Adaptation is the Key to Survival:

Strategies for reversing the trends affecting the physical campus
Adaptation is the Key to Revival

Presidents, trustees and senior administrators at colleges and universities all feel the pressures: keep tuition down, be competitive academically and make sure the physical campus draws talent from a shrinking pool of traditional high school graduates and new nontraditional students. Given resource limitations, something’s got to give and, for many campuses, investment in facilities is the first to get cut.

The problem is that we are entering an unprecedented period when two historic waves of building construction demand capital renewal investments, even as resources available for capital are limited by reductions in state funding, decreases in research and philanthropy and debt limits set by trustees. Campuses in the United States built more space from 1960 to 1975 than over the previous 80 years combined. Then many campuses followed with a second construction boom from 1995 until the Great Recession slowed building.

Now, faced with having to do “catch-up” renovation on the first wave of buildings that are reaching 50 years old and “keep-up,” or stewardship, on the second wave of buildings, campus administrators are finding there is just not enough money to do both. It is starting to show to even the casual observer.

This facilities challenge is compounded by enrollment stress. Competition for a smaller pool of traditional high school graduates makes the need for modern facilities more important than ever. Student attention on campus facilities is evident in social media commentary about the subject; for example, Classrooms of Shame on Tumblr where students and faculty post pictures of rundown, dirty and poorly maintained classrooms (“Classrooms of Shame,” Inside Higher Education, Nov. 12, 2013, and “Students, Professors Highlight Classrooms of Shame,” USA Today, Nov. 23, 2013).

Finally, the growth of online learning is another factor in the physical campus management equation. According to the Sloan Consortium, online learning enrollment has increased by over 9% annually since 2003 (“Trends in Online Learning,” Elaine Allen and Jeff Seaman, Sloan Consortium, 2013). Harvard professors Clayton Christensen and Michael Horn call the growth of online learning “disruptive innovation” that will challenge the physical campus and change face-to-face learning (“Online Education as an Agent of Transformation,” New York Times, Nov. 1, 2013).

Why has deferred maintenance doubled despite investment?

In 1988, a survey by Coopers & Lybrand for APPA, the group representing leaders in educational facilities, and the National Association of College and University Business Officers (NACUBO) estimated $20 billion in deferred maintenance at the nations’ colleges and universities (New York Times, “Campus Buildings Are Decaying, Survey Says,” Oct. 18, 1988). Almost 25 years later, The Chronicle of Higher Education published an article, “How the Campus Crumbles” (May 20, 2012) with the conclusion: “that deferred maintenance on college campuses amounts to about $36 billion across the country...” How could we have spent billions of dollars on new construction and renovation over the past 25 years and still see a doubling of the amount of deferred maintenance?

Sightlines annual State of Facilities report provides insight into that question by examining major indicators across a database of 300 institutions: age profile; capital investments; capital projects allocation; and project backlogs.

Age profile

The age distribution of space on a campus is important to know and what can be done to change it to

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reduce risk of building failure. Despite the addition of new modern buildings, campuses of all kinds continue to have a high percentage of buildings that are over 25 years old—an age when life cycles of key building components like roofs, windows, doors, HVAC, electrical and plumbing systems begin to come due for replacement.

Capital investments
How much capital are institutions investing in existing facilities and how is the source of those investments changing? Capital investment in existing space peaked in 2008 and has not recovered to those levels. Public campuses have been hit particularly hard by state funding cuts due to the recession. While public institutions have always had a large tuition price advantage over private institutions, there is a high likelihood that without major capital infusions, these campuses will deteriorate faster and, as a result, be less attractive to students.

Capital project allocation
Sightlines has also collected data on how capital investments are being spent. We found a significant shift to spending on building envelopes (roofs, windows, exterior) and building systems from 2007 to 2012. This is another sign that deferred maintenance is getting to critical levels on campuses.

Project backlogs
How does the current state of deferred maintenance backlogs drive investment decisions? Most experts believe when the backlog reaches $100/gross square foot, campuses can no longer proactively maintain the campus. They become almost totally reactive to repair needs and emergency calls to fix building reliability problems. Whether we are looking at public or private campuses, the conclusion is the same: The impacts of the two historic waves of construction are taking their toll on campuses. The buildings continue to age faster than they can be renovated. This is happening at a time when capital funding, especially for the public campuses, has contracted.

Managing the future
There is no doubt the challenge of growing deferred maintenance, declining enrollment and adjusting to online learning will require institutional leaders to think very differently about their physical campuses. Traditional models of capital investment will no longer work. There will not be enough money to fix all buildings, so priorities will need to be set and some buildings will need to be demolished, repurposed or replaced. Institutions will have to adapt to meet the financial and facilities demands they are facing.

In light of these challenges, Sightlines interviewed senior administrators at three New England campuses that are adapting to the challenges of their the physical campus using a combination of these strategies:

1. Aggressive enrollment management practices to expand the pool of prospective students and embrace online learning.
2. Documenting existing deferred maintenance backlogs and projecting future needs coming due.
3. Balancing capital investments in new vs. existing space and making sure space is used properly.
4. Creating portfolios of capital investment to set clear priorities and determine whether to renovate, repurpose, replace or demolish aging buildings.

