we proposed operating and long-term funding recommendations to avoid this problem in the future. However, we have deep concerns not only about the amount of the backlog and its funding, but the underlying capital planning and management practices in the Commonwealth. The current capital outlay and maintenance process is not functioning as intended and will continue to accelerate the growing deferred maintenance backlog if not reformed. These concerns include not only the processes but also the method and past funding dedicated to capital renewal and maintenance.

To properly budget for all facility related activities, we again recommend the Governor and General Assembly revamp the budget process as it relates to facility maintenance, renewal, and renovation. We recommend that the Governor and General Assembly adopt the following definitions to use in this process. These definitions play a crucial part in our recommended funding solutions.

- **Operational Maintenance** is the day-to-day operations of a facility to maintain its functionality. This would include security, janitorial, housekeeping and other cleaning services, utilities, snow removal, infrastructure and landscaping functions. These activities do not affect the useful life of an asset.

- **Continuous Maintenance** is the preserving of facilities and their components from failure or deterioration, which is necessary to realize its originally anticipated useful life. These activities include preventive maintenance; cyclic maintenance; repairs; painting; resurfacing; periodic inspection, adjustment lubrication, and cleaning (non-janitorial) of equipment; special safety inspections; periodic condition assessments; and other actions to assure continuing service and to prevent breakdown. Examples include changing belts, inspecting roofs, and replacing filters.

- **Capital Renewal** is the planned repair and replacement of facility systems and components having a life less than the life of the facility so the systems and components will last as long as the anticipated life of the facility. Such projects could include the repair or replacement of damaged or inoperable equipment, components of a plant, or existing utility systems; correction of deficiencies in property and plant that are required to conform with building and safety codes or those regulations associated with hazardous condition correction; or correction of deficiencies in fire protection, energy conservation, and handicapped access. Examples include replacing a roof or heating system that has a useful life of 20 years in a building with a useful life of 40 years.

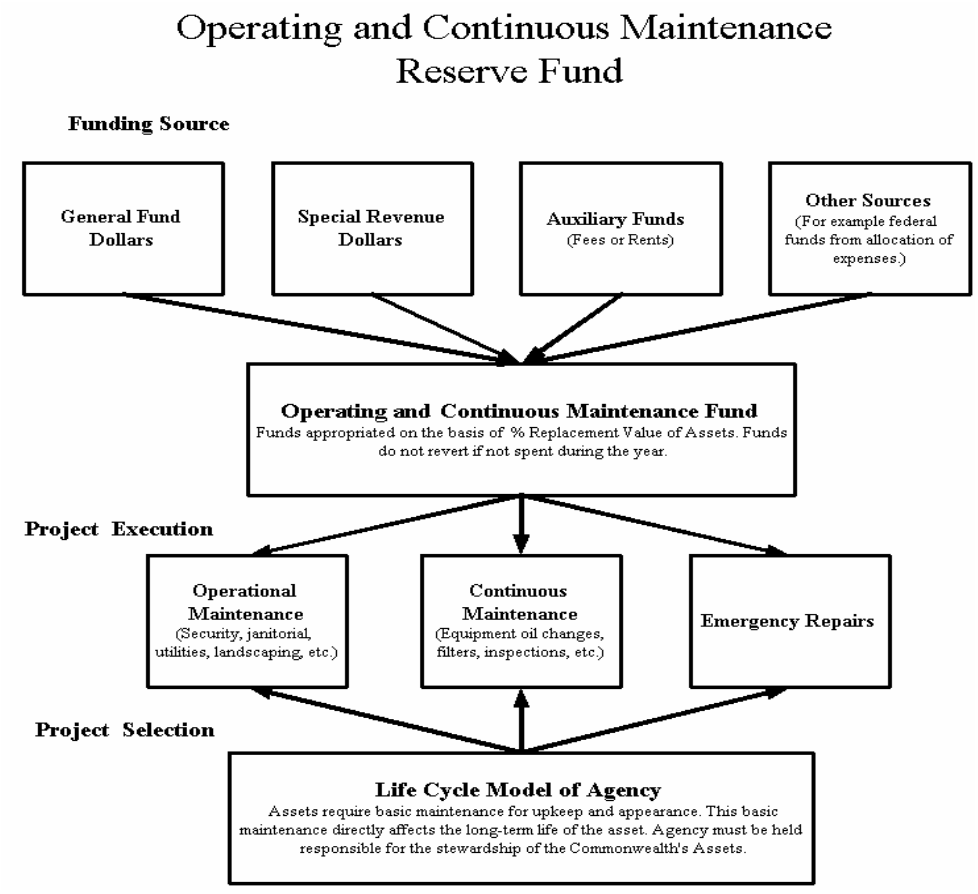
- **Capital Improvement and Renovation** is the rebuilding or restoring of facilities through additions or alterations so they can be used more efficiently and effectively and better meet programmatic needs. These improvements and renovations will extend the useful life and preserve the useable condition of the facilities, components, and systems.

While our interim report discussed various long-term funding options, this report will discuss how the two funds proposed to prevent a deferred maintenance backlog in the future can function using data available in FICAS. These funds will allow the Commonwealth to increase accountability of funding provided for operational and capital maintenance and reduce the possibility that deferred maintenance will occur and continue to increase the backlog.

Regardless of the method of accumulating resources, if the Commonwealth wishes to prevent the future backlog of deferred maintenance, the Commonwealth needs to create and sustain some type of permanent funding for both operational and continuous maintenance and capital renewal maintenance. We proposed establishing two different reserve funds to set aside money for a specific use. These two reserve funds are the Operating and Continuous Maintenance Reserve Fund and the Capital Preservation and Renewal Reserve Fund.

Deferred Maintenance Backlog Prevention

We proposed the ***Operating and Continuous Maintenance Reserve Fund***, which is a non-reverting, reserve fund established at each agency and institution to retain funds to carry out all operating and continuous maintenance activities for facilities at that state agency or institution. We recommended the Governor and General Assembly establish a reserve fund for each agency that owns facilities in which the agency can set aside appropriated or collected funds to pay for operating and continuous maintenance activities as they arise. The Governor and General Assembly should make this fund non-reverting and restricted. This approach will allow the long-term more expensive continuous maintenance projects to come from operating revenues. Below is a diagram illustrating how the Operating and Continuous Maintenance Reserve Fund would function.



Funds to support the Operating and Continuous Maintenance Reserve Fund should come from operating fund sources. These sources can include general, special revenue, auxiliary - such as fees or rents, and federal revenues. Identified needs should drive the funding level. In lieu of identifying actual needs, the Commonwealth can follow the industry standard of funding operating and continuous maintenance needs at the level of two to four percent of the current replacement value of the assets being maintained. The agency should deposit these funds in the Operating and Continuous Maintenance Reserve Fund and use them as needed for operating and continuous maintenance activities. Any unused funds should remain in the fund for future years when maintenance activities arise. The funding needs for the activities can fluctuate from year to year. By retaining the funds and having them available as needed, the agency can take responsibility and be accountable for the maintenance of its facilities.

The majority of the funding sources for the Operating and Continuous Maintenance Reserve Fund already exist. This does not require all new funding. This fund provides a method to track and hold agencies accountable for the use of these funds. However due to the lack of structured accountability for operating and continuous maintenance funds for agencies, we cannot easily determine what agencies have spent on these activities in the past. Only institutions of higher education budgeted for operating maintenance through use of a specific program code. In our facility maintenance survey in August 2004, we asked agencies and institutions to estimate the amount they spent on facility maintenance and operations. The results of this survey are included in APPENDIX I.

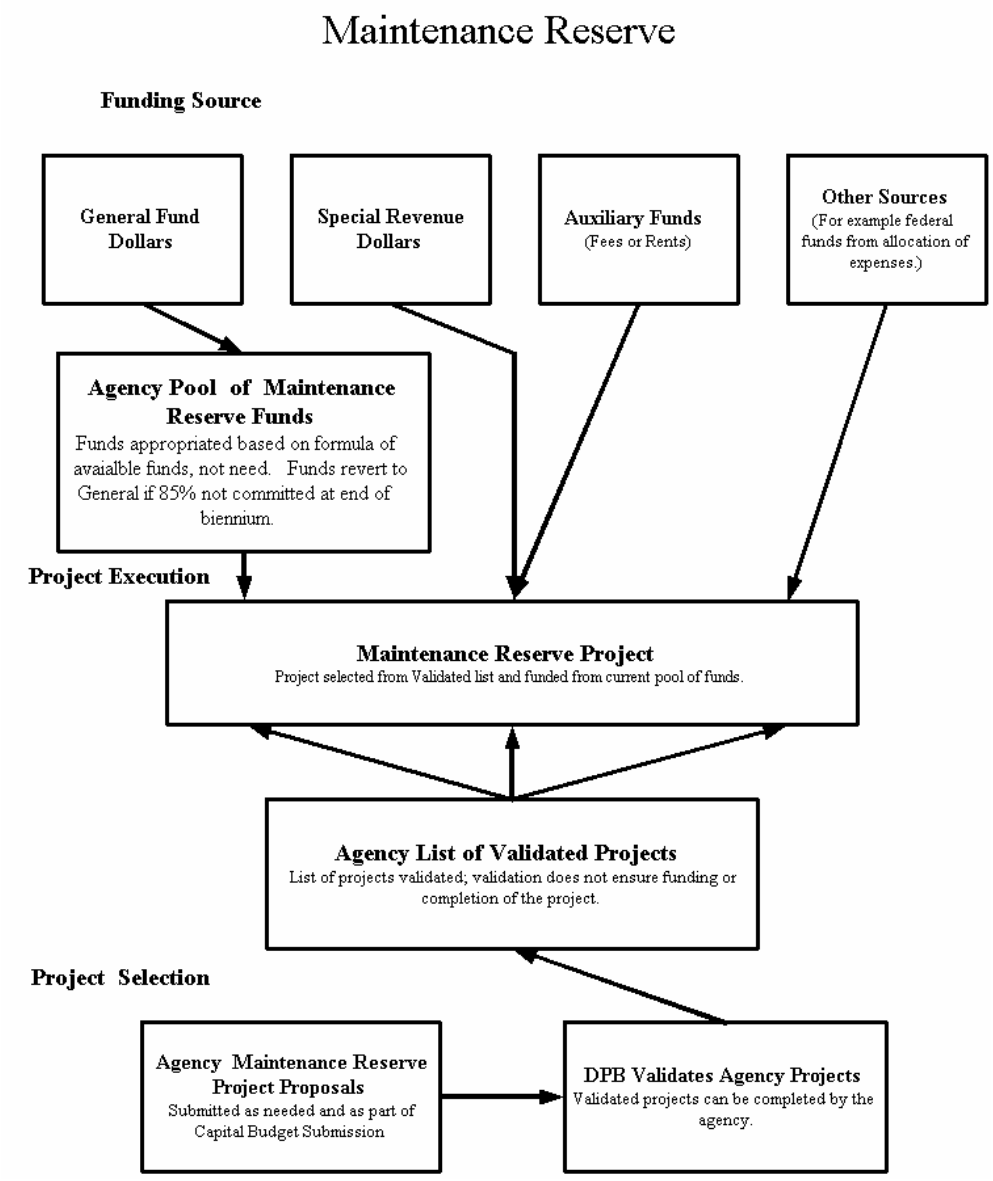
The agency's estimate of facility maintenance expenses in APPENDIX I encompass more than what the Operating and Continuous Maintenance Reserve Fund would support. We requested that agencies include the facility operating maintenance budget and maintenance reserve projects in their estimate of their facility maintenance expenses. However, agencies included various expenses in these estimates. We did not audit these estimates and can not conclude to the accuracy of the amounts. The industry standard calculation of two to four percent of current replacement value does not support a large number of the costs included in the estimate. Based on our experience and discussions with agencies, we estimate that 50 percent of the amount reported in APPENDIX I relates to what the Operating and Continuous Maintenance Reserve Fund and the two to four percent calculation support. The amount of new funding is the difference in two to four percent of the current replacement value of an agencies buildings and the current funding. The fact that we had to estimate what agencies are currently spending for operating and continuous maintenance highlights the need to establish accountability over these funds, particularly if the General Assembly should provide the needed additional funding.

To fund capital renewal activities in the future, the Commonwealth should consider establishing a reserve fund tied to the original financing of the capital project to ensure adequate funding of capital maintenance needs over the life of the building. We propose establishing the ***Capital Preservation and Renewal Reserve Fund*** as a non-reverting, reserve fund to retain funds to carry out all capital renewal maintenance activities for facilities at all state agencies with the funding tied to the original financing of the capital project, possibly debt financing. Deposits to this fund should occur annually and at the same time as the debt service payments, if financed through debt. The fund will represent the present value of the anticipated capital renewal activities for the life of the facilities and components supported by the fund.

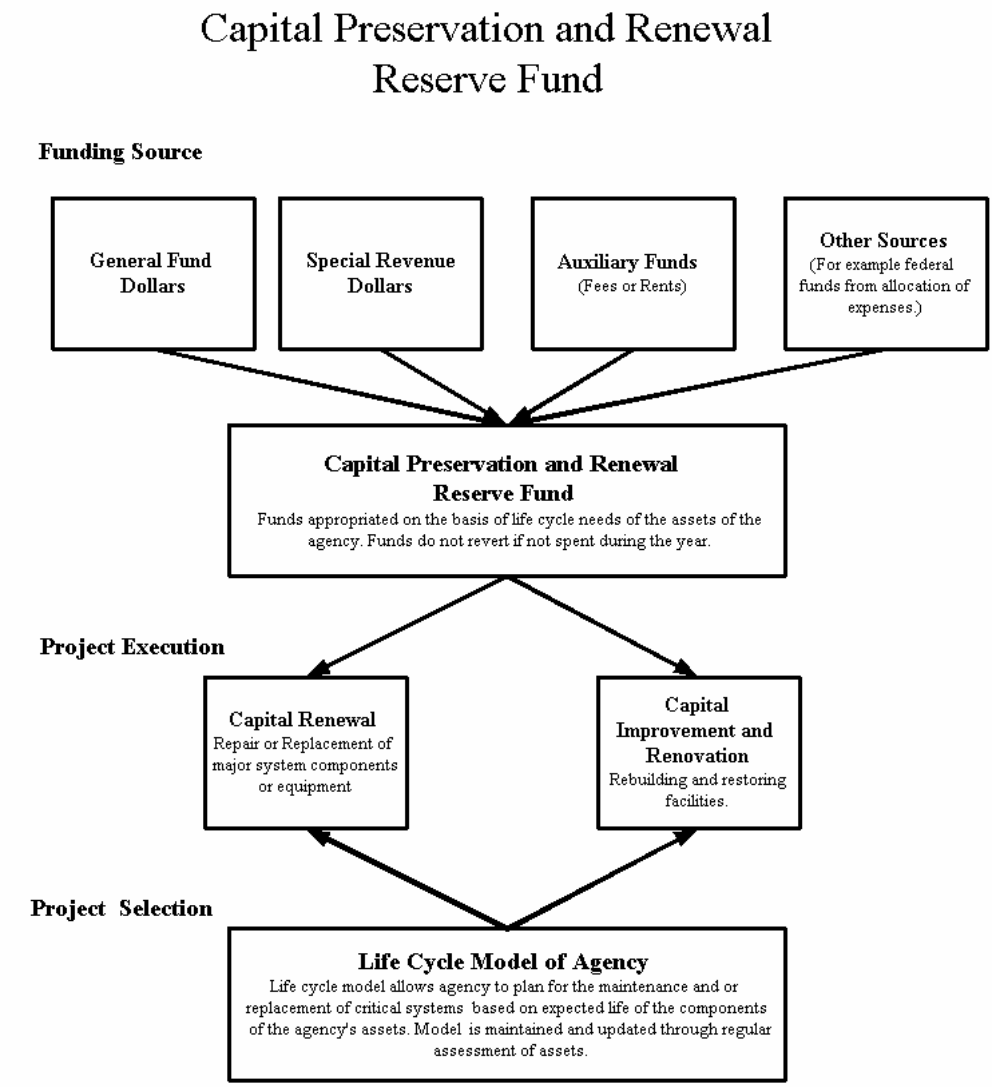
Deposits in the reserve fund would come from designated general and non-general fund sources needed to make debt service payments. These sources can include bonds. However, the life of the debt should be short; paralleling the useful life of the system the funding is supporting and not longer than the remaining useful life of the building. Agencies should use the Capital Preservation and Renewal Reserve Fund to perform capital maintenance activities which are the replacement or upgrading of a facility's major systems and are necessary for the facility to remain in use until its expected replacement or renovation. FICAS identifies these renewal activities through the cost model and life cycle renewals.

