

# Putting the Facilities Work

by Harvey H. Kaiser

**P**olls of higher education CEOs have shown deferred maintenance to be one of their top five priorities. But while their view of deferred maintenance has evolved from an alert to a call for action, some public systems and private campuses still are not fully addressing the problem. Many, however, have begun the difficult tasks of identifying needs, seeking funding, and reducing the backlog of work on decaying buildings and infrastructure.

Several states have required comprehensive surveys of buildings and infrastructure conditions as a prerequisite for submitting annual or biennial capital funding requests. While campuses in some public systems must follow specific guidelines set forth in legislation or as system or institutional policy for collecting information on existing conditions, many independent institutions have developed their own ways to amass the data that reveal the deficiencies of decades of neglect. Facilities audit deficits in hundreds of millions of dollars are not uncommon; costs range from \$15 to more than \$40 per gross square foot of campus space, not including infrastructure repair costs.

## Capital Renewal

Capital renewal offers a program consistent with institutional strategic planning. As facilities and financial officers have gained experience in addressing the problem of deteriorating campus facilities, they began to expand from a facilities to a financial lexicon. Concepts such as *facilities equilibrium*

and *protection of capital assets* evolved into comprehensive strategies to deal with the overwhelming problems of renewing capital assets.

Building on a cornerstone of facilities audit information, the strategy alleviated the facilities managers' frustrations of inaction by introducing a financial perspective. In some cases, governing boards allocated depreciation reserves to fund programs; others used reserves on hand or developed funding sources through gifts and grants. The cycle of facilities deterioration, altered by deferred maintenance backlog reduction programs, was also addressed by some systems and campuses by creating more intensive maintenance programs to avoid future risks to capital assets.

In the new strategy for dealing with facilities deterioration, the financial perspective defines protection of capital assets as a process of capital renewal of plant assets. "Immediate critical needs" are synonymous with deferred maintenance. Long-term facilities renewal relates to concepts of depreciation; a capital reinvestment rate can be calculated to maintain the functional and financial value of facilities.

A complete capital renewal strategy includes the following:

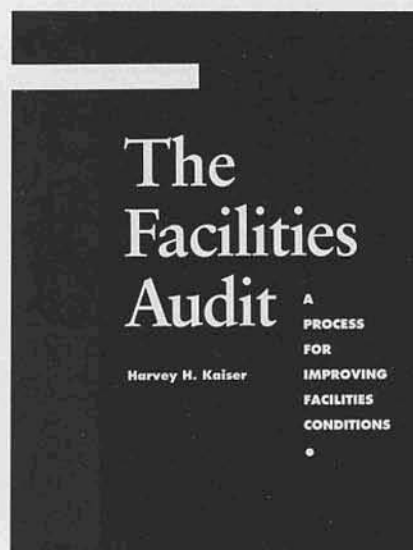
- identifying conditions of capital assets (buildings, grounds, infrastructure, and equipment) and assessing findings;
- prioritizing immediate critical needs;
- developing multiple funding sources for continuous attention to capital renewal;
- adjusting campus capital expenditure priorities from new construction to capital asset renewal; and
- establishing new maintenance programs designed to prevent accumulation of capital asset deterioration.

## Putting the Audit to Work

Putting the audit to work means developing an ethic among maintenance staff to continually inspect, observe and report deficiencies, and maintain a timely and accurate record

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# Audit to



of facilities conditions. It also means developing funding alternatives—and procedures for managing funding—and assuring that current use of resources is effective and efficient.

Planning programs for capital renewal and deferred maintenance reduction requires estimating funding needs and the difficult task of assigning priorities. Presentation of audit findings should be accompanied by a facilities needs assessment describing a funding plan for capital allocation priorities and an adequate maintenance operating budget. Programs will require components for “catch-up” costs and “steady-state” costs. The program should be realistic in terms of the ability to absorb funding, with time allocated to preparing contract documents and managing projects.

The facilities audit process provides the basis for determining capital needs to avoid future facilities deterioration. This process enables you to assess your short- and long-term needs for dealing with the problem. The audit process also supports the comparative assessment of facilities conditions and development of priorities. Too often, at this point, the process ends in frustration because of the governing board’s lack of response to funding requests.