These stories should encourage all campus leaders by highlighting strategies that can work. In order to be effective, administrators and trustees must:

- Have solid data to understand their campus;
- Use the data to implement a systematic plan for capital investment; and
- Communicate with all constituents the difficult decisions that need to be made to manage their physical campus in the future.

**Strategies for Reversing Trends**
The University of Massachusetts Amherst, the public flagship university in the Commonwealth, has more than 27,000 students and more than 11 million gross square feet of space within 330 buildings. The campus leadership started documenting the project backlog in 2006 and found that the numbers were staggering — almost $2 billion.

Juanita Holler, UMass associate vice chancellor for facilities and campus services, realized that the university needed to approach the deferred maintenance backlog in a fundamentally different way: Simply quantifying the large backlog would not be enough to convince university leadership that a major infusion of capital was critical. Finance and facilities leaders needed to develop a clear, multi-year capital strategy, set priorities and advocate for resources to fund them. Some buildings would need to be demolished, a fact that needed to be made clear to senior leaders. (Business Officer, “Flagship Focuses on Failing Facilities,” January 2013).

UMass created a set of capital investment portfolios for the campus that included placing buildings in categories like maintain, renovate, repurpose and transition (i.e. slated for demolition). The portfolio strategy helped set clear priorities for investment and made sure that large investments were not made in buildings slated for repurposing or demolition. The approach also provided a way to track the impact of funding.

The project backlog has been reduced by over $350 million since 2009. Projects that deal with building envelope, building systems and utility infrastructure have been given a higher priority. The aging central heating plant was replaced by a modern cogeneration plant and utility consumption and costs have declined dramatically. UMass has placed a priority on eliminating buildings that are in poor condition and not heavily used on campus. Since 2007, more than 30 buildings, comprising over 150,000 gross square feet, have been demolished in order to reduce the deferred maintenance burden. Some of these buildings, such as the campus power plant, have been replaced with modern, more efficient facilities. The result is less deferred maintenance and lower operating costs.

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The University of Maine in Orono has one of the highest percentages of campus space that is over 50 years old and not renovated. In 2013, the campus had 44% of space over 50 years old, almost double the peer average. President Paul Ferguson has set in place “The Blue Sky Plan,” which includes aggressive enrollment management and a multi-year capital strategy to address the needs of aging buildings, renew physical space in core mission programs and steward buildings in good condition to reduce the rate of deterioration.

Janet Waldron, senior vice president for administration and finance, says UMaine’s strategy for meeting the facilities challenges requires the coordination of multiple plans. “We are tying the campus master plan to our strategic enrollment plan,” she said. “We are documenting our backlog of deferred maintenance and developing a multi-year capital plan to provide funding to improve the net asset value of our buildings. We are making sure our campus facilities operations improve their productivity and efficiency. No single strategy will work when the problems are this big.”

UMaine’s aging facilities present a special challenge for online learning and the technology support required. Renovation work must incorporate the latest technology in both classroom and residential facilities: “Many of the online credit hours are completed by our resident students in their dorms. We need the technology infrastructure in those buildings to support their learning,” said Waldron. An out-of-date dormitory, Estabrooke Hall, has been repurposed to become office space and a technology-rich learning center.

The plan is already producing results. New first-year freshman enrollment has increased by an average of 10% each of the last two years. In November 2013, the Maine voters approved a $15.5 million bond for laboratory and classroom upgrades at UMaine campuses. Fundraising is underway to enlist donors to provide capital gifts to implement the Blue Sky Plan projects, and the university has increased its commitment of annual capital funds to address facility needs.
The University of Hartford is a private comprehensive university with 7,000 students, and 2.2 million gross square feet. Over 50% of the 60 buildings on campus were built between 1951 and 1975. The campus has grown in the past decade while enrollment has stabilized. Capital investment resources have been limited and the backlog of deferred maintenance is growing.

The university leadership realized that a comprehensive strategy needed to be implemented to document facility needs, utilization of space and the annual costs of operating the campus. Norm Young, the university’s associate vice president for facilities planning and management, outlined the plan: “We started by documenting the deferred maintenance needs and categorized those needs as building investment portfolios. This helped us optimize the impact of investments and focus on critical building systems and strategic priorities. Then we documented the utilization, configuration and quality of our learning spaces to better align instructional needs with available space. And recently we quantified the annual cost of operation by building to understand the full program operating and capital costs.”

As a result, the campus is developing a five-year strategic capital plan that balances investment in building envelope and mechanical systems, utility infrastructure and classroom space. Critical building reliability problems have received top priority. The space utilization analysis found that the campus had more large classrooms (capacity over 30 students) and fewer small classrooms than needed to accommodate the current course enrollment. As a result, the campus is tying together restructuring of classroom space and renovations into a comprehensive strategy for space renewal.

Assessing opportunities to reduce facilities operating costs has also paid dividends. Utility costs have been reduced by 17% and the campus has shifted to performing more preventive maintenance work and, as a result, fewer reactive work orders.

“Our capital investment and facilities management strategies needed to be data-driven, flexible and clearly communicated through a comprehensive plan based on institutional priorities,” said Young.
About Sightlines

Sightlines gives colleges and universities the independent data and perspective they need to make critical decisions about their most valuable assets - their facilities. Sightlines has compiled the industry’s most extensive, verified database, allowing us to benchmark facilities against universities and colleges across the nation. More than 400 campuses rely on Sightlines to help make the most of finite resources. We are reinventing how facilities are managed in higher education.

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