The fund should exist for each facility and could exist at either the agency or institution level or statewide. Regardless of where the fund exists, there is the need for two levels of accountability. The first level of accountability is that the fund custodian must demonstrate that they have only used the fund for the purposes intended and not to support other facilities, programs, or activities. The second level of accountability is that the facility's management must demonstrate that they have provided the proper level of operating and continuous maintenance for the facility.

In the Interim Review of Deferred Maintenance in the Commonwealth, we recommended eliminating the current maintenance reserve program. We found most agencies and institutions do not budget for actual needs and they are using their maintenance reserve allocations to perform activities that they should fund through the operating budget. Although we are recommending eliminating the maintenance reserve program, we are not recommending eliminating the funding stream. The funding stream for what is currently maintenance reserve will reside in the Capital Preservation and Renewal Reserve Fund. However, the level of funding should not mirror that of the maintenance reserve fund in the past. The level of funding should be determined based on needs identified in FICAS. The diagrams below show the current Maintenance Reserve Program and the recommended Capital Asset Renewal and Preservation Fund.



The current Maintenance Reserve Program funding sources include general, special revenue, auxiliary (fees or rents), and other fund sources, such as federal grants. For agencies with general fund maintenance reserve projects, Planning and Budget allocates the total amount designated by the General Assembly for maintenance reserve between all of the agencies with validated maintenance reserve projects. Planning and Budget uses its discretion and an agency's past allocation and need to do the allocation. The agency can then use the allocation for any validated maintenance reserve project.



The proposed Capital Preservation and Renewal Reserve Fund is comprised of general, special revenue, auxiliary (fees or rents), and other fund sources, such as federal grants. The amount of funds appropriated for the Capital Preservation and Renewal Reserve Fund uses the life cycle needs of the assets of the agency. To determine these needs, the agency will create a life cycle cost model for each building to allow them to plan for the maintenance and replacement of critical systems based on the expected life of the components of the asset. This life cycle cost model is the responsibility of the agency to maintain and update through regular assessments of the asset. The agency can only use Capital Preservation and Renewal Reserve funds for capital renewal, improvement, and renovations.

To demonstrate how this would work at an agency level, we have developed various funding scenarios to demonstrate the functionality of both the Operating and Continuous Maintenance Reserve Fund and the Capital Preservation and Renewal Reserve Fund. These scenarios use facility condition information for the Department of Corrections in FICAS.

Operating and Continuous Maintenance Reserve Fund

The Virginia Department of Corrections operates 56 locations ranging from major institutions to work centers with over 1,500 buildings housing over 30,000 offenders. These facilities have a replacement value of $2,032,200,149 in FICAS. Corrections receives an agency operating appropriation each year that includes funds for operating and continuous maintenance. However, there is not an amount specifically designated for facility maintenance nor does the Commonwealth require Corrections to account for the use of these funds. Corrections must decide where to spend these operating funds, and due to the Commonwealth's current lack of structured accountability, it is not possible to determine how much of its operating appropriation Corrections has spent for this purpose in the past.

To properly fund Corrections' Operating and Continuous Maintenance Reserve Fund would require $40.8 million to $81.5 million each year, covering operating maintenance, continuous maintenance and emergency repairs. This is an investment of two to four percent of the replacement value of the facilities. According to our facility maintenance survey, Corrections annually spends approximately $55 million. Based on our estimate that approximately 50 percent of the $55 million applies to the Operating and Continuous Maintenance Fund, Corrections current funding for these costs is $27.5 million. Therefore, there is a need for approximately $13.3 million to $54 million in incremental funding. Corrections would deposit these funds into the Operating and Continuous Maintenance Reserve Fund and use them as necessary, carrying over any unused funds from year to year. Because the Commonwealth has not tracked or accounted for this information in the past, there is no way to determine how this level of funding compares to past funding levels.

Capital Preservation and Renewal Reserve Fund

FICAS provides five funding options to calculate the amount of funding to allocate for capital preservation and renewal maintenance. These options include:

1. Maintain: This option calculates the funding required for each asset to maintain its FCI/RI as it is in the first year of the forecast.

2. Percent Funding: This option calculates the funding required for each asset as a specified percentage of its CRV (Current Replacement Value).

3. Target: This option calculates the funding required to reduce the FCI/RI of each asset to a target FCI in a specified number of years.

4. Extrapolate: This option calculates funding for each asset based on specified funding for the first year and a specified increase in funding for each subsequent year in the forecast.

5. Specific: This option allows the user to specify annual funding amounts.

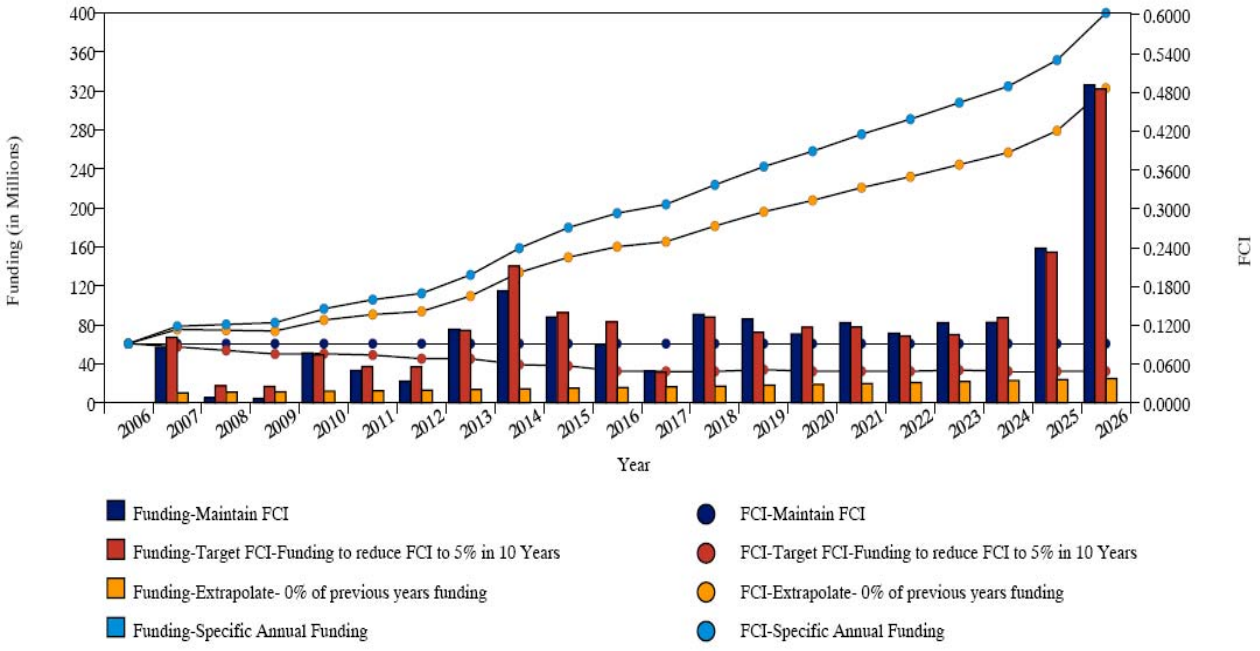
The following graph demonstrates four of these funding options for the Department of Corrections. The accompanying tables provide a comparison of the options. The tables show that in each option the beginning deferred maintenance backlog is $186.3 million with an FCI of 0.0917.

The first funding option is to maintain the buildings in their current condition, i.e. keep the FCI at 0.0917. The industry standard for a building in good condition is 0.05. The table shows that it will cost from $4.6 million to $158.7 million annually, with a spike in 2026 when most renewals comes due, to maintain the backlog and perform system renewals within the buildings to prevent an increase in the backlog and achieve a constant FCI of 0.0917.

The second option calculates the funding needed to improve the condition of the buildings over the next ten years and bring the FCI from 0.0917 to an FCI of 0.05 – the lower the FCI, the better the condition of the building. After year ten, the funding will maintain the buildings at that improved condition. The table shows that this option will cost from $16.9 million to $154.6 million annually, with a spike in 2026 when most renewals comes due.

The third option demonstrates what will happen if the Commonwealth continues to fund Corrections' needs as they have in the past using maintenance reserve and capital outlay improvement funds. Corrections received appropriations of approximately $10 million for maintenance reserve and capital improvements. This table shows that if Corrections receives this level of funding in the future, the buildings will deteriorate, eventually reaching an FCI of 0.4207 in 2025. This means that Corrections' buildings would have deficiencies worth almost half of their replacement value. In just a few years after that, they would reach the critical point of an FCI of 0.60, which is when we recommend analyzing the building to determine whether it is worth repairing or replacing.

The final funding option assumes Corrections receives no funding. The buildings will reach an FCI of 0.6028 in 2026. At that time, none of Corrections' buildings will be worth maintaining.



Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

YEAR	Option 1 - Maintain FCI		Option 2 - Funding to Reduce FCI to 5% in 10 Years	
	Annual Funding	Backlog Amount	Annual Funding	Backlog Amount
2006	$ -	$186,350,676	$ -	$186,350,676
2007	56,962,131	195,109,167	67,449,600	184,621,699
2008	5,406,670	204,279,308	17,637,208	180,848,782
2009	4,623,688	213,880,446	16,987,080	176,494,658
2010	51,225,961	223,932,838	49,314,680	185,918,338
2015	88,255,566	281,741,808	92,683,937	175,643,190
2020	70,723,792	354,474,346	77,554,398	189,190,289
2025	158,753,791	445,983,019	154,604,852	238,553,226

YEAR	Option 3 - Funding at the Estimated Current Capital Improvement Level		Option 4 - No Funding	
	Annual Funding	Backlog Amount	Annual Funding	Backlog Amount
2006	$ -	$ 186,350,676	$ -	$186,350,676
2007	10,470,001	242,003,193	-	252,071,298
2008	10,962,091	250,460,723	-	270,518,119
2009	11,477,310	259,290,212	-	289,243,213
2010	12,016,744	313,024,914	-	355,641,716
2015	15,118,905	691,510,991	-	832,551,734
2020	19,021,897	1,210,201,908	-	1,503,978,875
2025	23,932,460	2,045,979,083	-	2,577,716,392

Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

Each funding option requires a significant investment, but by comparing options, the Commonwealth can determine the effect of different funding levels and select the option that provides for the lowest funding level that results in the best condition of the building.

As previously stated, in order for the Commonwealth to address the growing deferred maintenance backlog there must be new capital budgeting and planning practices in place before funding any capital renewal projects. The success of future prevention of a deferred maintenance backlog requires the Commonwealth to take and sustain three actions.

1. Conduct proper and complete building life cycle analysis at the time of construction and follow up with periodic facility condition assessments.

2. Ensure that the custodians of the Commonwealth's assets devote the necessary resources to the maintenance of facilities from both operating and Capital Reserve funds by having them have separate accountability for facility preservation and operations.

3. Set aside and preserve funding for Capital Renewal Maintenance.

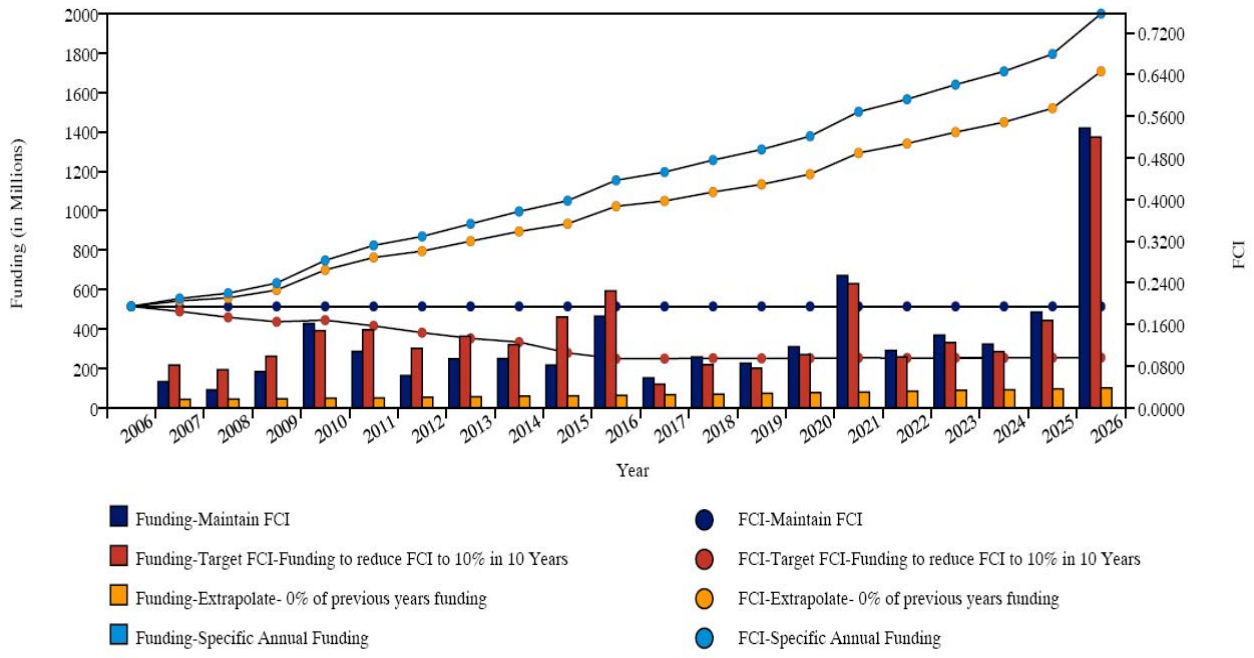
While these actions will not guarantee the problem will never arise again, they represent a policy shift on how the Commonwealth addresses its asset management.