Many systems and institutions lack three important components for capital renewal: 1) a project prioritization process; 2) a resource allocation model to formulate funding planning; and 3) a will to change the campus culture in favor of capital asset renewal. Although the number of successful examples is increasing, the evidence of national surveys shows that the rate of facilities deterioration continues to increase. Despite a weak national economy and financial distress in higher education, the problem must be faced sooner rather than later.

## Capital Renewal Planning

Capital renewal planning is a continuous process that is adjusted on an annual basis. A preliminary plan for capital renewal resource allocation should define the overall goals for both short-term needs for deferred maintenance and long-term needs for life-cycle renewal of facilities components.

Such a plan for guiding the shift in the level of facilities conditions from marginal to desirable will be influenced by each institution’s mission and strategic plan. These factors have become increasingly important as declining resources have affected restructuring, resulting in rightsizing, shifts in emphasis from research to undergraduate teaching, and demands to improve the quality of residential life. Thus, a resource allocation model for capital renewal is an integral part of an overall strategic plan.

The process of developing a preliminary plan includes:

- project prioritization;
- rate of annual capital reinvestment; and
- duration of a deferred maintenance reduction program.

A final capital renewal plan evolves from fitting a funding model to a selected rate of capital reinvestment that balances a desired amount of expenditures over a period of time with the duration of reducing deferred maintenance backlog. The result is a coordinated program for capital renewal and maintenance that is designed to protect capital assets, a funding plan, and a method for monitoring the program.

## Project Prioritization

**P**rioritizing capital renewal projects is an objective process for allocating limited resources. The priority criteria used for the inspection worksheets found in *The Facilities Audit* provide a ranking that can be reviewed for budgeting decisions on a year-to-year basis. Criteria related to your campus’ goals and objectives are valuable as a standard for annual review as priorities and resources change.

## Resource Allocation

How much to spend on capital renewal is guided by the results of an audit and the total cost of prioritized projects. Questions to be posed for resource allocation are: 1) What are



the effects of different amounts of annual expenditures for capital reinvestment on total backlog reduction?; and 2) What is a desirable rate of annual expenditures for reducing marginal facilities conditions?

Restated, this could be posed as: How much must be spent to reach a desired level of conditions for all campus facilities over a certain number of years? Key variables are the capital reinvestment rate and the backlog targets. Factored into decisions in both cases are the inflation rate, the rate of plant deterioration, and the backlog deterioration rate.

The facility condition index (FCI), a method of comparing facilities conditions based on a ratio of facilities deficiencies to current replacement value (CRV), is useful in setting annual funding targets and the duration of deferred maintenance reduction. The FCI method was developed by Applied Management Engineering of Virginia Beach, Virginia, and was published in 1991 by the National Association of College and University Business Officers in *Managing the Facilities Portfolio*.

$$\text{Facility Condition Index (FCI)} = \frac{\text{deficiencies}}{\text{current replacement value}}$$

The FCI uses empirical data to benchmark relative measures of conditions on campuses:

FCI less than 5% (.05)	= Good condition
FCI equal to 5-10% (.05-.10)	= Fair condition
FCI greater than 10% (.10)	= Poor condition

For example, after conducting an inspection of buildings and infrastructure, a campus with 3.5 million GSF finds it has \$60 million in deferred maintenance. At an average CRV of \$100/GSF (\$350 million), the FCI is .171, an indication of poor conditions.

The audit's information on deficiencies provides the basis for estimating short- and long-term capital needs, in terms of a deferred maintenance reduction program and a component renewal program. Component renewal, based on life cycle of components, is necessary to prevent future deferred maintenance backlogs.

Costs for correcting facilities deficiencies obtained from an audit and a calculation of the CRV allow you to model the variables for annual and total funding needs and the rate of backlog reduction. For example, if only 1 percent of the CRV is available, the change in the FCI can be calculated. Or, a determination to achieve an FCI of 5 percent in ten years can produce a calculation of annual capital renewal needs.

