

INTEGRATING SUSTAINABILITY PROGRAMS





INTO THE FACILITIES CAPITAL PLANNING PROCESS

By Susan Buchanan, LEED AP

With detailed information about the costs and benefits of potential green investments, educational facilities can effectively evaluate which initiatives will ultimately provide the greatest results over the short and long term. Based on its overall goals, every school, college, or university will have different values and therefore different strategies. For instance, one university may focus on investments that will deliver the greatest improvements to the quality of the learning environment, while another may make its top priority those investments that provide operational cost savings or most significantly reduce environmental impact. With enrollment becoming more competitive with campus sustainability practices and policies growing as a criteria for school selection, the visibility of facilities operations and management is becoming more prominent.

The many potential greening initiatives educational facilities can undertake compete

with a myriad of other capital and operational investments. This includes systems renewal, building renovations and new construction. Moreover, there is competition for funds with the educational mission itself. While schools may single out opportunities to improve building sustainability for analysis, ultimately those investments will need to be assessed in the context of other building requirements and infrastructure demands of the pedagogical mission.

Having a broad umbrella approach to sustainability (including energy, water, indoor environmental quality, site sustainability, and materials use) is important, but the focus recently has been on prioritizing sustainability projects that provide a clear return on investment (ROI). Educational facilities are more involved in defining “real-life” practical ways to fund and accomplish their overall greening goals, while at the same time maintaining the desired condition of their facilities within a given budget.

In order to optimize sustainable capital investments, there are four important considerations:

1. Mission and mandate
2. Improved efficiency
3. Day-to-day operations
4. Long-range planning

Following these fundamentals enables colleges and universities to successfully integrate sustainability goals into their facilities capital planning process.

MISSION AND MANDATE

The foundation of any sustainability program is based on the university's or college's mission as well as any compliance requirements that must be met. Once the mission is clearly understood, it is possible to create a framework from which to make key decisions. Recommendations for sustainable actions can then be prioritized in support of these goals.

IMPROVED EFFICIENCY

Efficiency is a key area of focus, targeting which actions will reduce operating costs while conserving resources. Colleges and universities may want to consider assessing their current facilities in order to define key opportunities for saving energy and conserving water, which can result in a number of efficiency improvements.

DAY-TO-DAY OPERATIONAL DECISIONS

Consider the impact of daily operational decisions on both sustainability and the operating budget, and how alternative green actions can replace traditional, potentially inefficient choices. In every replacement scenario, whether it's a renewal, upgrade of equipment, or replacement of finishes, there is an opportunity to implement green alternatives which can incrementally improve the sustainability of each facility without a major impact on day-to-day procedures.

LONG-RANGE PLANNING

Faced with numerous challenges, especially lack of funding and emergency repair needs, the facility operations and maintenance world often focuses on day-to-day issues. Long-range planning enables a university or college to be prepared for the future, whether that entails budget cuts or newly available funds. By surveying the facility portfolio, identifying the potential green opportunities, establishing water and energy baselines, setting reduction targets and creating a sustainability implementation plan, universities and colleges can balance short-term needs with long-term success. With sustainable policies, procedures and funding models in place, the long-term result will be increased cost savings over the life of the facilities.

While keeping these considerations in mind, colleges or universities that are early in the process of integrating green programs into their capital plans may choose to focus initially on short-term

goals which often involve relatively low-cost initiatives. These can deliver short-term paybacks by reducing energy and natural resource consumption—with the priority based on cost savings and other desired benefits.

As they make progress, and see results, they may go on to evaluate greening opportunities that can provide both short- and long-term environmental, social, and economic benefits. This more integrated approach embracing the “triple bottom line” is important to consider when goals are more complex, as in the educational arena. The triple bottom line represents a framework of values and criteria that measure organizational priorities in terms of environmental and social performance in addition to financial performance. Where emphasis is often placed on financial payback, the triple bottom line creates equity amongst the impacts of an action or decision.

SUSTAINABILITY AND CAPITAL PLANNING

Let's look at the process of integrating sustainability into capital planning in more detail. The first step in identifying the best investment strategy for sustainability is an objective evaluation of the college's or university's current state of sustainability and its options for change—including estimated costs and potential benefits. There are several questions an educational facility should ask itself when establishing a sustainability framework. First and foremost, what are their strategic, real estate, and green objectives? Is there a balance between them? Basically, where do you want to be in terms of sustainability while staying within the master plan? It is important to remember sustainability is not a “one size fits all” process.

Various colleges and universities will have quite different approaches to sustainability. When deciding on institutional or sustainability initiatives, keep in mind: reaching the highest level of green or energy performance is most cost-effective when timed to coincide with new construction, renovation, or major infrastructure renewal. Also, the savings are greatest when improvements are made as close to end of useful life as possible; for example, lighting systems, and water-efficient restroom fixtures are quick, money-saving improvements, but you want to get the full life-cycle benefit of the assemblies.