Recommendation #8: The General Assembly may wish to direct that the Governor have the State Comptroller and the Director of Planning and Budget establish separate reserve funds by agency and institution for the accumulation of long-term funding for capital renewal activities and deposit into this fund amounts to fund capital improvements, renovations, or new building construction. (This recommendation is the same from the Interim Review of Deferred Maintenance in the Commonwealth.)

Deferred Maintenance Backlog Reduction

As of December 2, 2005, the statewide backlog of deferred maintenance related to assessed buildings is $1,626,542,023. The current statewide Facilities Condition Index is 0.1946 for the assessed buildings. Out of 10,553 buildings in FICAS, agencies and institutions have assessed 5,269 buildings. As agencies assess the remaining buildings, the statewide FCI will change and the backlog will increase. The buildings included in the next six year capital plan are usually an agency or institution's top priority projects. All needs are not included in the plan. There are many buildings not represented in the capital plan that have unfunded maintenance reserve needs. There are also new and relatively new buildings in the unassessed buildings. Therefore, we are unable to predict the extent that the deferred maintenance backlog will increase once agencies assess all buildings.

The graph and table below show four different statewide funding options. All of these options assume a 4.7 percent inflation factor with a two percent backlog deterioration rate, which is the increase in costs from year to year of delaying the remedy of a requirement. The inflation factor applies to everything, including the replacement value of the building. The annual funding includes the amount to reduce the backlog and to perform renewals as they occur. Without funding those renewals, the backlog will increase along with the FCI. The higher the FCI, the worse the condition of the building is. There is no funding in 2006 because the fiscal year has already begun.



Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

The first funding option is to maintain the buildings in their current condition, i.e. keep the FCI at 0.1946. The industry standard for a building in good condition is 0.05. The table shows that it will cost from $90 million to $671 million annually to maintain the backlog and perform system renewals within the buildings to prevent an increase in the backlog and achieve a constant FCI of 0.1946.

The second option calculates the funding needed to improve the condition of the buildings over the next ten years and bring the FCI from 0.1946 to an FCI of 0.10 – the lower the FCI, the better the condition of the building. After year ten, the funding will maintain the buildings at that improved condition. The table shows that this option will cost from $118 million to $630 million annually, with a spike in 2026 when most renewals comes due. This will be the option we use to determine funding to eliminate the deferred maintenance backlog on the assessed buildings. Although the industry standard for a building in good condition is an FCI of 0.05, we chose to aim for an FCI of 0.10 as a more obtainable goal and a first step in this process.

Comparison of Funding Options 1 and 2

YEAR	Option 1 - Maintain FCI		Option 2 - Funding to Reduce FCI to 10% in 10 Years	
	Annual Funding	Backlog Amount	Annual Funding	Backlog Amount
2006	$ -	$1,626,542,023	$ -	$1,626,542,023
2007	132,821,280	1,702,989,580	216,847,148	1,618,963,712
2008	90,562,290	1,783,030,176	192,853,410	1,591,004,466
2009	182,066,876	1,866,832,685	260,337,802	1,583,489,812
2010	427,990,293	1,954,573,915	390,417,701	1,689,553,305
2015	216,157,248	2,459,153,351	460,095,301	1,331,272,016
2020	309,118,667	3,093,991,563	269,417,157	1,513,508,476
2025	485,145,578	3,892,715,266	441,891,631	1,918,680,591

Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

The third option demonstrates what will happen if the Commonwealth continues to fund these needs as they have in the past using maintenance reserve. Over the last ten years, maintenance reserve funding averaged $40 million each year. This table shows that if the Commonwealth continues to fund maintenance reserve at the same level as in the past, the buildings will continue to deteriorate, eventually reaching an FCI of 0.6463 in 2026. In our interim report, we recommended that when the cumulative cost of needed repairs and replacements reach 60 percent of the current replacement value of the building, agencies should perform an analysis to determine whether it is more cost beneficial to replace the systems and continue operating in the current building or demolish or sell the old building and construct a new more efficient building. This equates to an FCI of 0.60. This would mean if the Commonwealth continues to fund maintenance reserve as it has in the past, in 20 years the Commonwealth would have to analyze most of its buildings to determine whether to repair or replace them.

The final funding option assumes the Commonwealth spends nothing on capital renewal or backlog reduction. If the Commonwealth spends nothing, the buildings will reach an FCI of 0.6207 in 2023. In this situation, the Commonwealth would have to analyze most of its building to determine whether to repair or replace them.

Comparison of Funding Options 3 and 4

YEAR	Option 3 - Funding at the Current Maintenance Reserve Level		Option 4 - No Funding	
	Annual Funding	Backlog Amount	Annual Funding	Backlog Amount
2006	$ -	$1,626,542,023	$ -	$ 1,626,542,023
2007	41,880,002	1,796,149,246	-	1,835,810,860
2008	43,848,364	1,933,482,136	-	2,015,437,631
2009	45,909,240	2,168,624,940	-	2,297,096,789
2010	48,066,976	2,659,359,743	-	2,842,060,478
2015	60,475,618	4,465,258,698	-	5,027,015,471
2020	76,087,590	7,133,635,424	-	8,294,529,895
2025	95,729,842	11,511,528,972	-	13,593,996,719

Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

To reduce the backlog of deferred maintenance, the Commonwealth could issue bonds periodically throughout the next ten years to meet these funding needs. The Commonwealth should only fund capital renewals that have a useful life of ten years or more with bond funds.

However, if the Commonwealth funds only the current backlog without addressing the issues we have noted with the capital outlay and maintenance budgeting practices, new requirements will inevitably arise as the buildings continue to age. This will create a new backlog making it appear as if the funding applied to reduce the backlog was unsuccessful. The Commonwealth must address all aspects of the problem including eliminating the current backlog and correcting the problems that caused the backlog throughout the past.

As illustrated in option two above, to reduce the deferred maintenance backlog on the assessed buildings to a point where the FCI is 0.10 in 2016, the Commonwealth would need to invest a total of $3,490,291,353 over that ten year period. This would improve the condition of the assessed buildings and prevent the occurrence of additional deferred maintenance. To do that, the annual amount of funds needed includes funding to eliminate the items in the backlog and perform renewals as they occur.

The funding needs for these two aspects are broken into separate components in the table below. The amounts in the “Capital Renewal Funding” columns would come from normal capital and maintenance reserve funding sources, but be deposited into the new Capital Preservation and Renewal Reserve Fund. The amounts in the “Deferred Maintenance Backlog Funding” column could come from the issuance of bonds throughout the first ten years. During the last ten years, funding for Renewal and Backlog should come from regular state capital funding.

YEAR	Funding to Reduce FCI to 10% in 10 Years				
	Capital Renewal Funding	Deferred Maintenance Backlog Funding	Total Funding	Deferred Maintenance Backlog	FCI
2006	$ 44,512,503	$ -	$ -	$1,626,542,023	0.1946
2007	46,024,188	170,822,960	216,847,148	1,618,963,712	0.1850
2008	54,847,868	138,005,542	192,853,410	1,591,004,466	0.1736
2009	87,466,820	172,870,982	260,337,802	1,583,489,812	0.1650
2010	107,297,138	283,139,893	390,437,031	1,689,553,305	0.1682
2011	241,000,062	154,367,895	395,367,957	1,653,484,126	0.1572
2012	120,808,383	179,086,091	299,894,474	1,586,801,789	0.1441
2013	194,047,254	168,824,292	362,871,546	1,534,537,102	0.1331
2014	189,069,339	130,619,240	319,688,579	1,521,052,735	0.1260
2015	166,974,182	293,143,268	460,117,450	1,331,272,016	0.1053
2016	413,232,251	179,184,936	592,417,187	1,242,533,769	0.0939
2017	97,647,828	20,854,108	118,501,936	1,306,097,469	0.0943
2018	201,781,053	16,210,543	217,991,596	1,378,623,254	0.0950
2019	166,378,566	34,297,286	200,675,852	1,437,989,702	0.0947
2020	247,238,837	22,178,320	269,417,157	1,513,508,476	0.0952
2021	606,530,053	23,586,759	630,116,812	1,592,749,560	0.0957
2022	222,658,333	35,699,741	258,358,074	1,665,261,306	0.0955
2023	297,055,444	32,394,052	329,449,496	1,746,005,192	0.0957
2024	248,922,667	35,611,462	284,534,129	1,829,017,411	0.0957
2025	407,291,275	34,600,356	441,891,631	1,918,680,591	0.0959

Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

As noted above, all of the funding graphs and tables include a 4.7 percent inflation factor. For illustrative purposes, below is an example of statewide option 2 above, with no inflation factored in.

YEAR	Option 2 - Funding to Reduce FCI to 10% in 10 Years		
	Annual Funding	Backlog Amount	FCI
2006	$ -	$1,626,577,151	0.1946
2007	207,112,834	1,546,323,924	0.1850
2008	175,927,576	1,451,406,051	0.1736
2009	226,828,241	1,379,707,102	0.1650
2010	324,901,705	1,406,030,310	0.1682
2015	304,324,220	880,534,708	0.1053
2020	141,635,269	795,666,403	0.0955
2025	184,641,120	801,706,366	0.0959

Note: All amounts do not include an annual inflation factor
Amounts include construction costs only, no soft costs.

As noted in Chapter 3, the Commonwealth must start performing a life cycle analysis, not only at the beginning of a building's useful life, as we recommended during the planning phase, but also at certain points during the life of the building. This analysis should occur no later than when the cumulative cost of the

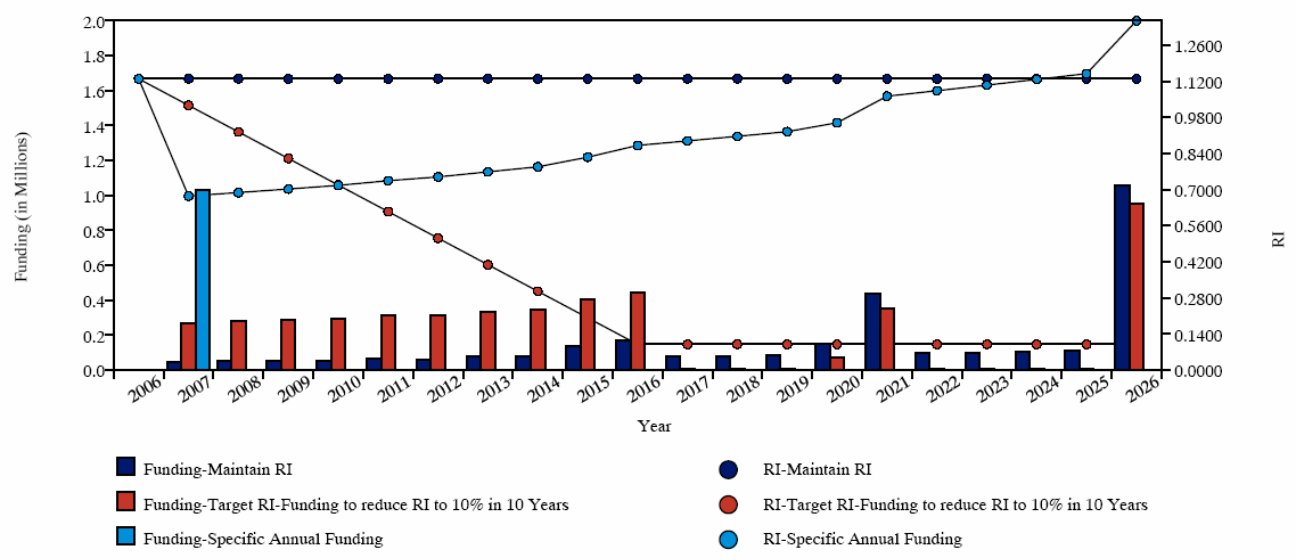
needed repairs and replacements reach 60 percent of the current replacement value of the building, or a facility condition index of 0.60. This analysis will determine whether it is more cost beneficial to replace the systems and continue operating in the current building or demolish or sell the old building and construct a new more efficient building. We found over 500 buildings that had reached this point. Agencies and institutions have requested funding for repairs and renovations of some of these buildings. Before the General Assembly appropriates funding for these buildings, they should consider whether it is economical to invest resources in these buildings. We have selected two such buildings as examples to demonstrate how FICAS can help with this decision.

The Department of Juvenile Justice requested $985,000 to perform HVAC renovations on four cottages at Bon Air Juvenile Correctional Facility. These four cottages have the following RI, requirement amounts, and current replacement values:

	Requirements Index	Requirements	Current Replacement Value
Carroll Cottage	0.98	$ 685,685	$ 701,000
Fisher-Jackson Cottage	1.24	714,744	793,168
Peterson Cottage	1.09	980,715	385,100
Way-Out Cottage	1.31	629,083	185,875
Total		**$3,010,227**	**$2,065,143**

Note: All amounts do not include an annual inflation factor
Amounts include construction costs only, no soft costs.

All of these cottages have repairs and replacement needs close to or more than 100 percent of their current replacement value.



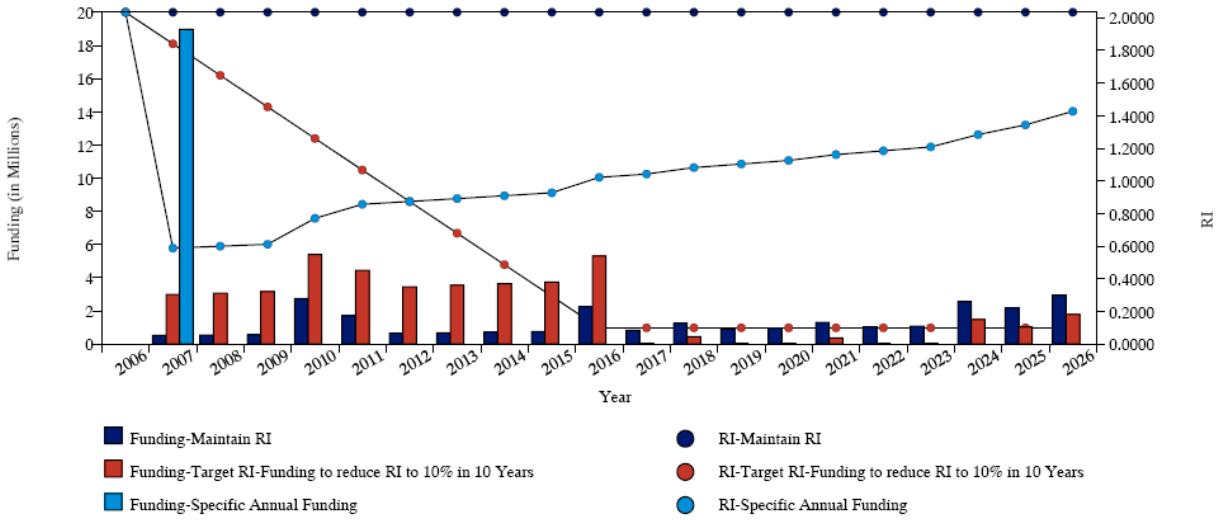
Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

This graph demonstrates three options. The first option shows that it will cost between $48,830 and $436,652 annually to maintain these cottages in their current poor condition. The second option shows that it will cost between $271,356 and $445,051 annually, with a spike in 2026 when most renewals come due, to

reduce the RI to 0.10 in ten years and then $6,845 and $351,994 to maintain that RI. To bring the cottages into good condition in the first ten years, the Commonwealth must spend a total of $2,848,745. The final option shows what will happen to the condition of the cottages if the Department spends the requested funding of $985,000 in the first year and does nothing else to the cottages in the future.