A rule of thumb for the annual reinvestment rate is 1.5 to 3 percent of CRV. However, experience is showing a preference for the upper end of the range (2.5 to 3 percent) to prevent further accumulation of a deferred maintenance backlog. This is separate from funding required to eliminate immediate critical needs of deferred maintenance. A capital renewal plan must include funding for deferred maintenance backlog reduction and for component renewal. This concept is fundamental to capital renewal funding planning.

### Funding/Planning

Seeking funds for capital renewal on the scale required to reduce deferred maintenance backlogs is a challenging venture for higher education. The traditional method of funding capital improvements—sources such as gifts and grants—is

inadequate for the task faced by many campuses. Successful examples show that multiple funding sources are necessary to provide a stream of funding that meets capital and component renewal project priorities. Spacing out projects over a period of time allows you to pool multiple sources to meet annual needs. This principle enables you to fund planning that can incorporate some of the following experiences of public systems and independent institutions.

**Bond Issues.** Borrowing for capital projects is a routine practice for public systems of higher education and used occasionally by independent institutions. The urgent need for capital renewal has made acceptable the issuing of general obligation bonds, revenue bonds, or other options for new construction or for reinvesting in existing facilities. The Commonwealth of Virginia and the states of California, Georgia, and Mississippi, among others, have recently initiated this practice. Vanderbilt University borrowed \$150 million to finance renovation and deferred maintenance projects.

**Operating Budgets.** Some institutions have begun supplementing annual operating budgets with additional funds for capital renewal. Even in difficult financial times, states and independent institutions have both begun to reallocate financial priorities by establishing an amount in the operating budget specifically for deferred maintenance.

The College of Wooster initiated a funding model in 1977 using a "capital charge" budgeting concept to develop a reliable source of capital renewal funding for five-year planning cycles. An amount incorporated annually into the operating budget was defined as a charge to create a reserve for funding capital renewal and debt reduction. An unrestricted gift was allocated to a reserve fund to initiate the concept. Each year's charge to the annual operating budget is an average of projects budgeted in the current year and estimates of projects to be done in each of the next four years. The pool of reserve funds is drawn down as required by priority projects.

The Commonwealth of Virginia developed a maintenance reserve appropriation in 1982, distributing funds to public institutions using a formula developed by Douglas R. Sherman and William A. Dergis ("A Funding Model for Building Renewal," NACUBO *Business Officer*, 1981). Each institution is required to prepare a maintenance reserve plan describing projects. Funding is a supplement to the operating budget for maintenance, following an assumption that approximately 50 percent of the formula amount is already contained in the operating budget.

**Depreciation Accounting.** The introduction of depreciation accounting to higher education in 1990 offers a potential solution to provide a constant funding source for capital renewal. Although not sufficient to fund substantial backlogs of deferred maintenance, maintenance depreciation reserves can provide a substantial source for renewal funding. The challenge is to create depreciation reserves from current revenues equal to the declining value of capital assets. Some institutions that were able to use "off-balance" sheet funding for capital renewal are now creating depreciation maintenance reserve funds from revenues and including them in operating budgets.

The model created by Boston College in 1976 combined the annual operating budget and a separate capital budget for renewal funding. Boston College was able to rely on unexpended depreciation reserves for capital budgeting. Depreciation accounting and funding the depreciation charge through its operating budget was an innovative technique.

Based on the concept that current users should pay for renewal and replacement, an equitable charge was included in the annual operating budget to develop a consistent source for funding facility renewal. The retirement of long-term debt and a reduction in acquiring debt for new projects will improve the allocation of available funds for future renewal.

**Quasi-Endowment Funds Conversion.** Institutions with quasi-endowment funds or "funds functioning as endowment" have sacrificed interest earnings by designating their use to capital renewal. This is a controversial action requiring approval of a governing board, but it is a valid stopgap when current revenues are unavailable and the institution wishes to avoid incurring additional debt. Rensselaer Polytechnic Institute plans to partially fund \$142 million in deferred maintenance by converting unrestricted quasi-endowment funds.