Once the institution's objectives are decided, it is time to determine what the starting point is; what types of assets and equipment are already in place, where can sustainability be improved easily and where is the most work needed. There are many factors to consider when determining the starting point of the sustainability plan. Climate can affect sustainability drastically; warmer climates will need to consider cooling systems while colder climates will focus on heating. Other aspects of climate like annual rainfall and cloud cover can also determine what sustainable technology is best for that particular facility.

The location of a facility—rural, suburban, or urban—will also play a role in determining sustainable technology needs; urban buildings normally contain more equipment and assets in a smaller area as opposed to rural buildings which can be less

densely occupied. Even microclimates have an effect on which technology to apply, such as on south-facing facades where solar gain is higher, or in landscaping choices where native or adaptive species can serve multiple purposes. Other factors to consider are: type and use of buildings, age and existing condition, institutional mission, community initiatives and partnerships, and mandates.

Financial metrics will obviously have an impact on how a college or university evaluates its sustainability initiatives. When an institution looks at its deferred maintenance, maintaining facilities and keeping them going through their life cycle, it would normally look at an in-kind or conventional replacement. If there are green alternatives, educational facilities should consider several financial metrics while evaluating each option. The life cycle of systems along with the cost of operation over that span is an important factor; keep in mind that many sustainable alternatives include a payback over time resulting from reduced energy and operation costs. One way to evaluate the combined cost of green alternatives is the cost as a percentage of current asset replacement value. If the cost of making a facility sustainable starts approaching the value of the facility itself, it obviously is not financially viable.

While financial metrics are important, it is also necessary to have metrics that define and measure both current and future sustainability. There are several green ratings systems that can be employed as guidelines, including the Leadership in Energy and Environmental Design for Existing Buildings Operations and Maintenance (LEED-EB O&M), Green Globes, ISO 14000, and BRE Environmental Assessment Method (BREEAM).

USING FACILITY CONDITION ASSESSMENTS

A typical facilities condition assessment (FCA) gathers data on facility condition, the life cycle of different systems within the facility, code compliance, functionality, and efficiency, among other aspects. Integrating sustainability into the FCA process using, for example, LEED-EB O&M requirements as a guideline, adds several metrics to the assessment: energy efficiency, water conservation, indoor air and environmental quality, site sustainability, and materials and resources. By combining this information with detailed data about overall requirements across a building portfolio, colleges and universities can get a holistic view of facility needs.

After the performance metrics have been established, the organization can identify green opportunities while also looking at overall facility condition. Many common green opportunities include green roofs, high-efficiency lighting controls and sensors, water conserving bathroom fixtures, organic landscape maintenance, materials with recycled content or bio-based materials, and centralized automated building management. This part of the process involves capturing data and identifying the green options, not deciding which of these options are in line with the organization's capital planning objectives.

EVALUATING OPPORTUNITIES

Once the opportunities have been identified, the next step is to evaluate them in the context of the overall capital plan. When

evaluating the options, it is important to take into account initial cost differences between the conventional and sustainable alternatives along with the savings over time; for many resource-saving alternatives, the initial investment may have a rapid payback period. It is also important to understand that some "paybacks" cannot be easily measured, such as the benefits of improved indoor environmental quality on student, faculty, and staff productivity.

Not every green measure has a quantifiable cost benefit. The best way to evaluate all the options is to develop a list of parameters that represent important priorities for the organization. Priorities may include cost, potential energy savings, impact on overall facility condition, impact on occupant health and environment, and other issues of strategic importance. Using these parameters, the organization can make an informed, data-driven decision regarding the alternatives.

Following this approach will allow the school to determine the current state of its facilities and sustainability, the alternatives for sustainable facilities upgrades, the cost and payback of these upgrades, which upgrades are the most important, and how to incorporate the upgrades into an established facilities capital plan and budget. Ultimately, focusing on these fundamentals will result in an integrated approach to planning, budgeting, and funding sustainability projects within the framework of a plan that meets the facility's goals, and transforms the facility portfolio. Step-by-step, incremental change instituted over time will result in a more sustainable building portfolio that maximizes investment and supports the larger mission of any educational facility.

The importance of integrating sustainability into ongoing capital planning was shown at a small New England college, where the facilities undertook a program that included concurrent green building and facility condition assessments. With detailed information about the costs and benefits of potential green investments, the college was able to evaluate alternative options against the backdrop of its traditional choices. Because of this, the school has positioned itself to receive additional funding, and is undertaking a new round of integrated assessments that will continue to evolve its daily and long-term practices into a more sustainable, more cost-effective, and more environmentally responsible program. In this way, the college has been able to accomplish both its fiscal and organizational goals while maintaining the condition of its facility portfolio.

With the right framework and tools in place, educational facilities can evaluate the sustainability of their existing facilities, plan to reduce their environmental impact, increase their energy efficiency and cost savings, and promote a healthier built environment. Whether a college or university already has a sophisticated sustainability program or is newly engaged in this effort, it is desirable to evaluate and prioritize green options while remaining aligned with the overall institutional mission. ☀

Susan Buchanan is project director at VFA, Inc., Boston, MA, where she has developed methodologies for assessing the sustainability of existing buildings. She can be reached at sbuchanan@vfa.com; this is her first article for *Facilities Manager*.