The RI will drop to 0.6748 and then increase continually each year after that. None of these options appear economical. This analysis demonstrates that the Commonwealth should consider demolishing these cottages and building new ones.

Virginia Western Community College requested $18,112,600 to renovate Anderson Hall. This building has an RI of 2.03, requirements totaling $24,786,997, and a current replacement value of $12,186,541. Considering that the funding requested is more than the current value of the building, the Commonwealth should consider replacing this building. The graph below demonstrates the three funding options.



Note: All amounts include an annual inflation factor of 4.7%
Amounts include construction costs only, no soft costs.

The first option shows that it will cost between $519,040 and $2,740,843 annually to maintain the Anderson Hall building in its current poor condition. The second option shows that it will cost between $2,986,645 and $5,304,828 annually to reduce the RI to 0.10 in ten years and then $40,395 and $1,781,879 to maintain that RI. To bring the building into good condition in the first ten years, the Commonwealth must spend a total of $38,749,684. The final option shows what will happen to the condition of Anderson Hall building if the requested funding of $18,112,600 is spent in the first year and nothing else is done to the building in the future. The RI will drop to 0.5884 and then increase continually each year after that. Even when spending the requested funds the building is not in good condition. After spending over $18 million the building still is not at an acceptable level. None of these options appear economical. This analysis demonstrates that the Commonwealth should consider demolishing this building and building a new one.

CHAPTER 5

COMMONWEALTH FACILITY ASSESSMENT PROGRAM

As stated in our interim report, we identified the importance of agencies and institutions completing condition assessments. In addition, we identified benchmarks that will help the Commonwealth maintain their facilities at an acceptable level. Based on the effort put forth by all agencies and institutions to adhere to the Departments of General Services and Planning and Budget requirements, we recommend that the Commonwealth establish a facility condition assessment program. A facility condition assessment program provides the Commonwealth with a proactive platform to identify building systems and capital renewal needs. An improved approach in managing the Commonwealth's facilities allows for proper management of state owned buildings. In addition, it provides solid and reliable support for the deficiencies that the Commonwealth must correct. Inaccurate building condition information could result in unnecessary and expensive capital decisions. In this chapter, we discuss the necessary components for creating and maintaining a facility assessment program.

Procedures for collecting and summarizing data

The study language designated agencies and institutions to assist the Auditor of Public Accounts in the audit of deferred maintenance. These agencies were a part of the Deferred Maintenance Task Force discussed in our interim report. These agencies were to designate an individual to participate in the Task Force. These individuals were to have sufficient experience and knowledge to assist the Auditor of Public Accounts in developing procedures for collecting information and assisting agency and institution personnel with advice and guidance in implementing, collecting, and summarizing information for the audit. In addition these agencies were to work with other agencies and institutions to ensure that they properly accumulated information.

The agencies that were involved and engaged in this project from the onset include the Department of Corrections, Department of General Services, and George Mason University. Since the project took a turn to statewide implementation, other colleges and universities were involved in the project management meetings and provided us with necessary feedback. These institutions include Radford University, Virginia Tech, and the University of Virginia. The Auditor of Public Accounts appreciates their expertise and assistance with this project.

The Auditor of Public Accounts relied on the training provided by VFA to assist agencies with understanding how to collect and summarize assessment data for the audit. VFA customized their training to the tasks of each user group. The user groups included an assessor class and a class for managers and planners. VFA's training not only taught the mechanics of the software, but established an assessment methodology that promotes consistency for gathering data. VFA provided agencies and institutions with the necessary information not only on how to perform an assessment using the LCA tool, but basic information on how to perform detailed facility condition assessments. During the training for the assessors, each attendee received a detailed instruction manual on assessment methodology guidelines developed by VFA.

The assessment methodology guidelines provide standard information to conduct facility condition assessments using the VFA methodology. This guide covers the pre-survey preparation including the scope, photographs, and coordination between assessors. It reviews the asset survey procedures, including the pre-survey meetings with essential personnel, conducting the assessment, and a close out meeting with facility managers and planners. After the assessment is completed, the manual covers the data input, which involves determining requirements, actions, cost estimates, and development of the cost models. The last section covered in the guidelines includes the quality assurance of the data entered. This includes scrubbing the data entered and verifying building descriptions, deficiency descriptions, cost model data, and the system condition.

The quality assurance and control process is a vital part in determining the accuracy of the data entered into FICAS. All agencies and institutions need to understand the importance of this step. Agencies and institutions should review the data entered in FICAS whether a third party assessor or internal assessor completes the building assessment. Throughout this audit, we identified issues from third party vendor assessments and data import errors that the agency should have identified during a quality control review. All agencies should review and validate building condition information in FICAS whether agency personnel or a third party vendor completes and enters the information. This issue comes back to the agency being accountable for its own information and the condition of the building.

Agencies used the same methodology discussed above for detailed facility condition assessments to complete the LCA tools. The biggest difference for completing an assessment using the LCA tool is entering the results of the assessment. When entering the results for an LCA tool, the assessor enters this information in the workbook, which VFA then imports into FICAS. We discussed the process for completing the LCA tool in Chapters 2 and 3.

In addition to the assessment manual, training attendees received a FICAS user manual. This manual includes a description and functionality of each module in the system - asset, projects, funding, and reports modules. We found this user manual to be very descriptive and detailed for using the system. In addition, VFA has a help desk available to users during regular business hours by e-mail or phone. VFA developed guidance and procedural documents for entering inventory data and creating locations in FICAS and completing the LCA tool in relation to the years remaining and the percent deficient. VFA provided these documents to users during training and we posted these documents on our FICAS – Deferred Maintenance website.

We feel the manuals and procedural documents developed by VFA were reasonable for the guidance of implementing, collecting, and summarizing building condition assessment information into FICAS for the initial phase and population of the system. The Department of General Services should establish policies and procedures for collecting, summarizing, and maintaining building assessment information in FICAS using these initial manuals and procedural documents as a guide. General Services should tailor these policies and procedures to meet the Commonwealth's needs.

Recommendation #9: The Department of General Services should establish policies and procedures for collecting, summarizing, and maintaining building assessment information tailored for the Commonwealth and build on the manuals and guidance used during the initial population of FICAS. When establishing these policies and procedures, General Services should consider not only governmental agencies but also higher education institutions.

As stated in our interim report on deferred maintenance, the Commonwealth does not have a standard condition level policy for its buildings. According to best practices, the foundation for facility maintenance standards comes from a policy establishing a condition level to which agencies must maintain buildings and their components and guidance on how to accomplish this policy. A condition level policy requires that agencies do whatever it takes to maintain a building at the specified condition level. FICAS will enable all agencies and institutions to determine their funding needs to maintain their facilities at a specified level.

In order to determine the condition of all state owned or maintained facilities, agencies and institutions should complete at a minimum a life cycle assessment, but preferably a facility condition assessment. Agencies and institutions can perform these assessments using internal agency staff or by hiring a vendor. Several agencies have stated that they do not have the staff to perform the assessments or will have to divert funds from maintenance activities or other sources to hire vendors to perform the assessments. During this audit, we did find that some agencies do not have personnel with the expertise to perform assessments. However, we also found that the institutions of higher education and General Services have the staff capable of performing the condition assessments given the proper training, and General Services could

provide support to other state agencies that may not have sufficient resources to perform assessments. The Commonwealth has spent $2.1 million in third party vendors for performing assessments and entering data into FICAS. This amount also includes the contract amount and costs for implementing FICAS.

Agencies and institutions should maintain and update building information by performing facility condition assessments periodically. We noted in our interim report that the Virginia Community College System set a policy for maintaining and updating their building condition information by performing detailed condition assessments on twenty-five percent of their buildings each fiscal year, however, the System is not performing this level of review.

We found 11 out of 23 community colleges did not keep their building condition information updated through regular assessments at the interval described above. Although requiring condition assessments is a good policy, management must monitor and enforce the policy. Otherwise, as we saw at the community colleges, there is no accountability for the data. Without accountability, there is no incentive for individuals to maintain the information.

The Departments of General Services and Planning and Budget should establish a policy for agencies to periodically complete facility condition assessments on their facilities. This policy should address the expectations for new facilities and old facilities. General Services should provide guidance and assistance to agencies on how to perform these assessments. In addition, agencies and institutions should develop internal policies and procedures for completing condition assessments on their facilities and maintaining the information.

Recommendation #10: The Departments of General Services and Planning and Budget should require all agencies to complete at a minimum a life cycle assessment, but preferably a facility condition assessment. In addition, they should establish policies and procedures for maintaining and updating building condition information to support a statewide Facility Assessment Program. All agencies and institutions should develop internal policies and procedures for completing condition assessments and maintaining this information periodically.

Along with building condition data, the Department of General Services should consider establishing data fields in FICAS that will allow management to make more strategic decisions. These Commonwealth specific fields could include special information such as funding sources, bed space, populations, building use, treatment types, or other programmatic topics. In addition, General Services should develop a standardized usability index for agencies and institutions. A usability index will add data not normally related to building conditions but specific to an agency and institution's services. The Auditor of Public Accounts established a few Commonwealth specific data fields in FICAS discussed in Chapter 2.

When collecting building information and other pertinent data such as those discussed above, agencies and institutions should have some reasonable and consistent means for summarizing and collecting the data to assist management in making sound business decisions. The Departments of General Services and Planning and Budget should consider developing a capital outlay "score card" for agencies to gather meaningful information to determine the necessary action for the Commonwealth.

This score card should have a ranking system by category for decision making in the Commonwealth. These categories would include items such as funding options, operational and maintenance costs, programmatic needs, economic impacts, energy and environmental impacts, space availability and Governor's initiatives. This ranking system could help determine priority of projects, needs, and importance to the Commonwealth. The score card should help make sound financial decisions for determining the cost benefit for renovating buildings, new construction, or accepting public private partnership proposals. Additionally, one organization should either do all the ranking or have responsibility to review the rankings to determine if the scoring

adequately includes all needs of agencies and institutions and there is consistent application of the rankings for all projects.

<u>Recommendation #11</u>: The Department of General Services should establish a "score card" for all agencies and institutions to use for determining their overall capital planning and budgeting. This score card should include input from the Department of Planning and Budget and the State Council of Higher Education for Virginia.

CHAPTER 6

STATUS OF LEGISLATIVE MANDATES AND FICAS IMPLEMENTATION AND TRANSFER

Study Implementation Committee

During our interim review, we identified multiple recommendations to revamp capital budgeting and planning in the Commonwealth. The Appropriations Act mandated a study implementation committee to develop procedures to implement these recommendations. This committee consists of representatives from the Department of Planning and Budget, Department of Accounts, Department of General Services, State Council of Higher Education for Virginia, the Auditor of Public Accounts, House Appropriations and Senate Finance Committees, and the Offices of the Secretaries of Administration and Finance.

The study committee recommendations should align with the Governor's real estate initiative set out in Executive Order 75. The Secretary of Administration is to ensure coordination with the Governor's real estate initiative. The committee was to report its recommendations to the Governor and the General Assembly by September 1, 2005. The committee has identified areas where new policies, policy revisions, Code of Virginia revisions, and budget language amendments are necessary. However, the committee has not developed any recommendations to date. Because the necessary changes relate to planning and budgeting for capital outlay, the timing of any changes is important. The Department of Planning and Budget and the agencies and institutions began planning and gathering information for the 2006 – 2008 biennial budget before the General Assembly established this committee. Changes to the capital budgeting process cannot happen in the middle of the process. Since we made such drastic recommendations for changes in our interim report, the committee plans to make recommendations in time for the 2008 – 2010 biennial budget development.

In addition, the study committee assisted the Directors of the Departments of General Services and Planning and Budget in developing and issuing the criteria defining facilities for which condition assessments are not necessary. The study committee reviewed the criteria before issuance to ensure that the criteria were in alignment with its future recommendations.

FICAS Transfer and Continuation

According to the Appropriations Act, upon completion of the initial implementation phase of FICAS, the Auditor of Public Accounts will transfer responsibility and oversight of FICAS to General Services on or about May 1, 2006. Successful continuation of FICAS and development of a Facility Assessment Program as discussed in Chapter 5 will depend on General Services' oversight and the commitment and participation of the agencies and institutions. Cooperation and participation from the agencies and institutions of higher education has been very positive. They acknowledge the benefits of having this information and have worked diligently to perform assessments and populate the system.

We have concerns over whether General Services has the resources to administer FICAS and the Facility Assessment Program. Over the years, General Services has taken large budget cuts, which have prevented them from accomplishing their many responsibilities related to building maintenance and construction. To be successful, General Services needs adequate funding to administer FICAS and the Assessment Program. Without the proper personnel and resources, FICAS will fail.

As mandated, General Services submitted a budget request to the Department of Planning and Budget indicating General Services' needs for administering and maintaining FICAS. This request included creating two positions to establish the program and maintain the system. It also included funds for training,

information technology, and consultant fees. The request was approximately $1 million from general and non-general fund sources. VFA has begun discussions with General Services about an action plan for them to transition responsibility for FICAS. VFA put together a proposal for their services to support this plan. In general terms, the plan includes:

- establishing central staffing roles/responsibilities for FICAS at each agency;
- establishing agency level staffing roles and responsibilities for FICAS;
- training all agency liaisons on how to be "data owners;"
- establishing policies and procedures for capital planning for the next fiscal year;
- establishing policies and procedures for quality assurance and quality control, which will include scrubbing data in FICAS;
- establishing a "decision support tree" to make budget considerations more transparent;
- continuation of licensing agreements;
- establishing annual training updates for assessors and managers; and
- developing and establishing other capital planning services including data management as needed.

Because General Services does not have any funding in the current fiscal year to administer FICAS, they requested an estimate from VFA of the absolute bare minimum that it would take just to administer the system. Without adequate funding to not only administer the system but also develop and oversee the Assessment Program, General Services cannot effectively take over the system. We recommend that the General Assembly and the Governor consider and approve funding for General Services to establish the Assessment Program and administer FICAS.

Recommendation #12: We recommend that the General Assembly and the Governor consider and approve sufficient funding for General Services to establish an Assessment Program and administer FICAS.