**Plant Fund Reserves.** Building up plant fund reserves by transferring income surpluses offers a source for capital renewal funding. This decision is made in assigning priorities in the institutional budget-making process. Although not a guaranteed stream of funding, prudent financial management can create reserves allocated to fund deferred maintenance projects. Reserves can be drawn from a pool of funds as projects are defined and expenses incurred. Syracuse University used plant fund reserves to supplement maintenance operating budgets for funding over \$150 million in capital renewal and replacement over a fifteen-year period, beginning in 1973.

**Fund Raising.** Obtaining gifts for capital renewal represents a greater challenge than funding new construction. New or expanding programs or replacement of existing facilities have a greater appeal to donors than requests to fund deferred maintenance. However, as decaying campus facilities have become a high priority, attention has shifted from new projects to the renovation of existing facilities as a target for designated gifts.

Strategies have varied, from individual campaigns for specific facilities to an overall fund raising effort with unrestricted gifts channelled to capital renewal. These approaches afford alternatives for development programs and donor choices. Some campuses have prepared lists of capital renewal projects to be included in major fund raising programs. Changes in policies at foundations have seen the new priorities as valid reasons to award grants in support of renovation projects. By pooling challenge grants with gifts and other institutional resources, campuses can achieve a goal for a designated project not easily approached with a single gift.

**Energy Conservation.** Deferred maintenance projects for mechanical and electrical systems, utilities infrastructure, or central energy plants can be treated as unique capital renewal projects for energy conservation. Facilities audits have shown that 40 to 50 percent of deferred maintenance exists in these categories. The rationale that energy conservation will result from these projects is based on cost-benefit analyses identifying payback periods. Thus, an investment in energy conservation can be considered self-financing.

Vanderbilt University finances energy conservation by a utility depreciation reserve created by a 14 percent "tax" added to the university's electric bills. The reserve has been supplemented by energy conservation grants.

Syracuse University has obtained more than \$6 million in energy conservation grants, some at 100 percent of project costs and others as matching grants. Sources include federal

and state programs, and programs offered by the local public utility to stimulate demand-side energy reductions. Incentives offered by private companies to participate in energy savings are an alternative method of funding a component of deferred maintenance.

### The Management Renewal Challenge

**T**he facilities officer should not be discouraged at the initial response to the magnitude of costs reported in a comprehensive audit for capital renewal/deferred maintenance reduction and the gap between current and required funding to maintain renewed facilities. Resource reallocation and supplementary funding will probably be required for renewal and replacement of facilities with a high proportion of deficiencies. Capital renewal is a long-term process, and programs should be designed with this in mind. The audit process is a key component of a capital renewal program that should be updated annually, reporting progress toward goals, identifying new priorities, and adjusting to programmatic changes affecting renewal and replacement.

A useful approach to consider is the revitalization of facilities staff to inspire confidence for funding deferred maintenance. Feelings of pessimism, frustration, and cynicism among the facilities staff at Santa Clara University stimulated a program of facilities management renewal to cope with lack of support for deferred maintenance funding. The concept centered on the renewal of the management team, changing attitudes to gain credibility for funding deferred maintenance. Santa Clara's facilities management department adopted a vision for its capital renewal program, which included

- communicating, with credibility, the scope of the renewal and deferred maintenance needs and costs;
- proposing a strategy for achieving facilities equilibrium in a reasonable time frame;
- engaging in the budget decision process to ensure understanding of and advocacy for renewal projects; and
- achieving measurable results, small and large, short-term and long-term.

Facilities management team renewal can strengthen support for funding facilities renewal by increasing management's credibility through improved attitudes, actions, and accomplishments. The attitudes, visions, and strategies of Santa Clara University's management team are applicable to facilities managers throughout higher education.

### Conclusion

The process described in *The Facilities Audit: A Process for Improving Facilities Conditions* presents the experience of facilities administrators at public and private higher education systems and campuses, government and corporate employees, and many consultants. Application of the facilities audit process to your organization will enhance the present and future functional use of your facilities, as well as benefit the members of your campus community. ■

*Ed. Note:* *The Facilities Audit* is now available from APPA. The cost is \$45 for APPA member institutions, \$55 for all others; add \$8 for shipping and handling. Send your order to APPA Publications, Dept. FAFM, P.O. Box 1201, Alexandria, VA 22313-1201. Prepayment is required.