General Services Organization

Funding is not the only obstacle to the success of FICAS and the Assessment Program at General Services. We have observed a lack of consistent leadership at General Services, which, with each change in Administration, the Director of General Services changes and with it the focus of the agency. In addition, General Services' current structural organization may not support General Services' current responsibilities or those related to taking on the administration of FICAS and the Assessment Program.

During the past year, General Services' management has taken steps to improve several areas of the organization by hiring new personnel and allowing them to change focus and provide new direction to these areas. This specifically occurred in the Office of Fleet Management and creation of the Division of Real Estate Services.

Recognizing the need for change and improvements due to recent audit report from the Auditor of Public Accounts and the Joint Legislative Audit and Review Commission, General Services hired a new Fleet

Administrator. General Services' management provided the new Fleet Administrator with the opportunity to implement a new vision for Fleet Management and allowed him to reorganize the office and focus on customer service. As a result, Fleet Management now has a Vehicle Maintenance Control Center that provides state employees with 24 hour emergency assistance and easier access to vehicles. They also implemented a new automated Fleet Management System that supports vehicle maintenance and fleet operations. Without new personnel and ideas or support from management, these changes would not have occurred.

In January 2005, General Services established the Division of Real Estate Services (DRES) within the Department of General Services, based on studies completed by the Secretary of Administration, to help meet the objectives of the Governor's real estate initiative. General Services' management, seeing the need for experience and new direction, filled the position of Division Director with an individual from the private real estate sector. DRES is responsible for the Commonwealth's real estate management practices, and the Division Director is working to align these practices with those in the private sector. According to the Division Director, through co-locations, improved negotiations, and new standards, DRES has saved the Commonwealth approximately $10 million. By bringing in new management with in-depth experience and knowledge in the real estate area, General Services has improved customer service while creating savings for the Commonwealth.

Following in the success of these two new initiatives, the Director of General Services should consider doing the same for FICAS and the new Facility Assessment Program. The current division where FICAS could possibly reside is the Division of Engineering and Buildings (DEB). This division has two bureaus within it: the Bureau of Facilities Management (BFM) and the Bureau of Capital Outlay Management (BCOM). BFM provides maintenance, operation, repair, and technical services for General Services managed facilities and properties in the metropolitan Richmond area. BFM also manages capital outlay projects and maintains the master plan for the capitol complex. BCOM provides professional and administrative staff support for the Director of DEB in his role as the Building Official for State Buildings. BCOM also assists the Department of Planning and Budget in the capital budgeting process.

Putting FICAS and the Assessment Program in DEB or one of its bureaus might not be the best solution for success. This program is a statewide endeavor. BFM focuses on the Richmond Capital Square. BFM does not have the personnel or customer service orientation necessary to administer this statewide program. The amount of customer interaction and service required in administering a statewide system can be considerable. The FICAS administrator will have to manage the user license accounts, security issues related to user access, schedule training, and handle inquiries on the system and program. All of these communications and activities are time consuming and require patience as they will have to deal with personnel from multiple agencies and varying levels of expertise. The FICAS and program administrator will have to set policies and procedures for the system and program and communicate and enforce these with all state agencies. There are also capital planning, budgeting, and financing activities that relate to administering FICAS and the Assessment Program. BFM does not currently perform duties in these areas. However, BCOM assists Planning and Budget in the capital budgeting process. As we noted in Chapter 3, BCOM's roles and responsibilities are not well defined, but given its regulatory responsibilities as state building code official and procurement oversight, these additional duties may not be a good fit.

The Director of General Services should consider reorganizing responsibilities within General Services to separate statewide capital outlay and maintenance from capital outlay and maintenance for the Capital Square complex. The statewide responsibilities consolidated under one administrator should provide proper support and administration of FICAS and the Assessment Program. General Services should consider hiring an individual with assessment and capital planning experience to oversee the statewide capital outlay and maintenance functions along with FICAS and the Assessment Program. As seen in the positive changes with Fleet Management and DRES, when management hires new personnel and allows them to move forward with new ideas, positive changes and improvements can occur in the Department.

In addition, we found that during this initiative, General Services has not established itself as an expert in facilities assessment with outside agencies and personnel. We also found that outside agencies and institution personnel do not respect General Services as an agency. As a service agency, General Service supports the Commonwealth's missions through the services it offers. General Services needs to improve its focus on customer service with agencies and institution personnel responsible for facility management. We found that most agency capital outlay and construction management personnel that interact with General Services are not satisfied with the quality of service they receive. With this said, agencies and institutions are not likely to follow direction or request assistance from General Services without restructuring its capital outlay and facility service areas and making changes in personnel and attitudes.

Recommendation #13: The Department of General Services should consider reorganizing responsibilities within General Services to separate statewide capital outlay and maintenance from capital outlay and maintenance for the Capital Square complex. General Services should consider hiring an individual with assessment and capital planning experience to oversee this statewide initiative. This program should have a statewide, customer service oriented focus.

As an alternative to reorganizing General Services, the General Assembly and the Governor may wish to consider creating a new department to oversee and manage the Commonwealth's real property, the Department of Capital Asset Management. This department could encompass all statewide functions for areas such as master planning, design and construction, maintenance, real estate processes, budgeting, and the financial accounting and reporting for these areas. This department would work closely with Planning and Budget in making capital funding decisions and reporting on the status of capital projects. Any statewide responsibilities for capital outlay, maintenance, and real estate services currently at General Services could transfer to the new department. This would leave General Services with capital outlay and maintenance of the Capital Square complex and its service areas such as procurement, fleet management, and the distribution center. The Director of the Department of Capital Asset Management could oversee the strategic planning efforts and improvements to the capital outlay and maintenance processes through participation in the Deferred Maintenance Implementation Committee.

Recommendation #14: As an alternative to reorganizing General Services, we recommend the General Assembly and the Governor consider creating a new department to oversee and manage the Commonwealth's real property.

State Council of Higher Education for Virginia

Institutions of higher education make up a significant portion of all maintenance and capital needs in the Commonwealth. As a result, involvement of the State Council of Higher Education for Virginia (SCHEV) is essential to FICAS' success. SCHEV is the Commonwealth's coordinating body for higher education and the Code of Virginia requires SCHEV to analyze each institution's operating and capital budget request and provide recommendations to the Governor and the General Assembly regarding the approval or modification of each request.

Given this role, SCHEV should work with the Department of Planning and Budget to have one uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request and report capital outlay information. This mechanism should make use of FICAS and the information in it. SCHEV and Planning and Budget should work together to make sure that there are no duplication of efforts in reporting information. As FICAS continues and General Services creates the Assessment Program policies and procedures, SCHEV will have responsibility for ensuring that institutions of higher education comply with these policies, perform assessments, and maintain the information in FICAS.

<u>Recommendation #15</u>: We recommend the State Council of Higher Education for Virginia work with the Department of Planning and Budget to have one uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request capital outlay. This mechanism should make use of FICAS and the information in it. SCHEV and Planning and Budget should work together to make sure that there are no duplication of efforts in reporting information. SCHEV will be responsible for ensuring that institutions of higher education comply with these policies, perform assessments, and maintain the information in FICAS.

The recommendations outlined above along with our recommendations in the Interim Report on Deferred Maintenance are essential for the Commonwealth to properly manage and maintain facilities. Without these changes, the Commonwealth's buildings will continue to deteriorate until its infrastructure of buildings reach a critical state and becomes a health and safety threat.

Commonwealth of Virginia

Walter J. Kucharski, Auditor

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

December 16, 2005

The Honorable Mark R. Warner
Governor of Virginia
State Capital
Richmond, VA

The Honorable Lacey E. Putney
Chairman, Joint Legislative Audit
and Review Commission
General Assembly Building
Richmond, VA

We have completed the second phase of our audit to determine the amount of deferred maintenance costs in the Commonwealth of Virginia as mandated by Chapter 4 Section C. 194.10 of the 2004 Special Session of the General Assembly. The audit also proposed options to fund the backlog of deferred maintenance and the ongoing major maintenance needs in the Commonwealth.

We have completed this audit in two phases. The first phase of the review included significant recommendations to reengineer the current capital outlay and maintenance processes in the Commonwealth. The second phase includes oversight of the collection, analysis, and prioritization of the building assessment data needed to audit deferred maintenance costs. It also includes the acquisition of software to develop and implement a Facility Inventory and Condition Assessment System throughout all state agencies and institutions to gather information on the maintenance and capital renewal needs of all Commonwealth owned buildings. We conducted our review in accordance with the standards for performance audits set forth in Government Auditing Standards, issued by the Comptroller General of the United States.

To assist in this process, we created a Deferred Maintenance Task Force including representatives from various areas of state government with consideration of not only large agencies and institutions with facilities, but agencies and institutions that have public safety and health facilities.

Objectives

The members of the Deferred Maintenance Task Force assisted the Auditor in meeting the objectives of the review. The objectives were to:

1. establish responsibilities for the designated assisting agencies;

2. develop a project plan including a timeline of events with target dates;

3. establish a statewide definition for Deferred Maintenance and consider the relationship of deferred maintenance to regular maintenance activities, maintenance reserve, and capital outlay;

4. obtain a complete and reliable list of buildings, including square feet, owned by the Commonwealth;

5. obtain a complete listing of building maintenance systems used by state agencies and institutions and the procedures surrounding these systems;

6. determine which agencies and institutions currently track deferred maintenance and have current facility condition assessments for their buildings;

7. analyze maintenance expenditures in relation to buildings owned by agencies over a five year period to look for trends;

8. review maintenance practices at the following agencies: Department of General Services; Department of Corrections; Department of Transportation; George Mason University; Virginia Community College System; and the Department of Mental Health, Mental Retardation, and Substance Abuse Services. This includes facility management information relating to building and grounds staffing, budgetary decisions, and maintenance actually performed for each agency;

9. determine data needs for addressing the current backlog and future projects for possible use in the Request for Proposal for a system and in gathering data from agencies that already have a system;

10. develop a methodology for phasing in the implementation of the Comprehensive Facility Asset Management System, which includes consideration of agencies owning the majority of the buildings, but also gives consideration to public safety and health facilities;

11. determine the need for a request for proposal for a new system or if the Commonwealth has an existing system it can use. If necessary, issue a request for proposal for acquiring software and training to develop and implement a Comprehensive Facility Asset Management System throughout all agencies and institutions. If a contract or system already exists, determine how the Commonwealth can expand its use to other agencies and institutions;

12. develop procedures for agencies to initially collect and summarize the data to determine the deferred maintenance costs. This includes inspections of facilities;

13. develop policies and procedures for continually collecting and maintaining information on Deferred Maintenance using the new system;

14. After purchase and installation of the system and collection of data, the Auditor of Public Accounts will audit the information to ensure accuracy and reliability of the data. The Auditor of Public Accounts will then identify total deferred maintenance costs, prioritize problems, and propose deferred maintenance budgets based on the information in the Comprehensive Facility Asset Management System;

15. determine interim and long-term plan for reducing the backlog of deferred maintenance and develop a plan to prevent this backlog for future construction projects;

16. research and evaluate the funding options and best management practices used by the federal, state, or local government to address the deferred maintenance backlog of and ongoing need for major maintenance projects for state buildings; and

17. upon completion of this project, responsibility for the system will belong to the Department of General Services.

Scope and Methodology

Our main objective in this audit was to develop a process to determine the amount of deferred maintenance and assist both the Governor and General Assembly with a means to set priorities to address the backlog of deferred maintenance. We acquired and implemented a Facility Inventory and Condition Assessment System (FICAS) to gather information on the maintenance and capital renewal needs of all Commonwealth owned buildings to identify this backlog of deferred maintenance. We provided all agencies and institutions with access and training for FICAS and guidance on how to perform assessments and enter the information in FICAS. However, we did not participate in the actual assessment or data entry processes. We audited through analytical procedures and detailed testing of all agencies and institutions assessment information in FICAS. These analytical procedures and detailed testing included reviewing the asset size, year constructed, asset numbers, asset use, cost models assigned, system name, requirements, actions, and costs. We evaluated the assessment methods and the qualifications of the assessor to ensure reliability and consistency of the assessment information. We proposed options to fund the identified backlog of deferred maintenance through establishing an Operating and Continuous Maintenance Reserve Fund and a Capital Asset Preservation and Renewal Reserve Fund.

Results

We determined there are 10,449 buildings inventoried in FICAS. Approximately 50 percent of those buildings received a detailed assessment, life cycle assessment, or data extrapolation. These buildings comprise the total backlog of deferred maintenance of $1.49 billion. Of this backlog, there are approximately $1.1 billion in requirements that need immediate attention.

We found inconsistencies and errors in the inventory and assessment data in FICAS; however, we do not believe these items materially affect the information in FICAS nor the determination of the amount of deferred maintenance in the Commonwealth.

We recommend that the Governor and General Assembly consider the following:

- implement the recommendations from our Interim Report on Deferred Maintenance;

- direct General Services and Planning and Budget to establish policies and procedures for maintaining and updating building condition information to support a statewide Facility Assessment Program;

- approve sufficient funding for the Department of General Services to establish an Assessment Program and administer FICAS;

- reorganize the Department of General Services and its divisions to ensure competent and productive leadership of FICAS and the Assessment Program;

- As an alternative to reorganizing General Services, create a new Department of Capital Asset Management to oversee the statewide assessment and capital outlay programs; and

- direct the State Council of Higher Education for Virginia to work with Planning and Budget to have one uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request capital outlay.

We discussed this final report with the Departments of General Services on December 13, 2005. We have included responses from the Department of Corrections, the Department of General Services, and the State Council of Higher Education for Virginia at the end of this report. The Department of Planning and Budget in general agreed with the report and chose not to provide a response for inclusion in the report.

This report is intended for the information and use of the Governor and General Assembly, management, and the citizens of the Commonwealth of Virginia and is a public record.

AUDITOR OF PUBLIC ACCOUNTS

DCB/kva

APPENDIX A

Study Language

Study Language

Auditor of Public Accounts (133)

2. C. The Auditor of Public Accounts shall conduct an audit to determine the amount of deferred maintenance costs in the Commonwealth in accordance with Item C-194.10 of this act. The Auditor shall use the funding provided in Item C-194.10 of this act to assist agencies and institutions to acquire the software and training necessary to accumulate the information to perform the audit.

Central Capital Outlay (949)

C-194.10 Maintenance Reserve: Deferred Maintenance Study

A. 1. Out of the amounts for Maintenance Reserve shall be paid $300,000 the first year for the costs of an audit of the Commonwealth's deferred maintenance needs.

2. The Auditor of Public Accounts shall perform an audit to determine the amount of deferred maintenance costs in the Commonwealth. The Auditor shall conduct the audit in phases with a preliminary report of the audit scope to be presented to the Chairmen of the Senate Finance and House Appropriation Committees in May of 2004, an interim progress report to the General Assembly by December of 2004, and the final report by December 2005. The first phase of the audit shall give consideration to including not only large agencies and institutions with facilities, but agencies and institutions that have public safety and health facilities.

3. To assist the Auditor of Public Accounts, the following agencies and institutions shall designate and assign at least one individual from each entity to assist in the audit: Department of General Services, the Department of Corrections, the Virginia Community College System, George Mason University, Department of Transportation and the State Council of Higher Education for Virginia. These individuals should have sufficient experience and knowledge to assist the Auditor of Public Accounts in developing procedures for collecting information and assisting agency and institutional personnel with advice and guidance in implementing, collecting and summarizing information for this audit. These individuals shall work with agencies and institutions to ensure that they are properly accumulating information.

4. The Auditor of Public Accounts shall oversee the collection, analysis, and prioritization of the data needed to audit deferred maintenance costs. All state agencies and institutions shall work with and assist the Auditor of Public Accounts to collect this data in relation to their agency.

5. As part of this audit, the Auditor of Public Accounts shall establish procedures and acquire software to develop and implement a Capital Outlay Deferred Maintenance System throughout all state agencies and institutions to gather information on the maintenance needs of all Commonwealth owned buildings. In addition to acquiring the software, the Auditor of Public Accounts will acquire the necessary training for the state agencies and institutions.

B. In conjunction with the audit of deferred maintenance costs required by paragraph A of this item, the Auditor of Pubic Accounts shall 1) evaluate the funding options and best management practices used by the federal, state or local government to address the backlog of and ongoing need for major maintenance projects for state buildings, and 2) recommend options to address the on-going need for major maintenance of state buildings which may include a) cash, b) debt, and c) setting aside funds in anticipation of future maintenance needs. The auditor shall report his findings and recommendations to the Governor and the General Assembly no later than January 1, 2005.

C. A study committee consisting of representatives from the Department of Planning and Budget, Department of Accounts, State Council of Higher Education in Virginia, the Auditor of Public Accounts, House Appropriations and Senate Finance Committees, and the Offices of the Secretaries of Administration and Finance shall develop procedures to implement the recommendations relating to budgeting and funding from the Auditor of Public Accounts' Interim Report on Deferred Maintenance in the Commonwealth issued December 2004. The recommendations shall be in alignment with the real estate initiative objectives set out in Executive Order 75. The study committee shall report its recommendations to the Governor and the General Assembly by September 1, 2005. Representatives from the Office of the Secretary of Administration will ensure coordination with the Governor's real estate initiative.

D. In connection with the audit of deferred maintenance authorized in this Item, institutions of higher education and other agencies of the Commonwealth shall perform facility condition assessments of their facilities as quickly and as comprehensively as if feasibly possible. By July 1, 2005, the Directors of the Departments of General Services and Planning and Budget shall issue criteria defining facilities for which condition assessments are not necessary.

E. Upon completion of the pilot phase of the implementation of the Facility Inventory and Condition Assessment System as required by Item 194.10 of this Act, on or about May 1, 2006 the Auditor of Public Accounts shall transfer responsibility for the system and oversight for implementation of the system at the remaining agencies in the Commonwealth to the Department of General Services. The Auditor of Public Accounts shall notify the Chairmen of the Senate Finance and House Appropriations Committees of the transfer of the Facility Inventory and Condition Assessment to the Department of General Services. No later than October 1, 2005 the Director of the Department of General Services shall report to the Governor and the Chairman of the House Appropriations and Senate Finance Committees an estimate of the additional resources and personnel requirements, if any.

C-194.20 Planning: Implementation of the Capital Outlay Recommendations

A study committee consisting of representatives from the Department of Planning and Budget, State Council of Higher Education in Virginia, the Auditor of Public Accounts, House Appropriations and Senate Finance Committees, and the Offices of the Secretaries of Administration and Finance shall develop procedures to implement the recommendations relating to budgeting and funding from the Auditor of Public Accounts' Interim Report on Capital Outlay in the Commonwealth issued December 2004. The recommendations shall be in alignment with the real estate initiative objectives set out in Executive Order 75. The study committee should report its recommendation to the Governor and the General Assembly in time to be used in developing the by September 1, 2005. The representatives from the Office of Secretary of Administration will ensure coordination with the Governor's real estate initiative.

APPENDIX B

Interim Review of
Deferred Maintenance
in the Commonwealth Recommendations

Interim Review of Deferred Maintenance in the Commonwealth Recommendations

Recommendation #1: We recommend that the General Assembly enact legislation to define master plans in the Code of Virginia as "the translation of an agency's or an institution's mission into a capital outlay plan. The master plan will include the prioritization of short- and long-term programmatic needs that translate into site improvements, property acquisition, building expansions, renovations, and preservation type projects. The components of a typical master plan include information such as: user demographics, economic and regional issues, regional and state demographics, planning processes, master planning, analysis of existing facilities, proposed facilities improvements, analysis of existing site, proposed site improvements, project implementation, funding strategies, and master plan updating strategy."

Recommendation #2: We recommend that the General Assembly enact legislation to require all agencies and higher education institutions to develop a comprehensive master plan as defined above. The Departments of General Services and Planning and Budget should review these master plans. The agency head and the Cabinet Secretaries should approve all master plans.

Recommendation #3: We recommend that the Commonwealth purchase a complete asset management system that integrates the financial aspect of purchasing an asset with the stewardship and custody responsibilities that come with ownership.

Recommendation #4: We recommend that the General Assembly and the Governor consider requiring facility condition assessments and make scheduled, periodic updates a requirement for agencies and institutions that own at least one building.

Recommendation #5: We recommend that the Commonwealth budget and account for maintenance funding separately using program codes or other means for state agencies, similar to that for higher education. The Commonwealth should hold agency management accountable for the maintenance budget and the condition of buildings. For details on how this fits into the overall revamping of the budgeting process, see the section "Changing the Budget Process" later in this chapter.

Recommendation #6: The Governor and General Assembly should consider establishing a reserve fund for each agency to collect funds to pay operational and continuous maintenance activities. For details on how this fits into the overall revamping of the budgeting process, see the section "Changing the Budget Process" later in this chapter.

Recommendation #7: The General Assembly may wish to require agencies and institutions to provide Total Life Cycle Costing determinations 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. (We made this same recommendation in our report "Review of the Commonwealth's Capital Outlay Process" issued November 2004.)

Recommendation #8: The General Assembly and the Governor may wish to consider revamping the budget process as it relates to facility maintenance, renewal, and renovation, including new definitions and program codes as described above. We recommend the Governor and General Assembly establish a reserve fund for each agency. The Operating and Continuous Maintenance Reserve fund will hold appropriated or collected funds at each agency to pay for operational and continuous maintenance activities as they arise. We recommend eliminating the Maintenance Reserve program.

Recommendation #9: We recommend that the General Assembly and the Governor consider establishing a facility condition level policy for state-owned facilities.

Recommendation #10: The Secretary of Administration may wish to direct General Services to develop facility maintenance standards and a compliance review program to comply with Code of Virginia § 2.2-1131.1.

Recommendation #11: The General Assembly and the Governor may wish to consider requiring agencies to develop a maintenance program that complies with the facility maintenance standards in order to be eligible to receive funding for operating and continuous maintenance.

Recommendation #12: General Services should establish rental rates for its occupants that will provide adequate funding for operating and continuous maintenance services and capital renewal activities. JLARC's review and approval should ensure the rental rates are set to provide adequate maintenance services. If these rental rates are higher than surrounding rates in Richmond, the Commonwealth should consider providing General Services with an appropriation that will help fund the operating and continuous maintenance and capital renewal activities or selling what they own and renting other property.

Recommendation #13: The General Assembly and the Governor may wish to consider requiring agencies to perform a life cycle cost analysis, not only during the planning phase of a building, but once the building reaches the point when it is time to replace major systems and no later than when the cumulative cost of the needed repairs and replacements reach 60 percent of the current replacement value of the building.

Recommendation #14: The General Assembly may wish to direct the Governor to include in the next biennial budget the assessment and allocation from agency and institutional revenue sources the funding of operating and continuous maintenance costs.

Recommendation #15: The General Assembly may wish to direct that the Governor have the State Comptroller and the Director of Planning and Budget establish separate funds by agency and institution for the accumulation of long-term funding for continuous maintenance projects.

Recommendation #16: The General Assembly may wish to have the Governor and Director of Planning and Budget develop and submit during the next biennial budget both operating and continuous maintenance usage reports from the agencies and institutions.

Recommendation #17: The General Assembly may wish to provide some additional funding for continuous maintenance projects, provided the appropriate restrictions exist.

Recommendation #18: In order to begin addressing the current deferred capital maintenance backlog, the General Assembly may wish to consider issuing debt or using cash to address this issue, but with strict guidelines. Those guidelines should consider only capital maintenance projects for individual facilities whose total cost is less than 60 percent of the facility's replacement cost; components of the project should include only major building systems that have a useful life of at least ten years; the useful life of the capital maintenance project should not be more than the life of the building it relates to; and any debt issued in conjunction with a capital maintenance project should not exceed ten years or the useful life of the project.

Recommendation #19: To maintain accountability, the General Assembly should require that the Governor certify that projects approved for capital maintenance and debt financing meet the criteria set for this program. Agencies and institutions approved for funding should provide periodic reports on the projects and status on the facility's condition after completion of the project.

Recommendation #20: The General Assembly may wish to direct that the Governor have the State Comptroller and the Director of Planning and Budget establish separate reserve funds by agency and institution for the accumulation of long-term funding for capital renewal activities and deposit into this fund amounts to fund capital improvements, renovations, or new building construction.

APPENDIX C

Capital Outlay Report Recommendations

Capital Outlay Report Recommendations

Recommendation #1: 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.

Recommendation #2: 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 appropriations.

Recommendation #3: 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 the project approval.

Recommendation #4: 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.

APPENDIX D

Definitions

Definitions

Action is a strategy for correcting a requirement, which includes the needed work and an estimate of the construction cost.

Campus includes the grounds and all facilities at one specified location or within an area.

Capital Improvement and Renovation is the rebuilding or restoring of facilities through additions or alterations so they can be used more efficiently and effectively and better meet programmatic needs. These improvements and renovations will extend the useful life and preserve the useable condition of the facilities, components, and systems.

Capital Outlay Project is the acquisition of real property (including buildings or plant) or machinery or equipment, new construction, and improvements related to state-owned real property, buildings, plant, machinery or equipment (including plans therefore). It shall include any improvements to real property leased for use by a state agency, and not owned by the Commonwealth, when such improvements are financed by public funds and become state property upon the expiration of the lease.

Capital Renewal is the planned repair and replacement of facility systems and components having a life less than the life of the facility so the systems and components will last as long as the anticipated life of the facility. Such projects could include the repair or replacement of damaged or inoperable equipment, components of a plant, or existing utility systems; correction of deficiencies in property and plant that are required to conform with building and safety codes or those regulations associated with hazardous condition correction; or correction of deficiencies in fire protection, energy conservation, and handicapped access. Examples include replacing a roof or heating system that has a useful life of 20 years in a building with a useful life of 40 years.

Continuous Maintenance is the preserving of facilities and their components from failure or deterioration, which is necessary to realize its originally anticipated useful life. These activities include preventive maintenance; cyclic maintenance; repairs; painting; resurfacing; periodic inspection, adjustment lubrication, and cleaning (non-janitorial) of equipment; special safety inspections; periodic condition assessments; and other actions to assure continuing service and to prevent breakdown. Examples include changing belts, inspecting roofs, and replacing filters.

Corrective Maintenance is maintenance performed on malfunctioning equipment or building systems and components whose failure does not jeopardize personnel, equipment, or significant agency services.

Cost Model is the relevant cost information for each system in an asset. Each asset system is identified along with its projected lifetime in years, the cost of that system, the percent of the current replacement value, and the percent renewed at the end of its lifetime. Cost models calculate an asset's cost per unit of measurement, which determines the current replacement value.

Current Replacement Value (CRV) is the cost to replace the facility with the cost of replacement defined as the requirement to duplicate the internal and external building envelope providing the same level of functionality based upon accurate local labor and material costs (design, program management etc.)

Deferred Maintenance occurs when the facility owner leaves unperformed planned maintenance, repairs, replacement, and renewal projects due to a lack of resources or perceived low priority and deferral of the activity results in a progressive deterioration of the facility condition or performance. The cost of the deterioration including capital costs, operating costs, and productivity losses is expected to increase if the activity continues to be deferred. In FICAS, deferred maintenance is any requirement assigned a priority one, two, or three.

Deferred Maintenance Backlog is the total dollar amount of deferred maintenance deficiencies identified by a comprehensive facilities condition assessment of facilities and their integral systems and equipment.

Deficiency is any inadequate or non-functional need of a facility or equipment identified during an assessment completed by qualified personnel.

Emergency Maintenance is the repair or replacement of property requiring immediate attention because the functioning of a critical system is impaired, or because health, safety, security of life or property is endangered.

Facility is any purchased or constructed roofed or walled structure that is built, installed, or established.

Facility Condition Assessments (FCA) are physical periodic inspections by qualified personnel to fully determine and document the condition of a facility or item of equipment and to identify repair, rehabilitation, and replacement needs and costs.

Facility Condition Index (FCI) is a ratio comparing the deferred maintenance deficiencies to the current replacement value of the facility or equipment item to measure the condition of the facility or equipment item at a specific time. The higher the ratio, the worse the condition of the building is.

Facility Inventory and Condition Assessment System (FICAS) is the central repository for the Commonwealth's facility inventory and building condition assessment. FICAS is a web-enabled Oracle database system application called VFA.*facility*. Vanderwiel Facility Advisors owns and hosts the application.

Life Cycle Analysis is a structured approach or methodology to establish life cycle costs. This involves an evaluation of funding options, programmatic needs, economic impact, and space availability. This approach includes options to buy, lease, build, sell, renovate, or demolish.

Life Cycle Assessments (LCA) are physical inspections of a facility by qualified personnel to inventory and collect information about the building's capital components, size of the building, and age of the building and equipment. This type of assessment allows the personnel to quantitatively adjust the lifespan of the components to reflect its real condition. The entered assessment information creates a cost model to estimate the existing deferred maintenance and future renewal requirements for the capital components

Life Cycle Costs are the anticipated expenses for each stage in the life of a facility and its components. Life cycle costs will include capital investment costs, financing, operations and maintenance, repair and replacement, salvage costs, facility alterations and improvements, and functional use costs.

Maintenance Reserve Project is a single effort undertaking which involves major repair or replacement to plant, property or equipment, normally costing from $25,000 to $500,000. Maintenance Reserve Projects include the repair or replacement of damaged or inoperable equipment, components of a plant, or existing utility systems; correction of deficiencies in property and plant that are required to conform with building and safety codes or those regulations associated with hazardous condition corrections; or correction of deficiencies in fire protection, energy conservation, and handicapped access.

Master Plan is the translation of an agency's or an institution's mission into a capital outlay plan. The master plan will include the prioritization of short and long-term programmatic needs that translate into site improvements, property acquisition, building expansions, renovations, and preservation type projects. The components of a typical master plan include information such as: user demographics, economic and regional issues, regional and state demographics, planning processes, master planning, analysis of existing facilities, proposed facilities improvements, analysis of existing site, proposed site improvements, project implementation, funding strategies, and master plan updating strategy.

Operational Maintenance is the day-to-day operations of a facility to maintain its functionality. This would include security, janitorial, housekeeping and other cleaning services, utilities, snow removal, infrastructure and landscaping functions. These activities do not affect the useful life of an asset.

Preventive Maintenance is the periodic scheduling and planning of maintenance activities that extends and controls deterioration of permanent equipment and plant facilities. This includes repetitive and anticipated work planned to perform inspections, provide adjustments, continuous cleaning, and minor repairs of building systems and equipment.

Priority is the severity of a requirement and the scheduled time frame for correcting the deficiency. A user assigns a priority to each requirement.

Requirement Index (RI) is a ratio identical to the FCI, except it considers all requirements (Priorities 1 – 5) in calculating the condition of the facility at a specific time. The higher the ratio, the worse the condition of the building is.

Routine Maintenance is the unscheduled, simple maintenance activities, which occur day-to-day and can be accomplished within a reasonable time frame.

Requirement is a facility need including deferred maintenance, code compliance issues, functional requirements and capita improvements. Each requirement is assigned a priority for correcting the deficiency.

Vanderwiel Facility Advisors (VFA) is a privately-held corporation headquartered in Boston, Massachusetts. They are a leading facility advisory services company with roots in Engineering and Architectural disciplines.

APPENDIX E

Summary of Assessment Methodology

Summary of Assessment Methodology

OPTION 1- Facility Condition Assessment	OPTION 2- Life Cycle Assessment	OPTION 3- Combination
Complete inventory of buildings and their components	Complete inventory of buildings and their components	Complete inventory of buildings and their components
Deferred Maintenance = Known amount based on actual deficiencies of facilities and their components identified through detailed facility condition assessments only for those facilities actually assessed.	Deferred Maintenance = Estimated through assumption and predictions of when individual facilities and their components should have reached the end of their useful lives. Two assumption options: (1) assume nothing has ever been replaced when it hit its useful life (2) assume everything has been replaced when it hit its useful life. Can adjust either assumption based on knowledge of actual replacements/renewal.	Deferred Maintenance = Initial estimate based on assumptions and predictions of when individual facilities and their components should have reached the end of their useful lives. Based on the initial estimates, prioritize facilities to perform actual assessments within each agency. Then systematically collect and record detailed facility condition assessment data over time.
Perform actual on-site physical inspection of each building and its components.	Actual on-site physical inspections not required. Most information can be gathered from current records or facility personnel knowledge.	Uses current records or facility personnel knowledge to perform initial estimate, and then perform actual on-site physical inspections.
Subjective assessments	Theoretical assessments	Both subjective and theoretical assessments
Predicts the future annual renewal spending requirements by year.	Predicts the future annual renewal spending requirements by year.	Predicts the future annual renewal spending requirements by year.
Requires a high level of technical knowledge.	Requires a moderate level of technical knowledge.	Initially requires a moderate level of technical knowledge, with a high level of technical knowledge required for the eventual assessments.
Likely to require outsourcing.	Likely able to use internal agency resources.	Internal and external resources likely required.
$.10 - $.12 square foot	$.05 - $.07 square foot if contracted out.	Combination of pricing based on other two options.
Accuracy is 99%. Provides the backlog in detail at the building and component system level.	Accuracy is 93% - 95% overall for all buildings combined. However, accuracy is only 57% at the individual building or component system level. Provides the magnitude of the backlog but not the specific details that support it.	Increased accuracy for complete buildings and not components. Provides an estimate of the magnitude of the backlog with the ability to develop the specific details of the backlog over time.

APPENDIX F

Level of Effort for Assessment Methodologies

Level of Effort for Assessment Methodologies

Life Cycle Assessment

Qualified Individual: An individual, such as an agency's current facility manager, with an in-depth knowledge of the entity's facilities and an understanding of the condition of the major systems in that facility

Information required for each facility assessed:

- Facility name
- Facility location
- Gross square feet
- Year built
- Year(s) renovated
- Year(s) replaced
- Identify 26 major systems by type
- For each major system:
  - Year(s) renovated
  - Year(s) replaced
  - Remaining useful life
  - % system is deficient
- Identify the existence of other special systems (such as cable, telephone, security, etc.)
- Identify whether any ADA issues exist

Level of Effort: Two to four hours per building depending on size, complexity, and condition level of the building and the knowledge and experience of the assessor

Facility Condition Assessment

Qualified Individual: An individual, such as an agency's current facility manager, with extensive knowledge of building (electrical, mechanical, structural and architectural) systems; the ability to gather information from multiple sources relating to condition of various building systems and components; the ability to evaluate respective building systems and provide cost estimate to correct building deficiencies using established cost estimate tools; and knowledge of expected useful lives along with the ability to assess effective ages of various building components

A third party vendor that performs facility condition assessment, such as vendors on the DGS Statewide Assessment contract #C20040106. The individual assessor must be certified by VFA through VFA's Facility/Infrastructure Certification program.

Information required for each facility assessed:

- All information required for Life Cycle Assessment
- The identification and documentation of specific deficiencies and requirements in the facility's structure and its major systems related to:
  - Code compliance: accessibility, building code, life safety
  - Operations: energy, maintenance, security
  - Environment: air/water quality, asbestos, lead, pcb
  - Functionality: mission, modernization, plant adaptation, obsolescence, capacity
  - Integrity: appearance, reliability, beyond rated life
- The establishment of cost estimates for deficiencies and requirements identified above

Level of Effort: Internal resource: This is dependent on the experience and knowledge of the individual performing the assessment and the size, complexity, and condition level of the building. However, a detailed FCA on average will take an experienced, VFA certified, assessor an average of 3 days per 100,000 SF (field inspections, data entry and cost estimating) with a minimum of approx. 12 hours per building.

Third party vendor: Costs range from $0.034 to $1.05 per square foot based on the DGS Statewide Assessment contract #C20040106. Costs vary by vendor and gross square feet per building.

Note: All assessors (internal agency staff, VFA staff or third party assessment vendors) must be certified by VFA on Facility Condition Assessment Methodology and the FICAS Software prior to getting a user account for and access to the VA FICAS website. For all named users within Virginia state agencies who wish to purchase additional licenses beyond the one that the APA will supply and before the training dates tentatively scheduled for late July immediate access to a training site will be made available. Following the named users formal training they will then be given access to the VA FICAS site with the appropriate security permissions.

APPENDIX G

Assessment Criteria Memo

COMMONWEALTH of VIRGINIA

Department of General Services

James T. Roberts
Director

June 16, 2005

202 North Ninth Street
Suite 209
Richmond, Virginia 23219-3402
Voice/TDD (804) 786-3311
FAX (804) 371-8305

MEMORANDUM

TO: Heads of State Agencies and Institutions

FROM: Ric Brown, Director, Department of Planning and Budget RDB
Jim Roberts, Director, Department of General Services

SUBJECT: Facility Deferred Maintenance

Item C-194.10 of Chapter 951 of the 2005 Acts of Assembly (the "Budget Bill") provides for the completion of a comprehensive collection and analysis of information on the scope of facility deferred maintenance across the Commonwealth's agencies and institutions. We have been working with the Auditor of Public Accounts on this issue over the past year. The same section of the Budget Bill, among other things, directs us to issue criteria defining which facilities shall be the subject of data collection. This memorandum sets forth such guidance.

Definitions:

Deferred Maintenance occurs when the facility owner leaves unperformed planned maintenance, repairs, replacement, and renewal projects due to a lack of resources or perceived low priority and deferral of the activity results in a progressive deterioration of the facility condition or performance. The cost of the deterioration including capital costs, operating costs, and productivity losses is expected to increase if the activity continues to be deferred.

Facility means any existing, purchased or constructed, roofed or walled structure that is located, is built, installed, or established on property owned by the Commonwealth's agencies and institutions for which the agency or institution is responsible for maintenance and operation.

Facility Condition Assessments (FCA) are detailed periodic physical inspections of a facility by qualified personnel to fully determine and document the condition of the facility or item of equipment and to identify repair, rehabilitation, and replacement needs and costs.

Life Cycle Assessments (LCA) are physical inspections of a facility by qualified personnel to inventory and collect information about the building's capital components, size of the building, and age of the building and equipment. This assessment allows the personnel to quantitatively adjust the lifespan of the components to reflect its real condition. The

assessment information collected is entered into a cost model to estimate the existing deferred maintenance and future renewal requirements for the capital components.

Facility Condition Index (FCI) is a ratio comparing the deferred maintenance deficiencies to the current replacement value of the facility or equipment item, to measure the condition of the facility or equipment item at a specific time. The higher the ratio, the worse the condition of the building is.

The Auditor of Public Accounts (APA) has engaged a vendor to supply a Facility Inventory and Condition Assessment System (FICAS). The vendor is Vanderweil Facility Advisors (VFA) and the system is VFA.facility. By the end of June 2005, the APA will provide all agencies and institutions the capability to participate in this project, and to use FICAS to record Life Cycle and Facility Condition Assessments of their facilities. Based upon the information recorded by the agencies and institutions, FICAS will calculate a Facility Condition Index and budgetary estimates for deferred maintenance.

All state agencies and institutions are to use this system, applying the criteria set forth below, to record information on their facilities and their condition.

Required Information

1. By September 1, 2005 all state agencies and institutions SHALL record (inventory) in FICAS those facilities for which they are responsible.

2. By September 1, 2005 a Life Cycle Assessment or a Facility Condition Assessment SHALL be completed and recorded in FICAS for any existing facility for which the agency has presented to the Department of Planning and Budget a capital outlay renovation or improvement request for the period 2006–2012. DPB may require the more detailed Facility Condition Assessment for some 2006-2008 project requests.

3. A Life Cycle or Facility Condition Assessment recorded in FICAS need NOT be completed if any of the following apply:
    a. The facility is abandoned or condemned and there is no planned future use based on the agency or institution's land use plan.
    b. The facility totals less than 2,500 gross square feet.
    c. The facility is small or specialized in nature, such as a VDOT chemical dome or spreader rack, picnic shelter, barns and storage sheds, monuments, utilities infrastructure systems, or any facility with a temporary occupancy permit.

d. Any other covered facility which the agency or institution chooses to exclude, when excluding it from this requirement has been specifically requested and approved by DPB.

Optional Information

4. A Facility Condition Assessment should be completed for any facility greater than ten (10) years old, within the limits of available resources.

5. A Life Cycle Assessment should be completed if the facility is less than ten (10) years old and mission critical, within the limits of available resources.
6. Agencies and institutions MAY complete a Life Cycle or Facility Condition Assessment in FICAS for any other facilities identified in item number 1 above, and are encouraged to do so by September 1, 2005 within the limits of available resources.

If you have questions, please feel free to contact us, or Ms. Suzanne Owens at the Auditor of Public Accounts at 804-225-3350.

cc: The Honorable John M. Bennett
The Honorable Sandra D. Bowen

APPENDIX H

Type of Assessment Completed by Agency as of November 30, 2005

Type of Assessments Completed by Agency as of November 30, 2005

Agency	Total Buildings	Total Buildings Assessed	Total Square Footage	Total Square Footage Assessed	Total Requirements	Type of Assessment Completed*
Christopher Newport University	30	4	1,770,435	136,165	$ 23,814,074	Int. LCA
College of William and Mary	194	25	3,535,445	786,031	58,623,252	Int. LCA
Dept. for the Blind and Vision Impaired	9	10	216,819	216,820	8,432,097	Ext. FCA
Dept. of Agriculture and Consumer Services	1	1	8,400	8,400	389,713	Int. LCA
Dept. of Alcoholic Beverage Control	21	21	536,102	563,102	1,030,567	Ext. LCA
Dept. of Aviation	2	1	28,000	28,000	170,181	Ext. FCA
Dept. of Conservation and Recreation	1,047	30	1,046,747	84,609	8,152,278	Ext. FCA
Dept. of Corrections	1,454	926	9,252,244	6,815,103	267,696,291	Ext. FCA & Data Extrapolation
Dept. of Forensic Science	4	-	418,000	n/a	n/a	n/a
Dept. of Forestry	270	-	566,986	n/a	n/a	n/a
Dept. of Game and Inland Fisheries	205	3	313,954	65,836	3,338,320	Int. LCA
Dept. of General Services	28	8	3,172,679	997,118	59,197,829	Int. LCA & Ext. FCA
Dept. of Juvenile Justice	214	23	1,611,057	534,056	45,376,899	Int. & Ext. LCA
Dept. of Mental Health and Mental Retardation	288	287	5,344,822	5,234,822	332,275,767	Ext. FCA
Dept. of Military Affairs	191	5	1,674,405	102,805	5,173,251	Int. LCA
Dept. of Mines, Minerals, and Energy	3	2	95,602	51,602	271,494	Int. LCA
Dept. of Motor Vehicles	31	2	759,629	310,750	7,647,268	Int. LCA
Dept. of State Police	122	4	465,046	61,393	4,224,979	Int. LCA
Dept. of Taxation	2	2	131,237	131,237	8,153,733	Int. LCA
Dept. of Transportation	3,677	3,401	11,166,349	122,981,932	67,476,581	Ext. FCA
Dept of Veterans Services	11	2	183,465	165,574	3,519,702	Int. LCA
Frontier Culture Museum of Virginia	25	1	152,848	13,444	747,425	Int. LCA
George Mason University	145	98	4,676,112	3,723,334	172,381,163	Int. LCA & Ext. FCA
Gunston Hall	23	-	39,416	n/a	n/a	n/a
James Madison University	152	15	4,367,659	892,000	89,170,570	Int. LCA
Jamestown-Yorktown Foundation	11	2	320,320	60,000	362,120	Int. LCA
Library of Virginia	1	1	77,000	77,000	644,634	Ext. FCA

Agency	Total Buildings	Total Buildings Assessed	Total Square Footage	Total Square Footage Assessed	Total Requirements	Type of Assessment Completed*
Longwood University	62	17	1,544,200	696,726	20,348,803	Ext. FCA & LCA
Marine Resources Commission	1	-	6,835	n/a	n/a	n/a
Mary Washington College	59	20	1,273,388	392,989	21,461,176	Int. LCA
Norfolk State University	37	35	3,123,799	3,121,329	37,494,547	Ext. FCA
Old Dominion University	103	44	3,302,196	1,102,016	57,660,394	Int. LCA
Radford University	72	8	2,362,174	277,264	10,689,734	Int. LCA & FCA
Richard Bland College	21	-	162,877	n/a	n/a	n/a
Science Museum of Virginia	4	3	267,500	253,500	24,981,484	Int. LCA
State Corporation Commission	1	-	307,196	n/a	n/a	n/a
The University of Virginia's College at Wise	43	5	541,879	112,110	5,042,442	Int. LCA
University of Virginia	510	14	11,778,452	1,707,075	76,740,214	Int. LCA, Ext. FCA
University of Virginia Health System	22	2	2,017,106	1,243,256	26,696,075	Int. LCA
Virginia Commonwealth University	124	15	7,461,081	1,794,638	92,495,964	Int. LCA
Virginia Community College System	315	135	7,826,678	4,478,067	197,451,721	Int. LCA, Ext. LCA & FCA
Virginia Employment Commission	9	9	211,451	211,451	7,574,136	Int. LCA
Virginia Institute of Marine Science	103	2	301,454	46,879	1,023,052	Int. LCA
Virginia Military Institute	85	10	1,744,641	448,258	11,096,348	Ext. LCA
Virginia Museum of Fine Arts	12	6	909,426	454,713	55,224,812	Int. LCA
Virginia Museum of Natural History	2	1	78,000	39,000	1,357,824	Int. LCA
Virginia Polytechnical Institute and State University	572	19	8,725,512	1,424,869	108,225,808	Int. LCA
Virginia Port Authority	43	-	3,161,662	n/a	n/a	n/a
Virginia Retirement System	1	-	63,966	n/a	n/a	n/a
Virginia School for Deaf and Blind – Hampton	15	-	203,825	n/a	n/a	none
Virginia School for Deaf and Blind - Staunton	26	-	423,639	n/a	n/a	none
Virginia State University	115	27	1,536,504	672,207	72,921,800	Ext. LCA
Woodrow Wilson Rehabilitation Center	35	24	493,907	485,647	17,575,534	Ext. LCA
Total	**10,553**	**5,269**	**111,760,126**	**163,003,127**	**$2,014,332,056**	

* Int – Internal Ext - External

APPENDIX I

Facility Maintenance Survey Results
August 2004

Facility Maintenance Survey Results
August 2004
Estimated Facility Maintenance Operating Expenses
(unaudited)

Agency	FY 2003	FY 2004
Christopher Newport University	$ 2,288,544	$ 3,345,219
College of William and Mary	5,774,332	5,909,764
Department of Agriculture and Consumer Services	414,794	518,155
Department of Alcoholic Beverage Control	2,872,019	4,584,618
Department of Aviation	21,411	26,900
Department of Conservation and Recreation	7,204,882	6,832,610
Department of Corrections	53,419,346	55,697,195
Department of Criminal Justice Services	1,900,000	1,933,500
Department of Emergency Management	396,512	437,012
Department of Forestry	608,363	611,760
Department of Game and Inland Fisheries	31,192	75,264
Department of General Services	19,211,079	20,079,968
Department of Juvenile Justice	6,068,025	6,607,687
Department of Mental Health and Mental Retardation	25,579,340	27,776,097
Department of Military Affairs	17,170,149	23,988,624
Department of Mines Minerals and Energy	138,643	159,221
Department of Motor Vehicles	12,628,000	13,391,000
Department of State Police	987,418	914,692
Department of Taxation	500,107	520,782
Department of Transportation	11,468,375	11,034,220
Department of Veterans Services	-	19,600
Frontier Culture Museum of Virginia	197,004	208,263
George Mason University	23,029,000	26,780,000
Gunston Hall	78,835	81,044
James Madison University	19,336,234	21,815,884
Jamestown-Yorktown Foundation	1,625,950	1,689,315
Library of Virginia	244,911	246,573
Longwood University	5,055,699	5,484,578
Marine Resources Commission	17,000	16,400
Mary Washington College	3,917,408	4,238,372
Norfolk State University	7,813,720	6,775,057
Old Dominion University	15,797,614	15,678,089
Radford University	11,895,383	12,193,438
Richard Bland College	820,238	852,681

Agency	FY 2003	FY 2004
Science Museum of Virginia	1,443,140	1,352,668
Southwest Virginia Higher Education Center	279,573	327,083
State Corporation Commission	1,524,962	1,335,789
State Lottery Department	220,367	233,241
University of Virginia, Health System, and College at Wise	54,453,714	59,340,290
Virginia Commonwealth University	12,987,270	14,362,985
Virginia Community College System	30,145,098	33,241,444
Virginia Employment Commission	1,634,824	1,843,935
Virginia Institute of Marine Science	2,026,170	2,053,503
Virginia Military Institute	5,511,271	6,018,598
Virginia Museum of Fine Arts	1,577,705	1,379,910
Virginia Museum of Natural History	55,745	68,258
Virginia Polytechnic Institute and State University	18,111,309	20,963,251
Virginia Port Authority	528,107	244,692
Virginia Racing Commission	10,000	10,000
Virginia Retirement System	797,265	907,427
Virginia School for the Deaf and Blind in Hampton	669,155	912,612
Virginia School for the Deaf and Blind in Staunton	1,052,544	1,335,957
Virginia State University	9,566,483	9,986,785
Virginia Workers Compensation Commission	132,000	188,300
Woodrow Wilson Rehabilitation Center	2,687,138	2,622,482
Total	**$403,925,367**	**$439,252,792**

APPENDIX J

Agency Responses

COMMONWEALTH of VIRGINIA

GENE M. JOHNSON
DIRECTOR

Department of Corrections

P. O. BOX 26963
RICHMOND, VIRGINIA 23261
(804) 674-3000

December 12, 2005

Mr. Walter Kucharski
Auditor of Public Accounts
101 N. 14th Street
Richmond, Virginia 23219

Dear Mr. Kucharski:

I wanted to take a moment to express my thanks to you and your staff for their efforts in researching and implementing a statewide system for identifying and tracking maintenance needs for all state agencies, and particularly for the many opportunities your staff provided for agencies to participate in the project. The Department of Corrections sincerely hopes these efforts will lead to streamlining the capital budget request process to allow agencies to fully utilize FICAS for their submissions, and also to additional funding for critical maintenance needs.

Sincerely,

Gene M. Johnson

Gene M. Johnson

COMMONWEALTH of VIRGINIA

Department of General Services

James T. Roberts
Director

202 North Ninth Street
Suite 209
Richmond, Virginia 23219-3402
Voice/TDD (804) 786-3311
FAX (804) 371-8305

December 19, 2005

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 the Phase II report on facility deferred maintenance costs in the Commonwealth

We generally agree with the information and recommendations contained in the report, and appreciate your working with us on this important subject. As noted last year however, we do not believe the report adequately addresses the role and responsibilities of the Bureau of Capital Outlay Management.

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

Daniel J. LaVista
Executive Director

COMMONWEALTH of VIRGINIA

STATE COUNCIL OF HIGHER EDUCATION FOR VIRGINIA
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MEMORANDUM

TO: Walter Kucharski, Auditor of Public Accounts

FROM: Dr. Daniel J. LaVista, Director, SCHEV

DATE: December 19, 2005

SUBJECT: Response to Deferred Maintenance Report

Thank you for sharing the final report with SCHEV staff and providing this opportunity to comment.

First, I wish to acknowledge the invaluable leadership that you and your staff provided in examining the critical issue of deferred maintenance in the Commonwealth. A comprehensive analysis of the existing backlog of deferred maintenance throughout the Commonwealth is long overdue and your report represents an essential milestone in developing a strategy to address this problem.

The severity of the problem itself is confirmed in the report findings, which show an identified deferred maintenance backlog of $1.49 billion. The publication of this figure in your report should provide the much needed authentication of the magnitude of the problem that a number of agencies and institutions have only been able to estimate until now.

As noted in the attached comments, SCHEV pioneered the use of facility condition assessment reporting in the Commonwealth and incorporated it into its Maintenance Reserve and Capital Outlay budget recommendation methodologies. Further, SCHEV enthusiastically supports the adoption of an approach which builds on this concept and which provides for a more systematic means of quantifying the backlog of deferred maintenance. This should provide the Governor and General Assembly the solid information they need to effectively address the problem.

As also noted in the attached comments, SCHEV looks forward to working cooperatively with the institutions and the Department of Planning and Budget to, "... develop a uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request capital outlay."

SCHEV Staff Comments on the Deferred Maintenance Report

In reviewing the draft of the Deferred Maintenance report, it is important to note that SCHEV pioneered the use of facility condition assessment reporting and incorporated it into its Maintenance Reserve and Capital Outlay recommendation methodologies. In fact, the Facility Condition Index, as described in the draft, is a primary factor in both of these methodologies. Therefore, SCHEV enthusiastically supports the adoption of an approach which will build on this concept and which will also provide for a more systematic and uniform means of data capture, maintenance and reporting (FICAS).

Comments related to the specific recommendations are provided below as well as a follow-up comment on the FICAS examples contained in the draft.

Recommendation #1: We recommend that the Commonwealth only use the LCA tool to identify buildings on which to perform detailed assessments. Eventually, the Commonwealth should require periodic detailed facility condition assessments on every Commonwealth-owned building.

Comment: SCHEV staff agrees that all of the Commonwealth's facilities should have a professional inspection performed periodically.

Recommendation #2: The General Assembly and the Governor may wish to consider requiring agencies to perform a life cycle cost analysis, not only during the planning phase of a building, but once the building reaches the point when it is time to replace major systems and no later than when the cumulative cost of the needed repairs and replacements reach 60 percent of the current replacement value of the building, or has an Requirements Index of 0.60.

Comment: Please see comment related to Recommendation #1.

Recommendation #3: We recommend all state agencies and institutions complete the necessary asset number fields for inventory purposes and change those assets that were not assessed to an inventory zero cost model. In addition, agencies should delete duplicate asset records in the system.

Comment: SCHEV staff agrees that the data need to be accurately and timely maintained.

Recommendation #4: We recommend all state agencies and institutions complete the minimum life cycle assessments for all buildings with capital requests as required by the Departments of Planning and Budget and General Services by December 31, 2005.

Comment: Please see comment related to Recommendation #1. Also, it is important to note that buildings other than those for which capital outlay requests have been made will also have deferred maintenance backlogs. This can be demonstrated by comparing the facilities for which approved maintenance reserve requests exist and the facilities for which renovation requests have been made.

Recommendation #5: We recommend the Bureau of Capital Outlay Management, in coordination with the Department of Planning and Budget, require complete and timely submission of capital outlay forms related to the completion of projects. The addition of a quality control review of the submission will enhance the value of the data and could help eliminate some duplicate Capital Outlay reporting done by agencies. This will provide the Commonwealth with a database of historical costs, that would be useful in future Capital Outlay planning and analysis.

Comment: SCHEV staff agrees that this information is critical for effective decision-making.

Recommendation #6: The Directors of General Services and Planning and Budget should work with BCOM and develop a working definition and strategy for the group to meet its role and duties for the Commonwealth. Both Directors may wish to use the best practices of other organizations to determine how BCOM should operate in the future. The Directors should consider whether BCOM should provide only limited oversight on projects, assume a traditional role of project manager, or have some other responsibilities. (We made this same recommendation in our report "Review of the Commonwealth's Capital Outlay Process" issued November 2004.)

Comment:

Recommendation #7: We recommend that the Departments of General Services and Planning and Budget work together to develop a cost factor to apply to costs in FICAS to account for the soft costs involved in a capital project. The General Assembly should fund projects in FICAS after inflating the estimated costs by this factor.

Comment: SCHEV staff agrees that "soft costs" should be considered in the capital outlay budget process. However, further consideration of this issue may lead to the conclusion that a more sophisticated approach to estimating these costs be developed.

Recommendation #8: The General Assembly may wish to direct that the Governor have the State Comptroller and the Director of Planning and Budget establish separate reserve funds by agency and institution for the accumulation of long-term funding for capital renewal activities and deposit into this fund amounts to fund capital improvements, renovations, or new building construction. (This recommendation is the same from the Interim Review of Deferred Maintenance in the Commonwealth.)

Comment: SCHEV staff agrees that this approach, if structured properly and adequately funded, may prove to be a more effective means of maintaining the Commonwealth's capital assets than the current system.

Recommendation #9: The Department of General Services should establish policies and procedures for collecting, summarizing, and maintaining building assessment information tailored for the Commonwealth and build on the manuals and guidance used during the initial population of FICAS. When establishing these policies and procedures, General Services should consider not only governmental agencies but also higher education institutions.

Comment: Please see comments related to Recommendation #1. Also, please note that the design of the final system of data capture, maintenance and reporting should accommodate the unique characteristics of the disparate types of facilities maintained by the Commonwealth in order to maximize the value of this information.

Recommendation #10: The Departments of General Services and Planning and Budget should require all agencies to complete at a minimum a life cycle assessment, but preferably a facility condition assessment. In addition, they should establish policies and procedures for maintaining and updating building condition information to support a statewide Facility Assessment Program. All agencies and institutions should develop internal policies and procedures for completing condition assessments and maintaining this information periodically.

Comment: Please see comments related to Recommendations #1 and #3.

Recommendation #11: The Department of General Services should establish a "score card" for all agencies and institutions to use for determining their overall capital planning and budgeting. This score card should include input from the Department of Planning and Budget and the State Council of Higher Education in Virginia.

Comment: The "Scorecard" concept, if structured properly, could provide a more comprehensive summary of data available from a variety of sources than is currently available. Nevertheless, it is important to note that it is not probable that any one document could satisfactorily be used to prioritize all capital outlay requests. It could, however, be used to rank similar projects among similar types of agencies.

Recommendation #12: We recommend that the General Assembly and the Governor consider and approve sufficient funding for General Services to establish an Assessment Program and administer FICAS.

Comment: SCHEV staff agrees.

Recommendation #13: The Department of General Services should consider reorganizing responsibilities within General Services to separate statewide capital outlay and maintenance from capital outlay and maintenance for the Capital Square complex. General Services should consider hiring an individual with assessment and capital planning experience to oversee this statewide initiative. This program should have a statewide, customer service oriented focus.

Comment:

Recommendation #14: As an alternative to reorganizing General Services, we recommend the General Assembly and the Governor consider creating a new department to oversee and manage the Commonwealth's real property.

Comment:

Recommendation #15: We recommend the State Council of Higher Education for Virginia work with the Department of Planning and Budget to have one uniform and consistent reporting mechanism across all state agencies and institutions of higher education to request capital outlay. This mechanism should make use of FICAS and the information in it. SCHEV and Planning and Budget should work together to make sure that there are no duplication of efforts in reporting information. SCHEV will be responsible for ensuring that institutions of higher education comply with these policies, perform assessments, and maintain the information in FICAS.

Comment: SCHEV staff agrees that it is critical to work cooperatively with the Department of Planning and Budget and other cognizant state agencies, to fulfill its role in developing capital outlay budget recommendations for the Governor and General Assembly.

Follow-up Comment on the FICAS examples found on pages 32 through 38: With the addition of one more variable, "Ending Replacement Value," or as it is sometimes referred to in capital budgeting, "Salvage Value," these examples could readily be converted into simple Net Present Value analyses. This would greatly simplify the interpretation and comparison of the various funding scenarios. It would also answer the question, "Which funding option provides the greatest financial return on the Commonwealth's investment in plant and equipment?"